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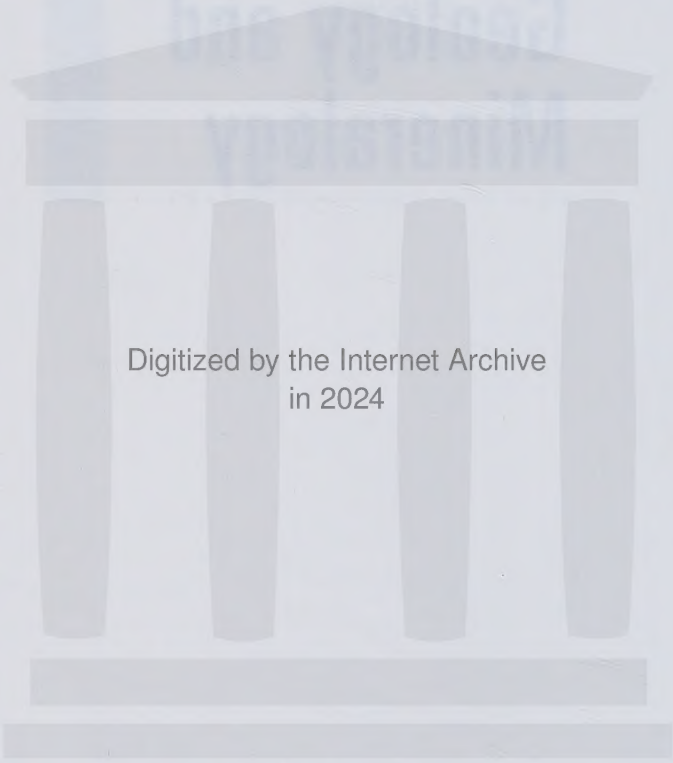
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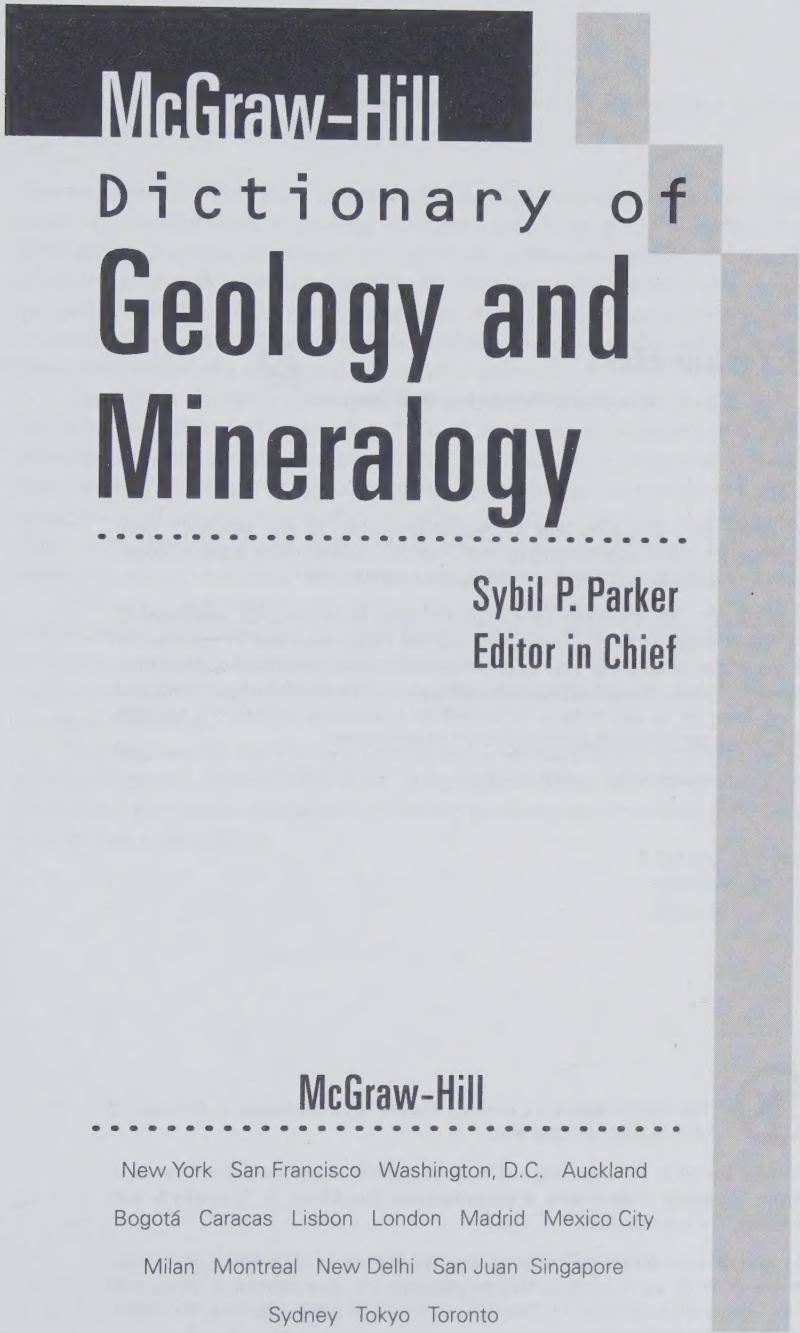
McGraw-Hill

Dictionary of

**Geology and
Mineralogy**



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McGraw-Hill

Dictionary of
**Geology and
Mineralogy**

Sybil P. Parker
Editor in Chief

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Preface

The McGraw-Hill *Dictionary of Geology and Mineralogy* concentrates on the vocabulary of the disciplines in geology (including petrology) and mineralogy. With 8700 terms, it serves as a major compendium of the specialized language that is essential to understanding these fields. This language is usually represented in specialized dictionaries and glossaries. Scientists, engineers, researchers, students, teachers, librarians, writers, and the general public will appreciate the convenience of a single comprehensive reference.

Geology is the study or science of the earth, its history, and its life as recorded in rocks; it includes the study of the geologic features of an area, such as the geometry of rock formations, weathering and erosion, and sedimentation. The branch of geology known as petrology deals with the origin, occurrence, structure, and history of rocks, especially igneous and metamorphic rocks. Mineralogy concerns the study of natural inorganic substances called minerals, including their origin, description, and classification.

All terms, definitions, and pronunciations were drawn from the McGraw-Hill *Dictionary of Scientific and Technical Terms* (5th ed., 1994). The defining terms include synonyms, acronyms, and abbreviations where appropriate. Such synonyms, acronyms, and abbreviations also appear in the alphabetical sequence as cross references.

The McGraw-Hill *Dictionary of Geology and Mineralogy* is a reference that the editors hope will facilitate the communication of ideas and information, and thus serve the needs of readers with either professional or pedagogical interests in these disciplines.

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How to Use the Dictionary

ALPHABETIZATION. The terms in the *McGraw-Hill Dictionary of Geology and Mineralogy* 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:

abnormal fold	acre-yield
a-b plane	Agassiz orogeny
ACF diagram	Age of Fishes

FORMAT. The basic format for a defining entry provides the term in bold-face and the single definition in lightface:

term Definition.

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

term 1. Definition. 2. Definition. 3. Definition.

A simple cross-reference entry appears as:

term See another term.

A cross reference may also appear in combination with definitions:

term 1. Definition. 2. See another term.

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

abyssal See plutonic.

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

aenigmatite See enigmatite.

aggradation See accretion.

barkhan See barchan.

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 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 Also known as synonym. 1. Definition. 2. Definition.

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

MINERAL FORMULAS. Mineral definitions may include a formula indicating the composition.

Pronunciation Key

Vowels

a	as in bat , that
ā	as in bait , crate
ä	as in bother , father
e	as in bet , net
ē	as in beet , treat
i	as in bit , skit
ī	as in bite , light
ō	as in boat , note
ó	as in bought , taut
ú	as in book , pull
ü	as in boot , pool
ə	as in but , sofa
aú	as in crowd , power
ói	as in boil , spoil
yə	as in formula , spectacular
yū	as in fuel , mule

Semivowels/Semiconsonants

w	as in wind , twin
y	as in yet , onion

Stress (Accent)

- ' precedes syllable with primary stress
- ˙ precedes syllable with secondary stress
- ː precedes syllable with variable or indeterminate primary/secondary stress

Consonants

b	as in bib , dribble
ch	as in charge , stretch
d	as in dog , bad
f	as in fix , safe
g	as in good , signal
h	as in hand , behind
j	as in joint , digit
k	as in cast , brick
ƙ	as in Bach (used rarely)
l	as in loud , bell
m	as in mild , summer
n	as in new , dent
<u>n</u>	indicates nasalization of preceding vowel
ŋ	as in ring , single
p	as in pier , slip
r	as in red , scar
s	as in sign , post
sh	as in sugar , shoe
t	as in timid , cat
th	as in thin , breath
<u>th</u>	as in then , breathe
v	as in veil , weave
z	as in zoo , cruise
zh	as in beige , treasure

Syllabication

- Indicates syllable boundary when following syllable is unstressed

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Dictionary of

**Geology and
Mineralogy**

A

- aa channel** A narrow, sinuous channel in which a lava river moves down and away from a central vent to feed an aa lava flow. { ä'ä 'chan·əl }
- aa lava** See block lava. { ä'ä 'lä·və }
- Aalenian** Lowermost Middle or uppermost Lower Jurassic geologic time { ó'lēn·ē·ən }
- a axis** The direction of movement or transport in a tectonite. { 'ā 'ak·sis }
- abandoned channel** See oxbow. { ə'ban·dənd 'chan·əl }
- ablation** The wearing away of rocks, as by erosion or weathering. { ə'blā·shən }
- ablation moraine** 1. A layer of rock particles overlying ice in the ablation of a glacier
2. Drift deposited from a superglacial position through the melting of underlying stagnant ice. { ə'blā·shən mə'rān }
- abnormal anticlinorium** An anticlinorium with axial planes of subsidiary folds diverging upward. { ab'nór·məł ían·tə·kli'nó·rē·əm }
- abnormal fold** An anticlinorium in which there is an upward convergence of the axial surfaces of the subsidiary folds. { ab'nór·məł 'föld }
- abnormal synclinorium** A synclinorium with axial planes of subsidiary folds converging downward. { ab'nór·məł ísin·kli'nó·rē·əm }
- a-b plane** The surface along which differential movement takes place. { ā'bē ,plān }
- abrade** To wear away by abrasion or friction. { ə'brād }
- abrasion** Wearing away of sedimentary rock chiefly by currents of water laden with sand and other rock debris and by glaciers. { ə'brā·zhən }
- abrasion platform** An uplifted marine peneplain or plain, according to the smoothness of the surface produced by wave erosion, which is of large area. { ə'brā·zhən 'plat·fórm }
- abrasive** A small, hard, sharp-cornered rock fragment, used by natural agents in abrading rock material or land surfaces. Also known as abrasive ground. { ə'brās·əv }
- abrasive ground** See abrasive. { ə'brās·əv 'gráund }
- absarokite** An alkalic basalt of about equal portions of olivine, augite, labradorite, and sanidine with accessory biotite, apatite, and opaque oxides; leucite is occasionally present in small amounts. { ab'sā·rə·kīt }
- absolute age** The geologic age of a fossil, or a geologic event or structure expressed in units of time, usually years. Also known as actual age. { 'ab·sə'lüt 'āj }
- absolute time** Geologic time measured in years, as determined by radioactive decay of elements. { 'ab·sə'lüt 'tīm }
- Abukuma-type facies** A type of dynathermal regional metamorphism characterized by low pressure. { ab·ə'kü·mə ,típ 'fā·shēz }
- abyssal** See plutonic. { ə'bis·əl }
- abyssal cave** See submarine fan. { ə'bis·əl 'kāv }
- abyssal fan** See submarine fan. { ə'bis·əl 'fan }
- abyssal floor** The ocean floor, or bottom of the abyssal zone. { ə'bis·əl 'flór }
- abyssal gap** A gap in a sill, ridge, or rise that lies between two abyssal plains. { ə'bis·əl 'gap }
- abyssal hill** A hill 2000 to 3000 feet (600 to 900 meters) high and a few miles wide within the deep ocean. { ə'bis·əl 'hil }

abyssal injection

- abyssal injection** The process of driving magmas, originating at considerable depths, up through deep-seated contraction fissures in the earth's crust. {ə'bis·əl in'jek·shən }
- abyssal plain** A flat, almost level area occupying the deepest parts of many of the ocean basins. {ə'bis·əl 'plān }
- abyssal rock** Plutonic, or deep-seated, igneous rocks. {ə'bis·əl 'rāk }
- abyssal theory** A theory of the origin of ores involving the separation of ore silicates from the liquid stage during the cooling of the earth. {ə'bis·əl 'thē·ə·rē }
- abyssolith** A molten mass of eruptive material passing up without a break from the zone of permanently molten rock within the earth. {ə'bis·ō·lith }
- Acadian orogeny** The period of formation accompanied by igneous intrusion that took place during the Middle and Late Devonian in the Appalachian Mountains. {ə'kād·ē·ən ō'rāj·ə·nē }
- acanthite** Ag₂S A blackish to lead-gray silver sulfide mineral, crystallizing in the orthorhombic system. {ə'kan·thīt }
- acaustobiolith** A noncombustible organic rock, or one formed by organic accumulation of minerals. {lə'kōs·tə'bt·ə·lith }
- acaustophytolith** An acaustobiolith resulting from plant activity, such as a pelagic ooze that contains diatoms. {lə'kōs·tə'fīd·ə·lith }
- accelerated erosion** Soil erosion that occurs more rapidly than soil horizons can form from the parent regolith. {ək'sel·ər·ā·dəd i'rō·zhən }
- accessory ejecta** Pyroclastic material formed from solidified volcanic rocks that are from the same volcano as the ejecta. {ək'ses·ə·rē i'jek·tə }
- accessory mineral** A minor mineral in an igneous rock that does not affect its general character. {ək'ses·ə·rē 'min·rəl }
- accidental ejecta** Pyroclastic rock formed from preexisting nonvolcanic rocks or from volcanic rocks unrelated to the erupting volcano. {ək·sə'īden·təl i'jek·tə }
- accidental inclusion** See xenolith. {ək·sə'īden·təl in'klū·zhən }
- accident block** A solid chip of rock broken off from the subvolcanic basement and ejected from a volcano. {ək·sə'dent 'blāk }
- acclivity** A slope that is ascending from a reference point. {ək'kliv·əd·ē }
- accordant** Pertaining to topographic features that have nearly the same elevation. {ək'kōrd·ənt }
- accordant fold** One of several folds that are similarly oriented. {ək'kōrd·ənt 'fōld }
- accordant summit level** A hypothetical horizontal plane that can be drawn over a broad region connecting mountain summits of similar elevation. {ək'kōrd·ənt 'səm·ət 'lev·əl }
- accretion** 1. Gradual buildup of land on a shore due to wave action, tides, currents, airborne material, or alluvial deposits. 2. The process whereby stones or other inorganic masses add to their bulk by adding particles to their surfaces. Also known as aggradation. 3. See accretion tectonics. {ək'krē·shən }
- accretionary lava ball** A rounded ball of lava that occurs on the surface of an aa lava flow. {ək'krē·shən·ər·ē 'lə·və 'bɔl }
- accretionary limestone** A type of limestone formed by the slow accumulation of organic remains. {ək'krē·shən·ər·ē 'līm·stōn }
- accretionary ridge** A beach ridge located inland from the modern beach, indicating that the coast has been built seaward. {ək'krē·shən·ər·ē 'rij }
- accretion tectonics** The bringing together, or suturing, of terranes; regarded by many geologists as an important mechanism of continental growth. Also known as accretion. {ək'krē·shən tek'tän·iks }
- accretion topography** Topographic features built by accumulation of sediment. {ək'krē·shən tə'päg·rə·fē }
- accretion vein** A type of vein formed by the repeated filling of channels followed by their opening because of the development of fractures in the zone undergoing mineralization. {ək'krē·shən 'vān }
- accretion zone** Any beach area undergoing accretion. {ək'krē·shən 'zɔn }
- accumulation zone** The area where the bulk of the snow contributing to an avalanche was originally deposited. {ək·kyū·myə'lā·shən 'zɔn }

- ACF diagram** A triangular diagram showing the chemical character of a metamorphic rock; the three components plotted are $A = Al_2O_3 + Fe_2O_3 - (Na_2O + K_2O)$, $C = CaO$, $F = FeO + MgO + MnO$. { 'ā·sē'ef 'dī·ə·gram }
- a-c girdle** A girdle of points in a petrofabric diagram that have a trend parallel with the plane of the a and c fabric axes. { 'a'sē 'gærd·əl }
- achondrite** A stony meteorite that contains no chondrules. { lā'kän·drīt }
- achroite** A colorless variety of tourmalines found in Malagasy. { 'ak·rō·it }
- acid clay** A type of clay that gives off hydrogen ions when it dissolves in water { 'as·əd 'klā }
- acidic lava** Extruded felsic igneous magma which is rich in silica (SiO_2 content exceeds 65). { ə'sid·ik 'lā·və }
- acidic rock** Igneous rock containing more than 66% SiO_2 , making it silicic { ə'sid ik 'ræk }
- acid soil** A soil with pH less than 7; results from presence of exchangeable hydrogen and aluminum ions. { 'as·əd 'sōil }
- acid spar** A grade of fluorspar containing over 98% CaF_2 and no more than 1% SiO_2 , produced by flotation; used for the production of hydrofluoric acid. { 'as·əd 'spär }
- acclinal** Without dip; horizontal. { lā'klīn·əl }
- acmite** $NaFeSi_3O_6$. A brown or green silicate mineral of the pyroxene group, often in long, pointed prismatic crystals; hardness is 6-6.5 on Mohs scale, and specific gravity is 3.50-3.55; found in igneous and metamorphic rocks. { 'ak·mīt }
- acre-yield** The average amount of oil, gas, or water taken from one acre of a reservoir { 'ā·kər 'lyēld }
- acrobatholithic** A stage in batholithic erosion where summits of cupolas and stocks are exposed without any exposure of the surface separating the barren interior of the batholith from the mineralized upper part. { ak·rə' bath·əl·lith·ik }
- acromorph** A salt dome. { 'ak·rō·mórf }
- actinolite** $Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$. A green, monoclinic rock-forming amphibole, a variety of asbestos occurring in needlelike crystals and in fibrous or columnar forms; specific gravity 3-3.2. { ak'tin·ə·līt }
- active layer** That part of the soil which is within the suprapermafrost layer and which usually freezes in winter and thaws in summer. Also known as frost zone. { 'ak·tiv 'lā ər }
- active margin** A continental margin that is characterized by earthquakes, volcanic activity, and orogeny resulting from movement of tectonic plates. { 'ak·təv 'mār·jən }
- active permafrost** Permanently frozen ground (permafrost) which, after thawing by artificial or unusual natural means, reverts to permafrost under normal climatic conditions. { 'ak·tiv 'pər·mə·fróst }
- active volcano** A volcano capable of venting lava, pyroclastic material, or gases { 'ak·tiv ·vəl'kā·nō }
- activity ratio** The ratio of plasticity index to percentage of clay-sized minerals in sediment. { 'ak'tiv·əd·ē·rā·shō }
- actual age** See absolute age. { 'ak·chə·wəl āj }
- actual relative movement** See slip { 'ak·chə·wəl 'rel·ə·tiv 'müv·mənt }
- acute angle block** A fault block in which the strike of strata on the down-dip side meets a diagonal fault at an acute angle. { ə'kyüt ləŋ·gəl 'blāk }
- acute bisectrix** A bisecting line of the acute angle of the optic axes of biaxial minerals { ə'kyüt ·bī'sek·triks }
- adamantine spar** A silky brown variety of corundum { 'ad·ə'man·tēn 'spär }
- adamellite** See quartz monzonite. { ə'dam·ə·līt }
- adamite** $Zn_3(AsO_4)_2(OH)$. A colorless, white, or yellow mineral consisting of basic zinc arsenate, crystallizing in the orthorhombic system; hardness is 3.5 on Mohs scale, and specific gravity is 4.34-4.35. { 'ad·ə·mīt }
- adamsite** Greenish-black mica. { 'a·dəm·zīt }
- adcumulus** Pertaining to the growth of a cumulus crystal so as to exclude the growth of other phases; results in a monomineralic rock. { ad'kyü·myə·ləs }
- adelite** $CaMg(AsO_4)(OH,F)$. A colorless to gray, bluish-gray, yellowish-gray, yellow, or

ader wax

light green orthorhombic mineral consisting of a basic arsenate of calcium and magnesium; usually occurs in massive form. { 'ad·əl·īt }

ader wax See ozocerite. { 'äd·ər·waks }

adiagnostic Pertaining to a rock texture in which identification of individual components is not possible macroscopically or microscopically; applied especially to igneous rock. { 'ä·dī·əg'näs·tik }

adinole An argillaceous sediment that has undergone albitization at the margin of a basic intrusion. { 'ad·ən·öl }

adipocerite See hatchettite. { 'ad·ə'päs·ə·rīt }

adipocire See hatchettite. { 'ad·ə'pä·sir }

admixture One of the lesser or subordinate grades of sediment. { 'ad'miks·chər }

adobe Heavy-textured clay soil found in the southwestern United States and in Mexico. { ə'dō·bē }

adobe flats Broad flats that are floored with sandy clay and have been formed from sheet floods. { ə'dō·bē 'flats }

adolescence Stage in the cycle of erosion following youth and preceding maturity. { 'ad·əl'es·əns }

adolescent coast A type of shoreline characterized by low but nearly continuous sea cliffs. { 'ad·əl'es·ənt·kōst }

adularia A weakly triclinic form of the mineral orthoclase occurring in transparent, colorless to milky-white pseudo-orthorhombic crystals. { 'aj·ə'la·rē·ə }

adularization Replacement by or introduction of the mineral adularia. { ə'jül·ə·rə'zä·shən }

advance 1. A continuing movement of a shoreline toward the sea. 2. A net movement over a specified period of time of a shoreline toward the sea. { əd'vans }

adventive cone A volcanic cone that is on the flank of and subsidiary to a larger volcano. Also known as lateral cone; parasitic cone. { ad'ven·tiv 'kōn }

adventive crater A crater opened on the flank of a large volcanic cone. { ad'ven·tiv 'krät·ər }

aegirine $\text{NaFe}(\text{SiO}_3)_2$ A brown or green clinopyroxene occurring in alkali-rich igneous rocks. Also known as aegirite. { 'ä·gə·rēn }

aegirite See aegirine. { 'ä·gə·rīt }

aenigmatite See enigmatite. { ə'nig·mə'tīt }

aerogeology The geologic study of earth features by means of aerial observations and aerial photography. { 'e·rō·jē'al·ə·jē }

aerohydrous mineral A mineral containing water in small cavities { 'e·rō'hī·drəs 'min·rəl }

aerolite See stony meteorite. { 'e·rō'līt }

aerosiderite A meteorite composed principally of iron. { 'e·rō'sid·ə·rīt }

affine deformation A type of deformation in which very thin layers slip against each other so that each moves equally with respect to its neighbors; generally does not result in folding. { ə'fīn 'dē·fōr'mä·shən }

Aftonian interglacial Post-Nebraska interglacial geologic time. { 'af'ton·ē·ən 'in·tər'glä·shəl }

afwillite $\text{Ca}_2\text{Si}_2\text{O}_4(\text{OH})_6$ A colorless mineral consisting of a hydrous calcium silicate and occurring in monoclinic crystals; specific gravity is 2.6. { 'af·wəl'īt }

agalite A mineral with the same composition as talc but with a less soapy feel; used as a filler in writing paper. { 'a·gəl'īt }

agalmatolite A soft, waxy, gray, green, yellow, or brown mineral or stone, such as pinitite and steatite; used by the Chinese for carving images. Also known as figure stone; lardite; pagodite. { 'a·gəl'mad·əl'īt }

agaric mineral See rock milk. { ə'gar·ik 'min·rəl }

Agassiz orogeny A phase of diastrophism confined to North America Cordillera occurring at the boundary between the Middle and Late Jurassic. { 'ag·ə·sē ó'räj·ə·nē }

Agassiz Valleys Undersea valleys in the Gulf of Mexico between Cuba and Key West. { 'ag·ə·sē 'val·ēz }

- agate** SiO_2 A fine-grained, fibrous variety of chalcedony with color banding or irregular clouding. { 'ag·ət }
- agate jasper** An impure variety of quartz consisting of jasper and agate. Also known as jaspagate. { 'ag·ət 'jas·pər }
- agatized wood** See silicified wood. { 'ag·ə·tīzd 'wúd }
- age** 1. Any one of the named epochs in the history of the earth marked by specific phases of physical conditions or organic evolution, such as the Age of Mammals.
2. One of the smaller subdivisions of the epoch as geologic time, corresponding to the stage or the formation, such as the Lockport Age in the Niagara Epoch. { āj }
- aged** Of a ground configuration, having been reduced to base level. { 'ā·jəd }
- age determination** Identification of the geologic age of a biological or geological specimen by using the methods of dendrochronology or radiometric dating. { 'āj di·tər·mə'nā·shən }
- aged shore** A shore long established at a constant level and adjusted to the waves and currents of the sea. { 'ā·jəd 'shɔr }
- Age of Fishes** An informal designation of the Silurian and Devonian periods of geologic time. { 'āj əv 'fɪʃ·əz }
- Age of Mammals** An informal designation of the Cenozoic era of geologic time { 'āj əv 'mam·əlz }
- Age of Man** An informal designation of the Quaternary period of geologic time { 'āj əv 'mæn }
- age ratio** The ratio of the amount of daughter to parent isotope in a mineral being dated radiometrically. { 'āj 'rā·shō }
- agglomerate** A pyroclastic rock composed of angular rock fragments in a matrix of volcanic ash; typically occurs in volcanic vents. { ə'gläm·ə·rət }
- agglutinate cone** See spatter cone. { ə'glüt·ən·ət·kōn }
- aggradation** See accretion. { 'ag·rə'dā·shən }
- aggradation recrystallization** Recrystallization resulting in the enlargement of crystals { 'ag·rə'dā·shən rē·kris·tə·lə'zā·shən }
- aggraded valley floor** The surface of a flat deposit of alluvium which is thicker than the stream channel's depth and is formed where a stream has aggraded its valley. { ə'grād·əd 'val·ē 'flɔr }
- aggraded valley plain** See alluvial plain. { ə'grād·əd 'val·ē 'plæn }
- aggregate** A collection of soil grains or particles gathered into a mass { 'ag rə gət }
- aggregate structure** A mass composed of separate small crystals, scales, and grains that, under a microscope, extinguish at different intervals during the rotation of the stage. { 'ag·rə·gət 'strək·chər }
- aggressive magma** A magma that forces itself into place { ə'gres iv 'mag mə }
- agmatite** 1. A migmatite that contains xenoliths 2. Fragmental plutonic rock with granitic cement. { 'ag·mə'tīt }
- agpaitite** A group of igneous rocks containing feldspathoids, includes naujaite, lujavrite, and kakortokite. { 'ag·pə'īt }
- agricere** A waxy or resinous organic coating on soil particles. { 'ag·rə'sir }
- agricolite** See eulytite. { ə'grɪk·ə'līt }
- agricultural geology** A branch of geology that deals with the nature and distribution of soils, the occurrence of mineral fertilizers, and the behavior of underground water. { 'ag·rəkəl·chə·rəl jē'əl·ə·jē }
- aguilarite** Ag_2SeS An iron-black mineral associated with argentite and silver in Mexico { 'äg·ə'lā·rīt }
- ahlfeldite** $(\text{Ni},\text{Co})\text{SeO}_3 \cdot 2\text{H}_2\text{O}$ A triclinic mineral identified as green to yellow crystals with a reddish-brown coating, consisting of a hydrous selenite of nickel. { əl'fel·dīt }
- aiguille** The needle-top of the summit of certain glaciated mountains, such as near Mont Blanc. { 'ā'gwēl }
- aikinite** PbCuBiS_4 A mineral crystallizing in the orthorhombic system and occurring massive and in gray needle-shaped crystals, hardness is 2 on Mohs scale, and specific gravity is 7.07. Also known as needle ore. { 'ā·kə'nīt }
- ailsyte** An alkalic microgranite containing a considerable amount of riebeckite. Also known as paisanite. { 'āl·sīt }

air gap

air gap See wind gap. { 'er ,gæp }

air heave Deformation of plastic sediments on a tidal flat as a result of the growth of air pockets in them; the growth occurs by accretion of smaller air bubbles oozing through the sediment. { 'er ,hēv }

air sac See vesicle. { 'er ,sæk }

air volcano An eruptive opening in the earth from which large volumes of gas emanate, in addition to mud and stones; a variety of mud volcano. { 'er ,væll'kæ ,nɔ }

akaganeite β -FeO(OH) A mineral found in meteorites and considered to be formed in flight or by alteration. { ,æ ,kə'gæn ,ē,tīt }

akenobeite A form of aplite composed of orthoclase and oligoclase with quartz in the interstices. { ,æ ,kə'nɔb ,ē,it }

akerite A rock composed of quartz syenite containing soda microcline, oligoclase, and augite. { 'ò ,kə,rīt }

akermanite $\text{Ca}_2\text{MgSi}_2\text{O}_7$ Anhydrous calcium-magnesium silicate found in igneous rocks; a melilite. { 'ò ,kær ,mæn,īt }

AKF diagram A triangular diagram showing the chemical character of a metamorphic rock in which the three components plotted are $A = \text{Al}_2\text{O}_3 + \text{Fe}_2\text{O}_3 + (\text{CaO} + \text{Na}_2\text{O})$, $K = \text{K}_2\text{O}$, and $F = \text{FeO} + \text{MgO} + \text{MnO}$. { lā'kæ'lef 'dī ,æ,gram }

akrochordite $\text{Mn}_4\text{Mg}(\text{AsO}_4)_2(\text{OH})_4 \cdot 4\text{H}_2\text{O}$ Mineral consisting of a hydrous basic manganese magnesium arsenate and occurring in reddish-brown rounded aggregates; hardness is 3 on Mohs scale, and specific gravity is 3.2. { ,æk ,rò'kòr,dīt }

aktological Nearshore shallow-water areas, conditions, sediments, or life { ,æk ,tə 'lāj ,æ ,kəl }

alabandite MnS A complex sulfide mineral that is a component of meteorites and usually occurs in iron-black massive or granular form. Also known as manganblende. { ,æl ,ə'ban,dīt }

alabaster 1. $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ A fine-grained, colorless gypsum. 2. See onyx marble. { 'æl ,ə ,bas ,tær }

alamosite PbSiO_3 A white or colorless monoclinic mineral consisting of lead silicate and occurring in radiating fibers; hardness is 4.5 on Mohs scale, and specific gravity is 6.5. { ,æl ,ə'mò,sīt }

alaskaite A light lead-gray sulfide mineral consisting of a mixture of lead, silver, copper, and bismuth. { ə'las ,kæ,īt }

alaskite A granitic rock composed mainly of quartz and alkali feldspar, with few dark mineral components. { ə'las ,kīt }

albite Greenish to brownish bitumen which becomes white when exposed to air; contains up to 15% oxygen; fusible; insoluble in organic solvents; varies from soft to hard, porous to compact; atomic ratio H/C 1.75-2.25. { 'æl ,bæ ,fīt }

albanite A melanocratic leucitite found near Rome, Italy. { 'æl ,bæn ,tīt }

albertite Jet-black, brittle natural hydrocarbon with conchoidal fracture, hardness of 1-2, and specific gravity of approximately 1.1. Also known as asphaltite coal. { 'æl ,bær ,tīt }

Albian Uppermost Lower Cretaceous geologic time. { 'æl ,bē ,ən }

albic horizon A soil horizon from which clay and free iron oxides have been removed or in which the iron oxides have been segregated. { 'æl ,bik hæ'rīz ,ən }

Albionian Lower Silurian geologic time. { ,æl ,bē'ɔn ,ē ,ən }

albite $\text{NaAlSi}_3\text{O}_8$ A colorless or milky-white variety of plagioclase of the feldspar group found in granite and various igneous and metamorphic rocks. Also known as soda-clase; sodium feldspar; white feldspar; white schorl. { 'æl ,bīt }

albite-epidote-amphibolite facies Rocks of metamorphic type formed under intermediate temperature and pressure conditions by regional metamorphism or in the outer contact metamorphic zone. { 'æl ,bīt 'ep ,ədòt ,am'fīb ,ə ,līt 'fā ,shēz }

albitite A porphyritic dike rock that is coarse-grained and composed almost wholly of albite; common accessory minerals are muscovite, garnet, apatite, quartz, and opaque oxides. { 'æl ,bæ ,tīt }

albitization The formation of albite in a rock as a secondary mineral. { ,æl ,bəd ,ə ,zā ,shən }

- albitophyre** A porphyritic rock that contains albite phenocrysts in a groundmass composed mostly of albite. {al'bid·ə'fir}
- Alboll** A suborder of the soil order Mollisol with distinct horizons, wet for some part of the year; occurs mostly on upland flats and in shallow depressions. {al'ból}
- alboranite** Olivine-free hypersthene basalt. {al·bə'ra·nīt}
- alcove** A large niche formed by a stream in a face of horizontal strata. {al'kōv}
- alcove lands** Terrain where the mud rocks or sandy clays and shales that compose the hills (badlands) are interstratified by occasional harder beds; the slopes are terraced. {al'kōv·lanz}
- alee basin** A basin formed in the deep sea by turbidity currents aggrading courses where the currents were deflected around a submarine ridge. {ə'lē·bās·ən}
- aleishtite** A bluish or greenish mixture of dickite and other clay minerals. {ə'lē·ish·tīt}
- Alexandrian** Lower Silurian geologic time. {al·ig'zan·dre·ən}
- alexandrite** A gem variety of chrysoberyl, emerald green in natural light but red in transmitted or artificial light. {al·ig'zan·drīt}
- Alfisol** An order of soils with gray to brown surface horizons, a medium-to-high base supply, and horizons of clay accumulation. {al·fə'sōl}
- algal** Formed from or by algae. {al·gəl}
- algal biscuit** A disk-shaped or spherical mass, up to 20 centimeters in diameter made up of carbonate that is probably the result of precipitation by algae. {al·gəl·'bis·kət}
- algal coal** Coal formed mainly from algal remains. {al·gəl·kōl}
- algal limestone** A type of limestone either formed from the remains of calcium-secreting algae or formed when algae bind together the fragments of other lime-secreting organisms. {al·gəl·'līm·stōn}
- algal pit** An ablation depression that is small and contains algae. {al·gəl·'pīt}
- algal reef** An organic reef which has been formed largely of algal remains and in which algae are or were the main lime-secreting organisms. {al·gəl·rēf}
- algal ridge** Elevated margin of a windward coral reef built by actively growing calcareous algae. {al·gəl·rīj}
- algal rim** Low rim built by actively growing calcareous algae on the lagoonal side of a leeward reef or on the windward side of a patch reef in a lagoon. {al·gəl·rīm}
- algal structure** A deposit, most frequently calcareous, with banding irregular concentric structures, crusts, and pseudopisolites or pseudoconcretionary forms resulting from organic, colonial secretion and precipitation. {al·gəl·'strək·chər}
- Algerian onyx** See onyx marble. {al'jer·ē·ən·'ān·iks}
- alginite** See algite. {al·jə·nīt}
- algite** The petrological unit that constitutes algal material present in considerable amounts in algal or boghead coal. Also known as alginite. {al·jīt}
- algononite** Cu₂As A steel gray to silver white mineral consisting of copper arsenide and occurring as minute hexagonal crystals or in massive and granular form. {al'gäd·ə·nīt}
- Algoman orogeny** Orogenic episode affecting Archean rocks of Canada about 2.4 billion years ago. Also known as Kenoran orogeny. {al'gōm·ən·ó'rāj·ə·nē}
- Algonkian** Geologic time between the Archean and Paleozoic. Also known as Proterozoic. {al'gǎŋ·kē·ən}
- alkali** See alkalic. {al·kə·lī}
- alkalic** Also known as alkali. **1.** Of igneous rock, containing more than average alkali (K₂O and Na₂O) for that clan in which they are found. **2.** Of igneous rock, having feldspathoids or other minerals, such as acmite, so that the molecular ratio of alkali to silica is greater than 1:6. **3.** Of igneous rock, having a low alkali-lime index (51 or less). {al'kal·ik}
- alkali-calcic series** The series of igneous rocks with weight percentage of silica in the range 51-55, and weight percentages of CaO and K₂O + Na₂O equal. {al·kə·lī·'kal·sik·sīr·ēz}
- alkali feldspar** A feldspar composed of potassium feldspar and sodium feldspar, such

alkali flat

as orthoclase, microcline, albite, and anorthoclase; all are considered alkali-rich. { 'al·kə·lī 'feld·spar }

alkali flat A level lakelike plain formed by the evaporation of water in a depression and deposition of its fine sediment and dissolved minerals. { 'al·kə·lī ,flat }

alkali-lime index The percentage by weight of silica in a sequence of igneous rocks on a variation diagram where the weight percentages of CaO and of K₂O and Na₂O are equal. { 'al·kə·lī 'līm 'in·deks }

alkaline soil Soil containing soluble salts of magnesium, sodium, or the like, and having a pH value between 7.3 and 8.5. { 'al·kə·līn 'sōil }

alkali soil A soil, with salts injurious to plant life, having a pH value of 8.5 or higher. { 'al·kə·lī 'sōil }

allactite Mn₇(AsO₄)₂(OH)₈ Brownish-red mineral consisting of a basic manganese arsenate. { ə'lak·tīt }

allalinite An altered gabbro with original texture and euhedral pseudomorphs. { ə'lal·ə·nīt }

allanite (Ca,Ce,La,Y)₂(Al,Fe)₃Si₃O₁₂(OH) Monoclinic mineral distinguished from all other members of the epidote group of silicates by a relatively high content of rare earths. Also known as bucklandite; cerine; orthite; treanorite. { 'al·ə·nīt }

alcharite A lead gray mineral, supposed to be a lead arsenic sulfide and known only crystallographically as orthorhombic crystals. { 'əl·kə·rīt }

alleganyite Mn₃(SiO₄)₂(OH)₂ A pink mineral consisting of basic manganese silicate. { 'al·ə'lgā·nē·rīt }

Alleghenian Lower Middle Pennsylvanian geologic time. { 'al·ə'lgān·ē·ən }

Alleghenian orogeny Pennsylvanian and Early Permian orogenic episode which deformed the rocks of the Appalachian Valley and the Ridge and Plateau provinces. { 'al·ə'lgān·ē·ən ə'rāj·ə·nē }

allemontite AsSb Rhombohedral, gray or reddish, native antimony arsenide occurring in reniform masses. Also known as arsenical antimony. { ə'lə'män·fīt }

allewardite See rectorite. { ə'l·ə'vār·dīt }

allivalite A form of gabbro composed of anorthite and olivine; accessories are augite, apatite, and opaque iron oxides. { 'al·ə·və·līt }

allochem Sediment formed by chemical or biochemical precipitation within a depositional basin; includes intraclasts, oolites, fossils, and pellets. { ə'lə·kem }

allochemical metamorphism Metamorphism accompanied by addition or removal of material so that the bulk chemical composition of the rock is changed. { ə'lə·kem·ə·kəl 'med·ə'mòr·fiz·əm }

allochete A porphyritic igneous rock composed of phenocrysts of labradorite, orthoclase, titanite, nepheline, magnetite, and apatite in a groundmass of augite, biotite, magnetite, hornblende, nepheline, and orthoclase. { ə'lə'ked·rīt }

allochthon A rock that was transported a great distance from its original deposition by some tectonic process, generally related to overthrusting, recumbent folding, or gravity sliding. { ə'läk·thən }

allochthonous Of rocks whose primary constituents have not been formed in situ. { ə'läk·thə·nəs }

allochthonous coal A type of coal arising from accumulations of plant debris moved from their place of growth and deposited elsewhere. { ə'läk·thə·nəs 'kòl }

allogene A mineral or rock that has been moved to the site of deposition. Also known as allothigene; allothogene. { ə'lə·jēn }

allogenic See allothogenic. { ə'lə·jēn·ik }

allomorphism See paramorphism. { ə'lə'mòr·fiz·əm }

allomorphite A mineral consisting of barite that is pseudomorphous after anhydrite. { ə'lə'mòr·fīt }

allophane Al₂O₃·SiO₂·nH₂O A clay mineral composed of hydrated aluminosilicate gel of variable composition; P₂O₅ may be present in appreciable quantity. { ə'lə·'fān }

allothimorph A metamorphic rock constituent which retains its original crystal outlines in the new rock. { ə'läth·ə'mòrf }

- allothogenic** Formed from preexisting rocks which have been transported from another location. Also known as allogenic. {ə'lāth·ə'ljən·ik }
- allotrioblast** See xenoblast. { 'a·lə'trē·ə'blast }
- allotriomorphic** Of minerals in igneous rock not bounded by their own crystal faces but having their outlines impressed on them by the adjacent minerals. Also known as anhedral; xenomorphic. { ə'lā·trē·ə'l'mór·fik }
- alluvial** **1.** Of a placer, or its associated valuable mineral, formed by the action of running water. **2.** Pertaining to or consisting of alluvium, or deposited by running water. { ə'lüv·ē·əl }
- alluvial cone** An alluvial fan with steep slopes formed of loose material washed down the slopes of mountains by ephemeral streams and deposited as a conical mass of low slope at the mouth of a gorge. Also known as cone delta, cone of dejection, cone of detritus; debris cone; dry delta; hemicone; wash. { ə'lüv·ē·əl 'kōn }
- alluvial dam** A sedimentary deposit which is built by an overloaded stream and dams its channel; especially characteristic of distributaries on alluvial fans. { ə'lüv·ē·əl 'dam }
- alluvial deposit** See alluvium. { ə'lüv·ē·əl di'pāz·ət }
- alluvial fan** A fan-shaped deposit formed by a stream either where it issues from a narrow mountain valley onto a plain or broad valley, or where a tributary stream joins a main stream. { ə'lüv·ē·əl 'fan }
- alluvial flat** A small alluvial plain having a slope of about 5 to 20 feet per mile (1.5 to 6 meters per 1600 meters) and built of fine sandy clay or adobe deposited during flood. { ə'lüv·ē·əl 'flat }
- alluvial ore deposit** A deposit in which the valuable mineral particles have been transported and left by a stream. { ə'lüv·ē·əl lór di'pāz·ət }
- alluvial plain** A plain formed from the deposition of alluvium usually adjacent to a river that periodically overflows. Also known as aggraded valley plain; river plain; wash plain; waste plain. { ə'lüv·ē·əl 'plān }
- alluvial slope** A surface of alluvium which slopes down from mountainsides and merges with the plain or broad valley floor. { ə'lüv·ē·əl 'slōp }
- alluvial soil** A soil deposit developed on floodplain and delta deposits. { ə'lüv·ē·əl 'sōil }
- alluvial terrace** A terraced embankment of loose material adjacent to the sides of a river valley. Also known as built terrace; drift terrace; fill terrace; stream-built terrace; wave-built platform; wave-built terrace. { ə'lüv·ē·əl 'ter·əs }
- alluvial valley** A valley filled with a stream deposit. { ə'lüv·ē·əl 'val·ē }
- alluviation** The deposition of sediment by a river. { ə'lüv·ē'ā·shən }
- alluvion** See alluvium. { ə'lüv·ē·ən }
- alluvium** The detrital materials that are eroded, transported, and deposited by streams an important constituent of shelf deposits. Also known as alluvial deposit; alluvion. { ə'lüv·ē·əm }
- almandine** $Fe_3Al_2(SiO_4)_4$ A variety of garnet, deep red to brownish red, found in igneous and metamorphic rocks in many parts of world; used as a gemstone and an abrasive. Also known as almandite. { 'al·mən·dēn }
- almandite** See almandine. { 'al·mən·dīt }
- almeriite** See natroalunite. { 'al·mə'rē·īt }
- alnoite** A variety of biotite lamprophyres characterized by lepidomelane phenocrysts, it is feldspar-free but contains melinite, perovskite, olivine, and carbonate in the matrix. { 'al·nə·wīt }
- aloisite** A brown to violet mineral consisting of a hydrous subsilicate of calcium, iron, magnesium, and sodium, and occurring in amorphous masses. { 'a·lə'wis·ē·īt }
- Alpides** Great east-west structural belt including the Alps of Europe and the Himalayas and related mountains of Asia; mostly folded in Tertiary times. { 'al·pə'dēz }
- alpine** Similar to or characteristic of a lofty mountain or mountain system. { 'al·pīn }
- Alpine orogeny** Jurassic through Tertiary orogeny which affected the Alpides. { 'al·pīn ó'rāj·ə·nē }
- alpine-type facies** High-pressure, low-temperature (150-400°C) dynamothermal meta-

alpinotype tectonics

morphism characterized by the presence of the pumpellyite and glaucophane schist facies. { 'al·pīn'tīp 'fā·shēz }

alpinotype tectonics Tectonics of the alpine-type geosynclinal mountain belts characterized by deep-seated plastic folding, plutonism, and lateral thrusting. { al'pē·nō·tīp 'tek'tān·iks }

alsbachtite A plutonic rock of sodic plagioclase, quartz, and subordinate orthoclase and accessory garnet, biotite, and muscovite; a variety of porphyritic granodiorite. { 'ōlz·bā·kīt }

alstonite See bromlite. { 'ōlz·tə·nīt }

Altaid orogeny Mountain building in Central Europe and Asia that occurred from the late Carboniferous to the Permian. { 'al·tād ó'rāj·ə·nē }

altaite PbTe A tin-white lead-tellurium mineral occurring as isometric crystals with tin ores in central Asia. { al'tā·īt }

alteration A change in a rock's mineral composition. { 'ōl·tə'rā·shən }

altiplanation A phase of solifluction that may be seen as terracelike forms, flattened summits, and passes that are mainly accumulations of loose rock. { 'al·tə·plā'nā·shən }

altiplanation surface A flat area fronted by scarps a few to hundreds of feet in height; the area ranges from several square rods to hundreds of acres. Also known as altiplanation terrace. { 'al·tə·plā'nā·shən 'sær·fəs }

altiplanation terrace See altiplanation surface. { 'al·tə·plā'nā·shən 'ter·əs }

Altitheermal A dry postglacial interval centered about 5500 years ago during which temperatures were warmer than at present. { 'al·tə'thər·məł }

altitheermal soil Soil recording a period of rising or high temperature. { 'al·tə'thər·məł 'sōil }

alum $\text{KAl}(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$ A colorless, white, astringent-tasting evaporite mineral. { 'al·əm }

alum coal Argillaceous brown coal rich in pyrite in which alum is formed on weathering. { 'al·əm 'kōl }

aluminite $\text{Al}_2(\text{SO}_4)(\text{OH})_4 \cdot 7\text{H}_2\text{O}$ Native monoclinic hydrous aluminum sulfate; used in tanning, papermaking, and water purification. Also known as websterite. { ə'lūm·ənīt }

aluminum ore A natural material from which aluminum may be economically extracted. { ə'lūm·ənəm 'ōr }

alumite See alunite. { 'al·ə·mīt }

alum rock See alunite. { 'al·əm 'rāk }

alum schist See alum shale. { 'al·əm 'shist }

alum shale A shale containing pyrite that is decomposed by weathering to form sulfuric acid, which acts on potash and alumina constituents to form alum. Also known as alum schist; alum slate. { 'al·əm 'shāl }

alum slate See alum shale. { 'al·əm 'slāt }

alumstone See alunite. { 'al·əm'stōn }

alunite $\text{KAl}_3(\text{SO}_4)_2(\text{OH})_6$ A mineral composed of a basic potassium aluminum sulfate; it occurs as a hydrothermal-alteration product in feldspathic igneous rocks and is used in the manufacture of alum. Also known as alumite; alum rock; alumstone. { 'al·yə·nīt }

alunization Introduction of or replacement by alunite. { 'al·yə·nə'tə'zā·shən }

alunogen $\text{Al}_2(\text{SO}_4)_3 \cdot 18\text{H}_2\text{O}$ A white mineral occurring as a fibrous incrustation of hydrated aluminum sulfate by volcanic action or decomposition of pyrite. Also known as feather alum; hair salt. { ə'lūn·ə·jən }

alurgite A purple manganiferous variety of muscovite mica. { 'a·lūr·jīt }

alyphite Bitumen that yields a high percentage of open-chain aliphatic hydrocarbons upon distillation. { 'al·ə·fīt }

amalgam A silver mercury alloy occurring in nature. { ə'mal·gəm }

amarantite $\text{Fe}(\text{SO}_4)(\text{OH}) \cdot 3\text{H}_2\text{O}$ An amaranth red to brownish- or orange-red triclinic mineral consisting of a hydrated basic sulfate of ferric iron. { 'a·mə'ran'tīt }

amarillite $\text{NaFe}(\text{SO}_4)_2 \cdot 6\text{H}_2\text{O}$ A pale greenish-yellow mineral consisting of a hydrous sodium ferric sulfate. { 'a·mə'rī'līt }

- amazonite** An apple-green, bright-green, or blue-green variety of microcline found in the United States and Russia; sometimes used as a gemstone. Also known as amazon stone. { ă·mălzō·nīt }
- amazon stone** See amazonite. { 'a·mə·zăn·stōn }
- ambatoarinite** A mineral consisting of a carbonate of cerium metals and strontium { ʼam·bătō'ă·rō·nīt }
- amber** A transparent yellow, orange, or reddish-brown fossil resin derived from a coniferous tree; used for ornamental purposes; it is amorphous, has a specific gravity of 1.05-1.10, and a hardness of 2-2.5 on Mohs scale. { 'am·bər }
- amberoid** A gem-quality mineral composed of small fragments of amber that have been reunited by heat or pressure. { 'am·bərōid }
- amblygonite** (Li,Na)AlPO₄(F,OH) A mineral occurring in white or greenish cleavable masses and found in the United States and Europe; important ore of lithium. { am'bli·gə·nīt }
- ambonite** Any of a group of hornblende-biotite andesites and dacites containing cordierite. { 'am·bənīt }
- ambrite** A yellow-gray, semitransparent fossil resin resembling amber, found in large masses in New Zealand coal fields and regarded as a semiprecious stone. { 'am·brīt }
- ambrosine** A yellowish to clove-brown variety of amber rich in succinic acid, occurs as rounded masses in phosphate beds near Charleston, S.C. { 'am·brəzēn }
- amemolite** A stalactite with one or more changes in its axis of growth. { ə'mem·ə·līt }
- American jade** See californite. { ə'mer·ə·kən 'jäd }
- amesite** (Mg,Fe)₃Al₂Si₂O₁₀(OH)₂ Apple-green phyllosilicate mineral occurring in foliated hexagonal plates. { 'ăm·zīt }
- amethyst** The transparent purple to violet variety of the mineral quartz; used as a jeweler's stone. { 'am·ə·thist }
- amherstite** A syenodiorite containing andesine and antiperthite. { 'a·mər'stīt }
- amianthus** A fine, silky variety of asbestos, such as chrysotile. { ʼə·mē'an·thəs }
- Ammanian** Middle Upper Cretaceous geologic time. { 'ă'man·ē·ən }
- ammonioborite** (NH₄)₂B₁₀O₁₆·5H₂O A white mineral consisting of a hydrated ammonium borite and occurring as aggregates of minute plates. { ə·mōn·ē·ō'bōr·īt }
- ammoniojarosite** (NH₄)Fe₃(SO₄)₂(OH)₆ Pale-yellow mineral consisting of basic ferric ammonium sulfate. { ə·mōn·ē·ō·jə'rō'sīt }
- amoeboid fold** A fold or structure, such as an anticline, having no prevailing trend or definite shape. { ə'mē·boid 'fōld }
- amorphous mineral** A mineral without definite crystalline structure { ə'mōr·fəs 'min·rəl }
- amorphous peat** Peat composed of fine grains of organic matter, it is plastic like wet, heavy soil, with all original plant structures destroyed by decomposition of cellulosic matter. { ə'mōr·fəs 'pēt }
- amosite** A monoclinic amphibole form of asbestos having long fibers and a high iron content; used in insulation. { 'am·ə·zīt }
- ampelite** A graphite schist containing silica, alumina, and sulfur used as a refractory { 'am·pə·līt }
- amphibole** Any of a group of rock-forming, ferromagnesian silicate minerals commonly found in igneous and metamorphic rocks; includes hornblende, anthophyllite, tremolite, and actinolite (asbestos minerals). { 'am·fə·bōl }
- amphibolite** A crystalloblastic metamorphic rock composed mainly of amphibole and plagioclase; quartz may be present in small quantities. { am'fib·ə·līt }
- amphibolite facies** Rocks produced by medium- to high-grade regional metamorphism { am'fib·ə·līt 'fā·shēz }
- amphibolization** Formation of amphibole in a rock as a secondary mineral { am·fib·ə·lə'zā·shən }
- amphigene** See leucite. { 'am·fə·jēn }
- amphimorphic** A rock or mineral formed by two geologic processes { ʼam·fə'mor·fik }

amphisapropel

- amphisapropel** Cellulosic ooze containing coarse plant debris. { ʼəm'fɪz·ə'prɔːpəl }
- amphoterite** A stony meteorite containing bronzite and olivine with some oligoclase and nickel-rich iron. { ʼəm'fɑːd·ə'rɪt }
- amygdaloid** Lava rock containing amygdules. Also known as amygdaloidal lava. { ə'mɪg·də'lɔɪd }
- amygdaloidal lava** See amygdaloid. { ə'mɪg·də'lɔɪd·əl'läv·ə }
- amygdule** 1. A mineral filling formed in vesicles (cavities) of lava flows; it may be chalcedony, opal, calcite, chlorite, or prehnite. 2. An agate pebble. { ə'mɪg·dyül }
- anabohsite** A variety of olivine-pyroxenite containing hornblende and hypersthene and a high proportion (about 30%) of magnetite and ilmenite. { ʼæn·ə'bɔ'hɪt'sɪt }
- anaclinal** Having a downward inclination opposite to that of a stratum { ʼæn·ə'kɪlɪn·əl }
- anaerobic sediment** A highly organic sediment formed in the absence or near absence of oxygen in water that is rich in hydrogen sulfide. { ʼæn·ə'rɔb·ɪk 'sed·ə'mənt }
- analbite** A triclinic albite which is not stable and becomes monoclinic at about 700°C. { ə'næl'bɪt }
- analcime** NaAlSi₃O₆·H₂O A white or slightly colored isometric zeolite found in diabase and in alkali-rich basalts. Also known as analcite. { ə'næl'sɛm }
- analcimite** An extrusive or hypabyssal rock that consists primarily of pyroxene and analcime. { ə'næl·sə'mɪt }
- analcimization** The replacement in igneous rock of feldspars or feldspathoids by analcime. { ə'næl·sə'məɪzə'shən }
- analcite** See analcime. { ə'næl'sɪt }
- analytical geomorphology** See dynamic geomorphology { ʼæn·əl'ɪd·ə kəl ,jē·ō'mɔr'fæl·ə·jē }
- anamigmatism** A process of high-temperature, high-pressure remelting of sediment to yield magma. { ʼæn·ə'mɪg·mə'tɪz·əm }
- anamorphic zone** The zone of rock flow, as indicated by reactions that may involve decarbonation, dehydration, and deoxidation; silicates are built up, and the formation of denser minerals and of compact crystalline structure takes place. { ʼæn·əl'mɔr·fɪk 'zɔn }
- anamorphism** A kind of metamorphism at considerable depth in the earth's crust and under great pressure, resulting in the formation of complex minerals from simple ones. { ʼæn·ə'mɔr'fɪz·əm }
- anapaite** Ca₂Fe(PO₄)₂·4H₂O A pale-green or greenish-white triclinic mineral consisting of a ferrous iron hydrous phosphate and occurring in crystals and massive forms; hardness is 3-4 on Mohs scale, and specific gravity is 3.81. { ə'næp·ə'ɪt }
- anapeirean** See Pacific suite. { ʼæn·ə'pɪr·ē·ən }
- anatase** The brown, dark-blue, or black tetragonal crystalline form of titanium dioxide, TiO₂; used to make a white pigment. Also known as octahedrite. { 'æn·ə'tās }
- anatexis** A high-temperature process of metamorphosis by which plutonic rock in the lowest levels of the crust is melted and regenerated as a magma. { ʼæn·ə'tek·səs }
- anathermal** A period of time between the age of other strata or units of reference in which the temperature is increasing. { ʼæn·ə'thər·məl }
- anauxite** Al₂(SiO₇)(OH)₄ A clay mineral that is a mixture of kaolinite and quartz. Also known as ionite. { ə'nɔk'sɪt }
- anchieutectic** A type of magma which is incapable of undergoing further notable main-stage differentiation because its mineral composition is practically in eutectic proportions. { ʼæŋ·kē·yü'tek·tɪk }
- anchimonomineralic** Of rock composed mostly of one kind of mineral. { ʼæŋ·kē·mæn·ō'mɪn·ə'ral·ɪk }
- anchored dune** A sand dune stabilized by growth of vegetation. { 'æŋ·kərd 'dün }
- anchorite** A variety of diorite having nodules of mafic minerals and veins of felsic minerals. { 'æŋ·kə'rɪt }
- anchor stone** A rock or pebble that has marine plants attached to it. { 'æŋ·kər 'stɔn }
- ancylite** SrCe(CO₃)₂(OH)·H₂O A mineral consisting of hydrous basic carbonate of cerium and strontium. { ʼæn·sə'lɪt }

- andalusite** Al_2SiO_5 A brown, yellow, green, red, or gray neosilicate mineral crystallizing in the orthorhombic system, usually found in metamorphic rocks. { 'lan·də'lū·sīt }
- Andean-type continental margin** A continental margin, as along the Pacific coast of South America, where oceanic lithosphere descends beneath an adjacent continent producing andesitic continental margin volcanism. { 'an·də·ən·tīp·kənt·ən'ent·əl 'mār·jən }
- Andept** A suborder of the soil order Inceptisol, formed chiefly in volcanic ash or in regoliths with high components of ash. { 'an'idept }
- andersonite** $\text{Na}_2\text{Ca}(\text{UO}_2)_2(\text{CO}_3)_3 \cdot 6\text{H}_2\text{O}$ Bright yellow-green secondary mineral consisting of a hydrous sodium calcium uranium carbonate. { 'an·də·sən·īt }
- andesine** A plagioclase feldspar with a composition ranging from $\text{Ab}_{70}\text{An}_{30}$ to $\text{Ab}_{50}\text{An}_{50}$, where $\text{Ab} = \text{NaAlSi}_3\text{O}_8$ and $\text{An} = \text{CaAl}_2\text{Si}_2\text{O}_8$; it is a primary constituent of intermediate igneous rocks, such as andesites. { 'an·də·zēn }
- andesite** Very finely crystalline extrusive rock of volcanic origin composed largely of plagioclase feldspar (oligoclase or andesine) with smaller amounts of dark-colored mineral (hornblende, biotite, or pyroxene), the extrusive equivalent of diorite. { 'an·də·zīt }
- andesite line** The postulated geographic and petrographic boundary between the andesite-dacite-rhyolite rock association of the margin of the Pacific Ocean and the olivine-basalt-trachyte rock association of the Pacific Ocean basin. { 'an·də·zīt·līn }
- andesitic glass** A natural glass that is chemically equivalent to andesite. { 'an·də·zīt·ik·glas }
- andorite** $\text{AgPbSb}_2\text{S}_6$ A dark-gray or black orthorhombic mineral. Also known as sundtite. { 'an·də·rīt }
- andradite** The calcium-iron end member of the garnet group. { an'drā·dīt }
- andrewsite** $(\text{Cu}, \text{Fe}^{2+})\text{Fe}_3^{3+}(\text{PO}_4)_4(\text{OH})_2$ A bluish-green mineral consisting of a basic phosphate of iron and copper. { 'an·drū·zīt }
- andrite** A meteorite composed principally of augite with some olivine and troilite. { 'an·drīt }
- anemoclast** A clastic rock that was fragmented and rounded by wind. { 'a·nə·mō·klast }
- anemoclastic** Referring to rock that was broken by wind erosion and rounded by wind action. { 'a·nə·mō·klas·tik }
- angaralite** $\text{Mg}_4(\text{Al}, \text{Fe})_{10}\text{Si}_6\text{O}_{20}$ A mineral of the chlorite group, occurring in thin black plates. { an'gar·ə·līt }
- Angara Shield** A shield area of crystalline rock in Siberia. { 'əŋ·gə·rā·shēld }
- angle of dip** See dip. { 'əŋ·gəl·əv·'dip }
- angle of shear** The angle between the planes of maximum shear which is bisected by the axis of greatest compression. { 'əŋ·gəl·əv·'shēr }
- anglesite** PbSO_4 A mineral occurring in white or gray, tabular or prismatic orthorhombic crystals or compact masses. Also known as lead spar; lead vitriol. { 'əŋ·glə·sīt }
- Angoumian** Upper middle Upper Cretaceous (Upper Turonian) geologic time. { 'än·gūm·ē·ən }
- angrite** An achondrite stony meteorite composed principally of augite with a little olivine and troilite. { 'əŋ·grīt }
- anguiclast** An angular phenoclast. { 'əŋ·gyū·klast }
- angular unconformity** An unconformity in which the older strata dip at a different angle (usually steeper) than the younger strata. { 'əŋ·gyə·lər·ən·kən'fōrm·əd·ē }
- anhedral** See allotriomorphic. { an'hēd·rəl }
- anhedron** Rock that has the organized internal structure of a crystal without the external geometric form of a crystal. { an'hēd·rən }
- anhydrite** CaSO_4 A mineral that represents gypsum without its water of crystallization, occurring commonly in white and grayish granular to compact masses; the hardness is 3-3.5 on Mohs scale, and specific gravity is 2.90-2.99. Also known as cube spar. { an'hī·drīt }
- anhydrite evaporite** CuSO_4 A sedimentary rock composed chiefly of copper sulfate in compact granular form deposited by evaporation of water, resembles marble and

anhydrock

differs from gypsum in lack of water of hydration and hardness. { an'hī·drīt i'vap·ə·rīt }

anhydrock A sedimentary rock chiefly made of anhydrite. { an'hi·drāk }

Animikean The middle subdivision of Proterozoic geologic time. Also known as Penokean; Upper Huronian. { ə'nim·ə'kē·ən }

animikite An ore of silver, composed of a mixture of sulfides, arsenides, and antimonides, and containing nickel and lead; occurs in white or gray granular masses. { ə'nim·ə·kīt }

Anisian Lower Middle Triassic geologic time. { ə'nis·ē·ən }

anisodesmic Pertaining to crystals or compounds in which the ionic bonds are unequal in strength. { ɪə'nis·ə'dez·mik }

ankaramite A mafic olivine basalt primarily composed of pyroxene with smaller amounts of olivine and plagioclase and accessory biotite, apatite, and opaque oxides. { 'aŋ·kə'rä·mīt }

ankaratrite See olivine nephelinite. { 'aŋ·kə'rä·trīt }

ankerite $\text{Ca}(\text{Fe,Mg,Mn})(\text{CO}_3)_2$ A white, red, or gray iron-rich carbonate mineral associated with iron ores and found in thin veins in coal seams; specific gravity is 2.95-3.1. Also known as cleat spar. { 'aŋ·kə·rīt }

annabergite $(\text{Ni,Co})_3(\text{AsO}_4)_2 \cdot 8\text{H}_2\text{O}$ A monoclinic mineral usually found as apple-green incrustations as an alteration product of nickel arsenides; it is isomorphous with erythrite. Also known as nickel bloom; nickel ocher. { 'a·nə·bær·gīt }

annual layer **1.** A sedimentary layer deposited, or presumed to have been deposited, during the course of a year; for example, a glacial varve. **2.** A dark layer in a stratified salt deposit containing disseminated anhydrite. { 'an·yə·wəl 'lā·ər }

anomalous magma Magma formed or obviously changed by assimilation { ə'näm·ə·ləs 'mag·mə }

anomaly A local deviation from the general geological properties of a region. { ə'näm·ə·lē }

anomite A variety of biotite different only in optical orientation. { 'an·ə·mīt }

anorogenic Of a feature, forming during tectonic quiescence between orogenic periods, that is, lacking in tectonic disturbance. { ɪə'nò·rō'jən·ik }

anorogenic time Geologic time when no significant deformation of the crust occurred. { ɪə'nò·rō'jən·ik 'tīm }

anorthite The white, grayish, or reddish calcium-rich end member of the plagioclase feldspar series; composition ranges from $\text{Ab}_{10}\text{An}_{90}$ to $\text{Ab}_0\text{An}_{100}$, where $\text{Ab} = \text{NaAlSi}_3\text{O}_8$ and $\text{An} = \text{CaAl}_2\text{Si}_2\text{O}_8$. Also known as calcicase; calcium feldspar. { ə'nór·thīt }

anorthite-basalt A rock composed of a basic variety of basalt with anorthite instead of labradorite. { ə'nór·thīt bæ'sölt }

anorthoclase A triclinic alkali feldspar having a chemical composition ranging from $\text{Or}_{40}\text{Ab}_{60}$ to $\text{Or}_{10}\text{Ab}_{90}$ to about 20 mole % An, where $\text{Or} = \text{KAlSi}_3\text{O}_8$, $\text{Ab} = \text{NaAlSi}_3\text{O}_8$, and $\text{An} = \text{CaAl}_2\text{Si}_2\text{O}_8$. Also known as anorthose; soda microcline. { ə'nór·thək'lās }

anorthose See anorthoclase. { ə'nór·thōs }

anorthosite A visibly crystalline plutonic rock composed almost entirely of plagioclase feldspar (andesine to anorthite) with minor amounts of pyroxene and olivine. { ə'nór·thə·sīt }

anorthositization A process of anorthosite formation by replacement or metasomatism. { ə'nór·thə·sīd·ə'zā·shən }

antecedent platform A submarine platform 165 feet (50 meters) or more below sea level from which barrier reefs and atolls are postulated to grow toward the water's surface. { 'ant·ə'sēd·ənt 'plat·fōrm }

antecedent valley A stream valley that existed before uplift, faulting, or folding occurred and which has maintained itself during and after these events. { 'ant·ə'sēd·ənt 'val·ē }

antediluvial Formerly referred to time or deposits antedating Noah's flood. { ɪən·tē·də'lüv·ē·əl }

anthodite Gypsum or aragonite growing in clumps of long needle- or hairlike crystals on the roof or wall of a cave. { 'an·thə·dīt }

- anthoinite** $\text{Al}_2\text{W}_2\text{O}_9 \cdot 3\text{H}_2\text{O}$ A white mineral consisting of a hydrous basic aluminum tungstate. { 'an'thō-wə-nīt }
- anthophyllite** A clove-brown orthorhombic mineral of the amphibole group, a variety of asbestos occurring as lamellae, radiations, fibers, or massive in metamorphic rocks. Also known as bidalotite. { 'an-thō'fī-līt }
- anthracite** A high-grade metamorphic coal having a semimetallic luster, high content of fixed carbon, and high density, and burning with a short blue flame and little smoke or odor. Also known as hard coal; Kilkenny coal; stone coal. { 'an-thrə'sīt }
- anthracoxene** A brownish resin that occurs in brown coal, in either it dissolves into an insoluble portion, anthrocoxenite, and a soluble portion, schlanite. { 'an-thrə'kāk-sēn }
- anthraxolite** Anthracite-like asphaltic material occurring in veins in Precambrian slate of Sudbury District, Ontario. { an'thrak-sə-līt }
- anthraxylon** The vitreous-appearing components of coal that are derived from the woody tissues of plants. { an'thrak-sə-lān }
- anticenter** The point on the surface of the earth that is diametrically opposite the epicenter of an earthquake. Also known as antiepicenter. { 'an-tē'sent-ər }
- anticlinal** Folded as in an anticline. { 'an-tē'klīn-əl }
- anticlinal axis** The median line of a folded structure from which the strata dip on either side. { 'an-tē'klīn-əl 'ak-səs }
- anticlinal bend** An upwardly convex flexure of rock strata in which one limb dips gently toward the apex of the strata and the other dips steeply away from it. { 'an-tē'klīn-əl 'bend }
- anticlinal mountain** Ridges formed by a convex flexure of the strata { 'an-tē'klīn-əl 'maʊn tən }
- anticlinal theory** A theory relating trapped underground oil accumulation to anticlinal structures. { 'an-tē'klīn-əl 'thē-ə-rē }
- anticlinal trap** A formation in the top of an anticline in which petroleum has accumulated. { 'an-tē'klīn-əl 'trap }
- anticlinal valley** A valley that follows an anticlinal axis. { 'an-tē'klīn-əl 'val-ē }
- anticline** A fold in which layered strata are inclined down and away from the axes. { 'an-ti'klīn }
- anticlinorium** A series of anticlines and synclines that form a general arch or anticline { 'an-ti'klī'nor-ē-əm }
- antidune** A temporary form of ripple on a stream bed analogous to a sand dune but migrating upcurrent. { 'an-tē'dūn }
- antiepicenter** See anticenter. { 'an-tē'ep-i'sent-ər }
- antiform** An anticlinelike structure whose stratigraphic sequence is not known. { 'an-tē'fōrm }
- antigorite** $\text{Mg}_3\text{Si}_2\text{O}_5(\text{OH})_4$ Brownish-green variety of the mineral serpentine. Also known as baltimorite; picrolite. { an'tig-ə-rīt }
- antimonite** Sb_2S_3 A lead-gray antimony sulfide mineral, the primary source of antimony; sometimes contains gold or silver; has a brilliant metallic luster, and occurs as prismatic orthorhombic crystals in massive forms. Also known as antimony glance, gray antimony; stibium; stibnite. { 'an-tə-mə-nīt }
- antimony** A very brittle, tin-white, hexagonal mineral, the native form of the element { 'an-tə-mō-nē }
- antimony blende** See kermesite. { 'an-tə-mō-nē 'blend }
- antimony glance** See antimonite. { 'an-tə-mō-nē 'glans }
- antiperthite** Natural intergrowth of feldspars formed by separation of sodium feldspar (albite) and potassium feldspar (orthoclase) during slow cooling of molten mixtures, the potassium-rich phase is evolved in a plagioclase host, exactly the inverse of perthite. { 'an-ti'pər'thīt }
- antistress mineral** Minerals such as leucite, nepheline, alkalic feldspar, andalusite, and cordierite which cannot form or are unstable in an environment of high shearing stress, and hence are not found in highly deformed rocks. { 'an-tē'stres 'min-ə-rəl }

antlerite

antlerite $\text{Cu}_3\text{SO}_4(\text{OH})_4$ Emerald- to blackish-green mineral occurring in aggregates of needlelike crystals; an ore of copper. Also known as vernadskite. { 'ant · lə · rīt }

Antler orogeny Late Devonian and Early Mississippian orogeny in Nevada, resulting in the structural emplacement of eugeosynclinal rocks over microgeosynclinal rocks. { 'ant · lər ó · rāj · ə · nē }

Ao horizon That portion of the A horizon of a soil profile which is composed of pure humus. { |ā|ō hə · rīz · ən }

Aoo horizon Uppermost portion of the A horizon of a soil profile which consists of undecomposed vegetable litter. { |ā|ō|ō hə · rīz · ən }

apachite A phonolite consisting of enigmatite and hornblende in about the same quantity as the pyroxene, but of a later crystallization phase. { ə · pa · chīt }

apatite A group of phosphate minerals that includes 10 mineral species and has the general formula $X_2(\text{YO}_4)_3\text{Z}$, where X is usually Ca^{2+} or Pb^{3+} , Y is P^{3+} or As^{5+} , and Z is F^- , Cl^- , or OH^- . { 'ap · ə · tīt }

apex The part of a mineral vein nearest the surface of the earth. { 'ā · peks }

aphaniphyric Denoting a texture of porphyritic rocks with microaphanitic groundmasses. Also known as felsophyric. { 'af · ə · nə · fir · ik }

aphanite **1.** A general term applied to dense, homogeneous rocks whose constituents are too small to be distinguished by the unaided eye. **2.** A rock having aphanitic texture. { 'af · ə · nīt }

aphanitic Referring to the texture of an igneous rock in which the crystalline components are not distinguishable by the unaided eye. { 'af · ə · nid · ik }

aphrosiderite See ripidolite. { 'af · rō · sid · ə · rīt }

aphthitalite $(\text{K},\text{Na})_3\text{Na}(\text{SO}_4)_2$ A white mineral crystallizing in the rhombohedral system and occurring massively or in crystals. { 'af · thid · ə · līt }

aphyric Of the texture of fine-grained igneous rocks, showing two generations of the same mineral but without phenocrysts. { ā · fir · ik }

apjohnite $\text{MnAl}_2(\text{SO}_4)_4 \cdot 22\text{H}_2\text{O}$ A white, rose-green, or yellow mineral containing water and occurring in crusts, fibrous masses, or efflorescences. { 'ap · jā · nīt }

aplite Fine-grained granitic dike rock which is composed of light-colored mineral constituents, mostly quartz and feldspar; used to manufacture glass and enamel. { 'a · plīt }

apophyllite A hydrous calcium potassium silicate containing fluorine and occurring as a secondary mineral with zeolites with geodes and other igneous rocks; the composition is variable but approximates $\text{KFCa}_4(\text{Si}_2\text{O}_5)_4 \cdot 8\text{H}_2\text{O}$. Also known as fish-eye stone. { ə · päf · ə · lit }

Appalachia Proposed borderland along the southeastern side of North America, seaward of the Appalachian geosyncline in Paleozoic time. { |ap · ə |lā · chə }

Appalachian orogeny An obsolete term referring to Late Paleozoic diastrophism beginning perhaps in the Late Devonian and continuing until the end of the Permian; now replaced by Allegheny orogeny. { |ap · ə |lā · chən ó · rāj · ə · nē }

apparent cohesion In soil mechanics, the resistance of particles to being pulled apart due to the surface tension of the moisture film surrounding each particle. Also known as film cohesion. { ə · pa · rənt · kō · hē · zhən }

apparent dip Dip of a rock layer as it is exposed in any section not at a right angle to the strike. { ə · pa · rənt 'dip }

apparent movement of faults The apparent motion observed to have occurred in any chance section across a fault. { ə · pa · rənt |müv · mənt əv |fólt }

apparent plunge Inclination of a normal projection of lineation in the plane of a vertical cross section. { ə · pa · rənt 'plənj }

appinite Hornblende-rich plutonic rock with high feldspar content. { 'ap · ə · nīt }

apple coal Easily mined soft coal that breaks into small pieces the size of apples. { 'ap · ə · kōl }

apposition beach One of a series of parallel beaches formed on the seaward side of an older beach. { |ap · ə 'zish · ən · bēch }

apposition fabric A primary orientation of the elements of a sedimentary rock that is developed or formed at time of deposition of the material; fabrics of most sedimen-

- tary rocks belong to this type. Also known as primary fabric { 'ap·ə'zish·ən /fəb·rik }
- apron** See outwash plain. { 'ā·prən }
- Aptian** Lower Cretaceous geologic time, between Barremian and Albian. Also known as Vectian. { 'ap·tē·ən }
- aquagene tuff** See hyaloclastite. { 'ak·wə·jən 'təf }
- aqualf** A suborder of the soil order Alfisol, seasonally wet and marked by gray or mottled colors, occurs in depressions or on wide flats in local landscapes { 'ak·wəlf }
- aquamarine** A pale-blue or greenish-blue transparent gem variety of the mineral beryl. { 'ak·wə·mə'ren }
- Aqueud** A suborder of the soil order Entisol, bluish gray or greenish gray in color, under water until very recent times, located at the margins of oceans, lakes, or seas. { 'ā·kwənt }
- aqueous lava** Mud lava produced by the mixing of volcanic ash with condensing volcanic vapor or other water. { 'āk·wē·əs 'læv·ə }
- aqueous rock** A sedimentary rock deposited by or in water. Also known as hydrogenic rock. { 'āk·wē·əs 'rāk }
- Aquept** A suborder of the soil order Inceptisol, wet or drained, which lacks silicate clay accumulation in the soil profiles; surface horizon varies in thickness. { 'ak·wəpt }
- aquiclude** A porous formation that absorbs water slowly but will not transmit it fast enough to furnish an appreciable supply for a well or spring. { 'ak·wə'klüd }
- aquifer** A permeable body of rock capable of yielding quantities of groundwater to wells and springs. { 'ak·wə'fər }
- aquifuge** An impermeable body of rock which contains no interconnected openings or interstices and therefore neither absorbs nor transmits water. { 'ak·wə'fyüj }
- Aquitanian** Lower lower Miocene or uppermost Oligocene geologic time { 'ak·wə'tān·ē·ən }
- aquitard** A bed of low permeability adjacent to an aquifer may serve as a storage unit for groundwater, although it does not yield water readily. { 'ak·wə'rtärd }
- Aquod** A suborder of the soil order Spodosol, with a black or dark brown horizon just below the surface horizon; seasonally wet, it occupies depressions or wide flats from which water cannot escape easily. { 'ak·wəd }
- Aquoll** A suborder of the soil order Mollisol, with thick surface horizons, formed under wet conditions, it may be under water at times, but is seasonally rather than continually wet. { 'ak·wöl }
- Aquox** A suborder of the soil order Oxisol, seasonally wet, found chiefly in shallow depressions, deeper soil profiles are predominantly gray, sometimes mottled, and contain nodules or sheets of iron and aluminum oxides. { 'ak·wəks }
- Aquult** A suborder of the soil order Ultisol, seasonally wet, it is saturated with water a significant part of the year unless drained, surface horizon of the soil profile is dark and varies in thickness, grading to gray in the deeper portions; it occurs in depressions or on wide upland flats from which water drains very slowly. { 'ak·wəlt }
- aragonite** CaCO₃. A white, yellowish, or gray orthorhombic mineral species of calcium carbonate but with a crystal structure different from those of vaterite and calcite, the other two polymorphs of the same composition. Also known as Aragon spar. { ə'räg·ə'nīt }
- Aragon spar** See aragonite. { 'ar·ə·gän 'spär }
- aramayoite** Ag(Sb,Bi)S₂. An iron-black mineral consisting of silver antimony bismuth sulfide. { 'ar·ə'mī·ə'wīt }
- araphite** A dark-colored, porous, fine-grained basic basalt consisting of magnetite, bytownite, and augite. { ə'rap·ə'hīt }
- Arbuckle orogeny** Mid-Pennsylvanian episode of diastrophism in the Wichita and Arbuckle Mountains of Oklahoma. { 'är·bək·əl ə'räj·ə·nē }
- arc** A geologic or topographic feature that is repeated along a curved line on the surface of the earth. { ärk }

arcanite

- arcanite** K_2SO_4 A colorless, vitreous orthorhombic sulfate mineral. Also known as glaserite. { 'är·kə·nīt }
- Archean** A term, meaning ancient, which has been applied to the oldest rocks of the Precambrian; as more physical measurements of geologic time are made, the usage is changing; the term Early Precambrian is preferred. { ä'r·kē·ən }
- Archeozoic** 1. The era during which, or during the latter part of which, the oldest system of rocks was made. 2. The last of three subdivisions of Archean time, when the lowest forms of life probably existed; as more physical measurements of geologic time are made, the usage is changing; it is now considered part of the Early Precambrian. { ä'r·kē·ə'zō·ik }
- arching** The folding of schists, gneisses, or sediments into anticlines. { 'ärch·iŋ }
- archipelagic apron** A fan-shaped slope around an oceanic island differing from deep-sea fans in having little, if any, sediment cover. { ä'r·kə·pə'laj·ik 'ä·prən }
- architectonic** Of forces that determine structure. { ä'r·kə'tektän·ik }
- Arctic suite** A group of basic igneous rocks intermediate in composition between Atlantic and Pacific suites. { 'ärd·ik 'swēt }
- arcuate delta** A bowed or curved delta with the convex margin facing the body of water. Also known as fan-shaped delta. { 'ärk·yə·wət 'del·tə }
- arcuation** Production of an arc, as in rock flowage where movement proceeded in a fanlike manner. { 'ärk·yə'wä·shən }
- ardealite** $Ca_2(HPO_4)(SO_4) \cdot 4H_2O$ A white or light-yellow mineral consisting of a hydrous acid calcium phosphate-sulfate. { 'är·dē'ä·līt }
- Ardennian orogeny** A short-lived orogeny during the Ludlovian stage of the Silurian period of geologic time. { 'ärd'en·ē·ən ó'räj·ə·nē }
- ardennite** $Mn_5Al_5(VO_4)(SiO_4)_5(OH)_2 \cdot 2H_2O$ A yellow to yellowish-brown mineral consisting of a hydrous silicate vanadate and arsenate of manganese and aluminum. { 'ärd'en·īt }
- arduinite** See mordenite. { 'ärdwin·īt }
- areal eruption** Volcanic eruption resulting from collapse of the roof of a batholith; the volcanic rocks grade into parent plutonic rocks. { 'er·e·əl i'rəp·shən }
- areal geology** Distribution and form of rocks or geologic units of any relatively large area of the earth's surface. { 'er·e·əl jē'äl·ə·jē }
- arenaceous** Of sediment or sedimentary rocks that have been derived from sand or that contain sand. Also known as arenarius; psammitic; sabulous. { 'ä·rə 'nāsh·əs }
- arenarius** See arenaceous. { 'ä·rə'nēr·ē·əs }
- arendalite** A dark-green variety of epidote found in Arendal, Norway. { 'ər'end·əl·īt }
- arenicolite** A hole, groove, or other mark in a sedimentary rock, generally sandstone, interpreted as a burrow made by an arenicolous marine worm or a trail of a mollusk or crustacean. { 'ä·rə'nik·əl·īt }
- Arenigian** A European stage including Lower Ordovician geologic time (above Tremadocian, below Llanvirnian). Also known as Skiddavian. { 'ä·rə'nij·ē·ən }
- arenite** Consolidated sand-texture sedimentary rock of any composition. Also known as arenite; psammite. { 'ä·rə·nīt }
- Arent** A suborder of the soil order Entisol, consisting of soils formerly of other classifications that have been severely disturbed, completely disrupting the sequence of horizons. { 'ä·rənt }
- arenite** See arenite. { 'ä·rə·nīt }
- arête** Narrow, jagged ridge produced by the merging of glacial cirques. Also known as arri; crib; serrate ridge. { 'ärät }
- arfvedsonite** A black monoclinic amphibole, containing sodium and silicon trioxide with occluded water and some calcium. Also known as soda hornblende. { 'är·vəd·sə·nīt }
- argentite** Ag_2S A lustrous, lead-gray ore of silver; it is a monoclinic mineral and is dimorphous with acanthite. Also known as argyrite; silver glance; vitreous silver. { 'är·jən·tīt }

- argentojarosite** $\text{AgFe}_3(\text{SO}_4)_2(\text{OH})_6$ A yellow or brownish mineral consisting of basic silver ferric sulfate. {är·jen·tō'jār·ə·sīt }
- Argid** A suborder of the soil order Aridisol, well drained, having a characteristically brown or red color and a silicate accumulation below the surface horizon; occupies older land surfaces in deserts. { 'är·jəd }
- argillaceous** Of rocks or sediments made of or largely composed of clay-size particles or clay minerals. { ,är·jə'lā·shəs }
- argillation** Development of clay minerals by weathering of aluminum silicates { ,är·jə'lā·shən }
- argillic alteration** A rock alteration in which certain minerals are converted to minerals of the clay group. { är'jil·ik·öl·tə'rā·shən }
- argilliferous** Abounding in or producing clay. { ,är·jəl·if·ə·rəs }
- argillite** A compact rock formed from siltstone, shale, or claystone but intermediate in degree of induration and structure between them and slate; argillite is more indurated than mudstone but lacks the fissility of shale. { 'är·jə'līt }
- Argovian** Upper Jurassic (lower Lusitanian), a substage of geologic time in Great Britain. { är'gōv·ē·ən }
- argyrite** See argentite. { är'jir·īt }
- argyrodite** Ag_8GeS_6 A steel-gray mineral, one of two germanium minerals and a source for germanium; crystallizes in the isometric system and is isomorphous with canfieldite. { är'jir·ə·dīt }
- arid erosion** Erosion or wearing away of rock that occurs in arid regions, due largely to the wind. { 'ar·əd·i'rō·zhən }
- Aridisol** A soil order characterized by pedogenic horizons; low in organic matter and nitrogen and high in calcium, magnesium, and more soluble elements; usually dry. { a'rid·ə·sōl }
- riegite** A group of pyroxenites composed principally of clinopyroxene, orthopyroxene, and spinel. { ,ar·ē'ā·zhīt }
- Arikareean** Lower Miocene geologic time. { ə·rik·ə'rē·ən }
- Arizona ruby** A ruby-red pyrope garnet of igneous origin found in the southwestern United States. { ,ar·ə'zōn·ə·rū·bē }
- arizonite** $\text{Fe}_2\text{Ti}_2\text{O}_6$ **1.** A steel-gray mineral containing iron and titanium and found in irregular masses in pegmatite. **2.** A dike rock composed of mostly quartz, some orthoclase, and accessory mica and apatite. { ,ar·ə'zō·nīt }
- Arkansas stone** A variety of novaculite quarried in Arkansas { 'är·kən·sō·stōn }
- arkite** A feldspathoid-rich rock consisting largely of pseudoleucite and nepheline, subordinate melanite and pyroxene, and accessory orthoclase, apatite, and sphene. { 'är·kīt }
- arkose** A sedimentary rock composed of sand-size fragments that contain a high proportion of feldspar in addition to quartz and other detrital minerals. { 'är·kōs }
- arkose quartzite** See arkosite. { 'är·kōs·'kwört·sīt }
- arkose** Having wholly or partly the character of arkose. { är'kōs·ik }
- arkosic bentonite** Bentonite derived from volcanic ash which contains 25-75% sandy impurities and whose detrital crystalline grains remain essentially unaltered. Also known as sandy bentonite. { är'kōs·ik·'ben·tə·nīt }
- arkosic limestone** An impure clastic limestone composed of a relatively high proportion of grains or crystals of feldspar. { är'kōs·ik·'līm·stōn }
- arkosic sandstone** A sandstone in which much feldspar is present, ranging from unassorted products of granular disintegration of granite to partly sorted river-laid or even marine deposits. { är'kōs·ik·'san·stōn }
- arkosic wacke** See feldspathic graywacke. { är'kōs·ik·'wak·ə }
- arkosite** A quartzite with a high proportion of feldspar. Also known as arkose quartzite { är'kō·sīt }
- arksutite** See chiolite. { ärk'sū·tīt }
- arm** A ridge or a spur that extends from a mountain. { ärm }
- armangite** $\text{Mn}_3(\text{AsO}_3)_2$ A black mineral crystallizing in the rhombohedral system and consisting of manganese arsenite. { är'man·gīt }

armenite

- armenite** $\text{BaCa}_2\text{Al}_6\text{Si}_8\text{O}_{28} \cdot 2\text{H}_2\text{O}$ Mineral composed of a hydrous calcium barium aluminosilicate. {är'mē,nīt }
- armored mud ball** A large (0.4-20 inches or 1-50 centimeters in diameter) subspherical mass of silt or clay coated with coarse sand and fine gravel. Also known as pudding ball. {är·mærd'·mæd·bòl }
- Armorican orogeny** Little-used term, now replaced by Hercynian or Variscan orogeny. {är'mòr·ə·kən ó'räj·ð·nē }
- annimite** $\text{Cu}_5(\text{SO}_4)_2(\text{OH})_6 \cdot 3\text{H}_2\text{O}$ Mineral consisting of a hydrous copper sulfate. {'än·ə·mīt }
- arquerite** A mineral consisting of a soft, malleable, silver-rich variety of amalgam, containing about 87% silver and 13% mercury. {är'kē,rīt }
- arrested decay** A stage in coal formation where biochemical action ceases. {ə'res·təd di'kā }
- arrhenite** A variety of fergusonite. {ə'rā,nīt }
- arris** See arête. {'ar·əs }
- arrojadite** $\text{Na}_2(\text{Fe,Mn})_4(\text{PO}_4)_4$ Dark-green mineral crystallizing in the monoclinic system, being isostructural with dickinsonite and occurring in masses. {'ar·ə'jä,dīt }
- arroyo** Small, deep gully produced by flash flooding in arid and semiarid regions of the southwestern United State. {ə'rói·ò }
- arsenic** A brittle, steel-gray hexagonal mineral, the native form of the element. {'ärs·ən·ik }
- arsenic antimony** See allemontite. {är'sen·ə·kəl'ant·ə·mð·nē }
- arsenic nickel** See niccolite. {är'sen·ə·kəl'nik·əl }
- arsenic bloom** See arsenolite. {'ärs·ən·ik·blüm }
- arseniopleite** A reddish-brown mineral consisting of a basic arsenate of manganese, calcium, iron, lead, and magnesium and occurring in cleavable masses. {ärs'ën·ə·ð'plē,īt }
- arsenosiderite** $\text{Ca}_3\text{Fe}_4(\text{AsO}_4)_4(\text{OH})_4 \cdot 4\text{H}_2\text{O}$ A yellowish-brown mineral consisting of a basic iron calcium arsenate and occurring as concretions. {ärs'ën·ə·ð'sid·ə·rīt }
- arsenobismite** $\text{Bi}_2(\text{AsO}_4)(\text{OH})_2$ A yellowish-green mineral consisting of a basic bismuth arsenate and occurring in aggregates. {'ärs·ən·ə·ð'biz·mīt }
- arsenoclasite** $\text{Mn}_4(\text{AsO}_4)_2(\text{OH})_4$ A red mineral consisting of a basic manganese arsenate. Also spelled arsenoklasite. {'ärs·ən·ə·ð'klā·sīt }
- arsenoklasite** See arsenoclasite. {'ärs·ən·ə·ð'klā·sīt }
- arsenolamprite** FeAsS A lead gray mineral consisting of nearly pure arsenic; occurs in masses with a fibrous foliated structure. {'ärs·ən·ə·ð'lam·prīt }
- arsenolite** As_2O_3 A mineral crystallizing in the isometric system and usually occurring as a white bloom or crust. Also known as arsenic bloom. {är'sen·əl,īt }
- arsenopyrite** FeAsS A white to steel-gray mineral crystallizing in the monoclinic system with pseudo-orthorhombic symmetry because of twinning; occurs in crystalline rock and is the principal ore of arsenic. Also known as mispickel. {'ärs·ən·ə·ð'pī,rīt }
- arsoite** An olivine-bearing diopside trachyte. {'är·sō,īt }
- arterite** **1.** A migmatite produced as a result of regional contact metamorphism during which residual magmas were injected into the host rock. **2.** Gneisses characterized by veins formed from the solution given off by deep-seated intrusions of molten granite. **3.** A veined gneiss in which the vein material was injected from a magma. {är'tir,īt }
- arteritic migmatite** Injection gneiss supposedly produced by introduction of pegmatite, granite, or aplite into schist parallel to the foliation. {'ärd·ə'rid·ik'mig·mə,tīt }
- articalite** See itacolumite. {är'tik·yə,līt }
- artinite** $\text{Mg}_2\text{CO}_3(\text{OH})_2 \cdot 3\text{H}_2\text{O}$ A snow-white mineral crystallizing in the orthorhombic system and occurring in crystals or fibrous aggregates. {är'tē,nīt }
- Artinskian** A European stage of geologic time including Lower Permian (above Sakmarian, below Kungurian). {är'tin·skē·ən }
- arzrunite** A bluish-green mineral consisting of a basic copper sulfate with copper chloride and lead, and occurring as incrustations. {ärz'rū,nīt }
- asar** See esker. {'a·sær }

- asbestos** A general name for the useful, fibrous varieties of a number of rock-forming silicate minerals that are heat-resistant and chemically inert; two varieties exist: amphibole asbestos, the best grade of which approaches the composition $\text{Ca}_2\text{Mg}_3(\text{OH})_2\text{Si}_8\text{O}_{22}$ (tremolite), and serpentine asbestos, usually chrysotile, $\text{Mg}_3\text{Si}_2(\text{OH})_4\text{O}_5$. {as'bes·təs}
- asbolane** See asbolite. {az·bə·lān}
- asbolite** A black, earthy mineral aggregate containing hydrated oxides of manganese and cobalt. Also known as asbolane; black cobalt; earthy cobalt. {az·bə·līt}
- aschistic** Pertaining to rocks of minor igneous intrusions that have not been differentiated into light and dark portions but that have essentially the same composition as the larger intrusions with which they are associated. {ā'skis·tik}
- ash** Volcanic dust and particles less than 4 millimeters in diameter. {ash}
- Ashby** A North American stage of Middle Ordovician geologic time, forming the upper subdivision of Chazyan, and lying above Marmor and below Porterfield. {ash·bē}
- ash cone** A volcanic cone built primarily of unconsolidated ash and generally shaped somewhat like a saucer, with a rim in the form of a wide circle and a broad central depression often nearly at the same elevation as the surrounding country. {ash·kōn}
- ash fall** **1.** A fall of airborne volcanic ash from an eruption cloud; characteristic of Vulcanian eruptions. Also known as ash shower. **2.** Volcanic ash resulting from an ash fall and lying on the ground surface. {ash·fōl}
- ash field** A thick, extensive deposit of volcanic ash. Also known as ash plain. {ash·fēld}
- ash flow** **1.** An avalanche of volcanic ash, generally a highly heated mixture of volcanic gases and ash, traveling down the flanks of a volcano or along the surface of the ground. Also known as glowing avalanche; incandescent tuff flow. **2.** A deposit of volcanic ash and other debris resulting from such a flow and lying on the surface of the ground. {ash·flō}
- ash fusibility** The gradual softening and melting of coal ash that takes place with increase in temperature as a result of the melting of the constituents and chemical reactions. {ash·fyüz·ə·bil·əd·ē}
- Ashgillian** A European stage of geologic time in the Upper Ordovician (above Upper Caradocian, below Llandoveryan of Silurian). {ash·gil·yən}
- ash plain** See ash field. {ash·plān}
- ash rock** The material of arenaceous texture produced by volcanic explosions {ash·rāk}
- ash shower** See ash fall. {ash·shaü·ər}
- ashstone** A rock composed of fine volcanic ash, particles are less than 0.06 millimeter in diameter. {ash·stōn}
- ashtonite** See mordenite. {ash·tənīt}
- ash viscosity** The ratio of shearing stress to velocity gradient of molten ash, indicates the suitability of a coal ash for use in a slag-tap-type boiler furnace. {ash vis'käs·əd·ē}
- ash grit** **1.** Pyroclastic material of sand and smaller size **2.** Mixture of ordinary sand and volcanic ash. {ash·ē·grit}
- asiderite** See stony meteorite. {ə'sid·ə·rīt}
- Aso lava** A type of indurated pyroclastic deposit produced during the explosive eruptions that formed the Aso Caldera of Kyushu, Japan. {äs·ō·lāv·ə}
- asparagolite** See asparagus stone. {as·pə'rag·ə·līt}
- asparagus stone** A yellow-green variety of apatite occurring in crystals. Also known as asparagolite. {ə'spar·ə·gəs·stōn}
- aspect** **1.** The general appearance of a specific geologic entity or fossil assemblage as considered more or less apart from relations in time and space. **2.** The direction toward which a valley side or slope faces with respect to the compass or rays of the sun. {a'spekt}
- aspect angle** The angle between the aspect of a slope and the geographic south

asperity

(Northern Hemisphere) or the geographic north (Southern Hemisphere).
{ 'a:spɛkt ˌɑːŋ ˌgəl }

asperity A type of surface roughness appearing along the interface of two faults
{ 'ɑːspɛr ˌə ˌdɛ }

asphaltic sand Deposits of sand grains cemented together with soft, natural asphalt.
{ 'ɑːsfɔlt ˌɪk 'sænd }

asphaltite Any of the dark-colored, solid, naturally occurring bitumens that are insoluble in water, but more or less completely soluble in carbon disulfide, benzol, and so on, with melting points between 250 and 600°F (121-316°C); examples are gilsonite and grahamite. { 'ɑːsfɔlt ˌtɪt }

asphaltite coal See albertite. { 'ɑːsfɔlt ˌtɪt ˌkɔl }

asphalt rock Natural asphalt-containing sandstone or dolomite. Also known as asphalt stone; bituminous rock; rock asphalt. { 'ɑːsfɔlt 'ræk }

asphalt stone See asphalt rock. { 'ɑːsfɔlt 'stɔn }

aspite A cratered volcano with the base wide in relation to the height; for example, Mauna Loa. { 'ɑːspɪt }

assimilation Incorporation of solid or fluid material that was originally in the rock wall into a magma. { ə ˌsɪm ˌə ˈlɪə ˌʃən }

assynite A plutonic rock consisting largely of orthoclase and pyroxene, lesser amounts of sodalite and nepheline, and accessory biotite, sphene, apatite, and opaque oxides.
{ ə ˈsɪn ˌtɪt }

Astartian See Sequanian. { ə ˈstɑːr ˌʃən }

asthenolith A body of magma locally melted at any time within any solid portion of the earth. { ə ˈθen ˌə ˌlɪθ }

asthenosphere That portion of the upper mantle beneath the rigid lithosphere which is plastic enough for rock flowage to occur; extends from a depth of 30-60 miles (50-100 kilometers) to about 240 miles (400 kilometers) and is seismically equivalent to the low velocity zone. { ə ˈθen ˌə ˌʃfɪr }

Astian A European stage of geologic time: upper Pliocene, above Plaisancian, below the Pleistocene stage known as Villafranchian, Calabrian, or Günz. { 'ɑːtē ˌən }

astrakanite See bloedite. { 'ɑːstrək ˌæ ˌnɪt }

astrobleme A circular-shaped depression on the earth's surface produced by the impact of a cosmic body. { 'ɑːstrɔ ˌblɛm }

astrochanite See bloedite. { ə ˈstræk ˌə ˌnɪt }

astrophyllite $(K,Na)_3(Fe,Mn)_2Ti_2Si_8O_{24}(O,OH)_4$ A mineral composed of a basic silicate of potassium or sodium, iron or manganese, and titanium. { 'ɑːstrɔ ˌfɪ ˌlɪt }

Asturian orogeny Mid-Upper Carboniferous diastrophism { ə ˈstʊr ˌē ˌən ɔ ˈrɑːj ˌə ˌnɛ }

asymmetrical bedding An order in which lithologic types or facies follow one another in a circuitous arrangement so that, for example, the sequence of types 1-2-3-1-2-3-1-2-3 indicates asymmetry (while the sequence 1-2-3-2-1-2-3-2-1 indicates symmetrical bedding). { lā ˌsə ˌmɛ ˌtri ˌkəl 'bed ˌɪŋ }

asymmetrical fold A fold in which one limb dips more steeply than the other. { lā ˌsə ˌmɛ ˌtri ˌkəl 'fɔld }

asymmetrical laccolith A laccolith in which the beds dip at conspicuously different angles in different sectors. { lā ˌsə ˌmɛ ˌtri ˌkəl 'lak ˌə ˌlɪθ }

asymmetrical ripple mark The normal form of ripple mark, with short downstream slopes and comparatively long, gentle upstream slopes. { lā ˌsə ˌmɛ ˌtri ˌkəl 'rɪp ˌəl ˌmɑrk }

asymmetrical vein A crustified vein of geologic material with unlike layers on each side. { lā ˌsə ˌmɛ ˌtri ˌkəl 'vɪn }

atacamite $Cu_2Cl(OH)_2$ Native, green hydrous copper oxychloride crystallizing in the orthorhombic system. { 'ɑːd ˌə ˌkɑm ˌɪt }

ataxic Pertaining to unstratified ore deposits. { ə ˈtɑk ˌsɪk }

ataxite 1. An iron meteorite that lacks the structure of either hexahedrite or octahedrite and contains more than 10% nickel. 2. A taxitic rock whose components are arranged in a breccialike manner, that is, there is no specific arrangement.
{ ə ˈtɑk ˌsɪt }

atectonic Of an event that occurs when orogeny is not taking place. { lā ˌtek ˈtæn ˌɪk }

- atectonic pluton** A pluton that is emplaced when orogeny is not occurring. { 'lā·tek'tän·ik 'plü'tän }
- atelesite** $\text{Bi}_3(\text{AsO}_4)_2\text{O}_2(\text{OH})_3$ A yellow mineral consisting of basic bismuth arsenate and occurring in minute crystals; specific gravity is 6.82. { 'ad·əl'ē'stīt }
- athrogenic** Of or pertaining to pyroclastics. { 'lath·rəl'jen·ik }
- Atlantic series** A great group of igneous rocks, based on tectonic setting, found in nonorogenic areas, often associated with block sinking and great crustal instability, and erupted along faults and fissures or through explosion vents. Also known as Atlantic suite. { 'æt'lan·tik 'sir·ēz }
- Atlantic suite** See Atlantic series. { 'æt'lan·tik 'swēt }
- Atlantic-type continental margin** A continental margin typified by that of the Atlantic which is aseismic because oceanic and continental lithospheres are coupled. { 'æt'lan·tik 'tīp 'kānt·ən'ent·əl 'mār·jən }
- atlantite** An olivine-bearing nepheline tephrite. { 'æt'lan·tīt }
- atmoclast** A fragment of rock broken off in place by atmospheric weathering. { 'at·mə'klast }
- atmoclastic** Of a clastic rock, composed of atmoclasts that have been recemented without rearrangement. { 'at·mə'klast·ik }
- atmogenic** Of rocks, minerals, and other deposits derived directly from the atmosphere by condensation, wind action, or deposition from volcanic vapors; for example, snow. { 'at·mə'jən·ik }
- atmolith** A rock precipitated from the atmosphere, that is, an atmogenic rock. { 'at·mə'lith }
- Atokan** A North American provincial series in lower Middle Pennsylvanian geologic time, above Morrowan, below Desmoinesian. { 'ət'ō·kən }
- atoll texture** The surrounding of a ring of one mineral with another mineral, or minerals, within and without the ring. Also known as core texture. { 'ət'ōl 'teks·chər }
- atopite** A yellow or brown variety of romelite that contains fluorine. { 'ad·ə'pīt }
- attached dune** A dune that has formed around a rock or other geological feature in the path of windblown sand. { 'ət'tacht 'dün }
- attapulgitic** $(\text{Mg},\text{Al})_2\text{Si}_4\text{O}_{11}(\text{OH}) \cdot 4\text{H}_2\text{O}$ A clay mineral with a needlelike shape from Georgia and Florida, active ingredient in most fuller's earth, and used as a suspending agent, as an oil well drilling fluid, and as a thickener in latex paint. { 'ad·ə'pəl'jīt }
- Attberg scale** A geometric and decimal grade scale for classification of particles in sediments based on the unit value of 2 millimeters and involving a fixed ratio of 10 for each successive grade; subdivisions are geometric means of the limits of each grade. { 'at·ər'bərg 'skāl }
- Attican orogeny** Late Miocene diastrophism. { 'ad·ə·kən ó'räj·ə·nē }
- attitude** The position of a structural surface feature in relation to the horizontal. { 'ad·ə'tüd }
- attrital coal** A bright coal composed of anthraxylon and of attritus in which the translucent cell-wall degradation matter or translucent humic matter predominates, with the ratio of anthraxylon to attritus being less than 1:3. { 'ət'rīt·əl 'kōl }
- attrition** The act of wearing and smoothing of rock surfaces by the flow of water charged with sand and gravel, by the passage of sand drifts, or by the movement of glaciers. { 'ət'trīsh·ən }
- attritus** 1. Visible-to-ultramicroscopic particles of vegetable matter produced by microscopic and other organisms in vegetable deposits, particularly in swamps and bogs. 2. The dull gray to nearly black, frequently striped portion of material that makes up the bulk of some coals and alternate bands of bright anthraxylon in well-banded coals. { 'ət'rīt·əs }
- aubrite** An enstatite achondrite (meteorite) consisting almost wholly of crystalline-granular enstatite (and clinoenstatite) poor in lime and practically free from ferrous oxide, with accessory oligoclase. Also known as bustite. { 'ö·brīt }
- auganite** An olivine-free basalt (calcic plagioclase and augite are the essential mineral components) or an augite-bearing andesite. { 'ög·ə'nīt }
- augelite** Natural, basic aluminum phosphate. { 'öj·əl'īt }

augen

augen Large, lenticular eye-shaped mineral grain or mineral aggregate visible in some metamorphic rocks. { 'ög·ən or 'äü·gən }

augen kohle See eye coal. { 'äü·gən 'köl·ə }

augen schist A mylonitic rock characterized by the presence of recrystallization. { 'äü·gən 'shist }

augen structure A structure found in some gneisses and granites in which certain of the constituents are squeezed into elliptical or lens-shaped forms and, especially if surrounded by parallel flakes of mica, resemble eyes. { 'äü·gən 'sträk·chär }

augite $(Ca,Mg,Fe)(Mg,Fe,Al)(Al,Si)_2O_6$ A general name for the monoclinic pyroxenes; occurs as dark green to black, short, stubby, prismatic crystals, often of octagonal outline. { 'ö·jīt }

augitite A volcanic rock consisting of abundant phenocrysts of augite in a glassy groundmass containing microlites of nepheline and plagioclase, with accessory biotite, apatite, and opaque oxides. { 'ö·jætīt }

augitophyre A porphyritic rock in which the phenocrysts are augite and the groundmass is potash feldspar. { ö'jid·ə'fi·ər }

aulacogen A major fault-bounded trough considered to be one part of a three-rayed fault system on the domes above mantle hot spots; the other two rays open as proto-ocean basins. { 'äü'läk·ə·jən }

aureole A ring-shaped contact zone surrounding an igneous intrusion. Also known as contact aureole; contact zone; exomorphic zone; metamorphic aureole; metamorphic zone; thermal aureole. { 'ör·ē·öl }

aurichalcite $(Zn,Cu)_2(CO_3)_2(OH)_6$ Pale-green or pale-blue mineral consisting of a basic copper zinc carbonate and occurring in crystalline incrustations. Also known as brass ore. { 'ör·ə'kal'sit }

auriferous Of a substance, especially a mineral deposit, bearing gold. { ö'rif·ə'rəs }

aurosmiridium A brittle, silver-white, isometric mineral consisting of a solid solution of gold and osmium in iridium. { lö'ö·smə'rid·ē·əm }

austinite $CaZnAsO_4(OH)$ A colorless or yellowish mineral crystallizing in the orthorhombic system; consists of a basic calcium zinc arsenate; hardness is 4.5 on Mohs scale, and specific gravity is 4.13. { 'ös·tə'nīt }

australite A tektite found in southern Australia, occurring as glass balls and spheroidal dumbbell forms of green and black, similar to obsidian and probably of cosmic origin. { 'ös·trə'līt }

Austrian orogeny A short-lived orogeny during the end of the Early Cretaceous. { 'ös·trē·ən ö'räj·ə·nē }

autalotriomorphic Pertaining to an aplitic texture in which all mineral constituents crystallized simultaneously, preventing the development of euhedral crystals. { 'äud·əllä·trē·əlmór·fik }

authigene A mineral which has not been transported but has been formed in place. Also known as authigenic mineral. { 'ö·thə'jēn }

authigenic Of constituents that came into existence with or after the formation of the rock of which they constitute a part; for example, the primary and secondary minerals of igneous rocks. { lö·thə'jēn·ik }

authigenic sediment Sediment occurring in the place where it was originally formed. { lö·thə'jēn·ik 'sed·ə·mənt }

autobrecciation The process whereby portions of the first consolidated crust of a lava flow are incorporated into the still-fluid portion. { löd·ö·brech·ē'ä·shən }

autochthon A succession of rock beds that have been moved comparatively little from their original site of formation, although they may be folded and faulted extensively. { ö'täk·thən }

autochthonous Having been formed or occurring in the place where found. { ö'täk·thə·nas }

autochthonous coal Coal believed to have originated from accumulations of plant debris at the place where the plants grew. Also known as indigenous coal. { ö'täk·thə·nas 'köl }

autochthonous sediment A residual soil deposit formed in place through decomposition. { ö'täk·thə·nas 'sed·ə·mənt }

- autoclastic** Of rock, fragmented in place by folding due to orogenic forces when the rock is not so heavily loaded as to render it plastic. { 'lɔd · ɔ'klas · tik }
- autoclastic schist** Schist formed in place from massive rocks by crushing and squeezing. { 'lɔd · ɔ'klas · tik 'shist }
- autogenetic topography** Conformation of land due to the physical action of rain and streams. { 'lɔd · ɔ · jə'lned · ik tə'pæg · rə · fē }
- autogeosyncline** A paraegeosyncline that subsides as an elliptical basin or trough nearly without associated highlands. Also known as intracratonic basin. { 'lɔd · ɔ'ijē · ɔ'sin · klīn }
- autoinjection** See autointrusion. { 'lɔd · ɔ · in'jek · shən }
- autointrusion** A process wherein the residual liquid of a differentiating magma is drawn into rifts formed in the crystal mesh at a late stage by deformation of unspecified origin. Also known as autoinjection. { 'lɔd · ɔ · in'trū · zhən }
- autolith** 1. A fragment of igneous rock enclosed in another igneous rock of later consolidation, each being regarded as a derivative from a common parent magma. 2. A round, oval, or elongated accumulation of iron-magnesium minerals of uncertain origin in granitoid rock. { 'ɔd · ɔ · lith }
- autometamorphism** Metamorphism of an igneous rock by the action of its own volatile fluids. Also known as autometasomatism. { 'lɔd · ɔ · med · ə'mɔr · fiz · əm }
- autometasomatism** See autometamorphism. { 'lɔd · ɔ · med · ə'sɔ · mətiz · əm }
- automorphic** Of minerals in igneous rock bounded by their own crystal faces. Also known as euhedral; idiomorphic. { 'lɔd · ɔ'ɪmɔr · fik }
- automorphosis** Metamorphosis of solidified igneous rock by solutions from its heated interior. { 'ɔd · ə'mɔr · fə · səs }
- autophytograph** An imprint on a rock surface made by chemical activity of a plant or plant part. { 'ɔd · ə'fɪd · ə · graf }
- autopneumatolysis** The occurrence of metamorphic changes at the pneumatolytic stage of a cooling magma when temperatures are approximately 400-600°C. { 'lɔd · ɔ · nū · mə'təl · ə · səs }
- Autunian** A European stage of Lower Permian geologic time, above the Stephanian of the Carboniferous and below the Saxonian. { ɔ'tūn · ē · ən }
- autunite** $\text{Ca}(\text{UO}_2)_2(\text{PO}_4)_2 \cdot 10\text{H}_2\text{O}$ A common fluorescent mineral that occurs as yellow tetragonal plates in uranium deposits; minor ore of uranium. { ɔ'tūn · it }
- Auversian** See Ledian. { ɔ'vərzh · ən }
- auxiliary fault** A branch fault; a minor fault ending against a major one { ɔg'zil · yə · rē 'fɔlt }
- auxiliary mineral** A light-colored, relatively rare or unimportant mineral in an igneous rock; examples are apatite, muscovite, corundrum, fluorite, and topaz. { ɔg'zil · yə · rē 'min · rəl }
- auxiliary plane** A plane at right angles to the net slip on a fault plane as determined from analysis of seismic data for an earthquake. { ɔg'zil · yə · rē 'plān }
- available relief** The vertical distance after uplift between the altitude of the original surface and the level at which grade is first attained. { ə'vāl · ə · bəl ri'lēf }
- aven** See pothole. { 'av · ən }
- aventurine** 1. A glass or mineral containing sparkling gold-colored particles, usually copper or chromic oxide. 2. A shiny red or green translucent quartz having small, but microscopically visible, exsolved hematite or included mica particles. { ə'vench · ə · rēn }
- average igneous rock** A hypothetical rock whose composition is thought to be similar to the average chemical composition of the outermost 10-mile (16-kilometer) shell of the earth. { 'av · rij 'ig · nē · əs 'rāk }
- aviolite** A mica-cordierite-hornfels. { ə'vī · ə · līt }
- avogadrite** $(\text{K}, \text{Cs})\text{BF}_4$ An orthorhombic fluoborate mineral occurring in small crystals on Vesuvian lava. { ə · və'gäd · rīt }
- Avonian** See Dinantian. { ə'vɔn · ē · ən }
- awaruite** Native nickel-iron alloy containing 57.7% nickel. { ə · wä'rū · it }
- axial compression** A compression applied parallel with the cylinder axis in experimental work involving rock cylinders. { 'ak · sē · əl kəm'presh · ən }

axial culmination

- axial culmination** Distortion of the fold axis upward in a form similar to an anticline. { 'ak·sē·əl 'kəl·mə'nā·shən }
- axial plane** A plane that intersects the crest or trough in such a manner that the limbs or sides of the fold are more or less symmetrically arranged with reference to it. Also known as axial surface. { 'ak·sē·əl 'plān }
- axial-plane cleavage** Rock cleavage essentially parallel to the axial plane of a fold. { 'ak·sē·əl 'plān 'klē·vij }
- axial-plane foliation** Foliation developed in rocks parallel to the axial plane of a fold and perpendicular to the chief deformational pressure. { 'ak·sē·əl 'plān 'fō·lē'ā·shən }
- axial-plane schistosity** Schistosity developed parallel to the axial planes of folds. { 'ak·sē·əl 'plān 'shis'tās·əd·ē }
- axial-plane separation** The distance between axial planes of adjacent anticline and syncline. { 'ak·sē·əl 'plān sep·ə'rā·shən }
- axial surface** See axial plane. { 'ak·sē·əl 'sər·fəs }
- axial trace** The intersection of the axial plane of a fold with the surface of the earth or any other specified surface; sometimes such a line is loosely and incorrectly called the axis. { 'ak·sē·əl 'trās }
- axial trough** Distortion of a fold axis downward into a form similar to a syncline. { 'ak·sē·əl 'trōf }
- axinite** $H_2(Ca,Fe,Mn)_4(BO)Al_2(SiO_4)_5$ Brown, blue green, gray, or purplish gem mineral that commonly forms glassy triclinic crystals. Also known as glass schorl. { 'ak·sə·nīt }
- axinitization** The replacement of rocks by axinite, as in the border zones of some granites. { ak·zin·ə·tə'zā·shən }
- axiolite** A variety of elongated spherulite in which there is an aggregation of minute acicular crystals arranged at right angles to a central axis. { 'ak·sē·ə'līt }
- axis** **1.** A line where a folded bed has maximum curvature. **2.** The central portion of a mountain chain. { 'ak·səs }
- Azoic** That portion of the earlier Precambrian time in which there is no trace of life. { ā'zō·ik }
- azonal soil** Any group of soils without well-developed profile characteristics owing to their youth, conditions of parent material, or relief that prevents development of normal soil-profile characteristics. Also known as immature soil. { 'ā·zōn·əl 'sōil }
- azulite** A translucent pale-blue variety of smithsonite found in large masses in Arizona and Greece. { 'azh·ə'līt }
- azurite** $Cu_3(CO_3)_2(OH)_2$ A blue monoclinic mineral consisting of a basic carbonate of copper; an ore of copper. Also known as blue copper ore, blue malachite, chessylite. { 'azh·ə'rīt }
- azurmalachite** A mixture of azurite and malachite, usually occurring massive with concentric banding; used as an ornamental stone. { 'a·zhər'mal·ə'kīt }

B

- back beach** See backshore. { 'bak ,bēch }
- backbone** 1. A ridge forming the principal axis of a mountain 2. The principal mountain ridge, range, or system of a region. { 'bak,bōn }
- backdeep** An epi-eugeosynclinal basin; a nonvolcanic postorogenic geosynclinal basin whose sediments are derived from an uplifted eugeosyncline. { 'bak,dēp }
- backfolding** Process in mountain forming in which the folds are overturned toward the interior of an orogenic belt. Also known as backward folding. { 'bak,fōld·iŋ }
- backlands** A section of a river floodplain lying behind a natural levee { 'bak,lanz }
- backlimb** Of the two limbs of an asymmetrical anticline, the one that is more gently dipping. { 'bak,lim }
- back-set bed** Cross bedding that dips in a direction against the flow of a depositing current. { 'bak ,set ,bed }
- backshore** The upper shore zone that is beyond the advance of the usual waves and tides. Also known as back beach; backshore beach. { 'bak,shōr }
- backshore beach** See backshore. { 'bak,shōr ,bēch }
- backshore terrace** See berm. { 'bak,shōr 'ter·əs }
- back slope** See dip slope. { 'bak ,slōp }
- backswamp** Swampy depressed area of a floodplain between the natural levees and the edge of the floodplain. { 'bak,swamp }
- backthrusting** The thrusting in the direction of the interior of an orogenic belt, opposite the general structural trend. { 'bak,thrəst·iŋ }
- backward folding** See backfolding. { 'bak·wərd 'fōld·iŋ }
- backwash mark** A crisscross ridge pattern in beach sand, caused by backwash { 'bak,wəsh ,märk }
- backwash ripple mark** Ripple marks that are broad and flat and parallel to the shoreline, with narrow, shallow troughs and crests about 30 centimeters apart, formed by backwash above the maximum wave retreat level. { 'bak,wəsh 'rip·əl ,märk }
- baconite** A crystallite that looks like a dark rod. { 'bak·yō'īt }
- baddeleyite** ZrO_2 A colorless, yellow, brown, or black monoclinic zirconium oxide mineral found in Brazil and Ceylon; used as heat- and corrosion-resistant linings for furnaces and muffles. { 'bad·əl·ē'īt }
- bahada** See bajada. { bə'hād·ə }
- bahamite** A consolidated limestone formed of sediment similar to a type currently found accumulating in the Bahamas. { bə'ham·īt }
- bahiaite** Holocrystalline igneous rock formed mainly of hypersthene with subordinate hornblende and sometimes minor amounts of other minerals. { bə'hī·yō'īt }
- baikerite** A waxlike mineral from the vicinity of Lake Baikal, Siberia, apparently about 60% ozocerite with other tarry, waxy, and resinous hydrocarbons. { 'bī·kə'īt }
- bajada** An alluvial plain formed as a result of lateral growth of adjacent alluvial fans until they finally coalesce to form a continuous inclined deposit along a mountain front. Also spelled bahada. { bə'hād·ə }
- bajada breccia** An imperfectly stratified accumulation of coarse angular rock fragments mixed with mud that formed in arid climates and results from a mudflow containing considerable water. { bə'hād·ə 'brech·ə }

Bajocian

- Bajocian** A European stage: the middle Middle or lower Middle Jurassic geologic time; above Toarcian, below Bathonian. {bə'jō-shən}
- bakerite** $8\text{CaO} \cdot 5\text{B}_2\text{O}_3 \cdot 6\text{SiO}_2 \cdot 6\text{H}_2\text{O}$ White mineral, occurring in fine-grained, nodular masses, resembling marble and unglazed porcelain, and consisting of hydrous calcium borosilicate. {'bāk-ə-rīt}
- balanced rock** See perched block. {'bal-ənst-rāk}
- baldheaded anticline** An upfold with a crest that has been deeply eroded before later deposition. {'böld-hed-əd'an-ti-klīn}
- ball** **1.** A low sand ridge, underwater by high tide, which extends generally parallel with the shoreline; usually separated by an intervening trough from the beach. **2.** A spheroidal mass of sedimentary material. **3.** Common name for a nodule, especially of ironstone. {ból}
- ball-and-socket joint** See cup-and-ball joint. {'ból ən 'säk-ət-rjōint}
- ballas** A spherical aggregate of small diamond crystals, used in diamond drill bits and other diamond tools. {'bal-əs}
- ball coal** A variety of coal occurring in spheroidal masses. {'böl-kōl}
- ballstone** **1.** Large mass or concretion of fine, unstratified limestone resulting from growth of coral colonies. **2.** A nodule of rock, especially ironstone, in a stratified unit. {'böl-stōn}
- balm** A concave cliff or precipice that forms a shelter. {bām}
- banakite** An alkalic basalt made up of plagioclase, sanidine, and biotite, with small quantities of analcime, augite, and olivine; quartz or leucite may be present. {'ban-ə-kīt}
- band** A thin layer or stratum of rock that is noticeable because its color is different from the colors of adjacent layers. {band}
- bandaite** A dacite type of extrusive rock composed of hypersthene and labradorite. {'ban-də-īt}
- banded** Pertaining to the appearance of rocks that have thin and nearly parallel bands of different textures, colors, and minerals. {'ban-dəd}
- banded coal** A variety of bituminous and subbituminous coal made up of a sequence of thin lenses of highly lustrous coalified wood or bark interspersed with layers of more or less striated bright or dull coal. {'ban-dəd'kōl}
- banded differentiate** A type of igneous rock made up of bands of different composition, frequently alternating between two varieties as in a layered intrusion. {'ban-dəd-rif-ə'ren-čē-āt}
- banded ore** Ore made up of layered bands composed either of the same minerals that differ from band to band in color or textures or proportion, or of different minerals. {'ban-dəd'ór}
- banded peat** Peat formed of alternate layers of vegetable debris {'ban-dəd'pēt}
- banded structure** An outcrop feature in igneous and metamorphic rocks due to alternation of layers, stripes, flat lenses, or streaks that obviously differ in mineral composition or texture. {'ban-dəd'stræk-čər}
- banded vein** A vein composed of layers of different minerals that lie parallel to the walls. Also known as ribbon vein. {'ban-dəd'vān}
- banding** **1.** The series of layers occurring in a banded structure. **2.** In sedimentary rocks, the thin bedding of alternate layers of different materials. {'band-ɪŋ}
- bandylite** $\text{CuB}_2\text{O}_4 \cdot \text{CuCl}_2 \cdot 4\text{H}_2\text{O}$ A tetragonal mineral that is deep blue with greenish lights and consists of a hydrated copper borate-chloride. {'ban-də-j-līt}
- bank** **1.** The edge of a waterway. **2.** The rising ground bordering a body of water. **3.** A steep slope or face, generally consisting of unconsolidated material. {baŋk}
- bank deposit** Mounds, ridges, and terraces of sediment rising above and about the surrounding sea bottom. {'baŋk di'pāz-ət}
- banket** A conglomerate containing valuable metal to be exploited. {baŋ'ket}
- bank-inset reef** A coral reef situated on island or continental shelves well inside the outer edges. {'baŋk'in-set-rēf}
- bank reef** A reef which rises at a distance back from the outer margin of rimless shoals. {'baŋk-rēf}
- bank-run gravel** A natural deposit comprising gravel or sand. {'baŋk-rən'grav-əl}

- bank sand** Deposits occurring in banks or pits and containing a low percentage of clay; used in core making. { 'bɒŋk ɪsænd }
- bar** **1.** Any of the various submerged or partially submerged ridges, banks, or mounds of sand, gravel, or other unconsolidated sediment built up by waves or currents within stream channels, at estuary mouths, and along coasts. **2.** Any band of hard rock, for example, a vein or dike, that extends across a lode. { bɑ̃r }
- baraboo** A monadnock buried by a series of strata and then reexposed by the partial erosion of these younger strata. { 'bɑ̃r-ə-bü }
- bararite** $(\text{NH}_4)_2\text{SiF}_6$ A white, hexagonal mineral consisting of ammonium silicon fluoride; occurs in tabular, arborescent, and mammillary forms. { bɑ̃r-rä-rīt }
- Barbados earth** A deposit of fossil radiolarians. { bɑ̃r'bā-dəs ɛərθ }
- bar beach** A straight beach of offshore bars that are separated by shallow bodies of water from the mainland. { 'bɑ̃r ɪbɛtʃ }
- barbertonite** $\text{Mg}_6\text{Cr}_2(\text{OH})_6\text{CO}_3 \cdot 4\text{H}_2\text{O}$ A lilac to rose pink, hexagonal mineral consisting of a hydrated carbonate-hydroxide of magnesium and chromium; occurs in massive form or in masses of fibers or plates. { 'bɑ̃r-bɑ̃r-tə-nīt }
- barbierite** $\text{NaAlSi}_3\text{O}_8$ A hypothetical soda feldspar thought to be isomorphous with orthoclase. { bɑ̃r'bi-rīt }
- barchan** A crescent-shaped dune or drift of windblown sand or snow, the arms of which point downwind; formed by winds of almost constant direction and of moderate speeds. Also known as barchane; barkhan; crescentic dune. { bɑ̃r'kæn }
- barchane** See barchan. { bɑ̃r'kæn }
- bar finger sand** An elongated lenticular sand body that lies beneath a distributory in a birdfoot delta. { 'bɑ̃r ɪfɪŋ-gær ɪsænd }
- barite** BaSO_4 A white, yellow, or colorless orthorhombic mineral occurring in tabular crystals, granules, or compact masses; specific gravity is 4.5; used in paints and drilling muds and as a source of barium chemicals; the principal ore of barium. Also known as baryte; barytine, cawk; heavy spar. { 'bɑ̃r-īt }
- barite dollar** Barite in the form of rounded disk-shaped masses, formed in a sandstone or sandy shale. { 'bɑ̃r-īt ɪdəl-ər }
- barkevikite** A brown or black member of the amphibole mineral group, looks like balsaltic hornblende but differs from it in its iron concentration. { bɑ̃r-kə-vi-kīt }
- barkhan** See barchan. { bɑ̃r'kæn }
- bar plain** A plain formed by a stream without a low-water channel or an alluvial cover { 'bɑ̃r ɪplæn }
- barranca** A hole or deep break made by heavy rain; a ravine. { bɑ̃'rɑŋ-kə }
- barred beach sequence** A sequence comprising longshore bars, barrier beaches, and lagoons that develop when, under low-energy conditions, waves cross a broad continental shelf before impinging on a shoreline where sand-sized sediments are abundant. { bɑ̃rd 'bɛtʃ 'sɛ-kwəns }
- Barremian** Lower Cretaceous geologic age, between Hauterivian and Aptian { bɑ̃'rēm-ē-ən }
- barrier bar** Ridges whose crests are parallel to the shore and which are usually made up of water-worn gravel put down by currents in shallow water at some distance from the shore. { 'bɑ̃r-ē-ər bɑ̃r }
- barrier basin** A basin formed by natural damming, for example, by landslides or moraines. { 'bɑ̃r-ē-ər bās-ən }
- barrier beach** A single, long, narrow ridge of sand which rises slightly above the level of high tide and lies parallel to the shore, from which it is separated by a lagoon. Also known as offshore beach. { 'bɑ̃r-ē-ər ɪbɛtʃ }
- barrier chain** A series of barrier spits, barrier islands, and barrier beaches extending along a coastline. { 'bɑ̃r-ē-ər ʃeɪn }
- barrier flat** An area which is relatively flat and frequently occupied by pools of water that separate the seaward edge of the barrier from a lagoon on the landward side { 'bɑ̃r-ē-ər ɪflæt }
- barrier island** **1.** An island similar to an offshore bar but differing from it in having multiple ridges, areas of vegetation, and swampy terraces extending toward the lagoon **2.** A detached portion of offshore bar between two inlets { 'bɑ̃r-ē-ər ɪlənd }

barrier reef

barrier reef A coral reef that runs parallel to the coast of an island or continent, from which it is separated by a lagoon. { 'bar·ē·ər ˌrēf }

barrier spit A barrier of sand joined at one of its ends to the mainland. { 'bar·ē·ər ˌspit }

Barrovian metamorphism A regional metamorphism that can be zoned into facies that are metamorphic. { bə'rōv·ē·ən ˌmed·ə'fɒrˌfɪz·əm }

Barstovian Upper Miocene geologic time. { ˌbɑr'stōv·ē·ən }

bar theory A theory that accounts for thick deposits of salt gypsum, and other evaporites in terms of increased salinity of a solution in a lagoon caused by evaporation. { 'bɑr 'thē·ə·rē }

Bartonian A European stage Eocene geologic time above Auversian, below Ludian. Also known as Marinesian. { bɑr'tōn·ē·ən }

barysphere See centrosphere. { 'bar·ə'sfɪr }

baryta feldspar See hyalophane. { bə'rɪd·ə 'felˌspɑr }

baryte See barite. { 'barɪt }

barytine See barite. { 'bar·ətɪn }

barytocalcite $\text{CaBa}(\text{CO}_3)_2$ A colorless to white, grayish, greenish, or yellowish monoclinic mineral consisting of calcium and barium carbonate. { bə'rɪd·ə'kalˌsɪt }

basal arkose Partially reworked feldspathic residuum in the lower section of a sandstone that overlies granitic rock. { 'bɑ·səl 'ɑrˌkōs }

basal complex See basement. { 'bɑ·səl 'kæmˌpleks }

basal conglomerate A coarse gravelly sandstone or conglomerate forming the lowest member of a series of related strata which lie unconformably on older rocks; records the encroachment of the seabeach on dry land. { 'bɑ·səl kən'glæm·ə·rət }

basalt An aphanitic crystalline rock of volcanic origin, composed largely of plagioclase feldspar (labradorite or bytownite) and dark minerals such as pyroxene and olivine; the extrusive equivalent of gabbro. { bə'sɔlt }

basalt glass See tachylite. { bə'sɔlt ˌglɑs }

basaltic dome See shield volcano. { bə'sɔlˌtɪk 'dōm }

basalt obsidian See tachylite. { bə'sɔlt əb'sɪd·ē·ən }

basaltic hornblende A black or brown variety of hornblende rich in ferric iron and occurring in basalts and other iron-rich basic igneous rocks. Also known as basaltine; lamprobolite; oxyhornblende. { bə'sɔlˌtɪk 'hɔrnˌblend }

basaltic lava A volcanic fluid rock of basaltic composition. { bə'sɔlˌtɪk 'lav·ə }

basaltic magma Mobile fluid material of basaltic composition. { bə'sɔlˌtɪk 'magˌmɑ }

basaltic rock Igneous rock that is fine-grained and contains basalt, diabase, and dolerite; if andesite is included the rock is dark in color. { bə'sɔlˌtɪk 'ræk }

basaltic shell The lower crystal layer of basalt underlying the oceans and beneath the sialic layer of continents. { bə'sɔlˌtɪk 'ʃel }

basaltiform Similar to basalt in form. { bə'sɔlˌtɪk 'fɔrm }

basaltine See basaltic hornblende. { bə'sɔlˌtɪn }

basaluminite $\text{Al}_4(\text{SO}_4)(\text{OH})_{10} \cdot 5\text{H}_2\text{O}$ A white mineral consisting of hydrated basic aluminum sulfate; occurs in compact masses. { ˌbɑs·ə'ljum·əˌnɪt }

basanite A basaltic extrusive rock closely allied to chert, jasper, or flint. Also known as Lydian stone; lydite. { 'bas·əˌnɪt }

basculating fault See wrench fault. { 'ba·skjəˌlæd·ɪŋ 'fɔlt }

base level That critical plane of erosion and deposition represented by river level on continents and by wave or current base in the sea. { 'bɑs ˌlev·əl }

base-leveled plain Any land surface changed almost to a plain by subaerial erosion. Also known as peneplain. { 'bɑs ˌlev·əld 'plæn }

base-leveling epoch See gradation period. { 'bɑs ˌlev·əlv·ɪŋ 'ep·ək }

basement **1.** A complex, usually of igneous and metamorphic rocks, that is overlain unconformably by sedimentary strata. Also known as basement rock. **2.** A crustal layer beneath a sedimentary one and above the Mohorovičić discontinuity. **3.** The ancient continental igneous rock base that lies beneath Precambrian rocks. Also known as basal complex; basement complex. { 'bɑs·mənt }

basement complex See basement. { 'bɑs·mənt 'kæmˌpleks }

basement rock See basement. { 'bɑs·mənt 'ræk }

- basic** Of igneous rocks, having low silica content (generally less than 54%) and usually being rich in iron, magnesium, or calcium. { 'bā·sik }
- basic front** An advancing zone of granitization enriched in calcium, magnesium, and iron. { 'bā·sik 'frənt }
- basic hornfels** A type of hornfels derived from a basic igneous rock { 'bā·sik 'hörn·felz }
- basic rock** An igneous rock with a relatively low silica content, and rich in iron, magnesium, or calcium. { 'bā·sik 'rāk }
- basic schist** A schistose rock that forms from the metamorphism of a basic igneous rock. { 'bā·sik 'shist }
- basification** Development of a more basic rock, usually with more hornblende, biotite, and oligoclase, by contamination of a granitic magma in the assimilation of country rock. { 'bās·ə·fə'kā·shən }
- basimesostasis** A process of the partial or entire enclosure of plagioclase crystals in a diabase by augite. { 'bā·zē·mez·ə'stā·səs }
- basin** **1.** A low-lying area, wholly or largely surrounded by higher land that varies from a small, nearly enclosed valley to an extensive, mountain-rimmed depression. **2.** An entire area drained by a given stream and its tributaries. **3.** An area in which the rock strata are inclined downward from all sides toward the center. **4.** An area in which sediments accumulate. { 'bās·ən }
- basin-and-range structure** Regional structure dominated by fault-block mountains separated by basins filled with sediment. { 'bās·ən ən 'ranj·strək·chər }
- basin fold** Synclinal and anticlinal folds in structural basins. { 'bās·ən 'föld }
- basining** A settlement of earth in the form of basins due to the solution and transportation of underground deposits of salt and gypsum. { 'bās·ən·iŋ }
- basin length** Length in a straight line from the mouth of a stream to the farthest point on the drainage divide of its basin. { 'bās·ən 'leŋkθ }
- basin order** A classification of basins according to stream drainage, for example, a first-order basin contains all of the drainage area of a first-order stream. { 'bās·ən 'örd·ər }
- basin peat** See local peat. { 'bās·ən 'pēt }
- basin range** A mountain range characteristic of the Great Basin in the western United States and formed by a faulted and tilted block of strata. { 'bās·ən 'rānj }
- basin valley** The filled-in depression of large intermountain areas, an example is Salt Lake Valley in Utah. { 'bās·ən 'val·ē }
- basanite** A white mineral consisting of hydrated calcium sulfate a pseudomorph of gypsum. { bə'sä·nīt }
- basset** The outcropping edge of a layer of rock exposed to the surface. { 'bas·ət }
- bassetite** A transparent, yellow, monoclinic mineral presumably consisting of a hydrated uranium phosphate containing divalent iron; occurs in groups of thin tablets { 'bas·əd·īt }
- bastion** A prominent aggregation of bedrock extending from the mouth of a hanging glacial trough and reaching well into the main glacial valley. { 'bas·chən }
- bastite** A hydrated magnesium silicate, a variety of serpentine occurring from the alteration of orthorhombic pyroxenes such as enstatite. { 'ba'stīt }
- bastnaesite** (Ce,Ln)CO₃(F,OH) A greasy yellow to reddish-brown fluorocarbonate rare-earth metal mineral; source of rare earths, for example, cerium and lanthanum. { 'bast·nə'sīt }
- batholite** An older massive protrusion of magma that solidifies as coarse crystalline rock in the deep horizons of the earth's crust. { 'bath·ə·līt }
- batholith** A body of igneous rock, 40 square miles (100 square kilometers) or more in area, emplaced at great or intermediate depth in the earth's crust. { 'bath·ə·lith }
- Bathonian** A European stage of geologic time Middle Jurassic, below Callovian, above Bajocian. Also known as Bathian. { bə'thōn·ē·ən }
- bathwillite** An oxygenated hydrocarbon mineral found in Tortane Hill, Scotland, that is amorphous, fawn-brown, opaque, and quite friable. { 'bath·və·līt }
- bathymetric biofacies** The lateral distribution and character of underwater sedimentary strata. { 'bath·ə'me·trik 'bī·ō'fā·shēz }

battery reefs

battery reefs See Kimberley reefs. { 'bad · ə · rē , rēfs }

batture An elevation of the bed of a river under the surface of the water; sometimes used to signify the same elevation when it has risen above the surface. { ba'tūr }

baumhauerite $Pb_4As_6S_{13}$ A lead to steel gray, monoclinic mineral consisting of lead arsenic sulfide. { baū'maū · ə · rīt }

bauxite A whitish, grayish, brown, yellow, or reddish-brown rock composed of hydrous aluminum oxides and aluminum hydroxides and containing impurities such as free silica, silt, iron hydroxides, and clay minerals; the principal commercial source of aluminum. { 'bók · sīt }

bauxitization Bauxite development from either primary aluminum silicates or secondary clay minerals. { 'bók · sə · də'zā · shən }

bavenite See duplexite. { bæ'vē · nīt }

b axis A direction in the plane of movement that is at a right angle to the tectonic transport direction. { 'bē · rak · səs }

bay bar See baymouth bar. { 'bā · bār }

bay barrier A narrow shoal or small point of land projecting from the shore across the mouth of a bay and severing the bay's connection with the main body of water. { 'bā · bar · ē · ār }

bay delta A usually triangular alluvial deposit formed at the point where the mouth of a stream enters the head of a drowned valley. { 'bā · del · tə }

bay head A swampy region at the head of a bay. { 'l̩bā · h̩hed }

bay-head bar A bar formed a short distance from the shore at the head of a bay. { 'l̩bā · h̩hed · bār }

bay-head beach A beach formed around a bay head by storm waves; layers of sediment cover the bay floor and bare rock benches front the headland cliffs. { 'l̩bā · h̩hed · bēch }

bay-head delta A delta at the head of an estuary or a bay into which a river discharges because of the margin of the land's late partial submergence. { 'l̩bā · h̩hed · del · tə }

bayldonite $Cu_3(AsO_4)_2(OH)_2$ An apple green to yellowish-green monoclinic mineral consisting of a basic arsenate of copper and lead; occurs in minute mammillary concretions, in massive form, and as crusts. { 'bāl · də · nīt }

bayleyite $Mg_2(UO_2)(CO_3) · 18H_2O$ A sulfur yellow monoclinic mineral consisting of a hydrated carbonate of magnesium and uranium; occurs as minute, short-prismatic crystals. { 'bā · lē · it }

baymouth bar A bar extending entirely or partially across the mouth of a bay. Also known as bay bar. { 'bā · maūth · bār }

bayside beach A beach formed at the side of a bay by materials eroded from nearby headlands and deposited by longshore currents. { 'bā · sīd · bēch }

bazzite $Sc_2Be_3Si_6O_{18}$ An azure-blue mineral that crystallizes in the hexagonal system; the rare scandium analog of beryl. { 'ba · zīt }

b-c fracture A tension fracture parallel with the fabric plane and normal to the *a* axis. { 'l̩bē · l̩sē 'frak · chər }

b-c plane A plane that is perpendicular to the plane of movement and parallel to the *b* direction in that plane. { 'l̩bē · l̩sē · plān }

beach The zone of unconsolidated material that extends landward from the low-water line to where there is marked change in material or physiographic form or to the line of permanent vegetation. { bēch }

beach cusp See cusp. { bēch · kəsp }

beach cycle Periodic retreat and outbuilding of beaches resulting from waves and tides. { bēch · sī · kəl }

beach drift The material transported by drifting of beach. { bēch · drift }

beach face See foreshore. { bēch · fās }

beach gravel Gravels in which most of the particles cluster about one size. { bēch · grav · əl }

beach plain Embankments of wave-deposited material added to a prograding shoreline. { 'bēch · plān }

beach platform See wave-cut bench. { 'bēch · plat · fōrm }

- beach profile** Intersection of a beach's ground surface with a vertical plane perpendicular to the shoreline. { 'bēch 'prō·fil }
- beach ridge** A continuous mound of beach material behind the beach that was heaped up by waves or other action. { 'bēch ,rij }
- beachrock** A friable to well-cemented rock made of calcareous skeletal debris that is cemented together by calcium carbonate. { 'bēch·rāk }
- beach scarp** A nearly vertical slope along the beach caused by wave erosion. { 'bēch ,skärp }
- bean ore** A lenticular, pisolitic aggregate of limonite. { 'bēn ,òr }
- beaverite** $Pb(Cu,Fe,Al)_3(SO_4)_2(OH)_6$ A canary yellow, hexagonal mineral consisting of a basic sulfate of lead, copper, iron, and aluminum. { 'bē·və·rīt }
- beckerite** A brown variety of the fossil resin retinite with a very high oxygen content. { 'bek·ə·rīt }
- Becke test** A microscope test in which indices of refraction are compared for minerals, the Becke line appears to move toward the material of higher refractivity as the tube of the microscope is raised. { 'bek·ə ,test }
- becquerelite** $CaU_6O_{19} \cdot 11H_2O$ An orthorhombic mineral consisting of a hydrated oxide of uranium; occurs in tabular, elongated, striated, and massive form. { be 'kre·līt }
- bed** **1.** The smallest division of a stratified rock series, marked by a well-defined divisional plane from its neighbors above and below. **2.** An ore deposit, parallel to the stratification, constituting a regular member of the series of formations; not an intrusion. { bed }
- bedded** Pertaining to rocks exhibiting depositional layering or bedding formed from consolidated sediments. { 'bed·əd }
- bedded chert** Chert of brittle, close-jointed, rhythmically layered character found over large areas in thick deposits, the usually even-bedded layers separated by partings of dark siliceous shale or by siderite layers. { 'bed·əd ,chərt }
- bedded vein** A lode occupying the position of a bed that is parallel with the enclosing rock stratification. { 'bed·əd ,vān }
- bedding** Condition where planes divide sedimentary rocks of the same or different lithology. { 'bed·iŋ }
- bedding cleavage** Cleavage parallel to the rock bedding { 'bed·iŋ ,klēv·ij }
- bedding fault** A fault whose fault surface is parallel to the bedding plane of the constituent rocks. Also known as bedding-plane fault. { 'bed·iŋ ,fəlt }
- bedding fissility** Primary foliation parallel to the bedding of sedimentary rocks { 'bed·iŋ fi'sil·əd·ē }
- bedding joint** A joint parallel to the rock bedding. { 'bed·iŋ ,jòint }
- bedding plane** Any of the division planes which separate the individual strata or beds in sedimentary or stratified rock. { 'bed·iŋ ,plān }
- bedding-plane slip** See flexural slip. { 'bed·iŋ ,plān ,slip }
- bedding schistosity** Schistosity that is parallel to the rock bedding. { 'bed iŋ ,shis'täs·əd·ē }
- bedding thrust** A thrust fault parallel to bedding. { 'bed·iŋ ,θrəst }
- bedding void** A void formed between successive batches of lava that are discharged in a single short activity of a volcano, as well as between flows made a long time apart. { 'bed·iŋ ,vòid }
- Bedford limestone** See spargenite. { 'bed·fərd 'līm·stōn }
- bediasite** A black to brown tektite found in Texas. { bē'dī·ə·zīt }
- bed load** Particles of sand, gravel, or soil carried by the natural flow of a stream on or immediately above its bed. Also known as bottom load. { 'bed ,lòd }
- Bedoulian** Lower Cretaceous (lower Aptian) geologic time in Switzerland { bə'dül·ē·ən }
- bedrock** General term applied to the solid rock underlying soil or any other unconsolidated surficial cover. { 'bed·rāk }
- beegerite** $Pb_6Bi_2S_9$ A light to dark gray mineral consisting of lead bismuth sulfide; usually occurs in granular to dense massive form. { 'be·gə·rīt }
- beekite** **1.** A concretionary form of calcite or silica that occurs in small rings on the

beerbachite

surface of a fossil shell which has weathered out of its matrix. **2.** White, opaque accretions of silica found on silicified fossils or along joint surfaces as a replacement of organic matter. { 'bē·kīt }

beerbachite A hornfels with large poikiloblastic crystals of olivine. { 'bir·bæ·kīt }

beetle stone See sepiarium. { 'bēd·əl·stōn }

beidellite A clay mineral of the montmorillonite group in which Si^{4+} has been replaced by Al^{3+} and in which there is virtual absence of Mg or Fe replacing Al. { bī'de·līt }

belite See larnite. { 'bē·līt }

bellingerite $3\text{Cu}(\text{IO}_3)_2 \cdot 2\text{H}_2\text{O}$ A light green triclinic mineral consisting of hydrated copper iodate. { bə'liŋ·ə·rīt }

bell-metal ore See stannite. { 'bel·med·əl·ōr }

belonite A rod- or club-shaped microscopic embryonic crystal in a glassy rock. { 'bel·ə·nīt }

belted plain A plain whose surface has been slowly worn down and sculptured into bands or belts of different levels. { 'bel·təd·plān }

belterporic Of crystals in rocks whose growth was determined by the direction of easiest growth. { ,bel·tər·ə'pōr·ik }

belt of cementation See zone of cementation. { 'belt əv ,si·men'tā·shən }

belt of soil moisture See belt of soil water. { 'belt əv 'sōil ,mōis·chər }

belt of soil water The upper subdivision of the zone of aeration limited above by the land surface and below by the intermediate belt; this zone contains plant roots and water available for plant growth. Also known as belt of soil moisture; discrete film zone; soil-water belt; soil-water zone; zone of soil water. { 'belt əv 'sōil ,wōd·ər }

bench A terrace of level earth or rock that is raised and narrow and that breaks the continuity of a declivity. { bench }

bench gravel Gravel beds found on the sides of valleys above the present stream bottoms, representing parts of the bed of the stream when it was at a higher level. { 'bench ,grav·əl }

bench lava Semiconsolidated, crusted basaltic lava forming raised platforms and crags about the edges of lava lakes. Also known as bench magma. { 'bench ,la·və }

bench magma See bench lava. { 'bench ,mag·mə }

bench placer A placer in ancient stream deposits from 50 to 300 feet (15 to 90 meters) above present streams. { 'bench ,plās·ər }

bend **1.** A curve or turn occurring in a stream course, bed, or channel which has not yet become a meander. **2.** The land area partly encircled by a bend or meander. { bend }

benitoite $\text{BaTi}(\text{SiO}_3)_3$ A blue to violet barium-titanium silicate mineral; at one time it was cut and sold as sapphire. { bə'nēd·ə·wīt }

benjaminite $\text{Pb}_2(\text{Cu},\text{Ag})_2\text{Bi}_4\text{S}_6$ A gray mineral occurring in granular massive form. { 'ben·jə·mə·nīt }

bentonite A clay formed from volcanic ash decomposition and largely composed of montmorillonite and beidellite. Also known as taylorite. { 'bent·ən·īt }

beraunite $\text{Fe}^{2+}\text{Fe}^{3+}(\text{PO}_4)_3(\text{OH})_5 \cdot 3\text{H}_2\text{O}$ A reddish-brown to blood red, monoclinic mineral consisting of hydrated basic phosphate of ferric and ferrous iron. { bə'rau·nīt }

berg crystal See rock crystal. { 'bərg ,kris·təl }

bergmehl See rock milk. { 'berk·mel }

berg till See floe till. { 'bərg ,tīl }

berkeyite See lazulite. { 'bærk·ē·īt }

berlinite $\text{Al}(\text{PO}_4)$ A colorless to gray or pale rose, hexagonal mineral consisting of aluminum orthophosphate; occurs in massive form. { 'bær·lə·nīt }

berm **1.** A narrow terrace which originates from the interruption of an erosion cycle with rejuvenation of a stream in the mature stage of its development and renewed dissection. **2.** A horizontal portion of a beach or backshore formed by deposit of material as a result of wave action. Also known as backshore terrace; coastal berm. { bərm }

bermanite $\text{Mn}^{2+}\text{Mn}_2^{3+}(\text{PO}_4)_2(\text{OH})_2 \cdot 4\text{H}_2\text{O}$ A reddish-brown, orthorhombic mineral consisting of a hydrated basic phosphate of manganese; occurs in crystal aggregates and as lamellar masses. { 'bær·mə·nīt }

- berm crest** The seaward limit and usually the highest spot on a coastal berm. Also known as berm edge. { 'bærm 'krest }
- berm edge** See berm crest. { 'bærm 'ej }
- Berriasian** Part of or the underlying stage of the Valanginian at the base of the Cretaceous. { 'ber-ē'ā-zhən }
- berthierite** FeSb_2S_4 A dark steel gray, orthorhombic mineral consisting of iron antimony sulfide. { 'bær-thē-ə-rīt }
- berthonite** See bournonite. { 'bær-thə-nīt }
- bertrandite** $\text{Be}_4\text{Si}_2\text{O}_7(\text{OH})_2$ A colorless or pale-yellow mineral consisting of a beryllium silicate occurring in prismatic crystals; hardness is 6-7 on Mohs scale, and specific gravity is 2.59-2.60. { 'bær-trən-dīt }
- beryllonite** $\text{NaBe}(\text{PO}_4)$ A colorless or yellow mineral occurring in short, prismatic or tabular, monoclinic crystals with two good pinacoidal cleavages at right angles; hardness is 5.5-6 on Mohs scale, and specific gravity is 2.85. { bæ'ril-ə-nīt }
- berzelianite** Cu_2Se A silver-white mineral composed of copper selenide and found in igneous rock; specific gravity is 4.03. { bæ'zēl-yə-nīt }
- beta chalcocite** See chalcocite. { 'bād-ə 'chal-kə-sīt }
- betafite** See ellsworthite. { 'bed-ə-fīt }
- betrunken river** A river that is shorn of its lower course as a result of submergence of the land margin by the sea. { bē'træŋkt 'riv-ər }
- betwixt mountains** See median mass. { bæ'twɪkst 'maʊnt-ənz }
- beudantite** $\text{PbFe}_3(\text{AsO}_4)(\text{SO}_4)(\text{OH})_6$ A black, dark green, or brown, hexagonal mineral consisting of a basic sulfate-arsenate of lead and ferric iron; occurs as rhombohedral crystals. { 'byüd-ən-īt }
- beveling** Planing by erosion of the outcropping edges of strata. { 'bev-ə-lɪŋ }
- beyerite** $(\text{Ca,Pb})\text{Bi}_2(\text{CO}_3)_2\text{O}_2$ A bright yellow to lemon yellow, tetragonal mineral consisting of bismuth and calcium carbonate; occurs as thin plates and compact earthy masses. { 'bī-ə-rīt }
- B girdle** A circular pattern in petrofabric diagrams that indicates a B axis { 'bē 'gærd əl }
- B horizon** The zone of accumulation in soil below the A horizon (zone of leaching). Also known as illuvial horizon; subsoil; zone of accumulation; zone of illuviation. { 'bē hæ'rɪz-ən }
- bianchite** $(\text{Fe,Zn})\text{SO}_4 \cdot 6\text{H}_2\text{O}$ A white, monoclinic mineral consisting of iron and zinc sulfate hexahydrate; occurs in crusts of indistinct crystals. { bæ'ɑŋ-kīt }
- bieberite** $\text{CoSO}_4 \cdot 7\text{H}_2\text{O}$ A rose red or flesh red, monoclinic mineral consisting of cobalt sulfate heptahydrate; occurs as crusts and stalactites. { 'bē-bə-rīt }
- bight** **1.** A long, gradual bend or recess in the coastline which forms a large, open receding bay. **2.** A bend in a river or mountain range. { bīt }
- bigwoodite** A medium-grained plutonic rock consisting of microcline, microcline-microperthite, sodic plagioclase, and hornblende, aegirine-augite, or biotite. { big'wù-dīt }
- bilinite** $\text{Fe}^2\text{Fe}_2^3(\text{SO}_4)_4 \cdot 22\text{H}_2\text{O}$ A white to yellowish mineral consisting of a hydrated sulfate of divalent and trivalent iron; occurs in radial-fibrous aggregates. { 'bɪl-ə-nīt }
- bimaceral** A coal microlithotype that consists of a mixture of two macerals { bɪ'mas ə-rəl }
- binary granite** **1.** A granite made up of quartz and feldspar **2.** A granite containing muscovite mica and biotite. { 'bɪn-ə-rē 'gran-ət }
- bindheimite** $\text{Pb}_2\text{Sb}_2\text{O}_6(\text{O},\text{OH})$ A hydrous lead antimonate mineral produced from natural oxidation of jamesonite; found in Nevada. { 'bɪnt-hɪ-mīt }
- binding coal** See caking coal. { 'bɪn-dɪŋ 'kōl }
- bing ore** The purest lead ore, with the largest crystals of galena. { 'bɪŋ 'ôr }
- biochemical deposit** A precipitated deposit formed directly or indirectly from vital activities of organisms, such as bacterial iron ore and limestone. { bɪ-ō'kem-ə-kəl dɪ'pāz-ət }
- biochemical rock** A type of sedimentary rock primarily comprising deposits resulting

biochronology

directly or indirectly from processes and activities of living organisms. { 'bī-ō'kem-i·kəl 'rāk }

biochronology The relative age dating of rock units based on their fossil content. { 'bī-ō·krə'nāl·ə·jē }

bioclastic rock Rock formed from material broken or arranged by animals, humans, or sometimes plants; a rock composed of broken calcareous remains of organisms. { 'bī-ō'klas·tik 'rāk }

biofacies **1.** A rock unit differing in biologic aspect from laterally equivalent biotic groups. **2.** Lateral variation in the biologic aspect of a stratigraphic unit. { 'bī-ō·fā·shēz }

biogenic chert Chert derived from the tests of pelagic silica-secreting organisms, particularly diatoms and radiolarians. { 'bī-ō'jen·ik 'chərt }

biogenic mineral A mineral in sediments or sedimentary rock which represents the hard parts of dead organisms. { 'bī-ō'jen·ik 'min·rəl }

biogenic reef A mass consisting of the hard parts of organisms, or of a biogenically constructed frame enclosing detrital particles, in a body of water, most biogenic reefs are made of corals or associated organisms. { 'bī-ō'jen·ik 'rēf }

biogenic sediment A deposit resulting from the physiological activities of organisms. { 'bī-ō'jen·ik 'sed·ə·mənt }

bioherm A circumscribed mass of rock exclusively or mainly constructed by marine sedimentary organisms such as corals, algae, and stromatoporoids. Also known as organic mound. { 'bī-ō'hərm }

biohermal limestone Reefs or reeflike mounds of carbonate that accumulated much in the same fashion as modern reefs and atolls of the Pacific Ocean. { 'bī-ō'hər·mə'l 'līm·stōn }

biohermite Limestone formed of debris from a bioherm. { 'bī-ō'hər·mīt }

biolite **1.** A concretion formed of concentric layers through the action of living organisms. **2.** See biolith. { 'bī-ō'lit }

biolith A rock formed from or by organic material. Also known as biolite. { 'bī-ō'liθ }

biolithite An inclusive category for all organic limestone. { 'bī-ō'liθ·īt }

biological weathering See organic weathering { 'bī-ə'lāj·ik 'weth·ə·rɪŋ }

biomicrite A limestone resembling biosparite except that the microcrystalline calcite matrix exceeds calcite cement. { 'bī-ə'mī·krīt }

biomicrosparite **1.** Biomicrite in which the micrite groundmass has recrystallized to microspar. **2.** Microsparite containing fossil fragments or fossils. { 'bī-ə·mī·krō'spār·īt }

biomicrudite Biomicrite with fossil fragments or fossils greater than 1 millimeter in diameter. { 'bī-ə'mī·krə'dīt }

biopelite See black shale. { 'bī'əp·ə'li:t }

biopelmicrite A limestone similar to biopelsparite but with a microcrystalline matrix that exceeds calcite cement. { 'bī-ə'pel·mə·krīt }

biopelsparite A limestone similar to biosparite but with the ratio of fossils and fossil fragments to pellets between 3:1 and 1:3. { 'bī-ə'pel·spər·īt }

biopyribole **1.** A collective term for the rock-forming minerals pyroxene, amphibole, and mica. **2.** A chemically diverse but structurally related group of minerals that constitute substantial fractions of both the earth's crust and upper mantle; they exhibit single-chain, double-chain, triple-chain, and sheet silicate structures. { 'bī-ō'pir·ə·bōl }

biosparite A limestone made up of less than 25% oolites and less than 25% intraclasts, with the ratio by volume of fossils and fragments to pellets being more than 3:1 and the calcite cement content being greater than the microcrystalline calcite content. { 'bī'ās·pər·īt }

biostratigraphic unit A stratum or body of strata that is defined and identified by one or more distinctive fossil species or genera without regard to lithologic or other physical features or relations. { 'bī-ō·strəd·ə'graf·ik 'yü·nət }

biostromal limestone Biogenic carbonate accumulations that are laterally uniform in thickness, in contrast to the moundlike nature of bioherms. { 'bī-ə'strō·mə'l 'līm·stōn }

- biostrome** A bedded structure or layer (bioclastic stratum) composed of calcite and dolomitized calcarenitic fossil fragments distributed over the sea bottom as fine lentils, independent of or in association with bioherms or other areas of organic growth { 'bī·ə·strōm }
- biotite** A black, brown, or dark green, abundant and widely distributed species of rock-forming mineral belonging to the mica group; its chemical composition is variable: $K_2[Fe(II),Mg]_{0-4}[Fe(III),Al,Ti]_{0-2}(Si_{6-5},Al_{2-3})O_{20-22}(OH,F)_{4-2}$. Also known as black mica, iron mica; magnesia mica; magnesium-iron mica. { 'bī·ə·tīt }
- biotite schist** A schist composed of biotite. { 'bī·ə·tīt 'shist }
- bioturbation** The disruption of marine sedimentary structures by the activities of benthic organisms. { 'bī·ə·tər'bā·shən }
- bird's-foot delta** A delta with long, projecting distributary channels that branch outward like the toes or claws of a bird. { 'bærdz 'fʊt 'del·tə }
- bischofite** $MgCl_2 \cdot 6H_2O$ A colorless to white, monoclinic mineral consisting of magnesium chloride hexahydrate. { 'bish·ə·fīt }
- bisilicate** See metasilicate. { 'bī'sil·ə·kæt }
- bismite** Bi_2O_3 A monoclinic mineral composed of bismuth trioxide, native bismuth ore, occurring as a yellow earth. Also known as bismuth ocher. { 'biz·mīt }
- bismuth** The brittle, rhombohedral mineral form of the native element bismuth { 'biz·mæθ }
- bismuth blende** See eulytite. { 'biz·mæθ 'blend }
- bismuth glance** See bismuthinite. { 'biz·mæθ 'glans }
- bismuthinite** Bi_2S_3 A mineral consisting of bismuth trisulfide, which has an orthorhombic structure and is usually found in fibrous or leafy masses that are lead gray with a yellowish tarnish and a metallic luster. Also known as bismuth glance. { 'biz·mæθ·ənīt }
- bismuth ocher** See bismite. { 'biz·mæθ 'ō·kær }
- bismuth spar** See bismutite. { 'biz·mæθ 'spær }
- bismutite** $(BiO)_2CO_3$ A dull-white, yellowish, or gray, earthy, amorphous mineral consisting of basic bismuth carbonate. Also known as bismuth spar. { 'biz·mæd·īt }
- bismutotantalite** $Bi(Ta,Nb)O_4$ A pitch black, orthorhombic mineral consisting of an oxide of bismuth and tantalum and occurring in crystals. { 'biz·mæd·ə'tan·tæl·īt }
- bituminization** See coalification. { bī'tū·mə·nə'zā·shən }
- bituminous** Of a mineral, having the odor of bitumen. { bī'tū·mə·nəs }
- bituminous coal** A dark brown to black coal that is high in carbonaceous matter and has 15-50% volatile matter. Also known as soft coal. { bī'tū·mə·nəs 'kōl }
- bituminous lignite** A brittle, lustrous bituminous coal. Also known as pitch coal { bī'tū·mə·nəs 'lig·nīt }
- bituminous rock** See asphalt rock. { bī'tū·mə·nəs 'ræk }
- bituminous sand** Sand containing bituminous-like material, such as the tar sands at Athabasca, Canada, from which oil is extracted commercially. { bī'tū·mə·nəs 'sand }
- bituminous sandstone** A sandstone containing bituminous matter { bī'tū·mə·nəs 'sand·stōn }
- bituminous shale** A shale containing bituminous material { bī'tū·mə·nəs 'shāl }
- bituminous wood** A variety of brown coal having the fibrous structure of wood. Also known as board coal; wood coal; woody lignite; xyloid coal; xyloid lignite. { bī'tū·mə·nəs 'wʊd }
- bixbite** $(Mn,Fe)_2O_4$ A manganese-iron oxide mineral, black cubic crystals found in cavities in rhyolite. Also known as partridgeite; sitaparite. { 'biks·bē·īt }
- black alkali** A deposit of sodium carbonate that has formed on or near the surface in arid to semiarid areas. { 'blak 'al·kə·lī }
- black amber** See jet coal. { 'blak 'am·bær }
- blackband** An earthy carbonate of iron that is present with coal beds { 'blak·band }
- black coal** See natural coke. { 'blak 'kōl }
- black cobalt** See asbolite. { 'blak 'kō·bōlt }
- black cotton soil** See regur. { 'blak 'kət·ən 'sōil }
- black diamond** See carbonado. { 'blak 'dī·mænd }

black durain

- black durain** A durain that has high hydrogen content and volatile matter, many microspores, and some vitrain fragments. { 'blak 'dú·rān }
- black granite** See diorite. { 'blak 'gran·ət }
- black lead** See graphite. { 'blak 'led }
- black lignite** A lignite with a fixed carbon content of 35-60% and a total carbon content of 73.6-76.2% that contains between 6300 and 8300 Btu per pound; higher in rank than brown lignite. Also known as lignite A. { 'blak 'lig·nīt }
- black mica** See biotite. { 'blak 'mī·kə }
- black mud** A mud formed where there is poor circulation or weak tides, such as in lagoons, sounds, or bays; the color is due to iron sulfides and organic matter. { 'blak 'məd }
- black ocher** See wad. { 'blak 'ō·kər }
- black opal** A variety of gem-quality opal displaying internal reflections against a dark background. { 'blak 'ō·pəl }
- black sand** Heavy, dark, sandlike minerals found on beaches and in stream beds; usually magnetite and ilmenite and sometimes gold, platinum, and monazite are present. { 'blak 'sand }
- black shale** Very thinly bedded shale rich in sulfides such as pyrite and organic material deposited under barred basin conditions so that there was an anaerobic accumulation. Also known as biopelite. { 'blak 'shāl }
- black silver** See stephanite. { 'blak 'sil·vər }
- black tellurium** See nagyagite. { 'blak ta'lúr·ē·əm }
- bladder** See vesicle. { 'blad·ər }
- Blaine formation** A Permian red bed formation containing red shale and gypsum beds of marine origin in Oklahoma, Texas, and Kansas. { 'blān fōr'mā·shən }
- blairmorite** A porphyritic extrusive rock consisting mainly of analcite phenocrysts in a groundmass of sanidine, analcite, and alkalic pyroxene, with accessory sphene, melanite, and nepheline. { 'bler·mər·rīt }
- blakeite** A deep reddish-brown to deep brown mineral consisting of anhydrous ferric tellurite; occurs in massive form, as microcrystalline crusts. { 'blā·kīt }
- Blancan** Upper Pliocene or lowermost Pleistocene geologic time. { 'blāŋ·kən }
- blanket deposit** A flat deposit of ore, its length and width are relatively great compared with its thickness. { 'blaŋ·kət di'pāz·ət }
- blanket sand** A relatively thin body of sand or sandstone covering a large area. Also known as sheet sand. { 'blaŋ·kət 'sand }
- blastic deformation** Rock deformation involving recrystallization in which space lattices are destroyed or replaced. { 'blas·tik 'dē·fōr'mā·shən }
- blasting** Abrasion caused by movement of fine particles against a stationary fragment { 'blas·tiŋ }
- blasto-** A prefix indicating the presence in a rock of residual structures somewhat modified by metamorphism. { 'blas·tō }
- blastogranitic rock** A metamorphic granitic rock which still has parts of the original granitic texture. { 'blas·tō grə'nid·ik 'rāk }
- blastomylonite** Rock which has recrystallized after granulation { 'blas·tə'mī·lə·nīt }
- blastopelitic** Descriptive of the structure of metamorphosed argillaceous rocks. { 'blas·tō·pə'lid·ik }
- blastophitic** A metamorphosed rock which once contained lath-shaped crystals partly or wholly enclosed in augite and in which part of the original texture remains. { 'blas·tō'fid·ik }
- blastoporphyritic** Applied to the textures of metamorphic rocks that are derived from porphyritic rocks; the porphyritic character still remains as a relict feature. { 'blas·tō·pōr·fə'rid·ik }
- blastopsammite** A relict fragment of sandstone that is contained in a metamorphosed conglomerate. { bla'stəp·sə·mīt }
- blastopsephitic** Descriptive of the structure of metamorphosed conglomerate or breccia. { bla'stəp·sə'fid·ik }
- bleach spot** A green or yellow area in red rocks formed by reduction of ferric oxide around an organic particle. Also known as deoxidation sphere. { 'blēch 'spāt }

- bleb** A small, usually spherical inclusion in a rock mass. { bleb }
- blende** See sphalerite. { blend }
- blended unconformity** An unconformity that is not sharp because the original erosion surface was covered by a thick residual soil that graded downward into the underlying rock. { |blen·dəd ˌən·kən'fɔrməd·ē }
- blind** Referring to a mineral deposit with no surface outcrop. { blɪnd }
- blind coal** See natural coke. { |blɪnd ɪkɔl }
- blind valley** A valley that has been made by a spring from an underground channel which emerged to form a surface stream, and that is enclosed at the head of the stream by steep walls. { 'blɪnd ˈvəl·ē }
- blister** A domelike protuberance caused by the buckling of the cooling crust of a molten lava before the flowing mass has stopped. { 'blɪs·tər }
- blister hypothesis** A theory of the formation of compressional mountains by a process in which radiogenic heat expands and melts a portion of the earth's crust and sub-crust, causing a domed regional uplift (blister) on a foundation of molten material that has no permanent strength. { 'blɪs·tər hɪ'pəθ·ə·səs }
- block clay** See melange. { 'blæk ˌklā }
- block faulting** A type of faulting in which fault blocks are displaced at different orientations and elevations. { 'blæk ˌfɔl·tɪŋ }
- block glide** A translational landslide in which the slide mass moves outward and downward as an intact unit. { 'blæk ˌglɪd }
- block lava** Lava flows which occur as a tumultuous assemblage of angular blocks. Also known as aa lava. { 'blæk ˌlæv·ə }
- block mountain** A mountain formed by the combined processes of uplifting, faulting, and tilting. Also known as fault-block mountain. { 'blæk ˌmaʊn·tən }
- blödite** See bloedite. { 'blɔːdɪt }
- bloedite** $MgSO_4 \cdot Na_2SO_4 \cdot 4H_2O$ A white or colorless monoclinic mineral consisting of magnesium sodium sulfate. Also spelled blödite. Also known as astrakanite; astrochanite. { 'blɔːdɪt }
- blomstrandine** See priorite. { ˌblɒm'strændɪn }
- bloodstone** **1.** A form of deep green chalcedony flecked with red jasper. Also known as heliotrope; oriental jasper. **2.** See hematite. { 'bləd ˌstɒn }
- bloom** See efflorescence. { blüm }
- blossom** The oxidized or decomposed outcrop of a vein or coal bed. Also known as bloom. { 'bläs·əm }
- blowhole** A longitudinal tunnel opening in a sea cliff, on the upland side away from shore; columns of sea spray are thrown up through the opening, usually during storms. { 'blɔːhɔl }
- blowing cave** A cave with an alternating air movement. Also known as breathing cave. { |blɔːɪŋ ɪkæv }
- blowout** Any of the various trough-, saucer-, or cuplike hollows formed by wind erosion on a dune or other sand deposit. { 'blɔːaʊt }
- blue asbestos** See crocidolite. { |blü as'bes·təs }
- blue band** **1.** A layer of bubble-free, dense ice found in a glacier. **2.** A bluish clay found as a thin, persistent bed near the base of No. 6 coal everywhere in the Illinois-Indiana coal basin. { |blü 'bænd }
- blue copper ore** See azurite. { |blü ɪkæp·ər 'ɔr }
- blue ground** **1.** The decomposed peridotite or kimberlite that carries the diamonds in the South African mines. **2.** Strata of the coal measures, consisting principally of beds of hard clay or shale. { |blü ˌgraʊnd }
- blue iron earth** See vivianite. { |blü ɪr·ərn 'əɜθ }
- blue lead** See galena. { |blü 'led }
- blue malachite** See azurite. { |blü 'mal·ə'kɪt }
- blue metal** The common fine-grained blue-gray mudstone which is part of many of the coal beds of England. { 'blü ˌmed·əl }
- blue mud** A combination of terrigenous and deep-sea sediments having a bluish gray color due to the presence of organic matter and finely divided iron sulfides. { 'blü ˌməd }

blue ocher

blue ocher See vivianite. { 'blü 'õ ·kær }

blueschist facies High-pressure, low-temperature metamorphism associated with subduction zones which produces a broad mineral association including glaucophane, actinolite, jadeite, aegirine, lawsonite, and pumpellyite. { 'blü·shist 'fä·shēz }

blue spar See lazulite. { 'blü ,spär }

bluestone See chalcantite. **1.** A sandstone that is highly argillaceous and of even texture and bedding. **2.** The commercial name for a feldspathic sandstone that is dark bluish gray; it is easily split into thin slabs and used as flagstone. { 'blü·stön }

blue vitriol See chalcantite. { 'blü 'vit·rē·öl }

board coal See bituminous wood. { 'bórd ,kōl }

bobierrite $Mg_3(PO_4)_2 \cdot 8H_2O$ A transparent, colorless or white, monoclinic mineral consisting of octahydrated magnesium phosphate. { 'bõ·bē·ə·rit }

bodinite A metallic, steel-gray mineral consisting of cobalt, nickel, iron, arsenic, and bismuth; occurs in granular to fibrous masses. { 'bõd·ən·it }

body An ore body, or pocket of mineral deposit. { 'bäd·ē }

boehmite $AlO(OH)$ Gray, brown, or red orthorhombic mineral that is a major constituent of some bauxites. { 'bā·mīt }

boehm lamellae Lines or bands with dusty inclusions that are subparallel to the basal plane of quartz. { 'bāmlə'mel·ē }

bogen structure The structure of vitric tuffs composed largely of shards of glass. { 'bõ·gən ,stræk·chär }

boghead canal shale A coaly shale that contains much waxy or fatty algae. { 'bäg,hed 'kan·əl ,shāl }

boghead coal Bituminous or subbituminous coal containing a large proportion of algal remains and volatile matter; similar to canal coal in appearance and combustion. { 'bäg,hed ,kōl }

bog iron ore A soft, spongy, porous deposit of impure hydrous iron oxides formed in bogs, marshes, swamps, peat mosses, and shallow lakes by precipitation from iron-bearing waters and by the oxidation action of algae, iron bacteria, or the atmosphere. Also known as lake ore; limnite; marsh ore; meadow ore; morass ore; swamp ore. { 'bäg 'ī·ərn ,ör }

bog manganese See wad. { 'bäg 'maŋ·gə·nēs }

bog-mine ore See bog ore. { 'bäg ,mīn ,ör }

bog ore A poorly stratified accumulation of earthy metallic mineral substances, consisting mainly of oxides, that are formed in bogs, marshes, swamps, and other low-lying moist places. Also known as bog-mine ore. { 'bäg ,ör }

Bohemian ruby See rose quartz. { bõ'hem·ē·ən 'rū·bē }

Bohemian topaz See citrine. { bõ'hem·ē·ən 'tõp·paz }

boiler plate A fairly smooth surface on a cliff consisting of flush or overlapping slabs of rock, having little or no foothold. { 'bõil·ər ,plät }

bojite **1.** A gabbro with primary hornblende substituting for augite. **2.** Hornblende diorite. { 'bõ,jīt }

bole Any of various red, yellow, or brown earthy clays consisting chiefly of hydrous aluminum silicates. Also known as bolus; terra mirabilis. { bõl }

boleite A deep Prussian blue, tetragonal mineral consisting of a hydroxide-chloride of lead, copper, and silver. { bõ'lā·it }

bolson In the southwestern United States, a basin or valley having no outlet. { bõl·sän }

boltwoodite $K_2(UO_2)_2(SiO_3)_2(OH)_2 \cdot 5H_2O$ Yellow mineral consisting of hydrous potassium uranyl silicate. { 'bõlt·wə'dīt }

bolus See bole. { 'bõ·ləs }

bolus alba See kaolin. { 'bõ·ləs 'äl·bə }

bomb Any large (greater than 64 millimeters) pyroclast ejected while viscous. { bām }

bombiccite See hartite. { bām'bē·chīt }

bomb sag Depressed and deranged laminae mainly found in beds of fine-grained ash or tuff around an included volcanic bomb or block which fell on and became buried in the deposit. { 'bām ,sag }

- bone bed** Several thin strata or layers with many fragments of fossil bones, scales, teeth, and also organic remains. { 'bōn /bed }
- bone chert** A weathered residual chert that appears chalky and porous with a white color but may be stained red or other colors. { 'bōn /chert }
- bone coal** Argillaceous coal or carbonaceous shale that is found in coal seams. { 'bōn /kōl }
- boninite** An andesitic rock that contains much glass and abundant phenocrysts of bronzite and less of olivine and augite. { 'bän ·ə·nīt }
- Bonian** Upper Jurassic (lower Portlandian) geologic time { bə'nōn ·ē·ən }
- book** See mica book. { bük }
- book structure** A rock structure of numerous parallel sheets of slate alternating with quartz. { 'bük /strək·chər }
- boothite** $\text{CuSO}_4 \cdot 7\text{H}_2\text{O}$ A blue, monoclinic mineral consisting of copper sulfate heptahydrate; usually occurs in massive or fibrous form. { 'bü·thīt }
- boracite** $\text{Mg}_3\text{B}_7\text{O}_{13}\text{Cl}$ A white, yellow, green, or blue orthorhombic borate mineral occurring in crystals which appear isometric in external form; it is strongly pyroelectric, has a hardness of 7 on Mohs scale, and a specific gravity of 2.9. { 'bór·ə·sīt }
- Boralf** A suborder of the soil order Alfisol, dull brown or yellowish brown in color; occurs in cool or cold regions, chiefly at high latitudes or high altitudes. { 'bór/alf }
- borate mineral** Any of the large and complex group of naturally occurring crystalline solids in which boron occurs in chemical combination with oxygen. { 'bó·rāt 'min·rəl }
- borax** $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$ A white, yellow, blue, green, or gray borate mineral that is an ore of boron and occurs as an efflorescence or in monoclinic crystals; when pure it is used as a cleaning agent, antiseptic, and flux. Also known as diborate, pyroborate, sodium (1:2) borate; sodium tetraborate; tincal. { 'bó·raks }
- border facies** The outer portion of an igneous intrusion which differs in composition and texture from the main body. { 'bórd·ər /fā·shēz }
- borderland** One of the crystalline, continental landmasses postulated to have existed on the exterior (oceanward) side of geosynclines. { 'bórd·ər·land }
- borderland slope** A declivity which indicates the inner margin of the borderland of a continent. { 'bórd·ər·land 'slōp }
- borickite** $\text{CaFe}_5(\text{PO}_4)_2(\text{OH})_4 \cdot 3\text{H}_2\text{O}$ A reddish-brown, isotropic mineral consisting of a hydrated basic phosphate of calcium and iron; occurs in compact reniform masses. { 'bór·ə·kīt }
- bornhardt** A large dome-shaped granite-gneiss outcrop having the characteristics of an inselberg. { 'börn·härt }
- bornite** Cu_5FeS_4 A primary mineral in many copper ore deposits; specific gravity 5.07, the metallic and brassy color of a fresh surface rapidly tarnishes upon exposure to air to an iridescent purple. { 'bór·nīt }
- boroarsenate** One of a group of borate minerals containing arsenic; cahnite is an example. { 'bór·ō'ar·sə·nāt }
- borolanite** A hypabyssal rock that is essentially orthoclase and melanite with subordinate nepheline, biotite, and pyroxene. { bə'räl·ə·nīt }
- Boroll** A suborder of the soil order Mollisol, characterized by a mean annual soil temperature of less than 8°C and by never being dry for 60 consecutive days during the 90-day period following the summer solstice. { 'bó·ról }
- bort** Imperfectly crystallized diamond material unsuitable for gems because of its shape, size, or color and because of flaws or inclusions, used for abrasive and cutting purposes. { bört }
- boss** A large, irregular mass of crystalline igneous rock that formed some distance below the surface but is now exposed by denudation. { bōs }
- bostonite** A rock with coarse trachytic texture formed almost wholly of albite and microcline and with accessory pyroxene. { 'bōs·tə·nīt }
- botallackite** $\text{Cu}_2(\text{OH})_2\text{Cl} \cdot 3\text{H}_2\text{O}$ A pale bluish-green to green, orthorhombic mineral consisting of a basic copper chloride; occurs as crusts of crystals. { bə'tal·ə·kīt }
- botryogen** $\text{MgFe}(\text{SO}_4)(\text{OH}) \cdot 7\text{H}_2\text{O}$ An orange-red, monoclinic mineral consisting of a hydrated basic sulfate of magnesium and trivalent iron. { 'bä·trē·ə·jən }

botryoid

botryoid **1.** A mineral formation shaped like a bunch of grapes. **2.** Specifically, such a formation of calcium carbonate occurring in a cave. Also known as clusterite. { 'bä·trē·oid }

bottom **1.** The bed of a body of running or still water. **2.** See root. { 'bäd·əm }

bottomland A lowland formed by alluvial deposit about a lake basin or a stream. { 'bäd·əm·land }

bottom load See bed load. { 'bäd·əm·lōd }

bottom moraine See ground moraine. { 'bäd·əm·mə'rān }

bottomset beds Horizontal or gently inclined layers of finer material carried out and deposited on the bottom of a lake or sea in front of a delta. { 'bäd·əm·set·bedz }

bottom terrace A landform deposited by streams with moderate or small bottom loads of coarse sand and gravel, and characterized by a broad, sloping surface in the direction of flow and a steep escarpment facing downstream. { 'bäd·əm·ter·əs }

boudin One of a series of sausage-shaped segments found in a boudinage { bü'dän }

boudinage A structure in which beds set in a softer matrix are divided by cross fractures into segments resembling pillows. { 'büd·ən'läzh }

Bouguer correction See Bouguer reduction. { bü'ger kə'rek·shən }

Bouguer reduction A correction made in gravity work to take account of the station's altitude and the rock between the station and sea level. Also known as Bouguer correction. { bü'ger rī'dək·shən }

boulangerite $Pb_3Sb_2S_{11}$ A bluish-lead-gray, monoclinic mineral consisting of lead antimony sulfide. { bü'lan·jə'rīt }

boulder A worn rock with a diameter exceeding 256 millimeters. Also spelled bowlder. { 'böl·dər }

boulder barricade An accumulation of large boulders that is visible along a coast between low and half tide. { 'böl·dər·bar·ə·kād }

boulder belt A long, narrow accumulation of boulders elongately transverse to the direction of glacier movement. { 'böl·dər·belt }

boulder clay See till. { 'böl·dər·klā }

boulder pavement A surface of till with boulders; the till has been abraded to flatness by glacier movement. { 'böl·dər·pāv·mənt }

boulder train Glacial boulders derived from one locality and arranged in a right-angled line or lines leading off in the direction in which the drift agency operated. { 'böl·dər·trän }

bounce cast A short ridge underneath a stratum fading out gradually in both directions. { 'bauns·kast }

boundary A line between areas occupied by rocks or formations of different type and age. { 'baun·drē }

bournonite $PbCuSbS_3$ Steel-gray to black orthorhombic crystals, mined as an ore of copper, lead, and antimony. Also known as berthonite; cogwheel ore. { 'bür·nə·nīt }

boussingaultite $(NH_4)_2Mg(SO_4)_2 \cdot 6H_2O$ A colorless to yellowish-pink, monoclinic mineral consisting of a hydrated sulfate of ammonium and magnesium; usually occurs in massive form, as crusts or stalactites. { 'büs·ən'gól·tīt }

Bowen reaction series A series of minerals wherein any early-formed phase will react with the melt later in the differentiation to yield a new mineral further in the series. { 'bö·ən rē'ak·shən·sir·ēz }

bowlder See boulder. { 'böl·dər }

bowlingite See saponite. { 'bö·lɪŋ·gīt }

box fold A fold in which the broad, flat top of an anticline or the broad, flat bottom of a syncline is bordered by steeply dipping limbs. { 'bäks·fōld }

Box Hole A meteorite crater in central Australia, 575 feet (244 meters) in diameter. { 'bäks·hōl }

boxwork Limonite and other minerals which formed at one time as blades or plates along cleavage or fracture planes, after which the intervening material dissolved, leaving the intersecting blades or plates as a network. { 'bäks·wərk }

brachypinacoid A pinacoid parallel to the vertical and the shorter lateral axis. { 'brak·i'pin·əkōid }

brachysyncline A broad, short syncline. { 'brak·i'sin·klīn }

- brackebuschite** $Pb_4MnFe(VO_4)_4 \cdot 2H_2O$ A dark brown to black, monoclinic mineral consisting of a hydrated vanadate of lead, manganese, and iron. { 'brā·kə·bū·shīt }
- Bradfordian** Uppermost Devonian geologic time. { 'brəd'fórd·ē·ən }
- bradleyite** $Na_3Mg(PO_4)(CO_3)$ A light gray mineral consisting of a phosphate-carbonate of sodium and magnesium; occurs as fine-grained masses. { 'brəd·lē·īt }
- braggite** PtS A steel-gray platinum sulfide mineral with tetragonal crystals { 'brā·gīt }
- brammalite** A mica-type clay mineral that is different from illite because it has soda instead of potash; it is the sodium analog of illite. Also known as sodium illite. { 'brām·ə·līt }
- branchite** See hartite. { 'brān·chīt }
- brandtite** $Ca_2Mn(AsO_4)_2 \cdot 2H_2O$ A colorless to white, monoclinic mineral consisting of a hydrated arsenate of calcium and manganese. { 'brānt·īt }
- brannerite** A complex, black, opaque titanite of uranium and other elements in which the weight of uranium exceeds the weight of titanium; monoclinic and possibly (U,Ca,Fe,Y,Th)₃Ti₂O₆. { 'brān·ə·rīt }
- brass** A British term for sulfides of iron (pyrites) in coal. Also known as brasses { 'bras }
- brasses** See brass. { 'bras·əz }
- brass ore** See aurichalcite. { 'bras·ór }
- braunite** $3Mn_2O_3 \cdot MnSiO_3$ Brittle mineral that forms tetragonal crystals, commonly found as steel-gray or brown-black masses in the United States, Europe, and South America; it is an ore of manganese. { 'bräu·nīt }
- bravoite** (Ni,Fe)S₂ A yellow sulfide ore of nickel containing iron. { 'brāvō·īt }
- brazilianite** $NaAl_3(PO_4)_2(OH)_4$ A chartreuse yellow to pale yellow, monoclinic mineral consisting of a basic phosphate of sodium and aluminum. { brə'zil·yə·nīt }
- breached anticline** An anticline that has been more deeply eroded in the center. Also known as scalped anticline. { 'brēcht 'an·tī·klīn }
- breached cone** A cinder cone in which lava has broken through the sides and broken material has been carried away. { 'brēcht 'kōn }
- breadcrust** A surficial structure resembling a crust of bread, as the concretions formed by evaporation of salt water. { 'brəd·krəst }
- breadcrust bomb** A volcanic bomb with a cracked exterior. { 'brəd·krəst 'bām }
- break** See knickpoint. { brāk }
- breaker terrace** A type of shore found in lakes in glacial drift, the terrace is formed from stones deposited by waves. { 'brā·kər 'ter·əs }
- break thrust** A thrust fault cutting across one limb of a fold. { 'brāk 'θrəst }
- breathing cave** See blowing cave. { 'brēth·īŋ 'kāv }
- breccia** A rock made up of very angular coarse fragments, may be sedimentary or may be formed by grinding or crushing along faults. { 'brech·ə }
- breccia dike** A dike formed of breccia injected into the country rock. { 'brech ə 'dik }
- breccia marble** Any marble containing angular fragments. { 'brech ə 'mār·bəl }
- breccia pipe** See pipe. { 'brech·ə 'pīp }
- breithauptite** NiSb A light copper red mineral consisting of nickel antimonide commonly occurs in association with silver minerals. { 'brīt·haup·tīt }
- Bretonian orogeny** Post-Devonian diastrophism that is found in Nova Scotia. { bre'tōn·ē·ən ó'rāj·ə·nē }
- Bretonian strata** Upper Cambrian strata in Cape Breton, Nova Scotia. { bre'tōn·ē·ən 'strəd·ə }
- breunnerite** (Mg,Fe,Mn)CO₃ A carbonate mineral consisting of an isomorphous system of the metallic components. { 'brōin·ə·rīt }
- brewsterite** $Sr(Al_2Si_4O_{18}) \cdot 5H_2O$ A member of the zeolite family of minerals, crystallizes in the monoclinic system and usually contains some calcium. { 'brū·stərīt }
- bright-banded coal** See bright coal. { 'brīt 'ban·dəd 'kōl }
- bright coal** A jet-black, pitchlike type of banded coal that is more compact than dull coal and breaks with a shell-shaped fracture, microscopic examination shows a consistency of more than 5% anthraxyllon and less than 20% opaque matter. Also known as bright-banded coal; brights. { 'brīt 'kōl }

brights

brights See bright coal. {brīts}

brimstone A common or commercial name for native sulfur. {brim·stōn}

britholite $(\text{Na,Ce,Ca})_5(\text{OH})[(\text{P,Si})\text{O}_4]_3$ A rare-earth phosphate found in carbonatites in Kola Peninsula, Russia. {brith·ə·līt}

brittle mica Hydrous sodium, calcium, magnesium, and aluminum silicates; a group of more or less related minerals that resemble true micas but cleave to brittle flakes and contain calcium as the essential constituent. {brid·əl 'mī·kə}

brittle silver ore See stephanite. {brid·əl 'sil·vər 'ór}

brochanite See brochantite. {brō'shān·īt}

brochantite See brochantite. {brō'shān·thīt}

brochantite $\text{Cu}_4(\text{SO}_4)(\text{OH})_6$ A monoclinic copper mineral, emerald to dark green, commonly found with copper sulfide deposits; a minor copper ore. Also known as brochanite; brochanthite; warringtonite. {brō'shān·tīt}

bromellite BeO A white hexagonal mineral consisting of beryllium oxide; it is harder than zincite. {brō'me·līt}

bromite $\text{BaCa}(\text{CO}_3)_2$ An orthorhombic mineral composed of a carbonate of barium and calcium. Also known as alstonite. {brōm·līt}

bromyrite AgBr A secondary ore of silver that occurs in the oxidized zone of silver deposits; exists in crusts and coatings resembling a wax. {brō·mā·rīt}

bronze mica See phlogopite. {brānz 'mī·kə}

bronzite $(\text{Mg,Fe})(\text{SiO}_3)$ An orthopyroxene mineral that forms metallic green orthorhombic crystals; a form of the enstatite-hypersthene series. {brān·zīt}

bronzitfels See bronzitite. {brān·zət·felz}

bronzitite A pyroxenite that is composed almost entirely of bronzite. Also known as bronzitfels. {brān·zət·tīt}

brookite TiO_2 A brown, reddish, or black orthorhombic mineral; it is trimorphous with rutile and anatase, has hardness of 5.5-6 on Mohs scale, and a specific gravity of 3.87-4.08. Also known as pyromelane. {brú·kīt}

brown clay See red clay. {braun 'klā}

brown clay ironstone Limonite in the form of concrete masses, often in concretionary nodules. {braun 'klā 'ī·ərn·stōn}

brown coal See lignite. {braun 'kōl}

brown hematite See limonite. {braun 'hem·ətīt}

brown iron ore See limonite. {braun 'ī·ərn 'ór}

brown lignite A type of lignite with a fixed carbon content ranging from 30 to 55% and total carbon from 65 to 73.6; contains 6300 Btu per pound (14.65 megajoules per kilogram). Also known as lignite B. {braun 'lig·nīt}

brown mica See phlogopite. {braun 'mī·kə}

brown soil Any of a zonal group of soils, with a brown surface horizon which grades into a lighter-colored soil and then into a layer of carbonate accumulation. {braun 'sōil}

brown spar Any light-colored crystalline carbonate that contains iron, such as ankerite or dolomite, and is therefore brown. {braun 'spār}

bronestone Ferruginous sandstone with its grains coated with iron oxide. {braun·stōn}

brucite $\text{Mg}(\text{OH})_2$ A hexagonal mineral; native magnesium hydroxide that appears gray and occurs in serpentines and impure limestones; hardness is 2.5 on Mohs scale, and specific gravity is 2.38-2.40. {brū·sīt}

brugnatellite $\text{Mg}_6\text{Fe}(\text{OH})_4\text{CO}_3 \cdot 4\text{H}_2\text{O}$ A flesh pink to yellowish- or brownish-white, hexagonal mineral consisting of a hydrated carbonate-hydroxide of magnesium and ferric iron; occurs in massive form. {brū·nyə'te·līt}

brushite $\text{CaHPO}_4 \cdot 2\text{H}_2\text{O}$ A nearly colorless mineral that is a constituent of rock phosphates that crystallizes in slender or massive crystals. {brə·shīt}

Bruxellian Lower middle Eocene geologic time. {brū'sel·yən}

B tectonite Tectonite with a fabric dominated by linear elements indicating an axial direction rather than a slip surface. {bē'tek·tə·nīt}

bubble train A string or strings of vesicles in lava, indicating the path of rising gas escaping a flow of lava. {bāb·əl 'trān}

- bubble wall fragment** A glassy volcanic shard revealing part of a vesicle surface which may be curved or flat. { 'bʌb·əl·wɔl·fræg·mənt }
- bucaramangite** A pale yellow variety of retinite that looks like amber but is insoluble in alcohol. { 'byü·kə·rə'mæŋ·gīt }
- buchite** A partially vitrified inclusion of sandstone in basalt. { 'bü·kīt }
- buchonite** An extrusive rock formed of labradorite, titanite, and titaniferous hornblende, with nepheline and sodic sanidine and accessory biotite, apatite, and opaque oxides. { 'bü·kə·nīt }
- bucklandite** See allanite. { 'bək·lən·dīt }
- buckle fold** A double flexure of rock beds formed by compression acting in the plane of the folded beds. { 'bək·əl·föld }
- buckwheat coal** An anthracite coal that passes through $\frac{1}{16}$ -inch (14-millimeter) holes and over $\frac{5}{16}$ -inch (8-millimeter) holes in a screen. { 'bək·wēt·kōl }
- buetschliite** $K_6Ca_2(CO_3)_5 \cdot 6H_2O$ A mineral that is probably hexagonal and consists of a hydrated carbonate of potassium and calcium. { 'büch·lē·īt }
- bughole** See vug. { 'bæg·hōl }
- buhrstone** A silicified fossiliferous limestone with abundant cavities previously occupied by fossil shells. Also known as millstone. { 'bər·stōn }
- built terrace** See alluvial terrace. { 'bilt·ter·əs }
- bunsenite** NiO A pistachio-green mineral consisting of nickel monoxide and occurring as octahedral crystals. { 'bən·sə·nīt }
- Bunter** Lower Triassic geologic time. Also known as Buntsandstein. { 'bün·tər }
- Buntsandstein** See Bunter. { 'bünt·sən·shtīn }
- burden** All types of rock or earthy materials overlying bedrock. { 'bärd·ən }
- Burdigalian** Upper lower Miocene geologic time. { 'bärd·i'gäl·yən }
- burial metamorphism** A kind of regional metamorphism which affects sediments and interbedded volcanic rocks in a geosyncline without the factors of orogenesis or magmatic intrusions. { 'ber·ē·əl·med·ə'mór·fiz·əm }
- buried hill** A hill of resistant older rock over which later sediments are deposited. { 'ber·ēd·hil }
- buried placer** Old deposit of a placer which has been buried beneath lava flows or other strata. { 'ber·ēd·pläs·ər }
- buried river** A river bed which has become buried beneath streams of alluvial drifts or basalt. { 'ber·ēd·rīv·ər }
- buried soil** See paleosol. { 'ber·ēd·sōil }
- burkeite** $Na_6(CO_3)(SO_4)_2$ A white to pale buff or gray mineral consisting of a carbonate-sulfate of sodium. { 'bär·kīt }
- bustite** See aubrite. { 'bəs·tīt }
- butlerite** $Fe(SO_4)(OH) \cdot 2H_2O$ A deep orange, monoclinic mineral consisting of a hydrated basic ferric sulfate. Also known as parabutlerite. { 'bət·lə·rīt }
- butter rock** See halotrichite. { 'bət·ər·rāk }
- buttenbachite** $Cu_{10}(NO_3)_2Cl_4(OH)_{12} \cdot 3H_2O$ An azure blue hexagonal mineral consisting of a hydrated basic chloride-sulfate-nitrate of copper. { 'bət·gən·bək·īt }
- butress sands** Sandstone bodies deposited above an unconformity, the upper portion rests upon the surface of the unconformity. { 'bə·trəs·sanz }
- byerite** Bituminous coal that does not crack in fire and melts and enlarges upon heating. { 'bī·ər·rīt }
- byon** Gem-bearing gravel, particularly that with brownish-yellow clay in which corundum, rubies, sapphires, and so forth occur. { 'bī·än }
- bysmalith** A body of igneous rock that is more or less vertical and cylindrical, it cross-cuts adjacent sediments. { 'biz·mə·lith }
- bytownite** A plagioclase feldspar with a composition ranging from $Ab_{40}An_{60}$ to Ab_1An_{99} , where $Ab = NaAlSi_3O_8$ and $An = CaAl_2Si_2O_8$, occurs in basic and ultrabasic igneous rock. { 'bī·taü·nīt }

C

- cacoxenite** $\text{Fe}_4(\text{PO}_4)_3(\text{OH}) \cdot 12\text{H}_2\text{O}$ Yellow or brownish mineral consisting of a hydrous basic iron phosphate occurring in radiated tufts. { kə'kək-sə-nīt }
- cadmium blende** See greenockite. { 'kad·mē·əm /blend }
- cadmium ocher** See greenockite. { 'kad·mē·əm 'ō·kər }
- cadwaladerite** $\text{Al}(\text{OH})_2\text{Cl} \cdot 4\text{H}_2\text{O}$ A mineral consisting of a hydrous basic aluminum chloride. { kad'wāl·ə·də'rīt }
- cahnite** $\text{Ca}_2\text{B}(\text{OH})_4(\text{AsO}_4)$ A tetragonal borate mineral occurring in white, sphenoidal crystals. { 'käh-nīt }
- cairngorm** See smoky quartz. { 'kern·görm }
- caking coal** A type of coal which agglomerates and softens upon heating, after volatile material has been expelled at high temperature, a hard, gray cellular mass of coke remains. Also known as binding coal. { 'kāk·iŋ /kōl }
- Calabrian** Lower Pleistocene geologic time. { kə'lāb·rē·ən }
- calaité** See turquoise. { kə'lā'rīt }
- calamine** See hemimorphite; smithsonite. { 'kal·ə·mīn }
- calaverite** AuTe_2 A yellowish or tin-white, monoclinic mineral commonly containing gold telluride and minor amounts of silver. { kə'lav·ə·rīt }
- calc-alkalic series** Series of igneous rocks in which the weight percentage of silica is 55-61. { 'kalk /al'kal·ik /sir·ēz }
- calcarene** A type of limestone or dolomite composed of coral or shell sand or of sand formed by erosion of older limestones, with particle size ranging from $1/16$ to 2 millimeters. { kal·kə'rē-nīt }
- calcareous crust** See caliche. { kal'ker·ē·əs 'krəst }
- calcareous duricrust** See caliche. { kal'ker·ē·əs 'dūr·i·krəst }
- calcareous ooze** A fine-grained pelagic sediment containing undissolved sand- or silt-sized calcareous skeletal remains of small marine organisms mixed with amorphous clay-sized material. { kal'ker·ē·əs 'ūz }
- calcareous schist** A coarse-grained metamorphic rock derived from impure calcareous sediment. { kal'ker·ē·əs 'shist }
- calcareous sinter** See tufa. { kal'ker·ē·əs 'sin·tər }
- calcareous soil** A soil containing accumulations of calcium and magnesium carbonate { kal'ker·ē·əs 'sōil }
- calcareous tufa** See tufa. { kal'ker·ē·əs 'tū·fə }
- calcilutite** 1. A dolomite or limestone formed of calcareous rock flour that is typically nonsiliceous. 2. A rock of calcium carbonate formed of grains or crystals with average diameter less than $1/16$ millimeter. { 'kal·sə'lūtīt }
- calcioarnotite** See tyuyamunité. { 'kal·sē·ō'kär·nə'tīt }
- calcioferrite** $\text{Ca}_2\text{Fe}_2(\text{PO}_4)\text{OH} \cdot 7\text{H}_2\text{O}$ A yellow or green mineral consisting of a hydrous basic calcium iron phosphate and occurring in nodular masses { 'kal·sē·ō'fē'rīt }
- calciovolborthite** $\text{CaCu}(\text{VO}_3)(\text{OH})$ Green, yellow or gray mineral consisting of a basic vanadate of calcium and copper. Also known as tangeite. { 'kal·sē·ō'vòl·bòr·thīt }
- calcirudite** Dolomite or limestone formed of worn or broken pieces of coral or shells or of limestone fragments coarser than sand; the interstices are filled with sand, calcite, or mud, the whole bound together with a calcareous cement. { kal'sir·ə·dīt }

calcite

- calcite** CaCO_3 One of the commonest minerals, the principal constituent of limestone, hexagonal-rhombohedral crystal structure, dimorphous with aragonite. Also known as *calcspar*. { 'kal'sīt }
- calcite compensation depth** The depth in the ocean (about 5000 meters) below which solution of calcium carbonate occurs at a faster rate than its deposition. Abbreviated CCD. { 'kal'sīt kām · pən'sā · shən · depth }
- calcite dolomite** A carbonate rock with a composition of 10-50% calcite and 90-50% dolomite. { 'kal'sīt 'dōl · ə · mīt }
- calclacite** $\text{CaCl}_2 \cdot \text{Ca}(\text{C}_2\text{H}_3\text{O}_2)_2 \cdot 10\text{H}_2\text{O}$ A white mineral consisting of a hydrated chloride-acetate of calcium; occurs as hairlike efflorescences. { 'kal · klə'sīt }
- calclithite** Limestone with 50% or more fragments of older limestone that was redeposited after being eroded from the land. { 'kal · klə'thīt }
- calcrete** A conglomerate of surficial gravel and sand cemented by calcium carbonate. { 'kal'krēt }
- calc-silicate** Referring to a metamorphic rock consisting mainly of calcite and calcium-bearing silicates. { 'kalk 'sil · ə · kət }
- calc-silicate hornfels** A metamorphic rock with a fine grain of calcium silicate minerals. { 'kalk 'sil · ə · kāt 'hörn · felz }
- calc-silicate marble** Marble having conspicuous calcium silicate or magnesium silicate minerals. { 'kalk 'sil · ə · kāt 'mār · bəl }
- calcspar** See calcite. { 'kalk · spär }
- calcsparite** See sparry calcite. { 'kalk'spär'īt }
- caldera** A more or less circular volcanic depression whose diameter is many times greater than that of the volcanic vent. { kal'der · ə }
- Caledonian orogeny** Deformation of the crust of the earth by a series of diastrophic movements beginning perhaps in Early Ordovician and continuing through Silurian, extending from Great Britain through Scandinavia. { 'kal · ə · ldōn · ē · ən ó'rāj · ə · nē }
- Caledonides** A mountain system formed in Late Silurian to Early Devonian time in Scotland, Ireland, and Scandinavia. { 'kal · ə · dā · nīdz }
- caledonite** $\text{Cu}_2\text{Pb}_3(\text{SO}_4)_3\text{CO}_3(\text{OH})_6$ A mineral occurring as green, orthorhombic crystals composed of basic copper lead sulfate; found in copper-lead deposits. { 'kal · ə · dā'nīt }
- caliche** **1.** Conglomerate of gravel, rock, soil, or alluvium cemented with sodium salts in Chilean and Peruvian nitrate deposits; contains sodium nitrate, potassium nitrate, sodium iodate, sodium chloride, sodium sulfate, and sodium borate. **2.** A thin layer of clayey soil capping auriferous veins (Peruvian usage). **3.** Whitish clay in the selvage of veins (Chilean usage). **4.** A recently discovered mineral vein. **5.** A secondary accumulation of opaque, reddish brown to buff or white calcareous material occurring in layers on or near the surface of stony soils in arid and semiarid regions of the southwestern United States; called hardpan, calcareous duricrust, and kanker in different geographic regions. Also known as calcareous crust; croute calcaire; nari; sabach; tepetate. { kə'lē · chē }
- californite** $\text{Ca}_{10}\text{Al}_4(\text{Mg},\text{Fe})_2\text{Si}_6\text{O}_{34}(\text{OH},\text{F})_4$ A variety of vesuvianite resembling jade; it is dark-, yellowish-, olive-, or grass-green and occurs in translucent to opaque compact or massive form. Also known as American jade. { 'kal · ə · fōr'nīt }
- callenia** See stromatolite. { kə'lēn · yə }
- Callovian** A stage in uppermost Middle or lowermost Upper Jurassic which marks a return to clayey sedimentation. { kə'lōv · ē · ən }
- calomel** Hg_2Cl_2 A colorless, white, grayish, yellowish, or brown secondary, sectile, tetragonal mineral; used as a cathartic, insecticide, and fungicide. Also known as calomelene; calomelite; horn quicksilver; mercurial horn ore. { 'kal · ə · məl }
- calomelene** See calomel. { kə'lām · ə · lēn }
- calomelite** See calomel. { 'kal · ə · me'līt }
- calving** The breaking off of a mass of ice from its parent glacier, iceberg, or ice shelf. Also known as ice calving. { 'kav · ɪŋ }
- camber** **1.** A terminal, convex shoulder of the continental shelf. **2.** A structural feature that is caused by plastic clay beneath a bed flowing toward a valley so that the bed sags downward and seems to be draped over the sides of the valley. { 'kam · bər }

- Cambrian** The lowest geologic system that contains abundant fossils of animals, and the first (earliest) geologic period of the Paleozoic era from 570 to 500 million years ago. { 'kam · brē · ən }
- Campanian** European stage of Upper Cretaceous. { kam 'pan · ē · ən }
- camptonite** A lamprophyre containing pyroxene, sodic hornblende, and olivine as dark constituents and labradorite as the light constituent; sodic orthoclase may be present. { 'kam · tən }
- Canadian Shield** See Laurentian Shield. { kə 'nād · ē · ən 'shēld }
- Canastotan** Lower Upper Silurian geologic time. { kə 'nas · tən }
- cancrinite** $\text{Na}_2\text{CaAl}_3\text{Si}_3\text{O}_{12}\text{CO}_2(\text{OH})_2$ A feldspathoid tectosilicate occurring in hexagonal crystals in nepheline syenites, usually in compact or disseminated masses. { 'kən · krənīt }
- candite** See ceylonite. { 'kan · dīt }
- canfieldite** Ag_8SnS_6 A black mineral of the argyrodite series consisting of silver thiosulfate, with a specific gravity of 6.28; found in Germany and Bolivia. { 'kan · fēldīt }
- cannel coal** A fine-textured, highly volatile bituminous coal distinguished by a greasy luster and blocky conchoidal fracture, burns with a steady luminous flame. Also known as cannelite. { 'kan · əl · kōl }
- cannelite** See cannel coal. { 'kan · əl · īt }
- canneloid** **1.** Coal that resembles cannel coal **2.** Coal intermediate between bituminous and cannel. **3.** Durain laminae in banded coal. **4.** Cannel coal of anthracite or semianthracite rank. { 'kan · əl · ōid }
- cannel shale** A black shale formed by the accumulation of an aquatic ooze rich in bituminous organic matter in association with inorganic materials such as silt and clay. { 'kan · əl · shāl }
- canyon bench** A step-like level of hard strata in the walls of deep valleys in regions of horizontal strata. { 'kan · yən · bēnch }
- canyon fill** Loose, unconsolidated material which fills a canyon to a depth of 50 feet (15 meters) or more during periods between great floods. { 'kan · yən · fil }
- capacity of the wind** The total weight of airborne particles (soil and rock) of given size, shape, and specific gravity, which can be carried in 1 cubic mile (4.17 cubic kilometers) of wind blowing at a given speed. { kə 'pas · əd · ē əv thə 'wind }
- capillary** A fissure or a crack in a formation which provides a route for flow of water or hydrocarbons. { 'kap · ə · ler · ē }
- capillary ejecta** See Pele's hair. { 'kap · ə · ler · ē i 'jek · tə }
- capillary pyrites** See millerite. { 'kap · ə · ler · ē 'pī · rīts }
- cappelenite** $(\text{Ba}, \text{Ca}, \text{Na})(\text{Y}, \text{La})_6\text{B}_6\text{Si}_{13}(\text{O}, \text{OH})_{27}$ A greenish-brown hexagonal mineral consisting of a rare yttrium-barium borosilicate occurring in crystals. { 'kap · lənīt }
- capping** **1.** Consolidated barren rock overlying a mineral or ore deposit **2.** See gossan { 'kap · iŋ }
- cap rock** **1.** An overlying, generally impervious layer or stratum of rock that overlies an oil- or gas-bearing rock. **2.** Barren vein matter, or a pinch in a vein, supposed to overlie ore. **3.** A hard layer of rock, usually sandstone, a short distance above a coal seam. **4.** An impervious body of anhydrite and gypsum in a salt dome. { 'kap · rāk }
- caracolate** A rare, colorless mineral occurring as crystalline incrustations, and consisting of a sulfate and chloride of sodium and lead. { 'kar · ə 'kō · līt }
- Caradocian** Lower Upper Ordovician geologic time. { kar · ə 'dō · shən }
- carapace** The upper normal limb of a fold having an almost horizontal axial plane { 'kar · ə · pās }
- carbohum** See ulmin. { 'kar · bō 'hyū · mən }
- carbonaceous chondrite** A chondritic meteorite that contains a relatively large amount of carbon and has a resulting dark color. Also known as carbonaceous meteorite. { 'kar · bə 'nā · shəs 'kən · drīt }
- carbonaceous meteorite** See carbonaceous chondrite { kər bə 'nā · shəs 'mēd · ē · ə · rīt }
- carbonaceous rock** Rock with carbonaceous material included { kər · bə 'nā · shəs 'rāk }
- carbonaceous sandstone** Sandstone rich in carbon { kər bə 'nā · shəs 'san · stōn }

carbonaceous shale

carbonaceous shale Shale rich in carbon. {kär·bə'nā·shəs 'shāl }

carbonado A dark-colored, fine-grained diamond aggregate; valuable for toughness and absence of cleavage planes. Also known as black diamond; carbon diamond. {kär·bə'nā·dō }

carbonate mineral A mineral containing considerable amounts of carbonates. { 'kär·bə·nət 'mɪn·rəl }

carbonate reservoir An underground oil or gas trap formed in reefs, clastic limestones, chemical limestones, or dolomite. { 'kär·bə·nət 'rez·əv·wär }

carbonate rock A rock composed principally of carbonates, especially if at least 50% by weight. { 'kär·bə·nət 'rāk }

carbonatite 1. Intrusive carbonate rock associated with alkaline igneous intrusive activity. 2. A sedimentary rock that is composed of at least 80% calcium or magnesium. {kär'bän·ə'tīt }

carbon diamond See carbonado. {kär·bən 'dī·mənd }

Carboniferous A division of late Paleozoic rocks and geologic time including the Mississippian and Pennsylvanian periods. { 'kär·bə'nɪf·ə·rəs }

carbonification See coalification. {kär'bän·ə·fə'kā·shən }

carbon isotope ratio Ratio of carbon-12 to either of the less common isotopes, carbon-13 or carbon-14, or the reciprocal of one of these ratios; if not specified, the ratio refers to carbon-12/carbon-13. Also known as carbon ratio. {kär·bən 'is·ə·töp 'rā·shō }

carbonite See natural coke. { 'kär·bə·nīt }

carbon ratio 1. The ratio of fixed carbon to fixed carbon plus volatile hydrocarbons in a coal. 2. See carbon isotope ratio. { 'kär·bən 'rā·shō }

carbon-ratio theory The theory that the gravity of oil in any area is inversely proportional to the carbon ratio of the coal. { 'kär·bən 'rā·shō 'thē·ə·rē }

carminite $PbFe_2(AsO_4)_2(OH)_2$ A carmine to tile-red mineral consisting of a basic arsenate of lead and iron. { 'kär·mə'nīt }

carnallite $KMgCl_3 \cdot 6H_2O$ A milky-white or reddish mineral that crystallizes in the orthorhombic system and occurs in deliquescent masses; it is valuable as an ore of potassium. { 'kärn·əl'īt }

carnegeite $NaAlSiO_4$ An artificial mineral similar to feldspar; it is triclinic at low temperatures, isometric at elevated temperatures. { 'kär·nə·gē'īt }

Carnian Lower Upper Triassic geologic time. Also spelled Karnian. { 'kärn·ē·ən }

carnotite $K_2(UO_2)_2(VO_4)_2 \cdot nH_2O$ A canary-yellow, fine-grained hydrous vanadate of potassium and uranium having monoclinic microcrystals; an ore of radium and uranium. { 'kär·nə'tīt }

carpholite $MnAl_2Si_2O_6(OH)_4$ A straw-yellow fibrous mineral consisting of a hydrous aluminum manganese silicate occurring in tufts; specific gravity is 2.93. { 'kär·fə 'līt }

carphosiderite A yellow mineral consisting of a basic hydrous iron sulfate occurring in masses and crusts. { 'kär·fō'sīd·ə'rīt }

Carrara marble All marble quarried near Carrara, Italy, having a prevailing white to bluish color, or white with blue veins. { kə'rā·rə 'mār·bəl }

caryinite $(Ca,Pb,Na)_4(Mn,Mg)_4(AsO_4)_5$ A mineral consisting chiefly of a calcium manganese arsenate. { 'kär·ē·ə'nīt }

cascade A landform structure formed by gravity collapse, consisting of a bed that buckles into a series of folds as it slides down the flanks of an anticline. { kə'skād }

Cascadian orogeny Post-Tertiary deformation of the crust of the earth in western North America. { kə'skād·ē·ən ó'räj·ə·nē }

case hardening Formation of a mineral coating on the surface of porous rock by evaporation of a mineral-bearing solution. { 'kās 'hərd·ən·ɪŋ }

Cassadagan Middle Upper Devonian geologic time, above Chemungian. { kə'sad·ə·gən }

Casselian See Chattian. { kə'sel·yən }

Cassiar orogeny Orogenic episode in the Canadian Cordillera during late Paleozoic time. { 'kas·ē·ər ó'räj·ə·nē }

cassidyite $Ca_2(Ni,Mg)(PO_4)_2 \cdot 2H_2O$ A mineral found in meteorites. { kə'sid·ē'īt }

- cassiterite** SnO_2 A yellow, black, or brown mineral that crystallizes in the tetragonal system in prisms terminated by dipyrramids; the most important ore of tin. Also known as tin stone. {kə'sid·ə·rit }
- castings** See fecal pellets. { 'kast·ɪŋz }
- castorite** A transparent variety of petalite occurring in crystals. { 'kas·tə·rit }
- catachosis** Fracturing or crushing of rock during metamorphism { 'kad·ə'kō·səs }
- cataclasis** Deformation of rock by fracture and rotation of aggregates or mineral grains { 'kad·ə'klā·səs }
- cataclastic** See cataclastic rock. { 'kad·ə'klā·sɪt }
- cataclastic metamorphism** Local metamorphism restricted to a region of faults and overthrusts involving purely mechanical forces resulting in cataclasis. { 'kad·ə'klas·tik 'med·ə'mór·fiz·əm }
- cataclastic rock** Rock containing angular fragments formed by cataclasis. Also known as cataclasite. { 'kad·ə'klas·tik 'ræk }
- cataclastic structure** See mortar structure. { 'kad·ə'klas·tik 'stræk·chər }
- catapleite** $(\text{Na}_2,\text{Ca})\text{ZrSi}_3\text{O}_9 \cdot 2\text{H}_2\text{O}$ A yellow or yellowish-brown mineral crystallizing in the hexagonal system, consisting of a hydrous silicate of sodium, calcium, and zirconium, and occurring in thin tabular crystals; hardness is 6 on Mohs scale, and specific gravity is 2.8. { 'kad·ə'plī·t }
- catastrophism** The theory that most features in the earth were produced by the occurrence of sudden, short-lived, worldwide events. { kə'tas·trə·fiz·əm }
- catazone** The deepest zone of rock metamorphism where high temperatures and pressures prevail. { 'kad·ə·zōn }
- catena** A group of soils derived from uniform or similar parent material which nonetheless show variations in type because of differences in topography or drainage. { kə'tē·nə }
- catoptrite** An iron black to jet black, monoclinic mineral consisting of a silicoantimonate of aluminum and divalent manganese. Also spelled katoptrite. { kə'təp·trīt }
- cauldron subsidence** **1.** A structure formed by the lowering along a steep ring fracture of a more or less cylindrical block, usually 1 to 10 miles (1.6 to 16 kilometers) in diameter, into a magma chamber. **2.** The process of forming such a structure. { 'kòl·drən səb'sī·dəns }
- caustobololith** Combustible organic rock formed by direct accumulation of plant materials; includes coal peat. { 'kò·stò'bī·ə·lith }
- cave** A natural, hollow chamber or series of chambers and galleries beneath the earth's surface, or in the side of a mountain or hill, with an opening to the surface. { kāv }
- cave breccia** Sharp fragments of limestone debris deposited on the floor of a cave { 'kāv 'brech·ə }
- cave formation** See speleothem. { 'kāv fòr'mā·shən }
- cave pearl** A small, smooth, rounded concretion of calcite or aragonite, formed by concentric precipitation about a nucleus and usually found in limestone caves. { 'kāv 'pərl }
- cavern** An underground chamber or series of chambers of indefinite extent carved out by rock springs in limestone. { 'kav·ərn }
- cavernous** **1.** Having many caverns or cavities **2.** Producing caverns **3.** Of or pertaining to a cavern, that is, suggesting vastness. { 'kav·ər·nəs }
- c axis** The reference axis perpendicular to the plane of movement of rock or mineral strata. { 'sē 'ak·səs }
- cay** **1.** A flat coral island **2.** A flat mound of sand built up on a reef slightly above high tide **3.** A small, low coastal islet or emergent reef composed largely of sand or coral { kā }
- cay sandstone** Firmly cemented or friable coral sand formed near the base of coral reef cays. { 'kā 'san·stōn }
- Cayugan** Upper Silurian geologic time. { kī'yü·gən }
- Cazenovian** Lower Middle Devonian geologic time. { kaz·ə'nōv·ē·ən }
- CCD** See calcite compensation depth.
- cebolite** $\text{H}_2\text{Ca}_4\text{Al}_2\text{Si}_3\text{O}_{16}$ A greenish to white mineral consisting of hydrous calcium

cecilite

aluminum silicate occurring in fibrous aggregates; hardness is 5 on Mohs scale, and specific gravity is 3. { 'seɪb-ə-līt }

cecilite A basaltic rock having few phenocrysts and consisting of at least 50% leucite with augite, melilite, nepheline, olivine, anorthite, magnetite, and apatite. { 'ses-ə-līt }

cedricite A variety of lamproite composed principally of diopside, leucite, and phlogopite and usually containing crystals of serpentine. { 'sed-rə-sīt }

celadonite A soft, green variety of mica having high iron content and containing silicates of magnesium and potassium. { 'sel-ə-də-nīt }

celestine See celestite. { 'sel-ə-stēn }

celestite SrSO_4 A colorless or sky-blue mineral occurring in orthorhombic, tabular crystals and in compact forms; fracture is uneven and luster is vitreous; principal ore of strontium. Also known as celestine. { 'sel-ə-stīt }

cellular Pertaining to igneous rock having a porous texture, usually with the cavities larger than pore size and smaller than caverns. { 'sel-yə-lər }

cellular soil See polygonal ground. { 'sel-yə-lər 'sɔɪl }

celsian $\text{BaAl}_2\text{Si}_2\text{O}_8$ Colorless, monoclinic mineral consisting of barium feldspar. { 'sel-sē-ən }

cement Any chemically precipitated material, such as carbonates, gypsum, and barite, occurring in the interstices of clastic rocks. { si'ment }

cementation The precipitation of a binding material around minerals or grains in rocks. { 'sē-men'tā-shən }

cement gravel Gravel consolidated by clay, silica, calcite, or other binding material. { si'ment 'grav-əl }

cement rock An argillaceous limestone containing lime, silica, and alumina in variable proportions and usually some magnesia; used in the manufacture of natural hydraulic cement. { si'ment 'ræk }

Senomanian Lower Upper Cretaceous geologic time. { 'sen-ə-mān-ē-ən }

cenote See pothole. { sə'nōd-ē }

Cenozoic The youngest of the eras, or major subdivisions of geologic time, extending from the end of the Mesozoic Era to the present, or Recent. { 'sen-ə-lzō-ik }

central valley See rift valley. { 'sen-trəl 'val-ē }

centrifugal drainage pattern See radial drainage pattern { 'sen'trif i gəl 'drān-iŋ 'pəd-ərn }

centroclinal Referring to geologic strata dipping toward a common center, as in a structural basin. { 'sen-trō'klīn-əl }

centrosphere The central core of the earth. Also known as barysphere { 'sen-trə 'sfīr }

ceramicite A porcelainized pyrometamorphic rock composed of basic plagioclase and cordierite with a small amount of hypersthene and a groundmass of glass. { sə'ram-ə-sīt }

cerargyrite AgCl A colorless to pearl-gray mineral, crystallizes in the isometric system, but crystals, usually cubic, are rare; a secondary mineral that is an ore of silver. Also known as chlorargyrite; horn silver. { sə'rär-jə-rīt }

cerine See allanite. { 'sir-ēn }

cerite $(\text{Ca},\text{Fe})\text{Ce}_3\text{Si}_3\text{O}_{12}\cdot\text{H}_2\text{O}$ A brown rare-earth hydrous silicate of cerium and other metals found in gneiss; hardness is 5.5 on Mohs scale, and specific gravity is 4.86. { 'sir-īt }

cerolite A mixture of serpentine and stevensite occurring in yellow or greenish waxlike masses. { 'sir-ə-līt }

cerussite PbCO_3 A yellow or white member of the aragonite group occurring in orthorhombic crystals; produced by the action of carbon dioxide on lead ore. { sə'rəs-īt }

cervantite Sb_2O_4 A white or yellow secondary mineral crystallizing in the orthorhombic system and formed by oxidation of antimony sulfide. { sə'r-van-tīt }

cesarolite $\text{H}_2\text{PbMn}_3\text{O}_8$ A steel-gray mineral consisting of a hydrous lead manganate occurring in spongy masses. { 'chāz-ə'rō-līt }

- ceylonite** A dark-green, brown, or black iron-bearing variety of spinel. Also known as candite; pleonaste; zeylanite. { sə'lä·nīt }
- chabazite** $\text{CaAl}_2\text{Si}_2\text{O}_{12} \cdot 6\text{H}_2\text{O}$ A white to yellow or red member of the zeolite group occurring in glassy rhombohedral crystals; hardness is 4-5 on Mohs scale, and specific gravity is 2.08-2.16. { 'kab·ə·zīt }
- chain** A series of interconnected or related natural features, such as lakes, islands, or seamounts, arranged in a longitudinal sequence. { chān }
- chalcazoidite** See mud ball. { 'kal·ə·zoi·dīt }
- chalcanthite** $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ A blue to bluish-green mineral which occurs in triclinic crystals or in massive fibrous veins or stalactites. Also known as bluestone; blue vitriol. { kal'kan·thīt }
- chalcedony** A cryptocrystalline variety of quartz; occurs as crusts with a rounded, mammillary, or botryoidal surface and as a major constituent of nodular and bedded cherts; varieties include carnelian and bloodstone. { kal'sed·ən·ē }
- chalcedonyx** A mineral consisting of onyx with alternating gray and white bands, valued as a semiprecious stone. { 'kal·sə'dän·iks }
- chalcocalumite** $\text{CuAl}_4(\text{SO}_4)(\text{OH})_{12} \cdot 3\text{H}_2\text{O}$ A turquoise-green to pale-blue mineral consisting of a hydrous basic sulfate of copper and aluminum. { 'kal·kō'al·ə·mīt }
- chalcocite** Cu_2S A fine-grained, massive mineral with a metallic luster which tarnishes to dull black on exposure; crystallizes in the orthorhombic system, the crystals being rare and small usually with hexagonal outline as a result of twinning; hardness is 2.5-3 on Mohs scale, and specific gravity is 5.5-5.8. Also known as beta chalcocite; chalcosine; copper glance; redruthite; vitreous copper. { 'kal·kə'sīt }
- chalcocyanite** CuSO_4 A white mineral consisting of copper sulfate. Also known as hydrocyanite. { 'kal·kə'sī·ə·nīt }
- chalcophile** See torbernite. { 'kal·kə'līt }
- chalcomenite** $\text{CuSeO}_3 \cdot 2\text{H}_2\text{O}$ A blue mineral consisting of copper selenite occurring in crystals. { 'kal·kə'mē·nīt }
- chalcophanite** $(\text{Zn},\text{Mn},\text{Fe})\text{Mn}_2\text{O}_5 \cdot n\text{H}_2\text{O}$ Black mineral with metallic luster consisting of hydrous manganese and zinc oxide. { kal'käf·ə·nīt }
- chalcophile** Having an affinity for sulfur and therefore massing in greatest concentration in the sulfide phase of a molten mass. { 'kal·kə'fil }
- chalcophyllite** $\text{Cu}_{18}\text{Al}_2(\text{AsO}_4)_2(\text{OH})_{27} \cdot 33\text{H}_2\text{O}$ A green mineral consisting of basic arsenate and sulfate of copper and aluminum occurring in tabular crystals or foliated masses. Also known as copper mica. { 'kal·kō'fi'līt }
- chalcopyrite** CuFeS_2 A major ore mineral of copper, crystallizes in the tetragonal crystal system, but crystals are generally small with diphenoidal faces resembling the tetrahedron; usually massive with a metallic luster and brass-yellow color; hardness is 3.5-4 on Mohs scale, and specific gravity is 4.1-4.3. Also known as copper pyrite; yellow pyrite. { 'kal·kō'pī·rīt }
- chalcopyrrhite** CuFe_4S_5 A sulfide mineral occurring in meteorites. { 'kal·kō'pī·rə·nīt }
- chalcosiderite** $\text{Cu}(\text{Fe},\text{Al})_6(\text{PO}_4)_4(\text{OH})_8 \cdot 4\text{H}_2\text{O}$ A green mineral, isomorphous with turquoise, consisting of a hydrous basic phosphate of copper, iron, and aluminum. { 'kal·kō'sīd·ə·rīt }
- chalcosine** See chalcocite. { 'kal·kə'sēn }
- chalcostibite** CuSbS_2 A lead-gray mineral consisting of antimony copper sulfide. { 'kal·kō'sti·bīt }
- chalcotrichite** A capillary variety of cuprite occurring in long needlelike crystals. Also known as hair copper; plush copper ore. { 'kal·kō'tri·kīt }
- chalk** A variety of limestone formed from pelagic organisms, it is very fine-grained, porous, and friable; white or very light-colored, it consists almost entirely of calcite. { chök }
- chalmersite** See cubanite. { 'chä·mər·zīt }
- chalybite** See siderite. { 'kal·ə·bīt }
- chamosite** A greenish-gray or black mineral consisting of silicate belonging to the chlorite group and having monoclinic crystals; found in many oolitic iron ores. { 'sham·ə·zīt }

Champlainian

- Champlainian** Middle Ordovician geologic time. { 'sham'plān·ē·ən }
- Chandler motion** See polar wandering. { 'chand·lār·mō·shən }
- channel fill** Accumulations of sand and detritus in a stream channel where the transporting capacity of the water is insufficient to remove the material as rapidly as it is delivered. { 'chan·əl·fīl }
- channel frequency** See stream frequency. { 'chan·əl·frē·kwən·sē }
- channel gradient ratio** See stream gradient ratio { 'chan·əl·grād·ē·ənt·rā·shō }
- channel-lag deposit** Coarse residual material left as accumulations in the channel in the normal processes of the stream. { 'chan·əl·lag·di·pāz·ət }
- channel morphology** See river morphology. { 'chan·əl·mōr·fāl·ə·jē }
- channel-mouth bar** A bar formed where moving water enters a body of still water, due to decreased velocity. { 'chan·əl·maüth·bār }
- channel roughness** A measure of the resistivity offered by the material constituting stream channel margins to the flow of water. { 'chan·əl·rəf·nəs }
- channel sand** A sandstone or sand deposited in a stream bed or other channel eroded into the underlying bed. { 'chan·əl·sand }
- channel splay** See floodplain splay. { 'chan·əl·splā }
- channel width** The distance across a stream or channel as measured from bank to bank near bankful stage. { 'chan·əl·width }
- chapmanite** $\text{Fe}_2\text{Sb}(\text{SiO}_4)_2(\text{OH})$ A mineral consisting of a silicate of iron and antimony { 'chap·mə'nīt }
- Charmouthian** Middle Lower Jurassic geologic time. { 'chär·mäüth·ē·ən }
- charnockite** Any of various faintly foliated, nearly massive varieties of quartzofeldspathic rocks containing hypersthene. { 'chär·nä'kīt }
- charnockite series** A series of plutonic rocks compositionally similar to the granitic rock series but characterized by the presence of orthopyroxene. { 'chär·nä'kīt·sir·ēz }
- chassignite** An achondritic stony meteorite composed chiefly of olivine (95), resembles dunite. { 'shas·ən'yīt }
- chatoyant** Of a mineral or gemstone, having a changeable luster or color marked by a band of light, resembling the eye of a cat in this respect. { 'shə'toi·ənt }
- chatter mark** A scar on the surface of bedrock made by the abrasive action of drift carried at the base of a glacier. { 'chad·ər·märk }
- Chattian** Upper Oligocene geologic time. Also known as Casselian. { 'chad·ē·ən }
- Chautauquan** Upper Devonian geologic time, below Bradfordian { 'shə'täk·wən }
- Chazyan** Middle Ordovician geologic time. { 'chaz·ē·ən }
- chemical denudation** Wasting of the land surface by water transport of soluble materials into the sea. { 'kem·i·kəl·dē·nü'dā·shən }
- chemical precipitates** A sediment formed from precipitated materials as distinguished from detrital particles that have been transported and deposited. { 'kem·i·kəl·pri'sip·ətāts }
- chemical reservoir** An underground oil or gas trap formed in limestones or dolomites deposited in quiescent geologic environments. { 'kem·i·kəl·rez·əv·wär }
- chemical rock** A type of sedimentary rock comprising material deposited directly by precipitation from solution or colloidal suspension and frequently possessing a crystalline texture. { 'kem·i·kəl·rāk }
- Chemungian** Middle Upper Devonian geologic time, below Cassodagan. { 'ke'mən·jē·ən }
- chenevixite** $\text{Cu}_3\text{Fe}_2(\text{AsO}_4)_2(\text{OH})_4 \cdot \text{H}_2\text{O}$ A dark-green to greenish-yellow mineral consisting of a hydrous copper iron arsenate occurring in masses. { 'shen·ə'vik'sīt }
- chenier** A continuous ridge of beach material built upon swampy deposits; often supports trees, such as pines or evergreen oaks. { 'shen·yā }
- Chernozem** One of the major groups of zonal soils, developed typically in temperate to cool, subhumid climate; the Chernozem soils in modern classification include Borolls, Ustolls, Udolls, and Xerolls. Also spelled Tchernozem. { 'chär·näziyöm }
- chert** A hard, dense, micro-or cryptocrystalline rock composed of chalcedony and microcrystalline quartz. Also known as hornstone; phtanite. { 'chært }

- chertification** A process of replacement by silica in limestone in the form of fine-grained quartz or chalcedony. { 'chərd·ə·fə'ka·shən }
- chessylite** See azurite. { 'shes·ə'līt }
- Chesterian** Upper Mississippian geologic time. { che'stir·ē·ən }
- chestnut coal** Anthracite coal small enough to pass through a round mesh of $1\frac{3}{8}$ inches (4.13 centimeters) but too large to pass through a round mesh of $1\frac{1}{16}$ inches (3.02 centimeters). { 'ches·nət·kōl }
- Chestnut soil** One of the major groups of zonal soils, developed typically in temperate to cool, subhumid to semiarid climate; the Chestnut soils in modern classification include Ustolls, Borolls, and Xerolls. { 'ches·nət·sōil }
- chevkinite** $(\text{Fe,Ca})(\text{Ce,Ln})_2(\text{Si,Ti})_8\text{O}_{28}$ A mineral consisting of silicotitanate of iron, calcium, and rare-earth elements. { 'chef·kə·nīt }
- chevron fold** An accordionlike fold with limbs of equal length { 'shev·rən·fōld }
- chiastolite** A variety of andalusite whose crystals have a cross-shaped appearance in cross section due to the arrangement of carbonaceous impurities. Also known as macle. { kī'as·tə'līt }
- Chideruan** Uppermost Permian geologic time. { chi'der·ə·wən }
- childerite** $(\text{Fe,Mn})\text{AlPO}_4(\text{OH})_2\cdot\text{H}_2\text{O}$ A pale-yellowish to dark-brown orthorhombic mineral consisting of a hydrous basic iron aluminum phosphate occurring as translucent crystals; it is isomorphous with eosphorite; hardness is 4.5-5 on Mohs scale, and specific gravity is 3.18-3.24. { 'chil·drə·nīt }
- Chile niter** See Chile saltpeter. { 'chil·ē'nīd·ər }
- Chile saltpeter** Also known as Chile niter **1.** Soda niter found in large quantities in caliche in arid regions of northern Chile. **2.** Deposits of sodium nitrate. { 'chil·ē·sōlt'pēd·ər }
- chilled contact** The finer-grained portion of an igneous rock found near its contact with older rock. { 'child 'kän·takt }
- chimney** See pipe; spouting horn. { 'chim·nē }
- chimney rock** **1.** A chimney-shaped remnant of a rock cliff whose sides have been cut into and carried away by waves and the gravel beach. **2.** A rock column rising above its surroundings. { 'chim·nē·rāk }
- chiolite** $\text{Na}_3\text{Al}_3\text{F}_{14}$ A snow white mineral resembling cryolite. Also known as arksutite { 'kī·ə'līt }
- chiviatite** $\text{Pb}_2\text{Bi}_2\text{S}_{11}$ A lead-gray mineral consisting of a lead bismuth sulfide occurring in foliated masses. { 'chiv·ē'ä·tīt }
- chloanthite** NiAs_2 A white or gray mineral with metallic luster forming crystals in the isometric system; it is isomorphous with nickel-skutterudite. { klō'an·thīt }
- chloraluminite** $\text{AlCl}_3\cdot 6\text{H}_2\text{O}$ A mineral consisting of hydrous aluminum chloride { 'klōr·əl'lüm·ənīt }
- chlorapatite** $\text{Ca}_5(\text{PO}_4)_3\text{Cl}$ An apatite mineral containing chlorine { klōr'ap ə·tīt }
- chlorargyrite** See cerargyrite. { klōr'ar·jə·rīt }
- chlorastronite** A mottled, green variety of pumpellyite occurring as grains or small nodules of a stellate structure in basic igneous rock in the Lake Superior region; used as a semiprecious stone. { klōr'as·trə'līt }
- chlorite** Any of a group of greenish, platyhydrous monoclinic silicates of aluminum, ferrous iron, and magnesium which are closely associated with and resemble the micas. { 'klōr·īt }
- chlorite schist** A metamorphic rock whose composition is dominated by members of the chlorite group. { 'klōr·īt·shist }
- chlorite-sericite schist** A low-grade, fine-grained variety of mica schist without biotite { 'klōr·īt'ser·ə·sīt·shist }
- chloritoid** $\text{FeAl}_3(\text{Si}_2\text{O}_{10})(\text{OH})_4$ A micaceous mineral related to the brittle mica group; has both monoclinic and triclinic modifications, a gray to green color, and weakly pleochroic crystals. { 'klōr·ə·toid }
- chloritoid schist** A variety of mica schist whose composition is dominated by chloritoid. { 'klōr·ə·toid·shist }
- chlormanganokalite** K_2MnCl_6 A wine yellow to lemon or canary yellow hexagonal

chlorocalcite

mineral consisting of potassium and manganese chloride; occurs as rhombohedrons. { 'klɔrɪˌmɑŋˌgæˌnɔ̄ˈkɑːlɪt }

chlorocalcite $KCaCl_2$ A white mineral consisting of a chloride of potassium and calcium. Also known as hydrophilite. { 'klɔrˌɔ̄ˈkɑːlɪt }

chloromagnesite $MgCl_2$ A mineral consisting of anhydrous magnesium chloride, found on the volcano Vesuvius. { 'klɔrˌɔ̄ˈmɑːgˌnæˌsɪt }

chloropal See nontronite. { 'klɔrˌɔ̄ˈpɑːl }

chlorophoenicite $(Mn.An)_7(AsO_4)(OH)_7$ Gray-green monoclinic mineral consisting of a basic arsenate of manganese and zinc occurring in crystals. { 'klɔrˌɔ̄ˈfɛnˌɔ̄ˌnɪt }

chlorothionite $K_2Cu(SO_4)Cl_2$ Bright-blue secondary mineral consisting of potassium copper sulfate chloride, found on the volcano Vesuvius. { 'klɔrˌɔ̄ˈθɪˌɔ̄ˌnɪt }

chloroxiphite $Pb_3CuCl_2(OH)_2O_2$ A dull-olive or pistachio-green mineral consisting of a basic chloride of lead and copper, found in the Mendip Hills of England. { klɔ̄ˈrækˌsəˌfɪt }

chondrite A stony meteorite containing chondrules. { 'känˌdɪt }

chondrodite $Mg_3(SiO_4)_2(F,OH)_2$ A monoclinic mineral of the humite group; has a resinous luster, is yellow-red in color, and occurs in contact-metamorphosed dolomites. { 'känˌdrɔ̄ˌdɪt }

chondrule A spherically shaped body consisting chiefly of pyroxene or olivine minerals embedded in the matrix of certain stony meteorites. { 'känˌdrül }

chorismite A mixed rock whose fabric is macropoly-schematic and which consists of petrologically dissimilar materials of varied origins. { kə̄ˈrɪzˌmɪt }

C horizon The portion of the parent material in soils which has been penetrated with roots. { 'sɛ̄ hə̄ˈrɪzˌən }

christophite See marmatite. { 'krɪsˌtəˌfɪt }

chromate A mineral characterized by the cation CrO_4^{2-} . { 'krɔ̄ˌmɑːt }

chromatic mineral A mineral with color. { krɔ̄ˈmɑːdˌɪk ˌmɪnˌɪrəl }

chrome diopside A bright green variety of diopside containing a small amount of Cr_2O_3 . { 'krɔ̄m dɪˈɔ̄psɪd }

chrome iron ore See chromite. { 'krɔ̄m ˈɪˌɚn ˈɔ̄r }

chrome spinel See picotite. { 'krɔ̄m spəˈnɛl }

chromite $FeCr_2O_4$ A mineral of the spinel group; crystals and pure form are rare, and it usually is massive; the only important ore mineral of chromium. Also known as chrome iron ore. { 'krɔ̄ˌmɪt }

chromocratic See melanocratic. { 'krɔ̄ˌməˈkrɑːdɪk }

chron **1.** The time unit equivalent to the stratigraphic unit, subseries, and geologic name of a division of geologic time. **2.** The geochronological equivalent of chronozon. { krän }

chronolith See time-stratigraphic unit. { 'krän ˌɔ̄ˌlɪθ }

chronolithologic unit See time-stratigraphic unit { 'krän ˌɔ̄ˌlɪθ ˌɔ̄ˌlɔːdʒɪk ˈyü nət }

chronostratic unit See time-stratigraphic unit. { 'krän ˌɔ̄ˌstrɑːdɪk ˈyü nət }

chronostratigraphic unit See time-stratigraphic unit { 'krän ˌɔ̄ˌstrɑːdɪk ˌɔ̄ˌgrɑːfɪk ˈyü nət }

chronostratigraphic zone See chronozone { 'krän ˌɔ̄ˌstrɑːdɪk ˌɔ̄ˌgrɑːfɪk ˈzɔ̄n }

chronostratigraphy A division of stratigraphy that uses age determination and time sequence of rock strata to develop an interpretation of the earth's geologic history. { 'krän ˌɔ̄ˌstrɑːtɪˈɡɪrəˌfɛ } }

chronozone **1.** A formal time-stratigraphic unit used to specify strata equivalent in time span to a zone in another type of classification, for example, a biostratigraphic zone. Also known as chronostratigraphic zone. **2.** The smallest subdivision of chronostratigraphic units, below stage, composed of rocks formed during a chron of geologic time. { krän ˌɔ̄ˌzɔ̄n }

chrysoberyl $BeAl_2O_4$ A pale green, yellow, or brown mineral that crystallizes in the orthorhombic system and is found most commonly in pegmatite dikes; used as a gem. Also known as chrysochal; gold beryl. { 'krɪsˌɔ̄ˌberˌɔ̄l }

chrysocolla $CuSiO_3 \cdot 2H_2O$ A silicate mineral ordinarily occurring in impure cryptocrystalline crusts and masses with conchoidal fracture; a minor ore of copper; luster is vitreous, and color is normally emerald green to greenish-blue. { 'krɪsˌɔ̄ˌkɑːl ˌɔ̄ }

- chrysolite** 1. A gem characterized by light-yellowish-green hues, especially the gem varieties of olivine, but also including beryl, topaz, and spinel. 2. A variety of olivine having a magnesium to magnesium-iron ratio of 0.90-0.70. { 'kris·ə·līt }
- chrysoptal** See chrysoberyl. { kri'sō·pəl }
- chrysoptase** An apple-green variety of chalcedony that contains nickel, used as a gem. Also known as green chalcedony. { 'kris·ə·prāz }
- chrysotile** $Mg_3Si_2O_5(OH)_4$ A fibrous form of serpentine that constitutes one type of asbestos. { 'kris·ō·tīl }
- Chubb** A meteorite crater in Ungava, Quebec, Canada. { chəb }
- churchite** See weinschenkite. { 'chər·chīt }
- churn hole** See pothole. { 'chərn·hōl }
- ciminite** An extrusive rock consisting essentially of olivine with sanidine and pyroxene and basic plagioclase. { 'chīm·ənīt }
- cimolite** $2Al_2O_3 \cdot 9SiO_2 \cdot 6H_2O$ A white, grayish, or reddish mineral consisting of hydrous aluminum silicate occurring in soft, claylike masses. { 'sim·ə·līt }
- Cincinnatian** Upper Ordovician geologic time. { sin·sə'nad·ē·ən }
- cinder** Fine-grained pyroclastic material ranging in diameter from 0.16 to 1.28 inch (4 to 32 millimeters). { 'sin·dər }
- cinder coal** See natural coke. { 'sin·dər·kōl }
- cinder cone** A conical elevation formed by the accumulation of volcanic debris around a vent. { 'sin·dər·kōn }
- cinnabar** HgS A vermilion-red mineral that crystallizes in the hexagonal system, although crystals are rare, and commonly occurs in fine, granular, massive form; the only important ore of mercury. Also known as cinnabarite; vermilion. { 'sin·ə·bār }
- cinnabarite** See cinnabar. { 'sin·ə·bā·rīt }
- CIPW classification** A designation for the Norm system of classifying igneous rocks, from the initial letters of the names of those who devised it: Cross, Iddings, Pirsson, and Washington. { 'sē'it'ipē'dəb·əl·yü·klas·ə·fə'kā·shən }
- circle of illumination** The edge of the sunlit hemisphere which forms a circular boundary separating the earth into a light half and a dark half. { 'sər·kəl əv ə'lü·mə'nā·shən }
- circular coal** See eye coal. { 'sər·kyə·lər·kōl }
- circum-Pacific province** See Pacific suite. { 'sər·kəm·pə'sif·ik 'prə·vəns }
- cirque** A steep elliptical to elongated enclave high on mountains in calcareous districts usually forming the blunt end of a valley. Also known as corrie; cwm. { sər'k }
- cistern** A hollow that holds water. { 'sis·tərn }
- citrine** An important variety of crystalline quartz, yellow to brown in color and transparent. Also known as Bohemian topaz; false topaz; quartz topaz; topaz quartz; yellow quartz. { 'si·trēn }
- Claibornian** Middle Eocene geologic time. { 'kler'börn·ē·ən }
- clairite** See enargite. { 'kle·rīt }
- clan** A category of igneous rocks defined in terms of similarities in mineralogical or chemical composition. { klan }
- clarain** A coal lithotype appearing as stratifications parallel to the bedding plane and usually having a silky luster and scattered or diffuse reflection. Also known as clarite. { 'kla·rān }
- Clarendonian** Lower Pliocene or upper Miocene geologic time. { 'kla·rən'dōn·ē·ən }
- clarinite** A heterogeneous, generally translucent material making up the major micro-petrological ingredient of clarain. { 'klar·ənīt }
- clarite** See clarain. { 'kla·rīt }
- clarkite** $(Na,Ca,Pb)_2U_2(O,OH)_7$ A dark reddish-brown or dark brown mineral consisting of a hydrous or hydrated uranium oxide. { 'klār·kīt }
- clarodurain** A transitional lithotype of coal composed of vitrinite and other macerals principally micrinite and exinite. { 'kla·rō'dū·rān }
- clarofusain** A transitional lithotype of coal composed of fusinite and vitrinite and other macerals. { 'kla·rō'fū·zān }
- clarovitrain** A transitional lithotype of coal rock composed primarily of the maceral vitrinite, with lesser amounts of other macerals. { 'kla·rō'vi·trān }

clast

- clast** An individual grain, fragment, or constituent of detrital sediment or sedimentary rock produced by physical breakdown of a larger mass. { klast }
- clastation** See weathering. { kla'stā·shən }
- clastic** Rock or sediment composed of clasts which have been transported from their place of origin, as sandstone and shale. { 'klas·tik }
- clastic dike** A tabular-shaped sedimentary dike composed of clastic material and transecting the bedding of a sedimentary formation; represents invasion by extraneous material along a crack of the containing formation. { 'klas·tik 'dīk }
- clastic pipe** A cylindrical body of clastic material having an irregular columnar or pillarlike shape, standing approximately vertically through enclosing formations (usually limestone), and measuring a few centimeters to 50 meters (165 feet) in diameter and 1 to 60 meters (3 to 200 feet) in height. { 'klas·tik 'pīp }
- clastic ratio** The ratio of the percentage of clastic rocks to that of nonclastic rocks in a geologic section. Also known as detrital ratio. { 'klas·tik 'rā·shō }
- clastic reservoir** An underground oil or gas trap formed in clastic limestone. { 'klas·tik 'rez·əv·wār }
- clastic sediment** Deposits of clastic materials transported by mechanical agents. Also known as mechanical sediment. { 'klas·tik 'sed·ə·mənt }
- clastic wedge** The sediments of the exogeosyncline, derived from the tectonic landmasses of the adjoining orthogeosyncline. { 'klas·tik 'wej }
- clathrate** Pertaining to a condition, chiefly in leucite rock, in which clear leucite crystals are surrounded by tangential leucite crystals to give the rock an appearance of a net or a section of sponge. Also known as enclosure compound. { 'kla·thrāt }
- claudeite** As_2O_3 A mineral containing arsenic that is dimorphous with arsenolite; crystallizes in the monoclinic system. { 'klōd·ə·tīt }
- clausthalite** $PbSe$ A mineral consisting of lead selenide and resembling galena, specific gravity is 7.6-8.8. { 'klaüs·tə·līt }
- clay** **1.** A natural, earthy, fine-grained material which develops plasticity when mixed with a limited amount of water; composed primarily of silica, alumina, and water, often with iron, alkalies, and alkaline earths. **2.** The fraction of an earthy material containing the smallest particles, that is, finer than 3 micrometers. { klā }
- Clay Belt** A lowland area bordering on the western and southern portions of Hudson and James bays in Canada, composed of clays and silts recently deposited in large glacial lakes during the withdrawal of the continental glaciers. { 'klā·belt }
- clay gall** A dry, curled clay shaving derived from dried, cracked mud and embedded and flattened in a sand stratum. { 'klā 'gōl }
- clay ironstone** **1.** A clayey rock containing large quantities of iron oxide, usually limonite. **2.** A clayey-looking stone occurring among carboniferous and other rocks; contains 20-30% iron. { 'klā 'T·ərn·stōn }
- clay loam** Soil containing 27-40% clay, 20-45% sand, and the remaining portion silt. { 'iklā 'lōm }
- clay marl** A chalky clay, whitish with a smooth texture. { 'iklā 'mārl }
- clay mineral** One of a group of finely crystalline, hydrous silicates with a two- or three-layer crystal structure; the major components of clay materials; the most common minerals belong to the kaolinite, montmorillonite, attapulgite, and illite groups. { 'iklā 'mīn·rəl }
- claypan** A stratum of compact, stiff, relatively impervious noncemented clay; can be worked into a soft, plastic mass if immersed in water. { 'klā·pan }
- clay plug** Sediment, with a great deal of organic muck, deposited in a cutoff river meander. { 'iklā 'plæg }
- clay shale** **1.** Shale composed wholly or chiefly of clayey material which becomes clay again on weathering. **2.** Consolidated sediment composed of up to 10% sand and having a silt to clay ratio of less than 1:2. { 'iklā 'shāl }
- clay soil** A fine-grained inorganic soil which forms hard lumps when dry and becomes sticky when wet. { 'klā 'sōil }
- claystone** Indurated clay, consisting predominantly of fine material of which a major proportion is clay mineral. { 'klā·stōn }

- clay vein** A body of clay which is similar to an ore vein in form and fills a crevice in a coal seam. Also known as dirt slip. { 'klā ,vān }
- cleat** Vertical breakage planes found in coal. Also spelled cleet. { klēt }
- cleat spar** See ankerite. { 'klēt ,spār }
- cleavage** Splitting, or the tendency to split, along parallel, closely positioned planes in rock. { 'klēv·ij }
- cleavage banding** A compositional banding, usually formed from incompetent material such as argillaceous rocks, that is parallel to the cleavage rather than the bedding. { 'klēv·ij ,band·iŋ }
- cleavelandite** A white, lamellar variety of albite that is almost pure $\text{NaAlSi}_3\text{O}_8$ and has a tabular habit, with individuals often showing mosaic developments and tending to occur in fan-shaped aggregates. { 'klēv·lən·dīt }
- cleet** See cleat. { klēt }
- cliachite** A group of brownish, colloidal aluminum hydroxides that constitutes most bauxite. { 'klī·ə·kīt }
- cliff of displacement** See fault scarp. { 'klif əv dis'plā·smənt }
- Cliftonian** Middle Middle Silurian geologic time. { klif'tān·ē·ən }
- climatochronology** The absolute age dating of recent geologic events by using the oxygen isotope ratios in ice, shells, and so on. { klī'məd·ō·krə'näl·ə·jē }
- climbing dune** A dune that develops on the windward side of mountains or hills. { 'klīm·iŋ 'dūn }
- clinker** Burnt or vitrified stony material, as ejected by a volcano or formed in a furnace. { 'kliŋ·kər }
- clinoamphibole** A group of amphiboles which crystallize in the monoclinic system. { 'klī·nō'am·fə·bōl }
- clinocllore** $(\text{Mg},\text{Fe},\text{Al})_3(\text{Si},\text{Al})_2\text{O}_5(\text{OH})_4$ Green mineral of the chlorite group, occurring in monoclinic crystals, in folia or scales, or massive. { 'klī·nə·klōr }
- clinoclase** $\text{Cu}_3(\text{AsO}_4)_2(\text{OH})_3$ A dark-green mineral consisting of basic copper arsenate occurring in translucent prismatic crystals or massive. Also known as clinoclasite. { 'klī·nə·klās }
- clinoclasite** See clinoclase. { 'klī·nə·klā'sīt }
- clinoenstatite** $\text{Mg}_2(\text{Si}_2\text{O}_6)$ A monoclinic pyroxene consisting principally of magnesium silicate; occurs frequently in stony meteorites, but is rare in terrestrial environments. { 'klī·nō'enz·tə'tīt }
- clinoferrosilite** $\text{Fe}_2(\text{Si}_2\text{O}_6)$ A monoclinic pyroxene consisting of iron silicate. { 'klī·nō·fə·rō'sī'līt }
- clinoform** A subaqueous landform, such as the continental slope of the ocean or the foreset bed of a delta. { 'klī·nə·fōrm }
- clinohedrite** $\text{CaZnSiO}_3(\text{OH})_2$ A colorless, white, or purplish monoclinic mineral consisting of a calcium zinc silicate occurring in crystals; hardness is 5.5 on Mohs scale, and specific gravity is 3.33. { 'klī·nō'hē'drīt }
- clinohumite** $\text{Mg}_6(\text{SiO}_4)_4(\text{F},\text{OH})_2$ A monoclinic mineral of the humite group. { 'klī·nō'hyū·mīt }
- clinoptilolite** $(\text{Na},\text{K},\text{Ca})_2\text{Al}_3(\text{Al},\text{Si})_5\text{Si}_3\text{O}_{36}\cdot 12\text{H}_2\text{O}$ A zeolite mineral that is considered to be a potassium-rich variety of heulandite. { 'klin·əp'til·ə'līt }
- clinopyroxene** The general term for any of those pyroxenes that crystallize in the monoclinic system; on occasion, these pyroxenes have large amounts of calcium with or without aluminum and the alkalis. Also known as monopyroxene clinoaugite. { 'klī·nə·pə'rāk·sēn }
- clinozoisite** $\text{Ca}_2\text{Al}_2(\text{SiO}_4)_3(\text{OH})$ A grayish-white, pink, or green monoclinic mineral of the epidote group. { 'klī·nə'zō·i'sīt }
- clint** A hard or flinty rock, such as a projecting rock or ledge. { klint }
- Clintonian** Lower Middle Silurian geologic time. { klīn'tōn·ē·ən }
- clintonite** $\text{Ca}(\text{Mg},\text{Al})_3(\text{Al},\text{Si})\text{O}_{10}(\text{OH})_2$ A reddish-brown, copper-red, or yellowish monoclinic mineral of the brittle mica group occurring in crystals or foliated masses. Also known as seybertite; xanthophyllite. { 'klīnt·ən·īt }
- closed fold** A fold whose limbs have been compressed until they are parallel, and

close-joints cleavage

whose structure contour lines form a closed loop. Also known as tight fold. { 'klɔzd |fɔld }

close-joints cleavage See slip cleavage. { 'klɔs |jɔins 'klē·vij }

close sand See tight sand. { 'klɔs |sænd }

closure The vertical distance between the highest and lowest point on an anticline which is enclosed by contour lines. { 'klɔ·zhər }

cluse A narrow gorge, trench, or water gap with steep sides that cuts transversely through an otherwise continuous ridge. { klúz }

clusterite See botryoid. { 'klə·stərīt }

Coahuilan A North American provincial series in Lower Cretaceous geologic time, above the Upper Jurassic and below the Comanchean. { kə·ə'wēl·ən }

coal The natural, rocklike, brown to black derivative of forest-type plant material, usually accumulated in peat beds and progressively compressed and indurated until it is finally altered into graphite or graphite-like material. { kɔl }

coal ball A subspherical mass containing mineral matter embedded with plant material, found in coal seams and overlying beds of the late Paleozoic. { 'kɔl 'bɔl }

coal bed A seam or stratum of coal parallel to the rock stratification. Also known as coal rake; coal seam. { 'kɔl 'bed }

coal breccia Angular fragments of coal within a coal bed. { 'kɔl 'brɛch·ə }

coal clay See underclay. { 'kɔl 'klā }

coalification Formation of coal from plant material by the processes of diagenesis and metamorphism. Also known as bituminization; carbonification; incarbonization; in-coalation. { 'kɔl·ə·fə'kā·shən }

Coal Measures The sequence of rocks typically containing coal of the Upper Carboniferous. { 'kɔl 'mez·ərz }

coal pebbles Rounded masses of coal occurring in sedimentary rock. { 'kɔl 'peb·əlz }

coal petrology The science that deals with the origin, history, occurrence, structure, chemical composition, and classification of coal. { 'kɔl pə'trɔl·ə·jə }

coal rake See coal bed. { 'kɔl 'rāk }

coal seam See coal bed. { 'kɔl 'sɛm }

coal split See split. { 'kɔl 'splɪt }

coarse fragment A rock or mineral fragment in the soil with an equivalent diameter greater than 0.08 inch (2 millimeters). { 'kɔrs 'fræg·mənt }

coarse-grained See phaneritic. { 'kɔrs |grānd }

coastal berm See berm. { 'kɔs·təl 'bɜrm }

coastal dune A mobile mound of windblown material found along many sea and lake shores. { 'kɔs·təl 'dʌn }

coastal sediment The mineral and organic deposits of deltas, lagoons, and bays, barrier islands and beaches, and the surf zone. { 'kɔs·təl 'sed·ə·mənt }

coast shelf See submerged coastal plain. { 'kɔst 'shelf }

cobalt bloom See erythrite. { 'kɔ'bɔlt 'blʊm }

cobalt glance See cobaltite. { 'kɔ'bɔlt 'glɑns }

cobaltite CoAsS A silver-white mineral with a metallic luster that crystallizes in the isometric system, resembling crystals of pyrite; it is one of the chief ores of cobalt. Also known as cobalt glance; gray cobalt; white cobalt. { kə'bɔlt'īt }

cobaltocalcite A red, cobalt bearing variety of calcite. { kə'bɔlt·tɔ'kal'sɪt }

cobalt ochre See asbolite; erythrite. { 'kɔ'bɔlt 'ɔ·kər }

cobaltomenite CoSeO₄·2H₂O A mineral consisting of a hydrous cobalt selenium oxide. { 'kɔ'bɔlt'ä·mə'nīt }

cobalt pyrites See linnaeite. { 'kɔ'bɔlt 'pɪ'rɪts }

cobble A rock fragment larger than a pebble and smaller than a boulder, having a diameter in the range of 64-256 millimeters (2.5-10.1 inches), somewhat rounded or otherwise modified by abrasion in the course of transport. { 'kəb·əl }

cobble beach See shingle beach. { 'kəb·əl 'bɛʃ }

Cobolentzian Upper Lower Devonian geologic time. { kɔ'blens·ē·ən }

coccolith ooze A fine-grained pelagic sediment containing undissolved sand- or silt-sized particles of coccoliths mixed with amorphous clay-sized material. { 'kək·əl·lɪθ 'u:z }

- cocinerite** Cu_4AgS A silver gray mineral consisting of copper and silver sulfide, occurs in massive form. { 'kō·sə'ne,rīt }
- cockpit karst** See cone karst. { 'kāk,pit 'karst }
- coeruleolactite** $(\text{Ca,Cu})\text{Al}_6(\text{PO}_4)_4(\text{OH})_8 \cdot 4-5\text{H}_2\text{O}$ A milky-white to sky-blue mineral consisting of an aluminum phosphate. { sə'rül·ē·ō'lak,tīt }
- coesite** A high-pressure polymorph of SiO_2 , formed in nature only under unique physical conditions, requiring pressures of more than 20 kilobars (2 gigapascals), usually found in meteor impact craters. { 'sē,zīt }
- coffinite** USiO_4 A black silicate important as a uranium ore, found in sandstone deposits and hydrothermal veins in New Mexico, Utah, and Wyoming. { 'kōf·ənīt }
- cognate** Pertaining to contemporaneous fractures in a system with regard to time of origin and deformational type. { 'käg,nāt }
- cognate ejecta** Essential or accessory pyroclasts derived from the magmatic materials of a current volcanic eruption. { 'käg,nāt ē'jek·tə }
- cogwheel ore** See bournonite. { 'käg,wēl·ōr }
- cohenite** $(\text{Fe,Ni,Co})_3\text{C}$ A tin-white, isometric mineral found in meteorites { 'kō·ənīt }
- coherent deposit** A consolidated sedimentary deposit that is not easily shattered { kō'hir·ənt di'pāz·ət }
- cohesionless** Referring to a soil having low shear strength when dry, and low cohesion when wet. Also known as frictional; noncohesive. { kō'hē·zhən·ləs }
- cohesiveness** Property of unconsolidated fine-grained sediments by which the particles stick together by surface forces. { kō'hē·siv·nəs }
- cohesive soil** A sticky soil, such as clay or silt, its shear strength equals about half its unconfined compressive strength. { kō'hē·siv 'sōil }
- coke coal** See natural coke. { 'kōk·kōl }
- cokeite** Naturally occurring coke formed by the action of magma on coal or by natural combustion of coal. { 'kō,kīt }
- coking coal** A very soft bituminous coal suitable for coking. { 'kōk·iŋ·kōl }
- col** A high, sharp-edged pass occurring in a mountain ridge, usually produced by the headward erosion of opposing cirques. { käl }
- cold glacier** A glacier whose base is at a temperature much below 32°F (0°C) and frozen to the bedrock, resulting in insignificant movement and almost no erosion. { 'kōld 'glä·shər }
- colemanite** $\text{Ca}_2\text{B}_6\text{O}_{11} \cdot 5\text{H}_2\text{O}$ A colorless or white hydrated borate mineral that crystallizes in the monoclinic system and occurs in massive crystals or as nodules in clay. { 'kōl·mə'nīt }
- colk** See pothole. { kōk }
- collapse breccia** Angular rock fragments derived from the collapse of rock overlying a hollow space. { kə'laps·brech·ə }
- collapse caldera** A caldera formed primarily as a result of collapse due to withdrawal of magmatic support. { kə'laps kal'dir·ə }
- collapse sink** A sinkhole resulting from local collapse of a cavern that has been enlarged by solution and erosion. { kə'laps·sɪŋk }
- collapse structure** A structure resulting from rock slides under the influence of gravity. Also known as gravity-collapse structure. { kə'laps·strək·chər }
- collinite** The maceral, of collinite consistency, of jellified plant material precipitated from solution and hardened; a variety of euvitrinite. { 'käl·ənīt }
- collinsite** $\text{Ca}_2(\text{Mg,Fe})(\text{PO}_4)_2$ A phosphate mineral occurring in concentric layers in phosphoric nodules; found in meteorites. { 'käl·ən,zīt }
- colloform** Pertaining to the rounded, globular texture of mineral formed by colloidal precipitation. { 'käl·ə'fōrm }
- collophane** A massive, cryptocrystalline, carbonate-containing variety of apatite and a principal source of phosphates for fertilizers. Also known as collophanite { 'käl·ə'fän }
- collophanite** See collophane. { kə'läf·ənīt }
- colluvium** Loose, incoherent deposits at the foot of a slope or cliff, brought there principally by gravity. { kə'lü·vē·əm }

Coloradoan

- Coloradoan** Middle Upper Cretaceous geologic time. { 'käl·ə'rad·ə·wən }
- coloradoite** HgTe A grayish-black, isometric telluride mineral with a metallic luster; specific gravity is 8.6. { 'käl·ə'rad·ə·wīt }
- columbite** (Fe,Mn)(Cb,Ta)₂O₆ An iron-black mineral with a submetallic luster that crystallizes in the orthorhombic system; the chief ore mineral of niobium (columbium); hardness is 6 on Mohs scale, and specific gravity is 5.4-6.5. Also known as dianite; greenlandite; niobite. { kə'ləm·bīt }
- column** See geologic column; stalacto-stalagmite. { 'käl·əm }
- columnar jointing** Parallel, prismatic columns that are formed as a result of contraction during cooling in basaltic flow and other extrusive and intrusive rocks. Also known as columnar structure; prismatic jointing; prismatic structure. { kə'ləm·nər 'jōint·iŋ }
- columnar section** A vertical strip or scale drawing of the strip taken from a given area or locality showing the sequence of the rock units and their stratigraphic relationship, and indicating the thickness, lithology, age, classification, and fossil content of the rock units. Also known as section. { kə'ləm·nər 'sek·shən }
- columnar structure** **1.** Mineral structure consisting of parallel columns of slender prismatic crystals. **2.** A primary sedimentary structure consisting of columns arranged perpendicular to the bedding. **3.** See columnar jointing. { kə'ləm·nər 'strək·chər }
- colusite** Cu₃(As,Sn,V Fe,Te)S₄ A bronze-colored mineral consisting of a sulfide of copper and arsenic with vanadium, iron, and telluride substituting for arsenic; usually occurs in massive form. { kə'lū·sīt }
- Comanchean** A North American provincial series in Lower and Upper Cretaceous geologic time, above Coahuilan and below Gulfian. { kə'mən·chē·ən }
- combination trap** Underground reservoir structure closure, deformation, or fault where reservoir rock covers only part of the structure. { 'käm·bə'nā·shən 'træp }
- combustible shale** See tasmanite. { kəm'bəs·tə·bəl 'shāl }
- comendite** A white, sodic rhyolite containing alkalic amphibole or pyroxene. { kə'men·dīt }
- Comleyan** Lower Cambrian geologic time. { 'käm·lā·ən }
- common feldspar** See orthoclase. { 'käm·ən 'feld·spär }
- common mica** See muscovite. { 'käm·ən 'mī·kə }
- common pyrite** See pyrite. { 'käm·ən 'pī·rīt }
- common salt** See halite; sodium chloride. { 'käm·ən 'sölt }
- compaction** Process by which soil and sediment mass loses pore space in response to the increasing weight of overlying material. { kəm'pæk·shən }
- competence** The ability of the wind to transport solid particles either by rolling, suspension, or saltation (intermittent rolling and suspension); usually expressed in terms of the weight of a single particle. { 'käm·pəd·əns }
- competent beds** Beds or strata capable of withstanding the pressures of folding without flowing or changing in original thickness. { 'käm·pəd·ənt 'bedz }
- complementary rocks** Rocks which are differentiated from the same magma, and whose average composition is the same as the parent magma. { 'käm·plə'men·trē 'ræks }
- complex** **1.** An assemblage of rocks that has been folded together, intricately mixed, involved, or otherwise complicated. **2.** Composed of many ingredients. { 'käm·pleks }
- complex dune** A dune of varying forms, often very large, and produced by variable, shifting winds and the merging of various dune types. { 'käm·pleks 'dün }
- complex fold** A fold whose axial line is also folded. { 'käm·pleks 'fōld }
- complex tombo** A system resulting when several islands and the mainland are interconnected by a complex series of tombolos. Also known as tombo cluster; tombo series. { 'käm·pleks 'täm·bə'lō }
- composite cone** A large volcanic cone constructed of lava and pyroclastic material in alternating layers. { kəm'pāz·ət 'kōn }
- composite dike** A dike consisting of several intrusions differing in chemical and mineralogical composition. { kəm'pāz·ət 'dik }
- composite fold** A fold having smaller folds on its limbs. { kəm'pāz·ət 'fōld }

- composite gneiss** A banded rock formed by intimate penetration of magma into country rocks. { kəm'pāz·ət 'nīs }
- composite grain** A sedimentary clast formed of two or more original particles. { kəm'pāz·ət 'grān }
- composite sequence** An ideal sequence of cyclic sediments containing all the lithological types in their proper order. { kəm'pāz·ət 'sē·kwəns }
- composite sill** A sill consisting of several intrusions differing in chemical and mineralogical compositions. { kəm'pāz·ət 'sil }
- composite topography** A topography whose features have developed in two or more erosion cycles. { kəm'pāz·ət tə'pāg·rə·fē }
- composite unconformity** An unconformity that has resulted from more than one episode of nondeposition and possible erosion. { kəm'pāz·ət 'ən·kən'fōr·məd·ē }
- composite vein** A large fracture zone composed of parallel ore-filled fissures and converging diagonals, whose walls and intervening country rock have been replaced to a certain degree. { kəm'pāz·ət 'vān }
- composite volcano** See stratovolcano. { kəm'pāz·ət vāl'kā·nō }
- compositional maturity** Concept of a type of maturity in sedimentary rocks in which a sediment approaches the compositional end product to which formative processes drive it. { kəm·pə'zish·ən·əl mə'chūr·əd·ē }
- compound alluvial fan** Structure formed by the lateral growth and merger of fans made by neighboring streams. { 'kām·pau̯nd ə'lū·vē·əl 'fan }
- compound fault** A zone or series of essentially parallel faults, closely spaced { 'kām·pau̯nd 'fōlt }
- compound ripple marks** Complex ripple marks of great diversity which originate by simultaneous interference of wave oscillation with current action. { 'kām·pau̯nd 'rip·əl 'mārks }
- compound volcano** 1. A volcano consisting of a complex of two or more cones. 2. A volcano with an associated volcanic dome. { 'kām·pau̯nd vāl'kā·nō }
- compression** A system of forces which tend to decrease the volume or shorten rocks { kəm'presh·ən }
- concentric faults** Faults that are arranged concentrically. { kən'sen·trik 'fōlts }
- concentric fold** A fold in which the original thickness of the strata is unchanged during deformation. Also known as parallel fold. { kən'sen·trik 'fōld }
- concentric fractures** A system of fractures concentrically arranged about a center { kən'sen·trik 'frak·chəz }
- concentric weathering** See spheroidal weathering { kən'sen trik 'weth ə·riŋ }
- conchoidal** Having a smoothly curved surface, used especially to describe the fracture surface of a mineral or rock. { kən'koid·əl }
- concordant body** An intrusive igneous body whose contacts are parallel to the bedding of the country rock. Also known as concordant injection; concordant pluton. { kən 'kōrd·ənt 'bād·ē }
- concordant coastline** A coastline parallel to the land structures which form the margin of an ocean basin. { kən'kōrd·ənt 'kōst·līn }
- concordant injection** See concordant body. { kən'kōrd·ənt in'jek·shən }
- concordant pluton** See concordant body. { kən'kōrd·ənt 'plū·tān }
- concretion** A hard, compact mass of mineral matter in the pores of sedimentary or fragmental volcanic rock; represents a concentration of a minor constituent of the enclosing rock or of cementing material. { kən'krē·shən }
- concretionary** Tending to grow together, forming concretions { kən'krē shə·ner·ē }
- concretioning** The process of forming concretions. { kən'krē·shən·iŋ }
- concussion fracture** Radiating system of fractures in a shock-metamorphosed rock. { kən'kəsh·ən 'frak·chəz }
- condensate field** A petroleum field developed in predominantly gas-bearing reservoir rocks, but within which condensation of gas to oil commonly occurs with decreases in field pressure. { 'kən·dən·sət 'fēld }
- conductivity** See permeability. { 'kən·dək'tiv·əd·ē }
- conduit** A water-filled underground passage that is always under hydrostatic pressure { 'kən·də·wət }

cone

- cone** A mountain, hill, or other landform having relatively steep slopes and a pointed top. { kōn }
- cone delta** See alluvial cone. { 'kōn ·del·tə }
- cone dike** See cone sheet. { 'kōn ·dīk }
- cone-in-cone structure** The structure of a concretion characterized by the development of a succession of cones one within another. { 'kōn in 'kōn 'stræk·chər }
- cone karst** A type of karst, typical of tropical regions, characterized by a pattern of steep, convex sides and slightly concave floors. Also known as cockpit karst; Kegel karst. { 'kōn ·kärst }
- Conemaughian** Upper Middle Pennsylvanian geologic time { 'kän·ə'móg·ē·ən }
- cone of dejection** See alluvial cone. { 'kōn əv di'jek·shən }
- cone of detritus** See alluvial cone. { 'kōn əv di'trīd·əs }
- cone sheet** An accurate dike forming part of a concentric set that dips inward toward the center of the arc. Also known as cone dike. { 'kōn 'shēt }
- Conewangoan** Upper Upper Devonian geologic time { 'kän·ə'wəŋ·gə·wən }
- confining bed** An impermeable bed adjacent to an aquifer { kən'fīn·īŋ 'bed }
- confining pressure** An equal, all-sided pressure, such as lithostatic pressure produced by overlying rocks in the crust of the earth. { kən'fīn·īŋ 'presh·ər }
- conformable** 1. Pertaining to the contact of an intrusive body when it is aligned with the internal structures of the intrusion. 2. Referring to strata in which layers are formed above one another in an unbroken, parallel order. { kən'fōr·mə·bəl }
- conformity** The shared and undisturbed correspondence between adjacent sedimentary strata that have been deposited in orderly sequence with little or no indication of time lapses. { kən'fōr·məd·ē }
- conglifluction** See glifluction. { kən·jel·ə'flək·shən }
- conglifraction** The splitting or disintegration of rocks as the result of the freezing of the water contained. Also known as frost bursting; frost riving; frost shattering; frost splitting; frost weathering; frost wedging; gelifraction; gelivation. { kən·jel·ə'frak·shən }
- congeliturbate** Soil or unconsolidated earth which has been moved or disturbed by frost action. { kən·jel·ə'tər·bət }
- congeliturbation** The churning and stirring of soil as a result of repeated cycles of freezing and thawing; includes frost heaving and surface subsidence during thaws. Also known as cryoturbation; frost churning; frost stirring; geliturbation. { kən·jel·ə'tər'bā·shən }
- conglomerate** Cemented, rounded fragments of water-worn rock or pebbles, bound by a siliceous or argillaceous substance. { kən'gläm·ə·rət }
- conglomeratic mudstone** See paraglomerate { kən·gläm ə'rəd·ik 'mäd·stōn }
- congruent melting** Melting of a solid substance to a liquid identical in composition. { kən'grü·ənt 'melt·īŋ }
- Coniacian** Lower Senonian geologic time. { 'kän·ē'ā·shən }
- conichalcite** $\text{CaCu}(\text{AsO}_4)(\text{OH})$ A grass green to yellowish-green or emerald green, orthorhombic mineral consisting of a basic arsenate of calcium and copper. { 'kän·ə'kal·sīt }
- conjugate** 1. Pertaining to fractures in which both sets of veins or joints show the same strike but opposite dip. 2. Pertaining to any two sets of veins or joints lying perpendicular. { 'kän·jə·gət }
- conjugate joint system** Two joint sets with a symmetrical pattern arranged about another structural feature or an inferred stress axis. { 'kän·jə·gət |jōint 'sis·təm }
- connarite** A green mineral consisting of hydrous nickel silicate occurring as small crystals or grains. { 'kän·ə'rīt }
- connate** Referring to materials involved in sedimentary processes that are contemporaneous with surrounding materials. { kə'nāt }
- connecting bar** See tombolo. { kə'nekt·īŋ 'bär }
- connellite** $\text{Cu}_{10}(\text{SO}_4)\text{Cl}_4(\text{OH})_{32} \cdot 3\text{H}_2\text{O}$ A deep-blue striated copper mineral; crystals are in the hexagonal system. Also known as footeite. { 'kän·əl·īt }
- conoplain** See pediment. { 'kän·ə'plān }

- consanguineous** Of a natural group of sediments or sedimentary rocks, having common or related origin. { ɪkən·sɑŋjɪgwɪn·ē·əs }
- consanguinity** The genetic relationship between igneous rocks in a single petrographic province which are presumably derived from a common parent magma. { ɪkən·sɑŋjɪgwɪn·əd·ē }
- consequent** Of, pertaining to, or characterizing movements of the earth resulting from the external transfer of material in the process of gradation. { 'kən·sə·kwənt }
- consequent stream** A stream whose course is determined by the slope of the land. Also known as superposed stream. { 'kən·sə·kwənt·strēm }
- consequent valley** **1.** A valley whose direction depends on corrugation **2.** A valley formed by the widening of a trench cut by a consequent stream. { 'kən·sə·kwənt·vəl·ē }
- consolidation** **1.** Processes by which loose, soft, or liquid earth become coherent and firm. **2.** Adjustment of a saturated soil in response to increased load; involves squeezing of water from the pores and a decrease in void ratio. { kən·sə'l·ə'dā·shən }
- contact** The surface between two different kinds of rocks. { 'kən·təkt }
- contact aureole** See aureole. { 'kən·təkt·'ɔr·ē·ōl }
- contact breccia** Angular rock fragments resulting from shattering of wall rocks around laccolithic and other igneous masses. { 'kən·təkt·'brɛç·ə }
- contact metamorphic rock** A rock formed by the processes of contact metamorphism. { 'kən·təkt·med·ə'mɔr·fɪk·'ræk }
- contact metamorphism** Metamorphism that is genetically related to the intrusion or extrusion of magmas and takes place in rocks at or near their contact. { 'kən·təkt·med·ə'mɔr·fɪz·əm }
- contact metasomatism** One of the main local processes of thermal metamorphism that is related to intrusion of magmas; takes place in rocks or near their contact with a body of igneous rock. { 'kən·təkt·med·ə'sɔ·mætɪz·əm }
- contact mineral** A mineral formed by the processes of contact metamorphism. { 'kən·təkt·mɪn·rəl }
- contact vein** **1.** A variety of fissure vein formed by deposition of minerals in a fault fissure at a rock contact. **2.** A replacement vein formed by mineralized solutions percolating along the more permeable surface areas of the contact. { 'kən·təkt·vān }
- contact zone** See aureole. { 'kən·təkt·zɔn }
- contamination** A process in which the chemical composition of a magma changes due to the assimilation of country rocks. { kən·tə'm·ə'nā·shən }
- contemporaneous** **1.** Formed, existing, or originating at the same time **2.** Of a rock, developing during formation of the enclosing rock. { kən·təm·pə'rā·nē·əs }
- continental accretion** The theory that continents have grown by the addition of new continental material around an original nucleus, mainly through the processes of geosynclinal sedimentation and orogeny. { ɪkənt·ənɪent·əl·ə'krē·shən }
- continental borderland** The area of the continental margin between the shoreline and the continental slope. { ɪkənt·ənɪent·əl·'bɔr·dər·lənd }
- continental crust** The basement complex of rock, that is, metamorphosed sedimentary and volcanic rock with associated igneous rocks mainly granitic, that underlies the continents and the continental shelves. { ɪkənt·ənɪent·əl·'krəst }
- continental deposits** Sedimentary deposits laid down within a general land area. { ɪkənt·ənɪent·əl·dɪ'pəz·əts }
- continental displacement** See continental drift. { ɪkənt·ənɪent·əl·dɪ'splās·mənt }
- continental divide** A drainage divide of a continent, separating streams that flow in opposite directions; for example, the divide in North America that separates watersheds of the Pacific Ocean from those of the Atlantic Ocean. { ɪkənt·ənɪent·əl·dɪ'vɪd }
- continental drift** The concept of continent formation by the fragmentation and movement of land masses on the surface of the earth. Also known as continental displacement. { ɪkənt·ənɪent·əl·'drɪft }
- continental geosyncline** A geosyncline filled with nonmarine sediments. { ɪkənt·ənɪent·əl·jɪ·ō'sɪn·klɪn }

continental growth

- continental growth** The processes, continuing the growth of continents at the expense of ocean basins {ikānt-ən-ent-əl 'grōth}
- continental margin** These processes between the shoreline and the deep sea bottom generally consists of the continental borderland shelf slope and rise {ikānt-ən-ent-əl 'mār-jən}
- continental nucleus** A large area of basement rock consisting of basaltic and more mafic oceanic crust and continental mantle fragments. It is assumed that continents have grown. Also known as continental shield cratogene shield {ikānt-ən-ent-əl 'nū klē-əs}
- continental plate** Thick continental crust {ikānt-ən-ent-əl plāt}
- continental platform** See continental shelf {ikānt-ən-ent-əl 'plat-fōrm}
- continental rise** A transverse part of the continental margin, a gentle slope with a generally smooth surface, due to the shedding of sediments from the continental block, and located between the continental slope and the abyssal plain {ikānt-ən-ent-əl 'rīz}
- continental shelf** The zone around a continent, that part of the continental margin extending from the shoreline and the continental slope, coincides with the continental slope the continental terrace. Also known as continental platform shelf {ikānt-ən-ent-əl 'shelf}
- continental shield** See shield {ikānt-ən-ent-əl 'shēld}
- continental slope** The part of the continental margin consisting of the declivity from the edge of the continental shelf extending down to the continental rise {ikānt-ən-ent-əl 'slōp}
- continental terrace** The continental shelf and slope together {ikānt-ən-ent-əl 'ter-ās}
- continent formation** A series of six or seven major stages resulting from the buildup of radioactive heat and then the melting or partial melting of the earth's interior the molten rock melt rises to the surface differentiating into less primitive lavas the continent then nucleates differentiates and grows from oceanic crust and mantle {ikānt-ən-ent-əl fōr mā-shān}
- continuous permafrost zone** Regional zone predominantly composed of permanently frozen subsoil that is not interrupted by pockets of unfrozen ground {kən-tin-yə-wəs 'pər-mə-frōst -zōn}
- continuous profiling** A method of shooting in seismic exploration in which uniformly placed seismometer stations along a line are shot from holes spaced along the same line so that each hole receives seismic vibrations generated by a vibrator with those from adjacent holes. {kən-tin-yə-wəs 'prō-fīl-ŋ}
- continuous reaction series** A branch of Bowen's reaction series containing the plagioclase mineral group in which reaction of early-formed crystals with water takes place continuously without abrupt changes in crystal structure {kən-tin-yə-wəs rē'ak-shān -sir-ēz}
- contraction hypothesis** The contraction of the earth by the action of compression folding and thrusting {kən'trak-shān hī'pōth-ə-səs}
- convergence** Diminution of the interval between geologic horizons {kən'vər-jāns}
- convolute bedding** The extreme contorted ultimate result of continued on a single plane of sediment resulting from synchronous slumping {kən'vōl-ūt-bed-dŋ}
- convolution** 1. The process of convoluting convolute bedding. 2. A structure resulting from a convolution process, such as a spiral sand bed intricate fold {kən'vōl-ūt-shān}
- cooperite** Pt₂Si. A steel gray tetragonal mineral of metallic luster consisting of a solution of platinum occurring in irregular grains in gneissic rock {kō'p-ē-rit}
- coorongite** A boghead coal in the peat stage {kō'ō-rōn-ŋ-īt}
- copiapite** 1. Fe₂SO₄ · 2H₂O · 2H₂O. A yellow mineral occurring in granular or scaly aggregates. Also known as ferric khalusite yellow copious. 2. A group of minerals containing hydrous iron sulfates. {kō'p-ē-ā-pīl}
- copper glance** See chalcocite {kōp-ər 'glāns}
- copperite** An important platinum mineral composed of platinum sulfide {kō'p-ē-ā-rit}

- copper mica** See chalcophyllite. { 'kăp·ər 'mī·kə }
- copper nickel** See niccolite. { 'kăp·ər 'nik·əl }
- copper ore** Rock containing copper minerals. { 'kăp·ər 'ɔr }
- copper pyrite** See chalcopyrite. { 'kăp·ər 'pī·rīt }
- copper uranite** See torbernite. { 'kăp·ər 'yūr·ə·nīt }
- coprolite** Petrified excrement. { 'kăp·rə·līt }
- coquimbite** $Fe_2(SO_4)_2 \cdot 9H_2O$ A white mineral that crystallizes in the hexagonal system; it is dimorphous with paracoquimbite. { kō'kim·bīt }
- coquina** A coarse-grained porous, easily crumbled variety of limestone composed principally of mollusk shell and coral fragments cemented together as rock. { kō'kē·nə }
- coquinoid** 1. Of or pertaining to coquina. 2. Lithified coquina. 3. An autochthonous deposit of limestone made up of more or less whole mollusk shells. { kō·kə·nōid }
- coracite** See uraninite. { 'kôr·ə·sīt }
- coral head** A small reef patch of coralline material. Also known as coral knoll. { 'kă·rəl 'hed }
- coral knoll** See coral head. { 'kă·rəl 'nōl }
- coral mud** Fine-grade deposits of coral fragments formed around coral islands and coasts bordered by coral reefs. { 'kăr·əl 'məd }
- coral pinnacle** A sharply upward-projecting growth of coral rising from the floor of an atoll lagoon. { 'kăr·əl 'pin·ə·kəl }
- coral reef** A ridge or mass of limestone built up of detrital material deposited around a framework of skeletal remains of mollusks, colonial coral, and massive calcareous algae. { 'kăr·əl 'rēf }
- coral-reef shoreline** A shoreline formed by reefs composed of coral polyps. Also known as coral shoreline. { 'kăr·əl 'rēf 'shòr·līn }
- coral rock** See reef limestone. { 'kăr·əl 'rāk }
- coral sand** Coarse-grade deposits of coral fragments formed around coral islands and coasts bordered by coral reefs. { 'kăr·əl 'sand }
- coral shoreline** See coral-reef shoreline. { 'kăr·əl 'shòr·līn }
- cordierite** $Mg_2(Al_2Si_2O_{10})$ A blue orthorhombic magnesium aluminosilicate mineral frequently occurring associated with thermally metamorphosed rocks derived from argillaceous sediments. { 'kòrd·ē·ə·rīt }
- cordilleran geosyncline** The Devonian geosynclinal region of western North America. { 'kòrd·əl'ər·ən 'jē·ō'sin·klīn }
- cordylite** $(Ce,La)_2BaCO_3F$ A colorless to wax-yellow mineral consisting of a carbonate and fluoride of cerium, lanthanum, and barium. { 'kòrd·əl·īt }
- core** 1. Center of the earth; beginning at a depth of 2900 kilometers. Also known as earth core. 2. A vertical, cylindrical boring of the earth from which composition and stratification may be determined; in oil or gas well exploration the presence of hydrocarbons or water are items of interest. { kôr }
- core analysis** The use of core samples taken from the borehole during drilling to give information on strata age, composition, and porosity, and the presence of hydrocarbons or water along the length of the borehole. { 'kôr ə'nəl·ə·səs }
- core intersection** 1. The point in a borehole where an ore vein or body is encountered as shown by the core. 2. The width or thickness of the ore body, as shown by the core. Also known as core interval. { 'kôr 'in·tər·sek·shən }
- core interval** See core intersection. { 'kôr 'in·tər·vəl }
- core logging** The analysis of the strata through which a borehole passes by the taking of core samples at predetermined depth intervals as the well is drilled. { 'kôr 'lɔg·'iŋ }
- core sample** A sample of rock, soil, snow, or ice obtained by driving a hollow tube into the undisturbed medium and withdrawing it with its contained sample or core. { 'kôr 'sam·pəl }
- corestone** A rounded or broadly rectangular joint block of granite formed as a result of subsurface weathering in a manner similar to a tor but entirely separated from the bedrock. { 'kôr·stōn }

corneite

- corneite** A biotite-hornfels formed during deformation of shale by folding. { 'kór·nē·īt }
- cornetite** $\text{Cu}_3(\text{PO}_4)(\text{OH})_3$ A peacock-blue mineral consisting of basic copper phosphate. { 'kór·nə·īt }
- cornwallite** $\text{Cu}_5(\text{AsO}_4)_2(\text{OH})_4 \cdot \text{H}_2\text{O}$ A verdigris green to blackish-green mineral consisting of a hydrated basic arsenate of copper; occurs as small botryoidal crusts. { 'kór·wò·līt }
- corona** **1.** A mineral zone that is usually radial about another mineral or at the area between two minerals. Also known as kelyphite. **2.** An annular zone of minerals that is disposed either around another mineral or at the contact between two minerals. { kə'ró·nə }
- coronadite** $\text{Pb}(\text{Mn}^{2+}, \text{Mn}^{4+})_8\text{O}_{16}$ A black mineral consisting of a lead and manganese oxide, occurring in massive form with fibrous structure; an important constituent of manganese ore. { 'kór·ə'nä·dīt }
- corrasion** Mechanical wearing away of rock and soil by the action of solid materials moved along by wind, waves, running water, glaciers, or gravity. Also known as mechanical erosion. { kə'rā·zhən }
- correlation** **1.** The determination of the equivalence or contemporaneity of geologic events in separated areas. **2.** As a step in seismic study, the selecting of corresponding phases, taken from two or more separated seismometer spreads, of seismic events seemingly developing at the same geologic formation boundary. { 'kär·ə'lā·shən }
- corrie** See cirque. { kór·ē }
- corrosion border** See corrosion rim. { kə'ró·zhən·bòrd·ə }
- corrosion rim** A modification of the outlines of a porphyritic crystal due to the corrosive action of a magma on previously stable minerals. Also known as corrosion border. { kə'ró·zhən·rīm }
- corsite** A spheroidal variety of gabbro. Also known as miagite; napoleonite. { 'kór·sīt }
- cortlandite** A peridotite consisting of large crystals of hornblende with poikilitically included crystals of olivine. Also known as hudsonite. { 'kórt·lən·dīt }
- corundum** Al_2O_3 A hard mineral occurring in various colors and crystallizing in the hexagonal system; crystals are usually prismatic or in rounded barrel shapes; gem varieties are ruby and sapphire. { kə'rən·dəm }
- corvusite** $\text{V}_2\text{O}_4 \cdot 6\text{V}_2\text{O}_5 \cdot n\text{H}_2\text{O}$ A blue-black to brown mineral consisting of a hydrous oxide of vanadium; occurs in massive form. { 'kór·və·sīt }
- cosalite** $\text{Pb}_2\text{Bi}_2\text{S}_3$ A lead-gray or steel-gray mineral consisting of lead, bismuth, and sulfur; specific gravity is 6.39-6.75. { 'kò·zə·līt }
- cosmic sediment** Particles of extraterrestrial origin which are observed as black magnetic spherules in deep-sea sediments. { 'käs·mik·sed·ə·mənt }
- cosmochlore** See ureyite. { 'käs·mə·klòr }
- cotton ball** See ulexite. { 'kät·ən·bòl }
- cotunnite** PbCl_2 An alteration product of galena; a soft, white to yellowish mineral that crystallizes in the orthorhombic crystal system. { kə'tə·nīt }
- coulee** **1.** A thick, solidified sheet or stream of lava. **2.** A steep-sided valley or ravine, sometimes with a stream at the bottom. { kú'lā }
- country rock** **1.** Rock that surrounds and is penetrated by mineral veins. **2.** Rock that surrounds and is invaded by an igneous intrusion. { 'kən·trē·rāk }
- Couvianian** Lower Middle Devonian geologic time. { kú·vin·ē·ən }
- covellite** CuS An indigo-blue mineral of metallic luster that crystallizes in the hexagonal system; it is usually massive or occurs in disseminations through other copper minerals and represents an ore of copper. Also known as indigo copper. { kə've·līt }
- covite** A rock of igneous origin composed of sodic orthoclase, hornblende, sodic pyroxene, nepheline, and accessory sphene, apatite, and opaque oxides. { 'kò·vīt }
- crag** A steep, rugged point or eminence of rock, as one projecting from the side of a mountain. { krag }
- crandallite** $\text{CaAl}_3(\text{PO}_4)_2(\text{OH})_5 \cdot \text{H}_2\text{O}$ A white to light-grayish mineral consisting of a

- hydrous phosphate of calcium and aluminum occurring in fine, fibrous masses. { 'krand·əl·īt }
- crater** 1. A large, bowl-shaped topographic depression with steep sides 2. A rimmed structure at the summit of a volcanic cone, the floor is equal to the vent diameter { 'krād·ər }
- crater cone** A cone built around a volcanic vent by lava extruded from the vent. { 'krād·ər·kōn }
- craton** The large, relatively immobile portion of continents consisting of both shield and platform areas. { 'krā·tän }
- crednerite** CuMn_2O_4 A steel-gray to iron-black foliated mineral consisting of copper, manganese, and oxygen. { 'kred·nə·rīt }
- creedite** $\text{Ca}_3\text{Al}_2(\text{SO}_4)(\text{F},\text{OH})_{10} \cdot 2\text{H}_2\text{O}$ A white or colorless monoclinic mineral consisting of hydrous calcium aluminum fluoride with calcium sulfate, occurring in grains and radiating crystalline masses; hardness is 2 on Mohs scale, and specific gravity is 2.7. { 'krē·dīt }
- creep** A slow, imperceptible downward movement of slope-forming rock or soil under sheer stress. { krēp }
- crenitic** Relating to or resulting from the raising of subterranean minerals by the action of spring water. { krə'nid·ik }
- crenulation cleavage** See slip cleavage. { 'kren·yə'lā·shən·klēv·ij }
- crested beach** A crescent-shaped beach at the head of a bay or the mouth of a stream entering the bay, with the concave side facing the sea. { 'kres·ənt·bēch }
- crescentic dune** See barchan. { krə'sen·tik·'dūn }
- crestal plane** The plane formed by joining the crests of all beds of an anticline { 'krest·əl·plān }
- crest line** The line connecting the highest points on the same bed of an anticline in an infinite number of cross sections. { 'krest·līn }
- Cretaceous** The latest system of rocks or period of the Mesozoic Era, between 136 and 65 million years ago. { kri'tā·shəs }
- crevasse** An open, nearly vertical fissure in a glacier or other mass of land ice or the earth, especially after earthquakes. { krə'vas }
- crevasse deposit** Kame deposited in a crevasse. { krə'vas di'pāz·ət }
- crib** See arête. { krib }
- crinoidal limestone** A rock composed predominantly of crystalline joints of crinoids with foraminiferans, corals, and mollusks. { krī'nōid·əl·līm·stōn }
- crystalite** SiO_2 A silicate mineral that is a high-temperature form of quartz, stable above 1470°C; crystallizes in the tetragonal system at low temperatures and the isometric system at high temperatures. { kri'stō·bəlīt }
- critical bottom slope** The depth distribution in which depth d of an ocean increases with latitude ϕ according to an equation of the form $d = d_0 \sin \phi + \text{constant}$ { 'krid·ə·kəl·'bād·əm·slop }
- critical density** That degree of density of a saturated, granular material below which, as it is rapidly deformed, it will decrease in strength and above which it will increase in strength. { 'krid·ə·kəl·den·səd·ē }
- crocidolite** A lavender-blue, indigo-blue, or leek-green asbestiform variety of riebeckite; occurs in fibrous, massive, and earthy forms Also known as blue asbestos, krokidolite. { krō'sid·əl·īt }
- crocoisite** See crocoite. { 'kräk·wə·zīt }
- crocoite** PbCrO_4 A yellow to orange or hyacinth-red secondary mineral occurring as monoclinic, prismatic crystals; it is also massive granular. Also known as crocoisite; red lead ore. { 'kräk·ə·wīt }
- Croixian** Upper Cambrian geologic time. { 'krōi·ən }
- cromfordite** See phosgenite. { 'krām·fər·dīt }
- cronstedtite** $\text{Fe}_4^{2+}\text{Fe}_2^{3+}(\text{Fe}_2^{3+}\text{Si}_2)\text{O}_{10}(\text{OH})_8$ A black to brownish-black mineral consisting of a hydrous iron silicate crystallizing in hexagonal prisms, specific gravity is 3.34-3.35. { 'krän·sted·īt }
- crookesite** $(\text{Cu},\text{Tl},\text{Ag})_2\text{Se}$ An important selenium mineral occurring in lead-gray masses and having a metallic appearance. { 'krük·sīt }

crop out

crop out See outcrop. { 'kräp ,aüt }

cross-bedding The condition of having laminae lying transverse to the main stratification planes of the strata; occurs only in granular sediments. Also known as cross-lamination; cross-stratification. { |kròs 'bed·iŋ }

crosscutting relationships Relationships which may occur between two adjacent rock bodies, where the relative age may be determined by observing which rock "cuts" the other, for example, a granitic dike cutting across a sedimentary unit. { 'kròs:kəd·iŋ ri'lā·shən·ships }

cross fault **1.** A fault whose strike is perpendicular to the general trend of the regional structure. **2.** A minor fault that intersects a major fault. { 'kròs ,fòlt }

cross fold A secondary fold whose axis is perpendicular or oblique to the axis of another fold. Also known as subsequent fold; superimposed fold; transverse fold. { 'kròs ,fòld }

cross joint A fracture in igneous rock perpendicular to the lineation caused by flow magma. Also known as transverse joint. { 'kròs ,jòint }

cross-lamination See cross-bedding. { |kròs lam·ə'nā·shən }

cross section **1.** A diagram or drawing that shows the downward projection of surficial geology along a vertical plane, for example, a portion of a stream bed drawn at right angles to the mean direction of the flow of the stream. **2.** An actual exposure or cut which reveals geological features. { 'kròs ,sek·shən }

cross valley See transverse valley. { 'kròs ,val·ē }

cross-stone See harmotome; staurolite. { 'kròs ,stōn }

cross-stratification See cross-bedding. { 'kròs ,strəd·ə·fə'kā·shən }

croute calcaire See caliche. { ,krüt kal'ker }

crude oil A comparatively volatile liquid bitumen composed principally of hydrocarbon, with traces of sulfur, nitrogen, or oxygen compounds; can be removed from the earth in a liquid state. { |krüd 'òil }

crumb structure A soil condition in which the particles are crumblike aggregates; suitable for agriculture. { 'krəm ,strək·chər }

crush breccia A breccia formed in place by mechanical fragmentation of rock during movements of the earth's crust. { 'krəsh ,brech·ə }

crush conglomerate Beds similar to a fault breccia except that the fragments are rounded by attrition. Also known as tectonic conglomerate. { 'krəsh kən'glām·ə·rət }

crush fold A fold of large dimensions that may involve considerable minor folding and faulting such as would produce a mountain chain or an oceanic deep. { 'krəsh ,fòld }

crush zone A zone of fault breccia on fault gouge. { 'krəsh ,zōn }

crust The outermost solid layer of the earth, mostly consisting of crystalline rock and extending no more than a few miles from the surface to the Mohorovičić discontinuity. Also known as earth crust. { krəst }

crustal motion Movement of the earth's crust. { |krəst·əl 'mō·shən }

crustal plate See tectonic plate. { 'krəst·əl ,plāt }

cryoconite **1.** A dark powdery dust transported by wind and deposited on the surface of snow or ice; found, however, mainly in cryoconite holes. **2.** A mixture of garnet, sillimanite, zircon, pyroxene, quartz, and various other minerals. { krī'äk·ə·nīt }

cryoconite hole A cylindrical dust well filled with cryoconite; absorbs solar radiation, causing melting of glacier ice around and below it. { krī'äk·ə·nīt ,hól }

cryogenic period A time period in geologic history during which large bodies of ice appeared at or near the poles and climate favored the formation of continental glaciers. { ,krī·ə'jen·ik |pir·ē·əd }

cryolaccolith See hydrolaccolith. { |krī·ō'lak·ə·lith }

cryolite Na₃AlF₆. A white or colorless mineral that crystallizes in the monoclinic system but has a pseudocubic aspect; found in masses of waxy luster; hardness is 2.5 on Mohs scale, and specific gravity is 2.95-3.0; used chiefly as a flux in producing aluminum from bauxite and for making salts of sodium and aluminum and porcelainous glass. Also known as Greenland spar; ice stone. { 'krī·ə·līt }

- cryolithionite** $\text{Na}_2\text{Li}_3\text{Al}_2\text{F}_{12}$ A colorless mineral that crystallizes in the isometric system; found in the Ural Mountains. { ˈkrɪ·ð'liθ·ē·ə·nɪt }
- cryomorphology** The branch of geomorphology that treats the processes and topographic features of regions where the ground is permanently frozen. { ɪ'krɪ·ð·mɔr'fæl·ə·jē }
- cryopedology** A branch of geology that deals with the study of intensive frost action and permanently frozen ground. { ɪ'krɪ·ð·pə'dæl·ə·jē }
- cryoplanation** Land erosion at high latitudes or elevations due to processes of intensive frost action. { ɪ'krɪ·ð·plənā·shən }
- cryosphere** That region of the earth in which the surface is perennially frozen { 'krɪ·ə'sfɪr }
- cryostatic pressure** Hydrostatic pressure exerted on soil and rocks when soil water freezes. { 'krɪ·ə'stad·ɪk 'preʃ·ər }
- cryoturbation** See congeliturbation. { ɪ'krɪ·ð·tər'bā·shən }
- cryptoclastic** Composed of extremely fine, almost submicroscopic, broken or fragmental particles. { ɪ'krɪp·tə'klas·tɪk }
- cryptocrystalline** Having a crystalline structure but of such a fine grain that individual components are not visible with a magnifying lens. { ɪ'krɪp·tɔ'krɪst·əl·ən }
- cryptohalite** $(\text{NH}_4)_2\text{SiF}_6$ A colorless to white or gray, isometric mineral consisting of ammonium silicon fluoride; occurs in massive and arborescent forms. { ɪ'krɪp·tɔ'ha'lɪt }
- cryptolite** See monazite. { 'krɪp·tə'lɪt }
- cryptomelane** $\text{KMn}_8\text{O}_{16} \cdot \text{H}_2\text{O}$ A usually massive mineral common in manganese ores, contains an oxide of manganese and potassium and crystallizes in the monoclinic system. { ɪ'krɪp·tɔ·mə'lān }
- cryptoperthite** A fine-grained, submicroscopic variety of perthite consisting of an intergrowth of potassic and sodic feldspar, detectable only by means of x-rays or with the aid of an electron microscope. { ɪ'krɪp·tɔ'pær'thɪt }
- cryptovolcanic** A small, nearly circular area of highly disturbed strata in which there is no evidence of volcanic materials to confirm the origin as being volcanic. { ɪ'krɪp·tɔ·vəl'kan·ɪk }
- crystal** See rock crystal. { 'krɪst·əl }
- crystalline-granular texture** A primary texture of an igneous rock due to crystallization from a fluid medium. { ɪ'krɪs·tə·lən ɪ'gran·yə·lər 'teks·chər }
- crystalline porosity** Porosity in crystalline limestone and dolomite making possible underground oil reservoirs. { 'krɪs·tə·lən pə'rās·əd·ē }
- crystalline rock** 1. Rock made up of minerals in a clearly crystalline state 2. Igneous and metamorphic rock, as opposed to sedimentary rock. { 'krɪs·tə·lən 'ræk }
- crystallinity** Degree of crystallization exhibited by igneous rock { 'krɪs·tə'ln əd ē }
- crystallite** A small, rudimentary form of crystal which is of unknown mineralogical composition and which does not polarize light. { 'krɪs·tə'lɪt }
- crystallization differentiation** See fractional crystallization { ˈkrɪs tə lə'zā shən dɪf ə'ren·chē'ā·shən }
- crystalloblast** A mineral crystal produced by metamorphic processes { 'krɪs·tə·lɔ'blast }
- crystalloblastic series** A series of metamorphic minerals ordered according to decreasing formation energy, so crystals of a listed mineral have a tendency to form idio-blastic outlines at surfaces of contact with simultaneously developed crystals of all minerals in lower positions. { 'krɪs·tə·lə'blas·tɪk 'sɪr·ēz }
- crystalloblastic texture** A crystalline texture resulting from metamorphic recrystallization under conditions of high viscosity and directed pressure. { 'krɪs·tə·lə'blas·tɪk 'teks·chər }
- crystallographic texture** A texture of replacement or exsolution mineral deposits, with the distribution and form of the inclusions controlled by the host-mineral crystallography. { ɪ'krɪs·tə·lɔ'graf·ɪk 'teks·chər }
- crystal sandstone** Siliceous sandstone in which deposited silica is precipitated upon the quartz grains in crystalline position. { ɪ'krɪst·əl 'sand·stɔn }

crystal settling

- crystal settling** Sinking of crystals in magma from the liquid in which they formed, by the action of gravity. { |krist·əl |set·liŋ }
- crystal tuff** Consolidated volcanic ash in which crystals and crystal fragments predominate. { |krist·əl 'təf }
- crystal-vitric tuff** Consolidated volcanic ash composed of 50-75% crystal fragments and 25-50% glass fragments. { |krist·əl |vi·trik 'təf }
- cubanite** CuFe_2S_3 Bronze-yellow mineral that crystallizes in the orthorhombic system. Also known as chalmersite. { 'kyü·bənīt }
- cube ore** See pharmacosiderite. { 'kyüb 'ör }
- cube spar** See anhydrite. { 'kyüb 'spär }
- culmination** A high point on the axis of a fold. { kəl·mə'nā·shən }
- cumberlandite** A coarse-grained, ultramafic, ultrabasic rock composed principally of olivine crystals in a ground mass of magnetite and ilmenite with minor plagioclase. { 'kəm·bər·lən·dīt }
- cumbraite** A variety of dacite or rhyodacite containing very calcic plagioclase and pyroxene in a glassy groundmass. { kyüm'brā·īt }
- cumengite** $\text{Pb}_4\text{Cu}_4\text{Cl}_8(\text{OH})_8 \cdot \text{H}_2\text{O}$ A deep-blue or light-indigo-blue tetragonal mineral consisting of a basic lead-copper chloride occurring in crystals. { kyü'men·jīt }
- cunningtonite** $(\text{Fe,Mg})_7\text{Si}_8\text{O}_{22}(\text{OH})_2$ A brownish mineral that crystallizes in the monoclinic system; usually occurs as lamellae or fibers in metamorphic rocks. { 'kəm·iŋ·tənīt }
- cumulate** Any igneous rock formed by the accumulation of crystals settling out of a magma. { 'kyü·myə·lāt }
- cup-and-ball joint** A dish-shaped transverse fracture which divides a basalt column into segments. Also known as ball-and-socket joint. { ,kəp ən 'bɔl ,jɔint }
- cupola** An isolated, upward-projecting body of plutonic rock that lies near a larger body; both bodies are presumed to unite at depth. { 'kyü·pə·lə }
- cupped pebble** A pebble fragment that has become hollow after being subjected to solution. { 'kəpt 'ipeb·əl }
- cuprite** Cu_2O A red mineral that crystallizes in the isometric system and is found in crystals and fine-grained aggregates or is massive; a widespread supergene copper ore. Also known as octahedral copper ore; red copper ore; ruby copper ore. { 'kyü·pɹīt }
- cuprocopiapite** $\text{CuFe}_3(\text{SO}_4)_6(\text{OH})_2 \cdot 20\text{H}_2\text{O}$ A sulfur yellow to orange-yellow, triclinic mineral consisting of a hydrated basic sulfate of copper and iron. { |kyü·prō'kɔ·pē·ə·pɹīt }
- cuprodescloizite** See mottramite. { |kyü·prō·des'klɔ·ə·zɪt }
- cuprotungstite** $\text{Cu}_2(\text{WO}_4)_2(\text{OH})_2$ A green mineral that forms compact masses; soluble in acids; the crystal system is not known. { |kyü·prō'tʌŋ·stɪt }
- cuprouranite** See torbernite. { |kyü·prō'yūr·ənīt }
- curite** $\text{Pb}_2\text{U}_5\text{O}_{17} \cdot 4\text{H}_2\text{O}$ An orange-red radioactive mineral, occurring in acicular crystals, an alteration product of uraninite. { 'kyü·rɪt }
- current-bedding** Cross-bedding resulting from water or air currents { 'kər·ənt ,bed·iŋ }
- current lineation** See parting lineation. { 'kər·ənt |lin·ē'ā·shən }
- current mark** Any structure formed by direct or indirect action of a water current on a sedimentary surface. { 'kər·ənt ,märke }
- current ripple** A type of ripple mark having a long, gentle slope toward the direction from which the current flows, and a shorter, steeper slope on the lee side. { 'kər·ənt ,rip·əl }
- curtain** 1. A thin sheet of dripstone that hangs or projects from a cave wall. 2. A rock formation connecting two adjacent bastions. { 'kərt·ən }
- cuspl** One of a series of low, crescent-shaped mounds of beach material separated by smoothly curved, shallow troughs spaced at more or less regular intervals along and generally perpendicular to the beach face. Also known as beach cuspl. { kəsp }
- cusplate bar** A crescentic bar joining with the shore at each end. { 'kəspāt ,bär }
- cusplate ripple mark** See linguoid ripple mark. { 'kəspāt 'rip·əl ,märke }
- cut and fill** 1. Lateral corrosion of one side of a meander accompanied by deposition

- on the other. **2.** A sedimentary structure consisting of a small filled-in channel. { 'ikət ən 'fil }
- cutbank** The concave bank of a winding stream that is maintained as a steep or even overhanging cliff by the action of water at its base. { 'kətˌbɑŋk }
- cutinite** A variety of exinite consisting of plant cuticles. { 'kyütˌənɪt }
- cutoff** A new, relatively short channel formed when a stream cuts through the neck of an oxbow or horseshoe bend. { 'kətˌɒf }
- cutout** See horseback. { 'kətˌaüt }
- cut platform** See wave-cut platform. { 'kətˌplətˌfɔrm }
- cwm** See cirque. { küm }
- cyanite** See kyanite. { 'sɪˌənɪt }
- cyanochoite** $K_2Cu(SO_4)_2 \cdot 6H_2O$ A blue mineral consisting of a hydrous sulfate of potassium and copper. { 'sɪˌənəˌkrəˌwɪt }
- cyanoirichite** $Cu_4Al_2(SO_4)_2(OH)_2 \cdot 2H_2O$ A bright-blue or sky-blue mineral consisting of a hydrous basic copper aluminum sulfate. { 'sɪˌənəˌtrəˌkɪt }
- cycle of erosion** See geomorphic cycle. { 'sɪˌkəl əv i'rōˌzhən }
- cycle of sedimentation** Also known as sedimentary cycle **1.** A series of related processes and conditions appearing repeatedly in the same sequence in a sedimentary deposit **2.** The sediments deposited from the beginning of one cycle to the beginning of a second cycle of the spread of the sea over a land area, consisting of the original land sediments, followed by those deposited by shallow water, then deep water, and then the reverse process of the receding water. **3.** See cyclothem. { 'sɪˌkəl əv ˌsedˌənˌmən'tāˌshən }
- cyclic sedimentation** Deposition of various kinds of sediment in a repeated regular sequence. { 'sɪkˌlɪk ˌsedˌənˌmən'tāˌshən }
- cyclopean** See mosaic. { 'sɪˌkləˌpēˌən }
- cyclopean stairs** The landscape that results in a glacial trough after the ice has melted away, and that consists of an irregular series of rock steps, with steep cliffs on the down-valley side and small lakes in the shallow excavated depressions of the rock steps. { 'sɪˌkləˌpēˌən 'sterz }
- cyclosilicate** A silicate having the SiO_4 tetrahedra linked to form rings, with a silicon-oxygen ratio of 1:3, such as $Si_3O_9^{6-}$ or $Si_6O_{18}^{12-}$. Also known as ring silicate. { 'sɪˌklōˌsilˌəkāt }
- cyclothem** A rock stratigraphic unit associated with unstable shelf of interior basin conditions, in which the sea has repeatedly covered the land. { 'sɪˌkləˌthem }
- cylindrite** $Pb_3Sn_4Sb_7S_{14}$ A blackish-gray mineral consisting of sulfur, lead, antimony, and tin, occurring in cylindrical forms that separate under pressure into distinct sheets or folia. { səˌlɪnˌdrɪt }
- cymrite** $Ba_2Al_3Si_3O_{19}(OH) \cdot 3H_2O$ Zeolite mineral consisting of a basic aluminosilicate of barium. { 'kəmˌrɪt }

D

dachiardite $(\text{Na}_2\text{Ca})_2(\text{Al}_4\text{Si}_{20}\text{O}_{48}) \cdot 12\text{H}_2\text{O}$ A white to colorless mineral in the morde-nite group of the zeolite family that crystallizes in the monoclinic system { 'däk·ē 'är·dīt }

Dacian Lower upper Pliocene geologic time. { 'dā·shən }

dacite Very fine crystalline or glassy rock of volcanic origin, composed chiefly of sodic plagioclase and free silica with subordinate dark-colored minerals. { 'dā·sīt }

dacite glass A natural glass formed by rapid cooling of dacite lava { 'dā·sīt 'glas }

dactylitic Of a rock texture, characterized by fingerlike projections of a mineral that penetrate another mineral. { dak·tə'lid·ik }

Dakotan Lower Upper Cretaceous geologic time. { də'kot·ən }

damkjernite A melanocratic dike rock composed of biotite and pyroxene phenocrysts in a groundmass of pyroxene, biotite, and magnetite. { 'dam·kyər·nīt }

danalite $(\text{Fe}, \text{Mn}, \text{Zn})_4\text{Be}_3(\text{SiO}_4)_3\text{S}$ A mineral consisting of a silicate and sulfide of iron and beryllium; it is isomorphous with helvite and genthelvite. { 'dā·nə·līt }

danburite $\text{CaB}_2(\text{SiO}_4)_2$ An orange-yellow, yellowish-brown, grayish, or colorless trans-pare to translucent borosilicate mineral with a feldspar structure crystallizing in the orthorhombic system; it resembles topaz and is used as an ornamental stone. { 'dan·bə·rīt }

Danian Lowermost Paleocene or uppermost Cretaceous geologic time. { 'dān·e·ən }

dannemorite $(\text{Fe}, \text{Mn}, \text{Mg})_7\text{Si}_8\text{O}_{22}(\text{OH})_2$ A yellowish-brown to greenish-gray monoclinic mineral consisting of a columnar or fibrous amphibole. { 'dam·ə'mör·īt }

daphnite $(\text{MgFe})_3(\text{Fe}, \text{Al})_3(\text{Si}, \text{Al})_4\text{O}_{10}(\text{OH})_8$ A mineral of the chlorite group consisting of a basic aluminosilicate of magnesium, iron, and aluminum. { 'daf·nīt }

darapskite $\text{Na}_3(\text{NO}_3)(\text{SO}_4) \cdot \text{H}_2\text{O}$ A naturally occurring hydrate mineral consisting of a hydrous nitrate and sulfate of sodium. { də'rap·skīt }

dark-red silver ore See pyrrargyrite. { 'därk 'red 'sil·vər 'ör }

dark-ruby silver See pyrrargyrite. { 'därk 'rū·bē 'sil·vər }

Darwin glass A highly siliceous, vesicular glass shaped in smooth blobs or twisted shreds, found in the Mount Darwin range in western Tasmania. Also known as queenstownite. { 'där·wən 'glas }

dashkesanite $(\text{Na}, \text{K})\text{Ca}_2(\text{Fe}, \text{Mg})_5(\text{Si}, \text{Al})_8\text{O}_{22}\text{Cl}_2$ A monoclinic mineral of the amphibole group consisting of a chloroaluminosilicate of sodium, potassium, iron, and mag-nesium. { 'dash·kə'sa·nīt }

datolite $\text{CaBSiO}_4(\text{OH})$ A mineral nesosilicate crystallizing in the monoclinic system, luster is vitreous, and crystals are colorless or white with a greenish tinge. { 'dad·əl·īt }

datum The top or bottom of a bed of rock on which structure contours are drawn { 'dad·əm, 'dād·əm, or 'däd·əm }

daubreeite FeCr_2S_4 A mineral composed of a black chromium iron sulfide occurs in some meteors. { 'dō·brē·īt }

Davian A subdivision of the Upper Cretaceous in Europe, a limestone formation with abundant hydrocorals, bryozoans, and mollusks in Denmark, marine limestone and nonmarine rocks in southeastern France, and continental formations in the Davian of Spain and Portugal. { 'dä·vē·ən }

davidite

- davidite** A black primary pegmatite uranium mineral of the general formula $A_6B_{15}(O,OH)_{36}$, where A = Fe^{2+} , rare earths, uranium, calcium, zirconium, and thorium, and B = titanium, Fe^{3+} , vanadium, and chromium. { 'dā·və·dīt }
- daviesite** An orthorhombic mineral consisting of a lead oxychloride, occurring in minute crystals. { 'dā·vē·zīt }
- davisonite** $Ca_3Al(PO_4)_2(OH)_3 \cdot H_2O$ A white mineral consisting of a hydrous basic phosphate of calcium and aluminum. { 'dā·və·sə·nīt }
- dawsonite** $NaAl(OH)_2CO_3$ A white, bladed mineral found in certain oil shales that contains large quantities of alumina; specific gravity is 2.40. { 'dòs·ən·īt }
- dead** In economic geology, designating a region with no economic value. { ded }
- dead cave** A cave where there is no moisture or no growth of mineral deposits associated with moisture. { 'ded 'kāv }
- debris** Large fragments arising from disintegration of rocks and strata { də'brē }
- debris avalanche** The sudden and rapid downward movement of incoherent mixtures of rock and soil on deep slopes. { də'brē 'av·ə·lanch }
- debris cone** 1. A mound of fine-grained debris piled atop certain boulders moved by a landslide. 2. A mound of ice or snow on a glacier covered with a thin layer of debris. { də'brē 'kōn }
- debris fall** A relatively free downward or forward falling of unconsolidated or poorly consolidated earth or rocky debris from a cliff, cave, or arch. { də'brē 'fól }
- debris flow** A variety of rapid mass movement involving the downslope movement of high-density coarse clast-bearing mudflows, usually on alluvial fans. { də'brē 'flō }
- debris line** See swash mark. { də'brē 'līn }
- debris slide** A type of landslide involving a rapid downward sliding and forward rolling of comparatively dry, unconsolidated earth and rocky debris. { də'brē 'slīd }
- debris slope** See talus slope. { də'brē 'slōp }
- Deccan basalt** Fine-grained, nonporphyritic, tholeiitic basaltic lava consisting essentially of labradorite, clinopyroxene, and iron ore; found in the Deccan region of south-eastern India. Also known as Deccan trap. { 'dek·ən bə'sólt }
- Deccan trap** See Deccan basalt. { 'dek·ən 'trəp }
- declivity** 1. A slope descending downward from a point of reference 2. A downward deviation from the horizontal. { dək'kliv·əd·ē }
- décollement** Folding or faulting of sedimentary beds by sliding over the underlying rock. { dā'käl·mənt }
- decussate structure** A crisscross microstructure of certain minerals, most noticeable in rocks composed predominantly of minerals with a columnar habit. { 'dek·əsāt 'stræk·chər }
- dedolomitization** Destruction of dolomite to form calcite and periclase, usually by contact metamorphism at low pressures. { dē·dō·lə·mīd·ə'zā·shən }
- deep-sea basin** A depression of the sea floor more or less equidimensional in form and of variable extent. { 'dēp 'sē 'bās·ən }
- deep-sea channel** A trough-shaped valley of low relief beyond the continental rise on the deep-sea floor. Also known as mid-ocean canyon. { 'dēp 'sē 'chan·əl }
- deep-sea plain** A broad, almost level area forming the predominant portion of the ocean floor. { 'dēp 'sē 'plān }
- deep-seated** See plutonic. { 'dēp 'sēd·əd }
- deep-sea trench** A long narrow depression of the deep-sea floor having steep sides and containing the greatest ocean depths; formed by depression, to several kilometers' depth, of the high-velocity crustal layer and the mantle. { 'dēp 'sē 'trench }
- Deerparkian** A North American stage of geologic time in the Lower Devonian, above Helderbergian and below Onesquethawan. { 'dīr'pärk·ē·ən }
- deflation** The sweeping erosive action of the wind over the ground { di'flā·shən }
- deflation basin** A topographic depression formed by deflation. { di'flā·shən 'bās·ən }
- deformation fabric** The space orientation of rock elements produced by external stress on the rock. { 'def·ər·mə·shən 'fab·rīk }
- deformation lamella** A type of slipband in the crystalline grains of a material (particularly quartz) produced by intracrystalline slip during tectonic deformation. { 'def·ər·mə·shən 'lə·mel·ə }

- degenerative recrystallization** See degradation recrystallization {di'jen·ə·rəd·iv rē·krist·əl·ə'zā·shən}
- degradation** The wearing down of the land surface by processes of erosion and weathering. {deg·rə'dā·shən}
- degradation recrystallization** Recrystallization resulting in a decrease in the size of crystals Also known as degenerative recrystallization; grain diminution {deg·rə'dā·shən rē·krist·əl·ə'zā·shən}
- degraded illite** Illite with a depleted potassium content because of prolonged leaching Also known as stripped illite. {dē'grād·əd i'līt}
- dehrnite** (Ca,Na,K)₅(PO₄)₃(OH) A colorless to pale green, greenish-white, or gray, hexagonal mineral consisting of a basic phosphate of calcium, sodium, and potassium, occurs as botryoidal crusts and minute hexagonal prisms. {'der·nit}
- Deister phase** A subdivision of the late Ammerian phase of the Jurassic period between the Kimmeridgian and lower Portlandian. {'dī·stər·fāz}
- delafossite** CuFeO₂ A mineral consisting of an oxide of copper and iron {de·lə'fō·sīt}
- dellenite** See rhyodacite. {'del·ənīt}
- Delmontian** Upper Miocene or lower Pliocene geologic time {del'män·chən}
- delorenzite** See tanteuxenite. {dē·lə'renzīt}
- delta** An alluvial deposit, usually triangular in shape, at the mouth of a river, stream, or tidal inlet. {'del·tə}
- delta geosyncline** See exogeosyncline. {'del·tə·jē·ō'sin·klīn}
- deltaic deposits** Sedimentary deposits in a delta {del'tā ik di'pāz əts}
- deltaite** A mixture of crandallite and hydroxylapatite. {'del·tə'īt}
- delta moraine** See ice-contact delta. {'del·tə mə'rān}
- delta plain** A plain formed by deposition of silt at the mouth of a stream or by overflow along the lower stream courses. {'del·tə·plān}
- delvauxite** A mineral, with the approximate formula Fe₂(PO₄)₂(OH), nH₂O, consisting of a hydrous phosphate of iron. {del'vok·sīt}
- demantoid** A lustrous, green variety of andradite, used as a gem {də'män·toid}
- demorphism** See weathering. {dē'mór·fiz·əm}
- dendritic valleys** Treelike extensions of the valleys in a region lying upon horizontally bedded rock. {den'drid·ik 'val·ēz}
- dendrochronology** The science of measuring time intervals and dating events and environmental changes by reading and dating growth layers of trees as demarcated by the annual rings. {den·drō·krə'näl·ə·jē}
- denofacies** See metamorphic facies. {'den·sō'fā·shēz}
- denudation** General wearing away of the land, laying bare of subjacent lands {dē·nū'dā·shən}
- deoxidation sphere** See bleach spot. {dē·äk·sə'dā·shən 'sfir}
- deopcenter** A site of maximum deposition. {'dep·ə'sen·tər}
- deposit** Consolidated or unconsolidated material that has accumulated by a natural process or agent. {də'pāz·ət}
- deposition** The laying, placing, or throwing down of any material, specifically, the constructive process of accumulation into beds, veins, or irregular masses of any kind of loose, solid rock material by any kind of natural agent. {'dep·ə'zish·ən}
- depositional dip** See primary dip. {'dep·ə'zish·ən·əl 'dip}
- depositional fabric** Arrangement of detrital particles settled from suspension or of crystals from a differentiating magma determined by the plane of the surface on which they come to rest. {'dep·ə'zish·ən·əl 'fab·rik}
- depositional sequence** A major but informal assemblage of formations or groups and supergroups bounded by regionally extensive unconformities at both their base and top and extending over broad areas of continental cratons. {'dep·ə'zish·ən·əl 'sē·kwəns}
- depositional strike** Sedimentary deposits that are continuous laterally on a gently sloping surface. {'dep·ə'zish·ən·əl 'strīk}
- depression** 1. A hollow of any size on a plain surface having no natural outlet for surface drainage. 2. A structurally low area in the crust of the earth. {di'presh·ən}

depth zone

- depth zone** A zone within the earth giving rise to different metamorphic assemblages. { 'depth ,zōn }
- derbylite** $\text{Fe}_6\text{Ti}_6\text{Sb}_2\text{O}_{23}$ A black or brown orthorhombic mineral occurring in cinnabar-bearing gravels. { 'där·bē·līt }
- Derbyshire spar** See fluōrite. { 'där·bə·shir ,spär }
- derivative rock** See sedimentary rock. { də·riv·əd·iv 'rāk }
- descendant** A topographic feature that is formed from the mass beneath an older topographic form, now removed. { di'sen·dānt }
- desert crust** See desert pavement. { 'dez·ərt 'krəst }
- desert pavement** A mosaic of pebbles and large stones which accumulate as the finer dust and sand particles are blown away by the wind. Also known as desert crust. { 'dez·ərt 'pāv·mənt }
- desert penplain** See pediplain. { 'dez·ərt 'pen·ə·plān }
- desert plain** See pediplain. { 'dez·ərt 'plān }
- desert polish** A smooth, shining surface imparted to rocks and other hard substances by the action of windblown sand and dust of desert regions. { 'dez·ərt 'pāl·ish }
- desert soil** In early United States classification systems, a group of zonal soils that have a light-colored surface soil underlain by calcareous material and a hardpan. { 'dez·ərt 'sōil }
- desert varnish** A brown or black stain or crust of manganese or iron oxide characterizing many exposed rock surfaces in the desert. Also known as rock varnish. { 'dez·ərt 'vār·nish }
- desiccation breccia** Fragments of a mud-cracked layer of sediment deposited with other sediments. { ,des·ə'kā·shən ,brech·ə }
- desiccation crack** See mud crack. { ,des·ə'kā·shən 'krak }
- desmine** See stilbite. { 'dez·mēn }
- Des Moinesian** Lower Middle Pennsylvanian geologic time. { də'mōin·ē·ən }
- detached core** The inner bed or beds of a fold that may become separated or pinched off from the main body of the strata due to extreme folding and compression. { di'tacht 'kōr }
- detrital minerals** Grains of heavy minerals found in sediment, resulting from mechanical disintegration of the parent rock. { də'trīd·əl 'min·rəlz }
- detrital ratio** See clastic ratio. { də'trīd·əl 'rā·shō }
- detrital reservoir** A clastic or detrital-granular reservoir, classified by rock type and other factors such as sediments (quartzose-type, graywacke, or arkose sediments). { də'trīd·əl 'rez·əv·wār }
- detrital sediment** Accumulations of the organic and inorganic fragmental products of the weathering and erosion of land transported to the place of deposition. { də'trīd·əl 'sed·ə·mənt }
- detritus** Any loose material removed directly from rocks and minerals by mechanical means, such as disintegration or abrasion. { də'trīd·əs }
- deuteric** Of or pertaining to alterations in igneous rock during the later stages and as a direct result of consolidation of magma or lava. Also known as epimagmatic; pauplopost. { dü'tir·ik }
- development** The progression of changes in fossil groups which have succeeded one another during deposition of the strata of the earth. { də'vel·əp·mənt }
- deviatoric stress** A condition in which the stress components operating at a point in a body are not the same in every direction. Also known as differential stress. { 'dēv·ē·əltōr·ik 'stres }
- devillite** $\text{Cu}_4\text{Ca}(\text{SO}_4)_2(\text{OH})_6 \cdot 3\text{H}_2\text{O}$ A dark-green mineral consisting of a hydrous basic sulfate of copper and calcium, occurring in six-sided platy crystals. { də'vel·līt }
- Devonian** The fourth period of the Paleozoic Era, covering the geological time span between about 412 and 354×10^6 years before present. { di'vō·nē·ən }
- deweylite** A mixture of clinochrysolite and stevensite. Also known as gymnite { 'dü·ē·līt }
- dewindtite** $\text{Pb}(\text{UO}_2)_2(\text{PO}_4)_2 \cdot 3\text{H}_2\text{O}$ A canary-yellow secondary mineral consisting of a hydrous phosphate of lead and uranium. { də'win·tīt }

- dextral drag fold** A drag fold in which the trace of a given surface bed is displaced to the right. { 'dek·strəl 'drag 'föld }
- dextral fault** A strike-slip fault in which an observer approaching the fault sees the opposite block as having moved to the right. Also known as right-lateral fault; right-lateral slip fault; right-slip fault. { 'dek·strəl 'fölt }
- dextral fold** An asymmetric fold in which the long limb appears to be offset to the right to an observer looking along the long limb. { 'dek·strəl 'föld }
- D horizon** A soil horizon sometimes occurring below a B or C horizon, consisting of unweathered rock. { 'dē hæ 'rīz·ən }
- diabantite** $(\text{Mg,Fe}^{2+},\text{Al})_6(\text{Si,Al})_4\text{O}_{10}(\text{OH})_8$ Mineral of the chlorite group consisting of a basic silicate of magnesium, iron, and aluminum, occurring in cavities in basic igneous rock. { 'dī·ə'ban'tīt }
- diabase** An intrusive rock consisting principally of labradorite and pyroxene. { 'dī·ə'bas }
- diabase amphibolite** Amphibolite formed by dynamic metamorphism of diabase. { 'dī·ə'bās am'fib·ə'līt }
- diabasic** Denoting igneous rock in which the interstices between the feldspar crystals are filled with discrete crystals or grains of pyroxene. { 'dī·ə'bās·ik }
- diablastic** Pertaining to a texture in metamorphic rock that consists of intergrown and interpenetrating rod-shaped components. { 'dī·ə'blas·tik }
- diaboleite** $\text{Pb}_2\text{CuCl}_2(\text{OH})_4$ A sky-blue mineral consisting of a basic chloride of lead and copper. { 'dī·ə·bō'lā'īt }
- diachronous** Of a rock unit, varying in age in different areas or cutting across time planes or biostratigraphic zones. Also known as time-transgressive. { 'dī'ak·ə'nəs }
- diacinal** Pertaining to a stream crossing a fold perpendicular to the strike of the underlying strata it traverses. { 'dī·ə'klīn·əl }
- diadochite** $\text{Fe}_2(\text{PO}_4)(\text{SO}_4)(\text{OH})\cdot 5\text{H}_2\text{O}$ A brown or yellowish mineral consisting of a basic hydrous ferric phosphate and sulfate. { 'dī'ad·ə'kīt }
- diagenesis** Chemical and physical changes occurring in sediments during and after their deposition but before consolidation. { 'dī·ə'jen·ə'səs }
- diagonal fault** A fault whose strike is diagonal or oblique to the strike of the adjacent strata. Also known as oblique fault. { 'dī'ag·ən·əl 'fölt }
- diagonal joint** A joint having its strike oblique to the strike of the strata of the sedimentary rock, or to the cleavage plane of the metamorphic rock in which it occurs. Also known as oblique joint. { 'dī'ag·ən·əl 'jōint }
- diallage** A green, brown, gray or bronze-colored clinopyroxene characterized by prominent parting parallel to the front pinacoid $a(100)$. { 'dī·ə·lij }
- diamantine** Consisting of or resembling diamond. { 'dī·ə'man'tēn }
- diamictite** A calcareous, terrigenous sedimentary rock that is not sorted or poorly sorted and contains particles of many sizes. Also known as mixtite. { 'dī·ə'mik'tīt }
- diamicton** A nonlithified diamictite. Also known as symmicton. { 'dī·ə'mik'tän }
- diamond** A colorless mineral composed entirely of carbon crystallized in the isometric system as octahedrons, dodecahedrons, and cubes; the hardest substance known; used as a gem and in cutting tools. { 'dī·mænd }
- diamond matrix** The rock material in which diamonds are formed. { 'dī·mænd 'mā·triks }
- dianite** See columbite. { 'dī·ə·nīt }
- diaphorite** $\text{Pb}_2\text{Ag}_3\text{Sb}_3\text{S}_8$ A gray-black orthorhombic mineral consisting of sulfide of lead, silver, and antimony, occurring in crystals. Also known as ultrabasite. { 'dī'af·ə'rīt }
- diaphoresis** See retrograde metamorphism. { 'dī'af·thə're'səs }
- diaphthorite** Schistose rocks in which minerals have formed by retrograde metamorphism. { 'dī'af·thə'rīt }
- diapir** A dome or anticlinal fold in which a mobile plastic core has ruptured the more brittle overlying rock. Also known as diapiric fold; piercement dome; piercing fold. { 'dī·ə'pir }
- diapiric fold** See diapir. { 'dī·ə'pir·ik 'föld }

diaspore

- diaspore** $\text{AlO}(\text{OH})$ A mineral composed of some bauxites occurring in white, lamellar masses; crystallizes in the orthorhombic system. { 'dī·ə·spōr }
- diastem** A temporal break between adjacent geologic strata that represents nondeposition or local erosion but not a change in the general regimen of deposition. { 'dī·ə·stem }
- diastrophism** **1.** The general process or combination of processes by which the earth's crust is deformed. **2.** The results of this deforming action. { dī'as·trə·fiz·əm }
- diatomaceous earth** A yellow, white, or light-gray, siliceous, porous deposit made of the opaline shells of diatoms; used as a filter aid, paint filler, adsorbent, abrasive, and thermal insulator. Also known as kieselguhr; tripolite. { dī·ə·tə·mā·shəs 'əθ }
- diatomaceous ooze** A pelagic, siliceous sediment composed of more than 30% diatom tests, up to 40% calcium carbonate, and up to 25% mineral grains. { dī·ə·tə·mās·shəs 'üz }
- diatomite** Dense, chert-like, consolidated diatomaceous earth. { dī'ad·ə·mīt }
- diatreme** A circular volcanic vent produced by the explosive energy of gas-charged magmas. { 'dī·ə·trēm }
- diborate** See borax. { dī'bór·āt }
- dickinsonite** $\text{H}_2\text{Na}_6(\text{Mn.Fe.Ca.Mg})_4(\text{PO}_4)_{12} \cdot \text{H}_2\text{O}$ A green mineral consisting of foliated hydrous acid phosphate, chiefly of manganese, iron, and sodium, and is isostructural with arrojadite; specific gravity is 3.34. { 'dik·ən·sə·nīt }
- dickite** $\text{Al}_2\text{Si}_2\text{O}_5(\text{OH})_4$ A mineral of the kaolin group found crystallized in clay in hydrothermal veins; it is polymorphous with kaolinite and nacrite. { 'dik·īt }
- dictyonema bed** A thin shale bed rich in remains of graptolites of the genus *Dictyonema*. { 'dik·tē·ə·nē·mə 'bed }
- didymolite** $\text{Ca}_2\text{Al}_6\text{Si}_9\text{O}_{29}$ A dark-gray monoclinic mineral consisting of a calcium aluminum silicate, occurring in twinned crystals. { dī'dim·ə·līt }
- diétrichite** $(\text{Zn.Fe.Mn})\text{Al}_2(\text{SO}_4)_4 \cdot 22\text{H}_2\text{O}$ Mineral consisting of a hydrous sulfate of aluminum and one or more of the metals zinc, iron, and manganese. { 'dē·tri·kīt }
- dietzeite** $\text{Ca}_2(\text{IO}_3)_2(\text{CrO}_4)$ A dark-golden-yellow iodate mineral commonly in fibrous or columnar form as a component of caliche. { 'dēt·sə·īt }
- differential compaction** Compression in sediments, such as sand or limestone, as the weight of overburden causes reduction in pore space and forcing out of water. { 'dif·ə'ren·chəl kəm'pək·shən }
- differential erosion** Rapid erosion of one area of the earth's surface relative to another. { 'dif·ə'ren·chəl i'rō·zhən }
- differential fault** See scissored fault. { 'dif·ə'ren·chəl 'fölt }
- differential stress** See deviatoric stress. { 'dif·ə'ren·chəl 'stres }
- digenite** Cu_6S_5 A blue to black mineral consisting of an isometric copper sulfide having a variable deficiency in copper. Also known as alpha chalcocite; blue chalcocite. { 'dī·jə·nīt }
- digitation** A secondary recumbent anticline emanating from a larger recumbent anticline. { 'dij·ə'tā·shən }
- dike** A tabular body of igneous rock that cuts across adjacent rocks or cuts massive rocks. { dīk }
- dike ridge** Any small wall-like ridge created by differential erosion. { 'dīk ,rij }
- dike set** A small group of dikes arranged linearly or parallel to each other. { 'dīk ,set }
- dike swarm** A large group of parallel, linear, or radially oriented dikes. { 'dīk ,swōrm }
- dilatancy** Expansion of deformed masses of granular material, such as sand, due to rearrangement of the component grains. { dī'lāt·ən·sē }
- dimorphite** As_4S_3 An orange-yellow mineral consisting of arsenic sulfide. { dī'mór·fīt }
- Dinantian** Lower Carboniferous geologic time. Also known as Avonian. { dī'nan·chən }
- diogenite** An achondritic stony meteorite composed essentially of iron-rich pyroxene minerals. Also known as rodite. { dī'ə·jə·nīt }
- diopside** $\text{CaMg}(\text{SiO}_3)_2$ A white to green monoclinic pyroxene mineral which forms

- gray to white, short, stubby, prismatic, often equidimensional crystals. Also known as malacolite. { dī'äp,sīd }
- dioptase** $\text{CuSiO}_2(\text{OH})_2$ A rare emerald-green mineral that forms hexagonal, hydrous crystals. { dī'äp,tās }
- diorite** A phaneritic plutonic rock with granular texture composed largely of plagioclase feldspar with smaller amounts of dark-colored minerals; used occasionally as ornamental and building stone. Also known as black granite. { dī'ärīt }
- dip** **1.** The angle that a stratum or fault plane makes with the horizontal. Also known as angle of dip; formation dip; true dip. **2.** A pronounced depression in the land surface. { dip }
- dip fault** A type of fault that strikes parallel with the dip of the strata involved { 'dip ,fölt }
- dip joint** A joint that strikes approximately at right angles to the cleavage or bedding of the constituent rock. { 'dip ,jōint }
- dip log** A log of the dips of formations traversed by boreholes { 'dip ,läg }
- dipmeter log** A dip log produced by reading of the direction and angle of formation dip as analyzed from impulses from a dipmeter consisting of three electrodes 120° apart in a plane perpendicular to the borehole. { 'dip,mēd·är ,läg }
- dip reversal** See reversal of dip. { 'dip ri'vər·säl }
- dip slip** The component of a fault parallel to the dip of the fault. Also known as normal displacement. { 'dip ,slip }
- dip slope** A slope of the surface of the land determined by and conforming approximately to the dip of the underlying rocks. Also known as back slope; outface. { 'dip ,slöp }
- dip-strike symbol** A geologic symbol used on maps to show the strike and dip of a planar feature. { 'dip ,strīk ,sim·bäl }
- dipyre** See mizzonite. { 'dī,pīr }
- direction** See trend. { dā'rek·shən }
- directional structure** Any sedimentary structure having directional significance, examples are cross-bedding and ripple marks. Also known as vectorial structure. { dā'rek·shən·əl 'sträk·chär }
- direct stratification** See primary stratification { dā'rekt ,sträd ə fä'kā shən }
- dirt band** A dark layer in a glacier representing a former surface, usually a summer surface, where silt and debris accumulated. { 'därt ,band }
- dirt bed** A buried soil containing partially decayed organic material; sometimes occurs in glacial drift. { 'därt ,bed }
- dirt slip** See clay vein. { 'därt ,slip }
- disconformity** Unconformity between parallel beds or strata { ,dis·kän'fór·mäd ē }
- discontinuity** **1.** An interruption in sedimentation **2.** A surface that separates unrelated groups of rocks. { dis·kän't·ən'ü·äd·ē }
- discontinuous reaction series** The branch of Bowen's reaction series that include olivine, pyroxene, amphibole, and biotite, each change in the series represents an abrupt change in phase. { ,dis·kän'tin·yә·wäs rē'ak·shən ,sir·ēz }
- discordance** An unconformity characterized by lack of parallelism between strata which touch without fusion. { di'skörd·əns }
- discordant pluton** An intrusive igneous body that cuts across the bedding or foliation of the intruded formations. { di'skörd·ənt 'plü,tän }
- discrete-film zone** See belt of soil water. { di'skrēt ,film ,zōn }
- disharmonic fold** A fold in which changes in form or magnitude occur with depth. { ,dis·här'män·ik 'föld }
- dislocation** Relative movement of rock on opposite sides of a fault Also known as displacement. { ,dis·lō'kā·shən }
- dismicrite** Fine-grained limestone of obscure origin, resembling micrite but containing sparry calcite bodies. { diz'mī·krīt }
- dispersion** In optical mineralogy, the constant optical values at different positions on the spectrum. { dā'spər·zhən }
- displaced ore body** An ore body which has been subjected to displacement or disruption after its initial deposition. { dis'pläst 'ör ,bäd·ē }

displacement

- displacement** See dislocation. {dis'plās·mānt }
- dissection** Destruction of the continuity of the land surface by erosive cutting of valleys or ravines into a relatively even surface. {də'sek·shən }
- disthene** See kyanite. { 'dis·thēn }
- distributed fault** See fault zone. {di'strib·yəd·əd /fōlt }
- distributive fault** See step fault. {di'strib·yəd·iv 'fōlt }
- disturbance** Folding or faulting of rock or a stratum from its original position. {də'stər·bāns }
- Divesian** See Oxfordian. {də'vēzh·ən }
- dixenite** $Mn_3(SiO_3)(AsO_3)(OH)_2$ A black hexagonal mineral consisting of a manganese arsenite and silicate, occurring in scales. { 'dik·sə·nīt }
- djalmaite** See microlite. { 'jal·mə·īt }
- djerfisherite** $K_3CuFe_{12}S_{14}$ A sulfide mineral found only in meteorites. {jə'r'fish·ə·rīt }
- Djulfian** Upper upper Permian geologic time. { 'jūl·fē·ən }
- D layer** The lower mantle of the earth, between a depth of 600 and 1800 miles (1000 and 2900 kilometers). { 'dē·lā·ər }
- dneprovskite** See wood tin. {ne'prōv·skīt }
- dogger** Concretionary masses of calcareous sandstone or ironstone. { 'dōg·ər }
- dolerophanite** $Cu_2(SO_4)O$ A brown, monoclinic mineral consisting of a basic copper sulfate, occurring in crystals. { 'dāl·ə'räf·ənīt }
- doline** A general term for a closed depression in an area of karst topography that is formed either by solution of the surficial limestone or by collapse of underlying caves. {də'lēn }
- dolocast** The cast or impression of a dolomite crystal. { 'dō·lə·kast }
- dolomite** $CaMg(CO_3)_2$ The carbonate mineral, white or colorless with hexagonal symmetry and a structure similar to that of calcite, but with alternate layers of calcium ions being completely replaced by magnesium. { 'dō·lə·mīt }
- dolomite rock** See dolomitic limestone. { 'dō·lə·mīt 'rāk }
- dolomitic limestone** A limestone whose carbonate fraction contains more than 50% dolomite. Also known as dolomite rock; dolostone. { 'dō·lə·mīd·ik 'līm·stōn }
- dolomitization** Conversion of limestone to dolomite rock by replacing a portion of the calcium carbonate with magnesium carbonate. { 'dō·lə·mād·ə'zā·shən }
- dolostone** See dolomitic limestone. { 'dō·lə·stōn }
- dome** **1.** A circular or elliptical, almost symmetrical upfold or anticlinal type of structural deformation. **2.** A large igneous intrusion whose surface is convex upward. {dōm }
- Domerian** Upper Charmouthian geologic time. {dō'mer·ə·ən }
- domeykite** Cu_3As A tin-white or steel-gray mineral consisting of copper arsenide; specific gravity is 7.2-7.75. {dō'mā·kīt }
- Donau glaciation** A Pleistocene glacial time unit in the Alps region in Europe. { 'dō·nau glā·sē'ā·shən }
- doodlebug** Also known as douser. **1.** Any unscientific device or apparatus, such as a divining rod, used to locate subsurface water, minerals, gas, or oil. **2.** A scientific instrument used for locating minerals. { 'dūd·əl·bæg }
- dopplerite** A naturally occurring gel of numic acids found in peat bogs or where an aqueous extract from a low-rank coal can collect. { 'dāp·lə·rīt }
- doubly plunging fold** A fold that plunges in opposite directions, either away from or toward a central point. { 'dāb·lē·plən·j·iŋ 'fōld }
- douglasite** $K_2FeCl_4 \cdot 2H_2O$ Ore from Stassfurt, Germany; a member of the erythrosiderite group; orthorhombic, in the isomorphous series. { 'dæg·lə·sīt }
- douser** See doodlebug. { 'daūs·ər }
- down** **1.** Hillock of sand thrown up along the coast by the sea or the wind. **2.** A flat eminence on the top of a hill or mountain. {daun }
- downcutting** Stream erosion in which the cutting is directed in a downward direction. { 'daun·kəd·iŋ }
- downdip** Pertaining to a position parallel to or in the direction of the dip of a stratum or bed. { 'daun·dip }

- downthrow** The side of a fault whose relative movement appears to have been downward. { 'daũn·θrō }
- downwarp** A segment of the earth's crust that is broadly bent downward { 'daũn·wɔrp }
- Downtonian** Uppermost Silurian or lowermost Devonian geologic time { dau'tɔn·ē·ən }
- drag fold** A minor fold formed in an incompetent bed by movement of a competent bed so as to subject it to couple, the axis is at right angles to the direction in which the beds slip. { 'drag·fɔld }
- drag mark** Long, even mark usually having longitudinal striations produced by current drag of an object across a sedimentary surface. { 'drag·mɑrk }
- drainage divide** **1.** The border of a drainage basin **2.** The boundary separating adjacent drainage basins. { 'drɑn·ij·də·vɪd }
- draping** Structural concordance of the strata overlying a limestone reef or other hard core to the surface of the reef or core. { 'drɑp·iŋ }
- dreikanter** A pebble with three facets shaped by sandblasting. { 'drī·kæn·tər }
- Dresbachian** Lower Croixan geologic time. { drez'bæk·ē·ən }
- drewite** Calcareous ooze composed of impalpable calcareous material. { 'drū·ɪt }
- drift** **1.** Rock material picked up and transported by a glacier and deposited elsewhere **2.** Detrital material moved and deposited on a beach by waves and currents. { drift }
- drift dam** A dam formed by glacial drift in a stream valley. { 'drift·dam }
- drift terrace** See alluvial terrace. { 'drift·ter·əs }
- dripstone** A cave feature, such as a stalagmite, which is formed by precipitation of calcium carbonate or another mineral from dripping water. { 'drip·stɔn }
- drop** A funnel-shaped downward intrusion of sedimentary rock into the roof of a coal seam. { drɑp }
- drowned atoll** An atoll which has not reached the water surface { 'draũnd 'a·tɔl }
- drowned coast** A shoreline transformed from a hilly land surface to an archipelago of small islands by inundation by the sea. { 'draũnd 'kɔst }
- drowned valley** A valley whose lower part has been inundated by the sea due to submergence of the land margin. { 'draũnd 'val·ē }
- drumlin** A hill of glacial drift or bedrock having a half-ellipsoidal streamline form like the inverted bowl of a spoon with its long axis paralleling the direction of movement of the glacier that fashioned it. { 'drəm·lən }
- drumlinoid** See rock drumlin. { 'drəm·lə·nɔɪd }
- druse** A small cavity in a rock or vein encrusted with aggregates of crystals of the same minerals which commonly constitute the enclosing rock. { drüz }
- drusy** Of or pertaining to rocks containing numerous druses. { 'drüz·ē }
- dry-bone ore** See smithsonite. { 'drī·bɔn 'ɔr }
- dry delta** See alluvial fan. { 'drī 'del·tə }
- dry-hot-rock geothermal system** A water-deficient hydrothermal reservoir dominated by the presence of rocks at depths in which large quantities of heat are stored. { 'drī 'hæt·ræk jē·ðɪθər·mæl 'sɪs·təm }
- dry permafrost** A loose and crumbly permafrost which contains little or no ice { 'drī 'pər·mæ·frɔst }
- dry quicksand** An accumulation of alternate layers of firmly compacted sand and loose sand that cannot support heavy loads. { 'drī 'kwɪk·sænd }
- dry sand** **1.** A formation, underlying the production sand, into which oil has leaked due to careless drilling practices. **2.** A nonproductive oil sand. { 'drī 'sænd }
- drystone** A stalagmite or stalactite formed by dropping water { 'drī·stɔn }
- dry valley** A valley, usually in a chalk or karst type of topography, that has no permanent water course along the valley floor. { 'drī 'val·ē }
- dry wash** A wash, arroyo, or coulee whose bed lacks water. { 'drī·wəʃ }
- dufrenite** A blackish-green, fibrous ferric phosphate mineral, commonly massive or in nodules. { dü'frä·nīt }
- dufrenoyite** Pb,As,S₆ A lead gray to steel gray, monoclinic mineral consisting of lead arsenic sulfide. { 'dü·frə'nɔi·zɪt }

duftite

- duftite** $\text{PbCu}(\text{AsO}_4)(\text{OH})$ Orthorhombic mineral that is composed of a basic arsenate of lead and copper. { 'dʌf.tīt }
- dull coal** A component of banded coal with a grayish color and dull appearance, consisting of small anthraxylon constituents in addition to cuticles and barklike constituents embedded in the attritus. { ɪdəl ˈkɔl }
- dumontite** $\text{Pb}_2(\text{UO}_2)_3(\text{PO}_4)_2(\text{OH})_4 \cdot 3\text{H}_2\text{O}$ Yellow orthorhombic mineral consisting of a hydrated phosphate of uranium and lead, occurring in crystals. { dü'män.tīt }
- dumortierite** $\text{Al}_6\text{BSi}_3\text{O}_{19}(\text{OH})$ A pink, green, blue, or violet mineral that crystallizes in the orthorhombic system but commonly occurs in parallel or radiating fibrous aggregates; mined for the manufacture of high-grade porcelain. { dü'mör'tir.īt }
- dundasite** $\text{PbAl}_2(\text{CO}_3)_2(\text{OH})_4 \cdot 2\text{H}_2\text{O}$ A white mineral consisting of a basic lead aluminum carbonate, occurring in spherical aggregates. { 'dʌn.də.sīt }
- dune** A mound or ridge of unconsolidated granular material, usually of sand size and of durable composition (such as quartz), capable of movement by transfer of individual grains entrained by a moving fluid. { dʌn }
- durite** An ultrabasic rock consisting almost solely of a magnesium-rich olivine with some chromite and picotite; an important source of chromium. { 'dʌr.nīt }
- duplexite** $\text{Ca}_4\text{BeAl}_2\text{Si}_6\text{O}_{24}(\text{OH})_2$ A white fibrous mineral consisting of hydrous beryllium calcium aluminosilicate. Also known as bavenite. { 'dʌ.plek.sīt }
- durain** A hard, granular ingredient of banded coal which occurs in lenticels and shows a close, firm texture. Also known as durite. { 'dʌ.rän }
- durangite** $\text{NaAlF}(\text{AsO}_4)$ An orange-red, monoclinic mineral consisting of a fluoarsenate of sodium and aluminum; occurs in crystals. { dʌ'ran.īt }
- Durargid** A great soil group constituting a subdivision of the Argids, indicating those soils with a hardpan cemented by silica and called a duripan. { dʌr'är.jəd }
- duricrust** The case-hardened soil crust formed in semiarid climates by precipitation of salts; contains aluminous, ferruginous, siliceous, and calcareous material. { 'dʌr.ək.rəst }
- durinite** The principal maceral of durain; a heterogeneous material semiopaque in section (including all parts of plants); micrinite, exinite, cutinite, resinite, collinite, xylinite, suberinite, and fusinite may be present. { 'dʌr.ən.īt }
- duripan** A horizon in mineral soil characterized by cementation by silica. { 'dʌr.ə.pan }
- durite** See durain. { 'dʌ.rīt }
- dussertite** $\text{BaFe}_3(\text{AsO}_4)_2(\text{OH})_5$ A mineral consisting of a hydrous basic arsenate of barium and iron. { 'dʌs.ər.tīt }
- dust** Dry solid matter of silt and clay size (less than $1/16$ millimeter). { dʌst }
- dust avalanche** An avalanche of dry, loose snow. { 'dʌst əv.ə.ləntʃ }
- Dwyka tillite** A glacial Permian deposit that is widespread in South Africa { də'vɪk.ə 'ti.līt }
- dynamic breccia** See tectonic breccia. { dɪ'nəm.ɪk 'breʃ.ə }
- dynamic geomorphology** The quantitative analysis of steady-state, self-regulatory geomorphic processes. Also known as analytical geomorphology. { dɪ'nəm.ɪk ˌjɛ.ð.mɔr'fæl.ə.jɛ }
- dynamic metamorphism** Metamorphism resulting exclusively or largely from rock deformation, principally faulting and folding. Also known as dynamometamorphism. { dɪ'nəm.ɪk ˌmɛd.ə'mɔr.fɪz.əm }
- dynamometamorphism** See dynamic metamorphism { ɪdɪ.nə.mɔr.fɪz.əm }
- dysanlyte** A variety of the mineral perovskite in which Nb^{5+} substitutes for Ti^{5+} , and Na^+ for Ca^{2+} in the formula $\text{Ca}[\text{TiO}_3]$. { dʌ'sən.əl.īt }
- dyscrasite** Ag_2Sb A gray mineral that forms rhombic crystals. { 'dis.krə.sīt }

E

earlandite $\text{Ca}_3(\text{C}_6\text{H}_5\text{O}_7)_2 \cdot 4\text{H}_2\text{O}$ A mineral consisting of a hydrous citrate of calcium, found in sediments in the Weddell Sea. { 'ir · lən · dīt }

earth **1.** Solid component of the globe, distinct from air and water. **2.** Soil; loose material composed of disintegrated solid matter. { ərθ }

earth core See core. { 'ərθ · kɔr }

earth crust See crust. { 'ərθ · krəst }

earthflow A variety of mass movement involving the downslope slippage of soil and weathered rock in a series of subparallel sheets. { 'ərθ · flō }

earth hummock A small, dome-shaped uplift of soil caused by the pressure of groundwater. Also known as earth mound. { 'ərθ · həm · ək }

earth interior The portion of the earth beneath the crust. { 'ərθ in'tiər · ē · ər }

earth mound See earth hummock. { 'ərθ · maund }

earth pillar A tall, conical column of earth materials, such as clay or landslide debris, that has been sheltered from erosion by a cap of hard rock. { 'ərθ 'pɪl · ər }

earthquake zone An area of the earth's crust in which movements, sometimes with associated volcanism, occur. Also known as seismic area. { 'ərθ · kwāk · zɔn }

earth wax See ozocerite. { 'ərθ · waks }

earthy cobalt See asbolite. { 'ərθ · ē 'kɔ · bɔlt }

earthy manganese See wad. { 'ərθ · ē 'mɑŋ · gə · nēs }

eastonite $\text{K}_2\text{Mg}_5\text{AlSi}_5\text{Al}_2\text{O}_{20}(\text{OH}_4)$ A mineral consisting of basic silicate of potassium, magnesium, and aluminum; it is an end member of the biotite system. { 'ē · stə · nīt }

ebb-and-flow structure Rock strata with alternating horizontal and cross-bedded layers, believed to have been produced by ebb and flow of tides. { 'eb ən 'flō · strək · çər }

ecdemite $\text{Pb}_6\text{As}_7\text{O}_7\text{Cl}_4$ A greenish-yellow to yellow, tetragonal mineral consisting of an oxychloride of lead and arsenic; occurs as coatings of small tabular crystals and as coarsely foliated masses. { 'ek · də · mīt }

echelon faults Separate, parallel faults having steplike trends. { 'esh · ə · lən 'fɔls }

eckermannite $\text{Na}_2(\text{Mg},\text{Li})_2(\text{Al},\text{Fe})\text{Si}_8\text{O}_{22}(\text{OH},\text{F})_2$ Mineral of the amphibole group containing magnesium, lithium, iron, and fluorine. { 'ek · ə · r · mə · nīt }

eclogite A class of metamorphic rocks distinguished by their composition, consisting essentially of omphacite and pyrope with small amounts of diopside, enstatite, olivine, kyanite, rutile, and rarely, diamond. { 'ek · lə · jɪt }

eclogite facies A type of facies composed of eclogite and formed by regional metamorphism at extremely high temperature and pressure. { 'ek · lə · jɪt 'fā · shēz }

economic geology **1.** Application of geologic knowledge to materials usage and principles of engineering. **2.** The study of metallic ore deposits. { 'ek · ə · nām · ik jē 'əl · ə · jē }

economic mineral Mineral of commercial value. { 'ek · ə · nām · ik 'mɪn · rəl }

ectinites One of two major groups of metamorphic rocks comprising those formed with no accession or introduction of feldspathic material. { 'ek · tə · nīts }

ectohumus An accumulation of organic matter on the soil surface with little or no mixing with mineral material. Also known as mor; raw humus. { 'ek · tə 'hyü · məs }

eddy mill See pothole. { 'ed · ē · mil }

Edenian

- Edenian** Lower Cincinnatian geologic stage in North America, above the Mohawkian and below Maysvillian. { ɛˈdɛn·ē·ən }
- edge water** In reservoir structures, the subsurface water that surrounds the gas or oil { ˈɛj·wɔd·ər }
- edingtonite** $BaAl_2Si_3O_{11} \cdot 4H_2O$ Gray zeolite mineral that forms rhombic crystals, sometimes contains large amounts of calcium. { ˈɛd·ɪŋ·tən·ɪt }
- effective porosity** A property of earth containing interconnecting interstices, expressed as a percent of bulk volume occupied by the interstices. { əf·ɛk·tɪv pəˈræs·əd·ē }
- effective pressure** See effective stress. { əf·ɛk·tɪv ˈprɛʃ·ər }
- effective stress** The average normal force per unit area transmitted directly from particle to particle of a rock or soil mass. Also known as effective pressure; intergranular pressure. { əf·ɛk·tɪv ˈstrɛs }
- efflorescence** A whitish powder, consisting of one or several minerals produced as an encrustation on the surface of a rock in an arid region. Also known as bloom. { ɛf·ləˈres·əns }
- effusive stage** The second cooling stage for volcanic rocks. { ɛˈfyü·sɪv ˈstɑj }
- eggstone** See oolite. { ˈɛg·stɔn }
- eglestonite** Hg_4Cl_2O Rare mercuric oxide mineral; forms yellow-brown isometric crystals upon exposure to air. { ˈɛg·əl·stən·ɪt }
- eguëite** $CaFe_{14}(PO_4)_{10}(OH)_{14} \cdot 21H_2O$ A brownish-yellow mineral consisting of a hydrated basic phosphate of calcium and iron; occurs as small nodules. { ɛˈgwä·ɪt }
- Egyptian asphalt** A glance pitch (bituminous mixture similar to asphalt) found in the Arabian Desert. { ɪˈjɪp·ʃən ˈas·fɔlt }
- einkanter** A stone shaped by windblown sand only upon one facet. { ˈɪn·kän·tər }
- ejecta** Material which is discharged by a volcano. { ɛˈjɛk·tə }
- elastic bitumen** See elaterite. { ɪˈlæs·tɪk bɪˈtū·mən }
- elastic rebound theory** A theory which attributes faulting to stresses (in the form of potential energy) which are being built up in the earth and which, at discrete intervals, are suddenly released as elastic energy; at the time of rupture the rocks on either side of the fault spring back to a position of little or no strain. { ɪˈlæs·tɪk ˈrɛ·bəʊnd ˌrɪ·θē·ə·rē }
- elaterite** A light-brown to black asphaltic pyrobitumen that is moderately soft and elastic. Also known as elastic bitumen; mineral caoutchouc. { ɪˈlæd·ər·ɪt }
- electric calamine** See hemimorphite. { ɪl·ɛk·trɪk ˈkæl·əm·ɪn }
- electrofiltration** Counterprocess during electrical logging of well boreholes, in which mud filtrate forced through the mud cake produces an emf in the mud cake opposite a permeable bed, positive in the direction of filtrate flow. { ɪl·ɛk·trō·fɪlˈtrā·ʃən }
- elephant-hide pahoehoe** A type of pahoehoe on whose surface are innumerable tumuli, broad swells, and pressure ridges which impart the appearance of elephant hide. { ˈɛl·ə·fənt ˌhɪd pəˈhō·ē·hō·ē }
- ellipsoidal lava** See pillow lava. { əˈlɪp·sɔɪd·əl ˈlæv·ə }
- ellestadite** A pale rose, hexagonal mineral consisting of an apatite-like calcium sulfate-silicate; occurs in granular massive form. { ˈɛl·ə·stæ·dɪt }
- ellsworthite** $(Ca,Na,U)_2(Nb,Ta)_2O_6(O,OH)$ A yellow, brown, greenish or black mineral of the pyrochlore group occurring in isometric crystals and consisting of an oxide of niobium, titanium, and uranium. Also known as betafite; hatchettolite. { ˈɛl·wɔr·θɪt }
- elapsolite** K_2NaAlF_6 Mineral composed of sodium potassium aluminum fluoride { ɛlˈpæs·ɔ·lɪt }
- elpidite** $Na_2ZrSi_3O_{11} \cdot 3H_2O$ A white to brick-red mineral composed of hydrated sodium zirconium silicate. { ɛl·pə·dɪt }
- elutriation** The washing away of the lighter or finer particles in a soil, especially by the action of raindrops. { ɛˈlü·trēˈā·ʃən }
- eluvial** Of, composed of, or relating to eluvium. { ɛˈlüv·ē·əl }
- eluvial placer** A placer deposit that is concentrated near the decomposed outcrop of the source. { ɛˈlüv·ē·əl ˈplā·sər }
- eluvium** Disintegrated rock material formed and accumulated in situ or moved by the wind alone. { ɛˈlü·vē·əm }

- embatholithic** Pertaining to ore deposits associated with a batholith where exposure of the batholith and country rock is about equal. {em·bath·ə'·lith·ik }
- embayed coastal plain** A coastal plain that has been partly sunk beneath the sea, thereby forming a bay. {em'bād ikōst·əl 'plān }
- embayed mountain** A mountain that has been depressed enough for sea water to enter the bordering valleys. {em'bād 'maun·tən }
- embayment** **1.** Act or process of forming a bay **2.** A reentrant of sedimentary rock into a crystalline massif. {em'bā·mənt }
- emboilite** Ag(Cl,Br) A yellow-green mineral resembling cerargyrite, composed of native silver chloride and silver bromide. { 'em·bə·līt }
- embouchure** **1.** The mouth of a river **2.** A river valley widened into a plain. { 'äm·bə·shūr }
- embrechites** A type of migmatite in which structural features of crystalline shifts are preserved but often partially obliterated by metablastesis. { 'em·brəkīts }
- emerald** Al₂(Be₃Si₆O₁₈) A brilliant-green to grass-green gem variety of beryl that crystallizes in the hexagonal system; green color is caused by varying amounts of chromium. Also known as smaragd. { 'em·ræld }
- emerged shoreline** See shoreline of emergence. { əlmərd 'shō·rlīn }
- emergence** **1.** Dry land which was part of the ocean floor **2.** The act or process of becoming an emergent land mass. { ə'mər·jəns }
- emery** A fine, granular, gray-black, impure variety of corundum containing iron oxides, either hematite or magnetite; occurs as masses in limestone and as segregations in igneous rock. { 'em·ə·rē }
- emery rock** A rock that contains corundum and iron ores. { 'em·ə·rē·rāk }
- emmonsite** Fe₂Te₂O₆·2H₂O Yellow-green mineral composed of a hydrous oxide of iron and tellurium. { 'em·ən·zīt }
- emplacement** Intrusion of igneous rock or development of an ore body in older rocks {em'plās·mənt }
- empletite** CuBiS₂ A grayish or white mineral that crystallizes in the orthorhombic system; occurs in masses. { em'plek·tīt }
- empressite** AgTe An opaque, pale-bronze mineral whose crystal system is unknown { 'em·prəsīt }
- enargite** A lustrous, grayish-black mineral which is found in orthorhombic crystals but is more commonly columnar, bladed, or massive; hardness is 3 on Mohs scale, specific gravity is 4.44; in some places enargite is a valuable copper ore. Also known as clairite; luzonite. { e'när·jīt }
- enclosure compound** See clathrate. { in'klō·zhər 'käm·paund }
- encrinal limestone** A limestone consisting of more than 10% but less than 50% of fossil crinoidal fragments. { en'krīn·əl 'līm·stōn }
- endellite** Al₂Si₂O₆(OH)₂·4H₂O Term used in the United States for a clay mineral, the more hydrous form of halloysite. Also known as hydrated halloysite; hydrohalloysite; hydrokaolin. { 'en·də·līt }
- endlichite** A mineral similar to vanadinite, but with the vanadium replaced by arsenic { 'end·li·kīt }
- end member** One of the two or more pure chemical compounds that enters into solid solution with other pure chemical compounds to make up a series of minerals of similar crystal structure (that is, an isomorphous, solid-solution series). { 'end·mem·bər }
- end moraine** An accumulation of drift in the form of a ridge along the border of a valley glacier or ice sheet. { 'end mə·rān }
- endobatholithic** Pertaining to ore deposits along projecting portions of a batholith { 'en·dō·bath ə'lid ik }
- endocast** See steinkern. { 'en·dō·kast }
- endogenetic** See endogenic. { 'en·dō·jə'ned·ik }
- endogenic** Of or pertaining to a geologic process or its resulting feature such as a rock, that originated within the earth. Also known as endogenetic; endogenous. { 'en·dō·jən·ik }
- endogenous** See endogenic. { en'däj·ə·nəs }

endometamorphism

- endometamorphism** A phase of contact metamorphism involving changes in an igneous rock due to assimilation of portions of the rocks invaded by its magma. { 'en·dō·med·ə'·mɔ:·fɪz·əm }
- en echelon** Referring to an overlapped or staggered arrangement of geologic features { 'en·esh·ə·lən }
- en echelon fault blocks** A belt in which the individual fault blocks trend approximately 45° to the trend of the entire fault belt. { 'en·esh·ə·lən 'fɔlt·bləks }
- energy level** The kinetic energy supplied by waves or current action in an aqueous sedimentary environment either at the interface of deposition or several meters above. { 'en·ər·jē·lev·əl }
- englishite** $K_2Ca_2Al_4(PO_4)_4(OH)_{10}·9H_2O$ A white mineral composed of hydrous basic phosphate of potassium, calcium, and aluminum. { 'ɪŋ·gli·shīt }
- enigmatite** $Na_3Fe_3TiSi_6O_{20}$ A black amphibole mineral occurring in triclinic crystals; specific gravity is 3.14-3.80. Also spelled aenigmatite. { ə'nɪg·mə'tīt }
- ensialic geosyncline** A geosyncline whose geosynclinal prism accumulates on a sialic crust and contains clastics. { en·sē'al·ɪk·jē·ō'sɪn·klɪn }
- ensimatic geosyncline** A geosyncline whose geosynclinal prism accumulates on a simatic crust and is composed largely of volcanic rock or sediments of volcanic debris. { en·sə'mad·ɪk·jē·ō'sɪn·klɪn }
- enstatite** $MgOSiO_2$ A member of the pyroxene mineral group that crystallizes in the orthorhombic system; usually yellowish gray but becomes green when a little iron is present. { 'en·stə'tīt }
- enstatite chondrite** A type of chondritic meteorite consisting almost entirely of enstatite, with metal inclusions that may be abundant and are usually low in nickel. { 'en·stə'tīt 'kən·drīt }
- enterolithic** Of or pertaining to structures, such as small folds, formed in evaporites due to flowage or hydration. { 'ent·ə·rə'lɪθ·ɪk }
- Entisol** An order of soil having few or faint horizons. { 'ent·ə·sɔl }
- entail pahoehoe** A type of pahoehoe having a surface that resembles an intertwined mass of entrails. { 'en·trəl pə'hō·ē·hō·ē }
- entrapment** The underground trapping of oil or gas reserves by folds, faults, domes, asphaltic seals, unconformities, and such. { en'trap·mənt }
- environment of sedimentation** A more or less destructive geomorphologic setting in which sediments are deposited as beach environment. { ɪn'vɪ·ənmənt əv 'sed·ə·men'tā·shən }
- Eocambrian** Pertaining to the thick sequences of strata conformably underlying Lower Cambrian fossils. Also known as Infracambrian. { 'ē·ō'kam·brē·ən }
- Eocene** The next to the oldest of the five major epochs of the Tertiary period (in the Cenozoic era). { 'ē·ə·sēn }
- Eogene** See Paleogene. { 'ē·ə·jēn }
- eoliation** Any action of wind on the land. { 'ē·ə'lā·shən }
- eolian dune** A dune resulting from entrainment of grains by the flow of moving air { 'ē'ɔl·yən 'dūn }
- eolian erosion** Erosion due to the action of wind. { 'ē'ɔl·yən ə'rō·zhən }
- eolianite** A sedimentary rock consisting of clastic material which has been deposited by wind. { 'ē'ɔl·yə·nɪt }
- eolian ripple mark** A mark made in sand by the wind. { 'ē'ɔl·yən 'rɪp·əl·mɑrk }
- eolian sand** Deposits of sand arranged by the wind. { 'ē'ɔl·yən 'sænd }
- eolian soil** A type of soil ranging from sand dunes to loess deposits whose particles are predominantly of silt size. { 'ē'ɔl·yən 'sɔɪl }
- eonothem** A chronostratigraphic unit, above erathem, composed of rocks formed during an eon of geologic time. { 'ēn·ə·them }
- eosphorite** $(Mn,Fe)Al(PO_4)(OH)_2·H_2O$ A usually rose-pink mineral composed of hydrous aluminum manganese phosphate, found massive or in prismatic crystals. { 'ē'æs·ə·fə·rɪt }
- epeirogeny** Movements which affect large tracts of the earth's crust. { 'e·pɪ'rəj·ə·nē }
- ephemeral gully** A channel that forms in a cultivated field when precipitation exceeds the rate of soil infiltration. { ə'fem·ə·rəl 'lgəl·ē }

- epicenter** A point on the surface of the earth which is directly above the seismic focus of an earthquake and where the earthquake vibrations reach first { 'ep·ə·sen·tər }
- epiclastic** Pertaining to the texture of mechanically deposited sediments consisting of detrital material from preexistent rocks. { lep·ə'klas·tik }
- epicontinental** Located upon a continental plateau or platform { lep·ə·kant·ən'ent·əl }
- epidiorite** A dioritic rock formed by alteration of pyroxenic igneous rocks { lep·ə'dī·ə·rīt }
- epidosite** A rare metamorphic rock composed of epidote and quartz { ,ep ə'dō·sīt }
- epidote** A pistachio-green to blackish-green calcium aluminum sorosilicate mineral that crystallizes in the monoclinic system, the luster is vitreous, hardness is 6½ on Mohs scale, and specific gravity is 3.35-3.45. { 'ep·ə·dōt }
- epidote-amphibolite facies** Metamorphic rocks formed under pressures of 3000-7000 bars and temperatures of 250-450°C with conditions intermediate between those that formed greenschist and amphibolite, or with characteristics intermediate. { lep·ə·dōt am'fib·ə·līt /fā·shēz }
- epidotization** The introduction of epidote into, or the formation of epidote from, rocks { ,ep·ə·dōd·ə'zā·shən }
- epieugeosyncline** Deep troughs formed by subsidence which have limited volcanic power and overlie a eugeosyncline. { lep·ē·yū·jē·ō'sin·klīn }
- epigene** **1.** A geologic process originating at or near the earth's surface. **2.** A structure formed at or near the earth's surface. { 'ep·ə·jēn }
- epigenesis** Alteration of the mineral content of rock due to outside influences { ,ep·ə'jen·ə·səs }
- epigenetic** Produced or formed at or near the surface of the earth { lep·ə·jə'nəd·ik }
- epigenite** (Cu,Fe)₃AsS₆ A steel gray, orthorhombic mineral consisting of copper and iron arsenic sulfide. { ə'pi·j·ə·nīt }
- epimagma** A gas-free, vesicular to semisolid magmatic residue of pasty consistency formed by cooling and loss of gas from liquid lava in a lava lake. { ,ep·ə'mag·ma }
- epimagmatic** See deuteritic. { ,ep·ə·mag'mad·ik }
- episode** A distinctive event or series of events in the geologic history of a region or feature. { 'ep·ə·sōd }
- epistilbite** CaAl₂Si₆O₁₆·5H₂O A mineral of the zeolite family that contains calcium and aluminosilicate and crystallizes in the monoclinic system; occurs in white prismatic crystals or granular forms. { lep·ə'stil·bīt }
- epithermal** Pertaining to mineral veins and ore deposits formed from warm waters at shallow depth, at temperatures ranging from 50-200°C, and generally at some distance from the magmatic source. { lep·ə'thər·məl }
- epithermal deposit** Ore deposit formed in and along openings in rocks by deposition at shallow depths from ascending hot solutions. { lep·ə'thər·məldə'pāz·ət }
- epizone** **1.** The zone of metamorphism characterized by moderate temperature, low hydrostatic pressure, and powerful stress. **2.** The outer depth zone of metamorphic rocks. { 'ep·ə·zōn }
- epoch** A major subdivision of a period of geologic time. { 'ep·ək }
- epsomite** MgSO₄·7H₂O A mineral that occurs in clear, needlelike, orthorhombic crystals; commonly, it is massive or fibrous, luster varies from vitreous to milky, hardness is 2-2.5 on Mohs scale, and specific gravity is 1.68; it has a salty bitter taste and is soluble in water. Also known as epsom salt. { 'ep·sə·mīt }
- epsom salt** See epsomite. { 'ep·səm·sōlt }
- equigranular** Pertaining to the texture of rocks whose essential minerals are all of the same order of size. { i·kwə'gran·yə·lər }
- equilibrium profile** See profile of equilibrium { ,ē·kwə'līb·rē·əm 'prō·fīl }
- equivalent diameter** See nominal diameter { i'kwiv ə·lənt dī'am əd·ər }
- era** A unit of geologic time constituting a subdivision of an eon and comprising one or more periods. { 'ir·ə }
- erathem** A chronostratigraphic unit below eonothem and above system; composed of rocks formed during an era of geologic time. { 'er·ə·them }
- Erian** Middle Devonian geologic time; a North American provincial series { 'i·rē·ən }

Erian orogeny

Erian orogeny One of the orogenies during Phanerozoic geologic time, at the end of the Silurian; the last part of the Caledonian orogenic era. Also known as Hibernian orogeny. { 'i·rē·ən ó·rāj·ə·nē }

erikite A brown mineral consisting of a silicate and phosphate of cerium metals, occurs in orthorhombic crystals. { 'er·ə·kīt }

erinite $\text{Cu}_5(\text{OH})_4(\text{AsO}_4)_2$ Emerald-green mineral composed of basic copper arsenate. { 'er·ə·nīt }

erionite A chabazite mineral of the zeolite family that contains calcium ions and crystallizes in the hexagonal system. { 'er·ē·ə·nīt }

eroding velocity The minimum average velocity required for eroding homogeneous material of a given particle size. { ə·rōd·iŋ və·lās·əd·ē }

erosion **1.** The loosening and transportation of rock debris at the earth's surface. **2.** The wearing away of the land, chiefly by rain and running water. { ə·rō·zhən }

erosional unconformity The surface that separates older eroded rocks from younger, overlying sediments. { ə·rō·zhən·əl ən·kən·fór·məd·ē }

erosion cycle A postulated sequence of conditions through which a new landmass proceeds as it wears down, classically the concept of youth, maturity, and old age, as stated by W.M. Davis; an original landmass is uplifted above base level, cut by canyons, gradually converted into steep hills and wide valleys, and is finally reduced to a flat lowland at or near base level. { ə·rō·zhən·sī·kəl }

erosion pavement A layer of pebbles and small rocks that prevents the soil underneath from eroding. { ə·rō·zhən·pāv·mənt }

erosion platform See wave-cut platform. { ə·rō·zhən·plat·fórm }

erosion surface A land surface shaped by agents of erosion. { ə·rō·zhən·sər·fəs }

erratic A rock fragment that has been transported a great distance, generally by glacier ice or floating ice, and differs from the bedrock on which it rests. { ə·rad·ik }

eruption The ejection of solid, liquid, or gaseous material from a volcano. { i·rəp·shən }

eruptive rock **1.** Rock formed from a volcanic eruption. **2.** Igneous rock that reaches the earth's surface in a molten condition. { ə·rəp·tiv·rāk }

erythrine See erythrite. { 'er·ə·θrēn }

erythrite $\text{Co}_3(\text{AsO}_4)_2 \cdot 8\text{H}_2\text{O}$ A crimson, peach, or pink-red secondary oxidized cobalt mineral that occurs in monoclinic crystals, in globular and reniform masses, or in earthy forms. Also known as cobalt bloom; cobalt ocher; erythrine; peachblossom ore; red cobalt. { 'er·ə·θrīt }

erythrosiderite $\text{K}_2\text{FeCl}_6 \cdot \text{H}_2\text{O}$ Mineral composed of hydrous potassium iron chloride; occurs in lavas. { ə·rith·rə·sīd·ə·nīt }

Erzgebirgian orogeny Diastrophism of the early Late Carboniferous. { 'erts·gə·bər·jən ó·rāj·ə·nē }

escarpment A cliff or steep slope of some extent generally separating two level or gently sloping areas, and produced by erosion or by faulting. Also known as scarp. { ə·skärp·mənt }

eschar See esker. { 'es·kər }

eschwegeite See tanteuxenite. { ɛsh·vā·gē·īt }

eschynite $(\text{Ce,Ca,Fe,Th})(\text{Ti,Cb})_2\text{O}_6$ A black mineral, occurring in prismatic crystals; a rare oxide of cesium, titanium, and other metals, which is isomorphous with priorite. { 'es·kə·nīt }

eskar See esker. { 'es·kər }

eskebornite CuFeSe_2 The selenium analog of the mineral pyrrhotite $(\text{Fe}_{1-x}\text{S})$. { ɛs·kə·bör·nīt }

esker A sinuous ridge of constructional form, consisting of stratified accumulations, glacial sand, and gravel. Also known as asar; eschar; eskar; osar; serpent kame. { 'es·kər }

essexite A rock of igneous origin composed principally of plagioclase hornblende, biotite, and titanite. { 'e·sɪk·sīt }

estuarine deposit A sediment deposited at the heads and floors of estuaries { 'es·chə·wə·rēn də·pəz·ət }

- etch figures** A minute pit produced by a solvent on the crystal face of a mineral which reveals its molecular structure. { 'ech ,fig · yərz }
- ethmolith** A downward tapering, funnel-shaped, discordant intrusion of igneous rocks. { 'eth · mə · lith }
- ettringite** $\text{Ca}_4\text{Al}_2(\text{SO}_4)_3(\text{OH})_{12} \cdot 26\text{H}_2\text{O}$ A mineral composed of hydrous basic calcium and aluminum sulfate. { 'e · trɪŋ · ɪt }
- eucairite** CuAgSe A white, native selenide that crystallizes in the isometric crystal system. { yū'kī · rīt }
- euchlorin** $(\text{K},\text{Na})_8\text{Cu}_6(\text{SO}_4)_{10}(\text{OH})_6$ An emerald-green mineral consisting of a basic sulfate of potassium, sodium, and copper; found in lava at Vesuvius. { yū'klór · ən }
- euchroite** $\text{Cu}_2(\text{AsO}_4)(\text{OH}) \cdot 3\text{H}_2\text{O}$ An emerald green or leek green, orthorhombic mineral consisting of a hydrated basic copper arsenate. { 'yü · krō · ɪt }
- eucrase** $\text{BeAlSiO}_4(\text{OH})$ A brittle, pale green, blue, yellow, or violet monoclinic mineral, occurring as prismatic crystals. { 'yü · klās }
- eucrite** An olivine-bearing gabbro containing unusually calcic plagioclase; a meteorite component. { 'yü · krīt }
- eucriptite** LiAlSiO_4 A colorless or white lithium aluminum silicate mineral, crystallizing in the hexagonal system; specific gravity is 2.67. { yū'krip · tīt }
- eudialite** $(\text{Na},\text{Ca},\text{Fe})_6\text{ZrSi}_6\text{O}_{18}(\text{OH},\text{Cl})$ Hexagonal-crystalline silicate chloride mineral; color is red to brown. { yū'dī · ə · līt }
- eudidymite** $\text{NaBeSi}_2\text{O}_7(\text{OH})$ A glassy white mineral composed of sodium beryllium silicate. { yū'did · ə · mīt }
- eugeosyncline** The internal volcanic belt of an orthogeosyncline { yū · jē · ð' sɪn · klɪn }
- euheral** See automorphic. { yū'hē · drəl }
- eulytine** See eulytite. { 'yü · lə · tən }
- eulytite** $\text{Bi}_4\text{Si}_3\text{O}_{12}$ A bismuth silicate mineral usually found as minute dark-brown or gray tetrahedral crystals; specific gravity is 6.11. Also known as agricolite; bismuth blende; eulytine. { 'yü · lə · tīt }
- eutaxite** A rock exhibiting eutaxitic structure. { yū'tak · sīt }
- eutaxitic** Referring to the banded appearance in certain extrusive rocks, resulting from the layering of different textures, materials, or colors. { 'yü · tak' sɪd · ɪk }
- euctofelsite** See euctophyre. { yū'tek · tō'fel · sīt }
- euctophyre** A light-colored tufflike igneous rock exhibiting a network of interlocking quartz and orthoclase crystals. Also known as euctofelsite. { yū'tek · tə · fɪr }
- euxenite** A brownish-black rare-earth mineral that crystallizes in the orthorhombic system, contains oxide of calcium, cerium, columbium, tantalum, titanium, and uranium, and has a metallic luster; hardness is 6.5 on Mohs scale, and specific gravity is 4.7-5.0. { 'yük · sə · nīt }
- evansite** $\text{Al}_3(\text{PO}_4)(\text{OH})_6 \cdot 6\text{H}_2\text{O}$ A colorless to milky white mineral consisting of a hydrated basic aluminum phosphate; occurs in massive form and as stalactites. { 'ev · ən · zīt }
- evaporite** Deposits of mineral salts from sea water or salt lakes due to evaporation of the water. { 'vap · ə · rīt }
- event** An incident of probable tectonic significance, but whose full implications are unknown. { 'ɪ · vent }
- evjite** A gabbro of hornblende in which the only light-colored mineral is labradorite or bytownite; hornblende must be primary, not uralitic. { 'ev · jīt }
- evorsion** The process of pothole formation in riverbeds; plays an important role in denudation. { ē'vór · shən }
- evorsion hollow** See pothole. { ē'vór · shən · hāl · ð }
- exchange capacity** The ability of a soil material to participate in ion exchange as measured by the quantity of exchangeable ions in a given unit of the material { ɪks'chānj kə · pas · əd · ē }
- exfoliation** See sheeting. The breaking off of thin concentric shells, sheets, scales, plates, and so on, from a rock mass measuring less than a centimeter to several meters in thickness, the loosened rock is spalled, peeled, or stripped { eks'fō · lē'ā · shən }
- exfoliation dome** A large rounded dome-shaped structure produced in massive ho-

exfoliation joint

- ogeneous coarse-grained rocks (usually igneous) by exfoliation. { eks·fō·lē'ā·shən
rōm }
- exfoliation joint** See sheeting structure. { eks·fō·lē'ā·shən ,jōint }
- exhumation** The uncovering or exposure through erosion of a former surface, landscape, or feature that had been buried by subsequent deposition. { ,eks·yū'mā·shən }
- exhumed** See resurrected. { ig'zyūmd }
- exinite** A hydrogen-rich maceral group consisting of spore exines, cuticular matter, resins, and waxes; includes sporinite, cutinite, alginite, and resinite. Also known as liptinite. { 'ek·sə'nīt }
- exocline** An inverted anticline or syncline. { 'ek·sə'klīn }
- exogenous inclusion** See xenolith. { ,ek'sāj·ə·nəs in'klü·zhən }
- exogeosyncline** A parageosyncline that lies along the cratonal border and obtains its clastic sediments from erosion of the adjacent orthogeosynclinal belt outside the craton. Also known as delta geosyncline; foredeep; transverse basin. { lek·sō'jē·ō'sin·klīn }
- exomorphic zone** See aureole. { lek·səlmór·fik ,zōn }
- exomorphism** A change in a rock mass caused by intrusion of external igneous material; in the usual sense, contact metamorphism. { ,ek·sə'mór·fiz·əm }
- exorheic** Referring to a basin or region characterized by external drainage { ek·sə'rē·ik }
- expansion fissures** A system of fissures which radiate randomly and pass through feldspars and other minerals adjacent to olivine crystals that have been replaced by serpentine. { ik'span·shən ,fīsh·ərz }
- expansion joint** See sheeting structure. { ik'span·shən ,jōint }
- experimental petrology** A branch of petrology in which phenomena that occur during petrological processes are reproduced and studied in the laboratory. { ik'sper·ə'ment·əl pə'träl·ə·jē }
- explosion breccia** Breccia resulting from volcanic eruption or a phreatic explosion. { ik'splō·zhən ,brech·ə }
- explosion crater** A volcanic crater formed by explosion and commonly developed along rift zones on the flanks of large volcanoes. { ik'splō·zhən ,kräd·ər }
- explosion tuff** A tuff whose constituent ash particles are in the place they fell after being ejected from a volcanic vent. { ik'splō·zhən ,təf }
- explosive index** The percentage of pyroclastics in the material from a volcanic eruption. { ik'splō·siv 'in·deks }
- exsolution** A phenomenon during which molten rock solutions separate when cooled. { lek·sə'lü·shən }
- exsolution lamellae** Layers of sedimentary rock that solidify from solution by either precipitation or secretion. { lek·sə'lü·shən lə'mel·ē }
- extended valley** **1.** A valley that is lengthened downstream either by a regression of the sea or by uplift of the coastal region. **2.** A valley formed by or containing an extended stream. { ik'stend·əd 'val·ē }
- extension fracture** A fracture that develops perpendicular to the direction of greatest stress and parallel to the direction of compression. { ik'sten·chən ,frak·chər }
- extension joints** Fractures that form parallel to a compressive force. { ik'sten·chən ,jōins }
- extravasation** The eruption of lava from a vent in the earth. { ik'strav·ə'sā·shən }
- extrusion** Emission of magma or magmatic materials at the surface of the earth { ek'strü·zhən }
- extrusive rock** See volcanic rock. { ik'strü·siv 'rāk }
- exudation vein** See segregated vein. { ,ek·syə'dā·shən ,vān }
- eye coal** Coal characterized by small, circular or elliptical structural disks that reflect light and are arranged in parallel planes either in or normal to the bedding. Also known as augen kohle; circular coal. { 'ī ,kōl }

F

- fabric** **1.** The spatial orientation of the elements of a sedimentary rock **2.** The sum of all the structural and textural features of a rock Also known as petrofabric, rock fabric, structural fabric. { 'fab·rik }
- fabric analysis** See structural petrology. { 'fab·rik ə·nəl·əs· əs }
- fabric diagram** In structural petrology a graphic representation of the data of fabric elements. Also known as petrofabric diagram. { 'fab·rik 'dī·ə·gram }
- fabric domain** A three-dimensional area or volume of uniform rock fabric delineated by boundaries such as structural or compositional discontinuities. { 'fab·rik də 'mān }
- fabric element** A surface or line of structural discontinuity in a rock fabric { 'fab·rik 'el·ə·mənt }
- face** **1.** The main surface of a landform. **2.** The original surface of a layer of rock. { fās }
- facellite** See kaliophillite. { fə'se·līt }
- faceted pebble** A pebble with three or more faces naturally worn flat and meeting at sharp angles. { 'fas·əd·əd 'peb·əl }
- faceted spur** A spur or ridge with an inverted-V face resulting from faulting or from the trimming, beveling, or truncating motion of streams, waves, or glaciers. { 'fas·əd·əd 'spər }
- facies** Any observable attribute or attributes of a rock or stratigraphic unit, such as overall appearance or composition, of one part of the rock or unit as contrasted with other parts of the same rock or unit. { 'fā·shēz }
- facies map** A stratigraphic map indicating distribution of sedimentary facies within a specific geologic unit. { 'fā·shēz 'mæp }
- fahlband** A stratum containing metal sulfides, occurs in crystalline rock { 'fāl·bānt }
- fahlore** See tetrahedrite. { 'fā·lōr }
- fairchildite** $K_2Ca(CO_3)_2$ A mineral composed of potassium calcium carbonate, occurs in partly burned trees. { 'fer·chīl·dīt }
- fairfieldite** $Ca_2Mn(PO_4)_2 \cdot 2H_2O$ A white or pale-yellow mineral composed of hydrous calcium manganese phosphate and occurring in foliated or fibrous form. { 'fer·fēl·dīt }
- fairy stone** See staurolite. { 'fer·ē stōn }
- fallback** Fragmented ejecta from an impact or explosion crater during formation which partly refills the true crater almost immediately. { 'fōl·bæk }
- fall line** **1.** The zone or boundary between resistant rocks of older land and weaker strata of plains. **2.** The line indicated by the edge over which a waterway suddenly descends, as in waterfalls. { 'fōl 'līn }
- false bedding** An inclined bedding produced by currents { 'fōls 'bed·ɪŋ }
- false cleavage** **1.** A weak cleavage at an angle to the slaty cleavage. **2.** Spaced surfaces about a millimeter apart along which a rock splits. { 'fōls 'klēv·ɪj }
- false drumlin** See rock drumlin. { 'fōls 'drəm·lən }
- false form** See pseudomorph. { 'fōls 'fōrm }
- false galena** See sphalerite. { 'fōls gə'lē·nə }
- false lapis** See lazulite. { 'fōls 'lap·əs }

false oolith

- false oolith** See pseudo-oolith. { 'fòls 'òð·lìth }
- false topaz** See citrine. { 'fòls 'tò·paz }
- famatinite** Cu_3SbS_4 A reddish-gray mineral composed of copper antimony sulfide { 'fam·ə'tē·nīt }
- fan** A gently sloping, fan-shaped feature usually found near the lower termination of a canyon. { fan }
- fan fold** A fold of strata in which both limbs are overturned, forming a syncline or anticline. { 'fan 'fòld }
- fanglomerate** Coarse material in an alluvial fan, with the rock fragments being only slightly worn. { fan 'glām·ə·rət }
- fan-shaped delta** See arcuate delta. { 'fan 'shāpt 'del·tə }
- farinaceous** Of a rock or sediment having a texture that is mealy, soft, and friable, for example, a limestone or a pelagic ooze. { 'far·ə'nā·shəs }
- farringtonite** $Mg_3(PO_4)_2$ Colorless, wax-white, or yellow phosphate mineral known only in meteorites. { 'far·ɪŋ·tə·nīt }
- faujasite** $(Na_2Ca)Al_2Si_4O_{12}·6H_2O$ Zeolite mineral of the sodalite group, crystallizing in the cubic system. { 'fò·zhə'sīt }
- fault** A fracture in rock along which the adjacent rock surfaces are differentially displaced. { fòlt }
- fault basin** A region depressed in relation to surrounding regions and separated from them by faults. { 'fòlt 'bās·ən }
- fault block** A rock mass that is bounded by faults; the faults may be elevated or depressed and not necessarily the same on all sides. { 'fòlt 'blāk }
- fault-block mountain** See block mountain. { 'fòlt 'blāk 'maunt·ən }
- fault breccia** The assembly of angular fragments found frequently along faults. Also known as dislocation breccia. { 'fòlt 'brech·ə }
- fault cliff** See fault scarp. { 'fòlt 'klif }
- fault escarpment** See fault scarp. { 'fòlt ə'skärp·mənt }
- faulting** The fracturing and displacement processes which produce a fault { 'fòl·tɪŋ }
- fault ledge** See fault scarp. { 'fòlt 'lej }
- fault line** Intersection of the fault surface with the surface of the earth or any other horizontal surface of reference. Also known as fault trace. { 'fòlt·līn }
- fault-line scarp** A cliff produced when a soft rock erodes against hard rock at a fault { 'fòlt·līn 'skärp }
- fault plane** A planar fault surface. { 'fòlt 'plān }
- fault rock** A rock often found along a fault plane and made up of fragments formed by the crushing and grinding which accompany a dislocation. { 'fòlt 'rāk }
- fault scarp** A steep cliff formed by movement along one side of a fault. Also known as cliff of displacement; fault cliff; fault escarpment; fault ledge. { 'fòlt 'skärp }
- fault separation** Apparent displacement of a fault measured on the basis of disrupted linear features. { 'fòlt 'sep·ə·rā·shən }
- fault strike** The angular direction, with respect to north, of the intersection of the fault surface with a horizontal plane. { 'fòlt 'strɪk }
- fault system** Two or more fault sets which interconnect. { 'fòlt 'sɪs·təm }
- fault terrace** A step on a slope, produced by displacement of two parallel faults. { 'fòlt 'ter·əs }
- fault throw** The amount of vertical displacement of rocks due to faulting. { 'fòlt 'thrō }
- fault trace** See fault line. { 'fòlt 'trās }
- fault trap** Oil or gas reservoir formed by a structural trap limited in one or more directions by subterranean geological faulting. { 'fòlt 'trap }
- fault-trough lake** See sag pond. { 'fòlt 'tróf 'lāk }
- fault vein** A mineral vein deposited in a fault fissure. { 'fòlt 'vān }
- fault wall** The mass of rock on a particular side of a fault. { 'fòlt 'wòl }
- fault zone** A fault expressed as an area of numerous small fractures. Also known as distributed fault. { 'fòlt 'zōn }
- faunizone** A bed characterized by fossils of a particular assemblage of fauna. { 'fón·ə·zōn }

- fayalite** Fe_2SiO_4 A brown to black mineral of the olivine group, consisting of iron silicate and found either massive or in crystals; specific gravity is 4.1. {fə'yä/ĭt}
- feather alum** See alunogen; halotrichite. {feth·ər /al·əm}
- feather joint** One of a series of joints in a fault zone formed by shear and tension. Also known as pinnate joint. {feth·ər /jɔint}
- feather ore** See jamesonite. {feth·ər /ɔr}
- fecal pellets** Mainly the excreta of invertebrates occurring in marine deposits and as fossils in sedimentary rocks. Also known as castings. {fē·kəl /pel·əts}
- feeder** A small ore-bearing vein which merges with a larger one. {fēd·ər}
- feeder beach** A beach that is artificially widened and nourishes downdrift beaches by natural littoral currents or forces. {fēd·ər /bēch}
- feldspar** A group of silicate minerals that make up about 60% of the outer 9 miles (15 kilometers) of the earth's crust; they are silicates of aluminum with the metals potassium, sodium, and calcium, and rarely, barium. {fel'spär}
- feldspathic graywacke** Sandstone containing less than 75% quartz and chert and 15-75% detrital clay matrix, and having feldspar grains in greater abundance than rock fragments. Also known as arkosic wacke; high-rank graywacke. {fel'spath·ik /grä·wak·ə}
- feldspathic sandstone** Sandstone rich in feldspar, intermediate in composition between arkosic sandstone and quartz sandstone, made up of 10-25% feldspar and less than 20% matrix material. {fel'spath·ik /san·stön}
- feldspathic shale** A well-laminated shale with more than 10% feldspar in the silt size and with a finer matrix of kaolinitic clay minerals. {fel'spath·ik /shäl}
- feldspathization** Formation of feldspar in a rock usually as a result of metamorphism, leading toward granitization. {fel'spa·thə'zä·shən}
- feldspathoid** Aluminosilicates of sodium, potassium, or calcium that are similar in composition to feldspars but contain less silica than the corresponding feldspar. {fel'spa·thöid}
- felsenmeer** A flat or gently sloping veneer of angular rock fragments occurring on moderate mountain slopes above the timber line. {felz·ən·mer}
- felsic** **1.** A light-colored mineral **2.** Of an igneous rock, having a mode containing light-colored minerals. {fel·sik}
- felsite** **1.** A light-colored, fine-grained igneous rock composed chiefly of quartz or feldspar. **2.** A rock characterized by felsitic texture. {fel'sīt}
- felsöbányaite** $\text{Al}_2(\text{SO}_4)(\text{OH})_{11} \cdot 5 \text{H}_2\text{O}$ A yellow to white, probably orthorhombic mineral consisting of a hydrated basic sulfate of aluminum; occurs as aggregates of lamellar crystals. {fel·sö'ban·yə·rīt}
- felsophyric** See aphaniphyric. {fel·sə'fir·ik}
- felty** Referring to a pilotaxitic texture in which the microlites are randomly oriented. {fel·tē}
- fen peat** See low-moor peat. {fen /pēt}
- fenster** See window. {fen·stär}
- ferberite** FeNO_4 A black mineral of the wolframite solid-solution series occurring as monoclinic, prismatic crystals and having a submetallic luster; hardness is 4.5 on Mohs scale, and specific gravity is 7.5. {fär·bä·rīt}
- ferghanite** $\text{U}_3(\text{VO}_4)_2 \cdot 6\text{H}_2\text{O}$ Sulfur-yellow mineral composed of hydrated uranium vanadate, occurring in scales. {fär'gä·nīt}
- fergusonite** $\text{Y}_2\text{O}_3(\text{Nb,Ta})_2\text{O}_7$ Brownish-black rare-earth mineral with a tetragonal crystal form; it is isomorphous with formanite. {fär·gə·sə·nīt}
- fermorite** $(\text{Ca,Sr})_2(\text{As,P})\text{O}_4\text{F}_2$ A white mineral composed of arsenate, phosphate, and fluoride of calcium and strontium, occurring in crystalline masses. {fär·mə·rīt}
- fernandinite** A dull green mineral composed of hydrous calcium vanadyl vanadate. {fär·nän'dē·nīt}
- ferriamphibole** The ferric ion equivalent of the amphibole group of minerals. {fēr·ē'am·fə'böl}
- ferricrete** A conglomerate of surficial sand and gravel held together by iron oxide resulting from percolating solutions of iron salts. {fēr·ə·krēt}

ferrierite

- ferrierite** $(\text{Na,K})_2\text{MgAl}_3\text{Si}_{17}\text{O}_{36}(\text{OH}) \cdot 9\text{H}_2\text{O}$ A zeolite mineral crystallizing in the orthorhombic system. {fə'ri·ə·rīt }
- ferriferous** **1.** Of a sedimentary rock, iron-rich. **2.** Of a mineral, iron-bearing. {fə'rif·ə·rəs }
- ferrimolybdate** $\text{Fe}_2(\text{MoO}_4)_3 \cdot 8\text{H}_2\text{O}$ A colorless to canary yellow, probably orthorhombic mineral consisting of hydrated ferric molybdate; occurs in massive form, as crusts or aggregates. {ife·ri·mə'lib·dīt }
- ferrinatrinite** $\text{Na}_3\text{Fe}(\text{SO}_4)_3 \cdot 3\text{H}_2\text{O}$ A greenish or white mineral composed of sodium ferric iron double sulfate; usually occurs in spherical forms. {fe·ri'nā·trīt }
- ferrisicklerite** $(\text{Li,Fe,Mn})(\text{PO}_3)$ Mineral composed of phosphate of lithium, ferric iron, and manganese, more iron being present than manganese; it is isomorphous with sicklerite. {ife·ri'sik·lə·rīt }
- ferrite** Grains or scales of unidentifiable, generally transparent amorphous iron oxide in the matrix of a porphyritic rock. {'fe·rīt }
- ferritremolite** The ferric ion equivalent of the monoclinic amphibole, tremolite {ife·ri'trem·ə·līt }
- ferritungstite** $\text{Fe}_2(\text{WO}_4)(\text{OH})_4 \cdot 4\text{H}_2\text{O}$ A yellow ochre mineral composed of hydrous ferric tungstate, occurring as a powder. {ifer·ri'tʌŋ·stīt }
- ferroamphibole** The ferrous iron equivalent of the amphibole group of minerals. {ife·rō'am·fə·bōl }
- ferroan dolomite** A species of ankerite having less than 20% of the manganese positions occupied by iron. {'fer·ə·wən'dōl·mīt }
- ferroaugite** A form of monoclinic pyroxene. {ife·rō'ō·gīt }
- Ferrod** A suborder of the soil order Spodosol that is well drained and contains an iron accumulation with little organic matter. {'fe·rād }
- ferrodolomite** $\text{CaFe}(\text{CO}_3)_2$ A mineral composed of calcium iron carbonate, isomorphous with dolomite, and occurring in ankerite. {ife·rō'dō·lə·mīt }
- ferrogabbro** A gabbro rock in which the pyroxene and olivine constituents have an unusually high iron content. {ife·rō'ga·brō }
- ferrosilite** A mineral in the orthopyroxene group, the iron analog of enstatite; occurs in hypersthene, but is not found separately in nature. {'fe·rō'si·līt }
- ferrotremolite** The ferrous iron equivalent of the monoclinic amphibole, tremolite. {ife·rō'tre·mə·līt }
- ferrouccite** NaBF_4 An orthorhombic boron mineral consisting of sodium fluoborate. {fə'rū·chīt }
- fersmanite** $(\text{Na,Ca})_2(\text{Ti,Cb})\text{Si}(\text{O,F})_6$ A brown mineral composed of a silicate fluoride of sodium, calcium, titanium, and columbium. {'fərz·mə·nīt }
- fersmite** $(\text{Ca,Ce})(\text{Cb,Ti})_2(\text{O,F})_6$ A black mineral composed of an oxide and fluoride of calcium and columbium with cerium and titanium. {'fərz·mīt }
- fervanite** $\text{Fe}_4\text{V}_4\text{O}_{16} \cdot 5\text{H}_2\text{O}$ Golden-brown mineral composed of a hydrated iron vanadate; although itself not radioactive, it occurs with radioactive minerals. {'fə·və·nīt }
- Fibrist** A suborder of the soil order Histosol, consisting mainly of recognizable plant residues or sphagnum moss and saturated with water most of the year. {'fi·brəst }
- fibroblastic** Of a metamorphic rock, having a texture that is homeoblastic as a result of the development of minerals with a fibrous habit during recrystallization. {'fi·brə'blas·tik }
- fibroferrite** $\text{Fe}(\text{SO}_4)(\text{OH}) \cdot 5\text{H}_2\text{O}$ A yellowish mineral composed of a hydrous basic ferric sulfate, occurring in fibrous form. {'fi·brō'fe·rīt }
- fibrolite** See sillimanite. {'fi·brə'līt }
- fiedlerite** $\text{Pb}_3(\text{OH})_2\text{Cl}_4$ A colorless mineral composed of a hydroxychloride of lead, occurring as monoclinic crystals. {'fēd·lə·rīt }
- field** A region or area with a particular mineral resource, for example, a gold field. {fēld }
- field geology** The study of rocks and rock materials in their environment and in their natural relations to one another. {'fēld jē·əl·ə·jē }
- field pressure** The pressure of natural gas in the underground formations from which it is produced. {'fēld ·presh·ər }

- figure stone** See agalmatolite. { 'fig·yər ,stōn }
- filiform lapilli** See Pele's hair. { 'fil·ə·fórm lə'pil·ē }
- fillowite** $H_2Na_6(Mn,Fe,Ca)_{14}(PO_4)_{12} \cdot H_2O$ A brown, yellow, or colorless mineral composed of a hydrous phosphate of manganese, iron, sodium, and other metals { 'fil·ə·wīt }
- fill terrace** See alluvial terrace. { 'fil ,ter·əs }
- fine admixture** The smaller size grades of a sediment of mixed size grades. { 'fīn 'ad·miks·chər }
- fine earth** A soil which can be passed through a 2-millimeter sieve without grinding its primary particles. { 'fīn 'ærth }
- fine gravel** Gravel consisting of particles with a diameter range of 1 to 2 millimeters. { 'fīn 'grav·əl }
- fine sand** Sand grains between 0.25 and 0.125 millimeter in diameter. { 'fīn 'sand }
- finger** The tendency for gas which is displacing liquid hydrocarbons in a heterogeneous reservoir rock system to move forward irregularly (in fingers), rather than on a uniform front. { 'fīŋ·gər }
- finger coal** See natural coke. { 'fīŋ·gər ,kōl }
- finnemanite** $Pb_2Cl(AsO_3)_2$ A gray, olive-green, or black hexagonal mineral composed of arsenite and chloride of lead. { 'fin·ə·mə·nīt }
- fiorite** See siliceous sinter. { fē'ór·īt }
- fireclay** **1.** A clay that can resist high temperatures without becoming glassy **2.** Soft, embedded, white or gray clay rich in hydrated aluminum silicates or silica and deficient in alkalis and iron. { 'fīr ,klā }
- fire opal** A translucent or transparent, orangy-yellow, brownish-orange, or red variety of opal that gives out fiery reflections in bright light and that may have a play of colors. Also known as pyrophanite; sun opal. { 'fīr ,ō·pəl }
- firestone** See flint. { 'fīr·stōn }
- firn limit** See firn line. { 'fərn ,lim·ət }
- firn line** **1.** The regional snow line on a glacier **2.** The line that divides the ablation area of a glacier from the accumulation area. Also known as firn limit. { 'fərn ,līn }
- first bottom** The floodplain of a river, below the first terrace { 'fərst 'bād əm }
- fischerite** A green mineral composed of a basic aluminum phosphate, may be identical to wavellite. { 'fish·ə·rīt }
- fish-eye stone** See apophyllite. { 'fish ,ī ,stōn }
- fissile** Capable of being split along the line of the grain or cleavage plane { 'fis·əl }
- fission-track dating** A method of dating geological specimens by counting the radiation-damage tracks produced by spontaneous fission of uranium impurities in minerals and glasses. { 'fish·ən ,trak ,dād·īŋ }
- fissure** **1.** A high, narrow cave passageway **2.** An extensive crack in a rock { 'fish ər }
- fissure system** A group of fissures having the same age and generally parallel strike and dip. { 'fish·ər ,sis·təm }
- fissure vein** A mineral deposit in a cleft or crack in the rock material of the earth's crust. { 'fish·ər ,vān }
- fizelyite** A metallic, lead-gray mineral composed of a lead silver antimony sulfide, occurring as prisms. { fə'zā·lē·īt }
- flaggy** **1.** Of bedding, consisting of strata 4-40 inches (10-100 centimeters) in thickness **2.** Of rock, tending to split into layers of suitable thickness (0.4-2 inches or 1-5 centimeters) for use as flagstones. { 'flag·ē }
- flagstone** **1.** A hard, thin-bedded sandstone, firm shale, or other rock that splits easily along bedding planes or joints into flat slabs **2.** A piece of flagstone used for making pavement or covering the side of a house. { 'flag·stōn }
- flajolotite** $4FeSbO_4 \cdot 3H_2O$ A claylike, lemon-yellow mineral composed of a hydrous iron antimonate, occurring in nodular masses. { 'flaj·ə'lō·tīt }
- flamboyant structure** The optical continuity of crystals or grains as disturbed by a structure that is divergent. { flam'boi·ənt 'strək·chər }
- flank** See limb. { flæŋk }
- flaser** Streaky layer of parallel, scaly aggregates that surrounds the lenticular bodies

flaser gabbro

- of granular material in flaser structure, caused by pressure and shearing during metamorphism. { 'flā·zər }
- flaser gabbro** A cataclastic gabbro that contains augen of feldspar or quartz surrounded by flakes of mica or chlorite. { 'flā·zər 'gɑ·brō }
- flaser structure** **1.** A metamorphic structure in which small lenses and layers of granular material are surrounded by a matrix of sheared, crushed material, resembling a crude flow structure. Also known as pachoidal structure. **2.** A primary sedimentary structure consisting of fine-sand or silt lenticles that are aligned and cross-bedded. { 'flā·zər 'stræk·chər }
- flat** **1.** An inferior grade of rough diamonds. **2.** See mud flat. { flat }
- flat-lying** Of mineral deposits and coal seams, having a relatively flat dip, up to 5°. { 'flat 'lī·ɪŋ }
- flaw** A faulty part of a gemstone, such as a crack, visible imperfect crystallization, or internal twinning or cleavage. { flō }
- flaxseed ore** Iron ore composed of disk-shaped oauolites that have been partially flattened parallel to the bedding plane. { 'flak·sēd 'ɔr }
- flexible sandstone** A variety of itacolumite that consists of fine grains and occurs in thin layers. { 'flek·sə·bəl 'san·stōn }
- flexural slip** The slipping of sedimentary strata along bedding planes during folding, producing disharmonic folding and, when extreme, *décollement*. Also known as bedding-plane slip. { 'flek·shə·rəl 'slip }
- flexure** **1.** A broad, domed structure. **2.** A fold. { 'flek·shər }
- finkite** $Mn_3(AsO_4)(OH)_4$ Greenish-brown mineral composed of basic manganese arsenate, occurring in feathery forms. { 'flɪŋ·kīt }
- flint** A black or gray, massive, hard, somewhat impure variety of chalcedony, breaking with a conchoidal fracture. Also known as firestone. { flint }
- flint clay** A hard, smooth, flintlike fireclay; when it is ground, it develops no plasticity, and it breaks with conchoidal fracture. { 'flint 'klā }
- float** An isolated, displaced rock or ore fragment. { flōt }
- float coal** Small, irregularly shaped, isolated deposits of coal embedded in sandstone or in siltstone. Also known as raft. { 'flōt 'kōl }
- floating sand** A single grain of quartz sand that does not appear to touch surrounding sand grains scattered throughout the finer-grained matrix of a sedimentary rock. { 'flōd·ɪŋ 'sand }
- float mineral** Small ore fragments carried from the ore bed by the action of water or by gravity; a float mineral often leads to discovery of mines. { 'flōt 'mɪn·rəl }
- flœ till** **1.** A glacial till resulting from the intact deposition of a grounded iceberg in a lake bordering an ice sheet. **2.** A lacustrine clay with boulders, stones, and other glacial matter dropped into it by melting icebergs. Also known as berg till. { 'flō 'tɪl }
- flokite** See mordenite. { 'flō·kīt }
- floor basalt** See plateau basalt. { 'fləd bə'sɔlt }
- floor basin** **1.** The tract of land actually submerged during the highest known flood in a specific region. **2.** The flat, wide area lying between a low, sloping plain and the natural levee of a river. { 'fləd 'bās·ən }
- flood fringe** See pondage land. { 'fləd 'frɪŋj }
- floodplain** The relatively smooth valley floors adjacent to and formed by alluviating rivers which are subject to overflow. { 'fləd·plān }
- floodplain splay** A small alluvial fan or other outspread deposit formed where an overloaded stream breaks through a levee (artificial or natural) and deposits its material (often coarse-grained) on the floodplain. Also known as channel splay. { 'fləd·plān 'splā }
- flood tuff** See ignimbrite. { 'fləd 'tʌf }
- floor** **1.** The rock underlying a stratified or nearly horizontal deposit, corresponding to the footwall of more steeply dipping deposits. **2.** A horizontal, flat ore body. { flôr }
- florencite** $CeAl_3(PO_4)_2(OH)_6$ Pale-yellow mineral composed of basic phosphate of cerium and aluminum. { 'flār·ən·sīt }

- flow** Any rock deformation that is not instantly recoverable without permanent loss of cohesion. Also known as flowage; rock flowage. {flō}
- flowage** See flow. {flō·ij}
- flowage line** A contour line at the edge of a body of water, such as a reservoir, representing a given water level. {flō·ij·līn}
- flow banding** An igneous rock structure resulting from flowing of magmas or lavas and characterized by alternation of mineralogically unlike layers. {flō·band·īn}
- flow breccia** A breccia formed with the movement of lava flow while the flow is still in motion. {flō·brech·ə}
- flow cast** One of a group of bedding plane structures formed in graywacke. {flō·kast}
- flow cleavage** Rock cleavage in which solid flow of rock accompanies recrystallization. Also known as slaty cleavage. {flō·klē·vij}
- flow earth** See solifluction mantle. {flō·əth}
- flow fold** Folding in beds, composed of relatively plastic rock, that assume any shape impressed upon them by the more rigid surrounding rocks or by the general stress pattern of the deformed zone; there are no apparent surfaces of slip. {flō·fōld}
- flow layer** In an igneous rock, a layer which is different in composition or texture from adjacent layers. {flō·lā·ər}
- flow line** In an igneous rock, any internal structure produced by parallel orientation of crystals, mineral streaks, or inclusions. {flō·līn}
- flow rock** An igneous rock that had been liquid. {flō·rāk}
- flow slide** A slide of waterlogged material in which the slip surface is not well defined. {flō·slīd}
- flowstone** Deposits of calcium carbonate that accumulated against the walls of a cave where water flowed on the rock. {flō·stōn}
- flow structure** A primary sedimentary structure due to underwater slump or flow. {flō·strək·chər}
- flow texture** A pattern of an igneous rock that is formed when the stream or flow lines of a once-molten material have a subparallel arrangement of prismatic or tabular crystals or microlites. Also known as fluidal texture. {flō·teks·chər}
- flow velocity** In soil, a vector point function used to indicate rate and direction of movement of water through soil per unit of time, perpendicular to the direction of flow. {flō·və'lās·əd·ē}
- fluellite** $\text{AlF}_3 \cdot \text{H}_2\text{O}$ A colorless or white mineral composed of aluminum fluoride occurring in crystals. {flü·ə·līt}
- fluidal texture** See flow texture. {flü·əd·əl'teks·chər}
- fluid geometry** Fluid distribution in reservoir strata controlled by rock effective porosity distribution, rock wettability characteristics in relation to the fluids present, method of producing saturation, and rock heterogeneity. {flü·əd·jē'am·ə·trē}
- fluid inclusion** A tiny fluid-filled cavity in an igneous rock that forms by the entrapment of the liquid from which the rock crystallized. {flü·əd·in'klü·zhən}
- fluid saturation** Measure of the gross void space in a reservoir rock that is occupied by a fluid. {flü·əd·sach·ə'rā·shən}
- flume** A ravine with a stream flowing through it. {flüm}
- fluoborite** $\text{Mg}_3(\text{BO}_3)(\text{F}\cdot\text{OH})_2$ A colorless mineral composed of magnesium fluoborate, occurs in hexagonal prisms. Also known as nocerite. {flü·ə'bōrīt}
- fluocerite** $(\text{Ce}\cdot\text{La}\cdot\text{Nd})\text{F}_3$ A reddish-yellow mineral composed of fluoride of cerium and related elements. {flü·ə'se·rīt}
- fluolite** See pitchstone. {flü·ə·līt}
- fluor** See fluorite. {flü·ör}
- fluorapatite** **1.** $\text{Ca}_5(\text{PO}_4)_3\text{F}$ A mineral of the solid-solution series of the apatite group, common accessory mineral in igneous rocks. **2.** An apatite mineral in which the fluoride member dominates. {flü·'rap·ətīt}
- fluorite** CaF_2 A transparent to translucent, often blue or purple mineral commonly found in crystalline cubes in veins and associated with lead, tin, and zinc ores; hardness is 4 on Mohs scale; the principal ore of fluorine. Also known as Derbyshire spar; fluor; fluorspar. {flü·rīt}

fluorocummingtonite

- fluorocummingtonite** Cummingtonite with a high content of fluorine. { ʃlʊr·ō'kəm·iŋ·tənīt }
- fluorspar** See fluorite. { 'flʊr·spär }
- flute** 1. A natural groove running vertically down the face of a rock. 2. A groove in a sedimentary structure formed by the scouring action of a turbulent, sediment-laden water current, and having a steep upcurrent end. { flūt }
- flute cast** A raised, oblong, or subconical welt on the bottom surface of a siltstone or sandstone bed formed by the filling of a flute. { 'flūt·kast }
- Fluvent** A suborder of the soil order Entisol that is well-drained with visible marks of sedimentation and no identifiable horizons; occurs in recently deposited alluvium along streams or in fans. { 'flü·vənt }
- fluvial cycle of erosion** See normal cycle. { 'flü·vē·əl 'stī·kəl əv ə'rō·zhən }
- fluvial deposit** A sedimentary deposit of material transported by or suspended in a river. { ʃflü·vē·əl di'pəz·ət }
- fluvial sand** Sand laid down by a river or stream. { ʃflü·vē·əl 'sænd }
- fluvial soil** Soil laid down by a river or stream. { ʃflü·vē·əl 'sɔil }
- fluviate** Resulting from river action. { 'flü·vē·ətīl }
- fluviomorphology** See river morphology. { ʃflü·vē·ō·mór'fäl·ə·jē }
- flying veins** A series of mineral-deposit veins which overlap or intersect in a branchlike pattern. { ʃflī·iŋ 'vānz }
- flysch** Deposits of dark, fine-grained, thinly bedded sandstone shales and of clay, thought to be deposited by turbidity currents and originally defined as rock formations on the northern and southern borders of the Alps. { flīʃh }
- foam** See pumice. { fōm }
- foam mark** A surface sedimentary structure comprising a pattern of barely visible ridges and hollows formed where wind-driven sea foam passes over a surface of wet sand. { 'fōm·märk }
- fold** A bend in rock strata or other planar structure, usually produced by deformation; folds are recognized where layered rocks have been distorted into wavelike form. { fōld }
- fold belt** See orogenic belt. { 'fōld 'belt }
- folding** Compression of planar structure in the formation of fold structures. { 'fōld·iŋ }
- fold system** A group of folds with common trends and characteristics. { 'fōld 'sis·təm }
- folia** Thin, leaflike layers that occur in gneissic or schistose rocks. { 'fō·lē·ə }
- foliaceous** Having a leaflike or platelike structure composed of thin layers of minerals. { 'fō·lē'ä·shəs }
- foliation** A laminated structure formed by segregation of different minerals into layers that are parallel to the schistosity. { 'fō·lē'ä·shən }
- Folist** A suborder of the soil order Histosol, consisting of wet forest litter resting on rock or rubble. { 'fäl·əst }
- fool's gold** See pyrite. { ʃfülz 'göld }
- footeite** See conneilite. { 'füt·tīt }
- footwall** The mass of rock that lies beneath a fault, an ore body, or a mine working. Also known as heading side; heading wall; lower plate. { 'füt·wól }
- forbesite** H(Ni,Co)AsO₄·3½H₂O A grayish-white mineral composed of hydrous nickel cobalt arsenate; occurs in fibrocrystalline form. { 'fórb·zīt }
- forebulge** An uplift at the edge of a glacier caused by tilting of the lithosphere. { 'fór·bəl·j }
- foredeep** 1. A long, narrow depression that borders an orogenic belt, such as an island arc, on the convex side. 2. See exogeosyncline. { 'fór·dēp }
- foredune** A coastal dune or ridge that is parallel to the shoreline of a large lake or ocean and is stabilized by vegetation. { 'fór·dün }
- foreign inclusion** A fragmentary piece of country rock which is enclosed in an igneous intrusion. { ʃfär·ən in'klü·zhən }
- foreland** 1. A lowland area onto which piedmont glaciers have moved from adjacent

- mountains. **2.** A stable part of a continent bordering an orogenic or mobile belt. { 'fôr·lænd }
- foreland facies** See shelf facies. { 'fôr·lænd /fā·shēz }
- forellenstein** See troctolite. { fə'rel·ən·stīn }
- foreset bed** One of a series of inclined symmetrically arranged layers of a cross-bedding unit formed by deposition of sediments that rolled down a steep frontal slope of a delta or dune. { 'fôr·set /bed }
- foreshore** The zone that lies between the ordinary high and low watermarks and is daily traversed by the rise and fall of the tide. Also known as beach face. { 'fôr·shôr }
- formanite** A mineral composed of an oxide of uranium, zirconium, thorium, calcium, tantalum, and niobium with some rare-earth metals. { 'fôr·mā·nīt }
- formation** Any assemblage of rocks which have some common character and are mappable as a unit. { fôr'mā·shən }
- formation factor** A function of the porosity and internal geometry of a reservoir rock system, expressed as $F = \phi^{-m}$, where ϕ is the fractional porosity of the rock, and m is the cementation factor (pore-opening reduction). { fôr'mā·shən /fak·tər }
- formation pressure** See reservoir pressure. { fôr'mā·shən /presh·ər }
- forril farina** See rock milk. { 'fär·əl fār·rēn·ē }
- forsterite** Mg_2SiO_4 A whitish or yellowish, magnesium-rich variety of olivine. Also known as white olivine. { 'fôr·stərīt }
- fortification agate** See landscape agate. { 'förd·ə·fākā·shən /'agət }
- foshagite** $Ca_2Si_3O_{10}(OH)_2 \cdot 2H_2O$ A white mineral composed of a basic hydrous calcium silicate. { 'fō·shə·gīt }
- fossil dune** An ancient desert dune. { 'fäs·əl 'dün }
- fossil fuel** Any hydrocarbon deposit that may be used for fuel. Examples are petroleum, coal, and natural gas. { 'fäs·əl 'fyül }
- fossil permafrost** See passive permafrost. { 'fäs·əl 'pər·mæfröst }
- fossil reef** An ancient reef. { 'fäs·əl 'rēf }
- fossil resin** A natural resin in geologic deposits which is an exudate of long-buried plant life; for example, amber, retinite, and copal. { 'fäs·əl 'rez·ən }
- fossil soil** See paleosol. { 'fäs·əl 'sōil }
- fossil wax** See ozocerite. { 'fäs·əl 'waks }
- founder** To sink under water either by depression of the land or by rise of sea level, especially in reference to large crustal masses, islands, or significant portions of continents. { 'fau·n·dər }
- fourchite** A monchiquite that lacks feldspar and olivine. { 'fūr·shīt }
- fourmarierite** An orange-red to brown mineral composed of a hydrous oxide of lead and uranium. { fūr'mar·ē·ərīt }
- fowlerite** A zinc-bearing variety of rhodonite. { 'fau·lärīt }
- foyaite** A nepheline syenite composed chiefly of potassium feldspar. { 'fōi·yəīt }
- fractional crystallization** Separation of a cooling magma into multiple minerals as the different minerals cool and congeal at progressively lower temperatures. Also known as crystallization differentiation; fractionation. { 'frak·shən·əl /krist·əl·ə'zā·shən }
- fractionation** See fractional crystallization. { 'frak·shə'nā·shən }
- fractocoformity** The relation between conformable strata, where faulting of the older beds occurs at the same time as deposition of the newer beds. { 'frak·tō·kən'fôr·mäd·ē }
- fracture** **1.** A crack, joint, or fault in a rock due to mechanical failure by stress. Also known as rupture. **2.** A break in a mineral other than along a cleavage plane. { 'frak·shər }
- fracture cleavage** Cleavage that occurs in deformed but only slightly metamorphosed rocks along closely spaced, parallel joints and fractures. { 'frak·shər /klēv·ij }
- fracture-plane inclination** Gradient or inclination of the plane of fracture formed in a reservoir formation. { 'frak·shər /plān /in·klə'nā·shən }
- fracture system** A stress-related group of contemporaneous fractures. { 'frak·shər /sɪs·təm }
- fracture zone** An elongate zone on the deep-sea floor that is of irregular topography

fragipan

and often separates regions of different depths; frequently crosses and displaces the midoceanic ridge by faulting. { 'frak·shər·'zɔn }

fragipan A dense, natural subsurface layer of hard soil with relatively slow permeability to water, mostly because of its extreme density or compactness rather than its high clay content or cementation. { 'fraj·ə·pən }

framboid A microscopic aggregate of pyrite grains, often occurring in spheroidal clusters. { 'fram·boid }

framework **1.** In a sediment or sedimentary rock, the rigid arrangement created by particles that support one another at contact points. **2.** A fixed calcareous structure impervious to waves, built by sedentary organisms (for example, sponges, corals, and bryozoans) in a high-energy environment. { 'frām·wərk }

framework silicate See tectosilicate. { 'frām·wərk·sil·ə·kət }

francite A dark-gray or black massive mineral composed of lead antimony tin sulfide { 'frānj·kə·tīt }

francolite $\text{Ca}_5(\text{PO}_4)_3(\text{F},\text{OH})$ Colorless fluoride-bearing carbonate-apatite { 'frānj·kə·līt }

Franconian A North American stage of geologic time; the middle Upper Cambrian. { 'frānj·kō·nē·ən }

franklinite ZnFe_2O_4 Black, slightly magnetic mineral member of the spinel group, usually possesses extensive substitution of divalent manganese and iron for the divalent zinc, and limited trivalent manganese for the trivalent iron. { 'frānj·klə·nīt }

free-burning coal See noncaking coal. { 'frē·bər·ɪŋ·'kōl }

free face A vertical or steeply inclined layer of rock from which weathered material falls to form talus at its base. { 'frē·'fās }

freestone Stone, particularly a thick-bedded, even-textured, fine-grained sandstone, that breaks freely and is able to be cut and dressed with equal facility in any direction without tending to split. { 'frē·stōn }

freibergite A steel-gray, silver-bearing variety of tetrahedrite. { 'frī·bər·gīt }

freieslebenite $\text{Pb}_3\text{Ag}_3\text{Sb}_3\text{S}_{12}$ A steel-gray to dark mineral composed of a sulfide of antimony, lead, and silver. { 'frī·əs'lē·bər·nīt }

freirinite $\text{Na}_3\text{Cu}_3(\text{AsO}_4)_2(\text{OH})_3\cdot\text{H}_2\text{O}$ A lavender to turquoise-blue mineral composed of a basic hydrous arsenate of sodium and copper. { 'frā'rē·nīt }

fremontite See natromontebasite. { 'frē·mən·tīt }

fresh Unweathered in reference to a rock or rock surface. { fresh }

Fresnian A North American stage of upper Eocene geologic time, above Narizian and below Refugian. { 'frez·nē·ən }

frictional See cohesionless. { 'frik·shən·əl }

friction crack A short, crescent-shaped crack in glaciated rock produced by a localized increase in friction between rock and ice, oriented transverse to the direction of ice flow. { 'frik·shən·'krak }

friedelite $\text{Mn}_8\text{Si}_6\text{O}_{18}(\text{OH},\text{Cl})_4\cdot 3\text{H}_2\text{O}$ A rose-red mineral composed of manganese silicate with chlorine. { 'frē·de·līt }

fringe joint A small-scale joint peripheral to, and usually at a 5-25° angle from the face of, the master joint. { 'frinj·'jɔint }

fringe ore Ore located on the outer boundary of a mineralization pattern or halo. Also known as halo ore. { 'frinj·'ɔr }

fringing reef A coral reef attached directly to or bordering the shore of an island or continental landmass. { 'lfrɪn·jɪŋ·'rēf }

frohbergite FeTe_2 A mineral composed of iron telluride; it is isomorphous with marcasite. { 'frō·bər·gīt }

frondelite $\text{MnFe}_2(\text{PO}_4)_2(\text{OH})_2$ A mineral composed of basic phosphate of manganese and iron; it is isomorphous with rockbridgeite. { 'frān·de·līt }

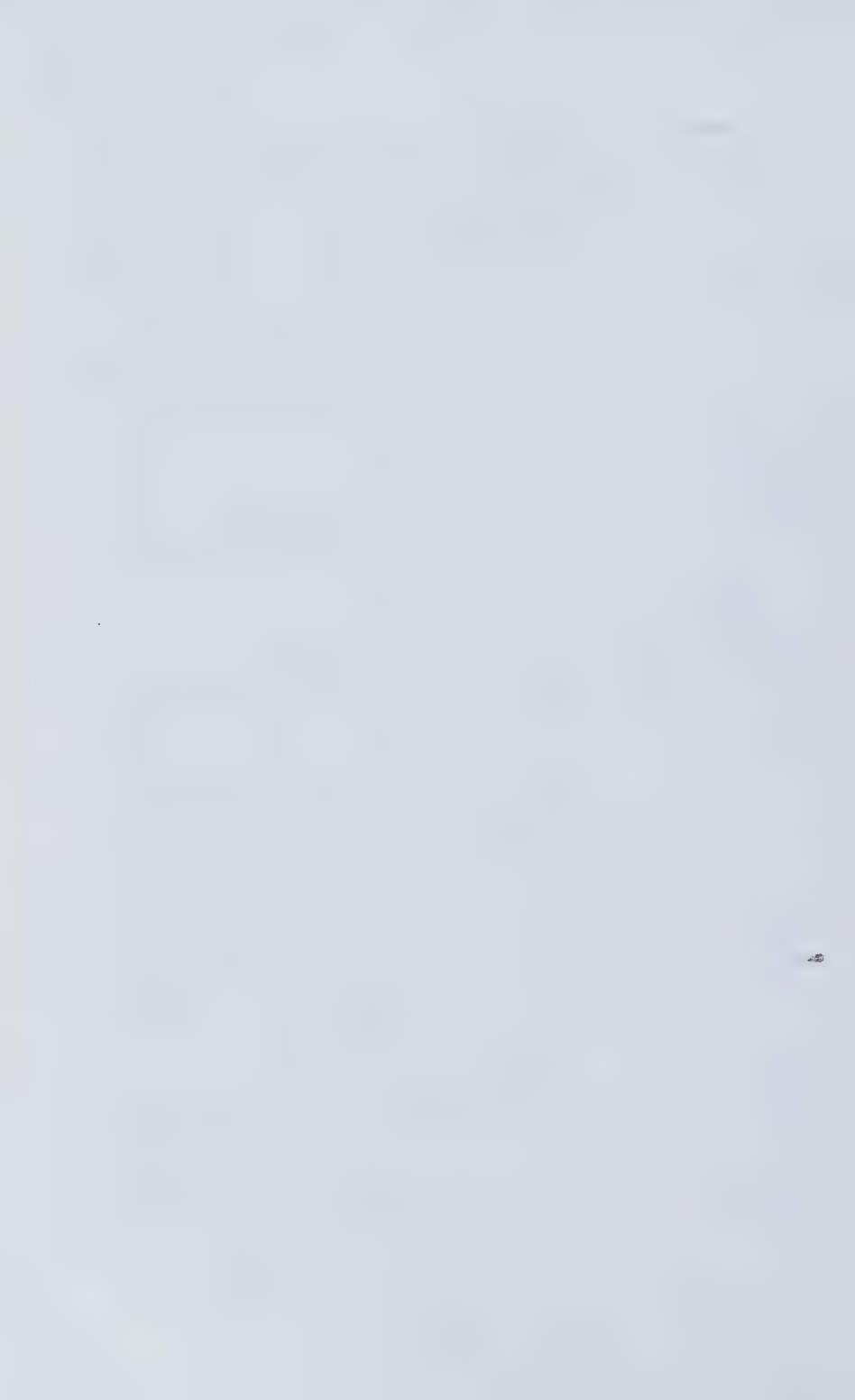
frontal apron See outwash plain. { 'lfrənt·əl·'ā·prən }

frontal plain See outwash plain. { 'lfrənt·əl·'plān }

front slope See scarp slope. { 'frənt·'slōp }

frost action **1.** The weathering process caused by cycles of freezing and thawing of water in surface pores, cracks, and other openings. **2.** Alternate or repeated cycles of

- freezing and thawing of water contained in materials; the term is especially applied to disruptive effects of this action. { 'fröst ʷak·shən }
- frost boil** 1. An accumulation of water and mud released from ground ice by accelerated spring thawing 2. A low mound formed by local differential frost heaving at a location most favorable for the formation of segregated ice and accompanied by the absence of an insulating cover of vegetation. { 'fröst ʷböil }
- frost bursting** See congelifraction. { 'fröst ʷbærst·iŋ }
- frost churning** See congeliturbation. { 'fröst ʷchærn·iŋ }
- frost heaving** The lifting and distortion of a surface due to internal action of frost resulting from subsurface ice formation; affects soil, rock, pavement, and other structures. { 'fröst ʷhæv·iŋ }
- frost line** 1. The maximum depth of frozen ground during the winter 2. The lower limit of the permafrost. { 'fröst ʷlɪn }
- frost mound** A hill and knoll associated with frozen ground in a permafrost region, containing a core of ice. Also known as soffiosian knob; soil blister. { 'fröst ʷmaund }
- frost riving** See congelifraction. { 'fröst ʷrɪv·iŋ }
- frost shattering** See congelifraction. { 'fröst ʷshad·ə·riŋ }
- frost splitting** See congelifraction. { 'fröst ʷsplɪd·iŋ }
- frost stirring** See congelifraction. { 'fröst ʷstær·iŋ }
- frost table** An irregular surface in the ground which at any given time, represents the penetration of thawing into seasonally frozen ground. { 'fröst ʷtā·bəl }
- frost thrusting** Lateral dislocation of soil and rock materials by the action of freezing and resulting expansion of soil water. { 'fröst ʷθræst·iŋ }
- frost weathering** See congelifraction. { 'fröst ʷweth·ə·riŋ }
- frost wedging** See congelifraction. { 'fröst ʷweɪ·iŋ }
- frost zone** See seasonally frozen ground. { 'fröst ʷzōn }
- frozen ground** Soil having a temperature below freezing, generally containing water in the form of ice. Also known as gelisol; merzlotā; taele; tjaele. { 'fröz·ən ʷgraund }
- fuchsite** A bright-green variety of muscovite rich in chromium. { 'fyük·sɪt }
- fucoid** A tunnelike marking on a sedimentary structure identified as a trace fossil but not referred to a described genus. { 'fyü·kòid }
- fulgurite** A glassy, rootlike tube formed when a lightning stroke terminates in dry sandy soil; the intense heating of the current passing down into the soil along an irregular path fuses the sand. { 'fúl·gærɪt }
- fuller's earth** A natural, fine-grained earthy material, such as a clay with high adsorptive power, consists principally of hydrated aluminum silicates, used as an adsorbent in refining and decolorizing oils, as a catalyst, and as a bleaching agent { 'fúl æz lærth }
- fulopite** $Pb_3Sb_6S_{15}$ A lead gray, monoclinic mineral consisting of lead antimony sulfide. { 'fúl·ə·pɪt }
- fumarole** A hole, usually found in volcanic areas, from which vapors or gases escape { 'fyü·mæ·rəl }
- fundamental complex** An agglomeration of metamorphic rocks underlying sedimentary or unmetamorphosed rocks; specifically, an agglomeration of Archean rocks supporting a geological column. { 'fæn·dəɪment·əl ʷkäm·pleks }
- fundamental jelly** See ulmin. { 'fæn·dəɪment·əl ʷjel·ē }
- fundamental substance** See ulmin. { 'fæn·dəɪment·əl ʷsəb·stæns }
- fusain** The local lithotype strands or patches, characterized by silky luster, fibrous structure, friability, and black color. Also known as mineral charcoal; mother-of-coal. { 'fyü·zæn }
- fusinite** The micropetrological constituent of fusain which consists of carbonized woody tissue. { 'fyüz·ənɪt }
- fusionization** The process of formation of fusain in coal. { 'fyüz·ən·ə·zā·shən }
- fusion crust** A thin, glassy coating, usually black and rarely more than 1 millimeter thick, which is formed by ablation on the surface of a meteorite. { 'fyü·zhæn·kræst }



G

- gabbro** A group of dark-colored, intrusive igneous rocks with granular texture, composed largely of basic plagioclase and clinopyroxene. { 'gab·rō }
- gadolinite** $\text{Be}_2\text{FeY}_2\text{Si}_2\text{O}_{10}$ A black, greenish-black, or brown rare-earth mineral, hardness is 6.5-7 on Mohs scale, and specific gravity is 4-4.5. { 'gad·əl·ə·nīt }
- gageite** $(\text{Mn},\text{Mg},\text{Zn})_8\text{Si}_3\text{O}_{14} \cdot 2\text{H}_2\text{O}$ (or $3\text{H}_2\text{O}$) A mineral composed of a hydrous silicate of manganese, magnesium, and zinc. { 'gā·jīt }
- gahnite** ZnAl_2O_4 A usually dark-green, but sometimes yellow, gray, or black spinel mineral consisting of an oxide of zinc and aluminum. Also known as zinc spinel. { 'gā·nīt }
- galaxite** MnAl_2O_4 A black mineral of the spinel series composed of an oxide of manganese and aluminum. { 'gā·lak·sīt }
- galena** PbS A bluish-gray to lead-gray mineral with brilliant metallic luster, specific gravity 7.5, and hardness 2.5 on Mohs scale; occurs in cubic or octahedral crystals, in masses, or in grains. Also known as blue lead; lead glance. { gə'lē·nə }
- galenic** Containing galena. Also known as galenical. { gə'len·ik }
- galenical** See galenic. { gə'len·i·kəl }
- galenobismutite** PbBi_2S_4 A lead-gray or tin-white mineral consisting of bismuth sulfide; specific gravity is 6.9. { gə'lē·nō'biz·mə'tīt }
- gallery** 1. A horizontal, or nearly horizontal, underground passage. 2. A subsidiary passage in a cave at a higher level than the main passage. { 'gal·rē }
- galmei** See hemimorphite. { gəl'mī }
- gangue** The valueless rock or aggregates of minerals in an ore. { gɑŋ }
- ganister** A fine, hard quartzose sandstone, used to make refractory silica brick to line furnace reactors. { 'gan·ə·stər }
- ganomalite** $(\text{Ca}_2)\text{Pb}_2\text{Si}_2\text{O}_{11}$ A colorless to gray silicate of lead with calcium crystallizing in the tetragonal system. { gə'nām·ə'līt }
- ganophyllite** $(\text{Na},\text{K})(\text{Mn},\text{Fe},\text{Al})_5(\text{Si},\text{Al})_6\text{O}_{15}(\text{OH})_5 \cdot 2\text{H}_2\text{O}$ A brown, prismatic crystalline or foliated mineral composed of a hydrous silicate of manganese and aluminum. { 'gan·ə'fī'līt }
- garnet** A generic name for a group of mineral silicates that are isometric in crystallization and have the general chemical formula $\text{A}_3\text{B}_2(\text{SiO}_4)_3$, where A is Fe^{2+} , Mn^{2+} , Mg, or Ca, and B is Al, Fe^{3+} , Cr^{3+} , or Ti^{3+} ; used as a gemstone and as an abrasive. { 'gär·nət }
- garnierite** $(\text{Ni},\text{Mg})_3\text{Si}_2\text{O}_5(\text{OH})_4$ An apple-green or pale-green, monoclinic serpentine, a gemstone and an ore of nickel. Also known as nepuite; noumeite. { 'gär·nē·ə'rīt }
- garronite** $\text{Na}_2\text{Ca}_2\text{Al}_2\text{Si}_{20}\text{O}_{64} \cdot 27\text{H}_2\text{O}$ A zeolite mineral belonging to the phillipsite group; crystallizes in the tetragonal system. { 'ga·rənīt }
- gas column** The difference in elevation between the highest and lowest parts of the various producing zones of a gas-producing formation. { 'gas·ka·ləm }
- gas-condensate reservoir** Hydrocarbon reservoir in which conditions of temperature and pressure have resulted in the condensation of the heavier hydrocarbon constituents from the reservoir gas. { 'gas·känd·ən·sāt·rez·əv·wār }
- gas-filled porosity** A reservoir formation in which the pore space is filled by gas instead of liquid hydrocarbons. { 'gas·fild pə'räs·əd·ē }

gas floor

- gas floor** In a sedimentary basin, the depth below which there is no-economic accumulation of gaseous hydrocarbons. { 'gas /flôr }
- gash fracture** Open gashes that are formed diagonally to a fault or fault zone. { 'gash /frak·chər }
- gash vein** A mineralized fissure that extends a short distance vertically { 'gash /vān }
- gaspeite** NaCO_3 An anhydrous normal carbonate mineral with calcite structure. { ga'spē·īt }
- gas pocket** A gas-filled cavity in rocks, especially above an oil pocket. { 'gas /pāk·ət }
- gas reservoir** An accumulation of natural gas found with or near accumulations of crude oil in the earth's crust. { |gas /rez·əv·wār }
- gas sand** A stratum of sand or porous sandstone from which natural gas may be extracted. { 'gas /sand }
- gas spurt** An accumulation of organic matter on certain strata caused by escaping gas. { 'gas /spərt }
- gas zone** A rock formation containing gas under a pressure large enough to force the gas out if tapped from the surface. { 'gas /zōn }
- gaufrage** See plaiting. { gō'frāzh }
- gaylussite** $\text{Na}_2\text{Ca}(\text{CO}_3)_2 \cdot 5\text{H}_2\text{O}$ A translucent, yellowish-white hydrous carbonate mineral, with a vitreous luster, crystallizing in the monoclinic system; found in dry lakes. { 'gā·lə·sīt }
- geanticline** A broad land uplift, refers to the land mass from which sediments in a geosyncline are derived. { ,jē'ant·i·klīn }
- gearsutite** $\text{CaAl}(\text{OH})\text{F}_4 \cdot \text{H}_2\text{O}$ A clayey mineral composed of hydrous calcium aluminum fluoride, occurring with cryolite. { jē'ārk·sə·tīt }
- gedanite** A brittle, wine-yellow variety of amber containing little succinic acid; found on the shore of the Baltic Sea. { 'ged·ən·īt }
- gedrite** An aluminous variety of the mineral anthophyllite. { 'je·drīt }
- gehlenite** $\text{Ca}_3\text{Al}_2\text{SiO}_7$ A mineral of the melilite group that crystallizes in the tetragonal crystal system and is isomorphous with akermanite; a green, resinous material found with spinel. { 'gā·lə·nīt }
- geikielite** MgTiO_3 A bluish-black or brownish-black mineral that crystallizes in the rhombohedral system and occurs in the form of rolled pebbles; it is isomorphous with ilmenite. { 'gē·kē·līt }
- gelifluction** The slow, continuous downslope movement of rock debris and water-saturated soil that occurs above frozen ground, as in most polar regions and in many high mountain ranges. Also known as congelifluction; gelisolifluction. { |jel·ə'flək·shən }
- gelifraction** See congeliturbation. { |jel·ə'frak·shən }
- gelisol** See frozen ground. { 'jel·ə·səl }
- gelisolifluction** See gelifluction. { jə·las·ə'fiək·shən }
- geliturbation** See congeliturbation. { ,jel·ə'ter'bāsh·ən }
- gelivation** See congelifraction. { |jel·əlvā·shən }
- gel mineral** See mineraloid. { 'jel /min·rəl }
- gelose** See ulmin. { 'je·lōs }
- gem** A natural or artificially produced mineral or other material that has sufficient beauty and durability for use as a personal adornment. { jem }
- gemology** The science concerned with the identification, grading, evaluation, fashioning, and other aspects of gemstones. { je'mäl·ə·jē }
- gemstone** A mineral or petrified organic matter suitable for use in jewelry. { 'jem·stōn }
- genesis rocks** Rocks that have retained their character from nearly 4.6×10^9 years ago, when planets were still occulting out of the cloud of dust and gas referred to as the solar nebula; examples are meteorites and asteroids. { 'jen·ə·səs·rāks }
- genetic facies** An ancient deposit of rocks which have been formed by similar sedimentary processes. { jə'ned·ik 'fā·shēz }
- gentnerite** $\text{Cu}_8\text{Fe}_3\text{Cr}_{11}\text{S}_{18}$ A sulfide mineral known only in meteorites. { 'jent·nə·rīt }
- geobotanical prospecting** The use of the distribution, appearance, and growth anomalies of plants in locating ore deposits. { |jē·ō·bəltan·ə·kəl 'präs·pek·tɪŋ }

- geocerite** A white, waxy mineral composed of carbon, oxygen, and hydrogen, occurring in brown coal. { ʃjē·ō'si·rīt }
- geochemistry** The study of the chemical composition of the various phases of the earth and the physical and chemical processes which have produced the observed distribution of the elements and nuclides in these phases. { ʃjē·ō'kēm·ə·strē }
- geochronology** **1.** The dating of the events in the earth's history. **2.** A system of dating developed for the purposes of study of the earth's history. { ʃjē·ō·krə'näl·ə·jē }
- geochronometry** The study of the absolute age of the rocks of the earth based on the radioactive decay of isotopes, such as ²³⁸U, ²³⁵U, ²³²Th, ⁸⁷Rb, ⁴⁰K, and ¹⁴C, present in minerals and rocks. { ʃjē·ō·krə'näm·ə·trē }
- geocosmogony** The study of the origin of the earth { ʃjē·ō·káz'mäj·ə·nē }
- geocronite** Pb₃(Sb,As)₂S₃ A mineral composed of lead-gray lead antimony arsenic sulfide. { jē'äk·rə'nīt }
- geode** A roughly spheroidal, hollow body lined inside with inward-projecting small crystals; found frequently in limestone beds but may occur in shale. { 'jē·ōd }
- geoflex** See orocline. { 'jē·ə·fleks }
- geognosy** The science dealing with the solid body of the earth as a whole, occurrences of minerals and rocks, and the origin of these and their relations. { jē'äg·nə·sē }
- geographical cycle** See geomorphic cycle. { ʃjē·ə'gräf·ə·kəl 'sī·kəl }
- geolith** See rock-stratigraphic unit. { 'jē·ə·lith }
- geologic age** **1.** Any great time period in the earth's history marked by special phases of physical conditions or organic development. **2.** A formal geologic unit of time that corresponds to a stage. **3.** An informal geologic time unit that corresponds to any stratigraphic unit. { ʃjē·ə'lāj·ik 'aj }
- geologic climate** See paleoclimate. { ʃjē·ə'lāj·ik 'klī·mət }
- geological oceanography** The study of the floors and margins of the oceans, including descriptions of topography, composition of bottom materials, interaction of sediments and rocks with air and sea water, the effects of movements in the mantle on the sea floor, and action of wave energy in the submarine crust of the earth. Also known as marine geology; submarine geology. { ʃjē·ə'lāj·ə·kəl ə·d·shə'näg·rə·fē }
- geological survey** **1.** An organization making geological surveys and studies. **2.** A systematic geologic mapping of a terrain. { ʃjē·ə'lāj·ə·kəl 'sə·və }
- geological transportation** Shifting of material by the action of moving water, ice, or air. { ʃjē·ə'lāj·ə·kəl ˌtranz·pər'tā·shən }
- geologic column** **1.** The vertical sequence of strata of various ages found in an area or region. Also known as column. **2.** The geologic time scale as represented by rocks { ʃjē·ə'lāj·ik 'kəl·əm }
- geologic erosion** See normal erosion. { ʃjē·ə'lāj·ik ə'rō·zhən }
- geologic log** A graphic presentation of the lithologic or stratigraphic units or both traversed by a borehole, used in petroleum and mining engineering as well as geological surveys. { ʃjē·ə'lāj·ik 'lög }
- geologic map** A representation of the geologic surface or subsurface features by means of signs and symbols and with an indicated means of orientation; includes nature and distribution of rock units, and the occurrence of structural features, mineral deposits, and fossil localities. { ʃjē·ə'lāj·ik 'map }
- geologic province** An area in which geologic history has been the same { ʃjē ə'lāj ik 'präv·əns }
- geologic section** Any succession of rock units found at the surface or below ground in an area. Also known as section. { ʃjē·ə'lāj·ik 'sek·shən }
- geologic structure** The total structural features in an area { ʃjē·ə'lāj·ik ˌstrək·chər }
- geologic thermometer** See geothermometer { ʃjē·ə'lāj·ik thər'mäm əd ər }
- geologic thermometry** See geothermometry { ʃjē ə'lāj ik thər'mäm ə trē }
- geologic time** The period of time covered by historical geology, from the end of the formation of the earth as a separate planet to the beginning of written history. { ʃjē·ə'lāj·ik 'tīm }
- geologic time scale** The relative age of various geologic periods and the absolute time intervals. { ʃjē·ə'lāj·ik 'tīm 'skāl }
- geologist** An individual who specializes in the geological sciences { jē'al ə ʃəst }

geomorphic cycle

- geomorphic cycle** The cycle of change in the surface configuration of the earth. Also known as cycle of erosion; geographical cycle. {ljē·ō'mōr·fik 'sī·kəl}
- geomorphology** The study of the origin of secondary topographic features which are carved by erosion in the primary elements and built up of the erosional debris. {ljē·ō·mōr'fāl·ə jē}
- geopetal** Pertaining to the top-to-bottom relations in rocks at the time of formation. {ljē·ə'ped·əl}
- geopetal fabric** The internal structure of a rock indicating the original orientation of the top-to-bottom strata. {ljē·ə'ped·əl 'fab·rik}
- geophysics** The physics of the earth and its environment that is, earth, air, and (by extension) space. {ljē·ə'fiz·iks}
- geopressurized geothermal system** A geothermal system dominated by the presence of hot fluids under high pressure (brine plus methane) and having higher-than-normal temperatures because of their low thermal conductivity, the presence of interbedded shale layers, or the existence of local, exothermic chemical reactions. {ljē·ō'presh·ə'rīzd ljē·ō'thər·mə'l 'sis·təm}
- Georges Banks** An elevation beneath the sea east of Cape Cod, Massachusetts. {jōr·jəz 'bənks}
- georgiadesite** $Pb_3(AsO_4)Cl_3$ A white or brownish-yellow mineral composed of lead chloroarsenate, occurring in orthorhombic crystals. {jōr'jäd·ə'sīt}
- georgiaite** Any of a group of North American tektites, 134 million years of age, found in Georgia. {jōr·jə'īt}
- geosere** A series of ecological climax communities following each other in geologic time and changing in response to changing climate and physical conditions. {jē·ō·sir}
- geosphere** 1. The solid mass of earth, as distinct from the atmosphere and hydrosphere. 2. The lithosphere, hydrosphere, and atmosphere combined. {jē·ō'sfir}
- geostatistics** A branch of applied statistics that focuses on mathematical description and analysis of geological observations. {jē·ō·stə'tis·tiks}
- geosynclinal couple** See orthogeosyncline. {ljē·ō·sin'klīn·əl 'kəp·əl}
- geosynclinal cycle** See tectonic cycle. {ljē·ō·sin'klīn·əl 'sī·kəl}
- geosynclinal facies** A sedimentary facies marked by great thickness, a generally argillaceous character, and few carbonate rocks. {ljē·ō·sin'klīn·əl 'fā·shēz}
- geosyncline** A part of the crust of the earth that sank deeply through time. {ljē·ō·sin'klīn}
- geotectogene** See tectogene. {ljē·ō'tek·tə·jēn}
- geotectonic cycle** See orogenic cycle. {ljē·ō·tek'tän·ik 'sī·kəl}
- geotectonics** See tectonics. {ljē·ō·tek'tän·iks}
- geothermal system** Any regionally localized geological setting where naturally occurring portions of the earth's internal heat flow are transported close enough to the earth's surface by circulating steam or hot water to be readily harnessed for use; examples are the Geysers Region of northern California and the hot brine fields in the Imperial Valley of southern California. {ljē·ō'thər·mə'l 'sis·təm}
- geothermometer** A mineral that yields information about the temperature range within which it was formed. Also known as geologic thermometer. {ljē·ō·thər'məm·əd·ər}
- geothermometry** Measurement of the temperatures at which geologic processes occur or occurred. Also known as geologic thermometry. {ljē·ō·thər'məm·ə·trē}
- gerhardtite** $Cu_2(NO_3)(OH)_3$ An emerald-green mineral composed of basic copper nitrate. {'ger·hård·īt}
- germanite** $Cu_3(Ge,Ga,Fe)(S,As)_4$ Reddish-gray mineral occurring in massive form, an important source of germanium. {'jər·mə'nīt}
- germination** See grain growth. {'jer·mə'nā·shən}
- gersdorffite** NiAsS A silver-white to steel-gray mineral, crystallizing in the isometric system; resembles cobaltite and may contain some iron and cobalt. Also known as nickel glance. {'gerz·dór·fīt}
- geyserite** See siliceous sinter. {'gī·zə·rīt}
- ghost** The discernible outline of the shape of a former crystal or of another rock struc-

ture that has been partly obliterated and has as its boundaries inclusions, bubbles or other foreign matter. Also known as phantom. { ɡōst }

giant granite See pegmatite. { ɟjī·ənt 'ɡran·ət }

giant's cauldron See giant's kettle. { ɟjī·əns 'kɔl·drən }

giant's kettle A cylindrical hole bored in bedrock beneath a glacier by water falling through a deep moulin or by boulders rotating in the bed of a meltwater stream. Also known as giant's cauldron; moulin pothole; potash kettle. { ɟjī·əns 'ked·əl }

gibbsite $Al(OH)_3$ A white or tinted mineral, crystallizing in the monoclinic system, a principal constituent of bauxite. Also known as hydrargillite. { 'ɡib·zīt }

Gibraltar stone See onyx marble. { ɟə'brɔld·ər 'stɔn }

gillespite $BaFeSi_4O_{10}$ A mica-like mineral composed of barium and iron silicate. { ɡə'le·spīt }

gilsonite A variety of asphalt, it has black color, brilliant luster, brown streaks, and conchoidal fracture. { 'ɡil·sə·nīt }

ginorite $Ca_2B_{14}O_{23} \cdot 8H_2O$ A white monoclinic mineral composed of hydrous borate of calcium. { 'jin·ə·rīt }

giobertite See magnesite. { 'jɔ·bər·tīt }

girdle With reference to a fabric diagram or equal-area projection net, a belt showing concentration of points which is approximately coincident with a great circle of the net and which represents orientation of the fabric elements. { 'ɡərd·əl }

gismondite $CaAl_2Si_2O_8 \cdot 4H_2O$ A light-colored mineral composed of hydrous calcium aluminum silicate, occurring in pyramidal crystals. { ɟiz'män·dīt }

glacial Pertaining to an interval of geologic time which was marked by an equatorward advance of ice during an ice age; the opposite of interglacial; these intervals are variously called glacial periods, glacial epochs, glacial stages, and so on. { 'glā·shəl }

glacial abrasion Alteration of portions of the earth's surface as a result of glacial flow { ɟglā·shəl ə'brā·zhən }

glacial accretion Deposition of material as a result of glacial flow { ɟglā·shəl ə'krē·shən }

glacial advance **1.** Increase in the thickness and area of a glacier **2.** A time period equal to that increase. { ɟglā·shəl əd'vəns }

glacial boulder A boulder moved to a point distant from its original site by a glacier { ɟglā·shəl 'bɔl·dər }

glacial deposit Material carried to a point beyond its original location by a glacier { ɟglā·shəl di'pāz·ət }

glacial drift All rock material in transport by glacial ice, and all deposits predominantly of glacial origin made in the sea or in bodies of glacial meltwater including rocks rafted by icebergs. { ɟglā·shəl 'drift }

glacial epoch **1.** Any of the geologic epochs characterized by an ice age, thus, the Pleistocene epoch may be termed a glacial epoch **2.** Generally, an interval of geologic time which was marked by a major equatorward advance of ice; the term has been applied to an entire ice age or (rarely) to the individual glacial stages which make up an ice age. { ɟglā·shəl 'ep·ək }

glacial erosion Movement of soil or rock from one point to another by the action of the moving ice of a glacier. Also known as ice erosion. { ɟglā·shəl ə'rɔ·zhən }

glacial flour See rock flour. { ɟglā·shəl 'flaʊ·ər }

glacial geology The study of land features resulting from glaciation { ɟglā·shəl ɟē'äl ə·jē }

glacial lake A lake that exists because of the effects of the glacial period { ɟglā·shəl 'lāk }

glacial maximum The time or position of the greatest extent of any glaciation, most frequently applied to the greatest equatorward advance of Pleistocene glaciation { ɟglā·shəl 'mak·sə·məm }

glacial outwash See outwash. { ɟglā·shəl 'aʊt·wāsh }

glacial period **1.** Any of the geologic periods which embraced an ice age, for example, the Quaternary period may be called a glacial period. **2.** Generally, an interval of

glacial plucking

- geologic time which was marked by a major equatorward advance of ice. { 'glā · shəl 'pir · ē · əd }
- glacial plucking** See plucking. { 'glā · shəl 'plək · iŋ }
- glacial retreat** A condition occurring when backward melting at the front of a glacier takes place at a rate exceeding forward motion. { 'glā · shəl ri'trēt }
- glacial scour** Erosion resulting from glacial action, whereby the surface material is removed and the rock fragments carried by the glacier abrade, scratch, and polish the bedrock. Also known as scouring. { 'glā · shəl 'skaür }
- glacial striae** Scratches, commonly parallel, on smooth rock surfaces due to glacial abrasion. { 'glā · shəl 'strī · i }
- glacial till** See till. { 'glā · shəl 'til }
- glacial trough** A deep U-shaped valley with steep sides that leads down from a cirque and was excavated by a glacier. { 'glā · shəl 'trɒf }
- glacial varve** See varve. { 'glā · shəl 'vārv }
- glaciated terrain** A region that once bore great masses of glacial ice a distinguishing feature is marks of glaciation. { 'glā · shē · əd tə'rān }
- glaciation** Alteration of any part of the earth's surface by passage of a glacier, chiefly by glacial erosion or deposition. { 'glā · shē'ā · shən }
- glacier table** A stone block supported by an ice pedestal above the surface of a glacier. { 'glā · shər 'tā · bəl }
- glacioluvial** Pertaining to streams fed by melting glaciers, or to the deposits and landforms produced by such streams. { 'glā · shē · ɔ'flū · vē · əl }
- glaciolacustrine** Pertaining to lakes fed by melting glaciers, or to the deposits forming therein. { 'glā · shē · ɔ · ləkəs · trən }
- glaciology** The study of existing or modern glaciers in their entirety. { 'glā · shē'äl · ə · jē }
- gladite** PbCuBi₂S₆ A lead gray mineral consisting of lead and copper bismuth sulfide, occurs as prismatic crystals. { 'glā · dīt }
- glance pitch** A variety of asphaltite having brilliant conchoidal fracture, and resembling gilsonite but having higher specific gravity and percentage of fixed carbon. { 'glans 'pich }
- glaserite** See arcanite. { 'glā · zə · rīt }
- glass schorl** See axinite. { 'glas 'shɔrl }
- glassy feldspar** See sanidine. { 'glās · ē 'fel · spär }
- glauberite** Na₂Ca(SO₄)₂ A brittle, gray-yellow monoclinic mineral having vitreous luster and saline taste. { 'glāu · bə · rīt }
- glaucocerinite** A mineral composed of a hydrous basic sulfate of copper, zinc, and aluminum. { 'glō · kō'se · rə · nīt }
- glaucocroite** CaMnSiO₄ A bluish-green mineral that is related to monticellite, is composed of calcium manganese silicate, and occurs in prismatic crystals. { 'glō · kə'krō · rīt }
- glaucodot** (Co,Fe)AsS A grayish-white, metallic-looking mineral composed of cobalt iron sulfarsenide, occurring in orthorhombic crystals. { 'glō · kə · dāt }
- glaconite** K₁₋₄(Fe,Mg,Al)₁₋₆(Si,Al)₃O₁₀(OH)₂ A type of clay mineral, it is dioctohedral and occurs in flakes and as pigmentary material. { 'glō · kə · nīt }
- glaconitic sandstone** A quartz sandstone or an arkosic sandstone that has many glauconite grains. { 'glō · kə'nid · ik 'san · stɒn }
- glaucophane** Na₂Mg₃Al₂Si₄ A blue to black monoclinic sodium amphibole; blue to black coloration with marked pleochroism. { 'glō · kə'fān }
- glaucophane schist** Metamorphic schist that contains glaucophane. { 'glō · kə'fān 'shist }
- glessite** Fossil resin similar to amber. { 'gle · sīt }
- gley** A sticky subsurface layer of clay in some waterlogged soils. { glā }
- glide fold** See shear fold. { 'glīd 'fɔld }
- globigerina ooze** A pelagic sediment consisting of than 30% calcium carbonate in the form of foraminiferal tests of which *Globigerina* is the dominant genus. { glō · bij · ə'rī · nə 'ūz }
- globular** See spherulitic. { 'glāb · yə · lər }

- globulite** A small, isotropic, globular or spherulelike crystallite; usually dark in color and found in glassy extrusive rocks. { 'gläb·yә·līt }
- glockerite** A brown, ochre yellow, black, or dull green mineral consisting of a hydrated basic sulfate of ferric iron, occurs in stalactitic, encrusting, or earthy forms { 'glä·kә·rīt }
- gloop** An opening in the roof of a sea cave. { glüp }
- glowing avalanche** See ash flow. { |glō·iŋ 'av·ә·lanch }
- glowing cloud** See nuée ardente. { |glō·iŋ 'klaüd }
- glyptolith** See ventifact. { 'glip·tә·lith }
- gmelinite** $(\text{Na}_2\text{Ca})\text{Al}_2\text{Si}_4\text{O}_{12}\cdot 6\text{H}_2\text{O}$ Zeolite mineral that is colorless or lightly colored and crystallizes in the hexagonal system. { gә'mel·ә·nīt }
- gneiss** A variety of rocks with a banded or coarsely foliated structure formed by regional metamorphism. { nīs }
- gneissic granodiorites** Granodiorite rocks with gneissic characteristics { 'nīs·ik |gra·nō'dī·ә·rīts }
- gobi** Sedimentary deposits in a synclinal basin. { 'gō·bē }
- goethite** $\text{FeO}(\text{OH})$ A yellow, red, or dark-brown mineral crystallizing in the orthorhombic system, although it is usually found in radiating fibrous aggregates, a common constituent of natural rust or limonite. Also known as xanthosiderite. { 'gә·tīt }
- gold beryl** See chrysoberyl. { 'gōld·ber·әl }
- goldschmidtine** See stephanite. { 'gōl·shmid·ēn }
- goldschmidtite** See sylvanite. { 'gōl·shmid·īt }
- Goldschmidt's mineralogical phase rule** The rule that the probability of finding a system with degrees of freedom less than two is small under natural rock-forming conditions. { 'gōl·shmits·min·ә·rә'lāj·ә·kәl |fāz·rül }
- Gondwanaland** The ancient continent that is supposed to have fragmented and drifted apart to form eventually the present continents. { gän'dwän·ә·land }
- gonnardite** $\text{Na}_2\text{CaAl}_2\text{Si}_6\text{O}_{20}\cdot 7\text{H}_2\text{O}$ Zeolite mineral occurring in fibrous, radiating spherules; specific gravity is 2.3. { 'gän·ә·dīt }
- goongarite** $\text{Pb}_2\text{Bi}_2\text{S}_7$ A mineral composed of a sulfide of lead and bismuth { gün'ga·rīt }
- gooseberry stone** See grossularite. { 'güs·ber·ē·stōn }
- gorceixite** $\text{BaAl}_2(\text{PO}_4)_2(\text{OH})_2\cdot \text{H}_2\text{O}$ A brown mineral composed of a hydrous basic phosphate of barium and aluminum. { 'gór·sәk·sīt }
- gordonite** $\text{MgAl}_2(\text{PO}_4)_2(\text{OH})_2\cdot 8\text{H}_2\text{O}$ A colorless mineral composed of a hydrous basic phosphate of magnesium and aluminum. { 'górd·ән·īt }
- goslarite** $\text{ZnSO}_4\cdot 7\text{H}_2\text{O}$ A white mineral composed of hydrous zinc sulfate { 'gäs·lä·rīt }
- gossan** A rusty, ferruginous deposit filling the upper regions of mineral veins and overlying a sulfide deposit; formed by oxidation of pyrites. Also known as capping; gozzan; iron hat. { 'gas·ән }
- Gotlandian** A geologic time period recognized in Europe to include the Ordovician, it appears before the Devonian. { gät'lan·dē·ән }
- gouge** Soft, pulverized mixture of rock and mineral material found along shear (fault) zones and produced by the differential movement across the plane of slippage. { gәüj }
- goyazite** $\text{SrAl}_4(\text{PO}_4)_2(\text{OH})_2\cdot \text{H}_2\text{O}$ A granular, yellowish-white mineral composed of a hydrous strontium aluminum phosphate. { 'gói·ә·zīt }
- gozzan** See gossan. { 'gäz·ән }
- graben** A block of the earth's crust, generally with a length much greater than its width that has dropped relative to the blocks on either side. { 'grä·bән }
- gradation** 1. The leveling of the land, or the bringing of a land surface or area to a uniform or nearly uniform grade or slope through erosion, transportation, and deposition. 2. Specifically, the bringing of a stream bed to a slope at which the water is just able to transport the material delivered to it. { grädä·shән }
- gradation period** The time during which the base level of the sea remains in one position. Also known as base-leveling epoch. { grädä·shән·pīr·ē·әd }
- grade** The slope of the bed of a stream, or of a surface over which water flows, upon

grade correction

which the current can just transport its load without either eroding or depositing. {grād}

grade correction See slope correction. { 'grād kə'rek·shən }

graded Brought to or established at grade. { 'grād·əd }

graded bedding A stratification in which each stratum displays a gradation in the size of grains from coarse below to fine above. { 'grād·əd 'bed·ɪŋ }

graded profile See profile of equilibrium. { 'grād·əd 'prō·fīl }

grade scale A continuous scale of particle sizes divided into a series of size classes. { 'grād ,skāl }

gradient The rate of descent or ascent (steepness of slope) of any topographic feature, such as streams or hillsides. { 'grād·ē·ənt }

grading The gradual reduction of the land to a level surface; for example, erosion of land to base level by streams. { 'grād·ɪŋ }

grafonite (Fe,Mn,Ca)₃(PO₄)₂ A salmon-pink mineral, crystallizing in the monoclinic system, and found as laminated intergrowths of triphylite; hardness is 5 on Mohs scale, and specific gravity is 3.7. { 'graf·tə·nīt }

grahamite **1.** A solid, jet-black hydrocarbon that occurs in veinlike masses; soluble in carbon disulfide and chloroform. **2.** See mesosiderite. { 'grā·ə·mīt }

grain The particles or discrete crystals that make up a sediment or rock. {grān }

grain diminution See degradation recrystallization. { 'grān dɪm·yə'nɪʃ·ən }

grain growth Enlargement of some individual crystals in a monomineralic rock, producing a coarser texture. Also known as germination. { 'grān ,grōθ }

grain size Average size of mineral particles composing a rock or sediment. { 'grān ,sɪz }

gramenite See nontronite. { 'gra·mə·nīt }

grandite A garnet that is intermediate in chemical composition between grossular and androditite. { 'gran·dīt }

granite A visibly crystalline plutonic rock with granular texture; composed of quartz and alkali feldspar with subordinate plagioclase and biotite and hornblende. { 'gran·ət }

granite-gneiss A banded metamorphic rock derived from igneous or sedimentary rocks mineralogically equivalent to granite. { 'gran·ət 'nɪs }

granite pegmatite See pegmatite. { 'gran·ət 'peg·mə'tīt }

granite porphyry See quartz porphyry. { 'gran·ət 'pɔr·fə·rē }

granite series A sequence of products that evolve continuously during crustal fusion; earlier products tend to be deep-seated, syntectonic, and granodioritic, and later products tend to be shallower, late syntectonic, or postsyntectonic, and more potassic. { 'gran·ət ,sɪr·ēz }

granite wash Material eroded from granites and redeposited, forming a rock with the same major mineral constituents as the original rock. { 'gran·ət ,wəʃ }

granitic batholith A granitic shield mass intruded as the fusion of older formations. { grə'nɪd·ɪk 'bath·ə·lɪθ }

granitic layer See sial. { grə'nɪd·ɪk 'lā·ər }

granitic magma A coarse-grained igneous rock. { grə'nɪd·ɪk 'mag·mə }

granitization A process whereby various types of rock may be converted to granite or closely related material. { ,gran·ət·ə'zā·shən }

granoblastic fabric The texture of metamorphic rocks composed of equidimensional elements formed during recrystallization. { 'gra·nō'blas·tɪk 'fab·rɪk }

granodiorite A visibly crystalline plutonic rock composed chiefly of sodic plagioclase, alkali feldspar, quartz, and subordinate dark-colored minerals. { 'gra·nō'di·ə·rīt }

granofels A medium- to coarse-grained metamorphic rock possessing a granoblastic fabric and either lacking foliation or lineation entirely or exhibiting such characteristics only indistinctly. { 'gran·ə·felz }

granogabbro Plutonic rock composed of quartz, basic plagioclase, potash-feldspar, and at least one ferromagnesian mineral; intermediate between a granite and a gabbro, and in a strict sense, a granodiorite with more than 50% boric plagioclase. { 'gra·nō'ga·brō }

granophyre A quartz porphyry or fine-grained porphyritic granite. { 'gran·ə·fɪr }

- granularity** The feature of rock texture relating to the size of the constituent grains or crystals. { ,gran·yə'lar·əd·ē }
- granule** A somewhat rounded rock fragment ranging in diameter from 2 to 4 millimeters; larger than a coarse sand grain and smaller than a pebble. { 'gran·yül }
- granulite** 1. Granite that contains muscovite 2. A relatively coarse, granuloblastic rock formed at the high temperatures and pressures of the granulite facies. { 'gran·yə·līt }
- granulite facies** A group of gneissic rocks characterized by a granoblastic fabric and formed by regional dynamothermal metamorphism at temperatures above 650°C and pressures of 3000-12,000 bars. { 'gran·yə·līt 'fā·shēz }
- granulometry** Measurement of grain sizes of sedimentary rock { ,gran·yə'lām·ə·trē }
- grapestone** A cluster of sand-size grains, such as calcareous pellets, held together by incipient cementation shortly after deposition, the outer surface is lumpy, resembling a bunch of grapes. { 'grāp·stōn }
- graphic granite** A distinct type of pegmatite in which quartz and orthoclase crystals grew together along a parallel axis. Also known as Hebraic granite; runite. { 'graf·ik'gran·ət }
- graphic intergrowth** An intergrowth of crystals, commonly feldspar and quartz, that produces a type of poikilitic texture in which the larger crystals have a fairly regular geometric outline and orientation, and resemble cuneiform writing. { 'graf·ik 'in·tər·grōth }
- graphic tellurium** See sylvanite. { 'graf·ik te'lür·ē·əm }
- graphic texture** A pattern of rocks that is similar to cuneiform characters { 'graf ik ,teks·chər }
- graphite** A mineral consisting of a low-pressure allotropic form of carbon, it is soft, black, and lustrous and has a greasy feeling; it occurs naturally in hexagonal crystals or massive or can be synthesized from petroleum coke; hardness is 1-2 on Mohs scale, and specific gravity is 2.09-2.23; used in pencils, crucibles, lubricants, paints, and polishes. Also known as black lead; plumbago. { 'graf·it }
- graptolite shale** Shale containing an abundance of extinct colonial marine organisms known as graptolites. { 'grap·tə'līt 'shāl }
- gratonite** $Pb_9As_4S_{15}$ A mineral composed of lead arsenic sulfide, occurring in rhombohedral crystals. { 'grat·ən·īt }
- gravel** A loose or unconsolidated deposit of rounded pebbles, cobbles, or boulders { 'grav·əl }
- gravel bank** A natural mound or exposed face of gravel particularly such a place from which gravel is dug. { 'grav·əl ,bāŋk }
- gravel desert** See reg. { 'grav·əl 'dez·ərt }
- gravitational settling** A movement of sediment resulting from gravitational forces { ,grav·ə'tā·shən·əl 'set·lɪŋ }
- gravitational sliding** Extensive sliding of strata down a slope of an uplifted area. Also known as sliding. { ,grav·ə'tā·shən·əl 'slīd·ɪŋ }
- gravity-collapse structure** See collapse structure { 'grav·əd·ē kə'ləps·strək chər }
- gravity drainage reservoir** A reservoir in which production is significantly affected by gas, oil, and water separating under the influence of gravity while production takes place. { 'grav·əd·ē 'drān·ij ,rez·əv,wär }
- gravity erosion** See mass erosion. { 'grav·əd·ē i,rō·zhən }
- gravity fault** See normal fault. { 'grav·əd·ē ,fəlt }
- gravity slope** The relatively steep slope on a hillside above the wash slope, usually situated at the angle of repose of the material eroded from it. { 'grav·əd·ē ,slɒp }
- gray antimony** See antimonite; jamesonite. { 'grā 'ant·ə·mō·nē }
- gray cobalt** See cobaltite. { 'grā 'kō·bɒlt }
- gray copper ore** See tetrahedrite. { 'gra 'kæp·ər ,òr }
- gray hematite** See specularite. { 'grā 'hē·mə·tīt }
- gray manganese ore** See manganite. { 'grā 'mæŋ·gə·nēs ,òr }
- graywacke** An argillaceous sandstone characterized by an abundance of unstable mineral and rock fragments and a fine-grained clay matrix binding the larger, sand-size detrital fragments. { 'grā·wak·ə }

greasy quartz

greasy quartz See milky quartz. { 'grē·sē 'kwōrts }

Great Ice Age The Pleistocene epoch. { 'grāt 'īs ,āj }

great soil group A group of soils having common internal soil characteristics; a subdivision of a soil order. { 'igrāt 'sōil ,grūp }

green chalcedony See chrysoprase. { 'grēn kal'sed·ən·ē }

greenlandite See columbite. { 'grēn·lænd·dīt }

Greenland spar See cryolite. { 'grēn·lænd 'spār }

green lead ore See pyromorphite. { 'grēn 'led 'ōr }

green mud **1.** A fine-grained, greenish terrigenous mud or oceanic ooze found near the edge of a continental shelf at depths of 300-7500 feet (90-2300 meters). **2.** A deep-sea terrigenous deposit characterized by the presence of a considerable proportion of glauconite and calcium carbonate. { 'grēn 'məd }

greenockite CdS A green or orange mineral that crystallizes in the hexagonal system; occurs as an earthy encrustation and is dimorphous with hawleyite. Also known as cadmium blende; cadmium ocher; xanthochroite. { 'grē·nə·kīt }

greensand **1.** A greenish sand consisting principally of grains of glauconite and found between the low-water mark and the inner mud line. **2.** Sandstone composed of greensand with little or no cement. { 'grēn·sænd }

greenschist A schistose metamorphic rock with abundant chlorite, epidote, or actinolite present, giving it a green color. { 'grēn·shist }

greenschist facies Any schistose rock containing an abundance of green minerals and produced under conditions of low to intermediate temperatures (300-500°C) and low to moderate hydrostatic pressures (3000-8000 bars). { 'grēn·shist 'fā·shēz }

greenstone **1.** Any altered basic igneous rock which is green due to the presence of chlorite, hornblende, or epidote. **2.** See nephrite. { 'grēn·stōn }

greenstone belts Oceanic and island arclike sequences that are similar to, and run to the south and north of, the Swaziland System. { 'grēn·stōn 'belts }

greenstone schist Greenstone with a foliated structure. { 'grēn·stōn 'shist }

greisen A pneumatolytically altered granite consisting of mainly quartz and a light-green mica. { 'grīz·ən }

grenatite See leucite; staurolite. { 'grēn·ətīt }

Grenville orogeny A Precambrian mountain-forming epoch { 'grēn·vəl ó'rāj·ə nē }

griffithite A micaceous mineral containing magnesium, iron, calcium, and aluminosilicate. { 'grif·ətīt }

grike A vertical fissure developed along a joint in limestone by dissolution of some of the rock. Also spelled gryke. { grīk }

griphite (Na,Al,Ca,Fe)₂Mn₂(PO₄)₅(OH)₄ Mineral composed of a basic phosphate of sodium, calcium, iron, aluminum, and manganese. { 'grī·fīt }

griquaite A hypabyssal rock that contains garnet and diopside and sometimes olivine or phlogopite, and is found in kimberlite pipes and dikes. { 'grē·kwə·rīt }

grit **1.** A hard, sharp granule, as of sand. **2.** A coarse sand. **3.** A sandstone composed of angular grains of different sizes. { grīt }

groove Glaciated marks of large size on rock. { grūv }

groove casts Rounded or sharp, crested, rectilinear ridges that are a few millimeters high and a few centimeters long; found on the undersurfaces of sandstone layers lying on mudstone. { 'grūv 'kasts }

grossular See grossularite. { 'gräs·yə·lər }

grossularite Ca₃Al₂(SiO₄)₃ The colorless or green, yellow, brown, or red end member of the garnet group, often occurring in contact-metamorphosis impure limestones. Also known as gooseberry stone; grossular. { 'gräs·yə·lə·rīt }

grothite See sphene. { 'grō·thīt }

ground **1.** Any rock or rock material. **2.** A mineralized deposit. **3.** Rock in which a mineral deposit occurs. { graünd }

ground ice mound A frost mound containing bodies of ice. Also known as ice mound. { 'graünd 'īs 'maünd }

groundmass See matrix. { 'graünd·mas }

ground moraine Rock material carried and deposited in the base of a glacier. Also known as bottom moraine; subglacial moraine. { 'graünd mə·rān }

- group** A lithostratigraphic material unit comprising several formations. { grüp }
- groutite** HMnO_2 A mineral of the diaspore group, composed of manganese, hydrogen, and oxygen; it is polymorphous with manganite. { 'gräu·tīt }
- growth fabric** Orientation of fabric elements independent of the influences of stress and resultant movement. { 'gröth ·fab·rik }
- growth lattice** The rigid, reef-building, in-place framework of an organic reef, consisting of skeletons of sessile organisms and excluding reef-flank and other associated fragmental deposits. Also known as organic lattice. { 'gröth ·lad·əs }
- gruenlingite** Bi_4TeS_3 A mineral composed of sulfide and telluride of bismuth. { 'grün·liŋ·tīt }
- grunerite** $(\text{Mg,Fe})_7\text{Si}_8\text{O}_{22}(\text{OH})_2$ Variety of amphibole; forms monoclinic crystals. { 'grün·ə·rīt }
- grus** See *gruss*. { grūs }
- gruss** A loose accumulation of fragmental products formed from the weathering of granite. Also spelled *grus*. { grūs }
- gryke** See *grike*. { grīk }
- Guadalupian** A North American provincial series in the Lower and Upper Permian, above the Leonardian and below the Ochoan. { 'gwäd·əl·ü·pē·ən }
- guanajuatite** Bi_2Se_3 Bluish-gray mineral composed of bismuth selenide, occurring in crystals or masses. { 'gwän·ə·hwä·tīt }
- gudmundite** FeSbS A silver-white to steel-gray orthorhombic mineral composed of a sulfide and antimonide of iron. { 'güd·män·dīt }
- guide fossil** A fossil used for rock correlation and age determination. { 'gīd ·fäs·əl }
- guldite** $(\text{Cu,Fe})_3(\text{Fe,Al})_4(\text{SO}_4)_7(\text{OH})_4 \cdot 15\text{H}_2\text{O}$ A dark-brown mineral composed of a basic hydrated sulfate of copper, iron, and aluminum. { 'gil·dīt }
- guitermanite** $\text{Pb}_{10}\text{Ar}_6\text{S}_{19}$ A bluish-gray mineral composed of lead, arsenic, and sulfur, occurring in compact masses. { 'gid·ər·mə·nīt }
- Gulfian** A North American provincial series in Upper Cretaceous geologic time, above the Comanchean and below the Paleocene of the Tertiary. { 'gəlf·ē·ən }
- gully erosion** Erosion of soil by running water. { 'gəl·ē i|rō·zhən }
- gumbo** A soil that forms a sticky mud when wet. { 'gəm·bō }
- gumbotil** Deoxidized, leached clay that contains siliceous stones. { 'gəm bō·til }
- gummite** Any of various yellow, orange, red, or brown secondary minerals containing hydrous oxides of uranium, thorium, and lead. Also known as uranium ochre. { 'gə·mīt }
- Günz** A European stage of geologic time, in the Pleistocene (above Astian of Pliocene, below Mindel); it is the first stage of glaciation of the Pleistocene in the Alps. { gints }
- Günz-Mindel** The first interglacial stage of the Pleistocene in the Alps, between Günz and Mindel glacial stages. { 'gints 'mind·əl }
- gut** **1.** A narrow water passage such as a strait. **2.** A channel deeper than the surrounding water; generally formed by water in motion. { gət }
- guyot** A seamount, usually deeper than 100 fathoms (180 meters), having a smooth platform top. Also known as tablemount. { gē'ō }
- gymnite** See *deweylite*. { 'jim·nīt }
- gypcrete** A type of duricrust composed of hydrous calcium sulfate. { 'jip·krēt }
- gypsite** A variety of gypsum consisting of dirt and sand, found as an efflorescent deposit in arid regions, overlying gypsum. Also known as gypsum earth. { 'jip·sīt }
- gypsum** $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ A mineral, the commonest sulfate mineral, crystals are monoclinic, clear, white to gray, yellowish, or brownish in color, with well-developed cleavages; luster is subvitreous to pearly, hardness is 2 on Mohs scale, and specific gravity is 2.3; it is calcined at 190-200°C to produce plaster of paris. { 'jip·səm }
- gypsum earth** See *gypsite*. { 'jip·səm lə'əth }
- gyttja** A fresh-water anaerobic mud containing an abundance of organic matter, capable of supporting aerobic life. { 'yi·chä }

H

- hackly fracture** A break in a mineral characterized by jagged irregular surfaces with sharp edges. { 'hæk·lē 'fræk·chər }
- hackmanite** A mineral of the sodalite family containing a small amount of sulfur, fluoresces orange or red in ultraviolet light. { 'hæk·mə·nīt }
- hade** **1.** The angle of inclination of a fault as measured from the vertical **2.** The inclination angle of a vein or lode. { hād }
- haidingerite** $\text{HCaAsO}_4 \cdot \text{H}_2\text{O}$ A white mineral composed of hydrous calcium arsenate { 'hī·dīŋ·ə·rīt }
- hair copper** See chalcotrichite. { 'her·kæp·ər }
- hair pyrites** See millerite. { 'her 'pī·rīts }
- hair salt** See alunogen. { 'her 'sölt }
- hairstone** Quartz embedded with hairlike crystals of rutile, actinolite or other mineral { 'her·stōn }
- haldenhang** See wash slope. { 'hal·dæn·hæŋ }
- halite** NaCl Native salt; an evaporite mineral occurring as isometric crystals or in massive, granular, or compact form. Also known as common salt; rock salt. { 'ha·līt }
- Hallian** A North American stage of Pleistocene geologic time, above the Wheelerian and below the Recent. { 'hōl·ē·ən }
- halloysite** $\text{Al}_2\text{Si}_2\text{O}_5(\text{OH})_4 \cdot 2\text{H}_2\text{O}$ Porcelainlike clay mineral whose composition is like that of kaolinite but contains more water and is structurally distinct; varieties are known as metahalloysites. { hæ'lōi·sīt }
- halmeic** Referring to minerals or sediments derived directly from sea water. Also known as halmyrogenic; halogenic. { hal'mē·ik }
- halmyrogenic** See halmeic. { hal·mī·rə'jen·ik }
- halo** A ring or crescent surrounding an area of opposite sign, it is a diffusion of a high concentration of the sought mineral into surrounding ground or rock; it is encountered in mineral prospecting and in magnetic and geochemical surveys. { 'hā·lō }
- halogenic** See halmeic. { 'hal·ə'jen·ik }
- halogen mineral** Any of the naturally occurring compounds containing a halogen as the sole or principal anionic constituent. { 'hal·ə'jən·mīn·rəl }
- halokinesis** See salt tectonics. { 'hal·ə'kə'nē·səs }
- halo ore** See fringe ore. { 'hā·lō 'òr }
- halotrichite** **1.** $\text{FeAl}_2(\text{SO}_4)_4 \cdot 22\text{H}_2\text{O}$ A mineral composed of hydrous sulfate of iron and aluminum. Also known as butter rock; feather alum; iron alum; mountain butter. **2.** Any sulfate mineral resembling halotrichite in structure and habit. { ha'lä·trə·kīt }
- hamada** A barren desert surface composed of consolidated material usually consisting of exposed bedrock, but sometimes of consolidated sedimentary material { hæ'mä·də }
- hambergite** $\text{Be}_2\text{BO}_3\text{OH}$ A grayish-white or colorless mineral composed of beryllium borate and occurring as prismatic crystals, hardness is 7.5 on Mohs scale and specific gravity is 2.35. { 'ham·bær·gīt }
- hammarite** $\text{Pb}_2\text{Cu}_2\text{Bi}_4\text{S}_9$ A monoclinic mineral whose color is a steel gray with red tone; consists of lead and copper bismuth sulfide. { 'ham·ə·rīt }

hammock

hammock See hummock. { 'ham·ək }

hancocokite A complex silicate mineral containing lead, calcium, strontium, and other minerals; it is isomorphous with epidote. { 'han·kă·kīt }

hanger See hanging wall. { 'hanj·ər }

hanging See hanging wall. { 'hanj·iŋ }

hanging valley A valley whose floor is higher than the level of the shore or other valley to which it leads. { 'hanj·iŋ·'val·ē }

hanging wall The rock mass above a fault plane, vein, lode, ore body, or other structure. Also known as hanger; hanging; hanging side. { 'hanj·iŋ·'wól }

hanksite $\text{Na}_{2,7}\text{K}(\text{SO}_4)_9(\text{CO}_3)_2\text{Cl}$ A white or yellow mineral crystallizing in the hexagonal system; found in California. { 'hanj·k·sīt }

hannayite $\text{Mg}_3(\text{NH}_4)_2\text{H}_2(\text{PO}_4)_4 \cdot 8\text{H}_2\text{O}$ Mineral composed of hydrous acid ammonium magnesium phosphate; occurs as yellow crystals in guano. { 'ha·nē·īt }

hard coal See anthracite. { 'hărd·'kōl }

hardpan See caliche. { 'hărd·pan }

hard rock Rock which needs drilling and blasting for removal. { 'hărd·'răk }

hardystonite $\text{Ca}_2\text{ZnSi}_2\text{O}_7$ A white mineral composed of zinc calcium silicate. { 'hărd·dē·stə·nīt }

Harker diagram See variation diagram. { 'hărk·ər·dī·ə·gram }

Harlechian A European stage of geologic time: Lower Cambrian. { hăr·'lek·ē·ən }

harmonic folding Folding in the earth's surface, with no sharp changes with depth in the form of the folds. { hăr·'măn·ik·'fōld·iŋ }

harmotome $(\text{K},\text{Ba})(\text{Al},\text{Si})_2(\text{Si}_6\text{O}_{16}) \cdot 6\text{H}_2\text{O}$ A zeolite mineral with ion-exchange properties that forms cruciform twin crystals. Also known as cross-stone. { 'hăr·mə·tōm }

harstignite $\text{Be}_2\text{Ca}_3\text{Si}_3\text{O}_{11}$ A mineral composed of silicate of beryllium and calcium. { 'hărs·tə·gīt }

hartite A white, crystalline, fossil resin that is found in lignites. Also known as bom-biccite; branchite; hofmannite; josen. { 'hăr·tīt }

harzburgite A peridotite consisting principally of olivine and orthopyroxene. { 'hărts·bər·gīt }

hastingsite $\text{NaCa}_2(\text{Fe},\text{Mg})_5\text{Al}_2\text{Si}_6\text{O}_{22}(\text{OH})_2$ A mineral of the amphibole group crystallizing in the monoclinic system and composed chiefly of sodium, calcium, and iron, but usually with some potassium and magnesium. { 'hăs·tiŋ·zīt }

hatchettine See hatchettite. { 'ha·chəd·ēn }

hatchettite $\text{C}_{38}\text{H}_{78}$ A yellow-white mineral paraffin wax, melting at 55-65°C in the natural state and 79°C in the pure state; occurs in masses in ironstone nodules or in cavities in limestone. Also known as adipocerite; adipocire; hatchettine; mineral tallow; mountain tallow; naphthine. { 'ha·chəd·īt }

hatchettolite See ellsworthite. { 'ha·chəd·ō·līt }

hatchite A lead-gray mineral composed of sulfide of lead and arsenic; occurs in triclinic crystals. { 'ha·chīt }

hauerite MnS_2 A reddish-brown or brownish-black mineral composed of native manganese sulfide; occurs massive or in octahedral or pyritohedral crystals. { 'hau·ə·rīt }

haughtonite A black variety of biotite that is rich in iron. { 'hót·ən·rīt }

hausmannite Mn_3O_4 Brownish-black, opaque mineral composed of manganese tetroxide. { 'hăus·mä·nīt }

Hauterivian A European stage of geologic time, in the Lower Cretaceous, above Valanginian and below Barremian. { ö·trə·'vē·ən }

häüyne $(\text{Na},\text{Ca})_{4-8}(\text{Al}_6\text{Si}_6\text{O}_{24})(\text{SO}_4)_{1-2}$ An isometric silicate mineral of the sodalite group occurring as grains embedded in various igneous rocks; hardness is 5.5-6 on Mohs scale, and specific gravity is 2.4-2.5. Also known as häüynite. { ä·'wēn }

häüynite See häüyne. { ä·'wē·nīt }

hazel sandstone An arkosic, iron-bearing redbed sandstone from the Precambrian found in western Texas. { 'ha·zəl·san·stōn }

head erosion See headward erosion. { 'hed i·rō·zhən }

headwall The steep cliff at the back of a cirque. { 'hed·wól }

- headward erosion** Erosion caused by water flowing at the head of a valley. Also known as head erosion; headwater erosion. { 'hed · wərd i' rō · zhən }
- headwater erosion** See headward erosion. { 'hed · wəd · ər i' rō · zhən }
- heave** The horizontal component of the slip, measured at right angles to the strike of the fault. { hēv }
- heavy mineral** A mineral with a density above 2.9, which is the density of bromoform, the liquid used to separate the heavy from the light minerals. { 'hev · ē 'min · rəl }
- heazewoodite** Ni_3S_2 A meteorite mineral consisting of a sulfide of nickel. { 'hē · zəl · wú · dīt }
- Hebraic granite** See graphic granite. { hē'brā · ik 'gran · ət }
- hecatolite** See moonstone. { hək'at · əl · it }
- hectorite** $(Mg, Li)_3Si_4O_{10}(OH)_2$ A trioctohedral clay mineral of the montmorillonite group composed of a hydrous silicate of magnesium and lithium. { 'hek · tə · rīt }
- hedenbergite** $CaFeSi_2O_6$ A black mineral consisting of calcium-iron pyroxene and occurring at the contacts of limestone with granitic masses. { 'hed · ən · bər · gīt }
- hedleyite** A mineral composed of an alloy of bismuth and tellurium { 'hed · lē · tīt }
- hedrocraton** A craton that influenced later continental development. { 'hed · rē · ð'krā · tən }
- hedyphane** $(Ca, Pb)_2Cl(AsO_4)_3$ Yellowish-white mineral composed of lead and calcium arsenate and chloride; occurs in monoclinic crystals. { 'hed · ə · fān }
- Helderbergian** A North American stage of geologic time, in the lower Lower Devonian { 'hel · dər' bərg · ē · ən }
- helictite** A speleothem whose origin is similar to that of a stalactite or stalagmite but that angles or twists in an irregular fashion. { 'hē · lik · tīt }
- heliolite** See sunstone. { 'hē · lē · ə · līt }
- heliophyllite** $Pb_3As_2O_7Cl_4$ A yellow to greenish-yellow, orthorhombic mineral consisting of an oxychloride of lead and arsenic; occurs in massive and tabular form and as crystals. { 'hē · lē · ð'fi · līt }
- heliotrope** See bloodstone. { 'hē · lē · ə · tröp }
- hellandite** Mineral composed of silicate of metals in the cerium group with aluminum, iron, manganese, and calcium. { 'hel · ən · dīt }
- helvine** See helvite. { 'hel · vēn }
- helvite** $(Mn, Fe, Zn)_4Be_3(SiO_4)_3S$ A silicate mineral isomorphous with danalite and genthelvite. Also known as helvine. { 'hel · vīt }
- hemafibrite** $Mn_3(AsO_4)(OH)_3 \cdot H_2O$ brownish to garnet-red mineral composed of basic manganese arsenate. { 'hē · mə'fi · brīt }
- hematite** Fe_2O_3 An iron mineral crystallizing in the rhombohedral system, the most important ore of iron, it is dimorphous with maghemite, occurs in black metallic-looking crystals, in reniform masses or fibrous aggregates, or in reddish earthy forms. Also known as bloodstone; red hematite; red iron ore; red ocher; rhombohedral iron ore. { 'hē · mə · tīt }
- hematolite** $(Mn, Mg)_4Al(AsO_4)(OH)_8$ A brownish-red mineral composed of aluminum manganese arsenate; occurs in rhombohedral crystals. { 'he · məd · ð · līt }
- hematophanite** $Pb_5Fe_4O_{10}(Cl, OH)_2$ A mineral composed of oxychloride lead and iron { 'hē · mə'tāf · ə · nīt }
- hemicone** See alluvial cone. { 'he · mē · kōn }
- hemicrystalline** See hypocrystalline. { 'he · mē'krist · əl · ən }
- hemimorphite** $Zn_4Si_2O_7(OH)_2 \cdot H_2O$ A white, colorless, pale-green, blue, or yellow mineral having an orthorhombic crystal structure; an ore of zinc. Also known as calamine; electric calamine; galmei. { 'he · mē'mōr · fīt }
- hemipelagic sediment** Deposits containing terrestrial material and the remains of pelagic organisms, found in the ocean depths. { 'he · mē · pə'laj · ik 'sed · ə · mənt }
- Hemist** A suborder of the soil order Histosol, consisting of partially decayed plant residues and saturated with water most of the time. { 'he · mist }
- Hercules stone** See lodestone. { 'hər · kyə · lēz · stōn }
- Hercynian geosyncline** A principal area of geosynclinal sediment accumulation in Devonian time; found in south-central and southern Europe and northern Africa. { hār'sin · ē · ən 'jē · ð'sin · klīn }

Hercynian orogeny

Hercynian orogeny See Variscan orogeny. {hər'sin·ē·ən ó'räj·ə·nē }

hercynite (Fe,Mg)Al₂O₄ A black mineral of the spinel group; crystallizes in the isometric system. Also known as ferrosphenel; iron spinel. { 'hərs·ən·it }

herderite CaBe(PO₄)(F,OH) A colorless to pale-yellow or greenish-white mineral consisting of phosphate and fluoride of calcium and beryllium; hardness is 7.5-8 on Mohs scale, and specific gravity is 3.92. { 'hər·də·rit }

hervidero See mud volcano. { 'hər·vəid·ə·d }

hessite Ag₂Te A lead-gray sectile mineral crystallizing in the isometric system; usually massive and often auriferous. { 'he:sit }

hetaerolite ZnMn₂O₄ A black mineral consisting of zinc-manganese oxide found with chalcophanite. { hət'ir·əl·it }

heteroblastic Pertaining to rocks in which the essential constituents are of two distinct orders of magnitude of size. { 'hed·ə·rə'blas·tik }

heterochronism A phenomenon in which two similar geologic deposits may not be of the same age even though they underwent like processes of formation. { 'hed·ə'rək·rən·iz·əm }

heterogeneous reservoir Formation with two or more noncommunicating sand members, each possibly with different specific- and relative-permeability characteristics. { 'hed·ə·rə'jē·nē·əs 'rez·əv·wär }

heterogenite CoO(OH) A black cobalt mineral, sometimes with some copper and iron, found in mammillary masses. Also known as stainerite. { 'hed·ə'räj·ə·nit }

heteromorphite Pb₂Sb₂S₁₀ An iron black, monoclinic mineral consisting of lead antimony sulfide. { 'hed·ə·rə'mór·fit }

heterosite A mineral composed of phosphate of iron and manganese, it is isomorphous with purpurite. { 'hed·ə·rə'sit }

Hettangian A stage of Lower Jurassic geologic time. { he'tan·jē·ən }

heulandite CaAl₂Si₆O₁₆·5H₂O A zeolite mineral that crystallizes in the monoclinic system; often occurs as foliated masses or in crystal form in cavities of decomposed basic igneous rocks. { 'hyü·lən·dīt }

hewettite CaV₆O₁₆·9H₂O A deep-red mineral composed of hydrated calcium vanadate; found in silky orthorhombic crystal aggregates in Colorado, Utah, and Peru. { 'hyü·ətīt }

hexahedrite An iron meteorite composed of single crystals or aggregates of kamacite, usually containing 4-6% nickel in the metal phase. { 'hek·sə·he·drit }

hexahydrite MgSO₄·6H₂O A white or greenish-white monoclinic mineral composed of hydrous magnesium sulfate. { 'hek·sə'hī·drit }

hiatus A gap in a rock sequence due to a lack of deposition of a bed or to erosion of beds. { hī'äd·əs }

Hibernian orogeny See Erian orogeny. { hī'bər·nē·ən ó'räj·ə·nē }

hiddenite A transparent green or yellowish-green spodumene mineral containing chromium and valued as a gem. { 'hid·ən·it }

hieratite K₂SiF₆ A grayish mineral composed of potassium fluosilicate, occurs as deposits in volcanic holes. { 'hī·ər·ətīt }

hieroglyph Any sort of sedimentary mark or structure occurring on a bedding plane. { 'hī·rə·glif }

high-angle fault A fault with a dip greater than 45°. { 'hī·ræŋ·gəl 'fólt }

high-energy environment An aqueous sedimentary environment which features a high energy level and turbulent motion, created by waves, currents, or surf, which prevents the settling and piling up of fine-grained sediment. { 'hī·rən·ər·jē in'vī·ərən·mənt }

highland **1.** A lofty headland, cliff, or other high platform. **2.** A dissected mountain region composed of old folded rocks. { 'hī·lənd }

high quartz Quartz that was formed at high temperatures. { 'hī 'kwórts }

high-rank coal Coal consisting of less than 4% moisture when air-dried, or more than 84% carbon. { 'hī·ræŋk 'kól }

high-rank graywacke See feldspathic graywacke { 'hī·ræŋk 'grā·wak·ə }

high-volatile bituminous coal A bituminous coal composed of more than 31% volatile matter. { 'hī 'iväl·əd·əl bæltü·mə·nəs 'kól }

high-water platform See wave-cut bench. { 'hī 'hwód·ər 'plat·förm }

- hilgardite** $\text{Ca}_8(\text{B}_6\text{O}_{11})_3\text{Cl}_4 \cdot \text{H}_2\text{O}$ Colorless mineral composed of hydrous borate and chloride of calcium; occurs as monoclinic domatic crystals. { 'hil·gär·dīt }
- hill creep** Slow gravity movement of rock and soil waste down a steep hillside. Also known as hillside creep. { 'hil·krēp }
- hillebrandite** $\text{Ca}_2\text{SiO}_3(\text{OH})_2$ A white mineral composed of hydrous calcium silicate; occurs in masses. { 'hil·ə·bran·dīt }
- hillock** A small, low hill. { 'hil·ək }
- Hilt's law** The law that in a small area the deeper coals are of higher rank than those above them. { 'hilts·lò }
- hinge fault** A fault whose movement is an angular or rotational one on a side of an axis that is normal to the fault plane. { 'hinj·fólt }
- hinge line** **1.** The line separating the region in which a beach has been thrust upward from that in which it is horizontal. **2.** A line in the plane of a hinge fault separating the part of a fault along which thrust or reverse movement occurred from that having normal movement. { 'hinj·līn }
- hinsdalite** $(\text{Pb},\text{Sr})\text{Al}_3(\text{PO}_4)(\text{SO}_4)(\text{OH})_6$ A dark-gray or greenish rhombohedral mineral composed of basic lead and strontium aluminum sulfate and phosphate; occurs in coarse crystals and masses. { 'hin·dā·līt }
- hinterland** **1.** The region behind the coastal district **2.** The terrain on the back of a folded mountain chain. **3.** The moving block which forces geosynclinal sediments toward the foreland. { 'hin·tər·land }
- hisingerite** $\text{Fe}_2^3 \text{Si}_2\text{O}_5(\text{OH})_4 \cdot 2\text{H}_2\text{O}$ A black, amorphous mineral composed of hydrous ferric silicate; an iron ore. { 'hi·sɪŋ·ə·rīt }
- historical geology** A branch of geology concerned with the systematic study of bedded rocks and their relations in time and the study of fossils and their locations in a sequence of bedded rocks. { hi'stär·ə·kəl jē'äl·ə·jē }
- Histosol** An order of wet soils consisting mostly of organic matter, popularly called peats and mucks. { 'his·tə·sól }
- hitch** **1.** A fault of strata common in coal measures, accompanied by displacement. **2.** A minor dislocation of a vein or stratum not exceeding in extent the thickness of the vein or stratum. { hɪtʃ }
- hjelmite** A black mineral containing yttrium, iron, manganese uranium, calcium, columbium, tantalum, tin, and tungsten oxide; often occurs with crystal structure disrupted by radiation. { 'yel·mīt }
- hodgkinsonite** $\text{MnZnSiO}_5 \cdot \text{H}_2\text{O}$ A pink to reddish-brown mineral composed of hydrous zinc manganese silicate; occurs as crystals. { 'hāj·kən·sənīt }
- hoegbomite** $\text{Mg}(\text{Al},\text{Fe},\text{Ti})_4\text{O}_7$ A black mineral composed of an oxide of magnesium, aluminum, iron, and titanium. Also spelled högbomite. { 'häg·bə·mīt }
- hoernesite** $\text{Mg}_3\text{As}_2\text{O}_8 \cdot \text{H}_2\text{O}$ A white, monoclinic mineral composed of hydrous magnesium arsenate; occurs as gypsumlike crystals. { 'hər·nə·sīt }
- hofmannite** See hartite. { 'häf·mə·nīt }
- hogback** Alternate ridges and ravines in certain areas of mountains, caused by erosive action of mountain torrents. { 'häg·bak }
- högbomite** See hoegbomite. { 'häg·bə·mīt }
- hohmannite** $\text{Fe}_2(\text{SO}_4)_2(\text{OH})_2 \cdot 7\text{H}_2\text{O}$ A chestnut brown to burnt orange and amaranth red, triclinic mineral consisting of a hydrated basic sulfate of iron. { 'hō·mə·nīt }
- holdenite** A red, orthorhombic mineral composed of basic manganese zinc arsenate with a small amount of calcium, magnesium, and iron. { 'höl·də·nīt }
- hollandite** $\text{Ba}(\text{Mn}^{2+},\text{Mn}^{3+})_8\text{O}_{16}$ A silvery-gray to black mineral composed of manganate of barium and manganese; occurs as crystals. { 'hä·lən·dīt }
- holmquistite** $(\text{Na},\text{K},\text{Ca})\text{Li}(\text{Mg},\text{Fe})_3\text{Al}_2\text{Si}_8\text{O}_{22}(\text{OH})_2$ A bluish-black, orthorhombic mineral composed of alkali and silicate of iron, magnesium, lithium, and aluminum. { 'höm·kwɪ·stīt }
- Holocene** An epoch of the Quaternary Period from the end of the Pleistocene, around 10,000 years ago, to the present. Also known as Postglacial; Recent. { 'hō·lə·sēn }
- holoclastic** Being or belonging to ordinary (sedimentary) clastic rock { 'həl·ə·klastik }

holocrystalline

holocrystalline Pertaining to igneous rocks that are entirely crystallized minerals, without glass. { ˈhɑːl·əˈkrɪst·əl·ən }

holohyaline Pertaining to an entirely glassy rock. { ˈhɑːl·əˈhɪ·əl·ən }

holostratotype The originally defined stratotype. { ˈhɑːl·əˈstrəd·əˌtɪp }

homeoblastic Of a metamorphic crystalloblastic texture, having constituent minerals of approximately the same size. { ˈhɒ·mē·əˈblæs·tɪk }

homilite $\text{Ca}_2(\text{Fe,Mg})\text{B}_2\text{Si}_2\text{O}_{10}$ A black or blackish brown mineral composed of iron calcium borosilicate. { ˈhɑ·məˈlɪt }

homocline Any rock unit in which the strata exhibit the same dip. { ˈhɑ·məˈklɪn }

homologous **1.** Referring to strata, in separated areas, that are correlatable (contemporaneous) and are of the same general character or facies, or occupy analogous structural positions along the strike. **2.** Pertaining to faults, in separated areas, that have the same relative position or structure. { hɑˈmɒlə·ə·gəs }

honeycomb formation A rock stratum containing large cavities or caverns. { ˈhæn·ē·kɒm fɔːmə·ʃən }

hopeite $\text{Zn}_3(\text{PO}_4)_2 \cdot 4\text{H}_2\text{O}$ A gray, orthorhombic mineral composed of hydrous phosphate of zinc; specific gravity is 2.76-2.85; dimorphous with parahopeite. { ˈhɒ·pɪt }

horizon **1.** The surface separating two beds. **2.** One of the layers, each of which is a few inches to a foot thick, that make up a soil. { hɑˈrɪz·ən }

horizontal displacement See strike slip. { ˈhɑː·əˈzänt·əl dɪsˈpläs·mənt }

horizontal fold See nonplunging fold. { ˈhɑː·əˈzänt·əl ˈfɒld }

horizontal separation See strike slip. { ˈhɑː·əˈzänt·əl ˌsep·əˈrā·ʃən }

horn A topographically high, sharp, pyramid-shaped mountain peak produced by the headward erosion of mountain glaciers; the Matterhorn is the classic example. { hɔːn }

hornblende A general name given to the monoclinic calcium amphiboles that form an extensive solid-solution series between the various metals in the generalized formula $(\text{Ca,Na})_2(\text{Mg,Fe,Al})_5(\text{Al,Si})_8\text{O}_{22}(\text{OH,F})_2$. { ˈhɔːnˌblend }

hornblende A plutonic rock consisting mainly of hornblende { ˈhɔːn blen·dɪt }

hornfels A common name for a class of metamorphic rocks produced by contact metamorphism and characterized by equidimensional grains without preferred orientation. { ˈhɔːˌfelz }

hornfels facies Rock formed at depths in the earth's crust not exceeding 6.2 miles (10 kilometers) at temperatures of 250-800°C; includes albite-epidote hornfels facies, pyroxene-hornfels facies, and hornblende-hornfels facies. { ˈhɔːˌfelz ɪfä·ʃēz }

horn lead See phosgenite. { ˈhɔːn ˌled }

horn quicksilver See calomel. { ˈhɔːn ˈkwɪkˌsɪl·vər }

horn silver See cerargyrite. { ˈhɔːn ˌsɪl·vər }

hornstone See chert. { ˈhɔːnˌstɒn }

horse A large rock caught along a fault. { hɔːs }

horseback A low and sharp ridge of sand, gravel, or rock. { ˈhɔːsˌbæk }

horsetail ore An ore occurring in fractures which diverge from a larger fracture. { ˈhɔːsˌtāl ˈɔːr }

horsfordite Cu_3Sb A silver-white mineral composed of copper-antimony alloy. { ˈhɔːsˌfərˌdɪt }

horst **1.** A block of the earth's crust uplifted along faults relative to the rocks on either side. **2.** A mass of the earth's crust limited by faults and standing in relief. **3.** One of the older mountain masses limiting the Alps on the west and north. **4.** A knobby ledge of limestone beneath a thin soil mantle. { hɔːst }

hortonolite $(\text{Fe,Mg,Mn})_2\text{SiO}_4$ A dark mineral composed of silicate of iron, magnesium, and manganese; a member of the olivine series. { hɔːˈtän·əlˌɪt }

host rock Rock which serves as a host for other rocks or for mineral deposits. { ˈhɔːst ˌræk }

howardite An achondritic stony meteorite composed chiefly of calcic plagioclase and orthopyroxene. { ˈhɑu·ərˌdɪt }

howlite $\text{Ca}_2\text{B}_6\text{Si}_2\text{O}_{19}(\text{OH})_5$ A white mineral occurring in nodular or earthy form. { ˈhɑuˌlɪt }

huangho deposit A coastal-plain deposit comprising alluvium spread over a level sur-

- face (such as a floodplain) but extending into marine beds of equivalent age. { 'hɹwǝŋ | hō di . pǝz . ət }
- hudsonite** See cortlandite. { 'həd . sə . nīt }
- huebnerite** $MnWO_4$ A brownish-red to black manganese member of the wolframite series, occurring in short, monoclinic, prismatic crystals; isomorphous with ferberite. { 'hēb . nǝ . rīt }
- hühnerkobelite** $(Na,Ca)(Fe,Mn)_2(PO_4)_2$ A mineral composed of phosphate of sodium, calcium, iron, and manganese; it is isomorphous with varulite. { 'hyü . nǝr | kō . bǝ . līt }
- hulsite** $(Fe^{2+},Mg)_2(Fe^{3+},Sn)(BO_3)_2O_2$ A black mineral composed of iron calcium magnesium tin borate. { 'həl . sīt }
- humboldtine** $FeC_2O_4 \cdot 2H_2O$ A mineral composed of hydrous ferrous oxalate. Also known as humboldtite; oxalite. { 'həm . bōl . tēn }
- humic** Pertaining to or derived from humus. { 'hyü . mik }
- humic-cannel coal** See pseudocannel coal. { 'hyü . mik | kan . əl 'kōl }
- humic coal** A coal whose attritus is composed mainly of transparent humic degradation material. { 'hyü . mik 'kōl }
- humification** Formation of humus. { 'hyü . mə . fǝ 'kǝ . shən }
- humin** See ulmin. { 'hyü . mən }
- humite** **1.** A humic coal mineral. **2.** A series of magnesium neosilicate minerals closely related in crystal structure and chemical composition. { 'hyü . mīt }
- hummock** A rounded or conical knoll, mound, hillock, or other small elevation, generally of equal dimensions and not ridgelike. Also known as hammock. { 'həm . ək }
- hummocky** Any topographic surface characterized by rounded or conical mounds. { 'həm . ə . kē }
- Humol** A suborder of the soil order Spodosol having an accumulation of humus, and of aluminum but not iron. { 'hyü . mäd }
- humodurite** See translucent attritus. { 'hyü . mə | dū . rīt }
- humogelite** See ulmin. { 'hyü 'mäj . əl . rīt }
- Humox** A suborder of the soil order Oxisol that is high in organic matter, well drained but moist all or nearly all year, and restricted to relatively cool climates and high altitudes for Oxisols. { 'hyü . mäks }
- Humult** A suborder of the soil order Ultisol, well drained with a moderately thick surface horizon; formed under conditions of high rainfall distributed evenly over the year; common in southeastern Brazil. { 'hyü . mǝlt }
- humus** The amorphous, ordinarily dark-colored, colloidal matter in soil, a complex of the fractions of organic matter of plant, animal, and microbial origin that are most resistant to decomposition. { 'hyü . məs }
- huntite** $CaMg_3(CO_3)_4$ A white mineral consisting of calcium magnesium carbonate. { 'hən . tīt }
- hureaulite** $Mn_5H_2(PO_4)_4 \cdot 4H_2O$ A monoclinic mineral of varying colors consisting of a hydrated acid phosphate of manganese. { 'hyü . rō . līt }
- Huronian** The lower system of the restricted Proterozoic. { 'hyü 'rō . nē . ən }
- hutchinsonite** $(Pb,Tl)_2(Cu,Ag)As_5S_{10}$ Red mineral composed of sulfide of lead, copper, and arsenic, with varying amounts of thallium and silver, occurring in small orthorhombic crystals. { 'həch . ən . sə . nīt }
- huttonite** $ThSiO_4$ A colorless to pale-green monoclinic mineral composed of silicate of thorium; it is dimorphous with thorite. { 'hət . ən . rīt }
- hyacinth** See zircon. { 'hī . ə . sɪnθ }
- hyaline** Transparent and resembling glass. { 'hī . ə . lǝn }
- hyalinocrystalline** Of porphyritic rock texture, having the phenocrysts lying in a glassy ground mass. { 'hīl . ə . nō 'krist . əl . ən }
- hyalite** A colorless, clear or translucent variety of opal occurring as globular concretions or botryoidal crusts in cavities or cracks of rocks. Also known as Müller's glass; water opal. { 'hī . ə . līt }
- hyalobasalt** See tachylite. { 'hī . ə . lō . bǝ 'sōlt }
- hyaloclastite** A tufflike deposit formed by the flowing of basalt under water and ice and its consequent fragmentation. Also known as aquagene tuff. { 'hī . ə . lō 'kla . stīt }

hyaloophitic

- hyaloophitic** Of the texture of igneous rocks, being composed principally of a glassy ground mass with little interstitial texture. { hī·ə·lō·ō'fid·ik }
- hyalophane** $BaAl_2Si_2O_8$ A colorless feldspar mineral crystallizing in the monoclinic system; isomorphous with adularia. Also known as baryta feldspar. { hī'al·ə'fān }
- hyalopsite** See obsidian. { hī·ə'lāp'sīt }
- hyalotekite** $(Pb,Ca,Ba)_4BSi_6O_{17}(OH,F)$ A white gray mineral composed of borosilicate and fluoride of lead, barium, and calcium, occurring in crystalline masses. { hī·ə·lō'tek·īt }
- hybrid** Pertaining to a rock formed by the assimilation of two magmas. { hī·brəd }
- hydatogenesis** Crystallization and deposition of minerals from aqueous solutions. { hīd·ə·tō'jen·ə·səs }
- hydrated halloysite** See endellite. { hī·drād·əd hā'lōi·sīt }
- hydraulic ratio** The weight of a heavy mineral multiplied by 100 and divided by the weight of a hydraulically equivalent light mineral. { hī'drō·lik 'rā·shō }
- hydrobasaluminite** $Al_4(SO_4)(OH)_{10}·36H_2O$ Mineral composed of a hydrous sulfate and hydroxide of aluminum. { hī·drō'bas·ə'lūm·ə·nīt }
- hydrobiotite** A light-green, trioctahedral clay mineral of mixed layers of biotite and vermiculite. { hī·drō'bī·ə'tīt }
- hydroboracite** $CaMgB_6O_{11}·6H_2O$ A white mineral composed of hydrous calcium magnesium borate, occurring in fibrous and foliated masses. { hī·drō'bōr·ə·sīt }
- hydrocalumite** $Ca_2Al(OH)_7·3H_2O$ A colorless to light-green mineral composed of a hydrous hydroxide of calcium and aluminum. { hī·drō'kal·yə·mīt }
- hydrocerussite** $Pb_3(OH)_2(CO_3)_2$ A colorless mineral composed of basic lead carbonate, occurring as crystals in thin hexagonal plates. { hī·drō·sə'rə'sīt }
- hydrocyanite** See chalcocyanite. { hī·drə'sī·ə·nīt }
- hydrogarnet** One of a group of minerals having the general formula $A_3B_2(SiO_4)_{3-x}(OH)_{4x}$; isomorphous with certain garnets. { hī·drō'gār·nət }
- hydrogenic rock** See aqueous rock. { hī·drə'jen·ik 'rāk }
- hydrohalite** $Na_2Cl·2H_2O$ A mineral composed of hydrated sodium chloride, formed only from salty water cooled below 0°C. { hī·drə'hā'līt }
- hydrohalloysite** See endellite. { hī·drō·hā'lōi·zīt }
- hydrohetaerolite** $Zn_2Mn_4O_8·H_2O$ A dark brown to brownish-black mineral consisting of a hydrated oxide of zinc and manganese; occurs in massive form. { hī·drō·hā'tir·ə·līt }
- hydrokaolin** See endellite. { hī·drə'kā·ə·lən }
- hydrolaccolith** A frost mound. 0.3-20 feet (0.1-6 meters) in height having a core of ice and resembling a laccolith in section. Also known as cryolaccolith. { hī·drə'lak·ə·lith }
- hydrolith** **1.** A chemically precipitated aqueous rock, such as rock salt. **2.** A rock that is free of organic material. { hī·drə'lith }
- hydrologic sequence** A series of soil sections from differentiated parent material that shows increasing lack of drainage downslope. { hī·drə'lāj·ik 'sē·kwəns }
- hydrolyzate** A sediment characterized by elements such as aluminum, potassium, or sodium which are readily hydrolyzed. { hī'drāl·ə·zāt }
- hydromagnesite** $Mg_4(OH)_2(CO_3)_3·3H_2O$ A white, earthy mineral crystallizing in the monoclinic system and found in small crystals, amorphous masses, or chalky crusts. { hī·drō'mag·nə·zīt }
- hydrometamorphism** Alteration of rocks by material carried in solution by water without the influence of high temperature or pressure. { hī·drə·med·ə'mōr·fiz·əm }
- hydromica** Any of several varieties of muscovite, especially illite, which are less elastic than mica, have a pearly luster, and sometimes contain less potash and more water than muscovite. Also known as hydrous mica. { hī·drō'mī·kə }
- hydromorphic** Referring to an intrazonal soil with characteristics that were developed in the presence of excess water all or part of the time. { hī·drə'mōr·fik }
- hydrophilite** See chlorocalcite. { hī'drāf·ə·līt }
- hydrotalcite** $Mg_6Al_2(OH)_{16}(CO_3)·4H_2O$ Pearly-white mineral composed of hydrous aluminum and magnesium hydroxide and carbonate. { hī·drə'tal·sīt }

- hydrothermal** Of or pertaining to heated water, to its action, or to the products of such action. { 'hī·drə'thər·məɪ }
- hydrothermal alteration** Rock or mineral phase changes that are caused by the interaction of hydrothermal liquids and wall rock. { 'hī·drə'thər·məɪ·'ɒl·tə'rā·ʃən }
- hydrothermal deposit** A mineral deposit precipitated from a hot, aqueous solution { 'hī·drə'thər·məɪ di'pəz·ət }
- hydrothermal solution** Hot, residual watery fluids derived from magmas during the later stages of their crystallization and commonly containing large amounts of dissolved metals which are deposited as ore veins in fissures along which the solutions often move. { 'hī·drə'thər·məɪ sə'lū·ʃən }
- hydrothermal synthesis** Mineral synthesis in the presence of heated water { 'hī·drə'thər·məɪ 'sɪn·thə·səs }
- hydrotroilite** $FeS \cdot nH_2O$ A black, finely divided colloidal material reported in many muds and clays; thought to be formed by bacteria on bottoms of marine basins. { 'hī·drə'trɔɪ·lɪt }
- hydrotungstite** $H_2WO_4 \cdot H_2O$ A mineral composed of hydrous tungstic acid { 'hī·drə'tʌŋz·tɪt }
- hydrous** Indicating a definite proportion of combined water. { 'hī·drəs }
- hydrous mica** See hydromica. { 'hī·drəs 'mɪ·kə }
- hydroxylapatite** $Ca_5(PO_4)_3OH$ A rare form of the apatite group that crystallizes in the hexagonal system. { 'hī·dræk·səl'əp·ətɪt }
- hydroxylherderite** $CaBe(PO_4)(OH)$ A monoclinic mineral composed of a phosphate and hydroxide of calcium and beryllium; isomorphous with herderite. { 'hī·dræk·səl'hər·də·rɪt }
- hydrozincite** $Zn_5(OH)_5(CO_3)_2$ A white, grayish, or yellowish mineral composed of basic zinc carbonate, occurring as masses or crusts { 'hī·drə'zɪŋ·kɪt }
- hypabyssal rock** Those igneous rocks that rose from great depths as magmas but solidified as minor intrusions before reaching the surface. { 'hɪp·ə'bis·əl 'ræk }
- hypautomorphic** See hypidiomorphic. { 'hɪ'pɒd·ə'mɔr·fɪk }
- hypergene** See supergene. { 'hī·pər·jēn }
- hypersaline** Geologic material with high salinity. { 'hɪ·pər'sā·lēn }
- hypersthene** $(Mg,Fe)SiO_3$ A grayish, greenish, black, or dark-brown rock-forming mineral of the orthopyroxene group, with bronzelike luster on the cleavage surface. { 'hī·pər·sthēn }
- hypersthénfels** See norite. { 'hɪ·pər'sthēn·felz }
- hypidiomorphic** Of the texture of igneous rocks, having the crystals bounded partly by the crystal faces characteristic of the mineral species. Also known as hypautomorphic, subidiomorphic. { 'hɪ'pɪd·ē·ð'mɔr·fɪk }
- hypocrystalline** Pertaining to the texture of igneous rock characterized by crystalline components in an amorphous groundmass. Also known as hemicrystalline; hypohyaline; merocrystalline; micocrystalline; semicrystalline. { 'hɪ·pɒ'krɪst·əl·ən }
- hypogene** 1. Of minerals or ores, formed by ascending waters. 2. Of geologic processes, originating within or below the crust of the earth. { 'hɪ·pər·jēn }
- hypohyaline** See hypocrystalline. { 'hɪ·pɒ'hɪ·ə·lən }
- hypomagma** Relatively immobile, viscous lava that forms at depth beneath a shield volcano, is undersaturated with gases, and initiates volcanic activity. { 'hɪ·pɒ'mag·mə }
- hypothermal** Referring to the high-temperature (300-500°C) environment of hypothermal deposits. { 'hɪ·pɒ'thər·məɪ }
- hypothermal deposit** Mineral deposit formed at great depths and high (300-500°C) temperatures. { 'hɪ·pɒ'thər·məɪ di'pəz·ət }

- ianthinite** $2\text{UO}_3 \cdot 7\text{H}_2\text{O}$ A violet mineral composed of hydrous uranium dioxide, occurring as orthorhombic crystals. { ē'an·thə·nīt }
- ice age** A major interval of geologic time during which extensive ice sheets (continental glaciers) formed over many parts of the world. { 'īs ,āj }
- Ice Age** See Pleistocene. { 'īs ,āj }
- ice calving** See calving. { 'īs ,kav·iŋ }
- ice cave** A cave that is cool enough to hold ice through all or most of the warm season { 'īs ,kāv }
- ice-contact delta** A delta formed by a stream flowing between a valley slope and the margin of glacial ice. Also known as delta moraine; morainal delta. { 'īs 'län·tak ,del·tə }
- ice erosion** 1. Erosion due to freezing of water in rock fractures 2. See glacial erosion { 'īs i'rō·zhən }
- ice-laid drift** See till. { 'īs 'lād ,drift }
- Iceland agate** See obsidian. { 'īs·lənd 'ag·ət }
- Iceland crystal** See Iceland spar. { 'īs·lənd 'krist·əl }
- Iceland spar** A pure, transparent form of calcite found particularly in Iceland, easily cleaved to form rhombohedral crystals that are doubly refracting. Also known as Iceland crystal. { 'īs·lənd 'spär }
- ice mound** See ground ice mound. { 'īs ,maünd }
- ice push** Lateral pressure that is caused by expansion of shoreward-moving ice on a lake or a bay of the sea and that follows a rise in temperature. Also known as ice shove; ice thrust. { 'īs ,pʊʃ }
- ice-rafting** The transporting of rock and other minerals, of all sizes, on or within icebergs, ice floes, river drift, or other forms of floating ice. { 'īs ,raf·tiŋ }
- ice shove** See ice push. { 'īs ,shəv }
- ice spar** See sanidine. { 'īs ,spär }
- ice stone** See cryolite. { 'īs ,stōn }
- ice thrust** See ice push. { 'īs ,thrəst }
- ichnofacies** A recurrent assemblage of ichnofossils that represent certain environmental conditions. { 'ik·nō'fā·shēz }
- ichnofossil** See trace fossil. { 'ik·nə'fās·əl }
- ichor** A fluid rich in mineralizers. { 'ī·kòr }
- iddingsite** A reddish-brown mixture of silicates, forming patches in basic igneous rocks { 'id iŋ·zīt }
- idiogenous** See syngenetic. { ,id·ē'äj·ə·nəs }
- idioblast** A mineral constituent of a metamorphic rock formed by recrystallization which is bounded by its own crystal faces. { 'id·ē·ō·blast }
- idiochromatic** Having characteristic color, usually applied to minerals { 'id·ē·ō·krō'mad·ik }
- idiomorphic** See automorphic. { 'id·ē·ō'imòr·fik }
- idocrase** See vesuvianite. { 'ī·dō·krās }
- idrialite** A mineral composed of crystalline hydrocarbon, $\text{C}_{22}\text{H}_{14}$. { 'id·rē·əlīt }
- igneous** Pertaining to rocks which have congealed from a molten mass { 'ig nē·əs }

igneous complex

- igneous complex** An assemblage of igneous rocks that are intimately associated and roughly contemporaneous. { 'ig·nē·əs l'kām·pleks }
- igneous facies** A part of an igneous rock differing in structure, texture, or composition from the main mass. { 'ig·nē·əs l'fā·shēz }
- igneous mineral** Mineral material forming igneous rock. { 'ig·nē·əs l'min·rəl }
- igneous petrology** The study of igneous rocks their occurrence, composition, and origin. { 'ig·nē·əs pi'trāl·ə·jē }
- igneous province** See petrographic province. { 'ig·nē·əs prāv·əns }
- ignimbrite** A silicic volcanic rock that forms thick, compact, lavalike sheets over a wide area of New Zealand. Also known as flood tuff. { 'ig·nəm·brīt }
- ijolite** A plutonic rock of nepheline and 30-60% mafic materials, generally sodic pyroxene, with accessory apatite, sphene, calcite, and titaniferous garnet. { 'ē·ə·līt }
- ilesite** (Mn,Zn,Fe)SO₄·4H₂O A green mineral composed of hydrous manganese zinc iron sulfate. { 'il·zīt }
- Illinoian** The third glaciation of the Pleistocene in North America, between the Yarmouth and Sangamon interglacial stages. { 'il·ə·lnoi·ən }
- illite** A group of gray, green, or yellowish-brown micalike clay minerals found in argillaceous sediments; intermediate in composition and structure between montmorillonite and muscovite. { 'ilīt }
- illuvial** Pertaining to a region or material characterized by the accumulation of soil by the illuviation of another zone or material. { i'lü·vē·əl }
- illuvial horizon** See B horizon. { i'lü·vē·əl hə'rīz·ən }
- illuviation** The deposition of colloids, soluble salts, and small mineral particles in an underlying layer of soil. { i'lü·vē'ā·shən }
- illuvium** Material leached by chemical or other processes from one soil horizon and deposited in another. { i'lü·vē·əm }
- ilmenite** FeTiO₃ An iron-black, opaque, rhombohedral mineral that is the principal ore of titanium. Also known as mohsite; titanite iron ore. { il·mə·nīt }
- ilsemannite** A black, blue-black, or blue mineral composed of hydrous molybdenum oxide or perhaps sulfate, occurring in earthy massive form. { 'il·sə·mə·nīt }
- imbricate structure** 1. A sedimentary structure characterized by shingling of pebbles all inclined in the same direction with the upper edge of each leaning downstream or toward the sea. Also known as shingle structure. 2. Tabular masses that overlap one another and are inclined in the same direction. Also known as schuppen structure; shingle-block structure. { 'im·brə·kət 'strək·chər }
- imbrication** Formation of an imbricate structure. Also known as shingling. { 'im·brə'kā·shən }
- imerinite** Na₂(Mg,Fe)₆Si₈O₂₂(OH,OH)₂ A colorless to blue mineral composed of a basic silicate of sodium, iron, and magnesium, occurring as acicular crystals. { 'im·ə'rē·nīt }
- immature soil** See azonal soil. { 'im·ə'chūr 'sōil }
- impact cast** See prod cast. { 'im·pakt 'kast }
- impact crater** A crater formed on a planetary surface by the impact of a projectile. { 'im·pakt 'krād·ər }
- impactite** Glassy fused rock or meteor fragments resulting from heat of impact of a meteor on the earth. { 'im·pakt·īt }
- impact mark** See prod mark. { 'im·pakt 'märk }
- impression** A form left on a soft soil surface by plant parts; the soil hardens and usually the imprint is a concave feature. { im'presh·ən }
- imprint** See overprint. { 'im·print }
- imponite** A black, asphaltic pyrobitumen with a high fixed-carbon content derived from the metamorphosis of petroleum. { 'im·sə·nīt }
- incandescent tuff flow** See ash flow. { 'in·kən'des·ənt 'təf 'flō }
- incarbonization** See coalification. { in·kār·bə·nə'zā·shən }
- Inceptisol** A soil order characterized by soils that are usually moist, with pedogenic horizons of alteration of parent materials but not of illuviation. { in'sep·tə·sōl }
- incised meander** A deep, tortuous valley cut by a meandering stream that was rejuvenated. { in'sīzd mē'an·dər }

- inclination** The angle at which a geological body or surface deviates from the horizontal or vertical; often used synonymously with dip. { ɪŋ · klə' nā · shən }
- inclined bedding** A type of bedding in which the strata dip in the direction of current flow. { ɪn' klīnd ' bed · ɪŋ }
- inclined contact** A contact plane of gas or oil with water underlying, in which the plane slopes or is inclined. { ɪn' klīnd ' kən · takt }
- inclusion** A fragment of older rock enclosed in an igneous rock { ɪn' klü · zhən }
- incoaling** See coalification. { ɪn · kō' lā · shən }
- incoherent** Pertaining to a rock or deposit that is loose or unconsolidated, or that is unable to hold together firmly or solidly. { ɪn · kō' hir · ənt }
- incompetent bed** A bed not combining sufficient firmness and flexibility to transmit a thrust and to lift a load by bending. { ɪn' kām · pəd · ənt ' bed }
- incongruous** Of a drag fold, having an axis and axial surface not parallel to the axis and axial surface of the main fold to which it is related. { ɪn' kɑŋ · grü · əs }
- incumbent** Lying above, said of a stratum that is superimposed or overlies another stratum. { ɪn' kəm · bənt }
- inderborite** $\text{CaMgB}_6\text{O}_{11} \cdot 11\text{H}_2\text{O}$ A monoclinic mineral composed of hydrous calcium and magnesium borate. { ɪn · də' bō · rīt }
- inderite** $\text{Mg}_2\text{B}_6\text{O}_{11} \cdot 15\text{H}_2\text{O}$ A hydrated borate mineral. { ɪn · də · rīt }
- index mineral** A mineral whose first appearance in passing from low to higher grades of metamorphism indicates the outer limit of a zone. { ɪn · deks · mɪn · rəl }
- index plane** A surface used as a reference point in determining geological structure { ɪn · deks · plān }
- indialite** $\text{Mg}_2\text{Al}_4\text{Si}_5\text{O}_{18}$ A hexagonal cordierite mineral, it is isotypic with beryl { ɪn · də · ə · līt }
- indianite** A white porcelainlike clay mineral; a variety of halloysite found in Indiana { ɪn · də' a · nə · ɪt }
- Indiana limestone** See spargenite. { ɪn · də' a · nə ' līm · stōn }
- indicolite** An indigo-blue variety of tourmaline that is used as a gemstone. Also known as indigolite. { ɪn' dik · ə · līt }
- indigenous coal** See autochthonous coal. { ɪn' dij · ə · nə · s kōl }
- indigenous limonite** Sulfide-derived limonite that remains fixed at the site of the parent sulfide. { ɪn' dij · ə · nə · s ' lɪ · mə · nīt }
- indigo copper** See covellite. { ɪn · də · gō ' kəp · ər }
- indigolite** See indicolite. { ɪn · də · gō · līt }
- indirect stratification** See secondary stratification. { ɪn · də' rekt · strəd · ə · fə' kā · shən }
- induration** **1.** The hardening of a rock material by the application of heat or pressure or by the introduction of a cementing material **2.** A hardened mass formed by such processes. **3.** The hardening of a soil horizon by chemical action to form a hardpan. { ɪn · də' rā · shən }
- industrial diamond** Diamond that is too hard or too radial-grained to be used for jewel cutting. { ɪn' dəs · trē · əl ' dī · mənd }
- industrial jewel** A hard stone, such as ruby or sapphire, used for bearings and impulse pins in instruments and for recording needles. { ɪn' dəs · trē · əl ' jü · l }
- inertinite** A carbon-rich maceral group, which includes micrinite, sclerotinite, fusinite, and semifusinite. { ɪ' nɜrt · ən · ɪt }
- inesite** $\text{Ca}_2\text{Mn}_7\text{Si}_{10}\text{O}_{28}(\text{OH})_2 \cdot 5\text{H}_2\text{O}$ A pale-red mineral composed of hydrous manganese calcium silicate, occurring in small prismatic crystals or massive. { ɪn · ə · sīt }
- inface** See scarp slope. { ɪn' fās }
- infancy** The initial (youthful) or very early stage of the cycle of erosion characterized by smooth, nearly level erosional surfaces dissected by narrow stream gorges, numerous depressions filled by marshy lakes and ponds, and shallow streams. Also known as topographic infancy. { ɪn · fən · sē }
- infiltration** Deposition of mineral matter among the pores or grains of a rock by permeation of water carrying the matter in solution. { ɪn · fil' trā · shən }
- infiltration vein** Vein deposited in rock by percolating water { ɪn · fil' trā · shən vān }

infusorial earth

infusorial earth Formerly, and incorrectly, a soft rock or an earthy substance composed of siliceous remains of diatoms. { 'in·fyə'sór·ē·əl 'ərth }

ingrown meander A meander of a stream with an undercut bank on one side and a gentle slope on the other. { 'in·grŏn mē'an·dər }

initial dip See primary dip. { i'nish·əl 'dip }

initial landform A landform that is produced directly by epeirogenic, orogenic, or volcanic activity, and whose original features are only slightly modified by erosion. { i'nish·əl 'land·fŏrm }

injected Pertaining to intrusive igneous rock or other mobile rock that has erupted through rock walls to neighboring older rocks. { in'jek·təd }

injection Also known as intrusion, sedimentary injection **1.** A process by which sedimentary material is forced under abnormal pressure into a preexisting rock or deposit. **2.** A structure formed by an injection process. { in'jek·shən }

injection gneiss A composite rock with banding entirely or partly caused by layer-by-layer injection of granitic magma into rock layers. { in'jek·shən nŏs }

inlier A circular or elliptical area of older rocks surrounded by strata that are younger. { 'in·li·ər }

inner core The central part of the earth's core, extending from a depth of 3160 miles (5100 kilometers) to the center of the earth. Also known as sidersphere. { lin·ər 'kŏr }

inner mantle See lower mantle. { lin·ər 'mant·əl }

inorganic chert Chert derived from siliceous colloids precipitated from silica-saturated waters. { lin·ŏr'igan·ik 'chərt }

inosilicate A class or structural type of silicate in which the SiO_4 tetrahedrons are linked together by the sharing of oxygens to form linear chains of indefinite length. { lin·ŏ'sil·ə·kāt }

inselberg A large, steep-sided residual hill, knob, or mountain, generally rocky and bare, rising abruptly from an extensive, nearly level lowland erosion surface in arid or semiarid regions. Also known as island mountain. { 'in·səl·bærg }

inshore zone The zone of variable width extending from the shoreline at low tide through the breaker zone. { in·shŏr 'zŏn }

insoluble residue Material remaining after a geological specimen is dissolved in hydrochloric or acetic acid. { in'säl·yə·bəl 'rez·ə·dü }

interbedded Having beds lying between other beds with different characteristics { lin·tər'bed·əd }

intercalation A layer located between layers of different character. { in·tər·kə'lā·shən }

interference ripple mark A pattern resulting from two sets of symmetrical ripples formed by waves crossing at right angles. { in·tər'fir·əns 'rip·əl·mārk }

interfluve The area of land between two rivers, usually an upland or ridge between two adjacent valleys that contain streams flowing in approximately the same direction. { 'in·tər·flüv }

intergelisol See pereletok. { lin·tər'jel·ə·sŏl }

interglacial Pertaining to or formed during a period of geologic time between two successive glacial epochs or between two glacial stages. { lin·tər'glā·shəl }

intergrowth A state of interlocking of different mineral crystals because of simultaneous crystallization. { 'in·tər·grŏth }

interlobate moraine See intermediate moraine. { lin·tər'lŏ·bāt mə'rān }

intermediate layer See sima. { in·tər'mēd·ē·ət llā·ər }

intermediate moraine A type of lateral moraine formed at the junction of two adjacent glacial lobes. Also known as interlobate moraine. { in·tər'mēd·ē·ət mə'rān }

intermontane Located between or surrounded by mountains. { lin·tər'män·tān }

intermontane glacier A glacier that is formed by the confluence of several valley glaciers and occupies a trough between separate ranges of mountains. { lin·tər'män·tān 'glā·shər }

intermontane trough **1.** A subsiding area in an island arc of the ocean, lying between the stable elements of a region. **2.** A basinlike area between mountains. { in·tər'män·tān 'trŏf }

- internal cast** *See* steinkern. { in'tərn·əl 'kast }
- internal erosion** Erosion effected within a compacting sediment by movement of water through the larger pores. { in'tərn·əl i'rō·zhən }
- internal sedimentation** Accumulation of clastic or chemical sediments derived from the surface of, or within, a more or less consolidated carbonate sediment (mud or silt); deposited in secondary cavities formed in the host rock (after its deposition) by bending of laminae or by internal erosion or solution { in'tərn·əl 'sed·ə·mən'tā·shən }
- internides** The internal part of an orogenic belt, farthest away from the craton, which is commonly the site of a eugeosyncline during its early phases and is later subjected to plastic folding and plutonism. Also known as primary arc. { in'tər·nə'dēz }
- interpluvial** Pertaining to an episode or period of geologic time that was dryer than the pluvial period occurring before or after it. { 'in·tər'plü·vē·əl }
- intersertal** Referring to the texture of a porphyritic igneous rock in which the groundmass forms a small proportion of the rock, filling the interstices between unoriented feldspar laths. { in·tər'sərd·əl }
- interstadial** Pertaining to a period during a glacial stage in which the ice retreated temporarily. { 'in·tər'stād·ē·əl }
- interstice** A pore space within a rock or soil. { in'tərs·təs }
- intraclast** A fragment of limestone formed by erosion within a basin of deposition and redeposited there to form a new sediment. { 'in·trə·klast }
- intra-cratonic basin** *See* autogeosyncline. { in·trə·krə'tän·ik 'bā·sən }
- intraformational breccia** A rock resulting from cracking and desiccation-shrinking of a mud after withdrawal of water followed by almost contemporaneous sedimentation { in·trə'fór'māsh·ən·əl 'brech·ə }
- intraformational conglomerate** **1.** A conglomerate in which clasts and the matrix are contemporaneous in origin. **2.** A conglomerate formed in the midst of a geologic formation. { in·trə'fór'māsh·ən·əl kən'glām·ə·rət }
- intraformational fold** A minor fold confined to a sedimentary layer lying between undeformed beds. { in·trə'fór'māsh·ən·əl 'föld }
- intratelluric** **1.** Pertaining to a phenocryst that is formed earlier than its matrix **2.** Pertaining to a period in which igneous rocks crystallized prior to their eruption **3.** Located, formed, or originating at great depths within the earth. { in·trə·tə'lyūr·ik }
- intrazonal soil** A group of soils with well-developed characteristics that reflect the dominant influence of some local factor of relief, parent material, or age over the usual effect of vegetation and climate. { 'in·trə'zōn·əl 'sōil }
- intrusion** **1.** The process of emplacement of magma in preexisting rock. Also known as injection; invasion; irruption. **2.** A large-scale sedimentary injection. Also known as sedimentary intrusion. **3.** Any rock mass formed by an intrusive process. { in'trū·zhən }
- intrusive** Pertaining to material forced while still in a fluid state into cracks or between layers of rock. { in'trū·siv }
- invasion** **1.** The movement of one material into a porous reservoir area that has been occupied by another material. **2.** *See* intrusion; transgression. { in'vā·zhən }
- inversion** **1.** Development of inverted relief through which anticlines are transformed into valleys and synclines are changed into mountains. **2.** The occupancy by a lava flow of a ravine or valley that occurred in the side of a volcano. **3.** A diagenetic process in which unstable minerals are converted to a more stable form without a change in chemical composition. { in'vər·zhən }
- inverted** *See* overturned. { in'vərd·əd }
- inverted plunge** A plunge of a fold whose inclination has been carried past the vertical, so that the plunge is less than 90° in the direction opposite from the original attitude younger rocks plunge beneath the older rocks. { in'vərd·əd 'plənj }
- inverted relief** A topographic configuration that is opposite to that of the geologic structure, for example, where a valley occupies the site of an anticline { in'vərd əd ri'lēf }

inyoite

- inyoite** $\text{Ca}_2\text{B}_6\text{O}_{11} \cdot 13\text{H}_2\text{O}$ A colorless, monoclinic mineral consisting of a hydrous calcium borate; hardness is 2 on Mohs scale, and specific gravity is 2. { 'in·yō·īt }
- iodargyrite** AgI A yellowish or greenish hexagonal mineral composed of native silver iodide, usually occurring in thin plates. Also known as iodyrite. { i·ə'där·jə·rīt }
- iodobromite** Ag(Br,Cl,I) An isometric mineral composed of chloride, iodide, and bromide of silver; it is isomorphous with cerargyrite and bromyrite. { i·dō·də'brō·mīt }
- iodyrite** See iodargyrite. { i'äd·ə·rīt }
- ionite** See anauxite. { i·ə·nīt }
- lowan glaciation** The earliest substage of the Wisconsin glacial stage; occurred more than 30,000 years ago. { 'i·ə·wən 'glā·sē'ā·shən }
- ipsonite** The final stage of weathered asphalt; a black, infusible substance, only slightly soluble in carbon disulfide, containing 50-80% fixed carbon and very little oxygen. { 'ip·sə·nīt }
- iron alum** See halotrichite. { 'i·ərn 'al·əm }
- iron cordierite** See sekaninaite. { 'i·ərn 'kór·dē·ə·rīt }
- iron formation** Sedimentary, low-grade iron ore bodies consisting mainly of chert or fine-grained quartz and ferric oxide segregated in bands or sheets irregularly mingled. { 'i·ərn fōr'mā·shən }
- iron glance** See specularite. { 'i·ərn 'glans }
- iron hat** See gossan. { 'i·ərn 'hat }
- iron mica** See lepidomelane. { 'i·ərn 'mī·kə }
- iron ore** Rocks or deposits containing compounds from which iron can be extracted. { 'i·ərn 'ör }
- iron pyrites** See pyrite. { 'i·ərn 'pī·rīts }
- ironshot** Pertaining to a mineral with streaks or spots of iron or iron ore. { 'i·ərn 'shät }
- iron spar** See siderite. { 'i·ərn 'spär }
- ironstone** An iron-rich sedimentary rock, either deposited directly as a ferruginous sediment or resulting from chemical replacement. { 'i·ərn'stōn }
- iron-stony meteorite** See stony-iron meteorite. { 'i·ərn 'stō·nē 'mēd·ē·ə·rīt }
- irrotational strain** Strain in which the orientation of the axes of strain does not change. Also known as nonrotational strain. { iir·ə'tā·shən·əl 'strän }
- irruption** See intrusion. { i'rəp·shən }
- Irvingtonian** A stage of geologic time in southern California, in the lower Pleistocene, below the Rancholabrean. { 'är·viŋ'tō·nē·ən }
- isentropic map** A map indicating constant entropy function for facies. { i's·ən'trəp·ik 'map }
- ishikawaite** A black, orthorhombic mineral consisting essentially of uranium, iron, rare earth, and columbium oxide. { 'ish·ē'kā·wə·īt }
- ishkyldite** $\text{Mg}_{15}\text{Si}_{11}\text{O}_{27}(\text{OH})_{20}$ A mineral composed of a basic silicate of magnesium. { 'ish·kəl·dīt }
- isinglass** Sheet mica, usually in the form of single cleavage plates; used in furnace and stove doors. { 'iz·ən·glas }
- island mountain** See inselberg. { 'i·lənd 'maunt·ən }
- isochemical metamorphism** Theoretically, a metamorphism involving no great change in its chemical composition. Also known as treptomorphism. { i'sō'kem·ə·kəl 'med·ə'mör·fiz·əm }
- isochemical series** A series of rocks with identical chemical compositions. { i'sō'kem·ə·kəl 'sir·ēz }
- isoclasite** $\text{Ca}_2(\text{PO}_4)(\text{OH}) \cdot 2\text{H}_2\text{O}$ A white mineral composed of a basic hydrous calcium phosphate; occurring in small crystals or columnar forms. { i·sə'klā·sīt }
- isocline** A fold of strata so tightly compressed that parts on each side dip in the same direction. { 'i·sə·klīn }
- isofacies map** A stratigraphic map showing the distribution of one or more facies within a particular stratigraphic unit. { i'sə'fā·shēz 'map }
- isograd** A line on a map joining those rocks comprising the same metamorphic grade. { 'i·sə·grad }

- isohume** A line of a map or chart connecting points of equal moisture content in a coal bed. { 'I·sə,hyūm }
- isolith** A line on a contour-type map that denotes the aggregate thickness of a single lithology in a stratigraphic succession composed of one or more lithologies { 'I·sə,lith }
- isolith map** A contour-line map depicting the thickness of an exclusive lithology { 'I·sə,lith 'map }
- isomorph** See isomorphic mineral. { 'I·sə,mōrf }
- isomorphic mineral** Any two or more crystalline mineral compounds having different chemical composition but identical structure, such as the garnet series or the feldspar group. Also known as isomorph. { 'I·sə'mōr·fik 'min·rəl }
- isopach map** Map of the areal extent and thickness variation of a stratigraphic unit, used in geological exploration for oil and for underground structural analysis. { 'I·sə,pak 'map }
- isopachous line** One of the lines drawn on a map to indicate equal thickness { 'I·sə 'pak·əs 'līn }
- isostatic adjustment** See isostatic compensation { 'I·sə'stad ik ə'jəs·mənt }
- isostatic compensation** The process in which lateral transport at the surface of the earth by erosion or deposition is compensated by lateral movements in a subcrustal layer. Also known as isostatic adjustment; isostatic correction. { 'I·sə'stad·ik 'kām·pən'sā·shən }
- isostatic correction** See isostatic compensation { 'I·sə'stad·ik kə'rek·shən }
- isotropic fabric** A random orientation in space of the elements that compose a rock { 'I·sə'trə·pik 'fab·rik }
- itabirite** A laminated, metamorphosed, oxide-facies iron formation in which the original chert or jasper bands have been recrystallized into megascopically distinguished grains of quartz and in which the iron is present as thin layers of hematite, magnetite, or martite. { 'ēd·ə'bi,rīt }
- itacolumite** A fine-grained, thin-bedded sandstone or a schistose quartzite that contains mica, chlorite, and talc and that exhibits flexibility when split into slabs. Also known as articulite. { 'id·ə'käl·ə,mīt }
- I-type magma** Magma formed from igneous source materials { 'i ,tīp 'mag mə }

J

jacinth See zircon. { 'jas·ənth }

jack See sphalerite. { jak }

jacobsite $MnFe_2O_4$ A black magnetic mineral composed of an oxide of manganese and iron; a member of the magnetite series. { 'jā·kəb·zīt }

jacupirangite An ultramafic plutonic rock that is part of the ijolite series, composed chiefly of titanaugite and magnetite, with a smaller amount of nepheline. { jə'kü·pə·rən·jīt }

jade A hard, compact, dark-green or greenish-white gemstone composed of either jadeite or nephrite. Also known as jadestone. { jād }

jadeite $NaAl(SiO_3)_2$ A clinopyroxene mineral occurring as green, fibrous monoclinic crystals; the most valuable variety of jade. { 'jā·dīt }

jadeitite A type of metamorphic rock composed of jadeite associated with small amounts of feldspar or feldspathoids. { 'jād·ə·tīt }

jadestone See jade. { 'jād·stōn }

jamesonite $Pb_4FeSb_6S_{14}$ A lead-gray to gray-black mineral that crystallizes in the orthorhombic system, occurs in acicular crystals with fibrous or featherlike forms, and has a metallic luster. Also known as feather ore; gray antimony. { 'jām·sə·nīt }

jarlite $NaSr_3Al_3F_{16}$ A colorless to brownish mineral composed of aluminum fluoride of sodium and strontium. { 'yār·līt }

jarosite $KFe_3(SO_4)_2(OH)_6$ An ochre-yellow or brown alunite mineral having rhombohedral crystal structure. Also known as utahite. { jə'rō·sīt }

jaspagate See agate jasper. { 'jas·pə·gət }

jasper A dense, opaque to slightly translucent cryptocrystalline quartz containing iron oxide impurities; characteristically red. Also known as jasperite; jasperoid; jaspis { 'jas·pər }

jasperite See jasper. { 'jas·pə·rīt }

jasperoid See jasper. { 'jas·pə·rōid }

jaspilite A compact siliceous rock resembling jasper and containing iron oxides in bands. { 'jas·pə·līt }

jaspis See jasper. { 'jas·pəs }

jaspoïd See tachylite. { 'jas·pōid }

jaw The side of a narrow passage such as a gorge. { jɔ }

jeffersonite $Ca(Mn,Zn,Fe)Si_2O_6$ A dark-green or greenish-black mineral composed of pyroxene. { 'jef·ər·ə·nīt }

jelly See ulmin. { 'jel·ē }

jeremejevite $AlBO_3$ A colorless or yellowish mineral composed of aluminum borate that occurs in hexagonal crystals. { ,yer·ə'mā·ə·vīt }

jet coal A hard, lustrous, pure black variety of lignite, occurring in isolated masses in bituminous shale; thought to be derived from waterlogged driftwood. Also known as black amber. { 'jet 'l kōl }

jezekite See morinite. { 'jez·ə·kīt }

joaquinite $NaBa_2Ce_2Fe(Ti,Nb)_2Si_8O_{26}(OH,F)_2$ A honey-yellow mineral composed of sodium iron titanium silicate, occurring in orthorhombic crystals. { wə'kē·nīt }

johannite $Cu(UO_2)_2(SO_4)_2 \cdot 6H_2O$ An emerald green to apple green, triclinic mineral consisting of a hydrated basic copper and uranium sulfate. { jō'hā·nīt }

johannsenite

johannsenite $\text{CaMnSi}_3\text{O}_6$ A clove-brown, grayish, or greenish clinopyroxene mineral composed of a silicate of calcium and manganese; a member of the pyroxene group. {jō'hän·sə·nīt }

johnstrupite A mineral that is composed of a complex silicate of cerium and other metals, approximately $(\text{Ca},\text{Na})_3(\text{Ce},\text{Ti},\text{Zr})(\text{SiO}_4)_2\text{F}$; occurs in prismatic crystals. { 'jän·strə·pīt }

joint A fracture that traverses a rock and does not show any discernible displacement of one side of the fracture relative to the other. { 'jōint }

joint block A body of rock that is bounded by joints. { 'jōint 'bläk }

joint drag See kink band. { 'jōint 'drag }

jointing A condition of rock characterized by joints. { 'jōint 'iŋ }

joint plane The surface of fracturing or potential fracture of a joint. { 'jōint 'plān }

joint set A group of parallel joints in a geologic formation. { 'jōint 'set }

joint system Two or more joint sets. { 'jōint 'sis·təm }

joint vein A small vein in a joint. { 'jōint 'vān }

jordanite $(\text{Pb},\text{Tl})_{13}\text{As}_7\text{S}_{23}$ A lead-gray mineral composed of lead arsenic sulfide, occurring as monoclinic crystals. { 'jörd·ən·īt }

joseite $\text{Bi}_3\text{Te}(\text{Si},\text{S})$ A mineral composed of telluride of bismuth containing sulfur and selenium. { zhə'zā·īt }

josen See hartite. { 'jō·sən }

josephinite A mineral consisting of an alloy of iron and nickel; occurs naturally in stream gravel. { 'jō·zə'fē·nīt }

julienite $\text{Na}_2\text{Co}(\text{SCN})_4 \cdot 8\text{H}_2\text{O}$ A blue, tetragonal mineral consisting of a hydrated sodium cobalt thiocyanate. { 'jül·yə·nīt }

Jurassic Also known as Jura. **1.** The second period of the Mesozoic era of geologic time. **2.** The corresponding system of rocks. { jə'ras·ik }

jurupaite $(\text{Ca},\text{Mg})_2(\text{Si}_2\text{O}_7)(\text{OH})_2$ A mineral composed of hydrous calcium magnesium silicate. { hə'rüp·ə·īt }

juvenile rift A stage of continental breakup before the onset of actual spreading which precedes the generation of new oceanic lithosphere. { 'jü·və·nəl 'rift }

juvite A light-colored nepheline syenite in which the feldspar is exclusively or predominantly orthoclase and the potassium oxide content is higher than the sodium oxide content. { 'jü·vīt }

- K-A age** The radioactive age of a rock determined from the ratio of potassium-40 (^{40}K) to argon-40 (^{40}A) present in the rock. { 'kā'ā' rāj }
- kainite** $\text{MgSO}_4 \cdot \text{KCl} \cdot 3\text{H}_2\text{O}$ A white, gray, pink, or black monoclinic mineral, occurring in irregular granular masses, used as a fertilizer and as a source of potassium and magnesium compounds. { 'kī'nīt }
- kainosite** $\text{Ca}_2(\text{Ce,Y})_2(\text{SiO}_4)_3\text{CO}_3 \cdot \text{H}_2\text{O}$ A yellowish-brown mineral composed of a hydrous silicate and carbonate of calcium, cerium, and yttrium. { 'kī'nə'sīt }
- kaliborite** $\text{HKMg}_2\text{B}_2\text{O}_{21} \cdot 9\text{H}_2\text{O}$ A colorless to white mineral composed of a hydrous borate of potassium and magnesium. Also known as paternoite. { 'kal·ə'bō'rīt }
- kalicinite** KHCO_3 A colorless to white or yellowish, monoclinic mineral consisting of potassium bicarbonate; occurs in crystalline aggregates. { kə'lis·ən'īt }
- kalinite** $\text{KAl}(\text{SO}_4)_2 \cdot 11\text{H}_2\text{O}$ A birefringent mineral of the alum group composed of a hydrous sulfate of potassium and aluminum, occurring in fibrous form. Also known as potash alum. { 'kal·ə'nīt }
- kaliophilite** KAlSiO_4 A rare hexagonal tectosilicate mineral found in volcanic rocks high in potassium and low in silica, it is dimorphous with kalsilite. Also known as facellite; phacellite. { 'kal·ē'āf·ə'līt }
- kalkowskite** $\text{Fe}_2\text{Ti}_3\text{O}_9$ A rare, brownish or black mineral composed of an oxide of iron and titanium, usually with small amounts of rare-earth elements, niobium, and tantalum. { kal'kōf'sīt }
- kalsilite** KAlSiO_4 A rare mineral from volcanic rocks in southwestern Uganda the crystal system is hexagonal, kalsilite is dimorphous with kaliophilite and sometimes contains sodium. { 'kal·sə'līt }
- kalinite** The naturally occurring form of alum. { 'kal·ə'nīt }
- kamacite** A mineral composed of a nickel-iron alloy and comprising with taenite the bulk of most iron meteorites. { 'kam·ə'sīt }
- kame** A low, long, steep-sided mound of glacial drift, commonly stratified sand and gravel, deposited as an alluvial fan or delta at the terminal margin of a melting glacier { kām }
- kame terrace** A terracelike ridge deposited along the margins of glaciers by meltwater streams flowing adjacent to the valley walls. { kām 'ter·əs }
- Kansan glaciation** The second glaciation of the Pleistocene epoch in North America, began about 400,000 years ago, after the Aftonian and before the Yarmouth interglacials. { 'kan·zən 'glā·sē'ā·shən }
- kansite** See mackinawite. { 'kan·zīt }
- kaolin** **1.** Any of a group of clay minerals, including kaolinite, nacrite, dickite, and anauxite, with a two-layer crystal in which silicon-oxygen and aluminum-hydroxyl sheets alternate, approximate composition is $\text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2 \cdot 2\text{H}_2\text{O}$ **2.** A soft, nonplastic white rock composed principally of kaolin minerals. Also known as bolus alba, white clay. { 'kā·ə'lən }
- kaolinite** $\text{Al}_2\text{Si}_2\text{O}_5(\text{OH})_4$ The principal mineral of the kaolin group of clay minerals, a white, gray or yellowish high-alumina mineral consisting of sheets of tetrahedrally coordinated silicon linked by an oxygen shared with octahedrally coordinated aluminum. { 'kā·ə'lə'nīt }

kaolinization

kaolinization The forming of kaolin by the weathering of aluminum silicate minerals or other clay minerals. { 'kā · ə · lə · nə 'zā · shən }

Karnian See Carnian. { 'kār · nē · ən }

karren Furrows or channels formed on the surface of soluble bedrock by dissolution of a portion of the rock. Also known as lapies. { 'kār · ən }

Karoo System Glaciated strata formed in Permian times in southern Africa. { kə 'rū 'sis · təm }

karst A topography formed over limestone, dolomite, or gypsum and characterized by sinkholes, caves, and underground drainage. { 'kārst }

karst base level The level below which karstification ceases in an area of karst topography. { 'kārst 'bās 'lev · əl }

karst fenster See karst window. { 'kārst 'fen · stər }

karstification Formation of the features of karst topography by the chemical, and sometimes mechanical, action of water in a region of limestone, dolomite, or gypsum bedrock. { 'kār · stə · fə 'kā · shən }

karst plain A plain on which karst features are developed. { 'kārst 'plān }

karst window An area over a subterranean stream that is open to the surface and appears as a depression at whose bottom the stream is visible. Also known as karst fenster. { 'kārst 'win · dō }

kasolite $Pb(UO_2)SiO_4 \cdot H_2O$ Yellow-ocher mineral composed of a hydrous lead uranium silicate, occurring in monoclinic crystals. { 'kas · ə · līt }

katazone The lowest depth zone of metamorphism; features include high temperatures (500-700°C), strong hydrostatic pressure, and little or no shearing stress. { 'kad · ə · zōn }

katoptrite See catoptrite. { kə 'təp · trīt }

kay See key. { kǎ }

Kazanian A European stage of geologic time: Upper Permian (above Kungurian, below Tatarian). { kə 'zā · nē · ən }

K bentonite See potassium bentonite. { 'kā 'ben · tə · nīt }

Keewatin A division of the Archeozoic rocks of the Canadian Shield. { kē 'wät · ən }

Kegel karst See cone karst. { 'kē · gəl 'kārst }

kehoeite An amorphous mineral composed of a basic hydrous calcium aluminum zinc phosphate, occurring in massive form. { 'kē · ð · it }

kelyphytic border See kelyphytic rime. { 'ikē · lə 'fɪd · ik 'bór · dər }

kelyphytic rime A peripheral zone of pyroxene or amphibole developed around olivine in some igneous rocks. Also known as kelyphytic border. { 'ikē · lə 'fɪd · ik 'rīm }

kempite $Mn_2(OH)_2Cl$ An emerald-green orthorhombic mineral composed of a basic manganese oxychloride, occurring in small crystals. { 'kem · pīt }

Kenoran orogeny See Algoman orogeny. { kə 'nór · ən ó 'rāj · ə · nē }

kentrolite $Pb_2Mn_2Si_2O_8$ A dark reddish-brown mineral composed of a lead manganese silicate. { 'ken · trə · līt }

kenyte A variety of phonolite containing olivine in addition to anorthoclase feldspar, nepheline, acmite-augite, sodic amphibole, apatite, and opaque oxides. { 'kē · nīt }

kerabitumen See kerogen. { 'ker · ə · bə 'tū · mən }

keratophyre Any dike rock or salic lava that is characterized by the presence of albite or albite oligoclase, chlorite, epidote, and calcite. { 'ker · əd · ð · fi · ə }r }

kermesite Sb_2S_3O A cherry-red mineral occurring as tufts of capillary crystals, and formed from an alteration of stibnite. Also known as antimony blende; purple blende; pyrostibite; red antimony. { 'kər · mə · zīt }

kernite $Na_2B_4O_7 \cdot 4H_2O$ A colorless to white hydrous borate mineral crystallizing in the monoclinic system and having vitreous luster; an important source of boron. Also known as rasorite. { 'kər · nīt }

kerogen The complex, fossilized organic material present in sedimentary rocks, especially in shales; converted to petroleum products by distillation. Also known as kerabitumen; petrologen. { 'ker · ə · jən }

kerogen shale See oil shale. { 'ker · ə · jən 'shāl }

kerosine shale See torbanite. { 'ker · ə · sēn 'shāl }

- kersantite** Dark dike rocks consisting mostly of biotite, plagioclase, and augite {kər'zən'tīt}
- kettle** **1.** A bowl-shaped depression with steep sides in glacial drift deposits that is formed by the melting of glacier ice left behind by the retreating glacier and buried in the drift. Also known as kettle basin; kettle hole. **2.** See pothole. { 'ked·əl }
- kettle basin** See kettle. { 'ked·əl ,bās·ən }
- kettle hole** See kettle. { 'ked·əl ,hōl }
- Keuper** A European stage of geologic time, especially in Germany. Upper Triassic { 'kóip·ər }
- Keweenawan** The younger of two Precambrian time systems that constitute the Proterozoic period in Michigan and Wisconsin. { 'kē·wē'nó·ən }
- key** A cay, especially one of the islets off the south of Florida. Also spelled kay { kē }
- key bed** Also known as index bed; key horizon; marker bed. **1.** A stratum or body of strata that has distinctive characteristics so that it can be easily identified. **2.** A bed whose top or bottom is employed as a datum in the drawing of structure contour maps. { 'kē ,bed }
- K feldspar** See potassium feldspar. { 'kā 'fel·spär }
- khibinite** See mosandrite. { 'kib·ə'nīt }
- kidn ore** A form of hematite found in compact masses, concretions, or nodules that are kidney-shaped. { 'kid·nē ,ór }
- kidney stone** See nephrite. { 'kid·nē ,stōn }
- kieselguhr** See diatomaceous earth. { 'kē·zəl ,gūr }
- kieserite** $MgSO_4 \cdot H_2O$ A white mineral that crystallizes in the monoclinic system, is composed of hydrous magnesium sulfate, and occurs in saline residues. { 'kē·zə ,rīt }
- Kilkenny coal** See anthracite. { kil'ken·ē 'kōl }
- Kimberley reefs** Gold-bearing reefs in southern Africa that lie above the Main reef and Bird reef groups. Also known as battery reefs. { 'kim·bər·lē ,rēfs }
- kimberlite** A form of mica periodite that is formed mainly of phenocrysts, olivine, phlogopite, and subordinate melilite with minor amounts of pyroxene, apatite, perovskite, and opaque oxides. { 'kim·bər·līt }
- Kimmeridgian** A European stage of geologic time, middle Upper Jurassic, above Oxfordian, below Portlandian. { 'kim·ə'rīj·ē·ən }
- kimzeyite** $Ca_3(Zr,Ti)_2(Al,Si)_3O_{12}$ A mineral of the garnet group. { 'kim·zē·īt }
- Kinderhookian** Lower Mississippian geologic time, above the Chautauquan of Devonian, below Osagian. { 'kin·dərl'hūk·ē·ən }
- kink band** A deformation band in a single crystal or in foliated rocks in which the orientation is changed due to slipping on several parallel slip planes. Also known as joint drag; knick band; knick zone. { 'kɪŋk ,band }
- kinzigite** A coarse-grained metamorphic rock that is formed principally of garnet and biotite, with K feldspar, quartz, mica, cordierite, and sillimanite. { 'kin·zə·gīt }
- kirovite** $(Fe,Mg)SO_4 \cdot 7H_2O$ A mineral composed of a hydrous sulfate of iron and magnesium; it is isomorphous with malantherite and pisanite. { 'kir·ə·vīt }
- kirwanite** A type of anthracite coal with a metallic luster. { 'kər·wə'nīt }
- klapperstein** See rattle stone. { 'kläp·ər·shtɪn }
- klaprothite** $Cu_6Bi_4S_9$ A gray mineral composed of copper bismuth sulfide { 'klap·rə'thīt }
- klebelsbergite** A mineral composed of basic antimony sulfate, occurring between crystals of stibnite. { 'klä·bəl·z·bər·gīt }
- kleinite** A yellow to orange mineral composed of a basic oxide, sulfate, and chloride of mercury and ammonium. { 'klī·nīt }
- klint** An exhumed coral reef or bioherm that is more resistant to the processes of erosion than the rocks that enclose it so that the core remains in relief as hills and ridges. { klint }
- klintite** The dense, hard dolomite composing a klint gives to the core a strength and resistance to erosion. { 'klin·tīt }
- klippe** A block of rock that is separated from underlying rocks by a fault that usually has a gentle dip. { klip }

klockmannite

- klockmannite** CuSe A slate gray mineral consisting of copper selenide; occurs in granular aggregates. { 'kläk·mä·nīt }
- knebelite** $(\text{Fe},\text{Mn})_2\text{SiO}_4$ A mineral composed of an iron manganese silicate. { 'nä·bälīt }
- knick** See knickpoint. { 'nik }
- knick band** See kink band. { 'nik·band }
- knickpoint** A point of sharp change of slope, especially in the longitudinal profile of a stream or of its valley. Also known as break; knick; nick; nickpoint; rejuvenation head; rock step. { 'nik·pōint }
- knick zone** See kink band. { 'nik·zōn }
- knob** **1.** A rounded eminence, such as a knoll, hillock, or small hill or mountain, and especially a prominent or isolated hill with steep sides. **2.** A peak or other projection at the top of a hill or mountain. { 'näb }
- knoll** A mound rising less than 3300 feet (1000 meters) from the sea floor. Also known as sea knoll. { 'nōl }
- knopite** A cerium-bearing variety of perovskite. { 'nä·pīt }
- knoxvillite** See copiapite. { 'näks·vī·līt }
- kobellite** $\text{Pb}_2(\text{Bi},\text{Sb})_2\text{S}_5$ A blackish-gray mineral composed of antimony bismuth lead sulfide. { 'kō·bälīt }
- koehlinite** Bi_2MoO_6 A greenish-yellow orthorhombic mineral composed of a bismuth molybdate. { 'kek·lə·nīt }
- koenite** $\text{Mg}_3\text{Al}_2(\text{OH})_2\text{Cl}_4$ A very soft mineral composed of a basic magnesium aluminum chloride. { 'kō·nä·nīt }
- koettigite** $\text{Zn}_3(\text{AsO}_4)_2 \cdot 8\text{H}_2\text{O}$ A carmine mineral composed of a hydrated zinc arsenate. { 'ked·i·gīt }
- koktaite** $(\text{NH}_4)_2\text{Ca}(\text{SO}_4)_2 \cdot \text{H}_2\text{O}$ A mineral composed of a hydrous calcium ammonium sulfate. { 'käk·tä·īt }
- kolbeckite** A blue to gray mineral composed of a hydrous beryllium aluminum calcium silicate and phosphate. Also known as sterrettite. { 'kōl·be·kīt }
- komatiite** A mantle-derived igneous rock with a high content of magnesium, particularly magnesium oxide. { 'kō·mäd·ē·īt }
- kongsbergite** A silver-rich variety of a native amalgam composed of silver (95) and mercury (5). { 'kɑŋz·bær·gīt }
- koninckite** $\text{FePO}_4 \cdot 3\text{H}_2\text{O}$ A yellow mineral composed of a hydrous ferric phosphate. { 'kō·nīŋ·kīt }
- koppite** Mineral composed of a form of pyrochlore containing cerium, iron, and potassium. { 'kä·pīt }
- kornelite** $\text{Fe}_3(\text{SO}_4)_4 \cdot 7\text{H}_2\text{O}$ A colorless to brown mineral composed of hydrous ferric sulfate. { 'kōrn·äl·īt }
- kornerupine** $(\text{Mg},\text{Fe},\text{Al})_{20}(\text{Si},\text{B})_6\text{O}_{43}$ A colorless, yellow-brown, or sea-green mineral composed of magnesium iron borosilicate. { 'kōr·nä·rū·pēn }
- kosmochlor** See ureyite. { 'käs·mä·klōr }
- kotoite** $\text{Mg}_3(\text{BO}_3)_2$ An orthorhombic borate mineral; it is isostructural with jimboite. { 'kōd·ə·wīt }
- krausite** $\text{KFe}(\text{SO}_4)_2 \cdot \text{H}_2\text{O}$ Yellowish-green mineral composed of hydrous potassium iron sulfate. { 'kraü·sīt }
- kremersite** $\{(\text{NH}_4),\text{K}\}_2\text{FeCl}_5 \cdot \text{H}_2\text{O}$ A red mineral composed of hydrous potassium ammonium iron chloride, occurring in octahedral crystals. { 'krem·är·zīt }
- krennerite** AuTe_2 A silver-white to pale-yellow mineral composed of gold telluride and often containing silver. Also known as white tellurium. { 'kren·ər·īt }
- kribergite** $\text{Al}_5(\text{PO}_4)_3(\text{SO}_4)(\text{OH})_4 \cdot 2\text{H}_2\text{O}$ White, chalklike mineral composed of hydrous basic aluminum sulfate and phosphate. { 'krib·är·gīt }
- krohnkite** $\text{Na}_2\text{Cu}(\text{SO}_4)_2 \cdot 2\text{H}_2\text{O}$ An azure-blue monoclinic mineral composed of hydrous copper sodium sulfate, occurring in massive form. { 'kreŋ·kīt }
- krokidolite** See crocidolite. { 'krä'kid·äl·īt }
- kryolithionite** $\text{Na}_2\text{Li}_3(\text{AlF}_6)_2$ Variety of spodumene found in Greenland, has a crystal structure resembling that of garnet. { 'krī·äl·lith·ē·änīt }

- kukersite** An organic sediment rich in remains of the alga *Gloexapsomorpha prisca*; found in the Ordovician of Estonia. { 'kü·kær·sīt }
- Kungurian** A European stage of geologic time: Middle Permian, above Artinskian, below Kazanian. { kúnj'gúr·ē·ən }
- kunzite** A pinkish gem variety of spodumene. { 'künt·sīt }
- kurnakovite** $Mg_2B_6O_{11} \cdot 13H_2O$ A white mineral composed of hydrous magnesium borate. { kúr'nák·ə·vīt }
- kutnahorite** $Ca(Mn,Mg,Fe)(CO_3)_2$ A rare carbonate of calcium and manganese, found with some magnesium and iron substituting for manganese, forms rhombohedral crystals and is isomorphous with dolomite. { kæt·nə'hór·īt }
- kyanite** Al_2SiO_5 A blue or light-green neosilicate mineral; crystallizes in the triclinic system, and luster is vitreous to pearly; occurs in long, thin bladed crystals and crystalline aggregates. Also known as cyanite; disthene; sappare. { 'kī·ə·nīt }

L

- labite** $\text{MgSi}_3\text{O}_6(\text{OH})_2 \cdot \text{H}_2\text{O}$ A mineral composed of hydrous basic silicate of magnesium. { 'lā·bīt }
- labradorite** A gray, blue, green, or brown plagioclase feldspar with composition ranging from $\text{Ab}_{50}\text{An}_{50}$ to $\text{Ab}_{30}\text{An}_{70}$, where $\text{Ab} = \text{NaAlSi}_3\text{O}_8$ and $\text{An} = \text{CaAl}_2\text{Si}_2\text{O}_8$; in the course of formation when the natural material cools, the feldspar sometimes exhibits a variously colored luster. Also known as Labrador spar. { 'lab·rə·dō·rīt }
- Labrador spar** See labradorite. { 'lab·rə·dō·r 'ispär }
- laccolith** A body of igneous rock intruding into sedimentary rocks so that the overlying strata have been notably lifted by the force of intrusion. { 'lak·ə·lith }
- lacroixite** A pale yellowish-green mineral composed of basic phosphate of aluminum, calcium, manganese, and sodium (often with fluorine), occurring as crystals. { lə'krwä·zīt }
- lacustrine** Belonging to or produced by lakes. { lə'kəs·trən }
- lacustrine sediments** Sediments that are deposited in lakes { lə'kəs·trən 'sed·ə·məns }
- lacustrine soil** Soil that is uniform in texture but variable in chemical composition and that has been formed by deposits in lakes which have become extinct { lə'kəs·trən 'sōil }
- Ladinian** A European stage of geologic time. upper Middle Triassic (above Anisian, below Carnian). { lə'din·ē·ən }
- lag deposit** Residual accumulation of coarse, unconsolidated rock and mineral debris left behind by the winnowing of finer material. { 'lag di·päz·ət }
- lag fault** A minor low-angle thrust fault occurring within an overthrust; it develops when one part of the mass is thrust farther than an adjacent higher or lower part. { 'lag ,fōlt }
- lag gravel** Residual accumulations of particles that are coarser than the material that has blown away. { 'lag ,grav·əl }
- lahar** **1.** A mudflow or landslide of pyroclastic material occurring on the flank of a volcano. **2.** The deposit of mud or sand so formed. { 'lä·här }
- lake ore** See bog iron ore. { 'lāk ,ōr }
- lake peat** A sedimentary peat formed near lakes. { 'lāk ,pēt }
- lake plain** One of the surfaces of the earth that represent former lake bottoms, these featureless surfaces are formed by deposition of sediments carried into the lake by streams. { 'lāk ,plān }
- lamina** A thin, clearly differentiated layer of sedimentary rock or sediment, usually less than 1 centimeter thick. { 'lam·ə·nə }
- lampadite** A mineral composed chiefly of hydrous manganese oxide with as much as 18% copper oxide and often cobalt oxide. { 'lam·pə·dīt }
- lamprobolite** See basaltic hornblende. { ,lam·prə'bō·līt }
- lamprophyllite** $\text{Na}_2\text{SrTiSi}_3\text{O}_8$ A mineral composed of titanium strontium sodium silicate. { ,lam·prə'fī·līt }
- lamprophyre** Any of a group of igneous rocks characterized by a porphyritic texture in which abundant, large crystals of dark-colored minerals appear set in a not visibly crystalline matrix. { 'lam·prə'fī·ər }

Lanarkian

- Lanarkian** A European stage of geologic time forming part of the lower Upper Carboniferous, above Lancastrian and below Yorkian, equivalent to lowermost Westphalian. {lə'när·kē·ən}
- lanarkite** Pb_2OSO_4 A white, greenish, or gray monoclinic mineral consisting of basic lead sulfate, with specific gravity of 6.92; formed by action of heat and air on galena. {'lan·ər·kīt}
- Lancastrian** A European stage of geologic time forming part of the lower Upper Carboniferous, above Viséan and below Lanarkian. {lan'kas·trē·ən}
- Landenian** A European stage of geologic time: upper Paleocene (above Montian, below Ypresian of Eocene). {lan'den·ē·ən}
- landesite** A brown mineral consisting of a hydrated phosphate of iron and manganese. {'lan·də'sīt}
- landform map** See physiographic diagram. {'lan·fōrm /map}
- land pebble** See land pebble phosphate. {'land /peb·əl}
- land pebble phosphate** A pebble phosphate in a clay or sand bed below the ground surface; a small amount of uranium is often present and is recovered as a by-product; used as a source of phosphate fertilizer. Also known as land pebble; land rock; matrix rock. {'land /peb·əl 'fas·fāt}
- land rock** See land pebble phosphate. {'land /rāk}
- landscape agate** A type of chalcedony that is translucent and contains inclusions which give it an appearance reminiscent of familiar natural scenes. Also known as fortification agate. {'lan·skāp /ag·ət}
- landslide** The perceptible downward sliding or falling of a relatively dry mass of earth, rock, or combination of the two under the influence of gravity. Also known as landslip. {'lan·slīd}
- landslide track** An exposed path in rock or earth created as the result of a landslide. {'lan·slīd /trak}
- landslip** See landslide. {'lan·slip}
- langbanite** An iron-black hexagonal mineral composed of silicate and oxide of manganese, iron, and antimony, occurring in prismatic crystals. {'län·bənīt}
- langbeinite** $K_2Mg_2(SO_4)_3$ Colorless, yellowish, reddish, or greenish hexagonal mineral with vitreous luster, found in salt deposits; used in the fertilizer industry as a source of potassium sulfate. {'län·bī·nīt}
- langite** A blue to green mineral composed of basic hydrous copper sulfate. {'län·īt}
- lansfordite** $MgCO_3 \cdot 5H_2O$ A mineral composed of hydrous basic carbonate of magnesium when extracted from the earth, changing to nesquehovite after exposure to the air. {'lanz·fər·dīt}
- lanthanum** (La,Ce) $_2(CO_3)_3 \cdot 8H_2O$ A colorless, white, pink, or yellow mineral composed of hydrous lanthanum carbonate, occurring in crystals or in earthy form. {'lan·thə·nīt}
- lapies** See karren. {lə'pēz}
- lapilli** Pyroclasts that range from 0.04 to 2.6 inches (1 to 64 millimeters) in diameter. {lə'pī·lī}
- lapilli-tuff** A pyroclastic deposit that is indurated and consists of lapilli in a fine tuff matrix. {lə'pī·lī /təf}
- lapis lazuli** An azure-blue, violet-blue, or greenish-blue, translucent to opaque crystalline rock used as a semiprecious stone; composed chiefly of lazurite and calcite with some haüyne, sodalite, and other minerals. Also known as lazuli. {'lap·is 'laz·ə·lē}
- Laramic orogeny** See Laramidian orogeny. {'lar·ə·mik ó'räj·ə·nē}
- Laramide orogeny** See Laramidian orogeny. {'lar·ə·məd ó'räj·ə·nē}
- Laramide revolution** See Laramidian orogeny. {'lar·ə·məd /rev·ə'lü·shən}
- Laramidian orogeny** An orogenic era typically developed in the eastern Rocky Mountains; phases extended from Late Cretaceous until the end of the Paleocene. Also known as Laramic orogeny; Laramide orogeny; Laramide revolution. {'lar·ə·mīd·ē·ən ó'räj·ə·nē}
- larderillite** $(NH_4)B_5O_8 \cdot 2H_2O$ A white mineral composed of hydrous ammonium borate, occurring as a crystalline powder. {'lär·də're·līt}

- lardite** See agalmatolite. { 'lär·dīt }
- larnite** β -Ca₂SiO₄ A gray mineral that is a metastable monoclinic phase of calcium orthosilicate, stable from 520 to 670°C. Also known as belite. { 'lär·nīt }
- larsenite** PbZnSiO₄ A colorless or white mineral composed of lead zinc silicate, occurring in orthorhombic crystals. { 'lars·ən·īt }
- larvikite** An alkali syenite consisting of cryptoperthite or anorthoclase in rhombic crystals; used as an ornamental building material. { 'lär·vi·kīt }
- lateral accretion** The digging away of material at the outer bank of a meandering stream and the simultaneous building up to the water level by deposition of material brought there by pushing and rolling along the stream bottom. { 'lad·ə·rəl ə'krē·shən }
- lateral cone** See adventive cone. { 'lad·ə·rəl kōn }
- lateral erosion** The action of a stream in undermining a bank on one side of its channel so that material falls into the stream and disintegrates, simultaneously, the stream shifts toward the bank that is being undercut. { 'lad·ə·rəl i'rō·zhən }
- lateral fault** A fault along which there has been strike separation. Also known as strike-separation fault. { 'lad·ə·rəl 'fōlt }
- lateral moraine** Drift material, usually thin, that was deposited by a glacier in a valley after the glacier melted. { 'lad·ə·rəl mə'rān }
- lateral planation** Reduction in land in interstream areas in a plane parallel to the stream profile, the reduction is caused by lateral movement of the stream against its banks. { 'lad·ə·rəl plā'nā·shən }
- lateral secretion** A supposed phenomenon whereby a lode's or vein's mineral content is derived from the adjacent wall rock. { 'lad·ə·rəl si'krē·shən }
- laterite** Weathered material composed principally of the oxides of iron, aluminum, titanium, and manganese, laterite ranges from soft, earthy, porous soil to hard, dense rock. { 'lad·ə·rīt }
- lateritic soil** 1. Soil containing laterite. 2. Any reddish soil developed from weathering. Also known as latosol. { 'lad·ə'rid·ik 'sōil }
- laterization** Those conditions of weathering that lead to removal of silica and alkalis, resulting in a soil or rock with high concentrations of iron and aluminum oxides (laterite). { 'lad·ə·rə'zā·shən }
- latite** A not visibly crystalline rock of volcanic origin composed chiefly of sodic plagioclase and alkali feldspar with subordinate quantities of dark-colored minerals in a finely crystalline to glassy groundmass. { 'lā·tīt }
- latosol** See lateritic soil. { 'lad·ə'sól }
- latrappite** (Ca,Nd)(Nb,Ti,Fe)O₃ A variety of the mineral perovskite. { 'la trə·pīt }
- lattice drainage pattern** See rectangular drainage pattern. { 'lad·əs 'drān·ij 'pad·ərn }
- Lattorian** See Tongrian. { lə'tōr·fē·ən }
- laubmannite** Fe₃Fe₆(PO₄)₄(OH)₂ Mineral composed of basic ferrous iron phosphate and ferric iron phosphate. { 'laub·mə·nīt }
- laumontite** See laumontite. { lō'mā·nīt }
- laumontite** CaAl₂Si₄O₁₂·4H₂O A white zeolite mineral crystallizing in the monoclinic system, loses water on exposure to air, eventually becoming opaque and crumbling. Also known as laumonite; lomomite; lomontite. { lō'mān·tīt }
- lauoho o pele** See Pele's hair. { 'lä·ü'ō·hō ō 'pe·lē }
- Laurasia** A continent theorized to have existed in the Northern Hemisphere, supposedly it broke up to form the present northern continents about the end of the Pennsylvanian period. { lō'rā·zhə }
- Laurentian Plateau** See Laurentian Shield. { lō'ren·chən plā'tō }
- Laurentian Shield** A Precambrian plateau extending over half of Canada from Labrador southwest along Hudson Bay and northwest to the Arctic Ocean. Also known as Canadian Shield; Laurentian Plateau. { lō'ren·chən 'shēld }
- laurionite** Pb(OH)Cl A colorless mineral composed of basic lead chloride, occurring in prismatic crystals; it is dimorphous with paralaurionite. { 'lōr·ē·ənīt }
- laurite** RuS₂ A black mineral composed of ruthenium sulfide (often with osmium), occurring as small crystals or grains. { 'lō·rīt }
- lausenite** Fe₂(SO₄)₃·6H₂O A white, monoclinic mineral consisting of hydrated ferric sulfate; occurs in lumpy aggregates of fibers. { 'lös·ən·īt }

lautarite

- lautarite** $\text{Ca}(\text{IO}_3)_2$ A monoclinic mineral composed of calcium iodate that occurs in prismatic crystals. { 'läud·ə·rīt }
- lautite** CuAsS A mineral composed of copper sulfide and copper arsenide. { 'läu·tīt }
- lava** **1.** Molten extrusive material that reaches the earth's surface through volcanic vents and fissures. **2.** The rock mass formed by consolidation of molten rock issuing from volcanic vents and fissures, consisting chiefly of magnesium silicate; used for insulators. { 'lä·və }
- lava blisters** Small, steep-sided swellings that are hollow and raised on the surfaces of some basaltic lava flows; formed by gas bubbles pushing up the lava's viscous surface. { 'lä·və·blis·tərz }
- lava cone** A volcanic cone that was formed of lava flows. { 'lä·və·kōn }
- lava dome** See shield volcano. { 'lä·və·dōm }
- lava field** A wide area of lava flow; it is commonly several square kilometers in area and forms along the base of a large compound volcano or on the flanks of shield volcanoes. { 'lä·və·fēld }
- lava flow** **1.** A lateral surficial stream of molten lava issuing from a volcanic cone or from a fissure. **2.** The solidified mass of rock formed when a lava stream congeals. { 'lä·və·flō }
- lava fountain** A jetlike eruption of lava that issues vertically from a volcanic vent or fissure. Also known as fire fountain. { 'lä·və·faunt·ən }
- lava lake** A lake of lava that is molten and fluid; usually contained within a summit volcanic crater or in a pit crater on the flanks of a shield volcano. { 'lä·və·lāk }
- lava plateau** An elevated tableland or flat-topped highland that is several hundreds to several thousands of square kilometers in area; underlain by a thick succession of lava flows. { 'lä·və·plātō }
- lava tube** A long, tubular opening under the crust of solidified lava. { 'lä·və·tüb }
- lavenite** $(\text{Na},\text{Ca})_3\text{Zr}(\text{Si}_2\text{O}_7)(\text{O},\text{OH},\text{F})_2$ A mineral composed of complex silicate, occurring in prismatic crystals. { 'lä·və·nīt }
- law of superposition** The law that strata underlying other strata must be the older if there has been neither overthrust nor inversion. { 'lō əv·sü·pər·pə'zish·ən }
- lawrencite** $(\text{Fe},\text{Ni})\text{Cl}_2$ A brown or green mineral composed of ferrous chloride and found as an abundant accessory mineral in iron meteorites. { 'lär·ən·sīt }
- lawsonite** $\text{CaAl}_2(\text{Si}_2\text{O}_7)(\text{OH})_2 \cdot \text{H}_2\text{O}$ A colorless or grayish-blue mineral crystallizing in the orthorhombic system; found in gneisses and schists. { 'lōs·ən·īt }
- layer** A tabular body of rock, ice, sediment, or soil lying parallel to the supporting surface and distinctly limited above and below. { 'lä·ər }
- layered complex** An igneous rock body of large dimensions, 5-300 miles (8-480 kilometers) across and as much as 23,000 feet (7000 meters) thick, within which distinct subhorizontal stratification, or layering, is apparent and may be continuous over great distances, in some cases more than 60 miles (100 kilometers). { 'lä·ərd 'käm·pleks }
- layer silicate** See phyllosilicate. { 'lä·ər·sil·ə·kət }
- lazuli** See lapis lazuli. { 'laz·ə·lē }
- lazulite** $(\text{Mg},\text{Fe})\text{Al}_2(\text{OH})_2(\text{PO}_4)_2$ A violet-blue or azure-blue mineral with vitreous luster; composed of basic aluminum phosphate and occurring in small masses or monoclinic crystals; hardness is 5-6 on Mohs scale, and specific gravity is 3.06-3.12. Also known as berkeyite; blue spar; false lapis. { 'laz·ə·līt }
- lazurite** $(\text{Na},\text{Ca})_8(\text{Al},\text{Si})\text{O}_{24}(\text{S},\text{SO}_4)$ A blue or violet-blue feldspathoid mineral crystallizing in the isometric system; the chief mineral constituent of lapis lazuli. { 'laz·ə·rīt }
- lead** A small, narrow passage in a cave. { led }
- lead glance** See galena. { 'led 'glans }
- leadhillite** $\text{Pb}_6(\text{SO}_4)(\text{CO}_3)_2(\text{OH})_2$ A yellowish or greenish- or grayish-white monoclinic mineral consisting of basic sulfate and carbonate of lead; dimorphous with susanite. { 'led·hi·līt }
- lead marcasite** See sphalerite. { 'led 'mär·kə·zīt }
- lead ocher** See massicot. { 'led 'ō·kər }
- lead spar** See anglesite. { 'led 'spär }

lead vitriol See anglesite. { 'led 'vit·rē·ōl }

leaf mold A soil layer or compost consisting principally of decayed vegetable matter. { 'lief ,mōld }

lechatelierite A natural silica glass, occurring in fulgurites and impact craters and formed by the melting of quartz sand at high temperatures generated by lightning or by the impact of a meteorite. { le·shād·əl'ī·rīt }

lecontite $\text{Na}(\text{NH}_4, \text{K})\text{SO}_4 \cdot 2\text{H}_2\text{O}$ A colorless mineral composed of a hydrous sodium potassium ammonium sulfate; found in bat guano. { læ'kän·tīt }

ledge **1.** A narrow, shelflike ridge or rock protrusion, much longer than high, and usually horizontal, formed in a rock wall or on a cliff face. **2.** A ridge of rocks found underwater, especially one near a shore or connected with and bordering a shore. { lej }

Ledian Lower upper Eocene geologic time. Also known as Auversian. { 'lēd·ē·ən }

lee dune A dune formed to the leeward of a source of sand or of an obstacle. { 'lē·dün }

left lateral fault A fault in which movement is such that an observer walking toward the fault along an index plane (a bed, vein, or dike) would turn to the left to find the other part of the displaced index plane. Also known as sinistral fault. { 'left 'lād·ə·rəl 'fölt }

legrandite $\text{Zn}_{14}(\text{OH})(\text{AsO}_4)_9 \cdot 12\text{H}_2\text{O}$ A yellow to nearly colorless mineral composed of basic hydrous zinc arsenate. { læ'gran·dīt }

lehiite $(\text{Na}, \text{K})_2\text{Ca}_2\text{Al}_3(\text{PO}_4)_3(\text{OH})_{12} \cdot 6\text{H}_2\text{O}$ White mineral composed of hydrous basic calcium aluminum phosphate. { 'lē·hīt }

leifite $\text{Na}_2\text{AlSi}_4\text{O}_{10}\text{F}$ A colorless mineral composed of fluoride and silicate of sodium and aluminum. { 'lē·fīt }

leightonite $\text{K}_2\text{Ca}_2\text{Cu}(\text{SO}_4)_4 \cdot 2\text{H}_2\text{O}$ A pale-blue mineral composed of hydrous sulfate of copper, calcium, and potassium. { 'lāt·ən·īt }

lengenbachite $\text{Pb}_2(\text{Ag}, \text{Cu})_2\text{As}_4\text{S}_{13}$ A steel gray mineral consisting of lead, silver, and copper arsenic sulfide. { 'lej·ən·bä·kīt }

lens **1.** A geologic deposit that is thick in the middle and converges toward the edges, resembling a convex lens. **2.** An irregularly shaped formation consisting of a porous, permeable sedimentary deposit surrounded by impermeable rock. { lenz }

lenticle A bed or rock stratum or body that is lens-shaped. { 'len·tə·kəl }

lentil **1.** A rock body that is lens-shaped and enclosed in a stratum of different material. **2.** A rock stratigraphic unit that is a subdivision of a formation and has limited geographic extent; it thins out in all directions. { 'lent·əl }

Leonardian A North American provincial series. Lower Permian (above Wolfcampian, below Guadalupian). { 'lā·ən·när·dē·ən }

leonite $\text{K}_2\text{Mg}(\text{SO}_4)_2 \cdot 4\text{H}_2\text{O}$ A colorless, white, or yellowish mineral composed of hydrous magnesium potassium sulfate, occurring in monoclinic crystals. { 'lē·ən·nīt }

lepidoblastic Of the texture of a metamorphic rock, having a fabric of minerals characterized as flaky or scaly, such as mica. { 'lep·ə·dō'blas·tik }

lepidocrocite $\alpha\text{-FeO}(\text{OH})$ A ruby- or blood-red mineral crystallizing in the orthorhombic system; it is associated with limonite in iron ores and is a component of meteorites. { 'lep·ə·dō'krō'sīt }

lepidolite $\text{K}(\text{Li}, \text{Al})_2(\text{Si}, \text{Al})_4\text{O}_{10}(\text{F}, \text{OH})_2$ A rose-colored mineral of the mica group crystallizing in the monoclinic system. Also known as lithionite; lithium mica. { læ'pid·əl·īt }

lepidomelane A black variety of biotite that is characterized by the presence of large amounts of ferric iron. Also known as iron mica. { 'lep·ə·dō'me·län }

lepisphere A microspherical aggregate of platy, blade-shaped crystals of opal-CT. { 'lep·ə·sfir }

leptite A quartz-feldspathic metamorphic rock that is fine-grained with little or no foliation; formed by regional metamorphism of the highest grade. { 'lep·tīt }

leptogeosyncline A deep oceanic trough that has not been filled with sedimentation and is associated with volcanism. { 'lep·tə·jē·ō'sin·klīn }

letovicite $(\text{NH}_3)_3\text{H}(\text{SO}_4)_2$ A mineral composed of acid ammonium sulfate. { 'led·ə'vi·sīt }

leucite KAlSi_3O_6 A white or gray rock-forming mineral belonging to the feldspathoid

leucite phonolite

- group, at ordinary temperatures the mineral exists as aggregates of trapezohedral crystals with glassy fracture; hardness is 5.5-6.0 on Mohs scale, and specific gravity is 2.45-2.50. Also known as amphigene; grenatite; vesuvian; Vesuvian garnet; white garnet. { 'lū·sīt }
- leucite phonolite** An extrusive rock composed of alkali feldspar, mafic minerals, and leucite. { 'lū·sīt 'fän·əðt }
- leucitite** A fine-grained or porphyritic extrusive rock or hypabyssal igneous rock composed mostly of pyroxene and leucite. { 'lū·sə·tīt }
- leucochalcite** See olivenite. { 'lū·kō'kal·sīt }
- leucocratic** Light-colored as applied to igneous rock containing 0-50% dark-colored minerals. { 'lū·kə'krəd·ik }
- leucophanite** $(\text{Na,Ca})_2\text{BeSi}_3(\text{O,F,OH})_7$ Greenish mineral composed of beryllium sodium calcium silicate containing fluorine and occurring in glassy, tabular crystals. { 'lū·kō'fa·nīt }
- leucophosphate** $\text{K}_2\text{Fe}_3(\text{PO}_4)_3(\text{OH})_2 \cdot 9\text{H}_2\text{O}$ White mineral composed of hydrous basic phosphate of potassium and iron. { 'lū·kə'fäs·fīt }
- leucopyrite** See loellingite. { 'lū·kə'pī·rīt }
- leucosphenite** $\text{Na}_4\text{BaTi}_2\text{Si}_{10}\text{O}_{37}$ A white mineral composed of sodium barium silicotitanate and occurring as wedge-shaped crystals. { 'lū·kə'sfē·nīt }
- leucoxene** A mineral composed of rutile with some anatase or sphene; occurs in igneous rocks, usually as an alteration product of ilmenite. { 'lū·kək·sēn }
- leuneburgite** $\text{Mg}_3\text{B}_2(\text{PO}_4)_4(\text{OH})_6 \cdot 5\text{H}_2\text{O}$ A colorless mineral consisting of a hydrous basic phosphate of magnesium and boron. { 'lū·nən·bər·gīt }
- levee** **1.** An embankment bordering one or both sides of a sea channel or the low-gradient seaward part of a canyon or valley. **2.** A low ridge sometimes deposited by a stream on its sides. { 'lev·ē }
- level fold** See nonplunging fold. { 'lev·əl 'föld }
- levyne** See levynite. { lā'vē·īn }
- levyite** See levynite. { lā'vē·īt }
- levynite** $\text{NaCa}_3\text{Al}_7\text{Si}_{11}\text{O}_{36} \cdot 15\text{H}_2\text{O}$ A white or light-colored mineral of the zeolite group, composed of hydrous silicate of aluminum, sodium, and calcium, and occurring in rhombohedral crystals. Also known as levyine; levyite; levynite. { lā'vē·nīt }
- lewisite** $(\text{Ca,Fe,Na})_2$ A titanian roemeite mineral. { 'lū·ə·sīt }
- lewistonite** $(\text{Ca,K,Na})_3(\text{PO}_4)_3(\text{OH})$ White mineral composed of basic calcium potassium sodium phosphate. { 'lū·ə·stə·nīt }
- lherzolite** Peridotite composed principally of olivine with orthopyroxene and clinopyroxene. { 'lært·sə·līt }
- Lias** See Liassic. { 'lī·as }
- Liassic** The Lower Jurassic period of geologic time. Also known as Lias. { lī'as·ik }
- libethenite** $\text{Cu}_2(\text{PO}_4)\text{OH}$ An olive-green mineral composed of basic copper sulfate, occurring as small prismatic crystals or in masses. { lə'beth·ə·nīt }
- lichenometry** Measurement of the diameter of lichens growing on exposed rock surfaces; used for dating geomorphic features, particularly of glacial origin. { 'lī·kə'nəm·ə·trē }
- liebigite** $\text{Ca}_2\text{U}(\text{CO}_3)_4 \cdot 10\text{H}_2\text{O}$ An apple- or yellow-green mineral composed of hydrous uranium calcium carbonate; occurs as a coating or concretion in rock. { 'lē·bī·gīt }
- Liesegang banding** Colored or compositional rings or bands in a fluid-saturated rock due to rhythmic precipitation. Also known as Liesegang rings. { 'lēz·ə·gäg·'band·īŋ }
- Liesegang rings** See Liesegang banding. { 'lēz·ə·gäg·'rīŋz }
- light mineral** **1.** A rock with minerals that have a specific gravity lower than a standard, usually 2.85. **2.** A light-colored mineral. { 'līt 'līm·rəl }
- light-red silver ore** See proustite. { 'līt 'red 'sil·vər 'ôr }
- light-ruby silver** See proustite. { 'līt 'rū·bē 'sil·vər }
- lignite** Coal of relatively recent origin, intermediate between peat and bituminous coal, often contains patterns from the wood from which it formed. Also known as brown coal; earth coal. { 'līg·nīt }
- lignite A** See black lignite. { 'līg·nīt 'ā }

lignite B See brown lignite. { 'lig,nīt 'bē }

lignitious coal A type of coal containing 75-84% elemental carbon { lig'nish·əs 'kōl }

lillinite $Pb_3Bi_2S_6$ A steel-gray mineral composed of lead bismuth sulfide. { 'lil·ē·ə,nīt }

limb One of the two sections of an anticline or syncline on either side of the axis. Also known as flank. { limb }

limburgite A dark, glass-rich igneous rock with abundant large crystals of olivine and pyroxene and with little or no feldspar. { 'lim·bær,gīt }

lime-pan playa A playa with a smooth, hard surface composed of calcium carbonate. { 'līm 'pan 'plī·ə }

limestone 1. A sedimentary rock composed dominantly (more than 95) of calcium carbonate, principally in the form of calcite; examples include chalk and travertine.
2. Any rock containing 80% or more of calcium carbonate or magnesium carbonate { 'līm·stōn }

limestone pebble conglomerate A well-sorted conglomerate composed of limestone pebbles resulting from special conditions involving rapid mechanical erosion and short transport distances. { 'līm·stōn 'peb·əl kən'glām·ə·rət }

limnite See bog iron ore. { 'lim,nīt }

limonite A group of brown or yellowish-brown, amorphous, naturally occurring ferric oxides of variable composition; commonly formed secondary material by oxidation of iron-bearing minerals; a minor ore of iron. Also known as brown hematite; brown iron ore. { 'lī·mə,nīt }

linarite $PbCu(SO_3)(OH)_2$ A deep-blue mineral composed of basic lead copper sulfate and occurring as monoclinic crystals. { 'lī·nær,īt }

lindackerite $Cu_6Ni_4(AsO_4)_4(SO_4)(OH)_4$ A light-green or apple-green mineral composed of hydrous basic sulfate and arsenate of nickel and copper; occurs in tabular crystals or massive. { lin'dak·ə·rīt }

lindgrenite $Cu_4(MoO_4)_2(OH)_2$ A green mineral composed of basic copper molybdate { 'lin·græn,īt }

lindstromite $PbCuBi_2S_6$ A lead-gray to tin-white mineral composed of bismuth copper lead sulfide. { 'linz·trəm,īt }

lineament A straight or gently curved, lengthy topographic feature expressed as depressions or lines of depressions. Also known as linear. { 'lin·ē·əmənt }

linear See lineament. { 'lin·ē·ər }

linear cleavage The property of metamorphic rocks of breaking into long planar fragments. { 'lin·ē·ər 'klē·vij }

linear parallel texture The parallel texture of a rock in which the constituents are parallel to a line, not just to a plane as in plane parallel texture. { 'lin·ē·ər 'par·ə·lel 'tekst·chər }

lineation Any linear structure on or within a rock, examples are ripple marks and flow lines. { 'lin·ē'ā·shən }

line of strike See strike. { 'līn əv 'strīk }

linguoid ripple mark See linguoid ripple mark. { 'līŋ·gə·lōid 'rip·əl·märke }

linguoid current ripple See linguoid ripple mark { 'līŋ·gə·lōid 'kə·rənt·rip·əl }

linguoid ripple mark An aqueous current ripple mark with tongue-like projections which are formed by action of a current of water and which point into the current. Also known as cusped ripple mark, linguoid ripple mark, linguoid current ripple { 'līŋ·gə·lōid 'rip·əl·märke }

linnaeite $(Co,Ni)_3S_4$ A steel-gray mineral with a coppery-red tarnish, occurring in isometric crystals; an ore of cobalt. Also known as cobalt pyrites; linneite. { lə'nē·īt }

linneite See linnaeite. { lə'nē·īt }

Lipalian A hypothetical geologic period that supposedly antedated the Cambrian { lə'pal·yən }

liptinite See exinite. { 'lip·tən,īt }

liquid-dominated hydrothermal reservoir Any geothermal system mainly producing superheated water (often termed brines), hot springs, fumaroles, and geysers are the surface expressions of hydrothermal reservoirs, an example is the hot-brine region

liquid-filled porosity

- in the Imperial Valley-Salton Sea area of southern California. { 'lik·wəd |däm·ə·nād·əd |hī·drəlthər·mə'l 'rez·əv·wär }
- liquid-filled porosity** The condition in porous rock or sand formations in which pore spaces contain fresh or salt water, liquid petroleum, pressure-liquefied butane or propane, or tar. { 'lik·wəd |fild pə'rās·əd·ē }
- liquid limit** The moisture content boundary that exists between the plastic and semi-liquid states of a sediment. { 'lik·wəd 'lim·ət }
- liroconite** $\text{Cu}_2\text{Al}(\text{AsO}_4)(\text{OH})_4 \cdot 4\text{H}_2\text{O}$ A light-blue or yellowish-green mineral composed of basic hydrous aluminum copper arsenate, occurring in monoclinic crystals. { lī'rək·ə·nīt }
- liskeardite** $(\text{Al},\text{Fe})_3(\text{AsO}_4)(\text{OH})_6 \cdot 5\text{H}_2\text{O}$ A soft, white mineral composed of basic hydrous aluminum iron arsenate. { lī'skär·dīt }
- litharenite** A sandstone that contains more than 25% detrital rock fragments, and more rock fragments than feldspar grains. { li'thər·ə·nīt }
- lithian muscovite** A form of the mineral lepidolite containing 3-4% lithium oxide and having a modified two-layer monoclinic muscovite structure. { 'lith·ē·ən 'mäs·kə·vīt }
- lithic** Pertaining to stone. { 'lith·ik }
- lithic graywacke** A low-grade graywacke, that is, containing an abundance of unstable materials, especially a sandstone containing less than 75% quartz and chert, 15-75% detrital clay matrix, and more rock fragments than feldspar grains. { 'lith·ik 'grā·wak·ə }
- lithic sandstone** A sandstone that contains more rock fragments than feldspar grains. { 'lith·ik 'san·stōn }
- lithic tuff** **1.** A tuff that is mostly crystalline rock fragments. **2.** An indurated volcanic ash deposit whose fragments are composed of previously formed rocks that first solidified in the volcanic vent and were then blown out. { 'lith·ik 'tʌf }
- lithification** **1.** Conversion of a newly deposited sediment into an indurated rock. Also known as lithification. **2.** Compositional change of coal to bituminous shale or other rock. { ,lith·ə·fə'kā·shən }
- lithionite** See lepidolite. { 'lith·ē·ə·nīt }
- lithiophilite** $\text{Li}(\text{Mn},\text{Fe})\text{PO}_4$ A salmon-pink or clove-brown mineral crystallizing in the orthorhombic system; isomorphous with triphylite. { ,lith·ē'äf·ə·līt }
- lithiophorite** $(\text{Al},\text{Li})\text{MnO}_2(\text{OH})_2$ Mineral composed of basic manganese aluminum lithium oxide. { ,lith·ē'äf·ə·rīt }
- lithium mica** See lepidolite. { 'lith·ē·əm 'mī·kə }
- lithoclast** A naturally produced rock fracture. { 'lith·ə·klās }
- lithofacies** A subdivision of a specified stratigraphic unit distinguished on the basis of lithologic features. { ,lith·ə'fā·shēz }
- lithofacies map** The facies map of an area based on lithologic characters; shows areal variation in all aspects of the lithology of a stratigraphic unit. { ,lith·ə'fā·shēz ,map }
- lithogenesis** The branch of science dealing with the formation of rocks, especially the formation of sedimentary rocks. { ,lith·ə'jen·ə·səs }
- lithographic limestone** A dense, compact, fine-grained crystalline limestone having a pale creamy-yellow or grayish color. Also known as lithographic stone; litho stone. { ,lith·ə'graf·ik 'līm·stōn }
- lithographic stone** See lithographic limestone. { ,lith·ə'graf·ik 'stōn }
- lithographic texture** The texture of certain calcareous sedimentary rocks characterized by grain size of less than $1/256$ millimeter and having a smooth appearance. { ,lith·ə'graf·ik 'teks·chər }
- lithologic map** A kind of geologic map showing the rock types of a particular area. { ,lith·ə'lāj·ik 'map }
- lithologic unit** See rock-stratigraphic unit. { ,lith·ə'lāj·ik 'yü·nət }
- lithology** The description of the physical character of a rock as determined by eye or with a low-power magnifier, and based on color, structures, mineralogic components, and grain size. { lə'thāl·ə·jē }

- lithomorph** Referring to a soil whose characteristics are derived from events or conditions of a former period. { 'lith·ə|mór·fik }
- lithophysa** A large spherulitic hollow or bubble in glassy basalts and certain rhyolites. Also known as stone bubble. { 'lith·ə'fís·ə }
- lithosiderite** See stony-iron meteorite. { 'lith·ə'síd·ə·rīt }
- lithosol** A group of shallow soils lacking well-defined horizons and composed of imperfectly weathered fragments of rock. { 'lith·ə·sól }
- lithospar** A combination of spodumene and feldspar which occurs naturally { 'lith·ə·spär }
- lithosphere** **1.** The rigid outer crust of rock on the earth about 50 miles (80 kilometers) thick, above the asthenosphere. Also known as oxysphere. **2.** Since the development of plate tectonics theory, a term referring to the rigid, upper 60 miles (100 kilometers) of the crust and upper mantle, above the asthenosphere. { 'lith·ə·sfir }
- lithostratic unit** See rock-stratigraphic unit. { 'lith·ə'strad·ik 'yü·nät }
- lithostratigraphic unit** See rock-stratigraphic unit { 'lith·ə'strad·ə'graf·ik 'yü·nät }
- lithostratigraphy** A branch of stratigraphy concerned with the description and interpretation of sedimentary successions in terms of their lithic character. { 'lith·ə·strə'tig·rə·fē }
- lithotope** **1.** The environment under which a sediment is deposited. **2.** An area of uniform sedimentation. { 'lith·ə·tōp }
- lithotype** A macroscopic band in humic coals, analyzed on the basis of physical characteristics rather than botanical origin. { 'lith·ə·tīp }
- lit-par-lit** Pertaining to the penetration of bedded, schistose, or other foliate rocks by innumerable narrow sheets and tongues of granitic rock. { 'lē·pär'lē }
- Little Ice Age** A period of expansion of mountain glaciers, marked by climatic deterioration, that began about 5500 years ago and extended to as late as A.D. 1550-1850 in some regions, as the Alps, Norway, Iceland, and Alaska. { 'lid·əl 'fís·əj }
- littoral drift** Materials moved by waves and currents of the littoral zone. Also known as longshore drift. { 'lit·ə·rəl 'drift }
- littoral sediments** Deposits of littoral drift. { 'lit·ə·rəl 'sed·ə·məns }
- littoral transport** The movement of littoral drift. { 'lit·ə·rəl 'tranz·pōrt }
- livingstonite** HgSb₂S₇. A lead-gray mineral with red streak and metallic luster, a source of mercury. { 'liv·iŋ·stə·nīt }
- L joint** See primary flat joint. { 'el·jōint }
- Llandellian** Upper Middle Ordovician geologic time. { lan'del·yən }
- Llandoveryan** Lower Silurian geologic time. { lan·dəlvir·ē·ən }
- Llanvirnian** Lower Middle Ordovician geologic time. { lan'vir·nē·ən }
- load cast** An irregularity at the base of an overlying stratum, usually sandstone, that projects into an underlying stratum, usually shale or clay. { lōd·kast }
- load metamorphism** See static metamorphism { 'lōd·med ə'mór·fiz·əm }
- loadstone** See lodestone. { 'lōd·stōn }
- loam** Soil mixture of sand, silt, clay, and humus. { lōm }
- lobate rill mark** A flute cast formed by current action. { 'lō·bāt 'ril·märk }
- local base level** See temporary base level. { 'lō·kəl 'bās 'lev·əl }
- local peat** Peat formed by groundwater. Also known as basin peat { 'lō·kəl 'pēt }
- local relief** The vertical difference in elevation between the highest and lowest points of a land surface within a specified horizontal distance or in a limited area. Also known as relative relief. { 'lō·kəl ri'lēf }
- lode** A fissure in consolidated rock filled with mineral, usually applied to metalliferous deposits. { lōd }
- lodestone** The naturally occurring magnetic iron oxide, or magnetite, possessing polarity, and attracting iron objects to itself. Also known as Hercules stone; leading stone; loadstone. { 'lōd·stōn }
- lodranite** A stony iron meteorite composed of bronzite and olivine within a fine network of nickel-iron. { 'lō·drənīt }
- loellingite** FeAs₂. A silver-white to steel-gray mineral composed of iron arsenide with some cobalt, nickel, antimony, and sulfur; isomorphous with arsenopyrite; a source of arsenic. Also known as leucopyrite; löllingite. { 'lel·iŋ·it }

loess

- loess** An essentially unconsolidated, unstratified calcareous silt, commonly it is homogeneous, permeable, and buff to gray in color, and contains calcareous concretions and fossils. { les }
- loess kindchen** An irregular or spheroidal nodule of calcium carbonate that is found in loess. { 'les 'kint·chən }
- loeweite** $\text{Na}_3\text{Mg}_2(\text{SO}_4)_4 \cdot 5\text{H}_2\text{O}$ A white to pale-yellow mineral composed of hydrous sulfate of sodium and magnesium. { 'lā·və·īt }
- löllingite** See loellingite. { 'lɛl·ɪŋ·īt }
- lomonite** See laumontite. { lō'mā·nīt }
- lomontite** See laumontite. { lō'män·tīt }
- longitudinal dune** A type of linear dune ridge that extends parallel to the direction of the dominant dune-building winds. { 'län·jə'tüd·ən·əl 'dün }
- longitudinal fault** A fault parallel to the trend of the surrounding structure. { 'län·jə'tüd·ən·əl 'fölt }
- longshore bar** A ridge of sand, gravel, or mud built on the seashore by waves and currents, generally parallel to the shore and submerged by high tides. Also known as offshore bar. { 'lɔŋ·shòr 'bär }
- longshore drift** See littoral drift. { 'lɔŋ·shòr 'drift }
- longshore trough** A long, wide, shallow depression of the sea floor parallel to the shore. { 'lɔŋ·shòr 'trɔf }
- lonsdaleite** A mineral composed of a form of carbon; found in meteorites. { 'länz·dā·līt }
- loparite** $(\text{Ce}, \text{Na}, \text{Ca})_2(\text{Ti}, \text{Nb})_2\text{O}_6$ A brown to black mineral, a variety of perovskite containing alkalis and cerium. { 'lɔ·pə·rīt }
- lopezite** $\text{K}_2\text{Cr}_2\text{O}_7$ An orange-red mineral composed of potassium dichromate. { 'lä·pə·zīt }
- lopolith** A large, floored intrusive body that is sunken centrally into the shape of a basin due to sagging of the underlying country rock. { 'löp·ə·lith }
- lorandite** TlAsS_2 A cochineal- to carmine-red or dark lead-gray mineral composed of thallium sulfarsenide, occurring in monoclinic form. { 'lɔ·rən·dīt }
- loranskite** $(\text{Y}, \text{Ce}, \text{Ca}, \text{Zr})\text{TaO}_3$ A black mineral composed of an oxide of yttrium, cerium, calcium, tantalum, and zirconium. { lə'ran·skīt }
- loretteite** $\text{Pb}_7\text{O}_6\text{Cl}_2$ A honey-yellow to brownish-yellow mineral composed of lead oxychloride. { lə'red·ə·wīt }
- loseyite** $(\text{Mn}, \text{Zn})_7(\text{CO}_3)_2(\text{OH})_{10}$ A bluish-white or brownish, monoclinic mineral consisting of a basic carbonate of manganese and zinc. { 'lɔ·zē·īt }
- lotrite** See pumpellyite. { 'lɔ·trīt }
- loughlinite** $\text{Na}_2\text{Mg}_3\text{Si}_6\text{O}_{16} \cdot 8\text{H}_2\text{O}$ A pearly-white mineral that resembles asbestos, consisting of a hydrous silicate of sodium and magnesium. { 'lɔf·lə·nīt }
- lovchorrite** See mosandrite. { 'ləv·kò·rīt }
- lovozerite** $(\text{Na}, \text{K})_2(\text{Mn}, \text{Ca})\text{ZrSi}_6\text{O}_{16} \cdot 3\text{H}_2\text{O}$ Mineral composed of hydrous silicate of sodium, potassium, manganese, calcium, and zirconium. { lɔ'və·zə·rīt }
- low-angle fault** A fault that dips at an angle less than 45°. { 'lɔ·əŋ·gəl 'fölt }
- low-energy environment** An aqueous sedimentary environment in which there is standing water with a general lack of wave or current action, permitting accumulation of very fine-grained sediments. { 'lɔ·ən·ər·jē in'vī·ər·n·mənt }
- Lower Cambrian** The earliest period of the Cambrian period of geologic time, ending about 540,000,000 years ago. { 'lɔ·ər 'kam·brē·ən }
- Lower Cretaceous** The earliest epoch of the Cretaceous period of geologic time, extending from about 140- to 120,000,000 years ago. { 'lɔ·ər krə'tā·shəs }
- Lower Devonian** The earliest epoch of the Devonian period of geologic time, extending from about 400- to 385,000,000 years ago. { 'lɔ·ər də'vɔ·nē·ən }
- Lower Jurassic** The earliest epoch of the Jurassic period of geologic time, extending from about 185- to 170,000,000 years ago. { 'lɔ·ər jü'ras·ik }
- lower mantle** The portion of the mantle below a depth of about 600 miles (1000 kilometers). Also known as inner mantle; mesosphere; pallasite shell. { 'lɔ·ər mant·əl }
- Lower Mississippian** The earliest epoch of the Mississippian period of geologic time, beginning about 350,000,000 years ago. { 'lɔ·ər 'mis·ə'sip·ē·ən }

- Lower Ordovician** The earliest epoch of the Ordovician period of geologic time, extending from about 490- to 460,000,000 years ago. { 'lō·ər ˌɔr·dəˈvish·ən }
- Lower Pennsylvanian** The earliest epoch of the Pennsylvanian period of geologic time, beginning about 310,000,000 years ago. { 'lō·ər ˌpen·səlˈvā·nyən }
- Lower Permian** The earliest epoch of the Permian period of geologic time, extending from about 275- to 260,000,000 years ago. { 'lō·ər ˈpər·mē·ən }
- Lower Silurian** The earliest epoch of the Silurian period of geologic time, beginning about 420,000,000 years ago. { 'lō·ər səˈlūr·ē·ən }
- Lower Triassic** The earliest epoch of the Triassic period of geologic time, extending from about 230- to 215,000,000 years ago. { 'lō·ər trīˈas·ik }
- low-moor bog** A bog that is at or slightly below the ground water table { 'lō ˌmūr ˈbäg }
- low-moor peat** Peat found in low-moor bogs or swamps and containing little or no sphagnum. Also known as fen peat. { 'lō ˌmūr ˈpēt }
- low quartz** Quartz that has been formed below 573°C; the tetrahedral crystal structure is less symmetrically arranged than a quartz formed at a higher temperature. { 'lō ˈkwɔrtz }
- low-rank graywacke** A graywacke that is nonfeldspathic. { 'lō ˌraŋk ˈgrā·wak ə }
- low-rank metamorphism** A metamorphic process that occurs under conditions of low to moderate pressure and temperature. { 'lō ˌraŋk ˌmed·əˈmɔr·fiz·əm }
- low-tide terrace** A flat area of a beach adjacent to the low-water line { 'lō ˌtīd ˈter·əs }
- low-volatile coal** A coal that is nonagglomerating, has 78% to less than 86% fixed carbon, and 14% to less than 22% volatile matter. { 'lō ˌvɔl·ət·əl ˈkōl }
- Ludian** A European stage of geologic time in the uppermost Eocene, above the Bartonian and below the Tongrian of the Oligocene. { 'lū·dē·ən }
- ludlamite** $(\text{Fe}, \text{Mg}, \text{Mn})_3(\text{PO}_4)_2 \cdot 4\text{H}_2\text{O}$ A green mineral crystallizing in the monoclinic system and occurring in small, transparent crystals. { 'ləd·lāmīt }
- Ludlovian** A European stage of geologic time, Upper Silurian, below Gedinnian of Devonian, above Wenlockian. { ləd'lō·vē·ən }
- ludwigite** $(\text{Mg}, \text{Fe})_2\text{FeBO}_5$ Blackish-green mineral that crystallizes in the monoclinic system and occurs in fibrous masses; isomorphous with ronsenite. { 'ləd·wiˌgīt }
- lueneburgite** $\text{Mg}_3\text{B}_2(\text{OH})_6(\text{PO}_4)_2 \cdot 6\text{H}_2\text{O}$ A colorless mineral composed of hydrous basic phosphate of magnesium and boron. { 'lū·nə·bər·gīt }
- lueshite** NaNbO_3 An orthorhombic mineral having perovskite-type structure; it is dimorphous with natroniobite. { 'lū·əs·hīt }
- Luisian** A North American stage of geologic time Miocene (above Relizian, below Mohnian). { lū'ē·shən }
- lum** See trolley. { ləm }
- lunate bar** A crescent-shaped bar of sand that is frequently found off the entrance to a harbor. { 'lū·nāt ˈbär }
- lunette** A broad, low crescentic mound of windblown fine silt and clay. { lūˈnet }
- Lusitanian** Lower Jurassic geologic time. { 'lū·səˈtan·ē·ən }
- luster mottlings** The spotted, shimmering appearance of certain rocks caused by reflection of light from cleavage faces of crystals that contain small inclusions of other minerals. { 'ləs·tər ˌmät·lɪŋz }
- lutaceous** Claylike. { lūˈtā·shəs }
- lutecite** A fibrous, chalcedonylike quartz with optical anomalies that have led to its being considered a distinct species. { 'lūd·əs·īt }
- lutite** A consolidated rock or sediment formed principally of clay or clay-sized particles { 'lū·tīt }
- luzonite** See enargite. { 'lū·zə·nīt }

M

- maar** A volcanic crater that was created by violent explosion but not accompanied by igneous extrusion; frequently, it is filled by a small circular lake. { mār }
- macaluba** See mud volcano. { mǎ·kə'lü·bə }
- macedonite** **1.** PbTiO_3 A mineral composed of an oxide of lead and titanium **2.** A basaltic rock that contains orthoclase, sodic plagioclase, biotite, olivine, and rare pyriboles. { mas·ədä·nit }
- maceral** The microscopic organic constituents found in coal. { mas·ə'ral }
- macgovernite** $\text{Mn}_5(\text{AsO}_4)_2\text{SiO}_3(\text{OH})_2$ A mineral composed of basic manganese arsenite and silicate. Also spelled mcgovernite. { mə'gəv·ər·nīt }
- mackayite** $\text{FeTe}_2\text{O}_5(\text{OH})$ A green mineral composed of basic iron tellurite { 'mak·ē·īt }
- mackinawite** $(\text{Fe},\text{Ni})\text{S}$ A tetragonal mineral occurring as a corrosion product in iron pipes. Also known as kansite. { mə'kin·ə·wīt }
- macle** **1.** A dark or discolored spot in a mineral specimen. **2.** See chiastolite { 'mak·əl }
- macroclastic** Rock that is composed of fragments that are visible without magnification. { mak·rə'klas·tik }
- macrocrystalline** **1.** Pertaining to the texture of holocrystalline rock in which the constituents are visible without magnification **2.** Pertaining to the texture of a rock with grains or crystals greater than 0.75 millimeter in diameter in recrystallized sediment { mak·rō'krist·əl·ən }
- macrofacies** A collection of sedimentary facies that are related genetically { mak rō'fā·shēz }
- macropore** A pore in soil of a large enough size so that water is not held in it by capillary attraction. { 'mak·rə·pór }
- maculose** Of a group of contact-metamorphosed rocks or their structures, having spotted or knotted character. { 'mak·yə'lōs }
- Maestrichtian** A European stage of geologic time Upper Cretaceous (above Menevian, below Fastiniogian). { mə'strik·tē·ən }
- mafic mineral** **1.** A mineral that is composed predominantly of the ferromagnesian rock-forming silicates. **2.** In general, any dark mineral. { 'maf·ik 'min·rəl }
- maghemite** $\gamma\text{-Fe}_2\text{O}_3$ A mineral form of iron oxide that is strongly magnetic and a member of the magnetite series. { mag'hē·mīt }
- magma** The molten rock material from which igneous rocks are formed { 'mag·mə }
- magma chamber** A larger reservoir in the crust of the earth that is occupied by a body of magma. { 'mag·mə 'chām·bər }
- magma geothermal system** A geothermal system in which the dominant source of heat is a large reservoir of igneous magma within an intrusive chamber or lava pool; an example is the Yellowstone Park area of Wyoming. { 'mag·mə'jē·ō'thər·mə'l 'sīs·təm }
- magma province** See petrographic province. { 'mag·mə 'präv·əns }
- magmatic differentiation** **1.** The process by which the different types of igneous rocks are derived from a single parent magma **2.** The process by which ores are formed by solidification from magma Also known as magmatic segregation { mag'mad·ik 'dif·ə·ren·chē'ā·shən }

magmatic rock

magmatic rock A rock derived from magma. { mag' mad · ik ' räk }

magmatic segregation See magmatic differentiation { mag' mad · ik · seg · rə' gā · shən }

magmatic stoping A process of igneous intrusion in which magma gradually works its way upward by breaking off and engulfing blocks of the country rock. Also known as stoping. { mag' mad · ik ' stöp · iŋ }

magmatism The formation of igneous rock from magma. { ' mag · mə · tiz · əm }

magmosphere See pyrosphere. { ' mag · mə · sfir }

magnafacies A major, continuous belt of deposits that is homogeneous in lithologic and paleontologic characteristics and that extends obliquely across time planes or through several time-stratigraphic units. { ' mag · nə' fā · shēz }

magnesia mica See biotite. { mag' nē · zhə ' mī · kə }

magnesian calcite (Ca, Mg)CO₃ A variety of calcite consisting of randomly substituted magnesium carbonate in a disordered calcite lattice. Also known as magnesium calcite. { mag' nē · zhən ' kal · sīt }

magnesian limestone Limestone with at least 90% calcite, a maximum of 10% dolomite, an approximate magnesium oxide equivalent of 1.1-2.1, and an approximate magnesium carbonate equivalent of 2.3-4.4. { mag' nē · zhən ' līm · stōn }

magnesian marble A type of magnesian limestone that has been metamorphosed; contains some dolomite. Also known as dolomitic marble. { mag' nē · zhən ' mār · bəl }

magnesiochromite MgCr₂O₄ A mineral of the spinel group composed of magnesium chromium oxide; it is isomorphous with chromite. Also known as magnochromite. { mag · nē · zhō · ' krō · mīt }

magnesiocopiapite MgFe₄(SO₄)₆(OH)₂ · 20H₂O A mineral of the copiapite group composed of hydrous basic magnesium and iron sulfate; it is isomorphous with copiapite and cuprocopiapite. { mag · nē · zhō · ' kō · pē · ə · pīt }

magnesioferrite (Mg, Fe)Fe₂O₄ A black, strongly magnetic mineral of the magnetite series in the spinel group. Also known as magnoferrite. { mag · nē · zhō' fe · rīt }

magnesite MgCO₃ The mineral form of magnesium carbonate, usually massive and white, with hexagonal symmetry; specific gravity is 3, and hardness is 4 on Mohs scale. Also known as giobertite. { ' mag · nə · sīt }

magnesium calcite See magnesian calcite. { mag' nē · zē · əm ' kal · sīt }

magnesium-iron mica See biotite. { mag' nē · zē · əm ' ī · ərn ' mī · kə }

magnetic iron ore See magnetite. { mag' ned · ik ' ī · ərn ' ōr }

magnetite An opaque iron-black and streak-black isometric mineral and member of the spinel structure type, usually occurring in octahedra or in granular to massive form; hardness is 6 on Mohs scale, and specific gravity is 5.20. Also known as magnetic iron ore; octahedral iron ore. { ' mag · nə · tīt }

magnetoplumbite (Pb, Mn)₂Fe₆O₁₁ Black mineral consisting of a ferric oxide of plumbite and manganese, and occurring in acute metallic hexagonal crystals. { mag · nēd · ə' pləm · bīt }

magnetostratigraphy A branch of stratigraphy in which sedimentary successions are described and interpreted in terms of remanent magnetization. { mag' ned · ō · strə' tig · rə · fē }

magnochromite See magnesiochromite. { ' mag · nə' krō · mīt }

magnoferrite See magnesioferrite. { ' mag · nə' fe · rīt }

magnophorite NaKCaMg₃Si₃O₂ · OH A monoclinic mineral composed of a basic silicate of sodium, potassium, calcium, and magnesium; member of the amphibole group. { ' mag · nə' fōr · it }

main joint See master joint. { ' mān ' jōint }

major fold A large-scale fold with which minor folds are usually associated. { ' mā · jər ' fōld }

major joint See master joint. { ' mā · jər ' jōint }

malachite Cu₂CO₃(OH)₂ A bright-green monoclinic mineral consisting of a basic carbonate of copper and usually occurring in massive forms or in bundles of radiating fibers; specific gravity is 4.05, and hardness is 3.5-4 on Mohs scale. { ' mal · ə · kīt }

malacolite See diopside. { ' mal · ə · kə · līt }

malchite A fine-grained lamprophyre with small, rare phenocrysts or hornblende, lab-

- radiorite, and sometimes biotite embedded in a matrix of hornblende, andesine, and some quartz. { 'mal·kīt }
- maldonite** Au_2Bi A pinkish silver-white mineral consisting of gold and bismuth, occurs in massive granular form. { 'mal·də·nīt }
- malladrite** Na_2SiF_6 A hexagonal mineral composed of sodium fluosilicate, occurring as small crystals in volcanic holes in Vesuvius. { mə'lä·drit }
- mallardite** $MnSO_4 \cdot 7H_2O$ A pale-rose, monoclinic mineral composed of hydrous manganese sulfate. { mə'lär·dīt }
- Malm** The Upper Jurassic geologic series, above Dogger and below Cretaceous. { mäm }
- malysite** $FeCl_3$ A halogen mineral deposited by sublimation, found most commonly at Mount Vesuvius, Italy. { 'mal·ə·sīt }
- mamelon** A small, rounded volcano which forms over a vent as a result of the slow extrusion of viscous, silicic lava. { 'mam·ə·lən }
- mammillary** Of or pertaining to an aggregate of crystals in the form of a rounded mass { 'ma·mə·ler·ē }
- mammillary structure** See pillow structure. { 'ma·mə·ler·ē 'stræk çər }
- manandonite** $Li_4Al_{14}B_2Si_6O_{29}(OH)_{14}$ A white mineral composed of basic borosilicate of lithium and aluminum. { mə'nän·də·nīt }
- manasseite** $Mg_6Al_2(OH)_{10}(CO_3) \cdot 4H_2O$ A hexagonal mineral composed of basic hydrous magnesium and aluminum carbonate; it is dimorphous with hydrotalcite { mə'näs·ē·īt }
- manganese epidote** See piemontite. { 'maŋ·gə·nēs 'ep·ə·döt }
- manganese nodule** Small, irregular black to brown concretions consisting chiefly of manganese salts and manganese oxide minerals; formed in oceans as a result of pelagic sedimentation or precipitation. { 'maŋ·gə·nēs 'naj·ül }
- manganite** $MnO(OH)$ A brilliant steel-gray or black polymorphous mineral, crystallizes in the orthorhombic system. Also known as gray manganese ore. { 'maŋ·gə·nīt }
- manganolangbeinite** $K_2Mn_2(SO_4)_2$ A rose-red, isometric mineral composed of potassium manganese sulfate; occurs in lava on Vesuvius. { 'maŋ·gə·nō'laŋ·bī·nīt }
- manganosite** MnO An emerald-green isometric mineral occurring in small octahedrons that blacken on exposure; hardness is 5-6 on Mohs scale, and specific gravity is 5.18. { 'maŋ·gə'nō·sīt }
- mankato stone** A variety of limestone containing more than 49% calcium carbonate, with about 4.5% alumina and some silica. { man'käd·ō 'stōn }
- mansfieldite** $Al(AsO_4) \cdot 2H_2O$ A white to pale-gray orthorhombic mineral composed of hydrous aluminum arsenate; it is isomorphous with scorodite. { 'manz'fēl·dīt }
- mantle** The intermediate shell zone of the earth below the crust and above the core (to a depth of 2160 miles or 3480 kilometers). { 'mant·əl }
- mantled gneiss dome** A dome in metamorphic terrains that has a remobilized core of gneiss surrounded by a concordant sheath of the basal part of the overlying metamorphic sequence. { 'mant·əld 'nīs 'dōm }
- mantle rock** See regolith. { 'mant·əl 'ræk }
- manto** A sedimentary or igneous ore body occurring in flat-lying depositional layers { 'man·tō }
- marble** 1. Metamorphic rock composed of recrystallized calcite or dolomite.
2. Commercially, any limestone or dolomite taking polish. { 'mär·bəl }
- marcasite** FeS_2 A pale bronze-yellow to nearly white mineral, crystallizing in the orthorhombic system; hardness is 6-6.5 on Mohs scale, and specific gravity is 4.89. { 'mär·kəsīt }
- marekanite** Rounded to subangular obsidian bodies that occur in masses of perlite { 'mär·ə'l·kə·nīt }
- margarite** 1. A string of beadlike globulites, commonly found in glassy igneous rocks
2. $CaAl_2(Al_2Si_2)O_{10}(OH)_2$ A pink, reddish, or yellow, brittle mica mineral { 'mär·gə·rīt }
- margarosanite** $PbCa_2(SiO_3)_3$ A colorless or snow-white triclinic mineral composed of lead calcium silicate, occurring in lamellar masses. { 'mär·gə'rōs·ən·īt }

marginal escarpment

- marginal escarpment** A seaward slope of a marginal plateau with a gradient of 1:10 or more. { 'mär·jən·əl e'skärp·mənt }
- marginal fissure** A magma-filled fracture bordering an igneous intrusion { 'mär·jən·əl 'fɪʃ·ər }
- marginal moraine** See terminal moraine. { 'mär·jən·əl mə'rān }
- marginal plain** See outwash plain. { 'mär·jən·əl 'plān }
- marginal plateau** A relatively flat shelf adjacent to a continent and similar topographically, but deeper than, a continental shelf. { 'mär·jən·əl pla'tō }
- marginal salt pan** A natural, coastal salt pan. { 'mär·jən·əl 'sɔlt·pan }
- marginal thrust** One of a series of faults bordering an igneous intrusion and crossing both the intrusion and the wall rock. Also known as marginal upthrust. { 'mär·jən·əl 'θrəst }
- marginal upthrust** See marginal thrust. { 'mär·jən·əl 'əp·θrəst }
- marialite** $3\text{NaAlSi}_3\text{O}_8 \cdot \text{NaCl}$ A scapolite mineral that is isomorphous with meronite. { mə'rē·əl'īt }
- marine abrasion** Erosion of the ocean floor by sediment moved by ocean waves. Also known as wave erosion. { mə'rēn ə'brā·zhən }
- marine arch** See sea arch. { mə'rēn 'ärch }
- marine bridge** See sea arch. { mə'rēn 'brɪj }
- marine cave** See sea cave. { mə'rēn 'kāv }
- marine-cut terrace** A terrace or platform cut by wave erosion of marine origin. Also known as wave-cut terrace. { mə'rēn 'kət 'ter·əs }
- marine geology** See geological oceanography. { mə'rēn jē'al·ə·jē }
- Marinesian** See Bartonian. { mar·ə'nē·zhē·ən }
- marine stack** See stack. { mə'rēn 'stak }
- marine terrace** A seacoast terrace formed by the merging of a wave-built terrace and a wave-cut platform. Also known as sea terrace; shore terrace. { mə'rēn 'ter·əs }
- marine transgression** See transgression. { mə'rēn tranz'grəsh·ən }
- marker bed** **1.** A stratified unit with distinctive characteristics making it an easily recognized geologic horizon. **2.** A rock layer which accounts for a characteristic portion of a seismic refraction time-distance curve. **3.** See key bed. { 'märk·ər 'bed }
- marl** A deposit of crumbling earthy material composed principally of clay with magnesium and calcium carbonate; used as a fertilizer for lime-deficient soils. Also known as malm. { mār'l }
- marlstone** **1.** A consolidated rock that has about the same composition as marl; considered to be an earthy or impure argillaceous limestone. Also known as marlite. **2.** A hard ferruginous rock of the Middle Lias in England. { 'mär'lstōn }
- marly** Pertaining to, containing, or resembling marl. { 'mär·lē }
- marmatite** A dark-brown to black mineral composed of iron-bearing sphalerite. Also known as christophite. { 'mär·mə'tīt }
- marmolite** A pale-green serpentine mineral, occurring in thin laminations, a variety of chrysotile. { 'mär·mə'līt }
- Marmor** A North American stage of Middle Ordovician geologic time, forming the lower subdivision of Chazyan, above Whiterock and below Ashby. { 'mär·mör }
- marrite** PbAgAsS_3 A monoclinic mineral, occurring as small crystals in Valais, Switzerland. { 'mä·rīt }
- marshite** CuI A reddish, oil-brown isometric mineral composed of cuprous iodide and occurring as crystals; hardness is 2.5 on Mohs scale, and specific gravity is 5.6. { 'mär·shīt }
- marsh ore** See bog iron ore. { 'märsh 'ör }
- martite** Hematite occurring in iron-black octahedral crystals pseudomorphous after magnetite. { 'mär·tīt }
- mascagnite** $(\text{NH}_4)_2\text{SO}_4$ A yellowish-gray mineral found in guano, near burning coal beds, or as lava incrustation; specific gravity is 1.77; hardness is 2-2.5 on Mohs scale. { mə'skan·yīt }
- mascon** A large, high-density mass concentration below a ringed mare on the surface of the moon. { 'mas·kän }
- mass erosion** A process in which the direct application of gravitational body stresses

- causes earth and rocks to fall and be carried downslope. Also known as gravity erosion. { 'mas i'rō-zhən }
- mass heaving** A comprehensive expansion of the ground due to freezing { 'mas 'hēv-iŋ }
- massicot** PbO A yellow, orthorhombic mineral consisting of lead monoxide, found in the western and southern United States. Also known as lead ochre. { 'mas-ə-kät }
- massif** A massive block of rock within an erogenic belt, generally more rigid than the surrounding rocks, and commonly composed of crystalline basement or younger plutons. { ma'sēf }
- massive** **1.** Of a mineral deposit, having a large concentration of ore in one place. **2.** Of a mineral, lacking an internal structure. **3.** Of a competent rock, being homogeneous, isotropic, and elastically perfect. **4.** Of a metamorphic rock, having constituents which do not show parallel orientation and are not arranged in layers. **5.** Of igneous rocks, being homogeneous over wide areas and lacking layering, foliation, cleavage, or similar features. { 'mas-iv }
- mass movement** Movement of a portion of the land surface as a unit. { 'mas 'müv-mənt }
- mass wasting** Dislodgement and downslope transport of loose rock and soil material under the direct influence of gravitational body stresses. { 'mas-wäst-iŋ }
- master joint** A persistent joint plane of greater than average extent, generally constituting the dominant jointing of an area. Also known as main joint; major joint. { 'mas-tər 'jōint }
- matched terrace** See paired terrace. { 'macht 'ter-əs }
- material unit** A stratigraphic unit based on rocks and their fossil content without time implication. { mə'tir-ē-əl ,yü-nət }
- mathematical geology** The branch of geology concerned with the study of probability distributions of values of random variables involved in geologic processes. { 'math-əl-mad-ə-kəl jē'äl-ə-jē }
- matildite** Ag₂BiS₄ An iron black to gray, orthorhombic mineral consisting of silver bismuth sulfide; occurrence is massive or granular. { mə'til-dīt }
- matlockite** PbFCl A mineral consisting of lead chloride and fluoride { 'mat-ləkīt }
- matric forces** Forces acting on soil water that are independent of gravity but exist due to the attraction of solid surfaces for water, the attraction of water molecules for each other, and a force in the air-water interface due to the polar nature of water. { 'mā-trik /fōrs-əz }
- matrix** The continuous, fine-grained material in which large grains of a sediment or sedimentary rock are embedded. Also known as groundmass. { 'mā-triks }
- matrix porosity** Core-sample porosity determined from a small sample of the core in contrast to total porosity, where the whole core is used. { 'mā-triks pə'rās-əd-ē }
- matrix rock** See land pebble phosphate. { 'mā-triks ,rāk }
- mature** **1.** Pertaining to a topography or region, and to its landforms, having undergone maximum development and accentuation of form. **2.** Pertaining to the third stage of textural maturity of a clastic sediment. { mə'chūr }
- matureland** The land surface which is characteristic of the mature stage in the erosion cycle. { mə'chūr-land }
- mature soil** See zonal soil. { mə'chūr 'sōil }
- maturity** **1.** The second stage of the erosion cycle in the topographic development of a landscape or region characterized by numerous and closely spaced mature streams, reduction of level surfaces to slopes, large well-defined drainage systems, and the absence of swamps or lakes on the uplands. Also known as topographic maturity. **2.** A stage in the development of a shore or coast that begins with the attainment of a profile of equilibrium. **3.** The extent to which the texture and composition of a clastic sediment approach the ultimate end product. **4.** The stage of stream development at which maximum vigor and efficiency has been reached { mə'chūr əd ē }
- maturity index** A measure of the progress of a clastic sediment in the direction of chemical or mineralogic stability; for example, a high ratio of quartz + cherts to feldspar + rock fragments indicates a highly mature sediment. { mə'chūr-əd-ē /in-deks }

maucherite

- maucherite** $Ni_{11}As_8$ A reddish silver-white mineral composed of nickel arsenide. { 'mau·chə·rīt }
- maximum subsidence** The maximum amount of subsidence in a basin { 'mak·sə·məm səb'sid·əns }
- mcgovernite** See macgovernite. { mə'gəv·ər·nīt }
- meadow ore** See bog iron ore. { 'med·ō·'or }
- meander bar** See point bar. { mē'an·dər·bār }
- meander belt** The zone along the floor of a valley across which a meandering stream periodically shifts its channel. { mē'an·dər·belt }
- meander core** A hill encircled by a stream meander. Also known as rock island. { mē'an·dər·kōr }
- meander niche** A conical or crescentic opening in the wall of a cave formed by downward and lateral stream erosion. { mē'an·dər·nich }
- meander plain** A plain built by the meandering process, or a plain of lateral accretion. { mē'an·dər·plān }
- meander scar** A crescentic, concave mark on the face of a bluff or valley wall formed by a meandering stream. { mē'an·dər·skär }
- meander spur** An undercut projection of high land that extends into the concave part of, and is enclosed by, a meander. { mē'an·dər·spər }
- mechanical erosion** See corrasion. { mi'kan·ə·kəl i'rō·zhən }
- mechanical sediment** See clastic sediment. { mi'kan·ə·kəl 'sed·ə·mənt }
- mechanical weathering** The process of weathering by which physical forces break down or reduce a rock to smaller and smaller fragments, involving no chemical change. Also known as physical weathering. { mi'kan·ə·kəl 'weth·ə·riŋ }
- medial moraine** 1. An elongate moraine carried in or upon the middle of a glacier and parallel to its sides. 2. A moraine formed by glacial abrasion of a rocky protuberance near the middle of a glacier. { 'mē·dē·əl mə'rān }
- median mass** A less disturbed structural block in the middle of an orogenic belt, bordered on both sides by orogenic structure, thrust away from it. Also known as betwixt mountains; Zwischengebirge. { 'mē·dē·ən 'mas }
- median particle diameter** The middlemost particle diameter of a rock or sediment, larger than 50% of the diameter in the distribution and smaller than the other 50%. { 'mē·dē·ən 'pārd·ə·kəl dī·əm·əd·ər }
- medina quartzite** A variety of quartz containing 97.8% silica, melting point is about 1700°C. { mə'dē·nə 'kwórt·sīt }
- mediterranean** See mesogeosyncline. { 'med·ə·tə'rā·nē·ən }
- medium-volatile bituminous coal** Bituminous coal consisting of 23-31% volatile matter. { 'mē·dē·əm 'vāl·ə·təl bə'tū·mə·nəs 'kōl }
- meerschäum** See sepiolite. { 'mir·shóm }
- megacryst** Any crystal or grain in an igneous or metamorphic rock that is significantly larger than the surrounding matrix. { 'meg·ə·krist }
- megacyclothem** A cycle of or combination of related cyclothem { 'meg·ə'sī·klə·them }
- megaripple** A large sand wave. { 'meg·ə·rīp·əl }
- megatectonics** The tectonics of the very large structural features of the earth. { 'meg·ə·tek'tän·iks }
- meionite** $3CaAl_2Si_2O_8 \cdot CaCO_3$ A scapolite mineral composed of calcium aluminosilicate and calcium carbonate; it is isomorphous with marialite. { 'mī·ənīt }
- mélange** A heterogeneous medley or mixture of rock materials; specifically, a mappable body of deformed rocks consisting of a pervasively sheared, fine-grained, commonly pelitic matrix, thoroughly mixed with angular and poorly sorted inclusions of native and exotic tectonic fragments, blocks, or slabs, of diverse origins and geologic ages, that may be as much as several kilometers in length. Also known as block clay. { mā'länzh }
- melanic** See melanocratic. { me'lan·ik }
- melanocerite** $(Ca,Ce,Y)_8(BO_3)_4(SiO_4)_4(F,OH)_4$ A brown or black rhombohedral mineral composed of complex silicate, borate, fluoride, tantalate, or other anion of cerium, yttrium, calcium, and other metals; occurs as crystals. { 'mel·ə·nō'se·rīt }

- melanocratic** Dark-colored, referring to igneous rock containing at least 50-60% mafic minerals. Also known as chromocratic; melanic. { 'mel·ə·nō'krad·ik }
- melanophlogite** A mineral composed chiefly of silicon dioxide and containing some carbon and sulfur. { 'mel·ə·nō'flō·jīt }
- melanostibian** $Mn(Sb,Fe)O_3$ A black mineral consisting of iron and manganese antimonite; occurs as foliated masses and as striated crystals. { 'mel·ə·nō'stib·ē·ən }
- melanotekite** $Pb_2Fe_2Si_2O_9$ A black or dark-gray mineral composed of lead iron silicate. { 'mel·ə·nō'tek'īt }
- melovanadite** $Ca_2V_{10}O_{25}$ A black mineral composed of a complex oxide of calcium and vanadium. { 'mel·ə·nō'van·ə'dīt }
- melanterite** $FeSO_4 \cdot 7H_2O$ A green mineral occurring mainly in fibrous or concretionary masses, or in short, monoclinic, prismatic crystals; hardness is 2 on Mohs scale, and specific gravity is 1.90. { mə'lan·tə'rīt }
- melaphyre** Altered basalt, especially of Carboniferous and Permian age. { 'mel·ə'fīr }
- melilite** A sorosilicate mineral group of complex composition $[(Na,Ca)_2(Mg,Al)(Si,Al)_2O_7]$ crystallizing in the tetragonal system; luster is vitreous to resinous, and color is white, yellow, greenish, reddish, or brown, hardness is 5 on Mohs scale, and specific gravity varies from 2.95 to 3.04. { 'mel·ə'līt }
- melilitite** An extrusive rock that is generally olivine-free and composed of more than 90% mafic mineral such as melilite and augite, with minor amounts of feldspathoids and sometimes plagioclase. { mə'lil·ə'tīt }
- meliphane** See meliphanite. { 'mel·ə'fān }
- meliphanite** $(Ca,Na)_2Be(Si,Al)_2(O,OH,F)_7$ A yellow, red, or black mineral composed of sodium calcium beryllium fluosilicate. Also known as meliphane. { mə'lif·ə'nīt }
- mellite** $Al_2[C_6(COO)_6] \cdot 18H_2O$ A honey-colored mineral with resinous luster composed of the hydrous aluminum salt of mellitic acid, occurring as nodules in brown coal; it is in part a product of vegetable decomposition. { 'me'līt }
- melonite** $NiTe_2$ A reddish white mineral composed of nickel telluride { 'mel ə'nīt }
- member** A rock stratigraphic unit of subordinate rank comprising a specially developed part of a varied formation. { 'mem·bər }
- mendip** **1.** A buried hill that is exposed as an inlier **2.** A coastal-plain hill that was originally an offshore island. { 'men'dip }
- mendipite** $Pb_3Cl_2O_2$ A white orthorhombic mineral consisting of an oxide and chloride of lead. { 'men·də'pīt }
- mendozite** $NaAl(SO_4)_2 \cdot 11H_2O$ A monoclinic mineral of the alum group composed of hydrous sodium aluminum sulfate. { 'men·də'zīt }
- meneghinite** $CuPb_{13}Sb_7S_{24}$ A blackish lead gray mineral consisting of lead antimony sulfide. { 'men·ə'gē'nīt }
- Meramecian** A North American provincial series of geologic time Upper Mississippian (above Osagian, below Chesterian). { 'mer·ə'mē·shən }
- mercallite** $KHSO_4$ A colorless or sky blue, orthorhombic mineral consisting of potassium acid sulfate; occurs as stalactites composed of minute crystals. { mə'r'kal'īt }
- mercurial horn ore** See calomel. { mər'kyūr·ē·əl 'hörn ɔ'r }
- meridional** Pertaining to longitudinal movements or directions, that is, northerly or southerly. { mə'rid·ē·ən·əl }
- merismite** A type of chorismite in which penetration of the diverse units is irregular. { mə'riz'mīt }
- merocrystalline** See hypocrySTALLINE. { 'mer·ə'krist·əl·ən }
- merrhueite** $(K,Na)_1(Fe,Mg)_5Si_{12}O_{30}$ A silicate mineral found only in meteorites { 'mer·ə'hwā'īt }
- merrillite** $Ca_3(PO_4)_2$ Colorless phosphate mineral found only in meteorites { 'mer·ə'līt }
- Mersey yellow coal** See tasmanite. { 'mə'r·zē 'yel·ō 'kōl }
- merwinite** $Ca_4MgSi_3O_8$ A rare colorless or pale-green neosilicate mineral crystallizing in the monoclinic system occurs in granular aggregates showing polysynthetic twinning; hardness is 6 on Mohs scale, and specific gravity is 3.15 { 'mə'r·wə'nīt }
- merzlota** See frozen ground. { 'merz'lō·tə }
- mesh texture** See reticulate. { 'mesh 'teks·chər }

mesocratic

- mesocratic** Of igneous rock, being intermediate in color between leucocratic and melanocratic due to equal amounts of light and dark constituents. { 'mez·ə'krad·ik }
- mesocrystalline** Of a crystalline rock, containing crystals whose diameters are intermediate between microcrystalline and macrocrystalline rock. { 'mez·ə'krɪst·əl·ən }
- mesogeosyncline** A geosyncline between two continents. Also known as mediterranean. { 'me·zō·jē·ō'sɪŋ·klɪn }
- mesolite** $\text{Na}_2\text{Ca}_2\text{Al}_6\text{Si}_6\text{O}_{30} \cdot 8\text{H}_2\text{O}$ Zeolite mineral composed of hydrous sodium calcium aluminosilicate, usually found in white or colorless tufts of acicular crystals; used as cation exchangers or molecular sieves. { 'mez·ə'lɪt }
- mesosiderite** A stony-iron meteorite containing about equal amounts of silicates and nickel-iron, with considerable troilite. Also known as grahamite. { 'me·zō'sɪd·ə'rɪt }
- mesosphere** See lower mantle. { 'mez·ə'sfɪr }
- mesostasis** The last-formed interstitial material, either glassy or aphanitic, of an igneous rock. { 'me·zō'stā·səs }
- mesothermal** Of a hydrothermal mineral deposit, formed at great depth at temperatures of 200-300°C. { 'mez·ə'thər·məl }
- mesotil** A semiplastic or semifriable derivative of chemically weathered till; forms beneath a partially drained area. { 'mez·ə'tɪl }
- Mesozoic** A geologic era from the end of the Paleozoic to the beginning of the Cenozoic; commonly referred to as the Age of Reptiles. { 'mez·ə'zō·ɪk }
- mesozone** The intermediate depth zone of metamorphism in metamorphic rock characterized by moderate temperatures (300-500°C), hydrostatic pressure, and shearing stress. { 'mez·ə'zōn }
- metaanthracite** Anthracite coal containing at least 98% fixed carbon { 'med·ə'an·θrə'sɪt }
- metabentonite** Altered bentonite, formed by compaction or metamorphism; it swells very little and lacks the usual high colloidal properties of bentonite. { 'med·ə'bent·ən'ɪt }
- metacinnabar** HgS A black isometric mineral that represents an ore of mercury. Also known as metacinnabarite. { 'med·ə'sɪn·ə'bär }
- metacinnabarite** See metacinnabar. { 'med·ə'sɪn·ə'bær'ɪt }
- metacryst** A large crystal, such as garnet, formed in metamorphic rock by recrystallization. Also known as metacrystal. { 'med·ə'krɪst }
- metahalloysite** A term used in Europe for the less hydrous form of halloysite. Also known as halloysite in the United States. { 'med·ə'hə'lōi·sɪt }
- metaharmonis** See metharmonis. { 'med·ə'här'mō·səs }
- metahewettite** $\text{CaV}_6\text{O}_{16} \cdot 9\text{H}_2\text{O}$ A deep red, probably orthorhombic mineral consisting of hydrated calcium vanadate; occurs as pulverulent masses. { 'med·ə'hyü·ət'ɪt }
- metahohmannite** $\text{Fe}_2(\text{SO}_4)_2(\text{OH})_2 \cdot 3\text{H}_2\text{O}$ An orange mineral consisting of a hydrated basic iron sulfate; occurs as pulverulent masses. { 'med·ə'hō·mə'nɪt }
- metagneous** Pertaining to metamorphic rock formed from igneous rock. { 'med·ə'g·nē·əs }
- metalliferous** Pertaining to mineral deposits from which metals can be extracted. { 'med·əl'ɪf·ə'rəs }
- metallogenic province** A region characterized by a particular mineral assemblage, or by one or more specific types of mineralization. Also known as metallographic province. { mə'tal·ə'jɛn·ɪk 'prɒv·əns }
- metallographic province** See metallogenic province. { mə'tal·ə'graf·ɪk 'prɒv·əns }
- metamict** Of a radioactive mineral, exhibiting lattice disruption due to radiation damage while the original external morphology is retained. { 'med·ə'mɪkt }
- metamorphic aureole** See aureole. { 'med·ə'mɔr·fɪk 'ɔr·ē·ōl }
- metamorphic breccia** Breccia formed by metamorphism. { 'med·ə'mɔr·fɪk 'brɛtʃ·ə }
- metamorphic differentiation** Processes by which different mineral assemblages develop in some sequence from an initially uniform parent rock. { 'med·ə'mɔr·fɪk 'dɪf·ə'ren·chē'ā·ʃən }
- metamorphic facies** All rocks of any composition that have reached chemical equilibrium with respect to certain ranges of pressure and temperature during metamor-

- phism, characterized by the stability of specific index minerals. Also known as densofacies. { ɪmed·əlmór·fik 'fā·shēz }
- metamorphic facies series** A group of metamorphic facies characteristic of an individual area, represented in a pressure-temperature diagram by a curve or group of curves illustrating the range of the different types of metamorphism and metamorphic facies. { ɪmed·əlmór·fik 'fā·shēz 'sir·ēz }
- metamorphic overprint** See overprint. { ɪmed·əlmór·fik 'ō·vər·prɪnt }
- metamorphic rock** A rock formed from preexisting solid rocks by mineralogical, structural, and chemical changes, in response to extreme changes in temperature, pressure, and shearing stress. { ɪmed·əlmór·fik 'ræk }
- metamorphic rock reservoir** Uncommon type of formation for oil reservoir, developed when secondary porosity results from fracturing or weathering. { ɪmed·əlmór·fik 'ræk 'rez·əv·wär }
- metamorphic zone** See aureole. { ɪmed·əlmór·fik 'zōn }
- metamorphism** The mineralogical and structural changes of solid rock in response to environmental conditions at depth in the earth's crust. { ɪmed·əlmór·fiz·əm }
- metaquartzite** A quartzite formed by metamorphic recrystallization. { ɪmed·ə'kwɔrtzīt }
- metaripple** An asymmetrical sand ripple. { 'med·ə'rip·əl }
- metarossite** $\text{CaV}_2\text{O}_6 \cdot 2\text{H}_2\text{O}$ A light yellow mineral consisting of hydrated calcium vanadate; occurs as masses and veinlets. { ɪmed·ə'ròsīt }
- metasediment** A sediment or sedimentary rock which shows evidence of metamorphism. Metamorphic rock formed from sedimentary rock. { ɪmed·ə'sed·ə·mənt }
- metasideronatriite** $\text{Na}_4\text{Fe}_2(\text{SO}_4)_4(\text{OH})_2 \cdot 3\text{H}_2\text{O}$ A yellow mineral composed of basic hydrous iron sodium sulfate. { ɪmed·ə'sid·ə·rə'nā·trīt }
- metasilicate** A salt of the hypothetical metasilicic acid H_2SiO_3 . Also known as bisilicate. { ɪmed·ə'sil·ə·kāt }
- metasomatic** Pertaining to the process or the result of metasomatism. { ɪmed ə sō'mad·ik }
- metasomatism** A variety of metamorphism in which one mineral or a mineral assemblage is replaced by another of different composition without melting. { ɪmed ə'sō mə'tiz·əm }
- metatorbernite** $\text{Cu}(\text{UO}_2)_2(\text{PO}_4)_2 \cdot 8\text{H}_2\text{O}$ A green secondary mineral composed of hydrous copper uranium phosphate; similar to torbernite, but with less water content. { ɪmed·ə'tór·bər·nīt }
- metavariscite** $\text{AlPO}_6 \cdot 2\text{H}_2\text{O}$ A green monoclinic mineral composed of hydrous aluminum phosphate; it is isomorphous with phosphosiderite. { ɪmed·ə'var·ə'sīt }
- metavauxite** $\text{FeAl}_2(\text{PO}_4)_2(\text{OH})_2 \cdot 8\text{H}_2\text{O}$ A colorless mineral composed of hydrous basic phosphate of iron and aluminum; similar to vauxite, but with more water. { ɪmed·ə'vøk·sīt }
- metavoltine** A yellowish-brown or orange-brown to greenish-brown, hexagonal mineral consisting of a hydrated basic sulfate of iron and potassium; occurs in tabular form or as aggregates. { ɪmed·ə'vól·tēn }
- metazeunerite** $\text{Cu}(\text{UO}_2)_2(\text{AsO}_4)_2 \cdot 8\text{H}_2\text{O}$ A grass to emerald green, tetragonal mineral consisting of a hydrated arsenate of copper and uranium; occurs in tabular form. { ɪmed·ə'zói·nə·rīt }
- meteoric stone** See stony meteorite. { 'mēd·ē'ór·ik 'stōn }
- meteorite** Any meteoroid that has fallen to the earth's surface. { 'mēd·ē·ə·rīt }
- meteorite crater** An impact crater on the surface of the earth or of a celestial body caused by a meteorite, a characteristic feature on the earth is the upturned rim, which formed as the rocks rebounded following the impact. { 'mēd·ē·ə·rīt 'kräd·ər }
- meteorolite** See stony meteorite. { 'med·ē'ór·ə·līt }
- metharmosis** Changes that occur in a buried sediment after uplift or consolidation but before the onset of weathering. Also spelled metharmosis. { mə'thär·mə'səs }
- Mexican onyx** See onyx marble. { 'mek·si·kən 'än·iks }
- meyerhofferite** $\text{Ca}_7\text{B}_6\text{O}_{11} \cdot 7\text{H}_2\text{O}$ A colorless, hydrated borate mineral that crystallizes in the triclinic system. { 'mī·ər·häf·ə·rīt }
- miagite** See corsite. { 'mī·ə'jīt }

miarogyrite

- miarogyrite** AgSbS_2 An iron-black to steel-gray mineral that crystallizes in the monoclinic system. { mī'ār·jə·rīt }
- miarolithite** A chormsinite type of igneous rock having miarolitic cavities or vestiges thereof. { 'mē·ə'rō·lə·thīt }
- miarolitic** Of igneous rock, characterized by small irregular cavities into which well-formed crystals of the rock-forming mineral protrude. { 'lmē·ə·rō'lid·ik }
- mica** A group of phyllosilicate minerals (with sheetlike structures) of general formula $(\text{K}, \text{Na}, \text{Ca})_2(\text{Mg}, \text{Fe}, \text{Li}, \text{Al})_2, 3(\text{Al}, \text{Si})_4\text{O}_{10}(\text{OH}, \text{F})_2$ characterized by low hardness (2-2½) and perfect basal cleavage. { 'mī·kə }
- mica book** A crystal of mica, usually large and irregular, whose cleavage plates resemble the leaves of a book. Also known as book. { 'mī·kə·'būk }
- micaceous** Pertaining to or resembling mica. { mī'kā·shəs }
- micaceous arkose** A sandstone containing 25-90% feldspars and feldspathic crystalline rock fragments, 10-50% micas and micaceous metamorphic rock fragments, and 0-65% quartz, chert, and metamorphic quartzite. { mī'kā·shəs·'ār·kōs }
- mica schist** A schist which is composed essentially of mica and quartz and whose characteristic foliation is mainly due to the parallel orientation of the mica flakes. { 'mī·kə·'shist }
- micrinite** An opaque granular variety of inertinite of medium hardness showing no plant-cell structure. { 'mī·krə·nīt }
- micrite** A semiopaque crystalline limestone matrix that consists of chemically precipitated calcite mud, whose crystals are generally 1-4 micrometers in diameter. { 'mī·krīt }
- microbreccia** A poorly sorted sandstone containing large, angular sand particles in a fine silty or clayey matrix. { 'mī·krō'brech·ə }
- microcline** KAlSi_3O_8 A triclinic potassium-rich feldspar, usually containing minor amounts of sodium; may be clear, white, pale-yellow, brick-red, or green, and is generally characterized by crosshatch twinning. { 'mī·krə'klīn }
- microcoquina** A clastic limestone composed wholly or partially of cemented sand-size particles of shell detritus. { 'mī·krō·kə'kē·nə }
- microfacies** The composition, features, or appearance of a rock or mineral in thin section under the microscope. { 'lmī·krō'fā·shēz }
- microlite** $(\text{Na}, \text{Ca})_2(\text{Ta}, \text{Nb})_2\text{O}_6(\text{O}, \text{OH}, \text{F})$ A pale-yellow, reddish, brown, or black isometric mineral composed of sodium calcium tantalum oxide with a small amount of fluorine; it is isomorphous with pyrochlore. Also known as djalmaite. { 'mī·krə·līt }
- microlithology** Microscopic study of the characteristics of rocks { 'lmī·krō·li'thāl·ə·jē }
- microlitic** Of the texture of a porphyritic igneous rock, having a groundmass composed of an aggregate of microlites in a generally glassy base. { 'lmī·krə'lid·ik }
- micropegmatite** Microcrystalline graphic granite. { 'lmī·krō'peg·mə'tīt }
- micropertite** Perthite in which the lamellae are visible only under the microscope. { 'lmī·krō'pər·thīt }
- microphyric** Of the texture of an igneous rock, containing microscopic phenocrysts (longest dimension 0.2 millimeter). Also known as microporphyritic. { 'lmī·krō'fīr·ik }
- micropoikilitic** Of the texture of an igneous rock, having poikilitic character visible only under the microscope. { 'lmī·krō·pōi·kə'lid·ik }
- micropore** A pore small enough to hold water against the pull of gravity and to retard water flow. { 'mī·krə·pór }
- microporphyritic** See microphyric. { 'lmī·krō·pór·fə'rid·ik }
- microspherulitic** Of the texture of an igneous rock, having spherulitic character visible only under the microscope. { 'lmī·krō·sfer·ə'lūd·ik }
- microstylolite** A stylolite in which the surface relief is less than 1 millimeter. { 'lmī·krə'stīl·ə·līt }
- microtectonics** See structural petrology. { 'lmī·krō·tek'tän·iks }
- microtektite** An extremely small tektite, 1 millimeter or less in diameter. { 'mī·krə'tek'tīt }

- microvitrain** A coal lithotype; fine vitrainlike lenses or laminae in clarain { 'mī krō'vi/trān }
- mid-Atlantic ridge** The mid-oceanic ridge in the Atlantic { 'mid ət'lān tīk 'rīj }
- Middle Cambrian** The geologic epoch occurring between Upper and Lower Cambrian beginning approximately 540,000,000 years ago. { 'mid-əl 'kam-brē-ən }
- Middle Cretaceous** The geologic epoch between the Upper and Lower Cretaceous, beginning approximately 120,000,000 years ago. { 'mid-əl krə'tā-shəs }
- Middle Devonian** The geologic epoch occurring between the Upper and Lower Devonian, beginning approximately 385,000,000 years ago { 'mid əl dī'vō nē-ən }
- Middle Jurassic** The geologic epoch occurring between the Upper and Lower Jurassic beginning approximately 170,000,000 years ago. { 'mid-əl jə'ras-ik }
- Middle Mississippian** The geologic epoch between the Upper and Lower Mississippian { 'mid-əl 'mis-ə'sip-ē-ən }
- Middle Ordovician** The geologic epoch occurring between the Upper and Lower Ordovician, beginning approximately 460,000,000 years ago { 'mid əl 'or də'vish ən }
- Middle Pennsylvanian** The geologic epoch between the Upper and Lower Pennsylvanian. { 'mid-əl 'pen-səl'vā-nyə }
- Middle Permian** The geologic epoch occurring between the Upper and Lower Permian beginning approximately 260,000,000 years ago. { 'mid-əl 'pər-mē-ən }
- Middle Silurian** The geologic epoch between the Upper and Lower Silurian { 'mid əl sī'lūr-ē-ən }
- Middle Triassic** The geologic epoch occurring between the Upper and Lower Triassic, beginning approximately 215,000,000 years ago. { 'mid-əl trī'as-ik }
- midfan** The portion of an alluvial fan between the fanhead and the outer, lower margins. { 'mid:fan }
- mid-ocean canyon** See deep-sea channel. { 'midlō-shən 'kan-yən }
- mid-oceanic ridge** A continuous, median, seismic mountain range on the floor of the ocean, extending through the North and South Atlantic oceans, the Indian Ocean, and the South Pacific Ocean; the topography is rugged, elevation is 0.6-1.8 miles (1-3 kilometers), width is about 900 miles (1500 kilometers), and length is over 52,000 miles (84,000 kilometers). Also known as mid-ocean ridge, mid-ocean rise, oceanic ridge. { 'mid:ō-shēlan-ik 'rīj }
- mid-ocean ridge** See mid-oceanic ridge. { 'midlō-shən 'rīj }
- mid-ocean rift** See rift valley. { 'midlō-shən 'rīft }
- mid-ocean rise** See mid-oceanic ridge. { 'midlō-shən 'rīs }
- miersite** (Cu,Ag)I A canary yellow, isometric mineral consisting of copper and silver iodide. { 'mīr-zīt }
- migma** A mixture of solid rock materials and rock melt with mobility or potential mobility. { 'mig-mə }
- migmatite** A mixed rock exhibiting crystalline textures in which a truly metamorphic component is streaked and mixed with obviously once-molten material of a more or less granitic character. { 'mig-mə'tīt }
- migmatization** Formation of migmatite, involves either injection or in-place melting { 'mig-mə-də'zā-shən }
- migration** 1. Movement of a topographic feature from one place to another, especially movement of a dune by wind action. 2. Movement of liquid or gaseous hydrocarbons from their source into reservoir rocks. { mī'grā-shən }
- migratory dune** See wandering dune. { 'mī-grə'tōr-ē 'dūn }
- milarite** $K_2Ca_3Be_2Al_3Si_4O_{20} \cdot H_2O$ A colorless to greenish, glassy, hexagonal mineral composed of a hydrous silicate of potassium, calcium, beryllium, and aluminum, occurring in crystals. { 'mē-lā-rīt }
- milky quartz** An opaque, milk-white variety of crystalline quartz, often with a greasy luster, milkiness is due to the presence of air-filled cavities. Also known as greasy quartz. { 'mil-kē 'kwōrts }
- millerite** NiS A brass to bronze-yellow mineral that crystallizes in the hexagonal system and usually contains trace amounts of cobalt, copper, and iron; hardness is 3-3.5 on Mohs scale, and specific gravity is 5.5; it generally occurs in fine crystals.

millisite

chiefly as nodules in clay ironstone. Also known as capillary pyrites; hair pyrites; nickel pyrites. { 'mil·ə·rīt }

millisite (Na,K)CaAl₆(PO₄)₄(OH)₉·3H₂O White mineral composed of a basic hydrous phosphate of sodium, potassium, calcium, and aluminum. { 'mil·ə·sīt }

millstone See buhrstone. { 'mil·stōn }

mimetene See mimetite. { 'mim·ə·tēn }

mimetesite See mimetite. { mə'med·ə·zīt }

mimetic Of a tectonite, having a deformation fabric, formed by mimetic crystallization, that reflects and is influenced by preexisting anisotropic structure. { mə'med·ik }

mimetic crystallization Recrystallization or neomineralization in metamorphism which reproduces preexistent structures. { mə'med·ik·krist·əl·ə'zā·shən }

mimetite Pb₃(AsO₄)₃Cl A yellow to yellowish-brown mineral of the apatite group, commonly containing calcium or phosphate; a minor ore of lead. Also known as mimitene; mimitesite. { 'mim·ə·tīt }

minasragrite (VO)₂H₂(SO₄)₂·15H₂O A blue, monoclinic mineral consisting of hydrated acid vanadyl sulfate; occurs in efflorescences and as aggregates or masses. { 'mē·näs'rā·grīt }

Mindel glaciation The second glacial stage of the Pleistocene in the Alps. { 'min·dəl·ə·glā·sē'ā·shən }

Mindel-Riss interglacial The second interglacial stage of the Pleistocene in the Alps; follows the Mindel glaciation. { 'min·dəl·'ris·in·tə'glā·shəl }

mineralography See ore microscopy. { 'min·ə'räg·rə·fē }

mineral A naturally occurring substance with a characteristic chemical composition expressed by a chemical formula; may occur as individual crystals or may be disseminated in some other mineral or rock; most mineralogists include the requirements of inorganic origin and internal crystalline structure. { 'min·rəl }

mineral caoutchouc See elaterite. { 'min·rəl·kaū·chūk }

mineral charcoal See fusain. { 'min·rəl·chär·kōl }

mineral deposit A mass of naturally occurring mineral material, usually of economic value. { 'min·rəl·di·pāz·ət }

mineral facies Rocks of any origin whose components have been formed within certain temperature-pressure limits characterized by the stability of certain index minerals. { 'min·rəl·fā·shēz }

mineralization **1.** The process of fossilization whereby inorganic materials replace the organic constituents of an organism. **2.** The introduction of minerals into a rock, resulting in a mineral deposit. { 'min·rəl·lə'zā·shən }

mineralize To convert to or impregnate with, mineral material, applied to processes of ore vein deposition and of fossilization. { 'min·rəl·īz }

mineralizer A gas or fluid dissolved in a magma that aids in the concentration and crystallization of ore minerals. { 'min·rəl·īz·ər }

mineralogetic epoch A geologic time period during which mineral deposits formed. { 'min·rəl·lō·jə'ned·ik·'ep·ək }

mineralogetic province Geographic region where conditions were favorable for the concentration of useful minerals. { 'min·rəl·lō·jə'ned·ik·'prā·vəns }

mineralogical phase rule Any of several variations of the Gibbs phase rule, taking into account the number of degrees of freedom consumed by the fixing of physical-chemical variables in the natural environment; it assumes that temperature and pressure are fixed externally and that consequently the number of phases (minerals) in a system (rock) will not usually exceed the number of components. { 'min·rəl·lāj·ə·kəl·fāz·rül }

mineralogist A person who studies the occurrence, description, mode of formation, and uses of minerals. { 'min·ə'räl·ə·jəst }

mineraloid A naturally occurring, inorganic material that is amorphous and is therefore not considered to be a mineral. Also known as gel mineral. { 'min·rəl·lōid }

mineral resources Valuable mineral deposits of an area that are presently recoverable and may be so in the future; includes known ore bodies and potential ore. { 'min·rəl·ri'sòrs·əz }

mineral sequence See paragenesis. { 'min·rəl·'sē·kwəns }

- mineral soil** Soil composed of mineral or rock derivatives with little organic matter { 'min·rəl ,sòil }
- mineral suite** **1.** A group of associated minerals in one deposit **2.** A representative group of minerals from a certain locality. **3.** A group of specimens showing variations, as in color or form, in a single mineral species. { 'min·rəl 'swēt }
- mineral talow** See hatchettite. { 'min·rəl 'tal·ō }
- mineral wax** See ozocerite. { 'min·rəl 'waks }
- minette** A syenitic variety of lamprophyre composed principally of biotite phenocrysts in a matrix of orthoclase and biotite. { mə'net }
- minium** Pb_3O_4 A scarlet or orange-red mineral consisting of an oxide of lead; found in Wisconsin and the western United States. Also known as red lead. { 'min·ē·əm }
- minus-cement porosity** The porosity that would characterize a sedimentary material if it contained no chemical cement. { mī'nəs silment pə'rās·əd·ē }
- minyulite** $KAl_2(PO_4)_2(OH,F) \cdot 4H_2O$ A white mineral composed of hydrous basic potassium aluminum phosphate. { 'min·yū'lit }
- Miocene** A geologic epoch of the Tertiary period, extending from the end of the Oligocene to the beginning of the Pliocene. { 'mī·ə'sēn }
- miocrystalline** See hypocristalline. { 'mī·ō'krist·əl·ən }
- miogeosyncline** The nonvolcanic portion of an orthogeosyncline, located adjacent to the craton. { 'mī·ōljē·ō'sin·klīn }
- mirabilite** $Na_2SO_4 \cdot 10H_2O$ A yellow or white monoclinic mineral consisting of hydrous sodium sulfate, occurring as a deposit from saline lakes, playas, and springs, and as an efflorescence; the pure crystals are known as Glauber's salt. { mə'rab·ə'lit }
- mire** Wet spongy earth, as of a marsh, swamp, or bog. { mīr }
- mirror glance** See wehrlite. { 'mir·ər 'glans }
- mirror stone** See muscovite. { 'mir·ər 'stōn }
- misenite** $K_xH_n(SO_4)_7$ A white mineral composed of native acid potassium sulfate { mə'ze.nīt }
- mispickel** See arsenopyrite. { 'mi'spik·əl }
- Mississippian** A large division of late Paleozoic geologic time after the Devonian and before the Pennsylvanian, named for a succession of highly fossiliferous marine strata consisting largely of limestones found along the Mississippi River between south eastern Iowa and southern Illinois; approximately equivalent to the European Lower Carboniferous. { 'mis·ə'sip·ē·ən }
- Missourian** A North American provincial series of geologic time lower Upper Pennsylvanian (above Desmoinesian, below Virgilian). { mə'zūr·ē·ən }
- mitscherlichite** $K_2CuCl_4 \cdot 2H_2O$ A greenish-blue, tetragonal mineral consisting of potassium copper chloride dihydrate. { 'mich·ər·lə·kīt }
- mixed-layer mineral** A mineral having an interstratified structure consisting of alternating layers of two different clays or of a clay and some other mineral. { 'mikst ilā·ər 'min·rəl }
- mixed ore** Any ore with both oxidized and unoxidized minerals. { 'mikst 'ōr }
- mixite** $Cu_3Bi(AsO_4)_5(OH)_{10} \cdot 6H_2O$ A green to whitish mineral composed of a hydrous basic arsenate of copper and bismuth. { 'mik'sīt }
- mixtite** See diamictite. { 'miks'tīt }
- mizzonite** A mineral of the scapolite group, composed of 54 to 57% silica. Also known as dipyre. { 'miz·ə'nīt }
- moat** **1.** A ringlike depression around the base of a seamount **2.** A valleylike depression around the inner side of a volcanic cone, between the rim and the lava dome. { mōt }
- mobile belt** A long, relatively narrow crustal region of tectonic activity { 'mō bəl 'belt }
- mobilization** Any process by which solid rock becomes sufficiently soft and plastic to permit it to flow or to permit geochemical migration of the mobile components { 'mō·bə·lə'zā·shən }
- mock lead** See sphalerite. { 'māk 'led }
- mock ore** See sphalerite. { 'māk 'ōr }

mode

- mode** The mineral composition of a rock, usually expressed as percentages of total weight or volume. { mōd }
- moder** Humus consisting of plant material that is undergoing alteration from the living to the decayed state and is intermediate in acidity between mor and mull. { 'mōd·ər }
- mofette** A small opening emitting carbon dioxide in an area of late-stage volcanic activity. { mō'fet }
- mohavite** See tincalconite. { mō'hā·vīt }
- Mohawkian** A North American stage of middle Ordovician geologic time, above Chazyan and below Edenian. { mō'hōk·ē·ən }
- Mohnian** A North American stage of geologic time: Miocene (above Luisian, below Delmontian). { 'mō·nē·ən }
- Mohole drilling** Drilling aimed at penetration of the earth's crust, through the Mohorovičić discontinuity, to sample the mantle. { 'mō·hōl·dril·iŋ }
- mohsite** See ilmenite. { 'mō·sīt }
- Mohs scale** An empirical scale consisting of 10 minerals with reference to which the hardness of all other minerals is measured; it includes, from softest (designated 1) to hardest (10): talc, gypsum, calcite, fluorite, apatite, orthoclase, quartz, topaz, corundum, and diamond. { 'mōz·skāl }
- moissanite** SiC A carbide mineral found in meteorites; identical with artificial carborundum. { 'mōis·ən·īt }
- molasse** A paralic sedimentary facies consisting mainly of shale, subgraywacke sandstone, and conglomerate; it is more clastic and less rhythmic than the preceding flysch and is generally postorogenic. { mē'lās }
- mold** Soft, crumbling friable earth. { mōld }
- moldavite** See moldavite. { mōl'dā·vīt }
- moldavite** 1. A translucent, olive- to brownish-green or pale-green tektite from western Czechoslovakia, characterized by surface sculpturing due to solution etching. Also known as moldavite; pseudochrysolite; vitavite. 2. A variety of ozocerite from Moldavia. { mōl'dā·vīt }
- Mollisol** An order of soils having dark or very dark, friable, thick A horizons high in humus and bases such as calcium and magnesium; most have lighter-colored or browner B horizons that are less friable and about as thick as the A horizons; all but a few have paler C horizons, many of which are calcareous. { 'mal·ə·səl }
- molybdenite** MoS₂ A metallic, lead-gray mineral that crystallizes in the hexagonal system and is commonly found in scales or foliated masses; hardness is 1.5 on Mohs scale, and specific gravity is 4.7; it is chief ore of molybdenum. { mē'lib·də·nīt }
- molybdite** MoO₃ A mineral, much of which is actually ferrimolybdite. Also known as molybdic ocher; molybdine. { mē'lib·dīt }
- molybdophyllite** (Pb,Mg)₂SiO₄·H₂O A colorless, white, or pale-green mineral composed of a silicate of lead and magnesium. { mē'lib·dō'fī·līt }
- molysite** FeCl₃ A brownish-red or yellow mineral composed of native ferric chloride, occurring in lava at Vesuvius. { 'mäl·ə·sīt }
- monadnock** A remnant hill of resistant rock rising abruptly from the level of a peneplain; commonly represents an outcrop of rock that has withstood erosion. Also known as torso mountain. { mē'nad·näk }
- monalbite** A modification of albite with monoclinic symmetry that is stable under equilibrium conditions at temperatures (about 1000°C) near the melting point. { 'mō'nal·bīt }
- monazite** A yellow or brown rare-earth phosphate monoclinic mineral with appreciable substitution of thorium for rare-earths and silicon for phosphorus; the principal ore of the rare earths and of thorium. Also known as cryptolite. { 'män·ə·zīt }
- monchiquite** A lamprophyre composed of olivine, pyroxene, and usually mica or amphibole phenocrysts embedded in a glass or analcime groundmass. { 'man·chē·kwīt }
- monetite** CaHPO₄ A yellowish-white mineral consisting of an acid calcium hydrogen phosphate, occurring in crystals. { 'män·ə·tīt }

- monimolite** $(\text{Pb,Ca})_3\text{Sb}_2\text{O}_8$ Yellowish to brownish or greenish mineral composed of lead calcium antimony oxide; it may contain ferrous iron. {mə'nim·ə'līt }
- monocline** A stratigraphic unit that dips from the horizontal in one direction only, not as part of an anticline or syncline. { 'män·ə·klīn }
- monogeosyncline** A primary geosyncline that is long, narrow, and deeply subsided, composed of the sediments of shallow water and situated along the inner margin of the borderlands. { 'män·ə·jē·ə'sin·klīn }
- monomineralic** Of a rock, composed entirely or principally of a single mineral. { 'män·ə·mīn·ə'lral·ik }
- monopyroxene clinoaugite** See clinopyroxene { 'män ə·pə'rək·sēn 'klī·nō'lō·gāt }
- montanite** $\text{Bi}_2\text{O}_3 \cdot \text{TeO}_3 \cdot 2\text{H}_2\text{O}$ A yellowish mineral consisting of a hydrated tellurate of bismuth; occurs in soft and earthy to compact form. { män'ta·nīt }
- montebrasite** $\text{LiAlPO}_4(\text{OH})$ A mineral composed of basic lithium aluminum phosphate, it is isomorphous with ambygonite and natromontebrasite { 'män·tə'brā·zīt }
- montgomeryite** $\text{Ca}_2\text{Al}_2(\text{PO}_4)_3(\text{OH}) \cdot 7\text{H}_2\text{O}$ A green to colorless mineral composed of hydrous basic calcium aluminum phosphate. { mənt'gəm·rē·īt }
- Montian** A European stage of geologic time: Paleocene (above Danian, below Thanetian). { 'män·chən }
- monticellite** CaMgSiO_4 A colorless or gray mineral of the olivine structure type, isomorphous with kirsch steinite. { 'män·tə'se·līt }
- montmorillonite** **1.** A group name for all clay minerals with an expanding structure, except vermiculite. **2.** The high-alumina end member of the montmorillonite group; it is grayish, pale red, or blue and has some replacement of aluminum ion by magnesium ion. **3.** Any mineral of the montmorillonite group. { 'mənt·mə'rīl·ə·nīt }
- montroydite** HgO Natural mercury oxide mineral from Texas { män'trōi·dīt }
- monzonite** A phaneritic (visibly crystalline) plutonic rock composed chiefly of sodic plagioclase and alkali feldspar, with subordinate amounts of dark-colored minerals, intermediate between syenite and dorite. { 'män·zə·nīt }
- moonstone** An alkali feldspar or cryptoperthite that is semitransparent to translucent and exhibits a bluish to milky-white, pearly, or opaline luster, used as a gemstone if flawless. Also known as hecatolite. { 'mūn·stōn }
- moor coal** A friable lignite or brown coal. { 'mūr·kōl }
- mooreite** $(\text{Mg,Zn,Mn})_6(\text{SO}_4)_4(\text{OH})_{14} \cdot 4\text{H}_2\text{O}$ A glassy white mineral composed of hydrous basic magnesium zinc manganese sulfate. { 'mūr·īt }
- mor** See ectohumus. { mór }
- morainal apron** See outwash plain. { mə'rān·əl 'ā·prən }
- morainal plain** See outwash plain. { mə'rān·əl 'plān }
- morainal delta** See ice-contact delta. { mə'rān·əl 'del·tə }
- moraine** An accumulation of glacial drift deposited chiefly by direct glacial action and possessing initial constructional form independent of the floor beneath it. { mə'rān }
- moraine bar** A terminal moraine serving as a bar, rising out of deep water at some distance from the shore. { mə'rān 'bār }
- moraine kame** One of a group of kames characterized by the same topography, constitution, and position as a terminal moraine. { mə'rān 'kām }
- moraine plateau** A relatively flat area within a hummocky moraine, generally at the same elevation as, or a little higher than, the summits of surrounding knobs. { mə'rān plə'tō }
- morass ore** See bog iron ore. { mə'ras 'ôr }
- moravite** $\text{Fe}_2(\text{N,Fe})_4\text{Si}_7\text{O}_{20}(\text{OH})_4$ A black mineral of the chlorite group, composed of basic iron aluminum silicate, occurring as fine scales. { mə'rā·vīt }
- mordenite** $(\text{Ca,Na}_2\text{,K}_2)_4\text{Al}_8\text{Si}_3\text{O}_{46} \cdot 28\text{H}_2\text{O}$ A zeolite mineral crystallizing in the orthorhombic system and found in minute crystals or fibrous concretions. Also known as arduinite; ashtonite; flokite; ptilolite. { 'mōrd·ən·īt }
- morencite** See nontronite. { mə'ren·sīt }
- morenosite** $\text{NiSO}_4 \cdot 7\text{H}_2\text{O}$ An apple-green or light-green mineral composed of hydrous

morganite

- nickel sulfate, occurring in crystals or fibrous crusts. Also known as nickel vitriol. {mə'ren·ə'sīt}
- morganite** See vorobyevite. { 'môr·gə·nīt }
- morinite** $\text{Na}_2\text{Ca}_3\text{Al}_3\text{H}(\text{PO}_4)_4\text{F}_6 \cdot 8\text{H}_2\text{O}$ A mineral composed of hydrous acid phosphate of sodium, calcium, and aluminum. Also known as jezekite. { 'môr·ə·nīt }
- morphogenetic region** A region in which, under certain climatic conditions, the predominant geomorphic processes will contribute regional characteristics to the landscape that contrast with those of other regions formed under different climatic conditions. { 'môr·fə·jə'ned·ik 'rē·jən }
- morphographic map** See physiographic diagram. { 'môr·fə'graf·ik 'map }
- mortar structure** A cataclastic structure produced by dynamic metamorphism of crystalline rocks and characterized by a mica-free aggregate of finely crushed grains of quartz and feldspar filling the interstices between or forming borders on the edges of larger, rounded relicts. Also known as cataclastic structure; murbruk structure; porphyroclastic structure. { 'mörd·ər 'strək·chər }
- morvan** The area where two peneplains intersect. Also known as skiou. { 'môr·vən }
- mosaic** **1.** Pertaining to a granoblastic texture in a rock formed by dynamic metamorphism in which the boundaries between individual grains are straight or slightly curved. Also known as cyclopean. **2.** Pertaining to a texture in a crystalline sedimentary rock in which contacts at grain boundaries are more or less regular. { mō'zä·ik }
- mosandrite** A reddish-brown or yellowish-brown mineral composed of a silicate of sodium, calcium, titanium, zirconium, and cerium. Also known as khibinite; lovchorrite; rinkite; rinkolite. { mō'san·drīt }
- moschellandsbergite** Ag_2Hg_3 A silver-white mineral consisting of a silver and mercury compound; occurs in dodecahedral crystals and in massive and granular forms. { 'mō·shə'lanz·bær·gīt }
- moscovite** See muscovite. { 'mäs·kə·vīt }
- mosesite** $\text{Hg}_2\text{N}(\text{SO}_4, \text{MoO}_4) \cdot \text{H}_2\text{O}$ Mineral composed of a hydrous nitride of mercury and various anions. { 'mō·zə·zīt }
- moss agate** A milky or almost transparent chalcedony containing dark inclusions in a dendritic pattern. { 'mōs 'ag·ət }
- mossite** $\text{Fe}(\text{Nb}, \text{Ta})_2\text{O}_6$ A mineral composed of an iron tantalum oxide; it is isomorphous with tapiolite. { 'mō'sīt }
- mother lode** A main unit of mineralized matter that may not have economic value but to which workable veins are related. { 'mæθ·ər 'lōd }
- mother-of-coal** See fusain. { 'mæθ·ər əv 'kōl }
- mother-of-emerald** See prase. { 'mæθ·ər əv 'em·ræld }
- mother rock** See source rock. { 'mæθ·ər 'ræk }
- mottled** **1.** Of a soil, irregularly marked with spots of different colors. **2.** Of a sedimentary rock, marked with spots of various colors. { 'mäd·əld }
- mottramite** $(\text{Cu}, \text{Zn})\text{Pb}(\text{VO}_4)(\text{OH})$ A mineral composed of a basic lead copper zinc vanadate; it is isomorphous with descloizite. Also known as cuprodescloizite; psittacinite. { 'mä·trəmīt }
- moulin pothole** See giant's kettle. { mü'lan 'pät·hōl }
- mound** **1.** A low, isolated, rounded natural hill, usually of earth. Also known as tuft. **2.** A structure built by fossil colonial organisms. { 'maund }
- mountain brown ore** Name used in Virginia for limonite or brown iron ore. { 'maünt·ən 'braun 'ör }
- mountain butter** See halotrichite. { 'maünt·ən 'bəd·ər }
- mountain cork** **1.** A white or gray variety of asbestos composed of thick, interwoven fibers and having a corklike weight and texture. Also known as rock cork. **2.** A fibrous clay mineral, such as sepiolite. { 'maünt·ən 'kōrk }
- mountain crystal** See rock crystal. { 'maünt·ən 'krist·əl }
- mountain mahogany** See obsidian. { 'maünt·ən mə'häg·ə·nē }
- mountain pediment** A plain of combined erosion and transportation at the base of and surrounding a desert mountain range; at a distance it has the appearance of a broad triangular mass. { 'maünt·ən 'ped·ə·mənt }

- mountain soap** See saponite. { 'maunt ·ən ·sɒp }
- mountain tallow** See hatchettite. { 'maunt ·ən ·tal ·ō }
- mountain wood** **1.** A compact, fibrous, gray to brown type of asbestos which has an appearance similar to dry wood. Also known as rock wood. **2.** A fibrous clay mineral; for example, sepiolite or palygorskite. { 'maunt ·ən ·wʊd }
- muck** Dark, finely divided, well-decomposed, organic matter intermixed with a high percentage of mineral matter, usually silt, forming a surface deposit in some poorly drained areas. { mək }
- mud** **1.** An undurated mixture of clay and silt with water, it is slimy with a consistency varying from that of a semifluid to that of a soft and plastic sediment. **2.** The silt plus clay portion of a sedimentary rock. { məd }
- mud ball** A rounded mass of mud or mudstone up to 8 inches (20 centimeters) in diameter in a sedimentary rock. Also known as chalazoidite, tuff ball { 'məd ·bɔɪ }
- mud cone** A cone of sulfurous mud built around the opening of a mud volcano or mud geyser, with slopes as steep as 40° and diameters ranging upward to several hundred yards. Also known as puff cone. { 'məd ·kɔn }
- mud crack** An irregular fracture formed by shrinkage of clay, silt, or mud under the drying effects of atmospheric conditions at the surface. Also known as desiccation crack; sun crack. { 'məd ·krak }
- mud crack polygon** See mud polygon. { 'məd ·krak 'pəl ·ə·gən }
- mud flat** A relatively level, sandy or muddy coastal strip along a shore or around an island; may be alternately covered and uncovered by the tide or may be covered by shallow water. Also known as flat. { 'məd ·flət }
- mudflow** A flowing mass of fine-grained earth material having a high degree of fluidity during movement. { 'məd ·flɔ }.
- mudlump** A diapiric sedimentary structure consisting of clay or silt and forming an island in deltaic areas, produced by the loading action of rapidly deposited delta front sands upon lighter-weight prodelta clays. { 'məd ·ləmp }
- mud polygon** A nonsorted polygon whose center lacks vegetation but whose peripheral fissures contain peat and plants. Also known as mud crack polygon. { 'məd 'pəl ·ə·gən }
- mud pot** A type of hot spring which contains boiling mud, typically sulfurous and often multicolored; tends to be associated with geysers and other hot springs in volcanic zones. Also known as painted pot; sulfur-mud pool. { 'məd ·pət }
- mudslide** A slow-moving mudflow in which movement is mainly by sliding upon a discrete boundary shear surface. { 'məd ·slīd }
- mudstone** An indurated equivalent of mud in the form of a blocky or massive fine-grained sedimentary rock containing approximately equal proportions of silt and clay; lacks the fine lamination or fissility of shale. { 'məd ·stɔn }
- mud volcano** A conical accumulation of variable admixtures of sand and rock fragments, the whole resulting from eruption of wet mud and impelled upward by fluid or gas pressure. Also known as hervidero; macaluba. { 'məd vəl ·kā ·nɔ }
- mugearite** A dark-colored, fine-grained igneous rock in which the chief feldspar is oligoclase, plus orthoclase and olivine with some apatite and opaque oxides; originates by differentiation and volcanic crystallization of the primary magma. { myū 'jē ·ə·rīt }
- mull** Granular forest humus that is incorporated with mineral matter. { məl }
- Müller's glass** See hyalite. { 'mil ·ərz ·glas }
- mullion** In folded sedimentary and metamorphic rocks, a columnar structure in which the rock columns seem to intersect. { 'məl ·yən }
- mullite** Al₂Si₂O₁₃ An orthorhombic mineral consisting of an aluminum silicate that is resistant to corrosion and heat; used as a refractory. Also known as porcelainite. { 'mə ·līt }
- multicycle** Pertaining to a landscape or landform produced by more than one cycle of erosion. { 'məl ·tə·sī ·kəl }
- multiple fault** See step fault. { 'məl ·tə·pəl 'fɔlt }
- mundic** See pyrite. { 'mən ·dik }
- murbruk structure** See mortar structure. { 'mər ·brūk ·strək ·chər }

muromontite

muromontite $\text{Be}_2\text{FeY}_2(\text{SiO}_4)_3$ A mineral composed of yttrium iron beryllium silicate. { 'myŭr·ə'män·tīt }

Muschelkalk A European stage of geologic time equivalent to the Middle Triassic, above Bunter and below Keuper. { 'mush·əl·kälk }

muscovite $\text{KAl}_2(\text{AlSi}_3\text{O}_{10})(\text{OH})_2$ One of the mica group of minerals, occurring in some granites and abundant in pegmatites; it is colorless, whitish, or pale brown, and the crystals are tabular sheets with prominent base and hexagonal or rhomboid outline, hardness is 2-2.5 on Mohs scale, and specific gravity is 2.7-3.1. Also known as common mica; mirror stone; moscovite; Muscovy glass; potash mica; white mica. { 'mäs·kə·vīt }

Muscovy glass See muscovite. { 'mäs·kə·vē 'glas }

mustard-seed coal Anthracite that will pass through circular holes in a screen which measure 3/64 inch (1.2 millimeter) in diameter. { 'mäs·tərd·sēd 'kōl }

muthmannite $(\text{Ag,Au})\text{Te}$ A bright brass yellow mineral consisting of silver-gold telluride; occurs as tabular crystals. { 'müt·mə·nīt }

mylonite A hard, coherent, often glassy-looking rock that has suffered extreme mechanical deformation and granulation but has remained chemically unaltered; appearance is flinty, banded, or streaked, but the nature of the parent rock is easily recognized. { 'mī·lə·nīt }

mylonite gneiss A metamorphic rock intermediate in character between mylonite and schist. { 'mī·lə·nīt 'nīs }

mylonitic structure A structure characteristic of mylonites, produced by extreme microbrecciation and shearing which gives the appearance of a flow structure. { 'mī·lə·nīd·ik 'strək·chər }

mylonitization Rock deformation produced by intense microbrecciation without appreciable chemical alteration of granulated materials. { mī·län·ə·tə'zā·shən }

myrmekite Intergrowth of plagioclase feldspar and vermicular quartz in an igneous rock. { 'mər·mə·kīt }

myrmekitic **1.** Pertaining to the texture of an igneous rock marked by intergrowths of feldspar and vermicular quartz. **2.** Having characteristic properties of myrmekite. { 'mər·mə'kīd·ik }

N

- nacrite** $\text{Al}_2\text{Si}_2\text{O}_5(\text{OH})_4$ A crystallized clay mineral of the kaolinite group, structurally distinct in being the most closely stacked in the *c*-axis direction. { 'nā·krīt }
- nadorite** PbSbO_2Cl A smoky brown or brownish-yellow to yellow, orthorhombic mineral consisting of an oxychloride of lead and antimony. { 'nad·ə·rīt }
- nagatelite** Black mineral composed of phosphosilicate of an aluminum, rare-earth elements, calcium, and iron; occurs in tabular masses. { 'nag·ə'te·līt }
- nagyagite** $\text{Pb}_5\text{Au}(\text{Te},\text{Sb})_4\text{S}_{5-8}$ A lead-gray mineral consisting of a sulfide of lead, gold, tellurium, and antimony. Also known as black tellurium; tellurium glance. { 'nag·yə·jīt }
- nahcolite** NaHCO_3 A white, monoclinic mineral consisting of natural sodium bicarbonate. { 'nä·kə·līt }
- naif** Of a gemstone, having a true or natural luster when uncut. Also spelled naife. { nä'ēf }
- naife** See naif. { nä'ēf }
- nailhead striation** A glacial striation with a definite or blunt head or point of origin generally narrowing or tapering in the direction of ice movement and coming to an indefinite end. { 'nāl·hed strī'ā·shən }
- naked karst** Karst that is developed in a region without soil cover so that its topographic features are well exposed. { 'nä·kəd 'kärst }
- nakhlite** An achondritic stony meteorite composed of an aggregate of diopside and olivine. { 'nä·k·līt }
- Namurian** A European stage of geologic time, divided into a lower stage (Lower Carboniferous or Upper Mississippian) and an upper stage (Upper Carboniferous or Lower Pennsylvanian). { nə'myūr·ē·ən }
- naphthine** See hatchettite. { 'naf·thēn }
- napoleonite** See corsite. { nə'pōl·yə·nīt }
- Napoleonville** A North American (Gulf Coast) stage of geologic time, a subdivision of the Miocene, above Anahauc and below Duck Lake. { nə'pōl·ē·ən·vil }
- nappe** A sheetlike, allochthonous rock unit that is formed by thrust faulting or recumbent folding or both. { nap }
- nari** See caliche. { 'när·ē }
- Narizian** A North American stage of geologic time; a subdivision of the upper Eocene, above Ulatisian and below Fresnian. { nə'rizh·ən }
- narsarsukite** $\text{Na}_2(\text{Ti},\text{Fe})\text{Si}_3(\text{O},\text{F})$ Mineral composed of sodium titanium iron fluoride and silicate. { 'när·sə'sə·kīt }
- nasonite** $\text{Ca}_4\text{Pb}_6\text{Si}_6\text{O}_2\text{Cl}$ A white mineral composed of silicate and chloride of calcium and lead and occurring in granular masses. { 'nās·ən·īt }
- nasturan** See pitchblende. { 'nas·tə·rən }
- native asphalt** Exudations or seepages of asphalt occurring in nature in a liquid or semiliquid state. Also known as natural asphalt. { 'nād·iv 'as·fōlt }
- native coal** See natural coke. { 'nād·iv 'kōl }
- native element** Any of 20 elements, such as copper, gold, and silver, which occur naturally uncombined in a nongaseous state, there are three groups—metals, semimetals, and nonmetals. { 'nād·iv 'el·ə·mənt }

native paraffin

native paraffin See ozocerite. { 'nād·iv 'par·ə·fən }

natric horizon A soil horizon that has the properties of an argillic horizon, but also displays a blocky, columnar, or prismatic structure and has a subhorizon with an exchangeable-sodium saturation of over 15%. { 'nā·trik hā'ri:z·ən }

natroalunite $\text{NaAl}_2(\text{SO}_4)_2(\text{OH})_6$ Mineral composed of basic sodium aluminum sulfate. Also known as almeritë. { 'nā·trō'al·ə·nīt }

natrochalcite $\text{NaCu}_2(\text{SO}_4)(\text{OH})\cdot\text{H}_2\text{O}$ An emerald-green mineral composed of hydrous basic sulfate of sodium and copper. { 'nā·trō'kal'sīt }

natrolite $\text{Na}_2\text{Al}_2\text{Si}_7\text{O}_{19}\cdot 2\text{H}_2\text{O}$ A zeolite mineral composed of hydrous silicate of sodium and aluminum; usually occurs in slender acicular or prismatic crystals. { 'nā·trə'līt }

natromontebasite $(\text{Na},\text{Li})\text{Al}(\text{PO}_4)(\text{OH},\text{F})$ A mineral composed of hydrous basic phosphate of sodium, lithium, and aluminum; it is isomorphous with montebasite and amblygonite. Also known as fremontite. { 'nā·trō·mān·tē'brā:zīt }

natron $\text{Na}_2\text{CO}_3\cdot 10\text{H}_2\text{O}$ A white, yellow, or gray mineral that crystallizes in the monoclinic system, is soluble in water, and generally occurs in solution or in saline residues. { 'nā·trən }

natrophilite $\text{NaMn}(\text{PO}_4)$ A mineral composed of sodium manganese phosphate. { nā'trā·fə'līt }

natural arch **1.** A landform similar to a natural bridge but not formed by erosive agencies. **2.** See natural bridge. { 'nach·rəl 'ärch }

natural bitumen Native mineral pitch, tar, or asphalt. { 'nach·rəl bə'tü·mən }

natural bridge An archlike rock formation spanning a ravine or valley and formed by erosion. Also known as natural arch. { 'nach·rəl 'brij }

natural coke Coal that has been naturally carbonized by contact with an igneous intrusion, or by natural combustion. Also known as black coal; blind coal; carbonite; cinder coal; coke coal; cokeite; finger coal; native coal. { 'nach·rəl 'kōk }

natural glass An amorphous, vitreous inorganic material that has solidified from magma too quickly to crystallize. { 'nach·rəl 'glas }

natural levee An elongate embankment compounded of sand and silt and deposited along both banks of a river channel during times of flood. { 'nach·rəl 'lev·ē }

natural tunnel A cave that is nearly horizontal and is open at both ends. Also known as tunnel cave. { 'nach·rəl 'tən·əl }

natural well A sinkhole or other natural opening which resembles a well extending below the water table and from which ground water can be withdrawn. { 'nach·rəl 'wel }

naujaite A coarse hypidiomorphic-granular sodalite-rich nepheline syenite that contains microcline and small amounts of albite, analcime, acmite, and sodium amphiboles and is characterized by a poikilitic texture. { 'naü·jə'it }

naumannite Ag_2Se An iron-black mineral that crystallizes in the isometric system; consists of silver selenide, and occurs massive or in crystals; specific gravity is 8. { 'naü·mə'nīt }

Navajo sandstone A fossil dune formation of Jurassic age found in the Colorado Plateau of the United States. { 'nā·və'hō 'san'stōn }

navite A porphyritic basalt containing phenocrysts of altered olivine, augite, and basic plagioclase in a groundmass of labradorite and augite. { 'nā·vīt }

Nebraskan drift Rock material transported during the Nebraskan glaciation, it is buried below the Kansan drift in Iowa. { nə'bras·kən 'drift }

Nebraskan glaciation The first glacial stage of the Pleistocene epoch in North America, beginning about 1,000,000 years ago, and preceding the Aftonian interglacial stage. { nə'bras·kən glā·sē·ā·shən }

nebulite A chorismite in which one of the textural elements occurs in nebulitic lenticular masses. { 'neb·yə'līt }

nebulitic **1.** Having indistinct boundaries between textural elements. **2.** Of or pertaining to a nebulite. { 'neb·yə'lid·ik }

neck See pipe. { nek }

needle **1.** A pointed, elevated, and detached mass of rock formed by erosion, such as an aiguille. **2.** A needle-shaped or acicular mineral crystal. { 'nēd·əl }

- needle coal** Lignite containing fibrous needle-shaped masses formed from the vascular bundles of palm stems. { 'nēd·əl·kōl }
- needle ore** **1.** Iron ore of very high metallic luster, found in small quantities, which may be separated into long, slender filaments resembling needles. **2.** See aikinite. { 'nēd·əl·ōr }
- negative area** See negative element. { 'neg·əd·iv·er·ē·ə }
- negative element** A large structural feature or part of the earth's crust, characterized through a long geologic time period by frequent and conspicuous downward movement (subsidence) or by extensive erosion, or by an uplift that is considerably less rapid or less frequent than that of adjacent positive elements. Also known as negative area. { 'neg·əd·iv·el·ə·mənt }
- negative landform** **1.** A relatively depressed or low-lying topographic form, such as a valley, basin, or plain. **2.** A volcanic feature formed by a lack of material (such as a caldera). { 'neg·əd·iv·'land·fōrm }
- negative movement** **1.** A downward movement of the earth's crust relative to an adjacent part of the crust, such as produced by subsidence. **2.** A relative lowering of the sea level with respect to the land, such as produced by a positive movement of the earth's crust or by a retreat of the sea. { 'neg·əd·iv·'mūv·mənt }
- negative shoreline** See shoreline of emergence. { 'neg·əd·iv·'shōr·līn }
- nelsonite** A group of hypabyssal rocks composed mainly of ilmenite and apatite. { 'nel·sənīt }
- nemalite** A fibrous brucite that contains ferrous oxide. { 'nem·ə·līt }
- nematath** A submarine ridge across an Atlantic-type ocean basin which is not an orogenic structure, but which is composed of otherwise undeformed continental crust that has been stretched across a sphenochasm or rhombochasm. { 'nem·ə·tath }
- neomatoblastic** Pertaining to a metamorphic rock with a homeoblastic texture due to development during recrystallization of slender prismatic crystals. { 'nem·ə·də·'blas·tik }
- neoautochthon** A stable basement or autochthon formed where a nappe has ceased movement and has become defunct. { 'nē·ō·ō'tāk·thən }
- Neocomian** A European stage of Lower Cretaceous geologic time, includes Berriasian, Valanginian, Hauterivian, and Barremian. { 'nē·ō·kō·mē·ən }
- neocryst** An individual crystal of a secondary mineral in an evaporite. { 'ne·ə·krīst }
- neof ormation** See neogenesis. { 'nē·ō·fōr'mā·shən }
- Neogene** An interval of geologic time incorporating the Miocene and Pliocene of the Tertiary period; the Upper Tertiary. { 'nē·ō·jēn }
- neogenesis** The formation of new minerals, as by diagenesis or metamorphism. Also known as neof ormation. { 'nē·ō·jēn·ə·səs }
- neoglaciation** The removal of glacier ice growth in certain mountain areas during the Little Ice Age, following its shrinkage or disappearance during the Altithermal interval. { 'nē·ō·glā·sē'ā·shən }
- neomagma** Magma formed by partial or complete refusion of preexisting rocks under the conditions of plutonic metamorphism. { 'nē·ō·mag·mə }
- neosilicate** A structural type of silicate mineral characterized by linkage of isolated SiO₄ tetrahedra by ionic bonding only; an example is olivine. { 'nē·ō·sil·ə·kāt }
- neosome** A geometric element of a composite rock or mineral deposit, appearing to be younger than the main rock mass. { 'nē·ə·sōm }
- neostatotype** A stratotype established after the holostatotype has been destroyed or is otherwise not usable. { 'nē·ō'strad·ə·tīp }
- neotectonic map** A map depicting neotectonic structures. { 'nē·ō·tek'tän·ik·'map }
- neotectonics** The study of the most recent structures and structural history of the earth's crust, after the Miocene. { 'nē·ō·tek'tän·iks }
- neovolcanic** Referring to extrusive rocks that are of Tertiary or younger age. { 'nē·ō·vāl'kan·ik }
- nepheline** A mineral of variable composition, with its purest state represented by the formula NaAlSi₃O₈; calcium, magnesium, iron (Fe²⁺ and Fe³⁺), and titanium are usually present in only minor or trace amounts. { 'nef·ə·lēn }
- nepheline basalt** See olivine nephelinite. { 'nef·ə·lēn·bəs'ōlt }

nepheline monzonite

- nepheline monzonite** A nepheline syenite in which sodic plagioclase exceeds the quantity of alkali feldspar. { 'nef·ə·lēn 'mān·zə·nīt }
- nepheline phonolite** The fine-grained equivalent of nepheline syenite. { 'nef·ə·lēn fān·ə·līt }
- nepheline syenite** A phaneritic plutonic rock with granular texture, composed largely of alkali feldspar, nepheline, and dark-colored materials. { 'nef·ə·lēn 'sī·ə·nīt }
- nephelinite** A dark-colored, aphanitic rock of volcanic origin, composed essentially of nepheline and pyroxene; texture is usually porphyritic with large crystals of augite and nepheline in a very-fine-grained matrix. { ne'fel·ə·nīt }
- nephrite** An exceptionally tough, compact, fine-grained, greenish or bluish amphibole constituting the less valuable type of jade; formerly worn as a remedy for kidney diseases. Also known as greenstone; kidney stone. { ne'frīt }
- neptunian dike** A sedimentary dike formed by infilling of sediment, generally sand, in an undersea fissure or hollow. { nep'tū·nē·ən 'dīk }
- neptunianism** See neptunism. { nep'tū·nē·ə·niz·əm }
- neptunian theory** See neptunism. { nep'tū·nē·ən 'thē·ə·rē }
- neptunic rock** 1. A rock that is formed in the sea. 2. See sedimentary rock. { nep'tū·nik 'rāk }
- neptunism** The obsolete theory that all rocks of the earth's crust were deposited from or crystallized out of water. Also known as neptunianism; neptunian theory. { nep·tə·niz·əm }
- neptunite** $(\text{Na},\text{K})_2(\text{Fe},\text{Mn})\text{TiSi}_4\text{O}_{12}$ Black mineral composed of silicate of sodium, potassium, iron, manganese, and titanium. { 'nep·tə·nīt }
- neprite** See garnierite. { 'nep·yə·wīt }
- nesosilicate** A mineral (such as olivine) composed of independent silicon-oxygen tetrahedra bonded by ionic bonds, without sharing of oxygens. { nes·ə'sil·ə·kət }
- nesquehonite** $\text{MgCO}_3 \cdot 3\text{H}_2\text{O}$ A colorless to white, orthorhombic mineral consisting of hydrated magnesium carbonate. { nes·kwə'hō·nīt }
- nest** A concentration of some relatively conspicuous element of a geologic feature, such as pebbles or inclusions, within a sand layer or igneous rock. { nest }
- nested** 1. Pertaining to volcanic cones, craters, or calderas that occur one within another. 2. Pertaining to two or more calderas that intersect, having been formed at different times or by different explosions. { nes·təd }
- net** 1. In structural petrology, coordinate network of meridians and parallels, projected from a sphere at intervals of 2°; used to plot points whose spherical coordinates are known and to study the distribution and orientation of planes and points. Also known as projection net; stereographic net. 2. A form of horizontal patterned ground whose mesh is intermediate between a circle and a polygon. { net }
- net slip** On a fault, the distance between two formerly adjacent points on either side of the fault; defines direction and relative amount of displacement. Also known as total slip. { 'net 'slip }
- neutral shoreline** A shoreline whose essential features are independent of either the submergence of a former land surface or the emergence of a former underwater surface. { 'nü·trəl 'shō·rlīn }
- Nevadan orogeny** Orogenic episode during Jurassic and Early Cretaceous geologic time in the western part of the North American Cordillera. Also known as Nevadian orogeny; Nevadic orogeny. { nə'vad·ən ó'raj·ə·nē }
- Nevadian orogeny** See Nevadan orogeny. { nə'vad·ē·ən ó'raj·ə·nē }
- Nevadic orogeny** See Nevadan orogeny. { nə'vad·ik ó'raj·ə·nē }
- newberyite** $\text{MgH}(\text{PO}_4) \cdot 3\text{H}_2\text{O}$ A white, orthorhombic member of the brushite mineral group; it is isostructural with gypsum. { 'nüb·rē·īt }
- new global tectonics** Comprehensive theory relating the formation of mountain belts, island arcs, and ocean trenches to the relative movement of regionally extensive lithospheric plates which are delineated by the major seismic belts of the earth. { 'nü 'glō·bəl tek'tän·iks }
- New Red Sandstone** The red sandstone facies of the Permian and Triassic systems exposed in the British Isles. { 'nü 'red 'san'stōn }

- Niagaran** A North American provincial geologic series, in the Middle Silurian { nī'ag-rən }
- niccolite** NiAs A pale-copper-red, hexagonal mineral with metallic luster, an important ore of nickel; hardness is 5-5.5 on Mohs scale. Also known as arsenical nickel; copper nickel; nickeline. { 'nik·ə'līt }
- niche** A shallow cave or reentrant produced by weathering and erosion near the base of a rock face or cliff or beneath a waterfall. { nich }
- nick** See knickpoint. { nik }
- nickel-antimony glance** See ullmannite. { 'nik·əl 'ant·ə·mō·nē 'glans }
- nickel bloom** See annabergite. { 'nik·əl 'blüm }
- nickeline** See niccolite. { 'nik·əl'īn }
- nickel ocher** See annabergite. { 'nik·əl 'ō·kər }
- nickel pyrites** See millerite. { 'nik·əl 'pī·rīts }
- nickel vitriol** See morenosite. { 'nik·əl 'vit·rē·ōl }
- nickpoint** See knickpoint. { 'nik·pōint }
- nieve penitente** A jagged pinnacle or spike of snow or firn, up to several meters in height. Also known as penitent. { nē'ā·vā 'pen·ə'ten·tā }
- niggliite** PtTe A silver-white mineral consisting of a platinum telluride compound { 'nig·lē·īt }
- niklesite** A pyroxenite containing the three pyroxenes. diopside, enstatite, and diallage. { 'nik·lə·sīt }
- ningerite** (Mg,Fe,Mn)S A mineral found only in meteorites { nə'nin·jə·rīt }
- niobite** See columbite. { 'nī·ə·bīt }
- nip** 1. A small, low cliff or break in slope which is produced by wavelets at the high-water mark. 2. The point on the bank of a meander lake where erosion takes place due to crowding of the stream current toward the lake. 3. Thinning of a coal seam, particularly if caused by tectonic movements. Also known as want. { nip }
- nitrate mineral** Any of several generally rare minerals characterized by a fundamental ionic structure of NO₃⁻; examples are soda niter, niter, and nitrocalcite. { 'nī·trāt 'min·rəl }
- nitratine** See soda niter. { 'nī·trə·tēn }
- nitromagnesite** Mg(NO₃)₂·6H₂O Mineral consisting of magnesium nitrate, occurring as an efflorescence in limestone caverns. { 'nī·trō'mag·nə·sīt }
- nival gradient** The angle between a nival surface and the horizon { 'nī·vəl 'grād é ənt }
- nival surface** The hypothetical planar surface containing all of the different snowlines of the same geologic time period. { 'nī·vəl 'sər·fəs }
- nivation** Rock or soil erosion beneath a snowbank or snow patch, due mainly to frost action but also involving chemical weathering, solifluction, and meltwater transport of weathering products. Also known as snow patch erosion. { nī'vā·shən }
- nivation cirque** See nivation hollow. { nī'vā·shən 'sərk }
- nivation hollow** A small, shallow depression formed, and occupied during part of the year, by a snow patch or snowbank that, through nivation, is thought to initiate glaciation. Also known as nivation cirque; snow niche. { nī'vā·shən'häl·ō }
- nivation ridge** See winter-talus ridge. { nī'vā·shən 'rīj }
- niveal** Property of features and effects resulting from the action of snow and ice { 'niv·ē·əl }
- nivenite** UO₂ A velvet-black member of the uranite group; contains rare-earth metals cerium and yttrium; a source of uranium. { 'niv·ə·nīt }
- niveoglacial** Pertaining to the combined action of snow and ice { 'niv·ē ō'glā·shəl }
- niveolian** Pertaining to simultaneous accumulation and intermixing of snow and air-borne sand at the side of a gentle slope. { 'niv·ēlō·lē·ən }
- nocerite** See fluoborite. { 'nō·sə·rīt }
- node** That point along a fault at which the direction of apparent displacement changes. { nōd }
- nodular chert** Chert occurring as nodular or concretionary segregations (chert nodules). { 'näj·ə·lər 'chərt }
- nodule** A small, hard mass or lump of a mineral or mineral aggregate characterized by

nominal diameter

a contrasting composition from and a greater hardness than the surrounding sediment or rock matrix in which it is embedded. { 'näj·ül }

nominal diameter The diameter computed for a hypothetical sphere which would have the same volume as the calculated volume for a specific sedimentary particle. Also known as equivalent diameter. { 'nä·m·ä·näl dī'am·äd·är }

nonbanded coal Coal without lustrous bands, composed mainly of clarain or durain without nitrain. { 'nä·n·ban·däd 'köl }

noncaking coal Hard or dull coal that does not cake when heated. Also known as free-burning coal. { 'nä·n·kāk·iŋ 'köl }

Noncalic Brown soil A great soil group having a slightly acidic, light-pink or reddish-brown A horizon and a light-brown or dull-red B horizon, and developed under a mixture of grass and forest vegetation in a subhumid climate. Also known as Shantung soil. { 'nä·n·'kal·sik 'bräun 'söl }

noncapillary porosity The property of a volume of large interstices in a rock or soil that do not hold water by capillarity. { 'nä·n·'kap·ä·ler·ē pä'räs·äd·ē }

nonclastic Of the texture of a sediment or sedimentary rock, formed chemically or organically and showing no evidence of a derivation from preexisting rock or mechanical deposition. Also known as nonmechanical. { 'nä·n·'kla·stik }

noncohesive See cohesionless. { 'nä·n·kō'hē·siv }

nonconformity A type of unconformity in which rocks below the surface of unconformity are either igneous or metamorphic. { 'nä·n·kän'för·määd·ē }

noncyclic terrace One of a series of terraces representing previous valley floors formed during periods when continued valley deepening accompanied lateral erosion. { 'nä·n·sī·klik 'ter·äs }

nondepositional unconformity See paraconformity. { 'nä·n·dep·ä'zish·än·äl 'än·kän'för·määd·ē }

nonesite A porphyritic basalt composed of enstatite, labradorite, and augite phenocrysts in a groundmass of plagioclase and augite. { 'nä·n·ä'sit }

nongraded Pertaining to a soil or an unconsolidated sediment consisting of particles of essentially the same size. { 'nä·n·'gräd·äd }

nonmechanical See nonclastic. { 'nä·n·mi'kan·ä·käl }

nonpenetrative Of a type of deformation, affecting only part of a rock, such as kink bands. { 'nä·n·pen·ä'träd·iv }

nonplunging fold A fold with a horizontal axial surface. Also known as horizontal fold; level fold. { 'nä·n·plän·jiŋ 'föld }

nonrotational strain See irrotational strain. { 'nä·n·rō'tā·shän·äl 'strän }

nonsorted polygon A form of patterned ground which has a dominantly polygonal mesh and an unsorted appearance due to the absence of border stones, and whose borders are generally marked by wedge-shaped fissures narrowing downward. { 'nä·n·sörd·äd 'pä·l·i·gän }

nonsystematic joint A joint that is not part of a set. { 'nä·n·sis·tä'mäd·ik 'jōint }

nontectonite Any rock whose fabric shows no influence of movement of adjacent grains; for example, a rock formed by mechanical settling. { 'nä·n·tek·tä·nīt }

nontronite $\text{Na}(\text{Al},\text{Fe},\text{Si})\text{O}_{10}(\text{OH})_2$ An iron-rich clay mineral of the montmorillonite group that represents the end member in which the replacement of aluminum by ferric ion is essentially complete. Also known as chloropal; gramenite; morencite; pinguite. { 'nä·n·trän·īt }

nonwetting sand Sand that resists infiltration of water; consists of angular particles of various sizes and occurs as a tightly packed lens. { 'nä·n·wed·iŋ 'sand }

norbergite $\text{Mg}_3\text{SiO}_4(\text{F},\text{OH})_2$ A yellow or pink orthorhombic mineral composed of magnesium silicate with fluoride and hydroxyl; it is a member of the humite group. { 'nör·bær·gīt }

nordenskiöldine $\text{CaSn}(\text{BO}_3)_2$ A colorless or sulfur-, lemon-, or wine-yellow, hexagonal mineral consisting of a borate of calcium and tin; occurs in tabular form and as lenslike crystals. { 'nörd·än·shēl·dän }

nordmarkite A quartz-bearing alkalic syenite that has micropertite as its main component with smaller amounts of oligoclase, quartz, and biotite and is characterized by granitic or trachytoid texture. { 'nörd·mär·kīt }

- Norian** A European stage of Upper Triassic geologic time that lies above the Carnian and below the Rhaetian. { 'nôr·ē·ən }
- norite** A coarse-grained plutonic rock composed principally of basic plagioclase with orthopyroxene (hypersthene) as the dominant mafic material. Also known as hypersthenefels. { 'nôr·īt }
- norm** The theoretical mineral composition of a rock expressed in terms of standard mineral molecules as determined by means of chemical analyses. { nôr̄m }
- normal aeration** The complete renewal of soil air to a depth of 8 inches (20 centimeters) about once each hour. { 'nôr·mæl e'rå·shən }
- normal anticlinorium** An anticlinorium in which axial surfaces of the subsidiary folds converge downward. { 'nôr·mæl·ant·i·klə'nôr·ē·əm }
- normal consolidation** Consolidation of a sedimentary material in equilibrium with overburden pressure. { 'nôr·mæl kən·säl·ə'dā·shən }
- normal cycle** A cycle of erosion whereby a region is reduced to base level by running water, especially by the action of rivers. Also known as fluvial cycle of erosion. { 'nôr·mæl 'sī·kəl }
- normal dip** See regional dip. { 'nôr·mæl 'dip }
- normal displacement** See dip slip. { 'nôr·mæl di'spläs·mənt }
- normal erosion** Erosion effected by prevailing agencies of the natural environment, including running water, rain, wind, waves, and organic weathering. Also known as geologic erosion. { 'nôr·mæl i'rō·zhən }
- normal fault** A fault, usually of 45-90°, in which the hanging wall appears to have shifted downward in relation to the footwall. Also known as gravity fault, normal slip fault, slump fault. { 'nôr·mæl 'fölt }
- normal fold** See symmetrical fold. { 'nôr·mæl 'föld }
- normal horizontal separation** See offset. { 'nôr·mæl 'här·ə'zänt·əl·sep·ə'rā·shən }
- normal ripple mark** An aqueous current ripple mark consisting of a simple asymmetrical ridge that may have various configurations. { 'nôr·mæl 'rip·əl·märk }
- normal slip fault** See normal fault. { 'nôr·mæl 'slip·fölt }
- normal soil** A soil having a profile that is more or less in equilibrium with the environment. { 'nôr·mæl 'söil }
- normal synclinorium** A synclinorium in which the axial surfaces of the subsidiary folds converge upward. { 'nôr·mæl·sin·klə'nôr·ē·əm }
- normative mineral** See standard mineral. { 'nôr·məd·iv 'mīn·rəl }
- northupite** $\text{Na}_3\text{MgCl}(\text{CO}_3)_2$ A white, yellow, gray, or colorless isometric mineral composed of magnesium sodium carbonate; occurs in octahedral crystals. { 'nôr·thə·pīt }
- nose** **1.** A plunging anticline that is short and without closure. **2.** A projecting and generally overhanging buttress of rock. **3.** The projecting end of a hill, spur, ridge, or mountain. **4.** The central forward part of a parabolic dune. { nōz }
- nosean** See noselite. { 'nō·zē·ən }
- noselite** $\text{Na}_4\text{Al}_3\text{Si}_3\text{O}_{12}\cdot\text{SO}_4$ A gray, blue or brown mineral of the sodalite group, similar to hauynite; hardness is 5.5 on Mohs scale. Also known as nosean. { 'nōz·ə·līt }
- notch** A deep, narrow cut near the high-water mark at the base of a sea cliff. { nɑch }
- noumeite** See garnierite. { 'nü·mē·īt }
- nourishment** The replenishment of a beach, either naturally (such as by littoral transport) or artificially (such as by deposition of dredged materials). { 'nər·ish·mənt }
- novaculite** A siliceous sedimentary rock that is dense, hard, even-textured, light-colored, and characterized by dominance of microcrystalline quartz over chalcedony. Also known as razor stone. { nə'vak·yə·līt }
- novaculitic chert** A gray chert that fragments into slightly rough, splintery pieces. { nə'vak·yə·līd·ik 'chərt }
- nubbin** **1.** One of the isolated bedrock knobs or small hills forming the last remnants of a mountain crest or mountain range that has succumbed to desert erosion. **2.** A residual boulder, commonly granitic, occurring on a desert dome or broad pediment. { 'nəb·ən }
- nuée ardente** A turbulent, rapidly flowing, and sometimes incandescent gaseous cloud

nugget

erupted from a volcano and containing ash and other pyroclastics in its lower part. Also known as glowing cloud; Pelean cloud. { ˈnʊːl̩ə ərˈdɑːnt }

nugget A small mass of metal found free in nature. { ˈnʌɡ·ət }

nunatak An isolated hill, knob, ridge, or peak of bedrock projecting prominently above the surface of a glacier and completely surrounded by glacial ice. { ˈnʌn·ətək }

- oblique fault** See diagonal fault. { ə'blēk 'fôlt }
- oblique joint** See diagonal joint. { ə'blēk 'jôint }
- oblique slip fault** A fault which has slippage along both the strike and dip of the fault plane. { ə'blēk 'slip 'fôlt }
- obsequent** Of a stream, valley, or drainage system, being in a direction opposite to that of the original consequent drainage. { 'äb·sə·kwənt }
- obsequent fault-line scarp** A fault-line scarp which faces in the direction opposite to that of the original fault scarp or in which the structurally upthrown block is topographically lower than the downthrown block. { 'äb·sə·kwənt 'fôlt 'līn 'skärp }
- obsidian** A jet-black volcanic glass usually of rhyolitic composition, formed by rapid cooling of viscous lava, generally forms the upper parts of lava flows. Also known as hyalopsite; Iceland agate; mountain mahogany. { äb'sid·ē·ən }
- obsidianite** See tektite. { äb'sid·ē·ənīt }
- obstructed stream** A stream whose valley has been blocked by a landslide, glacial moraine, sand dune, or lava flow; it frequently consists of a series of ponds or small lakes. { əb'stræk·təd 'strēm }
- obstruction moraine** A moraine formed where the movement of ice is obstructed, for example, by a ridge of bedrock. { əb'stræk·shən mə'rān }
- occult mineral** A mineral component of rock which cannot be seen through a microscope, but whose presence can be detected by chemical analyses. { ə'kəlt 'mīn·rəl }
- ocean basin** The great depression occupied by the ocean on the surface of the lithosphere. { 'ō·shən 'bā·sən }
- ocean floor** The near-horizontal surface of the ocean basin. { 'ō·shən 'flôr }
- ocean-floor spreading** See sea-floor spreading { 'ō shən 'flôr 'spred ɪŋ }
- oceanic basalt** Rocks of the oceanic island volcanoes { 'ō shē'an·ik bə'sôlt }
- oceanic crust** A thick mass of igneous rock which lies under the ocean floor { 'ō shē'an·ik 'krəst }
- oceanic island** Any island which rises from the deep-sea floor rather than from shallow continental shelves. { 'ō·shē'an·ik 'ī·lənd }
- oceanic ridge** See mid-oceanic ridge. { 'ō·shē'an·ik 'rīj }
- oceanic rise** A long, broad elevation of the bottom of the ocean { 'ō·shē'an·ik 'rīz }
- oceanite** A picritic basalt in which olivine is a great deal more abundant than plagioclase. { 'ō·shənīt }
- oceanization** Process by which continental crust (sial) is converted into oceanic crust (sima). { 'ō·shə·nə'zā·shən }
- ocellar** Of the texture of an igneous rock, having crystalline aggregates of phenocrysts arranged radially or tangentially around larger euhedral crystals or which form rounded branching forms. { ō'sel·ər }
- ocellus** A phenocryst in an ocellar rock. { ō'sel·əs }
- ocher** A yellow, brown, or red earthy iron oxide, or any similar earthy, pulverulent metallic oxides used as pigments. { ō·kər }
- Ochoan** A North American provincial series that is uppermost in the Permian, lying above the Guadalupian and below the lower Triassic. { ō'chō·ən }
- Ochrept** A suborder of the soil order Inceptisol, with horizon below the surface, lacking

octahedral borax

clay, sesquioxides, or humus; widely distributed, occurring from the margins of the tundra region through the temperate zone, but not into the tropics. { 'ō·krēpt }

octahedral borax See tincalconite. { lāk·təl'hē·drəl 'bōr·aks }

octahedral coordination An atomic structure where six cations surround every anion, and vice versa. { lāk·təl'hē·drəl kō'ōrd·ən·ā·shən }

octahedral copper ore See cuprite. { lāk·təl'hē·drəl 'káp·ər·ōr }

octahedral iron ore See magnetite. { lāk·təl'hē·drəl 'ī·ərn·ōr }

octahedrite The most common iron meteorite, containing 6-18% nickel in the metal phase and having intimate intergrowths lying parallel to the octahedral planes. See anatase. { 'āk·təl'hē·drīt }

octaphyllite 1. A group of mica minerals that contain eight cations per ten oxygen and two hydroxyl ions. 2. Any mineral of this group, such as biotite. { lāk·tə'fīlīt }

odinite A grayish-green lamprophyre composed of labradorite and augite or diallage, sometimes containing hornblende, phenocrysts in a groundmass of fine lath-shaped or equigranular feldspar, and a felty mesh of acicular hornblende crystals. { 'ōd·ən·īt }

offlap The successive lateral contraction extent of strata (in an upward sequence) due to their deposition in a shrinking sea or on the margin of a rising landmass. Also known as regressive overlap. { 'ōf·lāp }

off-reef facies Facies of the inclined strata made up of reef detritus deposited along the seaward margin of a reef. { 'ōf·rēf 'fā·shēz }

offset 1. The movement of an upcurrent part of a shore to a more seaward position than a downcurrent part. 2. A spur from a mountain range. 3. A level terrace on the side of a hill. 4. The horizontal displacement component in a fault, measured parallel to the strike of the fault. Also known as normal horizontal separation. { 'ōf·set }

offset deposit A mineral deposit, especially of sulfides, formed partly by magmatic segregation and partly by hydrothermal solution and located near the source rock. { 'ōf·set dī'pāz·ət }

offset ridge A ridge consisting of resistant sedimentary rock that has been made discontinuous as a result of faulting. { 'ōf·set 'rij }

offset stream A stream displaced laterally or vertically by faulting. { 'ōf·set 'strem }

offshore The comparatively flat zone of variable width extending from the outer margin of the shoreface to the edge of the continental shelf. { 'ōf·shōr }

offshore bar See longshore bar. { 'ōf·shōr 'bār }

offshore beach See barrier beach. { 'ōf·shōr 'bēch }

offshore slope The frontal slope below the outer edge of an offshore terrace. { 'ōf·shōr 'slōp }

offshore terrace A wave-built terrace in the offshore zone composed of gravel and coarse sand. { 'ōf·shōr 'ter·əs }

ogive One of a periodically repeated series of dark curved structures occurring down a glacier that resemble a pointed arch. { 'ō·jīv }

oikocryst One of the enclosing crystals in a poikilitic fabric. { 'ōik·ə·krist }

oil See petroleum. { 'ōil }

oil accumulation See oil pool. { 'ōil ə·kyü·myə·lā·shən }

oil column The difference in elevation between the highest and lowest portions of various producing zones of an oil-producing formation. { 'ōil 'käl·əm }

oil floor In a sedimentary basin, the depth below which there is no economic oil accumulation. { 'ōil 'flōr }

oil pool An accumulation of petroleum locally confined by subsurface geologic features. Also known as oil accumulation; oil reservoir. { 'ōil 'pūl }

oil reservoir See oil pool. { 'ōil 'rez·əv·wār }

oil rock A rock stratum containing oil. { 'ōil 'rāk }

oil sand An unconsolidated, porous sand formation or sandstone containing or impregnated with petroleum or hydrocarbons. { 'ōil 'sand }

oil seep The emergence of liquid petroleum at the land surface as a result of slow migration from its buried source through minute pores or fissure networks. Also known as petroleum seep. { 'ōil 'sēp }

oil shale A finely layered brown or black shale that contains kerogen and from which

- liquid or gaseous hydrocarbons can be distilled. Also known as kerogen shale. { 'óil ·shāl }
- oil trap** An accumulation of petroleum which, by a combination of physical conditions, is prevented from escaping laterally or vertically. Also known as trap. { 'óil ·trap }
- Oiluvium** See Pleistocene. { ói'lü·vē·əm }
- oil-water contact** See oil-water surface. { 'óil ·wöd·ər ·kän·takt }
- oil-water interface** See oil-water surface. { 'óil ·wöd·ər ·in·tər·fās }
- oil-water surface** The datum of a two-dimensional oil-water interface. Also known as oil-water contact; oil-water interface. { 'óil ·wöd·ər ·sər·fäs }
- oil zone** The formation or horizon from which oil is produced, usually immediately under the gas zone and above the water zone if all three fluids are present and segregated. { 'óil ·zōn }
- okaite** An ultramafic igneous rock composed chiefly of melilite and haüyne, with accessory biotite, perovskite, apatite, calcite, and opaque oxides. { ó'kã·īt }
- okenite** $\text{CaSi}_2\text{O}_4(\text{OH})_2 \cdot \text{H}_2\text{O}$ A whitish mineral consisting of calcium silicate and occurring in fibrous masses. { ó·kə·nīt }
- old age** The last stage of the erosion cycle in the development of the topography of a region in which erosion has reduced the surface almost to base level and the land forms are marked by simplicity of form and subdued relief. Also known as topographic old age. { 'öld 'āj }
- oldhamite** CaS A pale-brown mineral known only from meteorites, unstable under earth conditions; member of the galena group with face-centered isometric structure. { 'ól·də·mīt }
- old lake** **1.** A lake in an advanced stage of filling by sediments. **2.** A eutrophic or dystrophic lake. **3.** A lake whose shoreline exhibits an advanced stage of development. { 'öld lāk }
- oldland** **1.** An extensive area (as the Canadian Shield) of ancient crystalline rocks reduced to low relief by long, continuous erosion from which the materials of later sedimentary rocks were derived. **2.** A region of older land, projected above sea level behind a coastal plain, that supplied the material of which the coastal-plain strata were formed. { 'öld·land }
- old mountain** A mountain that was formed before the beginning of the Tertiary Period. { 'öld lmaünt·ən }
- Old Red Sandstone** A Devonian formation in Great Britain and northwestern Europe, of nonmarine, predominantly red sedimentary rocks, consisting principally of sandstone, conglomerates, and shales. { 'öld 'red 'san·stōn }
- Oligocene** The third of the five major worldwide divisions (epochs) of the Tertiary period (Cenozoic era), extending from the end of the Eocene to the beginning of the Miocene. { ə'lig·ə·sēn }
- oligoclase** A plagioclase feldspar mineral with a composition ranging from $\text{Ab}_{100}\text{An}_{10}$ to $\text{Ab}_{70}\text{An}_{30}$, where $\text{Ab} = \text{NaAlSi}_3\text{O}_8$ and $\text{An} = \text{CaAl}_2\text{O}_8$. { 'äl·ə·gō·klās }
- oligoclasite** A granular plutonic rock composed almost entirely of oligoclase. Also known as oligosite. { 'äl·ə·gō'kla·sīt }
- oligomictic** Of a clastic sedimentary rock, composed of a single rock type. { ə'lig·ə'mik·tik }
- oligopelic** Property of a lake bottom deposit which contains very little clay. { ə'lig·ə'pel·ik }
- oligophyre** A light-colored diorite containing oligoclase phenocrysts in a groundmass of the same minerals. { ə'lig·ə·fir }
- oligosite** See oligoclasite. { ə'lig·ə·sīt }
- olistolith** An exotic block or other rock mass that has been transported by submarine gravity sliding or slumping and is included in the binder of an olistostrome. { ə'lis·tə·lith }
- olistostrome** A sedimentary deposit composed of a chaotic mass of heterogeneous material that is intimately mixed, accumulated in the form of a semifluid body by submarine gravity sliding or slumping of unconsolidated sediments. { ə'lis·tə·strōm }

oliveiraite

- oliveiraite** $Zr_3Ti_3O_{10} \cdot 2H_2O$ An isotropic mineral consisting of an oxide of titanium and zirconium. { 'äl·ə·və'rá·īt }
- olivenite** $Cu_2(AsO_4)(OH)$ An olive-green, dull-brown, gray, or yellow mineral crystallizing in the orthorhombic system and consisting of a basic arsenate of copper. Also known as leucochalcite; wood copper. { ö'liv·ə·nīt }
- olivine** $(Mg,Fe_2)SiO_3$ A nesosilicate group of olive-green magnesium-iron silicate minerals crystallizing in the orthorhombic system and having a vitreous luster; hardness is 6½-7 on Mohs scale; specific gravity is 3.27-3.37. { 'äl·ə·vën }
- olivine basalt** Any of a group of olivine-bearing basalts. { 'äl·ə·vën bə'sólt }
- olivine-bronzite chondrite** A type of chondritic meteorite that contains about equal amounts of olivine and bronzite. { 'äl·ə·vën 'brän·zīt 'kän·drīt }
- olivine diabase** An igneous rock composed principally of olivine and formed from tholeiitic magmas by differentiation in thick sills. { 'äl·ə·vën 'dī·ə·bās }
- olivine-hypersthene chondrite** A type of chondritic meteorite generally containing more olivine than hypersthene; the hypersthene contains 12-20% iron, giving the meteorite a relatively dark color, and the metal grains usually contain 7-12% nickel. { 'äl·ə·vën 'hī·pər·sthēn 'kän·drīt }
- olivine nephelinite** An extrusive igneous rock differing in composition from nephelinite only by the presence of olivine. Also known as ankaratrite; nepheline basalt. { 'äl·ə·vën nə'fel·ə·nīt }
- olivine-pigeonite chondrite** A type of chondritic meteorite in which olivine is the predominant mineral and pigeonite is secondary, and metal inclusions are usually rich in nickel. { 'äl·ə·vën 'pij·ə·nīt 'kän·drīt }
- ollenite** A type of hornblende schist characterized by abundant epidote, sphene, and rutile. { 'äl·ə·nīt }
- omission** The elimination or nonexposure of certain stratigraphic beds at the surface of any specified section because of disruption and displacement of the beds by faulting. { ö'mish·ən }
- omphacite** A grassy- to pale-green, granular or foliated, high-temperature aluminous clinopyroxene mineral with a vitreous luster that commonly occurs in the rock eclogite; a variety of augite. { 'äm·fə·sīt }
- oncolite** A small, variously shaped (often spheroidal), concentrically laminated, calcareous sedimentary structure resembling an oolith; formed by accretion of successive, layered masses of gelatinous sheaths of blue-green algae. { 'änj·kō·līt }
- Onesquethawan** A North American stage in the Lower and Middle Devonian, lying above the Deerparkian and below the Cazenovian. { 'än·ə'skweth·ə·wän }
- onionskin weathering** A type of spheroidal weathering in which successive shells of decayed rock resembling the layers of an onion are produced. { 'än·yən·skin 'weth·ə·rɪŋ }
- onlap** A type of overlap characterized by regular and progressive pinching out of the strata toward the margins of a depositional basin; each unit transgresses and extends beyond the point of reference of the underlying unit. Also known as transgressive overlap. { 'ön·láp }
- onyx** 1. Banded chalcedonic quartz, in which the bands are straight and parallel; natural colors are usually red or brown with white, although black is occasionally encountered. 2. See onyx marble. { 'än·iks }
- onyx agate** A banded agate with straight, parallel, alternating bands of white and different tones of gray. { 'än·iks 'ag·ət }
- onyx marble** A hard, compact, dense, generally translucent variety of calcite resembling true onyx and usually banded. Also known as alabaster; Algerian onyx; Gibraltar stone; Mexican onyx; onyx; oriental alabaster. { 'än·iks 'mär·bəl }
- onyx opal** Common opal with straight, parallel markings. { 'än·iks 'ö·pəl }
- oolicast** A small, nearly spherical feature occurring in an oolith as a result of a selective dissolution that did not destroy the matrix but left an opening that was subsequently filled. { ö'äl·ə·kast }
- oolicastic porosity** The porosity produced in an oolitic rock by removal of the ooids and formation of oolcasts. { ö'äl·əkäs·tik pə'räs·əd·ē }

- oolite** A sedimentary rock, usually a limestone, composed principally of cemented ooliths. Also known as eggstone; roestone. { 'ō·ə·līt }
- oolith** A small (0.25-2.0 millimeters), rounded accretionary body in a sedimentary rock, generally formed of calcium carbonate by inorganic precipitation and by replacement; ooliths generally exhibit concentric or radial internal structure. { 'ō·ə·lith }
- oolitic chert** Chert composed chiefly of ooliths. { 'ō·ə·līd·ik 'chərt }
- oolitic limestone** An even-textured limestone made up almost entirely of calcareous ooliths with essentially no matrix. { 'ō·ə·līd·ik 'līm·stōn }
- oomicrite** A limestone containing at least 25% ooliths and no more than 25% intraclasts in which the carbonate-mud matrix (micrite) is more abundant than the sparry-calcite cement. { 'ō·ə·mī·krīt }
- oomicrudite** An oomicrite containing ooliths that are more than 1 millimeter in diameter. { 'ō·ə·mī·krə·dīt }
- oospararenite** An oosparite containing medium sand or coarse sand-sized ooliths { 'ō·ə·spə·rar·ə·nīt }
- oosparite** A limestone containing at least 25% ooliths and no more than 25% intraclasts in which the sparry-calcite cement is more abundant than the carbonate-mud matrix. { 'ō·ə·spə·rīt }
- oosparrudite** An oosparite containing ooliths that are more than 1 millimeter in diameter. { 'ō·ə·spə·ə·dīt }
- oovoid** A void in the center of an incompletely replaced oolith. { 'ō·ə·vōid }
- ooze** **1.** A soft, muddy piece of ground, such as a bog, usually resulting from the flow of a spring or brook. **2.** A marine pelagic sediment composed of at least 30% skeletal remains of pelagic organisms, the rest being clay minerals. **3.** Soft mud or slime, typically covering the bottom of a lake or river. { ūz }
- opaque** Masses of opaque, microscopic grains in rocks, particularly in the groundmass of an igneous rock. { 'āp·ə·sīt }
- opal** A natural hydrated form of silica, it is amorphous, usually occurs in botryoidal or stalactic masses, has a hardness of 5-6 on Mohs scale, and specific gravity is 1.9-2.2. { 'ō·pəl }
- opal agate** A variety of banded opal that displays different shades of color, is agatelike in structure, and consists of alternating layers of opal and chalcedony. { 'ō·pəl 'ag·ət }
- opal-CT** A poorly ordered crystalline form of silica thought to be the intermediate phase in quartz chert formation. { 'ō·pəl 'sē'tē }
- opaline** **1.** Any of several minerals related to or resembling opal **2.** An earthy form of gypsum. { 'ō·pə·lēn }
- opalized wood** See silicified wood. { 'ō·pə·līzd 'wūd }
- opaque attritus** Attritus that does not contain large quantities of transparent humic degradation matter. { 'ō·pāk ə'trīd·əs }
- open fault** A fault, or section of a fault, whose two walls have become separated along the fault surface. { 'ō·pən 'fōlt }
- open fold** A fold having only moderately compressed limbs. { 'ō·pən 'fōld }
- open rock** Any stratum sufficiently open or porous to contain a significant amount of water or to convey water along its bed. { 'ō·pən 'rāk }
- open sand** A formation of sandstone that has porosity and permeability sufficient to provide good storage for oil. { 'ō·pən 'sænd }
- open-space structure** A structure in a carbonate sedimentary rock formed by a partial or complete occupation by internal sediments or cement. { 'ō·pən 'spās 'strək·chər }
- operational unit** An arbitrary stratigraphic unit that is distinguished by objective criteria for some practical purpose. Also known as parastratigraphic unit. { 'āp·ə·rā·shən·əl 'yü·nət }
- opicalcite** A recrystallized limestone composed of calcite and serpentine and formed by dedolomitization of a siliceous dolomite. { 'āf·ə·kəl·sīt }
- ophiolite** A group of mafic and ultramafic igneous rocks including spilite, basalt, gabbro, peridotite, and their metamorphic alteration products such as serpentine. { 'āf·ē·əlīt }

ophiolitic eclogite

ophiolitic eclogite Any of the eclogites which are products of early orogenic volcanism and which by later metamorphism transformed into rocks of the high-pressure facies series. { ɫäf·ē·əlɪd·ɪk 'ek·ləʃɪt }

ophite A diabase in which the ophitic structure is retained even though the pyroxene is altered to uralite. { 'äʃɪt }

ophitic Of the holocrystalline, hypidiomorphic-granular texture of an igneous rock, exhibiting lath-shaped plagioclase crystals partly or wholly included within pyroxene crystals. { ä'fid·ɪk }

opoka A porous, flinty, and calcareous sedimentary rock, with conchoidal or irregular fracture, consisting of fine-grained opaline silica (up to 90%), and hardened by the presence of silica of organic origin. { ö'päk·ə }

optical calcite The type of calcite used to make Nicol prisms { 'äp·tə·kəl 'kal·sɪt }

optimum moisture content The water content at which a specified compactive force can compact a soil mass to its maximum dry unit weight. { 'äp·tə·məm 'mɔɪs·chər 'kän'tent }

orange sapphire An orange variety of gem corundum (sapphire). Also known as padparadsha. { 'är·ɪnj 'səʃɪr }

orbicular Of the structure of a rock, containing large quantities of orbicules. { ör'bik·yə·lər }

orbicule A nearly spherical body, up to 2 centimeters (0.8 inch) or more in diameter, in which the components are arranged in concentric layers. { 'ör·bə·kyül }

orbite An igneous rock containing large phenocrysts of hornblende, or plagioclase and hornblende, in a groundmass with the composition of malachite. { 'ör·bɪt }

Ordovician The second period of the Paleozoic era, above the Cambrian and below the Silurian, from approximately 500 million to 440 million years ago. { 'örd·ə'vɪʃ·ən }

ore **1.** The naturally occurring material from which economically valuable minerals can be extracted. **2.** Specifically, a natural mineral compound of the elements, of which one element at least is a metal. **3.** More loosely, all metalliferous rock, though it contains the metal in a free state. **4.** Occasionally, a compound of nonmetallic substances, as sulfur ore. { ör }

ore bed An economic aggregation of minerals occurring between or in rocks of sedimentary origin. { 'ör 'bed }

orebody Generally, a solid and fairly continuous mass of ore, which may include low-grade ore and waste as well as pay ore, but is individualized by form or character from adjoining country rock. { 'ör,bäd·ē }

ore chimney See pipe. { 'ör 'chɪm·nē }

ore cluster A group of interconnected ore bodies. { 'ör 'kläs·tər }

ore control A geologic feature that has influenced the ore deposition { 'ör 'kän'tröl }

ore deposit Rocks containing minerals of economic value in such amount that they can be profitably exploited. { 'ör dɪ,päz·ət }

ore district A combination of several ore deposits into one common whole or system. { 'ör 'dɪs'trɪkt }

ore-lead age An estimate of the age of the earth made by comparing the relative progress of the two radioactive decay schemes ^{235}U - ^{207}Pb and ^{238}U - ^{206}Pb . { 'ör 'led ,äʃ }

ore microscopy The use of a reflecting microscope to study polished sections of ore minerals. Also known as mineragraphy; mineralography. { 'ör mɪ'kräs·kə·pē }

orendite A porphyritic extrusive rock containing phlogopite phenocrysts in a nepheline-free reddish-gray groundmass of leucite, sanidine, phlogopite, amphibole, and diopside. { 'ör·ən·dɪt }

ore of sedimentation See placer. { 'ör əv 'sed·ə·mən'tä·ʃən }

ore pipe See pipe. { 'ör 'pɪp }

ore shoot **1.** A large, generally vertical, pipelike ore body that is economically valuable. Also known as shoot. **2.** A large and usually rich aggregation of mineral in a vein. { 'ör 'ʃhüt }

organic lattice See growth lattice. { ör'gan·ɪk 'lad·əs }

organic mound See bioherm. { ör'gan·ɪk 'maund }

- organic reef** A sedimentary rock structure of significant dimensions erected by, and composed almost exclusively of the remains of, corals, algae, bryozoans, sponges, and other sedentary or colonial organisms. {ór'gan·ik 'rēf }
- organic rock** A sedimentary rock composed principally of the remains of plants and animals. {ór'gan·ik 'rāk }
- organic soil** Any soil or soil horizon consisting chiefly of, or containing at least 30% of, organic matter; examples are peat soils and muck soils. {ór'gan·ik 'sōil }
- organic texture** A sedimentary texture resulting from the activity of organisms such as the secretion of skeletal material. {ór'gan·ik 'teks·chər }
- organic weathering** Biological processes and changes that contribute to the breakdown of rocks. Also known as biological weathering. {ór'gan·ik 'weth·ə·riŋ }
- organogenic** Property of a rock or sediment derived from organic substances. {ór'gan·əl·jən·ik }
- organolite** Any rock consisting mainly of organic material. {ór'gan·ə·līt }
- oriental alabaster** See onyx marble. {ór·ē'ent·əl 'al·ə·bas·tər }
- oriental amethyst** A violet to purple variety of sapphire. {ór·ē'ent·əl 'am·ə·thist }
- oriental jasper** See bloodstone. {ór·ē'ent·əl 'jas·pər }
- oriental topaz** A yellow variety of corundum, used as a gem. {ór·ē'ent·əl 'tō·paz }
- orientation diagram** Any point or contour diagram used in structural petrology. {ór·ē·ən'tā·shən 'dī·ə·gram }
- oriented** Pertaining to a specimen that is so marked as to show its exact, original position in space. {ór·ē·ent·əd }
- original dip** See primary dip. {ə'rij·ən·əl 'dip }
- original interstice** An interstice that formed contemporaneously with the enclosing rock. Also known as primary interstice. {ə'rij·ən·əl 'in·tər·stīs }
- original valley** A valley formed by hypogene action or by epigene action other than that of running water. {ə'rij·ən·əl 'val·ē }
- orocline** An orogenic belt with a change in horizontal direction, either a horizontal curvature or a sharp bend. Also known as geoflex. {'ór·ək'līn }
- orocratic** Pertaining to a period of time in which there is much diastrophism. {'ór·əl·krad·ik }
- orogen** See orogenic belt. {'ór·ə·jən }
- orogene** See orogenic belt. {'ór·ə·jən }
- orogenesis** See orogeny. {'ór·ə'jən·ə·səs }
- orogenic belt** A linear region that has undergone folding or other deformation during the orogenic cycle. Also known as fold belt; orogen; orogene. {'ór·əl·jən·ik 'belt }
- orogenic cycle** A time interval during which a mobile belt evolved into an orogenic belt, passing through preorogenic, orogenic, and postorogenic stages. Also known as geotectonic cycle. {'ór·əl·jən·ik 'sī·kəl }
- orogenic sediment** Any sediment that is produced as the result of an orogeny or that is directly attributable to the orogenic region in which it is later found. {'ór·əl·jən·ik 'sed·ə·mənt }
- orogenic unconformity** An angular unconformity produced locally in a region affected by mountain-building movements. {'ór·əl·jən·ik 'ən·kən'fór·məd·ē }
- orogeny** The process or processes of mountain formation, especially the intense deformation of rocks by folding and faulting which, in many mountainous regions, has been accompanied by metamorphism, invasion of molten rock, and volcanic eruption, in modern usage, orogeny produces the internal structure of mountains, and epeirogeny produces the mountainous topography. Also known as orogenesis; tectogenesis. {'ór·rāj·ə·nē }
- orogeosyncline** A geosyncline that later became an area of orogeny. {'ór·ōljē·ō'sin·klīn }
- orographic** Pertaining to mountains, especially in regard to their location and distribution. {'ór·ə'graf·ik }
- orotath** An orogenic belt that has been stretched substantially in a lengthwise direction. {'ór·ət·tath }
- orpiment** As₂S₃; A lemon-yellow mineral, crystallizing in the monoclinic system and generally occurring in foliated or columnar masses, luster is resinous and pearly on

Orthent

the cleavage surface, hardness is 1.5-2 on Mohs scale, and specific gravity is 3.49. Also known as yellow arsenic. { 'ór·pə·mənt }

Orthent A suborder of the soil order Entisol, well drained and of medium or fine texture, usually shallow to bedrock and lacking evidence of horizonation; occurs mostly on strong slopes. { 'ór·thənt }

Orthid A suborder of the soil order Aridisol, mostly well drained, gray or brownish-gray with little change from top to bottom of the soil profile; occupies younger, but not the youngest, land surfaces in deserts. { 'ór·thəd }

orthite Allanite in the form of slender prismatic or acicular crystals. { 'ór·thīt }

orthobituminous coal Bituminous coal that contains 87-89% carbon, analyzed on a dry, ash-free basis. { 'ór·thō·bətü·mən·əs·kōl }

orthochronology Geochronology based on a standard succession of biostratigraphically significant faunas or floras, or based on irreversible evolutionary processes. { 'ór·thə·krə'näl·ə·jē }

orthoclase $KAlSi_3O_8$ A colorless, white, cream-yellow, flesh-reddish, or gray potassium feldspar that usually contains some sodium feldspar, either as albite or analbite or in some intermediate state; it is or appears to be monoclinic. Also known as common feldspar; orthose; pegmatolite. { 'ór·thə·klās }

orthoconglomerate A conglomerate with an intact gravel framework held together by mineral cement and deposited by ordinary water currents. { 'ór·thə·kən'glām·ə·rət }

orthocumulate A cumulate composed chiefly of one or more cumulus minerals plus the crystallization products of the intercumulus liquid. { 'ór·thə'kyü·myə·lət }

Orthod A suborder of the soil order Spodosol having accumulations of humus, aluminum, and iron; widespread in Canada and Russia. { 'ór·thäd }

orthodolomite 1. A primary dolomite, or one formed by sedimentation. 2. A dolomite rock so well cemented that the particles interlock. { 'ór·thə'dō·lə·mīt }

orthoferrosilite An orthopyroxene consisting of the orthorhombic silicate $FeSiO_3$. { 'ór·thō·fer·ə'sil·īt }

orthogeosyncline A linear geosynclinal belt lying between continental and oceanic cratons, and having internal volcanic belts (eugeosynclinal) and external nonvolcanic belts (miogeosynclinal). Also known as geosynclinal couple; primary geosyncline. { 'ór·thō·jē·ə'sin·klīn }

orthogneiss Gneiss originating from igneous rock. { 'ór·thə·nīs }

orthohydrous coal Coal that contains 5-6% hydrogen, analyzed on a dry, ash-free basis. { 'ór·thə'hī·drəs·kōl }

ortholignituous coal Coal that contains 75-80% carbon, analyzed on a dry, ash-free basis. { 'ór·thō·lig'nīd·əs·kōl }

orthomagmatic stage The principal stage in the crystallization of silicates from a typical magma; up to 90% of the magma may crystallize during this stage. Also known as orthotectic stage. { 'ór·thō·mag'mad·ik·stāj }

orthomimic feldspars A group of feldspars that by repeated twinning simulate a higher degree of symmetry with rectangular cleavages. { 'ór·thə'mim·ik·fel'spärz }

orthophotograph A photographic copy, prepared from a photograph formed by a perspective projection, in which the displacements due to tilt and relief have been removed. { 'ór·thə'fōd·ə·graf }

orthopyric Of the texture of the matrix of certain igneous rocks, having feldspar crystals with quadratic or short and stumpy rectangular cross sections. { 'ór·thə'fir·ik }

orthopyroxene A series of pyroxene minerals crystallizing in the orthorhombic system, members include enstatite, bronzite, hypersthene, ferrohypersthene, eulite, and orthoferrosilite. { 'ór·thə·pə'rāk·sēn }

orthoquartzite A clastic sedimentary rock composed almost entirely of detrital quartz grains; a quartzite of sedimentary origin. Also known as orthoquartzitic sandstone; sedimentary quartzite. { 'ór·thə'kwört·sit }

orthoquartzitic conglomerate A lithologically homogeneous, light-colored orthoconglomerate composed of quartzose residues that is commonly interbedded with pure quartz sandstone. Also known as quartz-pebble conglomerate. { 'ór·thə·kwört'sid·ik·kən'glām·ə·rət }

- orthoquartzitic sandstone** See orthoquartzite. { 'lɔr·thə kwɔrt'sid·ik 'sən·stɔn }
- orthorhombic pyroxene** A member of the mineral series enstatite-orthoferrosilite, crystallizing in the orthorhombic system, space group *Pbca*. { 'lɔr·thə'räm·bik pə'räk,sən }
- orthoschist** A schist derived from igneous rocks. { 'ɔr·thə'shɪst }
- orthose** See orthoclase. { 'ɔr·thɔs }
- orthosite** A light-colored coarse-grained igneous rock composed almost entirely of orthoclase. { 'ɔr·thə'sɪt }
- orthostratigraphy** Standard stratigraphy based on fossils which identify recognized biostratigraphic zones. { 'lɔr·thə'strə'tɪg·rə·fē }
- orthotill** A till formed by immediate release of material from transported ice, such as by ablation and melting. { 'ɔr·thə'tɪl }
- Orthox** A suborder of the soil order Oxisol that is moderate to low in organic matter, well drained, and moist all or nearly all year; believed to be extensive at low altitudes in the heart of the humid tropics. { 'ɔr·thɔks }
- orvietite** An extrusive rock composed of approximately equal amounts of plagioclase and sanidine; includes leucite, augite, minor biotite, and olivine, and accessory apatite and opaque oxides. { 'ɔr·vē·ə'tɪt }
- Osagean** A provincial series of geologic time in North America, Lower Mississippian (above Kinderhookian, below Meramecian). { 'ɔ'sā·jē·ən }
- osar** See esker. { 'ɔ.sär }
- oscillation ripple** See oscillation ripple mark. { 'äs·ə'lä·shən 'rɪp·əl }
- oscillation ripple mark** A symmetric ripple mark having a sharp, narrow, and relatively straight crest between broadly rounded troughs, formed by the motion of water agitated by oscillatory waves on a sandy base at a depth shallower than wave base. Also known as oscillation ripple; oscillatory ripple mark; wave ripple mark. { 'äs·ə'lä·shən 'rɪp·əl 'märk }
- oscillatory ripple mark** See oscillation ripple mark.
- ossipite** A coarse-grained variety of troctolite containing labradorite, olivine, magnetite, and a small amount of diallage. { 'äs·ə'pɪt }
- osumilite** $(K, Na)(Mg, Fe^{2+})(Al, Fe^{3+})_2(Si, Al)_6O_{20} \cdot H_2O$ A mineral that crystallizes in the hexagonal system and is commonly mistaken for cordierite. { 'äs·sü·mə'lɪt }
- otavite** $CdCO_3$ A mineral that crystallizes in the hexagonal system and is isostructural with calcite. { 'ɔd·ə'vɪt }
- ottrelite** A gray to black variety of chloritoid containing manganese. { 'ä·trə'lɪt }
- ouachitite** A biotite monchiquite with no olivine and a glassy or analcime groundmass. { 'wä·chə'tɪt }
- outcrop** Exposed stratum or body of ore at the surface of the earth. Also known as cropout. { 'aüt·kräp }
- outcrop curvature** See settling. { 'aüt·kräp 'kär·və·chär }
- outcrop map** A type of geologic map that shows the distribution and shape of actual outcrops, leaving those areas without outcrops blank. { 'aüt·kräp 'mæp }
- outer bar** A bar formed at the mouth of an ebb channel of an estuary. { 'aüt·ər 'bär }
- outer beach** The part of a beach that is ordinarily dry and reached only by the waves generated by a violent storm. { 'aüt·ər 'bēch }
- outer core** The outer or upper zone of the earth's core, extending to a depth of 3160 miles (5100 kilometers), and including the transition zone. { 'aüt·ər 'kɔr }
- outer mantle** See upper mantle. { 'aüt·ər 'mant·əl }
- outface** See dip slope. { 'aüt·fās }
- outflow cave** A cave from which a stream issues or is known to have issued. { 'aüt·flɔ 'kāv }
- outlier** A group of rocks separated from the main mass and surrounded by outcrops of older rocks. { 'aüt·lɪ·ər }
- outwash** 1. Sand and gravel transported away from a glacier by streams of meltwater and either deposited as a floodplain along a preexisting valley bottom or broadcast over a preexisting plain in a form similar to an alluvial fan. Also known as glacial outwash, outwash drift, overwash. 2. Soil material washed down a hillside by rain-water and deposited on more gently sloping land. { 'aüt·wäsh }

outwash apron

outwash apron See outwash plain. { 'aüt·wäsh 'ä·prən }

outwash cone A cone-shaped deposit consisting chiefly of sand and gravel found at the edge of shrinking glaciers and ice sheets. { 'aüt·wäsh 'kōn }

outwash drift See outwash. { 'aüt·wäsh 'drift }

outwash fan A fan-shaped accumulation of outwash deposited by meltwater streams in front of the terminal moraine of a glacier. { 'aüt·wäsh 'fan }

outwash plain A broad, outspread flat or gently sloping alluvial deposit of outwash in front of or beyond the terminal moraine of a glacier. Also known as apron; frontal apron; frontal plain; marginal plain; morainal apron; morainal plain; outwash apron; overwash plain; sandur; wash plain. { 'aüt·wäsh 'plān }

outwash terrace A dissected and incised valley train or benchlike deposit extending along a valley downstream from an outwash plain or terminal moraine. { 'aüt·wäsh 'ter·əs }

outwash train See valley train. { 'aüt·wäsh 'trān }

ouvarovite See uvarovite. { ü'vär·ə·vīt }

oven **1.** A rounded, saclike, chemically weathered pit or hollow in a rock (especially a granitic rock) which has an arched roof and resembles an oven. **2.** See spouting horn. { 'əv·ən }

overbank deposit Fine-grained sediment (silt and clay) deposited from suspension on a floodplain by floodwaters from a stream channel. { lö·vär'banj k di·päz·ət }

overburden **1.** Rock material overlying a mineral deposit or coal seam. Also known as baring; top. **2.** Material of any nature, consolidated or unconsolidated, that overlies a deposit of useful materials, ores, or coal, especially those deposits that are mined from the surface by open cuts. **3.** Loose soil, sand, or gravel that lies above the bedrock. { 'ö·vär·bärd·ən }

overconsolidation Consolidation of sedimentary material exceeding that which is normal for the existing overburden. { lö·vär·kən·sä'l·ə'dä·shən }

overdeepening The erosive process by which a glacier deepens and widens an inherited preglacial valley to below the level of the subglacial surface. { lö·vär'döp·ə·niŋ }

overflow channel A channel or notch cut by the overflow waters of a lake, especially the channel draining meltwater from a glacially dammed lake. { 'ö·vär'flö 'chan·əl }

overfold A fold that is overturned. { 'ö·vär'föld }

overgrowth A mineral deposited on and growing in oriented, crystallographic directions on the surface of another mineral. { 'ö·vär'gröth }

overhang The part of a salt plug that projects from the top. { 'ö·vär'haŋ }

overite $\text{Ca}_3\text{Al}_8(\text{PO}_4)_8(\text{OH})_6 \cdot 15\text{H}_2\text{O}$ A mineral composed of hydrous basic calcium aluminum phosphate. { 'ö·vär'it }

overlap **1.** Movement of an upcurrent part of a shore to a position extending seaward beyond a downcurrent part. **2.** Extension of strata over or beyond older underlying rocks. **3.** The horizontal component of separation measured parallel to the strike of a fault. { 'ö·vär'lap }

overlap fault A fault structure in which the displaced strata are doubled back upon themselves. { 'ö·vär'lap 'fölt }

overload The amount of sediment that exceeds the ability of a stream to transport it and is therefore deposited. { 'ö·vär'löd }

overprint The development or superposition of metamorphic structures on original structures. Also known as imprint; metamorphic overprint; superprint. { 'ö·vär 'print }

oversaturated See silicic. { lö·vär'sach·ə·räd·əd }

oversteepening The process by which an eroding alpine glacier steepens the sides of an inherited preglacial valley. { lö·vär'stēp·ə·niŋ }

overstep **1.** An overlap characterized by the regular truncation of older units of a complete sedimentary sequence by one or more later units of the sequence. **2.** A stratum deposited on the upturned edges of underlying strata. { 'ö·vär'step }

overthrust **1.** A thrust fault that has a low dip or a net slip that is large. Also known

as low-angle thrust; overthrust fault. **2.** A thrust fault with the active element being the hanging wall. { 'ō·vər·θrəst }

overthrust block See overthrust nappe.

overthrust nappe The body of rock making up the hanging wall of a large-scale overthrust. Also known as overthrust block; overthrust sheet; overthrust slice. { 'ō·vər·θrəst·nəp }

overthrust sheet See overthrust nappe. { 'ō·vər·θrəst·ʃi:t }

overthrust slice See overthrust nappe. { 'ō·vər·θrəst·sli:s }

overturned Of a fold or the side of a fold, tilted beyond the perpendicular. Also known as inverted; reversed. { 'ō·vər·tərnd }

overwash **1.** A mass of water representing the part of the wave advancing up a beach that runs over the highest part of the berm (or other structure) and that does not flow directly back to the sea or lake. **2.** See outwash. { 'ō·vər·wəʃ }

overwash mark A narrow, tongue-like ridge of sand formed by overwash on the landward side of a berm. { 'ō·vər·wəʃ·mɑ:k }

overwash plain See outwash plain. { 'ō·vər·wəʃ·plæn }

oxammite $(\text{NH}_4)_2\text{C}_2\text{O}_4 \cdot \text{H}_2\text{O}$ A yellowish-white, orthorhombic mineral consisting of ammonium oxalate monohydrate; occurs as lamellar masses. { 'äk·sə·mīt }

oxbow The abandoned, horseshoe-shaped channel of a former stream meander after the stream formed a neck cutoff. Also known as abandoned channel. { 'äks·bö }

Oxfordian A European stage of geologic time, in the Upper Jurassic (above Callovian, below Kimmeridgean). Also known as Divesian. { 'äks'fɔ:·dē·ən }

oxidate A sediment made up of iron and manganese oxides and hydroxides crystallized from aqueous solution. { 'äk·sə·dāt }

oxide mineral A naturally occurring material in oxide form such as silicon dioxide, SiO_2 , magnetite, Fe_3O_4 , or lime, CaO . { 'äk·sīd·'min·rəl }

oxidite See shale ball. { 'äk·sə·dīt }

oxidized zone A region of mineral deposits which has been altered by oxidizing surface waters. { 'äk·sə·dīzd·zōn }

Oxisol A soil order characterized by residual accumulations of inactive clays, free oxides, kaolin, and quartz; mostly tropical. { 'äk·sə·sɔ:l }

oxoferrite A variety of naturally occurring iron with some ferrous oxide in solid solution. { 'äk·sə'fe:rīt }

oxybiotite Phenocrystic biotite with increased amounts of Fe(III). { 'läk·sē'bi·ə'rīt }

oxyheeite $\text{Pb}_2\text{Ag}_2\text{Sb}_2\text{S}_{15}$ A light steel gray to silver white mineral consisting of lead and silver antimony sulfide; occurs as acicular needles or in massive form. { 'äk·sē'hē:īt }

oxyhornblende See basaltic hornblende. { 'läk·sē'hörn·blend }

oxysphere See lithosphere. { 'äk·sə'sfir }

ozocerite A natural, brown to jet black paraffin wax occurring in irregular veins, consists principally of hydrocarbons, is soluble in water, and has a variable melting point. Also known as ader wax; earth wax; fossil wax; mineral wax; native paraffin; ozokerite. { 'ō'zäs·ə'rīt }

ozokerite See ozocerite. { 'ō'zäk·ə'rīt }

- paar** A depression produced by the moving apart of crustal blocks rather than by subsidence within a crustal block. {pär}
- pachnolite** $\text{NaCaAlF}_6 \cdot \text{H}_2\text{O}$ Colorless to white mineral composed of hydrous sodium calcium aluminum fluoride, occurring in monoclinic crystals. {'pak·nə·līt}
- Pacific suite** A large group of igneous rocks characterized by calcic and calc-alkalic rocks, especially in the region of the circum-Pacific orogenic belt. Also known as anapeirean; circum-Pacific province. {pə'sif·ik 'swēt}
- Pacific-type continental margin** A continental margin typified by that of the western Pacific where oceanic lithosphere descends beneath an adjacent continent and produces an intervening island arc system. {pə'sif·ik 'tɪp 'kənt·ən'ent·əl 'mār·jən}
- packing** The arrangement of solid particles in a sediment or in sedimentary rock. {'pak·ɪŋ}
- packing density** A measure of the extent to which the grains of a sedimentary rock occupy the gross volume of the rock in contrast to the spaces between the grains; equal to the cumulative grain-intercept length along a traverse in a thin section. {'pak·ɪŋ 'den·səd·ē}
- packing proximity** In a sedimentary rock, an estimate of the number of grains that are in contact with adjacent grains; equal to the total percentage of grain-to-grain contacts along a traverse measured on a thin section. {'pak·ɪŋ 'præk·sɪm·əd·ē}
- packsand** A very fine-grained sandstone that is so loosely consolidated by a slight calcareous cement that it can be readily cut by a spade. {'pak·sænd}
- packstone** A sedimentary carbonate rock whose granular material is arranged in a self-supporting framework, yet also contains some matrix of calcareous mud. {'pak·stɔn}
- padparadsha** See orange sapphire. {pad'par·əd·shä}
- pagoda stone** 1. A Chinese limestone showing in section fossil orthoceratites arranged in pagodalike designs 2. An agate whose markings resemble pagodas. {pə'gɔd·ə'stɔn}
- pagodite** See agalmatolite. {'pag·əd·dīt}
- paha** A low, elongated, rounded glacial ridge or hill which consists mainly of drift, rock, or windblown sand, silt, or clay but is capped with a thick cover of loess. {pə'hä}
- pahoehoe** A type of lava flow whose surface is glassy, smooth, and undulating; the lava is basaltic, glassy, and porous. Also known as ropy lava. {pə'hō·ē·hō·ē}
- paigeite** $(\text{Fe}, \text{Mg})\text{FeBO}_3$ A black mineral composed of iron magnesium borate, occurring as fibrous aggregates. {'pā·jīt}
- painted pot** See mud pot. {'pānt·əd 'pät}
- paint pot** A mud pot containing multicolored mud. {'pānt 'pät}
- paired terrace** One of two stream terraces that face each other at the same elevation from opposite sides of the stream valley and represent the remnants of the same floodplain or valley floor. Also known as matched terrace. {'perd 'ter·əs}
- paisanite** See ailsyte. {'pīs·ən·īt}
- palagonite** A brown to yellow altered basaltic glass found as interstitial material or amygdules in pillow lavas. {pə'lag·ə·nīt}
- palagonite tuff** A pyroclastic rock composed of angular fragments of palagonite. {pə'lag·ə·nīt 'tʌf}

palasite

- palasite** The most abundant of the intermediate types of meteorites, consisting of olivine enclosed in a nickel-iron matrix. { 'pāl·ə'sīt }
- paleic surface** A smooth, preglacial erosion surface. { pə'lē-ik 'sær·fəs }
- paleobotanic province** A large region defined by similar fossil floras. { 'pāl·ē·ō·bə'tan-ik 'präv·əns }
- Paleocene** A major worldwide division (epoch) of geologic time of the Tertiary period; extends from the end of the Cretaceous period to the Eocene epoch. { 'pāl·ē·ə'sēn }
- paleochannel** A remnant of a stream channel cut in older rock and filled by the sediments of younger overlying rock. { 'pāl·ē·ō'chan·əl }
- paleoclimate** The climate of a given period of geologic time. Also known as geologic climate. { 'pāl·ē·ō'klī·mät }
- paleoclimatic sequence** The sequence of climatic changes in geologic time, it shows a succession of oscillations between warm periods and ice ages, but superimposed on this are numerous shorter oscillations. { 'pāl·ē·ō·klə'mad-ik 'sē·kwəns }
- paleoclimatology** The study of climates in the geologic past, involving the interpretation of glacial deposits, fossils, and paleogeographic, isotopic, and sedimentologic data. { 'pāl·ē·ō·klī·mə'täl·ə·jē }
- paleocurrent** Ancient fluid current flow whose orientation can be inferred by primary sedimentary structures and textures. { 'pāl·ē·ō'kə·rənt }
- paleoequator** The position of the earth's equator in the geologic past as defined for a specific geologic period and based on geologic evidence. { 'pāl·ē·ō·i'kwäd·ər }
- paleofluminology** The study of ancient stream systems. { 'pāl·ē·ō·flü·mə'näl·ə·jē }
- Paleogene** A geologic time interval comprising the Oligocene, Eocene, and Paleocene of the lower Tertiary period. Also known as Eogene. { 'pāl·ē·ō·jēn }
- paleogeographic event** See palevent. { 'pāl·ē·ō·jē·ə'graf-ik i'vent }
- paleogeographic stage** See palstage. { 'pāl·ē·ō·jē·ə'graf-ik 'stāj }
- paleogeography** The geography of the geologic past, concerns all physical aspects of an area that can be determined from the study of the rocks. { 'pāl·ē·ō·jē'äg·rə·fē }
- paleogeologic map** An areal map of the geology of an ancient surface immediately below a buried unconformity, showing the geology as it appeared at some time in the geologic past at the time the surface of unconformity was completed and before the overlapping strata were deposited. { 'pāl·ē·ō·jē·ə'läj-ik 'map }
- paleogeology** The geology of the past, applied particularly to the interpretation of the rocks at a surface of unconformity. { 'pāl·ē·ō·jē'äl·ə·jē }
- paleogeomorphology** A branch of geomorphology concerned with the recognition of ancient erosion surfaces and the study of ancient topographies and topographic features that are now concealed beneath the surface and have been removed by erosion. Also known as paleophysiography. { 'pāl·ē·ō·jē·ō·mór'fäl·ə·jē }
- paleohydrology** The study of ancient hydrologic features preserved in rock. { 'pāl·ē·ō·hī'dräl·ə·jē }
- paleoisotherm** The locus of points of equal temperature for some former period of geologic time. { 'pāl·ē·ō't-ə'thərm }
- paleokarst** A rock or area that has undergone the karst process and subsequently been buried under sediments. { 'pāl·ē·ō·kärst }
- paleolatitude** The latitude of a specific area on the earth's surface in the geologic past. { 'pāl·ē·ō'läd·ə'tüd }
- paleolimnology** 1. The study of the past conditions and processes of ancient lakes. 2. The study of the sediments and history of existing lakes. { 'pāl·ē·ō·lim'näl·ə·jē }
- paleolithologic map** A paleogeologic map indicating lithologic variations at a buried horizon or within a restricted zone at a specific time in the geologic past. { 'pāl·ē·ō·lith·ə'läj-ik 'map }
- paleometeoritics** The study of variation of extraterrestrial debris as a function of time over extended parts of the geologic record, especially in deep-sea sediments and possibly in sedimentary rocks, and, for more recent periods, in ice. { 'pāl·ē·ō·mēd·ē'ör-id-iks }

- paleopedology** The study of soils of past geologic ages including determination of their ages. { 'pāl·ē·ō·pə'däl·ə·jē }
- paleophysiology** See paleogeomorphology { 'pāl·ē·ō·fɪz·ē'äg·rə·fē }
- paleoplain** An ancient degradational plain that is buried beneath later deposits { 'pāl·ē·ə·plān }
- paleopole** A pole of the earth, either magnetic or geographic, in past geologic time { 'pāl·ē·ə·pōl }
- paleosalinity** The salinity of a body of water in the geologic past, as evaluated on the basis of chemical analyses of sediment or formation water. { 'pāl·ē·ō·sə'lin·əd·ē }
- paleoslope** The direction of initial dip of a former land surface such as an ancient continental slope. { 'pāl·ē·ə·slōp }
- paleosol** A soil horizon that formed on the surface during the geologic past that is an ancient soil. Also known as buried soil; fossil soil. { 'pāl·ē·ə·sōl }
- paleosome** A geometric element of a composite rock or mineral deposit which appears to be older than an associated younger rock element. { 'pāl·ē·ə·sōm }
- paleostructure** The geologic structure of a region or sequence of rocks in the geologic past. { 'pāl·ē·ō'strək·chər }
- paleotectonic map** Regional map that shows the structural patterns that existed during a particular period of geologic time, for example, the Lower Cretaceous in western Canada. { 'pāl·ē·ō·tektän·ik 'map }
- paleotemperature** **1.** The temperature at which a geologic process took place in ancient past. **2.** The mean climatic temperature at a given time or place in the geologic past { 'pāl·ē·ō'tem·prə·chər }
- paleothermal** Pertaining to warm climates of the geologic past { 'pāl·ē·ə'thər·mə }
paleothermometry Measurement or estimation of past temperatures { 'pāl·ē·ə·thər'mäm·ə·trē }
- paleotopography** The topography of a given area in the geologic past { 'pāl·ē·ō·tə'päg·rə·fē }
- Paleozoic** The era of geologic time from the end of the Precambrian (600 million years before present) until the beginning of the Mesozoic era (225 million years before present). { 'pāl·ē·ə'izō·ik }
- palette** A broad sheet of calcite representing a solutional remnant in a cave. Also known as shield. { 'pal·ət }
- palevent** A relatively sudden and short-lived paleogeographic happening, such as the short, static existence of a particular depositional environment, or a rapid geographic change separating two palstages. Also known as paleogeographic event. { 'pal·ə·vənt }
- palimpsest** **1.** Referring to a kind of drainage in which a modern anomalous drainage pattern is superimposed upon an older one, clearly indicating different topographic and possibly structural conditions at the time of development. **2.** In sedimentology, autochthonous sediment deposits which exhibit some of the attributes of the source sediment. **3.** Of a metamorphic rock, having remnants of the original structure or texture preserved. { pə'lim·səst }
- palingenesis** In-place formation of new magma by the melting of preexisting rock material. { 'pāl·ən'jen·ə·səs }
- palinspastic map** A paleogeographic or paleotectonic map showing restoration of the features to their original geographic positions, before thrusting or folding of the crustal rocks. { 'pāl·ən'ispas·tik 'map }
- Palisade disturbance** Appalachian orogenic episode occurring during Triassic time which produced a series of faultlike basins. { 'pāl·ə'sād di'stər·bəns }
- palisades** A series of sharp cliffs. { 'pāl·ə'sädz }
- palladium amalgam** See potarite. { pə'lād·ē·əm ə'mal·gəm }
- palladium gold** See porpezite. { pə'lād·ē·əm 'gōld }
- pallasite** **1.** A stony-iron meteorite composed essentially of large single glassy crystals of olivine embedded in a network of nickel-iron. **2.** An ultramafic rock, of either meteoric or terrestrial origin, which contains more than 60% iron in the former, or more iron oxides than silica in the latter. { 'pāl·ə'sīt }
- pallasite shell** See lower mantle. { 'pāl·ə'sīt 'shel }

palmierite

- palmierite** (K,Na)₂Pb(SO₄)₂. A white hexagonal mineral that is composed of potassium sodium lead sulfate. {pāl'mi·rīt }
- palstage** A period of time when paleogeographic conditions were relatively static or were changing gradually and progressively with relation to such factors as sea level, surface relief, or the distance of the shoreline from the region in question. Also known as paleogeographic stage. { 'pal ·stāj }
- palygorskite** **1.** A chain-structure type of clay mineral **2.** A group of lightweight, tough, fibrous clay minerals showing extensive substitution of aluminum for magnesium. { 'pal ·ə'gōr'skīt }
- pan** **1.** A shallow, natural depression or basin containing a body of standing water. **2.** A hard, cementlike layer, crust, or horizon of soil within or just beneath the surface; may be compacted, indurated, or very high in clay content. { pan }
- panbase** See tetrahedrite. { 'pan ·ə'bās }
- panautomorphic rock** See panidiomorphic rock { 'pan ·ōd ·ə'mōr'fik 'rāk }
- pandermite** See priceite. { 'pan ·dər'mīt }
- panethite** A phosphate mineral known only in meteorites, contains sodium, potassium, magnesium, calcium, iron, and manganese. { 'pan ·ə'thīt }
- panfan** See pediplain. { 'pan'fan }
- Pangea** Postulated former supercontinent supposedly composed of all the continental crust of the earth, and later fragmented by drift into Laurasia and Gondwana. { pan'jē ·ə }
- panidiomorphic rock** An igneous rock that is completely or predominantly idiomorphic. Also known as panautomorphic rock. { 'pan'id ·ē ·ō'mōr'fik 'rāk }
- Pannonian** A European stage of geologic time comprising the lower Pliocene. { pə'nō ·nē ·ən }
- panplain** A broad, level plain formed by coalescence of several adjacent flood plains. Also spelled panplane. { 'pan'plān }
- panplanation** The action or process of formation or development of a panplain. { 'pan ·plə'nā ·shən }
- panstellerite** A green to black extrusive rock characterized by acmite-augite or diopside, anorthoclase, and cossyrite phenocrysts in an acmite or feldspar matrix that is either pumiceous, partly glassy, fine-grained holocrystalline trachytic, or microlitic. { pan'tel ·ə'rīt }
- Panthalassa** The hypothetical proto-ocean surrounding Pangea, supposed by some geologists to have combined all the oceans or areas of oceanic crust of the earth at an early time in the geologic past. { 'pan ·thə'las ·ə }
- paper shale** A shale that easily separates on weathering into very thin, tough, uniform, and somewhat flexible layers or laminae suggesting sheets of paper. { 'pā ·pər 'shāl }
- paper spar** A crystallized variety of calcite occurring in thin lamellae or paperlike plates. { 'pā ·pər 'spär }
- parabittuminous coal** Bituminous coal that contains 84-87% carbon, analyzed on a dry, ash-free basis. { 'par ·ə ·bə'tūm ·ə ·nəs 'kōl }
- parabolic dune** A long, scoop-shaped sand dune having a ground plan approximating the form of a parabola, with the horns pointing windward (upwind). Also known as blowout dune. { 'par ·ə'bal ·ik 'dūn }
- parabutlerite** See butlerite. { 'par ·ə'bət ·lə'rīt }
- parachronology** **1.** Practical dating and correlation of stratigraphic units. **2.** Geochronology based on fossils that supplement, or replace, biostratigraphically significant fossils. { 'par ·ə ·krə'näl ·ə ·jē }
- paraclinal** Referring to a stream or valley that is oriented in a direction parallel to the fold axes of a region. { 'par ·ə'klīn ·əl }
- paraconformity** A type of unconformity in which strata are parallel; there is little apparent erosion and the unconformity surface resembles a simple bedding plane. Also known as nondepositional unconformity; pseudoconformity. { 'par ·ə ·kən'fōr ·məd ·ē }
- paraconglomerate** A conglomerate that is not a product of normal aqueous flow but is deposited by such modes of mass transport as subaqueous turbidity currents and

- glacier ice; characterized by a disrupted gravel framework, often unstratified, and notable for a matrix of greater than gravel-sized fragments. { 'par·ə·kən'glām·ə·rət }
- paracoquimbite** $\text{Fe}_2(\text{SO}_4)_2 \cdot 9\text{H}_2\text{O}$ A pale-violet rhombohedral mineral composed of hydrous ferric iron sulfate; it is dimorphous with coquimbite. { 'par·ə·kə'kim·bīt }
- paraffin coal** A type of light-colored bituminous coal from which oil and paraffin are produced. { 'par·ə·fən·kɔl }
- paraffin dirt** A clay soil appearing rubbery or curdy and occurring in the upper several inches of a soil profile near gas seeps; probably formed by biodegradation of natural gas. { 'par·ə·fən·dɜrt }
- paragenesis** **1.** The association and order of crystallization of minerals in a rock or vein. **2.** The effect of one mineral on the development of another. Also known as mineral sequence; paragenetic sequence. { ,par·ə'jen·ə·səs }
- paragenetic mineralogy** The study of mineral paragenesis, usually accompanying the analysis of the general geologic structures within and around the ore body. { 'par·ə·jə'ned·ik·min·ə'räl·ə·jē }
- paragenetic sequence** See paragenesis. { 'par·ə·jə'ned·ik·'sē·kwəns }
- parageosyncline** An epeirogenic geosynclinal basin located within a craton or stable area. { 'par·ə·jē·ð'sin·klīn }
- paraglomerate** A conglomerate which contains more matrix than gravel-sized fragments and was deposited by subaqueous turbidity flows and glacier ice rather than normal aqueous flow. Also known as conglomeratic mudstone. { ,par·ə'glām·ə·rət }
- paragneiss** A gneiss showing a sedimentary parentage. { 'par·ə·nīs }
- paragonite** $\text{NaAl}_2(\text{AlSi}_3)\text{O}_{10}(\text{OH})_2$ A yellowish or greenish monoclinic mica species that contains sodium and usually occurs in metamorphic rock. Also known as soda mica. { pə'rag·ə·nīt }
- parahilgardite** $\text{Ca}_8(\text{B}_2\text{O}_7)_2\text{Cl} \cdot 4\text{H}_2\text{O}$ A triclinic mineral composed of hydrous borate and chloride of calcium; it is dimorphous with hilgardite. { 'par·ə'hil·gär'dīt }
- parahopeite** $\text{Zn}_2(\text{PO}_4)_2 \cdot 4\text{H}_2\text{O}$ A colorless mineral composed of hydrous phosphate of zinc, occurring in tabular triclinic crystals; it is dimorphous with hopeite. { 'par·ə'hō·pīt }
- paralaurionite** $\text{PbCl}(\text{OH})$ A white mineral composed of basic lead chloride; it is dimorphous with laurionite. { 'par·ə'lör·ē·ə·nīt }
- paraliageosyncline** A geosyncline developing along a present-day continental margin such as the Gulf Coast geosyncline. { pə'räl·yə·jē·ð'sin·klīn }
- paralic** Pertaining to deposits laid down on the landward side of a coast. { pə'räl·ik }
- paralic coal basin** Coal deposits formed along the margin of the sea. { pə'räl·ik·kɔl·bas·ən }
- parallel fold** See concentric fold. { 'par·ə·lel·'föld }
- parallel ripple mark** A ripple mark characterized by a relatively straight crest and an asymmetric profile. { 'par·ə·lel·'rip·əl·märk }
- parallel roads** A series of horizontal beaches or wave-cut terraces occurring parallel to each other at different levels on each side of a glacial valley. { 'par·ə·lel·'rōdz }
- parallel texture** A rock texture characterized by tabular-to-prismatic crystals oriented parallel to a plane or line. { 'par·ə·lel·'teks·chər }
- parallochthon** Rocks that were brought from intermediate distances and deposited near an allochthonous mass during transit. { ,par·ə'lāk·thän }
- paramelaconite** A black tetragonal mineral composed of cupric and cuprous oxides, occurring in pyramidal crystals. { 'par·ə·mə'läk·ə·nīt }
- paramorph** A mineral exhibiting paramorphism. { 'par·ə·mɔrf }
- paramorphism** The property of a mineral whose internal structure has changed without change in composition or external form. Formerly known as allomorphism. { 'par·ə'mɔr·fiz·əm }
- pararammelsbergite** NiAs_2 A tin white, orthorhombic or pseudoorthorhombic mineral consisting of nickel diarsenide, occurrence is usually in massive form. { 'par·ə'ram·əlz·bær·gīt }

pararipple

- pararipple** A large, symmetric ripple whose surface slopes gently and which shows no assortment of grains. { 'par·ə·rip·əl }
- paraschist** A schist derived from sedimentary rocks. { 'par·ə·shist }
- parasitic cone** See adventive cone. { 'par·ə·sik·ik 'kōn }
- parastratigraphic unit** See operational unit. { 'par·ə·strəd ə'grat·ik 'yü·nət }
- parastratigraphy** **1.** Supplemental stratigraphy based on fossils other than those governing the prevalent orthostratigraphy. **2.** Stratigraphy based on operational units. { 'par·ə·strə'tig·rə·fē }
- parastratotype** Another section in the original locality where a stratotype was defined. { 'par·ə·strəd ə'tīp }
- paratacamite** $\text{Cu}_2(\text{OH})_2\text{Cl}$ Rhombohedral mineral composed of basic copper chloride; it is dimorphous with tacamite. { par·əd·ə'ka·mīt }
- paratill** A till formed by ice-rafting in a marine or lacustrine environment; includes deposits from ice floes and icebergs. { 'par·ətīl }
- parautochthonous** **1.** Pertaining to a mobilized part of an autochthonous granite moved higher in the crust or into a tectonic area of lower pressure and characterized by variable and diffuse contacts with country rocks. **2.** Pertaining to a rock that is intermediate in tectonic character between autochthonous and allochthonous. { 'par·ə·ō'täk·thə·nəs }
- paravauxite** $\text{FeAl}_2(\text{PO}_4)_2(\text{OH})_2 \cdot 8\text{H}_2\text{O}$ A colorless mineral composed of hydrous basic iron aluminum phosphate; contains more water than vauxite. { 'par·ə'vök·sīt }
- parawollastonite** CaSiO_3 A monoclinic mineral composed of silicate of calcium; it is dimorphous with wollastonite. { 'par·ə'wól·ə·stə·nīt }
- parent magma** The naturally occurring mobile rock material from which a particular igneous rock solidified or from which another magma was derived. { pə'rent·əl 'mag·mə }
- parent material** The unconsolidated mineral or organic material from which the true soil develops. { 'per·ənt mə'tir·ē·əl }
- parent rock** **1.** The rock mass from which parent material is derived. **2.** See source rock. { 'per·ənt 'ræk }
- parisite** $(\text{Ce},\text{La})_2\text{Ca}(\text{CO}_3)_3\text{F}_2$ A brownish-yellow secondary mineral composed of a carbonate and a fluoride of calcium, cerium, and lanthanum. { 'par·əsīt }
- parkerite** $\text{Ni}_3(\text{Bi},\text{Pb})_2\text{S}_2$ A bright-bronze mineral composed of nickel bismuth lead sulfide. { 'pär·kə·rīt }
- paragenetic** Formed previous to the enclosing rock; especially said of a concretion formed in a different (older) rock from its present (younger) host. { 'par·ə'jen·ik }
- paroxysmal eruption** See Vulcanian eruption. { 'par·ək'isiz·məł i'rəp·shən }
- parsettensite** $\text{Mn}_2\text{Si}_6\text{O}_{13}(\text{OH})_8$ Copper-red mineral composed of hydrous silicate of manganese. { pər'set·ən·zīt }
- parsonsite** $\text{Pb}_2(\text{UO}_2)(\text{PO}_4)_2 \cdot 2\text{H}_2\text{O}$ A pale-yellow to brownish mineral composed of hydrous lead uranyl phosphate, occurring as a powder. { 'pär·sən·zīt }
- partial pediment** **1.** A broadly planate gravel-capped, interstream bench or terrace. **2.** A broad, planate erosion surface which is formed by the coalescence of contemporaneous, valley-restricted benches developed at the same elevation in proximate valleys, and which would produce a pediment if uninterrupted planation were to continue at this level. { 'pär·shəl 'ped·ə·mənt }
- partial pluton** That part of a composite intrusion representing a single intrusive episode. { 'pär·shəl 'plütän }
- particle diameter** The diameter of a sedimentary particle considered as a sphere. { 'pärd·ə·kəl dī·am·əd·ər }
- particle size** The general dimensions of the particles or mineral grains in a rock or sediment based on the premise that the particles are spheres; commonly measured by sieving, by calculating settling velocities, or by determining areas of microscopic images. { 'pärd·ə·kəl 'sīz }
- particle-size analysis** A determination of the distribution of particles in a series of size classes of a soil, sediment, or rock. Also known as size analysis; size-frequency analysis. { 'pärd·ə·kəl 'sīz ə·nal·ə·səs }
- parting** **1.** A bed or bank of waste material dividing mineral veins or beds. **2.** A soft,

thin sedimentary layer following a surface of separation between thicker strata of different lithology. **3.** A surface along which a hard rock can be readily separated or is naturally divided into layers. **4.** Fracturing a mineral along planes weakened by deformation or twinning. { 'pærd·iŋ }

- parting cast** A sand-filled tension crack produced by creep along the sea floor. { 'pærd·iŋ 'kast }
- parting lineation** A small-scale primary sedimentary structure made up of a series of parallel ridges and grooves formed parallel to the current. Also known as current lineation. { 'pærd·iŋ 'lin·ē'ā·shən }
- parting plane lineation** A parting lineation on a laminated surface, consisting of subparallel, linear, shallow grooves and ridges of low relief, generally less than 1 millimeter. { 'pærd·iŋ 'iplān 'lin·ē'ā·shən }
- parting-step lineation** A parting lineation characterized by subparallel, steplike ridges where the parting surface cuts across several adjacent laminae. { 'pærd·iŋ 'lstep 'lin·ē'ā·shən }
- partiversal** Pertaining to formations that dip in different directions roughly as far as a semicircle. { 'pærd·əl'vər·səl }
- partridgeite** See bixbyite. { 'pær·træ·jīt }
- parvafacies** A body of rock constituting the part of any magnafacies that occurs between designated time-stratigraphic planes or key beds traced across the magnafacies. { 'pær·və'fā·shēz }
- pascoite** $\text{Ca}_2\text{V}_6\text{O}_{17} \cdot 11\text{H}_2\text{O}$ A dark-red-orange to yellow-orange mineral composed of hydrous vanadate of calcium. { 'pas·kə'wīt }
- passage bed** A stratum marking a transition from rocks of one geological system to those of another. { 'pas·ij 'bed }
- passive fold** A fold in which the mechanism of folding, either flow or slip, crosses the boundaries of the strata at random. { 'pas·iv 'fōld }
- passive margin** A continental margin formed by rifting during continental breakup. { 'pas·iv 'mār·jən }
- passive permafrost** Permafrost that will not refreeze under present climatic conditions after being disturbed or destroyed. Also known as fossil permafrost. { 'pas·iv 'pær·mæ'frōst }
- patch reef** **1.** A small, irregular organic reef with a flat top forming a part of a reef complex. **2.** A small, thick, isolated lens of limestone or dolomite surrounded by rocks of different facies. **3.** See reef patch. { 'pæç 'rēf }
- paternoite** See kaliborite. { 'pæd·ər'nō'īt }
- patina** A thin, colored film produced on a rock surface by weathering. { 'pat·ən·ə 'ər·pə'tē·nə }
- patronite** A black vanadium sulfide mineral, mined as a vanadium ore in Minasragra, Peru. { 'pa·trən'īt }
- patterned ground** Any of several well-defined, generally symmetrical forms, such as circles, polygons, and steps, that are characteristic of surficial material subject to intensive frost action. { 'pæd·ərnd 'graund }
- paulingite** An isometric zeolite mineral consisting of an aluminosilicate of potassium, calcium, and sodium. { 'pól·iŋ'īt }
- paulopost** See deuterite. { 'pól·ə'pōst }
- pavement** A bare rock surface that suggests a paved road surface or other pavement in smoothness, hardness, horizontality, surface extent, or close packing of units. { 'päv·mənt }
- pavonite** AgBi_3S_5 A mineral composed of silver bismuth sulfide. { 'pa·və'nīt }
- pawdite** A dark-colored, fine-grained, granular hypabyssal rock composed of magnetite, titanite, biotite, hornblende, calcic plagioclase, and traces of quartz. { 'pó'dīt }
- peachblossom ore** See erythrite. { 'pēç·bläs·əm 'ór }
- pea coal** A size of anthracite that will pass through a $1\frac{1}{16}$ -inch (20.6-millimeter) round mesh but not through a $\frac{9}{16}$ -inch (14.3-millimeter) round mesh. { 'pē 'kól }
- peacock copper** See peacock ore. { 'pē·käk 'kæp·ər }
- peacock ore** A copper mineral, such as bornite, having an iridescent tarnished surface upon exposure to air. Also known as peacock copper. { 'pē·käk 'ór }

pea gravel

- pea gravel** A type of gravel whose individual particles are about the size of peas { 'pē ,grāv·əl }
- peak** **1.** The conical or pointed top of a hill or mountain. **2.** An individual mountain or hill taken as a whole, used especially when it is isolated or has a pointed, conspicuous summit. { pēk }
- peak plain** A high-level plain formed by a series of summits of approximately the same elevation, often described as an uplifted and fully dissected peneplain. Also known as summit plain. { 'pēk ,plān }
- pea ore** A variety of pisolitic limonite or bean ore occurring in small, rounded grains or masses about the size of a pea. { 'pē ,ōr }
- pearceite** $Ag_{16}As_2S_{11}$ A black mineral composed of sulfide of arsenic and silver. { 'pīr·sīt }
- pearlite** See perlite. { 'pær·līt }
- pearl sinter** See siliceous sinter. { 'pærl 'sīn·tər }
- pearl spar** A crystalline carbonate having a pearly luster; an example is ankerite. { 'pærl ,spār }
- pearlstone** See perlite. { 'pærl·stōn }
- peat** A dark-brown or black residuum produced by the partial decomposition and disintegration of mosses, sedges, trees, and other plants that grow in marshes and other wet places. { pēt }
- peat bog** See peat bog. { 'pēt ,bed }
- peat bog** A bog in which peat has formed under conditions of acidity. Also known as peat bed; peat moor. { 'pēt ,bäg }
- peat breccia** Peat that has been broken up and then redeposited in water. Also known as peat slime. { 'pēt·brēch·ə }
- peat coal** A coal transitional between peat and lignite. { 'pēt ,kōl }
- peat moor** See peat bog. { 'pēt ,mūr }
- peat-sapropel** A product of the degradation of organic matter that is transitional between peat and sapropel. Also known as sapropel-peat. { 'pēt 'sap·rə·pel }
- peat slime** See peat breccia. { 'pēt ,slīm }
- peat soil** Soil containing a large amount of peat; it is rich in humus and gives an acid reaction. { 'pēt ,sōil }
- pebble** **1.** A clast, larger than a granule and smaller than a cobble, having a diameter in the range of 0.16-2.6 inches (4-64 millimeters). Also known as pebblestone. **2.** See rock crystal. { 'peb·əl }
- pebble armor** A desert armor made up of rounded pebbles. { 'peb·əl ,är·mər }
- pebble bed** Any pebble conglomerate, especially one in which the pebbles weather conspicuously and become loose. Also known as popple rock. { 'peb·əl ,bed }
- pebble coal** Coal that is transitional between peat and brown coal. { 'peb·əl ,kōl }
- pebble conglomerate** A consolidated rock consisting mainly of pebbles { 'peb·əl kən'gläm·ə·rət }
- pebble dike** **1.** A clastic dike composed largely of pebbles **2.** A tabular body containing sedimentary fragments in an igneous matrix. { 'peb·əl ,dik }
- pebble peat** Peat that is formed in a semiarid climate by the accumulation of moss and algae, no more than 0.25 inch (6 millimeters) in thickness, under the surface pebbles of well-drained soils. { 'peb·əl ,pēt }
- pebble phosphate** A secondary phosphorite of either residual or transported origin, consisting of pebbles or concretions of phosphatic material. { 'peb·əl 'fäs·fāt }
- pebblestone** See pebble. { 'peb·əl·stōn }
- pebbly mudstone** A delicately laminated till-like conglomeratic mudstone. { 'peb·lē 'mäd·stōn }
- pebbly sand** An unconsolidated sedimentary deposit containing at least 75% sand and up to a maximum of 25% pebbles. { 'peb·lē 'sand }
- pebbly sandstone** A sandstone that contains 10-20% pebbles. { 'peb·lē 'san·stōn }
- pectolite** $NaCa_2Si_3O_8(OH)$ A colorless, white, or gray inosilicate, crystallizing in the monoclinic system and having a vitreous to silky luster; hardness is 5 on Mohs scale, and specific gravity is 2.75. { 'pek·tə·līt }
- ped** A naturally formed unit of soil structure. { ped }

- pedalfer** A soil in which there is an accumulation of sesquioxides; it is characteristic of a humid region. { pə'dal·fər }
- pedality** The physical nature of a soil as expressed by the features of its constituent peds. { pe'dal·əd·ē }
- pedestal** A relatively slender column of rock supporting a wider rock mass and formed by undercutting as a result of wind abrasion or differential weathering. Also known as rock pedestal. { 'ped·əst·əl }
- pedestal boulder** A rock mass supported on a rock pedestal. Also known as pedestal rock. { 'ped·əst·əl·bōl·dər }
- pedestal rock** See pedestal boulder. { 'ped·əst·əl·rāk }
- pediment** A piedmont slope formed from a combination of processes which are mainly erosional; the surface is chiefly bare rock but may have a covering veneer of alluvium or gravel. Also known as conplain; piedmont interstream flat. { 'ped·ə·mənt }
- pedimentation** The actions or processes by which pediments are formed. { 'ped·ə·mən'tā·shən }
- pediment gap** A broad opening formed by the enlargement of a pediment pass. { 'ped·ə·mənt·gap }
- pediment pass** A flat, narrow tongue that extends from a pediment on one side of a mountain to join a pediment on the other side. { 'ped·ə·mənt·pas }
- pediocratic** Pertaining to a period of time in which there is little diastrophism. { 'ped·ē·ə'krad·ik }
- pediplain** A rock-cut erosion surface formed in a desert by the coalescence of two or more pediments. Also known as desert peneplain; desert plain; panfan. { 'ped·ə·plān }
- pediplanation** The actions or processes by which pediplanes are formed. { 'ped·ə·plā'nā·shən }
- pediplane** Any planate erosion surface formed in the piedmont area of a desert, either bare or covered with a veneer of alluvium. { 'ped·ə·plān }
- pedocal** A soil containing a concentration of carbonates, usually calcium carbonate; it is characteristic of arid or semiarid regions. { 'ped·ə·kal }
- pedogenesis** See soil genesis. { 'ped·ō'jen·ə·səs }
- pedogeomorphics** The study of the origin and development of soil. { 'ped·ō'jen·iks }
- pedogeography** The study of the geographic distribution of soils. { 'ped·ō·jē'əg·rə·fē }
- pedography** The systematic description of soils, an aspect of soil science. { pə'dæg·rə·fē }
- pedolith** A surface formation that has undergone one or more pedogenic processes. { 'ped·ə·lith }
- pedologic age** The relative maturity of a soil profile. { 'ped·ō'lāj·ik·'āj }
- pedologic unit** A soil considered without regard to its stratigraphic relations. { 'ped·ō'lāj·ik·yū·nət }
- pedology** See soil science. { pe'däl·ə·jē }
- pedon** The smallest unit or volume of soil that represents or exemplifies all the horizons of a soil profile; it is usually a horizontal, hexagonal area of about 1 square meter, or possibly larger. { 'pe·dän }
- pedorelic** Referring to a soil feature that is derived from a preexisting soil horizon. { 'ped·ō'rel·ik }
- pedosphere** That shell or layer of the earth in which soil-forming processes occur. { 'ped·ə·sfir }
- pedotubule** A soil feature consisting of skeleton grains, or skeleton grains plus plasma, and having a tubular external form (either single tubes or branching systems of tubes) characterized by relatively sharp boundaries and relatively uniform cross-sectional size and shape (circular or elliptical). { 'ped·ō'tüb·yül }
- peel thrust** A sedimentary sheet peeled off a sedimentary sequence, usually along a bedding plane. { 'pēl·thrəst }
- pegmatite** Any extremely coarse-grained, igneous rock with interlocking crystals; pegmatites are relatively small, are relatively light colored, and range widely in composition, but most are of granitic composition, they are principal sources for feldspar

pegmatitic stage

mica, gemstones, and rare elements. Also known as giant granite; granite pegmatite. { 'peg·mə'tīt }

pegmatitic stage A stage in the normal sequence of crystallization of magma containing volatiles when the residual fluid is sufficiently enriched in volatile materials to permit the formation of coarse-grained rocks, that is pegmatites. { |peg·mə'tid·ik 'stāj }

pegmatitization Formation of or replacement by a pegmatite. { |peg·mə'tid·ə'za·shən }

pegmatoid An igneous rock that has the coarse-grained texture of a pegmatite but that lacks graphic intergrowths or typically granitic composition. { 'peg·mə'toid }

pegmatolite See orthoclase. { peg'mad·əl·īt }

peg model Three-dimensional model used to illustrate and study stratigraphic and structural conditions of subsurface geology; consists of a flat platform onto which vertical pegs of varying heights are mounted to represent the contours of various strata. { 'peg·mäd·əl }

pelagic Pertaining to regions of a lake at depths of 33-66 feet (10-20 meters) or more, characterized by deposits of mud or ooze and by the absence of vegetation. Also known as eupelagic. { pə'laj·ik }

pelagic limestone A fine-textured limestone formed in relatively deep water by the concentration of calcareous tests of pelagic Foraminifera. { pə'laj·ik 'līm·stōn }

pelagochthonous Referring to coal derived from a submerged forest or from driftwood. { |pel·ə'gäk·thə·nəs }

pelagosome A superficial calcareous crust a few millimeters thick, generally white, gray, or brownish with a pearly luster, formed in the intertidal zone by ocean spray and evaporation, and composed of calcium carbonate with higher contents of magnesium carbonate, strontium carbonate, calcium sulfate, and silica than are found in normal limy sediments. { pə'læg·ə'sīt }

pelidon A very hard, smooth, compact sandstone with conchoidal fracture, occurring in coal measures. { 'pel·dən }

Pelelean cloud See nuée ardente. { pə'lē·ən 'klaüd }

pelelith Vesicular or pumiceous lava in the throat of a volcano. { pə'lē·lith }

Pele's hair A spun volcanic glass formed naturally by blowing out during quiet fountaining of fluid lava. Also known as capillary ejecta; filiform lapilli; lauhoo o pele. { |pə'lāz 'her }

Pele's tears Volcanic glass in the form of small, solidified drops which precede pendants of Pele's hair. { 'pə'lāz 'tirz }

pelite A sediment or sedimentary rock, such as mudstone, composed of fine, clay- or mud-size particles. Also spelled pelyte. { 'pē·līt }

pelitic Pertaining to, characteristic of, or derived from pelite. { pə'lid·ik }

pelitic hornfels A fine-grained metamorphic rock derived from pelite. { pə'lid·ik 'hörn·felz }

pelitic schist A foliated crystalline metamorphic rock derived from pelite. { pə'lid·ik 'shist }

pellet A fine-grained, sand-size, spherical to elliptical aggregate of clay-sized calcareous material, devoid of internal structure, and contained in the body of a well-sorted carbonate rock. { 'pel·ət }

pell-mell structure A sedimentary structure characterized by absence of bedding in a coarse deposit of waterworn material; it may occur where deposition is too rapid for sorting or where slumping has destroyed the layered arrangement. { 'pəl·mel 'stræk·chər }

pelmicrite A limestone containing less than 25% each of intraclasts and oolites, having a volume ratio of pellets to fossils greater than 3 to 1, and with the micrite matrix more abundant than the sparry-calcite cement. { 'pel·mə'krīt }

pelodite A lithified glacial rock flour which is composed of glacial pebbles in a silt or clay matrix and which was formed by redeposition of the fine fraction of a till. Also spelled pellodite. { 'pel·ə'dīt }

pelogloea Marine detrital slime from settled plankton. { |pel·ə'glē·ə }

- pelphyte** A lake-bottom deposit consisting mainly of fine, nonfibrous plant remains { 'pel·fīt }
- pelsparite** A limestone containing less than 25% each of intraclasts and oolites, having a volume ratio of pellets to fossils greater than 3 to 1, and with the sparry-calcite cement more abundant than the micrite matrix. { 'pel·spā·rīt }
- pelyte** See pelite. { 'pe·līt }
- pencatite** A recrystallized limestone containing periclase or brucite and calcite in approximately equal molecular proportions. { 'penj·kə·tīt }
- pencil cleavage** Cleavage in which fracture produces long, slender pieces of rock { 'pen·səl ,klē·vij }
- pencil gneiss** A gneiss that splits into thin, rodlike quartz-feldspar crystal aggregates { 'pen·səl ,nīs }
- pencil ore** Hard, fibrous masses of hematite that can be broken up into splinters { 'pen·səl ,òr }
- pencil stone** See pyrophyllite. { 'pen·səl ,stòn }
- pendant** See roof pendant. { 'pen·dənt }
- pendent terrace** A connecting ribbon of sand that joins an isolated point of rock with a neighboring coast. { 'pen·dənt ,ter·əs }
- penecontemporaneous** Of a geologic process or the structure or mineral that is formed by the process, occurring immediately following deposition but before consolidation of the enclosing rock. { 'pēn·ē·kən·tem·pə·rā·nē·əs }
- penplanation** The actions or processes by which peneplains are formed { 'pen ə plə·nā·shən }
- penetration funnel** An impact crater, generally funnel-shaped, formed by a small meteorite striking the earth at a relatively low velocity and containing nearly all the impacting mass within it. { 'pen·ə·trā·shən ,fən·əl }
- penetrative** Referring to a texture of deformation that is uniformly distributed in a rock without notable discontinuities; for example, slaty cleavage. { 'pen·ə·trā·dīv }
- penfieldite** $Pb_2(OH)Cl_3$ A white hexagonal mineral composed of basic chloride of lead occurring in hexagonal prisms. { 'pen·fēldīt }
- penikkavaarite** An intrusive rock composed chiefly of augite, barkevikite, and green hornblende in a feldspathic groundmass. { 'pen·ə·ka·və·rīt }
- pennantite** $Mn_2Al_6Si_5O_{30}(OH)_{16}$ Orange mineral composed of basic manganese aluminum silicate; member of the chlorite group; it is isomorphous with thuringite { 'pen·ən·tīt }
- penninite** $(Mg,Fe,Al)_6(Si,Al)_4O_{11}(OH)_8$ An emerald-green, olive-green, pale-green, or bluish mineral of the chlorite group crystallizing in the monoclinic system, with a hardness of 2-2.5 on Mohs scale, and specific gravity of 2.6-2.85. { 'pen·ənīt }
- Pennsylvanian** A division of late Paleozoic geologic time, extending from 320 to 280 million years ago, varyingly considered to rank as an independent period or as an epoch of the Carboniferous period; named for outcrops of coal-bearing rock formations in Pennsylvania. { 'pen·sal·ivā·nyən }
- Penokean** See Animikean. { pə·nō·kē·ən }
- penroseite** $(Ni,Co,Cu)Se_2$ A lead gray, isometric mineral consisting of a selenide of nickel, copper, and cobalt; occurs in reniform masses. { 'pen·rō·zīt }
- pentahydrate** $MgSO_4 \cdot 5H_2O$ A triclinic mineral composed of hydrous magnesium sulfate; it is isostructural with chalcantite. { 'pen·tə·hī·drīt }
- pentlandite** $(Fe,Ni)_5S_8$ A yellowish-bronze mineral having a metallic luster and crystallizing in the isometric system, hardness is 3-5.4 on Mohs scale and specific gravity is 4.6-5.0; the major ore of nickel. { 'pent·lən·dīt }
- Penutian** A North American stage of geologic time, lower Eocene (above Bulitian, below Ulatasian). { pə·nū·shən }
- peperite** A breccialike material in marine sedimentary rock, considered to be either a mixture of lava with sediment, or shallow intrusions of magma into wet sediment { 'pep·ə·rīt }
- peralkaline** Of igneous rock, having a molecular proportion of aluminum lower than that of sodium oxide and potassium oxide combined. { pər·al·kə·līn }
- peraluminous** Of igneous rock, having a molecular proportion of aluminum oxide

perbituminous

greater than that of sodium oxide and potassium oxide combined. { ˌpɛr-əˈlʊ-mə-nəs }

perbituminous Referring to bituminous coal containing more than 5.8% hydrogen, analyzed on a dry, ash-free basis. { ˌpɛr-bəˈtʊ-mə-nəs }

perched block A large, detached rock fragment presumed to have been transported and deposited by a glacier, and perched in a conspicuous and precarious position on the side of a hill. Also known as balanced rock; perched boulder; perched rock. { ˈpɛrçt ˈblæk }

perched boulder See perched block. { ˈpɛrçt ˈbɔl-dər }

perched rock See perched block. { ˈpɛrçt ˈræk }

perching bed A body of rock, generally stratiform, that supports a body of perched water. { ˈpɛrç-ɪŋ ˈbed }

percussion mark A small, crescent-shaped scar produced on a hard, dense pebble by a blow. { pɛrˈkəʃ-ən ˈmɑrk }

percyllite $PbCuCl_2(OH)_2$ Mineral made up of a basic chloride of copper and lead and occurring as cubic blue crystals, with a hardness of 2.5. { ˈpɛr-sē-līt }

pereletok A frozen layer of ground, at the base of the active layer, which may persist for one or several years. Also known as intergelisol. { ˌpɛr-ə-ləˈtæk }

peretzone A zone in which sediments accumulate along coastal lowlands; includes lagoons and brackish-water bays. { ˈpɛr-ə-zɔn }

perfemic rock An igneous rock in which the ratio of salicalite to femic minerals is less than 1:7. { pɛrˈfem-ɪk ˈræk }

perforation deposit An isolated kame consisting of material that accumulated in a vertical shaft which pierced a glacier and afforded no outlet for water at the bottom. { ˌpɛr-fəˈrɑ-shən dɪˈpɑz-ət }

pergelic Referring to a soil temperature regime in which the mean annual temperature is less than 0°C and there is permafrost. { pɛrˈjel-ɪk }

pergelisol table See permafrost table. { ˌpɛrˈjel-əsɔl }

perhydrous coal Coal that contains more than 6% hydrogen, analyzed on a dry, ash-free basis. { ˌpɛrˈhɪ-drəs ˈkɔl }

periblanite A variety of provitritinite consisting of cortical tissue. { pɛrˈɪb-lənɪt }

periclase MgO Native magnesia; a mineral occurring in granular forms or isometric crystals, with hardness of 6 on Mohs scale, and specific gravity of 3.67-3.90. Also known as periclasite. { ˈpɛr-ə-klæs }

periclinal Referring to strata and structures that dip radially outward from, or inward toward, a center, forming a dome or a basin. { ˌpɛr-əˈklɪn-əl }

pericline **1.** A fold characterized by central orientation of the dip of the beds. **2.** A variety of albite elongated, and often twinned, along the *b*-axis. { ˈpɛr-əˈklɪn }

pericline ripple mark A ripple mark arranged in an orthogonal pattern either parallel to or transverse to the current direction and having a wavelength up to 80 centimeters and amplitude up to 30 centimeters. { ˈpɛr-əˈklɪn ˈrɪpəl ˈmɑrk }

peridot **1.** A gem variety of olivine that is transparent to translucent and pale-, clear-, or yellowish-green in color. **2.** A variety of tourmaline approaching olivine in color. { ˈpɛr-ədɪt }

peridotite A dark-colored, ultrabasic phaneritic igneous rock composed largely of olivine, with smaller amounts of pyroxene or hornblende. { pɛrˈɪd-ətɪt }

peridotite shell See upper mantle. { pɛrˈɪd-ətɪt ˈʃel }

perigenetic Referring to a rock constituent or mineral formed at the same time as the rock it is part of, but not formed at the specific location it now occupies in the rock. { ˌpɛr-əˈlʒen-ɪk }

periglacial Of or pertaining to the outer perimeter of a glacier, particularly to the fringe areas immediately surrounding the great continental glaciers of the geologic ice ages, with respect to environment, topography, areas, processes, and conditions influenced by the low temperature of the ice. { ˌpɛr-əˈglā-ʃhəl }

perimagmatic Referring to a hydrothermal mineral deposit located near its magmatic source. { ˌpɛr-ə-magˈned-ɪk }

period A unit of geologic time constituting a subdivision of an era; the fundamental unit of the standard geologic time scale. { ˈpɪr-ē-əd }

- peripediment** The segment of a pediplane extending across the younger rocks or alluvium of a basin which is always beyond but adjacent to the segment developed on the older upland rocks. { ɪpər·ə'ped·ə·mənt }
- peripheral depression** See ring depression { pə'rif·ə·rəl dɪ'presh·ən }
- peripheral faults** Arcuate faults bounding an elevated or depressed area such as a diapir. { pə'rif·ə·rəl 'fɔls }
- peripheral sink** See rim syncline. { pə'rif·ə·rəl 'sɪŋk }
- peristerite** A gem variety of albite (An₂-An₂₄) that resembles moonstone and has a blue or bluish-white luster characterized by sharp internal reflections of blue, green, and yellow. { pə'ris·tə'rɪt }
- perlite** A rhyolitic glass with abundant spherical or convolute cracks that cause it to break into small pearl-like masses or pebbles, usually less than a centimeter across; it is commonly gray or green with a pearly luster and has the composition of rhyolite. Also known as pearlite; pearlstone. { 'pər·lɪt }
- perlitic** **1.** Of the texture of a glassy igneous rock, exhibiting small spheruloids formed from cracks due to contraction during cooling. **2.** Pertaining to or characteristic of perlite. { ɪpər'lɪd·ɪk }
- permafrost** Perennially frozen ground, occurring wherever the temperature remains below 0°C for several years, whether the ground is actually consolidated by ice or not and regardless of the nature of the rock and soil particles of which the earth is composed. { 'pər·mə·frɒst }
- permafrost island** A small, shallow, isolated patch of permafrost surrounded by unfrozen ground. { 'pər·mə·frɒst 'ɪ·lənd }
- permafrost line** A line on a map representing the border of the arctic permafrost { 'pər·mə·frɒst 'lɪn }
- permafrost table** The upper limit of permafrost Also known as pergelisol table { 'pər·mə·frɒst 'tā·bəl }
- permanent extinction** The extinction of a lake by destruction of the lake basin, because of such processes as deposition of sediments, erosion of the basin rim, filling with vegetation, or catastrophic events. { 'pər·mə·nənt ɪk'stɪŋk·shən }
- permeability** The capacity of a porous rock, soil, or sediment for transmitting a fluid without damage to the structure of the medium. Also known as conductivity; perviousness. { 'pər·mē·ə'bil·əd·ē }
- permeability trap** An oil trap formed by lateral variation within a reservoir bed which seals the contained hydrocarbons through a change of permeability. { 'pər·mē·ə'bil·əd·ē 'træp }
- permeable bed** A porous reservoir formation through which hydrocarbon fluids (oil or gas) or water (waterflood or interstitial) can flow. { 'pər·mē·ə·bəl 'bed }
- permeation gneiss** A gneiss formed as a result of or modified by the passage of geochemically mobile materials through or into solid rock. { 'pər·mē'ā·shən 'ni:z }
- Permian** The last period of geologic time in the Paleozoic era, from 280 to 225 million years ago. { 'pər·mē·ən }
- permineralization** A fossilization process whereby additional minerals are deposited in the pore spaces of originally hard animal parts. { pər'mɪn·rə·lə'zā·shən }
- Permo-Carboniferous** **1.** The Permian and Carboniferous periods considered as one unit. **2.** The Permian and Pennsylvanian periods considered as a single unit. **3.** The rock unit, or the period of geologic time, transitional between the Upper Pennsylvanian and the Lower Permian periods. { pər·mō·kär·bə'nɪf·ə·rəs }
- perovskite** Ca[TiO₃] A natural, yellow, brownish-yellow reddish, brown, or black mineral and a structure type which includes no less than 150 synthetic compounds; the crystal structure is ideally cubic, it occurs as rounded cubes modified by the octahedral and dodecahedral forms, luster is subadamantine to submetallic, hardness is 5.5 on Mohs scale, and specific gravity is 4.0. { pə'rævz·kɪt }
- perpendicular slip** The component of a fault slip measured at right angles to the trace of the fault on any intersecting surface. { ɪpər·pən'dɪk·yə·lər 'slɪp }
- perpendicular slope** A very steep slope or precipitous face, as on a mountain { ɪpər·pən'dɪk·yə·lər 'slɒp }
- perpendicular throw** The distance between two points which were formerly adjacent

Perret phase

in a faulted bed, vein, or other surface, measured at right angles to the surface. { 'pær·pæn|dik·yə·lär 'thrō }

Perret phase That stage of a volcanic eruption that is characterized by the emission of much high-energy gas that may significantly enlarge the volcanic conduit. { 'pær·ət·fäz }

perryite (Ni,Fe)₅(Si,P)₂ A mineral found only in meteorites. { 'pær·ē|t }

persalic rock An igneous rock in which the ratio of salic to femic minerals is greater than 7:1. { pær'sal·ik 'räk }

persilicic See silicic. { 'pær·sə'lis·ik }

perthite A parallel to subparallel intergrowth of potassium and sodium feldspar, the potassium-rich phase is usually the host from which the sodium-rich phase evolves. { 'pær·thīt }

perthitic Of a texture produced by perthite, exhibiting sodium feldspar as small strings, blebs, films, or irregular veinlets in a host of potassium feldspar. { pær'thid·ik }

perthosite A light-colored syenite composed almost entirely of perthite, with less than 3% mafic minerals. { 'pær·thə'sīt }

Peru saltpeter See soda niter. { pær'ru 'sölt'pēd·ər }

perviousness See permeability. { 'pær·vē·əs·nəs }

petalite LiAlSi₄O₁₀ A white, gray, or colorless monoclinic mineral composed of silicate of lithium and aluminum, occurring in foliated masses or as crystals. { 'ped·əl|t }

petrifaction A fossilization process whereby inorganic matter dissolved in water replaces the original organic materials, converting them to a stony substance. { 'pe·trə'fak·shən }

petrified wood See silicified wood. { 'pe·trə'fid 'wüd }

petrofabric See fabric. { 'pe·trō'fab·rik }

petrofabric analysis See structural petrology { 'pe·trō'fab·rik ə'nal ə·səs }

petrofabric diagram See fabric diagram. { 'pe·trō'fab·rik 'dī·ə'gram }

petrofabrics See structural petrology. { 'pe·trō'fab·riks }

petrofacies See petrographic facies. { 'pe·trō'fä·shēz }

petrogenesis That branch of petrology dealing with the origin of rocks particularly igneous rocks. Also known as petrogeny. { 'pe·trō'jen·ə·səs }

petrogenic grid A diagram whose coordinates are parameters of the rock-forming environment on which equilibrium curves are plotted indicating the limits of the stability fields of specific minerals and mineral assemblages. { 'pe·trō'jen·ik 'grid }

petrogeny See petrogenesis. { pær'träj·ə·nē }

petrogeometry See structural petrology. { 'pe·trō·jē'am·ə·trē }

petrographer An individual who does petrography. { pær'träg·rə·fər }

petrographic facies Facies distinguished principally by composition and appearance. Also known as petrofacies. { 'pe·trə'graf·ik 'fä·shēz }

petrographic period The extension in time of a rock association { 'pe·trə'graf·ik 'pī·ē·əd }

petrographic province A broad area in which similar igneous rocks are formed during the same period of igneous activity. Also known as comagmatic region; igneous province; magma province. { 'pe·trə'graf·ik 'prä·v·əns }

petrography The branch of geology that deals with the description and systematic classification of rocks, especially by means of microscopic examination. { pær'träg·rə·fē }

petroleum A naturally occurring complex liquid hydrocarbon which after distillation yields combustible fuels, petrochemicals, and lubricants; can be gaseous (natural gas), liquid (crude oil, crude petroleum), solid (asphalt, tar, bitumen), or a combination of states. { pær'trō·lē·əm }

petroleum geology The branch of economic geology dealing with the origin, occurrence, movement, accumulation, and exploration of hydrocarbon fuels. { pær'trō·lē·əm jē'al·ə·jē }

petroleum seep See oil seep. { pær'trō·lē·əm 'sēp }

petroleum trap Stable underground formation (geological or physical) of such nature as to trap and hold liquid or gaseous hydrocarbons; usually consists of sand or porous rock surrounded by impervious rock or clay formations. { pær'trō·lē·əm 'trap }

- petroliferous** Containing petroleum. { 'pe·trə'lif·ə·rəs }
- petrologen** See kerogen. { pə'träl·ə·jən }
- petrologist** An individual who studies petrology. { pə'träl·ə·jəst }
- petrology** The branch of geology concerned with the origin, occurrence, structure, and history of rocks, principally igneous and metamorphic rock. { pə'träl·ə·jē }
- petromict** Of a sediment, composed of metastable rock fragments. { 'pe·trə'mikt }
- petromorph** A speleothem or cave formation that is exposed to the surface by erosion of the limestone in which the cave was formed. { 'pe·trə'mɔrf }
- petromorphology** See structural petrology. { 'pe·trə·mɔr'fäl·ə·jē }
- petrophysics** Study of the physical properties of reservoir rocks. { 'pe·trə'fiz·iks }
- petrotectonics** Extension of the field of structural petrology to include analysis of the movements that produced the rock's fabric. Also known as tectonic analysis. { 'pe·trə·tek'tän·iks }
- petzite** Ag_3AuTe_2 A steel-gray to iron-black mineral consisting of a silver gold telluride; hardness is 2.5-3 on Moh's scale, and specific gravity is 8.7-9.0. { 'pet'sit }
- peuroseite** $(Ni,Cu,Pb)Se_2$ A gray mineral composed of nickel copper lead selenide, occurring in columnar masses. { pyü'rö·zīt }
- pezograph** See regmaglypt. { 'pez·ə·gräf }
- phacellite** See kaliophilite. { 'fas·əl·it }
- phacolith** A minor, concordant, lens-shaped, and usually granitic intrusion into folded sedimentary strata. { 'fak·ə·lith }
- phanerite** An igneous rock having phaneritic texture. { 'fan·ə·rit }
- phaneritic** Of the texture of an igneous rock, being visibly crystalline. Also known as coarse-grained; phanero-crystalline; phenocrystalline. { 'fan·ə'rid·ik }
- phanerocryst** See phenocryst. { 'fan·ə·rö·krist }
- Phanerozoic** The part of geologic time for which there is abundant evidence of life, especially higher forms, in the corresponding rock, essentially post-Precambrian. { 'fan·ə·rö'zō·ik }
- phantom** A bed or member that is absent from a specific stratigraphic section but is usually present in a characteristic position in a sequence of similar geologic age. See ghost. { 'fan·təm }
- phantom horizon** In seismic reflection prospecting, a line constructed so that it is parallel to the nearest actual dip segment at all points along a profile. { 'fan·təm hə'rīz·ən }
- pharmacolite** $CaH(AsO_4) \cdot 2H_2O$ A white to grayish monoclinic mineral composed of hydrous acid arsenate of calcium, occurring in fibrous form. { fār'mak·ə·līt }
- pharmacosiderite** $Fe(AsO_4)_2(OH) \cdot 5H_2O$ Green or yellowish-green mineral composed of a hydrous basic iron arsenate and commonly found in cubic crystals. Also known as cube ore. { 'fār·mə·kō'sid·ə·rit }
- phenacite** See phenakite. { 'fen·ə·sīt }
- phenakite** $BeSiO_4$ A colorless, white, wine-yellow, pink, blue, or brown glassy mineral that crystallizes in the rhombohedral system; used as a minor gemstone. Also spelled phenacite. { 'fen·ə·kīt }
- phenicochroite** See phenicochroite. { 'fēn·ə'kāk·rə·wīt }
- phenoclastic rock** A nonuniformly sized clastic rock containing phenoclasts. { 'fen·əl klas·tik 'rāk }
- phenoclasts** The larger, conspicuous fragments in a sediment or sedimentary rock, such as cobbles in a conglomerate. { 'fen·ə·klasts }
- phenocryst** A large, conspicuous crystal in a porphyritic rock. Also known as phanero-cryst. { 'fēn·ə·krist }
- phenoplast** A large rock fragment in a rudaceous rock that was plastic at the time of its incorporation into the matrix. { 'fē·nə·plast }
- phi grade scale** A logarithmic transformation of the Wentworth grade scale in which the diameter value of the particle is replaced by the negative logarithm to the base 2 of the particle diameter (in millimeters). { 'fi 'grād·skāl }
- philipstadite** $Ca_2(Fe,Mg)_2(Si,Al)_2O_{10}(OH)_2$ Monoclinic mineral composed of basic silicate of calcium, iron, magnesium, and aluminum; member of the amphibole group. { 'fil·əp·städ·it }

phillipsite

- phillipsite** $(K_2, Na, Ca)Al_2Si_4O_{12} \cdot H_2O$ A white or reddish zeolite mineral crystallizing in the orthorhombic system; occurs in complex fibrous crystals, which make up a large part of the red-clay sediments in the Pacific Ocean. { 'fil·əp'sīt }
- phlebite** Roughly banded or veined metamorphic or migmatite. { 'fle·bīt }
- phlogopite** $K_2[Mg, Fe(III)]_n(Si_n, Al_n)O_{3n}(OH)_1$ A yellow-brown to copper mineral of the mica group occurring in disseminated flakes, foliated masses, or large crystals; hardness is 2.5-3.0 on Mohs scale, and specific gravity is 2.8-3.0. Also known as bronze mica; brown mica. { 'fläg·ə·pīt }
- phoenicochroite** Pb_2CrO_4 A red mineral composed of basic chromate of lead, occurring in crystals and masses. Also known as beresovite; phenicochroite; phoenicite. { 'fen·ə'kä·krə·wīt }
- phonolite** A light-colored, aphanitic rock of volcanic origin, composed largely of alkali feldspar, feldspathoids, and smaller amounts of mafic minerals. { 'fō·nə'līt }
- phorogenesis** The shifting or slipping of the earth's crust relative to the mantle. { 'fōr·ə'jen·ə·səs }
- phosgenite** $Pb_2Cl_2(CO_3)$ A white, yellow, or grayish mineral that crystallizes in the tetragonal system, has adamantine luster, hardness of 3 on Mohs scale, and specific gravity of 6-6.3. Also known as cromfordite; horn lead. { 'fāz·jən·īt }
- phosphate** A mineral compound characterized by a tetrahedral ionic group of phosphate and oxygen, PO_4^{3-} . { 'fäs·fāt }
- phosphatic nodule** A dark, usually black, earthy mass or pebble of variable size and shape, having a hard shiny surface and occurring in marine strata. { fäs'fad·ik 'naj·yül }
- phosphoferrite** $(Fe, Mn)_3(PO_4)_2 \cdot 3H_2O$ A white or greenish orthorhombic mineral composed of hydrous phosphate of ferrous iron manganese phosphate; exhibits micallike cleavage. { 'fäs·fō'fe·rīt }
- phosphophyllite** $Zn_2(FeMn)(PO_4)_2 \cdot 4H_2O$ Colorless to pale-blue mineral composed of hydrous zinc ferrous iron manganese phosphate; exhibits micallike cleavage. { 'fäs·fō'fi·līt }
- phosphorite** A sedimentary rock composed chiefly of phosphate minerals. { 'fäs·fə·rīt }
- phosphorocesslerite** $MgH(PO_4) \cdot 7H_2O$ A yellowish monoclinic mineral consisting of a hydrated acid magnesium phosphate. { 'fäs·fə'res·lə·rīt }
- phosphosiderite** $FePO_4 \cdot 2H_2O$ A pinkish-red mineral crystallizing in the monoclinic system, dimorphous with strengite and isomorphous with metavariscite. { 'fäs·sfō'sid·ə·rīt }
- phosphuranylite** $(UO_2)(PO_4) \cdot 6H_2O$ A yellow secondary mineral composed of hydrous uranyl phosphate, occurring in powder form; it is phosphorescent when exposed to radium emanations. { 'fäs·fyə'ran·əl·īt }
- photoclinometry** A technique for ascertaining slope information from an image brightness distribution, used especially for studying the amount of slope to a lunar crater wall or ridge by measuring the density of its shadow. { 'fōd·ō·klə'nəm·ə·trē }
- photogeologic anomaly** Any systematic deviation of a photogeologic factor from the expected norm in a given area. { 'fōd·ō·jē·ə'läj·ik ə'näm·ə·lē }
- photogeologic map** A compilation of interpretations of a series of aerial photographs, including annotations of geologic features. { 'fōd·ō·jē·ə'läj·ik 'māp }
- photogeology** The geologic interpretation of landforms by means of aerial photographs. { 'fōd·ō·jē'äl·ə·jē }
- photogeomorphology** The study of landforms by means of aerial photographs. { 'fōd·ō·jē·ō·mōr'fäl·ə·jē }
- phreatic** Of a volcanic explosion of material such as steam or mud, not being incandescent. { frē'ad·ik }
- phreatic gas** A gas formed by the contact of atmospheric or surface water with ascending magma. { frē'ad·ik 'gās }
- phreatomagmatic** Pertaining to a volcanic explosion that extrudes both magmatic gases and steam; it is caused by the contact of the magma with ground water or ocean water. { frē'lād·ō·mag'mad·ik }
- phthanite** See chert. { 'tha·nīt }

- phyllite** A metamorphic rock intermediate in grade between slate and schist, and derived from argillaceous sediments; has a silky sheen on the cleavage surface { 'fi:līt }
- phylofacies** A facies differentiated on the basis of stratification characteristics, especially the stratification index. { 'fil·ō'fā·shēz }
- phyllomorphic stage** The most advanced geochemical stage of diagenesis, characterized by authigenic development of micas, feldspars, and chlorites at the expense of clays. { 'fil·ə'mōr·fik 'stāj }
- phyllonite** A metamorphic rock occupying an intermediate position between phyllite and mylonite. { 'fil·ənīt }
- phyllosilicate** A structural type of silicate mineral in which flat sheets are formed by the sharing of three of the four oxygen atoms in each tetrahedron with neighboring tetrahedrons. Also known as layer silicate, sheet mineral, sheet silicate { 'fil ō'sil ə·kət }
- physical exfoliation** A type of exfoliation caused by physical forces, for example, by the freezing of water that has penetrated fine cracks in rock or by the removal of overburden concealing deeply buried rocks. { 'fiz·ə·kəl eks·fō·lē'a·shən }
- physical geology** That branch of geology concerned with understanding the composition of the earth and the physical changes occurring in it, based on the study of rocks, minerals, and sediments, their structures and formations, and their processes of origin and alteration. { 'fiz·ə·kəl jē'äl·ə·jē }
- physical residue** A residue which results from physical, as opposed to chemical, weathering processes. { 'fiz·ə·kəl 'rez·ə·dū }
- physical stratigraphy** Stratigraphy based on the physical aspects of rocks, especially the sedimentologic aspects. { 'fiz·ə·kəl strə'tig·rə·fē }
- physical time** Geologic time as measured by some physical process such as the radioactive decay of elements. { 'fiz·ə·kəl 'tīm }
- physical weathering** See mechanical weathering { 'fiz ə kəl 'weth ə·rɪŋ }
- physiographic diagram** A small-scale map showing landforms by the systematic application of a standardized set of simplified pictorial symbols that represent the appearance such forms would have if viewed obliquely from the air at an angle of about 45°. Also known as landform map; morphographic map. { 'fiz·ē·ə'gräf·ik 'dī·ə·grəm }
- physiographic feature** A prominent or conspicuous physiographic form or noticeable part thereof. { 'fiz·ē·ə'gräf·ik 'fē·chər }
- physiographic form** A landform considered with regard to its origin, cause, or history { 'fiz·ē·ə'gräf·ik 'fōrm }
- physiographic province** A region having a pattern of relief features or landforms that differs significantly from that of adjacent regions. { 'fiz·ē·ə'gräf·ik 'präv·əns }
- phyteral** Morphologically recognizable forms of vegetal matter in coal { 'fid·ə·rəl }
- pytocollite** A black, gelatinous, nitrogenous humic body occurring beneath or within peat deposits. { 'pi'täk·ə·līt }
- pickeringite** $MgAl_2(SO_4)_2 \cdot 22H_2O$ A white or faintly colored mineral composed of hydrous sulfate of magnesium and aluminum, occurring in fibrous masses. { 'pik·rɪŋ·rīt }
- picotite** A dark-brown variety of hercynite that contains chromium and is commonly found in dunites. Also known as chrome spinel. { 'pik·ətīt }
- picrite** A medium- to fine-grained igneous rock composed chiefly of olivine, with smaller amounts of pyroxene, hornblende, and plagioclase feldspar. { 'pi·krīt }
- picrolite** See antigorite. { 'pik·rə·līt }
- picromerite** $K_2Mg(SO_4)_2 \cdot 6H_2O$ A white mineral composed of hydrous sulfate of magnesium and potassium, occurring as crystalline encrustations. { pi'kräm·ə·rīt }
- picropharmacolite** $(Ca,Mg)_2(AsO_4)_2 \cdot 6H_2O$ Mineral composed of hydrous calcium magnesium arsenate, { 'pik·rō·fär'mak·əlīt }
- piecemeal stoping** Magmatic stoping in which only isolated blocks of roof rock are assimilated. { 'pēs·mēl 'stöp·ɪŋ }
- piedmont** Lying or formed at the base of a mountain or mountain range as a piedmont terrace or a piedmont pediment. { 'pēd·mänt }

piedmont angle

piedmont angle The sharp break of slope between a hill and a plain, such as the angle at the junction of a mountain front and the pediment at its base. { 'pēd·mänt 'lɑŋ·gəl }

piedmont bench See piedmont step. { 'pēd·mänt 'bentʃ }

piedmont benchland One of several successions or systems of piedmont steps. Also known as piedmont stairway; piedmont *terrasse*. { 'pēd·mänt 'bentʃ·lənd }

piedmont flat See piedmont step. { 'pēd·mänt 'flæt }

piedmont gravel Coarse gravel derived from high ground by mountain torrents and spread out on a relatively flat ground where the velocity of the water is decreased. { 'pēd·mänt 'lgræv·əl }

piedmont interstream flat See pediment. { 'pēd·mänt 'in·tər·strēm 'flæt }

piedmont plateau A plateau lying between the mountains and the plains or the ocean. { 'pēd·mänt plə'tō }

piedmont scarp A small, low cliff formed in alluvium on a piedmont slope at the foot of a steep mountain range; due to dislocation of the surface, especially by faulting. Also known as *scarplet*. { 'pēd·mänt 'skɑ:p }

piedmont stairway See piedmont benchland. { 'pēd·mänt 'ster·wā }

piedmont step A terracelike or benchlike piedmont feature that slopes outward or downvalley. Also known as *piedmont bench*; *piedmont flat*. { 'pēd·mänt 'step }

piedmont *terrasse* See piedmont benchland. { 'pēd·mänt 'trēs·ə }

piemontite $\text{Ca}_2(\text{Al}, \text{Mn}^{2+}, \text{Fe})_3\text{Si}_3\text{O}_{10}(\text{OH})$ Reddish-brown epidote mineral that contains manganese. Also known as *manganese epidote*; *piedmontite*. { 'pē·män'tīt }

piercement dome See diapir. { 'pɪrs·mənt 'dōm }

piercing fold See diapir. { 'pɪrs·ɪŋ 'fōld }

piezocrystallization Crystallization of a magma under pressure, such as the pressure associated with orogeny. { pē'zə·krɪst·əl·ə'zā·ʃən }

piezogene Pertaining to the formation of minerals primarily under the influence of pressure. { pē'zə·zō·jēn }

piezoglypt See *regmaglypt*. { pē'zə·zō·glɪpt }

pigeonite $(\text{Mg}, \text{Fe}^{2+}, \text{Ca})(\text{Mg}, \text{Fe}^{2+})\text{Si}_2\text{O}_6$ Clinopyroxene mineral species intermediate in composition between clinoenstatite and diopside, found in basic igneous rocks. { 'pɪj·ə·nīt }

pike A mountain or hill which has a peaked summit. { pɪk }

pillar **1.** A natural formation shaped like a pillar. **2.** A joint block produced by columnar jointing. **3.** See *stalacto-stalagmite*. { 'pil·ər }

pillow breccia A deposit of pillow structures and fragments of lava in a matrix of tuff. { 'pil·ō 'breʃ·ə }

pillow lava Any lava characterized by pillow structure and presumed to have formed in a subaqueous environment. Also known as *ellipsoidal lava*. { 'pil·ō 'læv·ə }

pillow structure **1.** A primary sedimentary structure that resembles a pillow in size and shape. Also known as *mammillary structure*. **2.** A pillow-shaped structure visible in some extrusive lavas attributed to the congealment of lava under water. { 'pil·ō 'strʌk·ʃər }

pliotaxitic Pertaining to the texture of the groundmass of a holocrystalline igneous rock in which lath-shaped microlites (usually of plagioclase) are arranged in a glass-free felty mesh, often aligned along the flow lines. { 'plɪ·lō 'tak'sɪd·ɪk }

pimple mound A low, flattened, roughly circular or elliptical dome consisting of sandy loam that is entirely distinct from the surrounding soil; peculiar to the Gulf coast of eastern Texas and southwestern Louisiana. { 'pɪm·pəl 'maʊnd }

pimple plain A plain distinguished by the presence of numerous, conspicuous pimple mounds. { 'pɪm·pəl 'plæn }

pinakiolite $\text{Mg}_3\text{Mn}_3\text{B}_2\text{O}_{10}$ A black mineral composed of borate of magnesium and manganese; it is polymorphous with orthopinakiolite. { pə'nāk·ē·əl·ɪt }

pinch Thinning of a rock layer, as where a vein narrows. { 'pɪntʃ }

pinch-and-swell structure A structural condition common in pegmatites and veins of quartz in metamorphosed rocks; the vein is pinched at frequent intervals, leaving expanded parts between. { 'pɪntʃ ən 'swel 'strʌk·ʃər }

pingo remnant A rimmed depression formed by the rupturing of a pingo summit which

- results in the exposure of the ice core to melting followed by partial or total collapse. Also known as pseudokettle. { 'piŋ·gō 'rem·nənt }
- pinguite** See nontronite. { 'piŋ·gwīt }
- pinhole chert** Chert containing weathered pebbles which are pierced by minute holes or pores. { 'pin·hōl 'chərt }
- pinite** A compact gray, green, or brown mica, chiefly muscovite derived from other minerals such as cordierite. { 'pē·nīt }
- pinnaacle** **1.** A sharp-pointed rock rising from the bottom which may extend above the surface of the water, and may be a hazard to surface navigation, due to the sheer rise from the sea floor, no warning is given by sounding. **2.** Any high tower or spire-shaped pillar of rock, alone or cresting a summit. { 'pin·ə·kəl }
- pinnoite** $Mg(BO_2)_2 \cdot 3H_2O$ A yellow mineral composed of hydrous borate of magnesium, occurring in nodular masses. { 'pin·ə·wīt }
- pinolite** A metamorphic rock containing magnesite (breunnerite) as crystals and as granular aggregates in a schistose matrix (phyllite or talc schist). { 'pin·əl·īt }
- pitaduite** $Ca_2V_2O_7 \cdot 9H_2O$ A green mineral consisting of a hydrated calcium vanadate, occurs as an efflorescence. { 'pin·tə'dō·īt }
- piotine** See saponite. { 'pī·ətēn }
- pipe** **1.** A vertical, cylindrical ore body. Also known as chimney, neck, ore chimney, ore pipe; stock. **2.** A tubular cavity of varying depth in calcareous rocks, often filled with sand and gravel. **3.** A vertical conduit through the crust of the earth below a volcano, through which magmatic materials have passed. Also known as breccia pipe. { 'pīp }
- pipe amygdule** An elongate amygdule occurring toward the base of a lava flow, probably formed by the generation of gases or vapor from the underlying material. { 'pīp ə'mig·dyūl }
- pipe clay** A mass of fine clay, usually lens-shaped, which forms the surface of bedrock and upon which often rests the gravel of old river beds. { 'pīp·klā }
- pipernoid texture** The eutaxitic texture of certain extrusive igneous rocks in which dark patches and stringers occur in a light-colored groundmass. { 'pī·pær·nōid 'teks·chər }
- pipe rock** A marine sandstone containing abundant scolites. { 'pīp·rāk }
- pipestone** A pink or mottled argillaceous stone; carved by the Indians into tobacco pipes. { 'pīp·stōn }
- pipe vesicle** A slender vertical cavity a few centimeters or tens of centimeters in length, extending upward from the base of a lava flow. { 'pīp 'ves·ə·kəl }
- pirssonite** $Na_2Ca(CO_3)_2 \cdot 2H_2O$ A colorless or white orthorhombic mineral composed of hydrous carbonate of sodium and calcium. { 'pīrs·ən·īt }
- pisanite** $(Fe,Cu)SO_4 \cdot 7H_2O$ A blue mineral composed of hydrous sulfate of copper and iron; it is isomorphous with kirovite and melanterite. { 'pə'zā·nīt }
- pisolite** A sedimentary rock composed principally of pisoliths. { 'pī·zə·līt }
- pisolith** Small, more or less spherical particles found in limestones and dolomites, having a diameter of 2-10 millimeters and often formed of calcium carbonate. { 'pī·zə·lith }
- pisolitic** Pertaining to pisolite or to the characteristic texture of such a rock { 'pī·zə·līd·ik }
- pisolitic tuff** Of a tuff, composed of accretionary lapilli or pisoliths { 'pī·zə·līd·ik 'təf }
- pisoparite** A limestone which contains at least 25% pisoliths and no more than 25% intraclasts and in which the sparry-calcite cement is more abundant than the carbonate-mud matrix (micrite). { 'pī'zəp·ə·rīt }
- pitch** See plunge. { 'pich }
- pitchblende** A massive, brown to black, and fine-grained, amorphous, or microcrystalline variety of uraninite which has a pitchy to dull luster and contains small quantities of uranium. Also known as nasturan; pitch ore. { 'pich·blend }
- pitch coal** See bituminous lignite. { 'pich·kōl }
- pitching fold** See plunging fold. { 'pich·iŋ·fōld }
- pitch opal** A yellowish to brownish inferior quality of common opal displaying a luster resembling that of pitch. { 'pich·ō·pəl }

pitch ore

pitch ore See pitchblende. { 'pich ɹɔr }

pitchstone A type of volcanic glass distinguished by a waxy, dull, resinous, pitchy luster. Also known as fluolite. { 'pich·stɔn }

pit-run gravel A natural deposit of a mixture of gravel, sand, and foreign materials { 'pit ɹʌn ɹ'grav·əl }

pitted outwash plain An outwash plain characterized by numerous depressions such as kettles, shallow pits, and potholes. { 'pid·əd 'aʊt·wəʃ ɹ'plān }

pitted pebble A pebble having marked concavities not related to the texture of the rock in which it appears or to differential weathering. { 'pid·əd 'peb·əl }

pittecite A mineral of varying color composed of a hydrous sulfate-arsenate of iron. { 'pid·ə·sɪt }

pivotal fault See rotary fault. { 'piv·əd·əl 'fɔlt }

placanticline A gentle, anticlinallike uplift of the continental platform, usually asymmetric and without a typical outline. { plək'ant·i·kɪlɪn }

placer A mineral deposit at or near the surface of the earth, formed by mechanical concentration of mineral particles from weathered debris. Also known as ore of sedimentation. { 'plās·ər }

placic horizon A black to dark red soil horizon that is usually cemented with iron and is not very permeable. { 'plā·sɪk hə'rɪz·ən }

Plaggept A suborder of the soil order Inceptisol, with very thick surface horizons of mixed mineral and organic materials resulting from manure or human wastes added over long periods of time. { 'plā·gept }

plagiaplite An aplite composed chiefly of plagioclase (oligoclase to andesine), possibly green hornblende, and accessory quartz, biotite, and muscovite. { 'plā·jē·ə·plɪt }

plagioclase **1.** A type of triclinic feldspars having the general formula $(\text{Na,Ca})\text{Al}(\text{Si,Al})\text{Si}_2\text{O}_6$; they are common rock-forming minerals. **2.** A series in the plagioclase group which can be divided into a number of varieties based on the relative proportion of the solid solution end members, albite and anorthite (An): albite (An 0-10) oligoclase (An 10-30), andesine (An 30-50), labradorite (An 50-70), bytownite (An 70-90), and anorthite (An 90-100). Also known as sodium-calcium feldspar. { 'plā·jē·ə·klās }

plagionite $\text{Pb}_3\text{Sb}_2\text{S}_7$, A lead-gray mineral with metallic appearance, composed of sulfide of lead and antimony. { 'plā·jē·ə·nɪt }

plain A flat, gently sloping region of the sea floor. Also known as submarine plain. { plān }

plain of denudation A surface that has been reduced to sea level or to just above sea level by the agents of erosion (usually considered to be of subaerial origin). { 'plān əv ɹ'dē·nū'dā·ʃən }

plain of lateral planation An extensive, smooth, apronlike surface developed at the base of a mountain or escarpment by the widening of valleys and the coalescence of floodplains as a result of lateral planation. { 'plān əv ɹ'ləd·ə·rəl plā'nā·ʃən }

plain of marine denudation A plane or nearly plane surface worn down by the gradual encroachment of ocean waves upon the land; or a plane or nearly plane imaginary surface representing such a plain after uplift and partial subaerial erosion. Also known as plain of submarine denudation. { 'plān əv mə'rɪn ɹ'dē·nū'dā·ʃən }

plain of marine erosion A theoretical platform representing a plane surface of unlimited width produced below sea level by the complete cutting away of the land by marine processes acting over a very long period of stillstand. { 'plān əv mə'rɪn ɹ'rō·zən }

plains-type fold An anticlinal or domelike structure of the continental platform which has no typical outline and for which there is no corresponding synclinal structure. { 'planz ɹ'tɪp·fɔld }

plain tract The lower part of a stream, characterized by a low gradient and a wide floodplain. { 'plān ɹ'trakt }

Plaisancian A European stage of geologic time: lower Pliocene (above Pontian of Miocene, below Astian). Also known as Placentian; Plaisanzian. { plā'zän·chan }

Plaisanzian See Plaisancian. { plā'zän·zən }

- plaiting** A texture in some schists that results from the intersection of relict bedding planes with well-developed cleavage planes. Also known as *gaufmage*. { 'plād · ɪŋ }
- planar cross-bedding** Cross-bedding characterized by planar surfaces of erosion in the lower bounding surface. { 'plā · nər 'kròs · bed · ɪŋ }
- planate** Referring to a surface that has been flattened or leveled by planation. { 'plā · nāt }
- planation** Erosion resulting in flat surfaces, caused by meandering streams, waves, ocean currents, wind, or glaciers. { plā · nā · shən }
- plane bed** A sedimentary bed without elevations or depressions larger than the maximum size of the bed material. { 'plān · bed }
- plane parallel texture** The parallel texture of a rock in which the constituents are parallel to a plane, but not to a line as in linear parallel texture. { 'plān ɪ · par · ə · lel 'teks · chər }
- planetary geology** A science that applies geologic principles and techniques to the study of planets and their natural satellites. Also known as planetary geoscience. { 'plan · ə · ter · ē jē 'əl · ə · jē }
- planetary geoscience** See planetary geology. { 'plan · ə · ter · ē ɪ jē · ō · sɪ · əns }
- planoclastic rock** An even-grained or uniformly sized clastic rock. { ɪ · plan · ə · klə · stɪk 'ræk }
- planoconformity** The relation between conformable strata that are approximately uniform in thickness and sensibly parallel throughout. { ɪ · plā · nō · kən 'fɔr · məd · ē }
- Planosol** An intrazonal hydromorphic soil having a clay pan or hardpan covered with a leached surface layer; developed in a humid to subhumid climate. { 'plan · ə · sɔl }
- plasma** 1. The part of a soil material that can be, or has been, moved, reorganized, or concentrated by soil-forming processes. 2. A faintly translucent or semitranslucent and bright green, leek green, or nearly emerald green variety of chalcedony, sometimes having white or yellowish spots. { 'plaz · mə }
- plaster conglomerate** A conglomerate composed entirely of boulders derived from a partially exhumed monadnock forming a wedgelike mass of its flank. { 'plas · tər kən 'glām · ə · rət }
- plastic equilibrium** State of stress within a soil mass or a portion thereof that has been deformed to such an extent that its ultimate shearing resistance is mobilized. { 'plas · tik · ē · kwə 'lib · rē · əm }
- plasticity index** The percent difference between moisture content of soil at the liquid and plastic limits. { plas 'tis · əd · ē ɪn · deks }
- plasticlast** An intraclast consisting of calcareous mud that has been torn up while still soft. { 'plas · tər · kləst }
- plastic limit** The water content of a sediment, such as a soil, at the point of transition between the plastic and semisolid states. { 'plas · tik 'lɪm · ət }
- plastic zone** A region located adjacent to the rupture zone of an explosion crater and at an increased distance from the shot site, differing from the rupture zone by having less fracturing and only small permanent deformations. { 'plas · tik ɪ · zɔn }
- plate** 1. A smooth, thin, flat fragment of rock, such as a flagstone. 2. A large rigid but mobile, block involved in plate tectonics; thickness ranges from 30 to 150 miles (50 to 250 kilometers) and includes both crust and a portion of the upper mantle. { plāt }
- plateau** A broad, comparatively flat and poorly defined elevation of the sea floor, commonly over 60 meters (200 feet) in elevation. { pla'tō }
- plateau basalt** One or a succession of high-temperature basaltic lava flows from fissure eruptions which accumulate to form a plateau. Also known as flood basalt. { pla'tō bə'sɔlt }
- plateau gravel** A sheet, spread, or patch of surficial gravel, often compacted, occupying a flat area on a hilltop, plateau, or other high region at a height above that normally occupied by a stream terrace gravel. { pla'tō ɪ · grav · əl }
- plateau mountain** A pseudomountain produced by the dissection of a plateau. { pla'tō ɪ · maʊnt · ən }
- plateau plain** An extensive plain surmounted by a sublevel summit area and bordered by escarpments. { pla'tō · plān }

plate tectonics

- plate tectonics** Global tectonics based on a model of the earth characterized by a small number (10-25) of semirigid plates which float on some viscous underlayer in the mantle; each plate moves more or less independently and grinds against the others, concentrating most deformation, volcanism, and seismic activity along the periphery. Also known as raft tectonics. { 'plāt tek'tän·iks }
- platform** **1.** Any level or almost level surface; a small plateau. **2.** A continental area covered by relatively flat or gently tilted, mainly sedimentary strata which overlay a basement of rocks consolidated during earlier deformations; platforms and shields together constitute cratons. { 'plat·förm }
- platform beach** A looped bar or ridge of sand and gravel formed on a wave-cut platform { 'plat·förm 'bēch }
- platform facies** See shelf facies. { 'plat·förm 'fā·shēz }
- platform reef** An organic reef, generally small but more extensive than a patch reef, with a flat upper surface. { 'plat·förm 'rēf }
- platiniridium** A silver-white cubic mineral composed of platinum, iridium, and related metals, occurring in grains. { 'plät·ən·ə'rid·ē·əm }
- platinite** See platynite. { 'plät·ən·īt }
- platte** A resistant knob of rock in a glacial valley or rising in the midst of an existing glacier, often causing a glacier to split near its snout. { 'pläd·ə }
- plattnerite** PbO₂. An iron-black mineral consisting of lead dioxide, occurring in masses with submetallic luster. { 'plät·nä·rīt }
- platy** **1.** Referring to a sedimentary particle whose length is more than three times its thickness. **2.** Referring to a sandstone or limestone that splits into laminae having thicknesses in the range of 2 to 10 millimeters. { 'pläd·ē }
- platy flow structure** Structure of an igneous rock characterized by tabular sheets which suggest stratification, and formation by contraction during cooling. Also known as linear flow structure; planar flow structure. { 'pläd·ē 'flō 'strāk·chər }
- platynite** PbBi₄(Se,S)₃. An iron-black mineral composed of selenide and sulfide of lead and bismuth; occurs in thin metallic plates resembling graphite. Also spelled platinite. { 'pläd·ən·īt }
- playa** **1.** A low, essentially flat part of a basin or other undrained area in an arid region. **2.** A small, generally sandy land area at the mouth of a stream or along the shore of a bay. **3.** A flat, alluvial coastland, as distinguished from a beach. { 'plī·ə }
- Playfair's law** The law that each stream cuts its own valley, the valley being proportional in size to its stream, and the stream junctions in the valley are accordant in level. { 'plā·ferz 'lō }
- Pleistocene** An epoch of geologic time of the Quaternary period, following the Tertiary and before the Holocene. Also known as Ice Age; Oiluvium. { 'plī·stə·sēn }
- pleonaste** See ceylonite. { 'plē·ən·ast }
- plexus** An area on a subglacial deposit that encloses a giant's kettle. { 'plek·səs }
- plication** Intense, small-scale folding. { plī'kā·shən }
- Pliensbachian** A European stage of geologic time Lower Jurassic (above Sinemurian, below Toarcian). { plēnz'bäk·ē·ən }
- Plinian eruption** See Vulcanian eruption. { 'plin·ē·ən i'rəp·shən }
- plinth** The lower and outer part of a seif dune, beyond the slip-face boundaries, that has never been subjected to sand avalanches. { plinth }
- plinthite** In a soil, a material consisting of a mixture of clay and quartz with other diluents, that is rich in sesquioxides, poor in humus, and highly weathered. { 'plin·thīt }
- Pliocene** A worldwide epoch of geologic time of the Tertiary period, extending from the end of the Miocene to the beginning of the Pleistocene. { 'plī·ə·sēn }
- pliothermic** Pertaining to a period in geologic history characterized by more than average climatic warmth. { 'plī·ōlthər·mik }
- plow sole** A pressure pan representing a layer of soil compacted by repeated plowing to the same depth. { 'plau·söl }
- plucking** A process of glacial erosion which involves the penetration of ice or rock wedges into subglacial niches, crevices, and joints in the bedrock; as the glacier

- moves, it plucks off pieces of jointed rock and incorporates them. Also known as glacial plucking; quarrying. { 'plæk · iŋ }
- plug** **1.** A vertical pipelike magmatic body representing the conduit to a former volcanic vent. **2.** A crater filling of lava, the surrounding material of which has been removed by erosion. **3.** A mass of clay, sand, or other sediment filling the part of a stream channel abandoned by the formation of a cutoff. { plæg }
- plug dome** A volcanic dome characterized by an upheaved, consolidated conduit filling { 'plæg · dōm }
- plug reef** A small, triangular reef that grows with its apex pointing seaward through openings between linear shelf-edge reefs. { 'plæg · rēf }
- plum** A clast embedded in a matrix of a different kind, especially a pebble in a conglomerate. { pləm }
- plumbago** See graphite. { ,pləm' bā · gō }
- plumboferrite** $PbFe_2O_7$ A dark hexagonal mineral composed of lead iron oxide { |pləm · bō' fe · rīt }
- plumbogummite** **1.** $PbAl_3(PO_4)_2(OH)_5 \cdot H_2O$ A mineral composed of hydrous basic lead aluminum phosphate. **2.** A group of isostructural minerals, that includes gorceixite, goyazite, crandallite, deltaite, florencite, and dussertite, as well as plumbogummite { |pləm · bō' gə · mīt }
- plumbojarosite** $PbFe_6(SO_4)_4(OH)_2$ A mineral composed of basic lead iron sulfate; it is isostructural with jarosite. { |pləm · bō · jə' rō · sīt }
- plume structure** On the surface of a master joint, a ridgelike tracing in a plumelike pattern, usually oriented parallel to the upper and lower surfaces of the constituent rock unit. Also known as plumose structure. { 'plüm · stræk · chər }
- plumose structure** See plume structure. { 'plü · mōs · stræk · chər }
- plunge** The inclination of a geologic structure, especially a fold axis, measured by its departure from the horizontal. Also known as pitch; rake. { plənŋ }
- plunge basin** A deep, large hollow or cavity scoured in the bed of a stream at the foot of a waterfall or cataract by the force and eddying effect of the falling water. { 'plənŋ · bās · ən }
- plunging cliff** A sea cliff bordering directly on deep water, having a base that lies well below water level. { 'plənŋ · iŋ 'klif }
- plunging fold** A fold having a relatively steep plunge. Also known as pitching fold { 'plənŋ · iŋ 'fōld }
- plush copper ore** See chalcotrichite. { 'pləsh 'kəp · ər 'or }
- plutonian** See plutonic. { plü'tō · nē · ən }
- plutology** The study of the interior of the earth. { plü'täl · ə · jē }
- pluton** **1.** An igneous intrusion **2.** A body of rock formed by metasomatic replacement { 'plü · tən }
- plutonic** Pertaining to rocks formed at a great depth. Also known as abyssal, deep-seated; plutonian. { plü'tän · ik }
- plutonic breccia** Breccia consisting of older annular rock fragments enclosed in younger plutonic rock. { plü'tän · ik 'brech · ə }
- plutonic metamorphism** Deep-seated regional metamorphism at high temperatures and pressures, often accompanied by strong deformation. { plü'tän · ik 'med · ə' mör · fiz · əm }
- plutonic rock** A rock formed at considerable depth by crystallization of magma or by chemical alteration. { plü'tän · ik 'ræk }
- plutonism** **1.** Pertaining to the processes associated with pluton formation **2.** The theory that the earth formed by solidification of a molten mass. { 'plü · ən · iz · əm }
- pluvial** Of a geologic process or feature, effected by rain action. { 'plü · vē · əl }
- pluvial lake** A lake formed during a period of exceptionally heavy rainfall, specifically, a Pleistocene lake formed during a period of glacial advance and now either extinct or only a remnant. { 'plü · vē · əl 'lāk }
- pluvifluvial** Pertaining to the combined action of rainwater and streams { |plü · vē · ö |flü · vē · əl }
- pneumatogenic** Referring to a rock or mineral deposit formed by a gaseous agent { |nü · mäd · ö' jən · ik }

pneumatolysis

- pneumatolysis** Rock alteration or mineral crystallization effected by gaseous emanations from solidifying magma. { 'nū·mə'täl·ə·səs }
- pneumatolytic** Formed by gaseous agents. { 'nū·məd·ōl'id·ik }
- pneumatolytic metamorphism** Contact metamorphism by the chemical action of magmatic gases. { 'nū·məd·ōl'id·ik 'med·ə'mór·fiz·əm }
- pneumatolytic stage** The stage in the cooling of a magma in which the solid and gaseous phases are in equilibrium. { 'nū·məd·ōl'id·ik 'stāj }
- pneumatotectic** Referring to processes and products of magmatic consolidation affected to some degree by the gaseous constituents of the magma. { 'nū·mōl'tek·tik }
- pocket** **1.** A cavity that contains a deposit such as a gas or an ore. **2.** An enclosed or sheltered place along a coast, such as a reentrant between rocky, cliffed headlands or a bight on a lee shore. { 'pāk·ət }
- pocket beach** A small, narrow beach formed in a pocket, commonly crescentic in plan, with the concave edge toward the sea, and displaying well-sorted sands. { 'pāk·ət ·bēč }
- pocket valley** A valley whose head is enclosed by steep walls at the base of which underground water emerges as a spring. { 'pāk·ət 'val·ē }
- pod** An orebody of elongate, lenticular shape. Also known as podiform orebody. { päd }
- Podzol** A soil group characterized by mats of organic matter in the surface layer and thin horizons of organic minerals overlying gray, leached horizons and dark-brown illuvial horizons; found in coal forests to temperate coniferous or mixed forests. { 'päd·zól }
- podzolization** The process by which a soil becomes more acid because of the depletion of bases, and develops surface layers that have been leached of clay. { 'päd·zə·lə'zā·shən }
- poikilitic** Of the texture of an igneous rock, having small crystals of one mineral randomly scattered without common orientation in larger crystals of another mineral. { 'pōi·kə'l'id·ik }
- poikiloblast** A large crystal (xenoblast) formed by recrystallization during metamorphism and containing numerous inclusions of small idioblasts. { 'pōi'kil·ə·blast }
- poikiloblastic** Of a metamorphic texture, simulating the poikilitic texture of igneous rocks in having small idioblasts of one constituent lying within larger xenoblasts. Also known as sieve texture. { 'pōi'kil·ə'blas·tik }
- poikilocrystallic** See poikilotopic. { 'pōi'kil·ə·kri'stal·ik }
- poikilophitic** Referring to ophitic texture characterized by lath-shaped feldspar crystals completely included in large, anhedral pyroxene crystals. { 'pōi'kil·ə'fid·ik }
- poikilotope** A large crystal enclosing smaller crystals of another mineral in a sedimentary rock showing poikilotopic fabric. { 'pōi'kil·ə·tōp }
- poikilotopic** Referring to the fabric of a crystalline sedimentary rock in which the constituent crystals are multizoned and larger crystals enclose smaller crystals of another mineral. Also known as poikilocrystallic. { 'pōi'kil·ə'tāp·ik }
- point bar** One of a series of low, arcuate sand and gravel ridges formed on the inside of a growing meander by the gradual addition of accretions. Also known as meander bar. { 'póint ·bār }
- point diagram** A fabric diagram in which a point represents the preferred orientation of each individual fabric element. Also known as scatter diagram. { 'póint 'dī·ə·gram }
- polarity zone** In stratigraphy a material unit that is defined in terms of magnetic polarity, that is, reversals of the earth's magnetic field. { 'pə'lər·əd·ē·zōn }
- polar migration** See polar wandering. { 'pō·lər mī'grā·shən }
- polar wandering** Migration during geologic time of the earth's poles of rotation and magnetic poles. Also known as Chandler motion; polar migration. { 'pō·lər 'wan·də·rɪŋ }
- pollucite** (Cs,Na)₂Al₂Si₄O₁₂·H₂O A colorless, transparent zoolite mineral composed of hydrous silicate of cesium, sodium, and aluminum, occurring massive or in cubes; used as a gemstone. Also known as pollux. { 'pəl'lyū·sīt }
- pollux** See pollucite. { 'päl·əks }

- polyargyrite** $\text{Ag}_{24}\text{Sb}_2\text{S}_{15}$ A gray to black mineral composed of antimony silver sulfide { ,päl·ē'är·jə'rit }
- polybasite** $(\text{Ag,Cu})_{16}\text{Sb}_2\text{S}_{11}$ An iron-black to steel-gray metallic-looking mineral, an ore of silver. { ,päl·i'bäsīt }
- polyclinal fold** One of a group of adjacent folds, the axial surfaces of which are oriented randomly, but which have similar surface axes. { 'päl·i:klīn·əl 'föld }
- polycrase** $(\text{Y,Ca,Ce,U,Th})(\text{Ti,Cb,Ta})_2\text{O}_6$ Black mineral composed of titanate, columbate, and tantalate of yttrium-group metals; it is isomorphous with euxenite and occurs in granite pegmatites. { 'päl·i·krās }
- polydymite** Ni_3S_4 A mineral of the linnaeite group consisting of nickel sulfide { pə'lid·ə·mīt }
- polygene** An igneous rock composed of two or more minerals. Also known as polymere { 'päl·i·jēn }
- polygenetic** 1. Resulting from more than one process of formation or derived from more than one source, or originating or developing at various places and times. 2. Consisting of more than one type of material, or having a heterogeneous composition. Also known as polygenic. { 'päl·i·jə'ned·ik }
- polygenic** See polygenetic. { 'päl·i·jēn·ik }
- polygeosyncline** A geosynclinal-geoanticlinal belt that lies along the continental margin and receives sediments from a borderland on its oceanic side. { 'päl·i·jē·ō'sin·klīn }
- polygonal ground** A ground surface consisting of polygonal arrangements of rock, soil, and vegetation formed on a level or gently sloping surface by frost action. Also known as cellular soil. { pə'lig·ən·əl 'graund }
- polygonal karst** A karst pattern that is characteristic of tropical types such as cone karsts, with the surface completely divided into a polygonal network. { pə'lig·ən·əl 'kärst }
- polyhalite** $\text{K}_2\text{MgCa}_2(\text{SO}_4)_4 \cdot 2\text{H}_2\text{O}$ A sulfate mineral usually found in fibrous brick-red masses due to iron. { ,päl·i'hälit }
- polymere** See polygene. { 'päl·ə·mīr }
- polymetamorphic diaphthoresis** Retrograde changes during a second phase of metamorphism that is clearly separated from a previous, higher-grade metamorphic period. { 'päl·i·med·ə'mör·fik dī'af·thə'rē·səs }
- polymetamorphism** Polyphase or multiple metamorphism whereby two or more successive metamorphic events have left their imprint upon the same rocks. { 'päl·i·med·ə'mör·fiz·əm }
- polymictic** Of a clastic sedimentary rock, being made up of many rock types or of more than one mineral species. { 'päl·i·mīk·tik }
- polymignite** See polymignyte. { ,päl·i'mig·nīt }
- polymignyte** $(\text{Ca,Fe,Y,Zr,Th})(\text{Nb,Ti,Ta})\text{O}_3$ A black mineral composed of niobate, titanate, and tantalate of cerium-group metals, with calcium and iron. Also spelled polymignite. { ,päl·i'mig·nīt }
- polzenite** 1. A group of lamprophyres characterized by the presence of olivine and melilite. 2. Any rock in this group. { 'päl·zə·nīt }
- pondage land** Land on which water is stored as dead water during flooding, and which does not contribute to the downstream passage of flow. Also known as flood fringe. { 'pän·dij·land }
- Pontian** A European stage of geologic time in the uppermost Miocene, above the Sarmatian and below the Plaisancian of the Pliocene; it has also been regarded as the lowermost Pliocene. { 'pän·chən }
- pontic** Pertaining to sediments or facies deposited in comparatively deep and motionless water, such as an association of black shales and dark limestones deposited in a stagnant basin. { 'pän·tik }
- pool** Underground accumulation of petroleum. { pül }
- popple rock** See pebble bed. { 'pöp·əl·rök }
- porcelainite** See mullite. { 'pör·slə·nīt }
- porcelain jasper** A hard, naturally baked, impure clay (or porcellanite) which because of its red color had long been considered a variety of jasper. { 'pör·slən 'jas·pər }

porcelaneous

porcelaneous Resembling unglazed porcelain. { ɪpɔːr·səl·lā·nē·əs }

porcelaneous chert A hard, opaque to subtranslucent smooth chert, having a smooth fracture surface and a typically china-white appearance resembling chinaware or glazed porcelain. { ɪpɔːr·səl·lā·nē·əs 'tʃɜːt }

porcellanite A hard, dense siliceous rock, such as impure chert or indurated clay or shale. { pɔːr'sel·ə'nīt }

pore An opening or channelway in rock or soil. { pɔːr }

pore compressibility The fractional change in reservoir-rock pore volume with a unit change in pressure upon that rock. { 'pɔːr kəm·pres·ə'bil·əd·ē }

pore-size distribution Variations in pore sizes in reservoir formations; each type of rock has its own typical pore size and related permeability. { 'pɔːr'siːz 'dis·trə'byū·ʃən }

pore space The pores in a rock or soil considered collectively. Also known as pore volume. { 'pɔːr 'spās }

pore volume See pore space. { 'pɔːr 'vɔːl·yəm }

porosity trap See stratigraphic trap. { pɔːr'siːz 'træp }

porpezite A mineral consisting of a native alloy of palladium (5-10%) and gold. Also known as palladium gold. { 'pɔːr·pə'zīt }

porphrite See porphyry. { 'pɔːr'frīt }

porphyritic Pertaining to or resembling porphyry. { ɪpɔːr·fə'riːd·ik }

porphyroblast A relatively large crystal formed in a metamorphic rock { pɔːr'fir·ə'blast }

porphyroblastic Pertaining to the texture of recrystallized metamorphic rock having large idioblasts of minerals possessing high form energy in a finer-grained crystalloblastic matrix. { pɔːr'fir·ə'blas·tik }

porphyroclastic structure See mortar structure. { pɔːr'fir·ɔː'klas·tik 'stræk·tʃər }

porphyrocrystalline See porphyrotopic. { pɔːr'fir·ɔː'kri'stal·ik }

porphyrogranulitic Referring to ophitic texture characterized by large phenocrysts of feldspar and augite or olivine in a groundmass of smaller lath-shaped feldspar crystals and irregular augite grains; a combination of porphyritic and intergranular textures. { pɔːr'fir·ɔː'gran·yə'lid·ik }

porphyroid **1.** A blastoporphyratic, or sometimes porphyroblastic, metamorphic rock of igneous origin. **2.** A feldspathic metasedimentary rock having the appearance of a porphyry. { 'pɔːr·fə'rɔɪd }

porphyroskeletal Pertaining to an arrangement in a soil fabric whereby the plasma occurs as a dense matrix in which skeleton grains are set like phenocrysts in a porphyritic rock. { pɔːr'fir·ə'skel·ik }

porphyrotope A large crystal enclosed in a finer-grained matrix in a sedimentary rock showing porphyrotopic fabric. { pɔːr'fir·ə'tɒp }

porphyrotopic Referring to the fabric of a crystalline sedimentary rock in which the constituent crystals are of more than one size and in which larger crystals are enclosed in a finer-grained matrix. Also known as porphyrocrystalline. { pɔːr'fir·ə'tɒp·ik }

porphyry An igneous rock in which large phenocrysts are enclosed in a very-fine-grained to aphanitic matrix. Formerly known as porphrite. { 'pɔːr·fə'rē }

Porterfield A North American geologic stage of the Middle Ordovician, forming the lower division of the Mohawkian, and lying above Ashby and below Wilderness. { 'pɔːr·d·ər·fēld }

Portlandian A European geologic stage of the Upper Jurassic, above Kimmeridgian, below Berriasian of Cretaceous. { pɔːr'tland·ē·ən }

portlandite Ca(OH)₂. A colorless, hexagonal mineral consisting of calcium hydroxide; occurs as minute plates. { 'pɔːr·lən·dīt }

positive landform An upstanding topographic form, such as a mountain, hill, plateau, or cinder cone. { 'pəz·əd·iv 'land·fɔːrm }

positive movement **1.** Uplift or emergence of the earth's crust relative to an adjacent area of the crust. **2.** A relative rise in sea level with respect to land level. { 'pəz·əd·iv 'müv·mənt }

positive shoreline See shoreline of submergence. { 'pəz·əd·iv 'shòr·līn }

Postglacial See Holocene. { pɔːst·glā·ʃəl }

- posthumous structure** Folds, faults, and other structural features in covering strata which revive or mimic the structure of older underlying rocks that are generally more deformed. { 'pās·chə·mās 'strək·chər }
- postmagmatic** Pertaining to geologic reactions or events occurring after the bulk of the magma has crystallized. { ,pöst·mag'mad·ik }
- postorogenic** Of a geologic process or event, occurring after a period of orogeny { ,pöst·ör·ə'jen·ik }
- pot** See pothole. { pät }
- potamogenic rock** A sedimentary rock formed by precipitation from river water { 'päd·ə·mō'jen·ik räk }
- potarite** PdHg A silver-white isometric mineral composed of palladium and mercury alloy. Also known as palladium amalgam. { pə'tä·rit }
- potash alum** See kalinite. { 'päd·ash 'al·əm }
- potash bentonite** See potassium bentonite. { 'päd·ash 'bent·ən·it }
- potash feldspar** See potassium feldspar. { 'päd·ash 'fel·spär }
- potash kettle** See giant's kettle. { 'päd·ash 'ked·əl }
- potash mica** See muscovite. { 'päd·ash 'mī·kə }
- potassic** Referring to a rock which contains a significant amount of potassium { pə'tas·ik }
- potassium-argon dating** Dating of archeological, geological, or organic specimens by measuring the amount of argon accumulated in the matrix rock through decay of radioactive potassium. { pə'tas·ē·əm 'är·gän 'däd·tɪŋ }
- potassium bentonite** A clay of the illite group that contains potassium and is formed by alteration of volcanic ash. Also known as K bentonite; potash bentonite. { pə'tas·ē·əm 'bent·ən·it }
- potassium feldspar** Any alkali feldspar (orthoclase, microcline, sanidine, adularia) containing the molecule $KAlSi_3O_8$. Incorrectly known as K feldspar, potash feldspar { pə'tas·ē·əm 'fel·spär }
- potato stone** A potato-shaped geode, especially one consisting of hard, silicified limestone with an internal lining of quartz crystals. { pə'tä·dō 'stön }
- pothole** **1.** A shaftlike cave opening upward to the surface **2.** Any bowl-shaped, cylindrical, or circular hole formed by the grinding action of a stone in the rocky bed of a river or stream. Also known as churn hole; colk; eddy mill; eversion hollow; kettle; pot. **3.** A vertical, or nearly vertical shaft in limestone. Also known as aven; cenote. **4.** A small depression with steep sides in a coastal marsh; contains water at or below low-tide level. Also known as rotten spot. { 'pät·höl }
- potrero** An elongate, islandlike beach ridge, surrounded by mud flats and separated from the coast by a lagoon and barrier island, made up of a series of accretionary dune ridges. { pə'trer·ō }
- powder avalanche** Loose powder snow rapidly descending a mountainside { 'paüd·ər 'lav·əl·əntʃ }
- powellite** $Ca(WMo)O_6$ A commercially important tungsten mineral, crystallizing in the tetragonal system; isomorphous with scheelite ($CaWO_4$). { ,paü·ə·līt }
- pozzolan** A finely ground burnt clay or shale resembling volcanic dust, found near Pozzuoli, Italy; used in cement because it hardens underwater. { 'pät·sə·lən }
- prairie soil** A group of zonal soils having a surface horizon that is dark or grayish brown, which grades through brown soil into lighter-colored parent material; it is 2-5 feet (0.6-1.5 meters) thick and develops under tall grass in a temperate and humid climate. { 'prer·ē 'söil }
- prase** **1.** A translucent and dull leek green or light grayish yellow-green variety of chalcedony **2.** Crystalline quartz containing a multitude of green hairlike crystals of actinolite. Also known as mother-of-emerald. { präs }
- prase opal** See prasopal. { 'präs 'ō·pəl }
- prasinite** A greenschist in which the proportions of the hornblende-chlorite-epidote assemblage are more or less equal. { 'präs·ən·it }
- prasopal** A green variety of common opal containing chromium. Also known as prase opal. { 'präs·ō·pəl }
- prealpine facies** A geosynclinal facies characteristic of neritic areas, displaying thick

Precambrian

limestone deposits and coarse terrigenous material and resembling epicontinental platform sediments. {prē'al,pīn'fā·shēz}

Precambrian All geologic time prior to the beginning of the Paleozoic era (before 600,000,000 years ago); equivalent to about 90% of all geologic time. {prē'kam·brē·ən}

precious stone **1.** Any genuine gemstone **2.** A gemstone of high commercial value because of its beauty, rarity, durability, and hardness; examples are diamond, ruby, sapphire, and emerald. {'resh·əs'stōn}

precipice A very steeply inclined, vertical, or overhanging wall or surface of rock. {'pres·ə'pəs}

precipitation facies Facies characteristics that provide evidence of depositional conditions; revealed mainly by sedimentary structures (such as cross-bedding and ripple marks) and by primary constituents (especially fossils). {prə'sip·ə'tā·shən'fā·shēz}

preconsolidation pressure The greatest effective stress exerted on a soil, result of this pressure from overlying materials is compaction. Also known as prestress. {'prē·kən'säl·ə'dā·shən'pres·ər}

predazzite A recrystallized limestone that resembles pentacite, but contains less brucite than calcite. {'pred·ə'zīt}

predozzite Limestone rich in periclase and brucite. {'pred·ə'zīt}

preferred orientation The nonrandom orientation of planar or linear fabric elements in structural petrology. {'pri'fərd'ɔr·ē·ən'tā·shən}

preglacial **1.** Pertaining to the geologic time immediately preceding the Pleistocene epoch. **2.** Of material, underlying glacial deposits. {prē'glā·shəl}

prehnite $\text{Ca}_2\text{Al}_2\text{Si}_3\text{O}_{10}(\text{OH})_2$ A light-green to white mineral sorosilicate crystallizing in the orthorhombic system and generally found in reniform and stalactitic aggregates with crystalline surface; it has a vitreous luster, hardness is 6-6.5 on Mohs scale, and specific gravity is 2.8-2.9. {'prā'nīt}

preorogenic The initial phase of an orogenic cycle during which geosynclines form. {'prē'ɔr·ə'jen·ik}

pressolution See pressure solution. {'pres·ə'lü·shən}

pressolved Referring to a sedimentary bed or rock in which the grains have undergone pressure solution. {'pri'zälvd}

pressure breccia See tectonic breccia. {'resh·ər'brech·ə}

pressure fringe See pressure shadow. {'resh·ər'frinj}

pressure pan An induced soil pan which has a higher bulk density and a lower total porosity than the soil directly above or below it and is produced as a result of pressure applied by normal tillage operations or by other artificial means. {'resh·ər'pan}

pressure penitente A neve penitente composed of brilliantly white ice which is shaped into a slender ridge by lateral pressure of converging morainal streams and by melting of the adjacent debris-covered ice. {'resh·ər'pen·ə'ten·tā}

pressure plateau An uplifted area of a thick lava flow, measuring up to 10 or 13 feet (3 or 4 meters), the uplift of which is due to the intrusion of new lava from below that does not reach the surface. {'resh·ər'plātō}

pressure-release jointing Exfoliation that occurs in once deeply buried rock that erosion has brought nearer the surface, thus releasing its confining pressure. {'resh·ər'riļlēz'jōint·ij}

pressure ridge **1.** A seismic feature resulting from transverse pressure and shortening of the land surface. **2.** An elongate upward movement of the congealing crust of a lava flow. **3.** A ridge of glacier ice. {'resh·ər'rij}

pressure shadow In structural petrology, an area adjoining a porphyroblast, characterized by a growth fabric rather than a deformation fabric, as seen in a section perpendicular to the *b* axis of the fabric. Also known as pressure fringe; strain shadow. {'resh·ər'shad·ō}

pressure solution In a sedimentary rock, solution occurring preferentially at the grain boundary surfaces. Also known as pressolution. {'resh·ər'sə'lü·shən}

prestress See preconsolidation pressure. {'prē'stres}

- previtrain** The woody lenses in lignite that are equivalent to vitrain in coal of higher rank. {prē'vi·trān }
- Priabonian** A European stage of geologic time in the upper Eocene, believed to consist of Auversian and Bartonian. {·prē·ə'bō·nē·ən }
- priceite** $\text{Ca}_4\text{B}_{10}\text{O}_{19}\cdot 7\text{H}_2\text{O}$ A snow-white earthy mineral composed of hydrous calcium borate, occurring as a massive. Also known as pandermite. {'prī'sīt }
- primary** **1.** A young shoreline whose features are produced chiefly by nonmarine agencies. **2.** Of a mineral deposit, unaffected by supergene enrichment. {'prī·mer·ē }
- primary arc** **1.** A curved segment of elongated mountain zones that are the areas of the earth's major and most recent tectonic activity. **2.** See internides {'prī·mer·ē 'ārġ }
- primary basalt** Theoretically, the original magma from which all other rock types are supposedly obtained by various processes. {'prī·mer·ē bə'sōlt }
- primary clay** See residual clay. {'prī·mer·ē 'klā }
- primary crater** **1.** An impact crater produced directly by the high-velocity impact of a meteorite or other projectile. **2.** See true crater. {'prī·mer·ē 'krād·ər }
- primary dip** The slight dip assumed by a bedded deposit at its moment of deposition. Also known as depositional dip; initial dip; original dip. {'prī·mer·ē 'dip }
- primary fabric** See apposition fabric. {'prī·mer·ē 'fab·rik }
- primary flat joint** An approximately horizontal joint plane in igneous rocks. Also known as L joint. {'prī·mer·ē 'flat·jōint }
- primary geosyncline** See orthogeosyncline. {'prī·mer·ē ljē·ō'sin·klīn }
- primary gneiss** A rock that exhibits planar or linear structures characteristic of metamorphic rocks but lacks observable granulation or recrystallization and is therefore considered to be of igneous origin. {'prī·mer·ē 'nīs }
- primary gneissic banding** A kind of banding developed in certain igneous (plutonic) rocks of heterogeneous composition, produced by the admixture of two magmas only partly miscible or by magma intimately admixed with country rock into which it has been injected along planes of bedding or foliation. {'prī·mer·ē 'inī·sik 'band·iŋ }
- primary interstice** See original interstice. {'prī·mer·ē in'tər·stəs }
- primary magma** A magma that originates below the earth's crust. {'prī·mer·ē 'mag·mə }
- primary mineral** A mineral that is formed at the same time as the rock in which it is contained, and that retains its original form and composition. {'prī·mer·ē 'min·rəl }
- primary orogeny** Orogeny that is characteristic of the internides and that involves deformation, regional metamorphism, and granitization. {'prī·mer·ē ó'rāj·ə·nē }
- primary porosity** Natural porosity in petroleum reservoir sands or rocks. {'prī·mer·ē pə'rās·əd·ē }
- primary rocks** Rocks whose constituents are newly formed particles that have never been constituents of previously formed rocks and that are not the products of alteration or replacement, such as limestones formed by precipitation from solution. {'prī·mer·ē 'rāks }
- primary sedimentary structure** A sedimentary structure produced during deposition, such as ripple marks and graded bedding. {'prī·mer·ē 'sed·ə'men·trē 'strək·chər }
- primary stratification** Stratification which develops when sediments are first deposited. Also known as direct stratification. {'prī·mer·ē 'strad·ə·fə'kā·shən }
- primary stratigraphic trap** A stratigraphic trap formed by the deposition of clastic materials (such as shoestring sands, lenses, sand patches, bars, or cocinas) or through chemical deposition (such as organic reefs or biostromes). {'prī·mer·ē 'strad·ə'graf·ik 'trap }
- primary structure** A structure, in an igneous rock, that formed at the same time as the rock, but before its final consolidation. {'prī·mer·ē 'strək·chər }
- primary tectonite** A tectonite with depositional fabric. {'prī·mer·ē 'tek·tə'nīt }
- principle of uniformity** See uniformitarianism {'prin·sə pəl əv 'yü nə'fór məd·ē }
- priorite** (Y,Ce,Th)(Ti,Nb),O₆ A mineral composed of titanoniobate of rare-earth metals, it is isomorphous with eschynite. Also known as blomstrandine. {'prī·ə'rīt }

prism

- prism** A long, narrow, wedge-shaped sedimentary body with a width-thickness ratio greater than 5 to 1 but less than 50 to 1. { 'priz·əm }
- prismatic jointing** See columnar jointing. { priz'mad·ik 'joint·iŋ }
- prismatic structure** See columnar jointing. { priz'mad·ik 'stræk·chər }
- prism crack** A mud crack that develops in regular or irregular polygonal patterns on the surface of drying mud puddles and that breaks the sediment into prisms standing normal to the bedding. { 'priz·əm 'kræk }
- probentite** NaCaB₆O₆·5H₂O A colorless mineral crystallizing in the monoclinic system, consisting of hydrous sodium calcium borate. { 'prəb·ər'tīt }
- Procellarian** Pertaining to lunar lithologic map units and topographic forms constituting, or closely associated with, the maria. { 'prō·sə'lar·ē·ən }
- prod cast** The cast of a prod mark. Also known as impact cast. { 'präd 'kast }
- prodelta** The part of a delta lying beyond the delta front, and sloping gently down to the basin floor of the delta; it is entirely below the water level. { 'prō'del·tə }
- prodelta clay** Fine sand, silt, and clay transported by the river and deposited on the floor of a sea or lake beyond the main body of a delta. { 'prō'del·tə 'klā }
- prod mark** A short tool mark oriented parallel to the current and gradually deepening downcurrent. Also known as impact mark. { 'präd 'märk }
- profile** **1.** The outline formed by the intersection of the plane of a vertical section and the ground surface. Also known as topographic profile. **2.** Data recorded by a single line of receivers from one shot point in seismic prospecting. **3.** In structural petrology, a cross section of a homoaxial structure. { 'prō'fil }
- profile line** The top line of a profile section, representing the intersection of a vertical plane with the surface of the ground. { 'prō'fil 'līn }
- profile of equilibrium** **1.** The slope of the floor of a sea, ocean, or lake, taken in a vertical plane, when deposition of sediment is balanced by erosion. **2.** The longitudinal profile of a graded stream. Also known as equilibrium profile; graded profile. { 'prō'fil əv 'ē·kwə'lib·rē·əm }
- profile section** A diagram or drawing that shows along a given line the configuration or slope of the surface of the ground as it would appear if it were intersected by a vertical plane. { 'prō'fil 'sek·shən }
- proglacial** Of streams, deposits, and other features, being immediately in front of or just beyond the outer limits of a glacier or ice sheet, and formed by or derived from glacier ice. { prō'glā·shəl }
- progradation** Seaward buildup of a beach, delta, or fan by nearshore deposition of sediments transported by a river, by accumulation of material thrown up by waves, or by material moved by longshore drifting. { 'prō·grədā·shən }
- prograde metamorphism** Metamorphic changes in response to a higher pressure or temperature than that to which the rock was last adjusted. { 'prō'grād 'med·ə'mór'fiz·əm }
- prograding shoreline** A shoreline that is being built seaward by accumulation or deposition. { 'prō'grād·iŋ 'shōr'līn }
- progressive metamorphism** Systematic change in metamorphic grade from lower to higher in any metamorphic terrain. { prə'gres·iv 'med·ə'mór'fiz·əm }
- progressive sand wave** A sand wave characterized by downcurrent migration. { prə'gres·iv 'sand 'wāv }
- progressive sorting** Sorting of sedimentary particles in the downcurrent direction, resulting in a systematic downcurrent decrease in the mean grain size of the sediment. { prə'gres·iv 'sórd·iŋ }
- prolapsed bedding** Bedding characterized by a series of flat folds with near-horizontal axial planes contained entirely within a bed which has undisturbed boundaries. { 'prō'lapst 'bed·iŋ }
- proluvium** A complex, friable, deltaic sediment accumulated at the foot of a slope as a result of an occasional torrential washing of fragmental material. { prō'lü·vē·əm }
- promontory** **1.** A high, prominent projection or point of land, or a rock cliff, jutting out boldly into a body of water. **2.** A cape, either low-lying or of considerable height, with a bold termination. **3.** A bluff or prominent hill overlooking or projecting into a lowland. { 'präm·ən'tór·ē }

- prong reef** A wall reef that has developed irregular buttresses normal to its axis in both leeward and (to a smaller degree) seaward directions. { 'prɔŋ · rɛf }
- propaedeutic stratigraphy** See prostratigraphy { 'prɔ · pɪ'dʊd·ɪk strə'tɪg·rə fē }
- propylite** A modified andesite, altered by hydrothermal processes, resembling a greenstone and consisting of calcite, epidote, serpentine, quartz, pyrite, and iron ore. { 'prɔ · pə'lɪt }
- propylization** A hydrothermal process by which propylite is formed from andesite by the introduction of or replacement by an assemblage of minerals { 'prɔ · pəl · ə'zə · shən }
- prosoapite** $\text{CaAl}_2(\text{F},\text{OH})_4$ A colorless mineral composed of basic calcium aluminum fluoride. { 'prəs · ə · pɪt }
- prostratigraphy** Preliminary stratigraphy including lithologic and paleontologic studies, without consideration of the time factor. Also known as propaedeutic stratigraphy; protostratigraphy. { 'prə · strə'tɪg·rə · fē }
- protactinium-ionium age method** A method of calculating the ages of deep-sea sediments formed during the last 150,000 years from measurements of the ratio of protactinium-231 to ionium (thorium-230), based on the gradual change of this ratio over time because of the difference in half-lives. { 'prɔd·ak'tɪn · ē · əm ɪ'ð · nē · əm 'əɪ · meth · əd }
- protalus rampart** An arcuate ridge consisting of boulders and other coarse debris marking the downslope edge of an existing or melted snowbank. { prɔ'tal · əs 'ram · pɑrt }
- protectite** A rock formed by the crystallization of a primary magma { prə'tek,tɪt }
- Proterozoic** See Algonkian. { 'prɔd · ə · rə'zɔ · ɪk }
- protoclastic** Of igneous rocks, characterized by granulation and deformation of the earlier-formed minerals due to differential flow of the magma before solidification. { 'prɔd · ɔ'klas · tɪk }
- protodolomite** A crystalline calcium-magnesium carbonate with a disordered lattice in which the metallic ions occur in the same crystallographic layers instead of in alternate layers as in the dolomite mineral. { 'prɔd · ɔ'dɔ · lə · mɪt }
- protoenstatite** An artificial, unstable, altered form of MgSiO_3 , produced by thermal decomposition of talc; convertible to enstatite by grinding or heating to a high temperature. { 'prɔd · ɔ'en · stə'tɪt }
- protointraclast** A limestone component that resulted from a premature attempt at resedimentation while it was still in an unconsolidated and viscous or plastic state, and that never existed as a free clastic entity. { 'prɔd · ɔ'in · trə'kləst }
- protolith** The original, unmetamorphosed rock from which a given metamorphic rock is formed. { 'prɔd · ə · lɪθ }
- protomylonite** A mylonitic rock that develops from contact-metamorphosed rock, granulation and flowage are caused by overthrusts following the contact surfaces between the intrusion and the country rock. { 'prɔd · ɔ'mɪ · lə · nɪt }
- protoquartzite** A well-sorted sandstone that is intermediate in composition between subgraywacke and orthoquartzite, consisting of 75-95% quartz and chert, with less than 15% detrital clay matrix and 5-25% unstable materials in which there is a greater abundance of rock fragments than feldspar grains. Also known as quartzose subgraywacke. { 'prɔd · ɔ'kwɔrt · sɪt }
- prostratigraphy** See prostratigraphy. { 'prɔd · ɔ · strə'tɪg·rə · fē }
- proustite** Ag_3AsS_3 A cochineal-red mineral that crystallizes in the rhombohedral system, consists of silver arsenic sulfide, is isomorphous with pyrargyrite, and occurs massively and in crystals. Also known as light-red silver ore; light-ruby silver. { 'pru:sɪt }
- provenance** The location, topography, and composition of the source area for any sedimentary rock. Also known as source area; sourceland. { 'präv · ə · nəns }
- provincial series** A time-stratigraphic series recognized only in a particular region and involving a major division of time within a period. { prə'vɪn · chəl 'sɪr · ēz }
- provitrain** Vitrain in which some plant structure can be discerned by microscope. Also known as telain. { prɔ'vɪ · træn }
- provitrinite** A variety of vitrinite characteristic of provitrain and including the varieties periblinite, suberinite, and xylinite. { prɔ'vɪ · trə'nɪt }

proximal

- proximal** Of a sedimentary deposit, composed of coarse clastics and formed near the source. { 'prāk·sə·məɪ }
- Psamment** A suborder of the soil order Entisol, characterized by a texture of loamy fine sand or coarser sand, and by a coarse fragment content of less than 35. { 'sa·mənt }
- psammite** See arenite. { 'sa·mīt }
- psammitic** See arenaceous. { sə'mid·ik }
- psamphicity** A coefficient of roundability of a pebble- or sand-size mineral fragment, expressed as the ratio of specific gravity to hardness (as measured in the air) or the quotient of specific gravity minus one divided by hardness (as measured in water). { sə'fis·əd·ē }
- psephite** A sediment or sedimentary rock composed of fragments that are coarser than sand and which are set in a qualitatively and quantitatively varying matrix; equivalent to a rudite or, generally, a conglomerate. { sə'fīt }
- psephyte** A lake-bottom deposit consisting mainly of coarse, fibrous plant remains. { sə'fīt }
- pseudoallochem** An object resembling an allochem but produced in place within a calcareous sediment by a secondary process such as recrystallization. { 'sü·dō'al·əkem }
- pseudobreccia** Limestone that is partially and irregularly dolomitized and is characterized by a mottled, breccialike appearance. Also known as recrystallization breccia. { 'sü·dō'brech·ə }
- pseudobrookite** Fe_2TiO_5 A brown or black mineral consisting of iron titanium oxide and occurring in orthorhombic crystals; specific gravity is 4.4-4.98. { 'sü·dō'brü·kīt }
- pseudocannel coal** Cannel coal that contains much humic matter. Also known as humic-cannel coal. { 'sü·dō'kan·əl 'kōl }
- pseudochrysolite** See moldavite. { 'sü·dō'kris·əl'īt }
- pseudocol** A landform represented by a constriction of a stream valley diverted by a glacial ponding, formed by the cutting through of a cover of drift and subsequent exposure of a former col. { 'süd·əköl }
- pseudoconcretion** A subspherical, secondary sedimentary structure resembling a true concretion but not formed by orderly precipitation of mineral matter in the pores of a sediment. { 'sü·dō·kän'krē·shən }
- pseudoconformity** See paraconformity. { 'sü·dō·kän'fōr·məd·ē }
- pseudoconglomerate** A rock that resembles, or may easily be mistaken for, a true or normal (sedimentary) conglomerate. { 'sü·dō·kän'gläm·əkət }
- pseudocotunnite** K_2PbCl_4 A yellow or yellowish-green orthorhombic mineral consisting of a potassium lead chloride. { 'sü·dō·kə'tənīt }
- pseudo cross-bedding** 1. An inclined bedding produced by deposition in response to ripple-mark migration and characterized by foreset beds that appear to dip into the current. 2. A structure resembling cross-bedding, caused by distortion-free slumping and sliding of a semiconsolidated mass of sediments (such as sandy shales). { 'sü·dō 'krōs·'bed·iŋ }
- pseudodiffusion** Mixing of thin superpositioned layers of slowly accumulated marine sediments by the action of water motion or subsurface organisms. { 'sü·dō·di'fyü·zhən }
- pseudofault** A faultlike feature resulting from weathering along joint, shrinkage, or bedding planes. { 'sü·d·ək'fōlt }
- pseudofibrous peat** Peat that is fibrous in texture but is plastic and incoherent. { 'sü·dō'fī·brəs 'pēt }
- pseudogalena** See sphalerite. { 'sü·dō·gə'lē·nə }
- pseudogley** A densely packed, silty soil that is alternately waterlogged and rapidly dried out. { 'sü·dō·glä }
- pseudogradational bedding** A structure in metamorphosed sedimentary rock in which the original textural gradation (coarse at the base, finer at the top) appears to be reversed because of the formation of porphyroblasts in the finer-grained part of the rock. { 'sü·dō·grā'dä·shən·əl 'bed·iŋ }
- pseudokarst** A topography that resembles karst but that is not formed by the disso-

- lution of limestone; usually a rough-surfaced lava field in which ceilings of lava tubes have collapsed. { 'süd·ə·kärst }
- pseudokettle** See pingo remnant. { 'sü·dō'ked·əl }
- pseudoleucite** A pseudomorph after leucite consisting of a mixture of nepheline, orthoclase, and analcime. { 'sü·dō'lü·sīt }
- pseudomalachite** $\text{Cu}_2(\text{PO}_4)_2(\text{OH})_2 \cdot \text{H}_2\text{O}$ An emerald green to dark green and blackish-green, monoclinic mineral consisting of a hydrated basic copper phosphate. Also known as tagilite. { 'sü·dō'mal·ə·kīt }
- pseudomorph** An altered mineral whose crystal form has the outward appearance of another mineral species. Also known as false form. { 'süd·ə·mōrf }
- pseudomountain** A mountain formed by differential erosion, in contrast to one produced by uplift. { 'sü·dō'maünt·ən }
- pseudonodule** A primary sedimentary structure consisting of a ball-like mass of sandstone enclosed in shale or mudstone, characterized by a rounded base with upturned or inrolled edges and resulting from the settling of sand into underlying clay or mud which has welled up between isolated sand masses. Also known as sand roll. { 'sü·dō'näj·ül }
- pseudo-oolith** A spherical or roundish pellet or particle (generally less than 1 millimeter in diameter) in a sedimentary rock, externally resembling an oolith in size or shape but of secondary origin and amorphous or crypto- or microcrystalline, and lacking the radial or concentric internal structure of an oolith. Also known as false oolith. { 'sü·dō'ō·lith }
- pseudoporphyrityc** Pertaining to a rock that is not a true porphyry but resembles one because of rapid growth of some of the crystals. { 'sü·dō'pōr·fə'rid·ik }
- pseudo ripple mark** A bedding-plane feature that resembles a ripple mark but is formed by lateral pressure caused by slumping or by local, small-scale tectonic deformation. { 'sü·dō'rip·əl·märk }
- pseudospherolith** A spherulite consisting of two minerals, one with parallel and one with inclined extinction, growing from the same center. { 'sü·dō'sfar·ə·lith }
- pseudostratification** See sheeting structure. { 'sü·dō'sträd·ə·fə'kə·shən }
- pseudotachylite** A black rock that resembles tachylite, carries fragmental enclosures and shows evidence of having been at high temperature. { 'sü·dō'tak·ə·līt }
- pseudotillite** A nonglacial tillitelike rock, such as a pebbly mudstone, formed on land by the flow of nonglacial mud or deposited by a subaqueous turbidity flow. { 'sü·dō'däd·əl·īt }
- pseudounconformity** A stratigraphic relationship that appears unconformable but is characterized by a superabundance or an excess accumulation of sediment, due to factors like submarine slumping which occurs penecontemporaneously with sedimentation off the sides of a rising anticline or dome. { 'sü·dō·kən'fōr·mäd·ē }
- pseudovitrinite** A maceral of coal that is superficially similar to vitrinite but that is higher in reflectance from polished surfaces in oil immersion and has slitted structure, remnant cellular structures, uncommon fracture patterns, higher relief, and paucity or absence of pyrite inclusions. { 'sü·dō'vi·trə'nīt }
- pseudovitrinoid** Pseudovitrinite occurring in bituminous coal. { 'sü·dō'vi·trə'nōid }
- pseudovolcano** A large crater or circular hollow believed not to be associated with recent volcanic activity, such as a crater which is the result of cauldron subsidence or of a phreatic explosion in the distant past. { 'sü·dō·väl'kə·nō }
- psilomelane** $\text{BaMn}_2\text{O}_{10}(\text{OH})_2$ A massive, hard, black botryoidal manganese oxide mineral mixture with a specific gravity ranging from 3.7 to 4.7. { 'sī·lō'mel·än }
- psittacinite** See mottramite. { 'sə'tas·ənīt }
- pteropod ooze** A pelagic sediment containing at least 45% calcium carbonate in the form of tests of marine animals, particularly pteropods. { 'ter·ə·päd'üz }
- ptilolite** See mordenite. { 'til·əlīt }
- ptygma** Pegmatitic material with migmatite or gneiss, resembling disharmonic folds. Also known as ptygmatic fold. { 'tig·mə }
- pucherite** BiVO_4 A reddish-brown orthorhombic mineral composed of bismuth vanadate, occurring as small crystals. { 'pü·kə'rit }
- pudding ball** See armored mud ball. { 'püd·iŋ·ból }

puddingstone

- puddingstone** In Great Britain, a conglomerate consisting of rounded pebbles whose colors are in marked contrast with the matrix, giving a section of the rock the appearance of a raisin pudding. { 'pʊd · ɪŋ · stɒn }
- puff cone** See mud cone. { 'pʌf · kɒn }
- pulaskite** A light-colored, feldspathoid-bearing, granular or trachytoid alkali syenite composed chiefly of orthoclase, soda pyroxene, arfvedsonite, and nepheline. { pʊ'las·kɪt }
- pull-apart** A precompaction sedimentary structure having the appearance of boudinage and consisting of beds that have been stretched and pulled apart into relatively short slabs. { 'pʊl ə·pɑrt }
- pulverite** A sedimentary rock composed of silt- or clay-sized aggregates of nonclastic origin with a texture simulating a lutite of clastic origin. { 'pəl · vərɪt }
- pumice** A rock froth, formed by the extreme puffing up of liquid lava by expanding gases liberated from solution in the lava prior to and during solidification. Also known as foam; pumice stone; pumicite; volcanic foam. { 'pəm · əs }
- pumice fall** Pumice falling from a volcano eruption cloud. { 'pəm · əs · fɒl }
- pumiceous** Pertaining to the texture of a pyroclastic rock, such as pumice, characterized by numerous small cavities presenting a spongy, frothy appearance. { pyʊ'mɪʃ · əs }
- pumice stone** See pumice. { 'pəm · əs · stɒn }
- pumicite** See pumice. { 'pəm · ə·sɪt }
- pumilith** A lithified deposit of volcanic ash. { 'pəm · ə·lɪθ }
- pumpellyite** $\text{Ca}_2\text{Al}_3\text{Si}_3\text{O}_{12}(\text{OH})$ A greenish epidotelike mineral that is probably related to clinozoisite. Also known as lotrite; zonochlorite. { 'pəm'pel · ē·ɪt }
- pumpellyite-prehnite-quartz facies** A variety of low-temperature, moderate-pressure metamorphism. { 'pəm'pel · ē·ɪt 'prɛh·nɪt 'kwɔrts 'fæ · shēz }
- Purbeckian** A stage of geologic time in Great Britain: uppermost Jurassic (above Bononian, below Cretaceous). { pər'bek · ē · ən }
- pure coal** See vitrain. { 'pyʊr 'kɒl }
- purple blende** See kermesite. { 'pər · pəl 'blend }
- purpurite** $(\text{Mn},\text{Fe})\text{PO}_4$ A dark-red or purple mineral composed of ferric-manganic phosphate; it is isomorphous with heterosite. { 'pər · pyə·rɪt }
- push moraine** A broad, smooth, arc-shaped ridge consisting of material mechanically pushed or shoved along by an advancing glacier. Also known as push-ridge moraine; shoved moraine; thrust moraine; upsetted moraine. { 'pʊʃ mə·ræn }
- push-ridge moraine** See push moraine. { 'pʊʃ 'rɪd mə·ræn }
- puy** A small, remnant volcanic cone. { pwē }
- pycnite** A variety of topaz occurring in massive columnar aggregations. { 'pɪk·nɪt }
- pyrargyrite** Ag_3SbS_3 A deep ruby-red to black mineral, crystallizing in the hexagonal system, occurring in massive form and in disseminated grains, and having an adamantine luster; hardness is 2.5 on Mohs scale, and specific gravity is 5.85; an important silver ore. Also known as dark-red silver ore; dark ruby silver. { pɪ'rɑr · jə·rɪt }
- Pyrenean orogeny** A short-lived orogeny that occurred during the late Eocene, between the Bartonian and Ludian stages. { 'pɪr · ə'nē · ən ɔ'rdʒ · ə · nē }
- pyrite** FeS_2 A hard, brittle, brass-yellow mineral with metallic luster, crystallizing in the isometric system; hardness is 6-6.5 on Mohs scale, and specific gravity is 5.02. Also known as common pyrite; fool's gold; iron pyrites; mundic. { 'pɪ·rɪt }
- pyritization** A common process of hydrothermal alteration involving introduction of or replacement by pyrite. { 'pɪ·rɪd · ə'zæ · shən }
- pyritobitumen** Any of various dark-colored, relatively hard, nonvolatile hydrocarbon substances often associated with mineral matter, which decompose upon heating to yield bitumens. Also known as pyrobitumen. { pɪ'rɪd · ɔ · bæ'tju · mən }
- pyroaurite** $\text{Mg}_6\text{Fe}_2(\text{OH})_{10} \cdot \text{CO}_3 \cdot 4\text{H}_2\text{O}$ A goldlike or brownish rhombohedral mineral composed of hydrous basic magnesium iron carbonate. { 'pɪ · rɔ'ɔ · rɪt }
- pyrobelonite** $\text{PbMn}(\text{VO}_4)(\text{OH})$ A fire-red to deep brilliant-red mineral composed of basic vanadate of manganese and lead, occurring as crystal needles. { 'pɪ · rɔ'bel · ə·nɪt }

- pyrobiolite** An organic rock containing organic remains that have been altered by volcanic action. { ˈpɪ·rɔ̄ˈbɪ·ə·lɪt }
- pyrobitumen** See pyritobitumen. { ˈpɪ·rɔ̄·bəˈtʉ·mən }
- pyroborate** See borax. { ˈpɪ·rɔ̄ˈbɔ̄·rāt }
- pyrochlore** $(\text{Na,Ca})_2(\text{Nb,Ta})_2\text{O}_6(\text{OH,F})$ Pale-yellow, reddish, brown, or black mineral crystallizing in the isometric system, and occurring in pegmatites derived from alkaline igneous rocks. Also known as pyrrhite. { ˈpɪ·rəˈklɔ̄r }
- pyrochroite** $\text{Mn}(\text{OH})_2$ A hexagonal mineral composed of naturally occurring manganese hydroxide; it is white when fresh, but darkens upon exposure. { ˈpɪ·rəˈkrɔ̄ɪt }
- pyroclast** An individual pyroclastic fragment or clast. { ˈpɪ·rəˈklɑ̄st }
- pyroclastic flow** Ash flow not involving high-temperature conditions { ˈpɪ·rəˈklɑ̄s tik ˈflɔ̄ }
- pyroclastic ground surge** The relatively thin mantle of rock found around a volcanic vent; the thickness is not uniform, the internal stratification is not parallel to the top and bottom of the layer, and the extent is a few kilometers from the source. { ˈpɪ·rə ˈklɑ̄s·tik ˈgrɑ̄ʉnd ˈsɜ̄rʒ }
- pyroclastic rock** A rock that is composed of fragmented volcanic products ejected from volcanoes in explosive events. { ˈpɪ·rəˈklɑ̄s·tik ˈrɑ̄k }
- pyrogenesis** The intrusion and extrusion of magma and its derivatives { ˈpɪ ˈrɔ̄ˈjɛn·ə·sɛs }
- pyrogenetic mineral** An anhydrous mineral of an igneous rock, usually crystallized at high temperature in a magma containing relatively few volatile components. { ˈpɪ·rɔ̄ˈjɛˈnɛd·ɪk ˈmɪn·rəl }
- pyrolusite** MnO_2 An iron-black mineral that crystallizes in the tetragonal system and is the most important ore of manganese; hardness is 1-2 on Mohs scale, and specific gravity is 4.75. { ˈpɪ·rəˈlʉˈsɪt }
- pyromagma** A highly mobile lava, oversaturated with gases, that exists at shallower depths than hypomagma. { ˈpɪ·rɔ̄ˈmɑ̄g·mə }
- pyromelane** See brookite. { ˈpɪ·rɔ̄ˈmɛ·lɑ̄n }
- pyrometamorphism** Contact metamorphism at temperatures near the melting points of the component minerals. { ˈpɪ·rɔ̄ˈmɛd·əˈmɔ̄rˈfɪz·əm }
- pyrometasomatism** Forming of contact-metamorphic mineral deposits at high temperatures by emanations from the intrusive rock, involving replacement of the enclosing rock with the addition of materials. { ˈpɪ·rɔ̄ˈmɛd·əˈsɔ̄ˈmɑ̄tɪz·əm }
- pyromorphite** $\text{Pb}_3(\text{PO}_4)_2\text{Cl}$ A green, yellow, brown, gray, or white mineral of the apatite group, crystallizing in the hexagonal system, a minor ore of lead. Also known as green lead ore. { ˈpɪ·rɔ̄ˈmɔ̄rˈfɪt }
- pyrope** $\text{Mg}_3\text{Al}_2(\text{SiO}_4)_3$ A mineral species of the garnet group characterized by a deep fiery-red color and occurring in basic and ultrabasic igneous rocks. { ˈpɪ·rɔ̄p }
- pyrophanite** See fire opal. { ˈpɪ·rəˈfɑ̄n }
- pyrophanite** MnTiO_3 A blood-red rhombohedral mineral consisting of manganese titanate; it is isomorphous with ilmenite. { ˈpɪˈrɑ̄f·ənɪt }
- pyrophyllite** $\text{AlSi}_4\text{O}_{10}(\text{OH})$ A white, greenish, gray, or brown phyllosilicate mineral that resembles talc and occurs in a foliated form or in compact masses in quartz veins, granites, and metamorphic rocks. Also known as pencil stone. { ˈpɪ·rɔ̄ˈfɪˈlɪt }
- pyroretinite** A type of retinite found in the brown coals of Aussig (Usti and Labem), in Bohemian Czechoslovakia. { ˈpɪ·rɔ̄ˈrɛt·ənɪt }
- pyroschist** A schist or shale that has a sufficiently high carbon content to burn with a bright flame or to yield volatile hydrocarbons when heated. { ˈpɪ·rəˈʃɪst }
- pyrosomalite** $(\text{Mn,Fe})_3\text{Si}_2\text{O}_7(\text{OH,Cl})_n$ A colorless, pale-brown, gray, or gray-green mineral composed mainly of basic iron manganese silicate with chlorine. { ˈpɪˈrɑ̄z·mə ˈlɪt }
- pyrosphere** The zone of the earth below the lithosphere, consisting of magma. Also known as magmosphere. { ˈpɪ·rəˈsfɪr }
- pyrostibite** See kermesite. { ˈpɪ·rəˈstɪˈbɪt }
- pyrostilpnite** Ag_3SbS_3 A hyacinth-red mineral composed of silver antimony sulfide, occurring in monoclinic crystal tufts; it is polymorphous with pyrargerite. { ˈpɪ·rəˈstɪlˈpɪnɪt }

pyroxene

pyroxene A family of diverse and important rock-forming minerals having infinite (Si_2O_6) single inosilicate chains as their principal motif; colors range from white through yellow and green to brown and greenish black; hardness is 5.5-6 on Mohs scale, and specific gravity is 3.2-4.0. {pə' räk, sēn }

pyroxene alkali syenite A quartz-poor (less than 20%) member of the charnockite series, characterized by the presence of microperthite. {pə' räk, sēn 'al·kə, lī 'sī·ə, nīt }

pyroxene monzonite A quartz-poor (less than 20%) member of the charnockite series, containing approximately equal amounts of microperthite and plagioclase. {pə' räk, sēn 'män·zə, nīt }

pyroxene syenite A quartz-poor (less than 20%) member of the charnockite series, containing more microperthite than plagioclase. {pə' räk, sēn 'sī·ə, nīt }

pyroxenite A heavy, dark-colored, phaneritic igneous rock composed largely of pyroxene with smaller amounts of olivine and hornblende, and formed by crystallization of gabbroic magma. {pə' räk·sə, nīt }

pyroxenoids A mineral group (including wollastonite and rhodonite) compositionally similar to pyroxene, but SiO_4 tetrahedrons are connected in rings rather than chains. {pə' räk·sə, noidz }

pyrrhite See pyrochlore. { 'pi, rīt }

pyrrhotite Fe_{1-x}S A common reddish-brown to brownish-bronze mineral that occurs as rounded grains to large masses, more rarely as tabular pseudohexagonal crystals and rosettes; hardness is 4 on Mohs scale, and specific gravity is 4.6 (for the composition Fe_7S_8). { 'pir·ə, tīt }

Q

- quake sheet** A well-defined bed resembling a slump sheet but produced by an earthquake and resulting in the formation of a load cast without horizontal slip. { kwāk 'shēt }
- quaking bog** A peat bog floating or growing over water-saturated land which shakes or trembles when walked on. { 'kwāk·iŋ 'bäg }
- quantitative geomorphology** The assignment of dimensions of mass, length, and time to all descriptive parameters of landform geometry and geomorphic processes, followed by the derivation of empirical mathematical relationships and formulation of rational mathematical models relating these parameters. { 'kwän·ə·täd·iv 'jē·ō·mör'fäl·ə·jē }
- quantum mineralogy** A branch of mineralogy concerned with the application of quantum mechanics to mineralogical systems. { 'kwän·təm·mīn·ə'räl·ə·jē }
- quaquaversal** Of strata and geologic structures, dipping outward in all directions away from a central point. { 'kwä·kwäl'vər·səl }
- quarrying** See plucking. { 'kwär·ē·iŋ }
- quartz** SiO_2 A colorless, transparent rock-forming mineral with vitreous luster crystallizing in the trigonal trapezohedral class of the rhombohedral subsystem, hardness is 7 on Mohs scale, and specific gravity is 2.65; the most abundant and widespread of all minerals. { kwörts }
- quartzarenite** A quartz-rich sandstone with framework grains separated predominantly by cement rather than matrix; essentially an orthoquartzite. { kwört'sar·ə·nīt }
- quartz basalt** An igneous rock with more than 5% quartz. { 'kwörts bə'sölt }
- quartz-bearing diorite** See quartz diorite. { 'kwörts 'ber·iŋ 'dī·ə·rīt }
- quartz crystal** See rock crystal. { 'kwörts 'krist·əl }
- quartz diorite** A group of plutonic rocks having the composition of diorite but with large amounts of quartz (greater than 20%). Also known as quartz-bearing diorite; tonalite. { 'kwörts 'dī·ə·rīt }
- quartz-flooded limestone** A limestone characterized by an abundance of quartz particles that had been imported suddenly from a nearby source by wind or water currents, but that gradually become sparser in an upward direction and completely disappear within a few centimeters. { 'kwörts 'fləd·əd 'līm·stōn }
- quartz graywacke** A graywacke containing abundant grains of quartz and chert and less than 10% each of feldspars and rock fragments. { 'kwörts 'grā·wak·ə }
- quartzite** A granoblastic metamorphic rock consisting largely or entirely of quartz, most quartzites are formed by metamorphism of sandstone. { 'kwört·sīt }
- quartzitic sandstone** Sandstone consisting of 100% quartz grains cemented with silica { kwört'sid·ik 'san·stōn }
- quartz lattice** See rhyodacite. { 'kwörts 'lad·əs }
- quartz monzonite** Granitic rock in which 10-50% of the felsic constituents are quartz and in which the ratio of alkali feldspar to total feldspar is between 35% and 65%. Also known as adamellite. { 'kwörts 'män·zə·nīt }
- quartzose** Referring to a substance which contains quartz as a principal constituent { 'kwört'sōs }

quartzose arkose

quartzose arkose A sandstone containing 50-85% quartz, chert, and metamorphic quartzite, 15-25% feldspars and feldspathic crystalline rock fragments, and 0-25% micas and micaceous metamorphic rock fragments. { 'kwört·sōs 'är·kōs }

quartzose chert A vitreous, sparkly, shiny chert, which under high magnification shows a heterogeneous mixture of pyramids, prisms, and faces of quartz, but also includes chert in which the secondary quartz is largely anhedral. { 'kwört·sōs 'chært }

quartzose graywacke **1.** A sandstone containing 50-85% quartz, chert, and metamorphic quartzite, 15-25% micas and micaceous metamorphic rock fragments, and 0-25% feldspars and feldspathic crystalline rock fragments. **2.** A graywacke that has lost its micaceous constituents through abrasion and thus tends to approach an orthoquartzite. { 'kwört·sōs 'grā·wak·ə }

quartzose sandstone Sandstone consisting of more than 95% clear quartz grains and less than 5% matrix. Also known as quartz sandstone. { 'kwört·sōs 'san·stōn }

quartzose shale A green or gray shale composed predominantly of rounded quartz grains of silt size, commonly associated with highly mature sandstones (orthoquartzites), representing the reworking of residual clays as transgressive seas encroached on old land areas. { 'kwört·sōs 'shāl }

quartzose subgraywacke See protoquartzite. { 'kwört·sōs 'səb·grā·wak·ə }

quartz-pebble conglomerate See orthoquartzitic conglomerate { 'kwörts 'peb·əl kən'gläm·ə·rət }

quartz porphyry A porphyritic extrusive or hypabyssal rock containing quartz and alkali feldspar phenocrysts embedded in a microcrystalline or cryptocrystalline matrix. Also known as granite porphyry. { 'kwörts 'pör·fä·rē }

quartz sandstone See quartzose sandstone. { 'kwörts 'san·stōn }

quartz schist A schist whose foliation is due mainly to streaks and lenticles of non-granular quartz. { 'kwörts 'shist }

quartz syenite A group of plutonic rocks having the characteristics of syenite but with a greater amount of quartz (5-20%). { 'kwörts 'sī·ənīt }

quartz topaz See citrine. { 'kwörts 'tō·paz }

quasi-cratonic Pertaining to a part of oceanic crust marginal to the continent which is considered to be former continental material that stretched and foundered during expansion. Also known as semicratonic. { 'kwä·zē krä'tän·ik }

quasi-equilibrium The state of balance or grade in a stream cross section, whereby conditions of approximate equilibrium tend to be established in a reach of the stream as soon as a rather smooth longitudinal profile has been established in that reach, even though downcutting may go on. { 'kwä·zē 'ē·kwä'lib·rē·əm }

Quaternary The second period of the Cenozoic geologic era following the Tertiary, and including the last 2-3 million years. { 'kwät·ən·er·ē }

Queenston shale A red bed series from the Ordovician found in Niagara Gorge; it is composed of deltaic red shale. { 'kwēnz·tən 'shāl }

queenstownite See Darwin glass. { 'kwēn·stə·nīt }

quenite A fine-grained, dark-colored hypabyssal rock composed of anorthite, chrome diopside, with less olivine and a small amount of bronzite. { 'kwe·nīt }

quenselite $PbMnO_3(OH)$ A pitch black mineral consisting of an oxide of lead and manganese; occurs in tabular form. { 'kwens·əl·īt }

quenstedtite $Fe_2(SO_4)_3 \cdot 10H_2O$ A pale violet to reddish-violet, triclinic mineral consisting of hydrated ferric sulfate; occurs in aggregates of crystals. { 'kwen·ste·tīt }

quick **1.** Referring to a sediment that, when mixed with or absorbing water, becomes extremely soft, incoherent, or loose, and is capable of flowing easily under load or by force of gravity. **2.** Referring to a soil in which a decrease in effective stress allows water to flow upward with sufficient velocity to reduce significantly the soil's bearing capacity. **3.** Referring to a highly porous soil that readily absorbs heat. { kwik }

quick clay Clay that loses its shear strength after being disturbed. { 'kwik 'klā }

quicksand A highly mobile mass of fine sand consisting of smooth, rounded grains with little tendency to mutual adherence, usually thoroughly saturated with upward-

quilted surface

flowing water; tends to yield under pressure and to readily swallow heavy objects on the surface. Also known as running sand. { 'kwik/sand }

quickstone A consolidated rock that flowed under the influence of gravity before lithification. { 'kwik/stōn }

quilted surface A land surface characterized by broad, rounded, uniformly convex hills separating valleys that are comparatively narrow. { 'kwil·təd 'sər·fəs }

R

radial drainage pattern A drainage pattern characterized by radiating streams diverging from a high central area. Also known as centrifugal drainage pattern. { 'rād·ē·əl 'drān·ij ,pad·ərn }

radial faults Faults arranged like the spokes of a wheel, radiating from a central point { 'rād·ē·əl 'fòls }

radioactive mineral Any mineral species that contains uranium or thorium as an essential part of the chemical composition, examples are uraninite, pitchblende, carnotite, coffinite, and autunite. { 'rād·ē·ō'ak·tiv 'mīn·rəl }

radiochronology An absolute-age dating method based on the existing ratio between radioactive parent elements (such as uranium-238) and their radiogenic daughter isotopes (such as lead-206). { 'rād·ē·ō·krə'nal·ə·jē }

radiolarian chert A homogeneous cryptocrystalline radiolarite with a well-developed matrix. { 'rād·ē·ō'llar·ē·ən 'chərt }

radiolarian earth A porous, unconsolidated siliceous sediment formed from the opaline silica skeletal remains of Radiolaria; formed from radiolarian ooze. { 'rād·ē·ō'llar·ē·ən 'ə:θ }

radiolarian ooze A siliceous ooze containing the skeletal remains of the Radiolaria { 'rād·ē·ō'llar·ē·ən 'ūz }

radiolarite 1. A whitish, hard, consolidated equivalent of radiolarian earth
2. Radiolarian ooze that has been indurated. { 'rād·ē·ō'la·rīt }

radiolitic 1. Pertaining to the texture of an igneous rock, characterized by radial, fanlike groupings of acicular crystals, resembling sectors of spherulites 2. Referring to limestones in which the components radiate from central points, with the cement making up less than 50% of the total rock. { 'rād·ē·ō'llid·ik }

radiometric age Geologic age expressed in years determined by quantitatively measuring radioactive elements and their decay products. { 'rād·ē·ō'me·trik 'āj }

Radstockian A European stage of geologic time forming the upper Upper Carboniferous above Staffordian and below Stephanian, equivalent to uppermost Westphalian. { rad'stāk·ē·ən }

rafaelite A nepheline-free orthoclase-bearing hypabyssal rock that also contains analcime and calcic plagioclase. { 'raf·ē·ə'līt }

raft 1. A rock fragment caught up in a magma and drifting freely, more or less vertically
2. See float coal. { raft }

rafting Transporting of rock by floating ice or floating organic materials (such as logs) to places not reached by water currents. { 'raft·iŋ }

raft tectonics See plate tectonics. { 'raft tek'tän·iks }

rag Any of various hard, coarse, rubble, or shell rocks that weather with a rough, irregular surface, such as a flaggy sandstone or limestone used as a building stone Also known as ragstone. { rag }

raglanite A nepheline syenite composed of oligoclase, nepheline, and corundum with minor amounts of mica, calcite, magnetite, and apatite. { 'rag·lə'nīt }

ragstone See rag. { 'rag·stōn }

rainbow granite A type of granite having either a black or dark-green background with pink, yellowish, or reddish mottling or a pink background with dark mottling { 'rān·bō 'gran·ət }

raindrop impressions

raindrop impressions See rain prints. { 'rān·drāp im'presh·ənz }

raindrop imprints See rain prints. { 'rān·drāp 'im·prins }

rain pillar A minor landform consisting of a column of soil or soft rock capped and protected by pebbles or concretions, produced by the differential erosion from the impact of falling rain. { 'rān·pil·ər }

rain prints Small, shallow depressions formed in soft sediment or mud by the impact of falling raindrops. Also known as raindrop impressions; raindrop imprints. { 'rān·prins }

rainwash **1.** The washing away of loose surface material by rainwater after it has reached the ground but before it has been concentrated into definite streams.

2. Material transported and accumulated, or washed away, by rainwater. { 'rān·wāsh }

raised beach An ancient beach raised to a level above the present shoreline by uplift or by lowering of the sea level; often bounded by inland cliffs. { 'rāzd 'bēch }

rake See plunge. { rāk }

ralstonite $\text{NaMgAl}_3\text{F}_3(\text{OH})_6 \cdot 3\text{H}_2\text{O}$ A colorless, white, or yellowish mineral composed of hydrous basic sodium magnesium aluminum fluoride, occurring in octahedral crystals. { 'ról·stə·nīt }

rambla A dry ravine, or the dry bed of an ephemeral stream. { 'ram·blə }

ramdohrite $\text{Pb}_2\text{Ag}_2\text{Sb}_6\text{S}_{13}$ A dark-gray mineral composed of a lead silver antimony sulfur compound. { 'rām·dō·rīt }

rammelsbergite NiAs_2 A gray mineral composed of nickel diarsenide; it is dimorphous with parammelsbergite. Also known as white nickel. { 'ram·əlz·bær·gīt }

rampart **1.** A narrow, wall-like ridge, 3-7 feet (1-2 meters) high, built up by waves along the seaward edge of a reef flat, and consisting of boulders, shingle, gravel, or reef rubble, commonly capped by dune sand. **2.** A wall-like ridge of unconsolidated material formed along a beach by the action of strong waves and current. **3.** A crescentic or ringlike deposit of pyroclastics around the top of a volcano. { 'ram·pärt }

rampart wall A rimming wall formed along the outer or seaward margin of a terrace, as on various high limestone Pacific islands. { 'ram·pärt 'wól }

ramp valley A trough between faults, forced downward by lateral pressure. { 'ramp 'val·ē }

ramsdellite MnO_2 An orthorhombic mineral composed of manganese dioxide; it is dimorphous with pyrolusite. { 'ramz·de·līt }

Rancholabrean A stage of geologic time in southern California, in the upper Pleistocene, above the Irvingtonian. { 'ran·chō·lə·brā·ən }

randannite An earthy form of opal. { ran'da·nīt }

rang A unit of subdivision in the C.I.P.W. (Cross-Iddings-Pirsson-Washington) classification of igneous rocks. { rāŋ }

range zone Formal biostratigraphic zone made up of a body of strata comprising the total horizontal (geographic) and vertical (stratigraphic) range of occurrence of a specified taxon of a group of taxa. { 'rāŋ /zōn }

rank **1.** A coal classification based on degree of metamorphism **2.** See stack. { rāŋk }

rankinite $\text{Ca}_3\text{Si}_2\text{O}_7$ A monoclinic mineral composed of calcium silicate. { 'rāŋ·kə·nīt }

ransomite $\text{Cu}(\text{Fe},\text{Al})_2(\text{SO}_4)_4 \cdot 7\text{H}_2\text{O}$ A sky-blue mineral composed of hydrous copper iron aluminum sulfate. { 'ran·sə·mīt }

rapakivi Granite or quartz monzonite characterized by orthoclase phenocrysts mantled with plagioclase. Also known as wiborgite. { 'rā·pə'kē·vē }

rapakivi texture An igneous and metamorphic rock texture in which spherical potassium feldspar crystals are surrounded by a rim of sodium feldspar, both within a finer-grained matrix. { 'rā·pə'kē·vē 'teks·chər }

rare-earth mineral A mineral having a high concentration of rare-earth elements, examples are monazite, xenotime, and bastnaesite. { 'rer 'ərth 'min·rəl }

rasorite See kernite. { 'rā·zə·rīt }

raspite PbWO_4 A yellow or brownish-yellow mineral composed of lead tungstate, occurring as monoclinic crystals. { 'ra·spīt }

rate-of-change map A derived stratigraphic map that shows the rate of change of

structure, thickness, or composition of a given stratigraphic unit. { 'rāt əv 'chānj /map }

rate of sedimentation The amount of sediment accumulated in an aquatic environment over a given period of time, usually expressed as thickness of accumulation per unit time. Also known as sedimentation rate. { 'rāt əv /sed·ə·mən'tā·shən }

rathite $Pb_{13}As_{12}S_{40}$ A dark-gray mineral with metallic luster composed of sulfide of lead and arsenic; occurs as orthorhombic crystals. { 'rātīt }

ratio map A facies map that depicts the ratio of thicknesses between rock types in a given stratigraphic unit. { 'rā·shō /map }

rattlesnake ore A gray, black, and yellow mottled ore of carnotite and vanoxite, its spotted appearance resembles that of a rattlesnake. { 'rad·əl·snāk /ør }

rattle stone A concretion composed of concentric laminae of different compositions, in which the more soluble layers have been removed by solution, leaving the central part detached from the outer part, such as a concretion of iron oxide filled with loose sand that rattles on shaking. Also known as klapperstein. { 'rad·əl /stōn }

rauhaugite A carbonatite that contains ankerite. { rau'haü'gīt }

Rauracian A substage of Upper Jurassic geologic time in Great Britain forming the middle Lusitanian, above the Argovian and below the Sequanian. { rau'rā·shən }

ravelly ground Rock that breaks into small pieces when drilled and tends to cave or slough into the hole when the drill string is pulled, or binds the drill string by becoming wedged or locked between the drill rod and the borehole wall. { 'rav·lē 'gräund }

ravinement **1.** The formation of a ravine or ravines **2.** An irregular junction which marks a break in sedimentation, such as an erosion line occurring where shallow-water, marine deposits have cut down into slightly eroded underlying beds. { rə'vën·mənt }

raw humus See ectohumus. { 'ró 'hyü·mäs }

razorback A sharp, narrow ridge. { 'rā·zər·bak }

razor stone See novaculite. { 'rā·zər /stōn }

reaction border See reaction rim. { rē'ak·shən /börd·ər }

reaction pair Any two minerals, one of which is formed at the expense of the other by reaction with liquid. { rē'ak·shən /pər }

reaction principle The concept of a reaction series for the principal rock-forming minerals. { rē'ak·shən /prin·sə·pəl }

reaction rim A surficial rim around one mineral produced by the reaction of the core mineral with the surrounding magma. Also known as reaction border. { rē'ak·shən /rīm }

reaction series Any series of minerals in which early formed varieties react with the melt to yield new minerals; two different types of reaction series exist, continuous and discontinuous. { rē'ak·shən /sir·ēz }

realgar AsS A red to orange mineral crystallizing in the monoclinic system, having a resinous luster and found in short, vertical striated crystals; specific gravity is 3.48, and hardness is 1.5-2 on Mohs scale. Also known as red arsenic; red orpiment; sandarac. { rē'al·gär }

rebound The isostatic readjustment upward of a landmass depressed by glacial loading. { 'rē·baünd }

Recent See Holocene. { 'rē·sənt }

recess **1.** An indentation occurring in a surface, bounded by a straight line **2.** An area having the axial traces of folds concave toward the outer edge of the folded belt. { 'rē·ses }

recession **1.** The backward movement, or retreat, of an eroded escarpment **2.** A continuing landward movement of a shoreline or beach undergoing erosion. Also known as retrogression. **3.** The withdrawal of a body of water (as a sea or lake), thereby exposing formerly submerged areas. { ri'sesh·ən }

recessional moraine **1.** An end moraine formed during a temporary halt in the final retreat of a glacier **2.** A moraine formed during a minor readvance of the ice front during a period of glacial recession. Also known as stadial moraine. { ri'sesh·ən·əl mə'rān }

reclined fold

reclined fold See recumbent fold. { ˈriːklɪnd ˈfɔld }

recomposed granite An arkose composed of consolidated feldspathic residue that has been reworked and decomposed so slightly that upon cementation the rock resembles granite except that its grain is less even and it contains a greater percentage of quartz. Also known as reconstructed granite. { ˈrēːkəmˈpɔzd ˈgranˌət }

recomposed rock A rock produced in place by the cementation of the fragmental products of surface weathering; for example, a recomposed granite. { ˈrēːkəmˈpɔzd ˈræk }

reconstitution The formation of new chemicals, minerals, or structures under the influence of metamorphism. { rēːkənˌstəˈtʃʊːʃən }

reconstructed granite See recomposed granite { ˈrēːkənˈstrækt təd ˈgranˌət }

recrystallization The formation of new mineral grains in crystalline form in a rock under the influence of metamorphic processes. { rēːkrɪstˌəlˌəˈzɪːʃən }

recrystallization breccia See pseudobreccia. { rēːkrɪstˌəlˌəˈzɪːʃən ˌbrɛtʃˌə }

recrystallization flow Flow in which there is molecular rearrangement by solution and redeposition, solid diffusion, or local melting. { rēːkrɪstˌəlˌəˈzɪːʃən ˌflɔ }
{ rēːkrɪstˌəlˌəˈzɪːʃən ˌflɔ }

rectangular cross ripple mark An oscillation cross ripple mark consisting of two sets of ripples which intersect at right angles, enclosing a rectangular pit. { rɛkˈtɑŋˌgylər ˌkrɔs ˈrɪpˌəl ˌmɑrk }

rectangular drainage pattern A drainage pattern characterized by many right-angle bends in both the main streams and their tributaries. Also known as lattice drainage pattern. { rɛkˈtɑŋˌgylər ˌdrænˌɪj ˌpɑdˌərn }

rectification The simplification and straightening of the outline of an initially irregular and crenulate shoreline through the cutting back of headlands and offshore islands by marine erosion, and through deposition of waste from erosion or of sediment brought down by neighboring rivers. { ˌrɛkˌtəːfəˈkɪːʃən }

rectilinear shoreline A long, relatively straight shoreline { ˌrɛkˌtəːlɪn ˌɛ ər ˈʃɔrˌlɪn }

rectorite A white clay-mineral mixture with a regular interstratification of two mica layers (pyrophyllite and vermiculite) and one or more water layers. Also known as allevardite. { ˈrɛkˌtəːrɪt }

recumbent fold An overturned fold with a nearly horizontal axial surface. Also known as reclined fold. { rɪˈkəmˌbənt ˈfɔld }

recurrent folding A type of folding due to periodic deformation or subsidence and characterized by thinning or possible disappearance of formations at the crest. Also known as revived folding. { rɪˈkərˌənt ˈfɔldˌɪŋ }

red antimony See kermesite. { ˈred ˈanˌtəːmɔːnē }

red arsenic See realgar. { ˈred ˈɑrsˌənˌɪk }

redbed Continentally deposited sediment composed principally of sandstone, siltstone, and shale; red in color due to the presence of ferric oxide (hematite). Also known as red rock. { ˈredˌbed }

red clay A fine-grained, reddish-brown pelagic deposit consisting of relatively large proportions of windblown particles, meteoric and volcanic dust, pumice, shark teeth, manganese nodules, and debris transported by ice. Also known as brown clay. { ˈred ˈklā }

red cobalt See erythrite. { ˈred ˈkɔːbɔlt }

red copper ore See cuprite. { ˈred ˈkæpˌər ˈɔr }

Reddish-Brown Lateritic soil One of a zonal, lateritic group of soils developed from a mottled red parent material and characterized by a reddish-brown surface horizon and underlying red clay. { ˈred ˌɪʃ ˌɪbrəʊn ˌlɑdˌəˈrɪdˌɪk ˈsɔɪl }

Reddish-Brown soil A group of zonal soils having a reddish, light brown surface horizon overlying a heavier, more reddish horizon and a light-colored lime horizon. { ˈred ˌɪʃ ˌɪbrəʊn ˈsɔɪl }

red earth Leached, red, deep, clayey soil that is characteristic of a tropical climate. Also known as red loam. { ˈred ˌɜrθ }

redeposition Formation into a new accumulation, such as the deposition of sedimentary material that has been picked up and moved (reworked) from the place of its original deposition, or the solution and reprecipitation of mineral matter. { rēːdepˌəˈzɪʃˌən }

- red hematite** See hematite. { 'red 'hē·mā·tīt }
- redingtonite** (Fe,Mg,Ni)(Cr,Al)₃(SO₄)₄·22H₂O A pale-purple mineral composed of a hydrous sulfate of iron, magnesium, nickel, chromium, and aluminum. { 'red·iŋ·tə·nīt }
- red iron ore** See hematite. { 'red 'T·ərn 'ór }
- red lead** See lead tetroxide. { 'red 'led }
- red lead ore** See crocoite. { 'red 'led 'ór }
- red loam** See red earth. { 'red 'lōm }
- red mud** A reddish terrigenous mud composed of up to 25% calcium carbonate and deriving its color from the presence of ferric oxide; found on the sea floor near deserts and near the mouths of large rivers. { 'red 'məd }
- red ocher** See ferric oxide; hematite. { 'red 'ō·kər }
- red orpiment** See realgar. { 'red 'ór·pə·mənt }
- red oxide of zinc** See zincite. { 'red 'äk·sīd əv 'ziŋk }
- red rock** See redbed. { 'red 'ræk }
- redruthite** See chalcocite. { 'red 'rū·thīt }
- redstone** **1.** Any reddish sedimentary rock, such as red-colored sandstone **2.** A deep-red, clayey sandstone or siltstone representing a floodplain micaceous arkose. { 'red·stōn }
- reduction** The lowering of a land surface by erosion. { ri'dək·shən }
- reduction index** The rate of wear of a sedimentary particle subject to abrasion, expressed as the difference between the mean weight of the particle before and after transport divided by the product of mean weight before transport and the distance traveled. { ri'dək·shən 'in·deks }
- reduction sphere** A white, leached, spheroidal mass produced in a reddish or brownish sandstone by a localized reducing environment, commonly surrounding an organic nucleus or a pebble and ranging in size from a poorly defined speck to a large, perfect sphere more than 10 inches (25 centimeters) in diameter. { ri'dək·shən 'sfir }
- reduzate** A sediment accumulated under reducing conditions and consequently rich in organic carbon and in iron sulfide minerals; examples are coal and black shale. { 'rej·yə·zāt }
- Red-Yellow Podzolic soil** Any of a group of acidic, zonal soils having a leached light-colored surface layer and a subsoil containing clay and oxides of aluminum and iron, varying in color from red to yellowish red to a bright yellowish brown. { 'red 'yel·ō päd'zäl·ik 'sōil }
- red zinc ore** See zincite. { 'red 'ziŋk 'ór }
- reedmergnerite** NaBSi₃O₈ A colorless, triclinic borate mineral that represents the boron analog of albite. { rēd'mər·nyə·rīt }
- reef** **1.** A ridge- or moundlike layered sedimentary rock structure built almost exclusively by organisms. **2.** An offshore chain or range of rock or sand at or near the surface of the water. { rēf }
- reef breccia** A rock formed by the consolidation of limestone fragments broken off from a reef by the action of waves and tides. { 'rēf 'brech·ə }
- reef cap** A deposit of fossil-reef material overlying or covering an island or mountain { 'rēf 'kap }
- reef cluster** A group of reefs of wholly or partly contemporaneous growth, found within a circumscribed area or geologic province. { 'rēf 'kləs·tər }
- reef complex** The solid reef core and the heterogeneous and contiguous fragmentary material derived from it by abrasion. { 'rēf 'käm·pleks }
- reef conglomerate** See reef talus. { 'rēf kən·gläm·ə·rət }
- reef core** The rock mass constructed in place, and within the rigid growth lattice formed by reef-building organisms. { 'rēf 'kór }
- reef debris** See reef detritus. { 'rēf də·brē }
- reef detritus** Fragmental material derived from the erosion of an organic reef. Also known as reef debris. { 'rēf di·trīt·əs }
- reef edge** The seaward margin of the reef flat, commonly marked by surge channels { 'rēf 'ej }
- reef flank** The part of the reef that surrounds, interfingers with, and locally overlies the

reef flat

reef core, often indicated by massive or medium beds of reef talus dipping steeply away from the reef core. { 'rēf /flaŋk }

reef flat A flat expanse of dead reef rock which is partly or entirely dry at low tide; shallow pools, potholes, gullies, and patches of coral debris and sand are features of the reef flat. { 'rēf /flaŋk }

reef front The upper part of the outer or seaward slope of a reef, extending to the reef edge from above the dwindle point of abundant living coral and coralline algae. { 'rēf /frənt }

reef-front terrace A shelflike or benchlike eroded surface, sometimes veneered with organic growth, sloping seaward to a depth of 8-15 fathoms (15-27 meters). { 'rēf /frənt /ter-əs }

reef knoll 1. A bioherm or fossil coral reef represented by a small, prominent, rounded hill, up to 330 feet (100 meters) high, consisting of resistant reef material, being either a local exhumation of an original reef feature or a feature produced by later erosion. 2. A present-day reef in the form of a knoll; a small reef patch developed locally and built upward rather than outward. { 'rēf /nɒl }

reef limestone Limestone composed of the remains of sedentary organisms such as sponges, and of sediment-binding organic constituents such as calcareous algae. Also known as coral rock. { 'rēf /'līm-ʃtɒn }

reef milk A very-fine-grained matrix material of the back-reef facies, consisting of white, opaque microcrystalline calcite derived from abrasion of the reef core and reef flank. { 'rēf /milk }

reef patch A single large colony of coral formed independently on a shelf at depths less than 220 feet (70 meters) in the lagoon of a barrier reef or of an atoll. Also known as patch reef. { 'rēf /pəʃ }

reef pinnacle A small, isolated spire of rock or coral, especially a small reef patch. { 'rēf /pɪn-ə-kəl }

reef rock A hard, unstratified rock composed of sand, shale, and the calcareous remains of sedentary organisms, cemented by calcium carbonate. { 'rēf /ræk }

reef segment A part of an organic reef lying between passes, gaps, or channels. { 'rēf /seg-mənt }

reef slope The face of a reef rising from the sea floor. { 'rēf /slɒp }

reef talus Massive inclined strata composed of reef detritus deposited along the seaward margin of an organic reef. Also known as reef conglomerate. { 'rēf /tā-ləs }

reef tufa Drusy, prismatic, fibrous calcite deposited directly from supersaturated water upon the void-filling internal sediment of the calcite mudstone of a reef knoll. { 'rēf /tūf-ə }

reef wall A wall-like upgrowth of living coral and the skeletal remains of dead coral and other reef-building organisms, which reaches an intertidal level and acts as a partial barrier between adjacent environments. { 'rēf /wɔl }

reenchant A prominent, generally angular indentation into a coastline. { rē'en-trənt }

reevesite $\text{Na}_2\text{Fe}_2(\text{OH})_{10}(\text{CO}_3)_4\text{H}_2\text{O}$ Hydrrous oxide mineral known only in meteorites { 'rēv-zīt }

reference locality A locality containing a reference section, established to supplement the type locality. { 'ref-rəns lɔ'kal-əd-ē }

reference section A rock section, or group of sections, designated to supplement the type section, or sometimes to supplant it (as where the type section is no longer exposed), and to afford a standard for correlation for a certain part of the geologic column. { 'ref-rəns /sek-shən }

reflected buried structure The distortion of surface beds that reflect a similar structural distortion of underlying formations. { ri'flekt-əd 'ber-əd 'stræk-chər }

refolding A process by which folds of one generation are subjected to and stressed by a force of different orientation. { rē'fɔld-iŋ }

refoliation A foliation that is subsequent to and oriented differently from an earlier foliation. { ri-fɔ-lē'ā-shən }

Refugian A North American stage of geologic time in the Eocene and Oligocene, above the Fresnian and below the Zemorrian. { rə'fyū-jē-ən }

reg An extensive, nearly level, low desert plain from which fine sand has been removed

by wind, leaving a sheet of coarse, smoothly angular, wind-polished gravel and small stones lying on an alluvial soil, strongly cemented by mineralized solutions to form a broad desert pavement. Also known as gravel desert. { reg }

regime The existence in a stream channel of a balance between erosion and deposition over a period of years. { rə'zhēm }

regional dip The nearly uniform and generally low-angle inclination of strata over a wide area. Also known as normal dip. { 'rēj·ən·əl 'dip }

regional geology The geology of a large region, treated from the viewpoint of the spatial distribution and position of stratigraphic units, structural features, and surface forms. { 'rēj·ən·əl jē'äl·ə·jē }

regional metamorphism Geological metamorphism affecting an extensive area { 'rēj·ən·əl ,med·ə'môr·fiz·əm }

regional metasomatism Metasomatic processes affecting extensive areas whereby the introduced material may be derived from partial fusion of the rocks involved from deep-seated magmatic sources. { 'rēj·ən·əl |med·ə'sō·mæ'tiz·əm }

regional slope The generally uniform dip of rock strata or land surface over a wide area. { 'rēj·ən·əl 'slōp }

regional slope deposit A sedimentary deposit widely distributed as a thin sheet over a regional slope. { 'rēj·ən·əl |slōp di·pāz·ət }

regional unconformity A continuous unconformity extending throughout a wide region that may be nearly continentwide, and usually represents a long period of time. { 'rēj·ən·əl ,ən·kən'fôr mäd ē }

regmagensis Diastrophic production of regional strike-slip displacements { |reg·mæ'jen·ə·səs }

regmaglypt Any of various small, well-defined, characteristic indentations or pits on the surface of meteorites, frequently resembling the imprints of fingertips in soft clay. Also known as pezoglyph: piezoglypt. { 'reg·mæ·glipt }

regolith The layer rock or blanket of unconsolidated rocky debris of any thickness that overlies bedrock and forms the surface of the land. Also known as mantle rock. { 'reg·ə·lith }

Regosol In early United States soil classification systems, one of an azonal group of soils that form from deep, unconsolidated deposits and have no definite genetic horizons. { 'reg·ə·säl }

reggradation The formation by a stream of a new profile of equilibrium, as when the former profile, after gradation, became deformed by crustal movements. { ,rē·grā'dā·shən }

regression The theory that some rivers have sources on the rainier sides of mountain ranges and gradually erode backward until the ranges are cut through. { ri'gresh·ən }

regression conglomerate A coarse sedimentary deposit formed during a retreat (recession) of the sea. { ri'gresh·ən kən·glām·ə·rət }

regressive overlap See offlap. { ri'gres·iv 'o·vər·lap }

regressive reef One of a series of nearshore reefs or bioherms superimposed on basinal deposits during the rising of a landmass or the lowering of the sea level, and developed more or less parallel to the shore. { ri'gres·iv 'rēf }

regressive ripple An asymmetric ripple mark formed by a current but oriented in a direction opposite to the general movement of current flow (steep side facing up-current). { ri'gres·iv 'rip·əl }

regressive sediment A sediment deposited during the retreat or withdrawal of water from a land area or during the emergence of the land, and characterized by an offlap arrangement. { ri'gres·iv 'sed·ə·mənt }

regur One of a group of calcareous intrazonal soils characterized by dark color and a high clay content. Also known as black cotton soil. { 'reg·ər }

Reichenbach's lamellae Thin platy inclusions of foreign minerals (usually troilite, schreibersite, or chromite) occurring in iron meteorites. { 'rī·kən·bäks læ'mel·ē }

rejuvenate The act of stimulating a stream to renewed erosive activity either by tectonic uplift or a drop in sea level. { ri'jū·və·nāt }

rejuvenated fault scarp A fault scarp revived by renewed movement along an old fault

rejuvenation

line after partial dissection or erosion of the initial scarp. Also known as revived fault scarp. {ri'jū·və'nā·əd 'fólt ɹskərp }

rejuvenation The restoration of youthful features to fluvial landscapes: the renewal of youthful vigor to low-gradient streams is usually caused by regional upwarping of broad areas formerly at or near base level. {ri'jū·və'nā·shən }

rejuvenation head See knickpoint. {ri'jū·və'nā·shən /hed }

relative age The geologic age of a fossil organism, rock, or geologic feature or event defined relative to other organisms, rocks, or features or events rather than in terms of years. {'rel·əd·iv 'āj }

relative chronology Geochronology in which the time order is based on superposition or fossil content rather than on an age expressed in years. {'rel·əd·iv krə'näl·ə·jē }

relative dating The proper chronological placement of a feature, object, or happening in the geologic time scale without reference to its absolute age. {'rel·əd·iv 'dād·iŋ }

relative geologic time Nonabsolute geological time in which events may be placed relatively to one another. {'rel·əd·iv ɹjē·ə'läj·ik 'tīm }

relative permeability Specific permeability of a porous rock formation to a particular phase (oil, water, gas) at a particular saturation and a particular saturation distribution; for example, ratio of effective permeability to a specified phase to the rock's absolute permeability. {'rel·əd·iv ɹpər·mē·ə'bil·əd·ē }

relative relief See local relief. {'rel·əd·iv ri'lēf }

relative time Geologic time determined by the placing of events in a chronologic order of occurrence, especially time as determined by organic evolution or superposition. {'rel·əd·iv 'tīm }

relaxation In experimental structural geology, the diminution of applied stress with time, as the result of any of various creep processes. {ɹrē'lak'sā·shən }

released mineral A mineral formed during the crystallization of a magma due to failure of an earlier phase to react with the liquid portion of the magma. {ri'lēst 'min·rəl }

release fracture A fracture formed as a result of a decrease in the maximum principal stress. {ri'lēs ɹfrak·chər }

release joint See sheeting structure. {ri'lēs ɹjɔint }

relic **1.** A landform that remains intact after decay or disintegration or that remains after the disappearance of the major portion of its substance. **2.** A vestige of a particle in a sedimentary rock, such as a trace of a fossil fragment. {'rel·ik }

relict **1.** Referring to a topographic feature that remains after other parts of the feature have been removed or have disappeared. **2.** Pertaining to a mineral, structure, or feature of a rock which represents features of an earlier rock and which persists in spite of processes tending to destroy it, such as metamorphism. {'rel·ikt }

relict dike In a granitized mass, a tabular, crystalloblastic body that represents a dike which was emplaced prior to, and which was relatively resistant to, the granitization process. {'rel·ikt 'dīk }

relict mineral A mineral of a rock that persists from an earlier rock. {'rel·ikt 'min·rəl }

relict permafrost Permafrost formed in the past which persists in areas where it would not form today. {'rel·ikt ɹpər·mə'frɔst }

relict sediment A sediment which was in equilibrium with its environment when first deposited but which is unrelated to its present environment even though it is not buried by later sediments, such as a shallow-marine sediment on the deep ocean floor. {'rel·ikt 'sed·ə·mənt }

relict soil A soil formed on a preexisting landscape but not subsequently buried under younger sediments. {'rel·ikt 'sɔil }

relict texture In mineral deposits, an original texture that persists after partial replacement. {'rel·ikt 'teks·chər }

relief limonite Indigenous limonite that is porous and cavernous in texture. {ri'lēf 'līm·ə·nīt }

Relizean stage A subdivision of the Miocene in the California-Oregon-Washington area. {rə'lē·zē·ən ɹstāj }

- remolded soil** Soil that has had its natural internal structure modified or disturbed by manipulation so that it lacks shear strength and gains compressibility { rē'mōl dād 'sōil }
- remolding index** The ratio of the modulus of deformation of a soil in the undisturbed state to that of a soil in the remolded state. { rē'mōld·īn̄ ·in·dēks }
- renardite** $Pb(VO_2)_4(PO_3)_2(OH)_4 \cdot 7H_2O$ A yellow mineral composed of hydrous basic lead uranyl phosphate. { rē'nār·dīt }
- Rendoll** A suborder of the soil order Mollisol, formed in highly calcareous parent materials, mostly restricted to humid, temperate regions; the soil profile consists of a dark upper horizon grading to a pale lower horizon. { 'rēn·dāl }
- Rendzina** One of an intrazonal, calcimorphic group of soils characterized by a brown to black, friable surface horizon and a light-gray or yellow, soft underlying horizon found under grasses or forests in humid to semiarid climates. { rēnt'sin·ə }
- rensselaerite** A soft, compact, fibrous talc pseudomorphous after pyroxene and found in Canada and northern New York. { 'rēn·sə·lə·rīt }
- repetition** The duplication of certain stratigraphic beds at the surface or in any specified section owing to disruption and displacement of the beds by faulting or intense folding. { rēp·ə'tish·ən }
- Repettian** A North American stage of lower Pliocene geologic time, above the Delmontian and below the Venturian. { rə'pesh·ən }
- replacement** Growth of a new or chemically different mineral in the body of an old mineral by simultaneous capillary solution and deposition. { ri'plās·mənt }
- replacement deposit** A mineral deposit formed by the in-position replacement of one mineral for another. { ri'plās·mənt di·pāz·ət }
- replacement dike** A dike which is made by gradual transformation of wall rock by solutions along fractures or permeable zones. { ri'plās·mənt /dīk }
- replacement texture** The texture exhibited where one mineral has replaced another { ri'plās·mənt /teks·chər }
- replacement vein** A mineral vein formed by the gradual transformation of an original vein by secondary fluids. { ri'plās·mənt vān }
- replenishment** The stage in development of a cavern in which the presence of air in the passages allows the deposition of speleothems. { ri'plen·ish·mənt }
- resedimentation** **1.** Sedimentation of material derived from a preexisting sedimentary rock, that is, redeposition of sedimentary material **2.** Mechanical deposition of material in cavities of postdepositional age, such as the deposition of carbonate muds and silts by internal mechanical erosion or solution of a limestone. **3.** The general process of subaqueous, downslope movement of sediment under the influence of gravity, such as the formation of a turbidity-current deposit. { rē'sed·ə·mənt'tā·shən }
- resequent** Referring to a geologic or topographic feature that resembles or agrees with a consequent feature but that developed from the feature at a later date. { rē'sē·kwənt }
- resequent fault-line scarp** A fault-line scarp which faces in the same direction as the original fault scarp or in which the downthrown block is topographically lower than the upthrown block. { rē'sē·kwənt 'folt·līn /skārp }
- reservoir** **1.** A subsurface accumulation of crude oil or natural gas under adequate trap conditions. **2.** An area covered by névé where snow collects to form a glacier. **3.** A space within the earth that is occupied by magma. { 'rez·əv·wār }
- reservoir fluid** The subterranean fluid trapped by a reservoir formation, can include natural gas, liquid and vapor petroleum hydrocarbons, and interstitial water { 'rez·əv·wār /flü·əd }
- reservoir pressure** **1.** The pressure on fluids (water, oil, gas) in a subsurface formation. Also known as formation pressure. **2.** The pressure under which fluids are confined in rocks. { 'rez·əv·wār /prēsh·ər }
- reservoir rock** Friable, porous sandstone containing deposits of oil or gas { 'rez·əv·wār /rāk }
- residual** **1.** Of a mineral deposit, formed by either mechanical or chemical concentration. **2.** Pertaining to a residue left in place after weathering of rock. **3.** Of a topo-

residual anticline

graphic feature, representing the remains of a formerly great mass or arëä and rising above the surrounding surface. { rə'zij·ə·wəl }

residual anticline In salt tectonics, a relative structural high resulting from the depression of two adjacent rim synclines. Also known as residual dome. { rə'zij·ə·wəl 'ant·i·klīn }

residual clay Very finely divided clay material formed in place by weathering of rock. Also known as primary clay. { rə'zij·ə·wəl 'klā }

residual compaction The difference between the amount of compaction that will ultimately occur for a given increase in applied stress, and that which has occurred at a specified time. { rə'zij·ə·wəl kəm'pak·shən }

residual dome See residual anticline. { rə'zij·ə·wəl 'dōm }

residual kame A ridge or mound of sand or gravel formed by the denudation of glaciofluvial material that had been deposited in glacial lakes or on the flanks of hills of till. { rə'zij·ə·wəl 'kām }

residual liquid The volatile components of a magma that remain in the magma chamber after much crystallization has taken place. { rə'zij·ə·wəl 'lik·wəd }

residual liquor See rest magma. { rə'zij·ə·wəl 'lik·ər }

residual map A stratigraphic map that displays the small-scale variations (such as local features in the sedimentary environment) of a given stratigraphic unit. { rə'zij·ə·wəl 'map }

residual material Unconsolidated or partly weathered parent material of a soil, presumed to have developed in place (by weathering) from the consolidated rock on which it lies. { rə'zij·ə·wəl mə'tir·ē·əl }

residual mineral A mineral that has been concentrated in place by weathering and leaching of rock. { rə'zij·ə·wəl 'min·rəl }

residual ochre An earthy, red, yellow, or brownish iron oxide powder of iron oxide (usually the mineral limonite) produced during chemical weathering. { rə'zij·ə·wəl 'ō·kər }

residual sediment See resistate. { rə'zij·ə·wəl 'sed·ə·mənt }

residual swelling The difference between the original prefreezing level of the ground and the level reached by the settling after the ground is completely thawed. { rə'zij·ə·wəl 'swel·iŋ }

residual valley An intervening trough between uplifted mountains. { rə'zij·ə·wəl 'val·ē }

residue The in-place accumulation of rock debris which remains after weathering has removed all but the least soluble constituent. { 'rez·ə·dü }

resinite A variety of exinite composed of resinous compounds, often in elliptical or spindle-shaped bodies. { 'rez·ən·it }

resin opal A wax-, honey-, or ochre-yellow variety of common opal with a resinous luster or appearance. { 'rez·ən 'ō·pəl }

resinous coal Coal in which large proportions of resinous material are contained in the attritus. { 'rez·ən·əs 'kōl }

resinous luster The luster on the fractured surfaces of certain minerals (such as opal, sulfur, amber, and sphalerite) and rocks (such as pitchstone) that resemble the appearance of resin. { 'rez·ən·əs 'læs·tər }

resin tin See rosin tin. { 'rez·ən 'tin }

resistate A sediment consisting of minerals that are chemically resistant and are enriched in the residues of weathering processes. Also known as residual sediment. { ri'ziz·tāt }

resorbed reef A reef characterized by embayed margins and by the numerous isolated patches of reef that are closely distributed about the main mass. { rē'sórbd 'rēf }

resorption The process by which a magma redissolves previously crystallized minerals { rē'sórp·shən }

rest hardening The increase of strength, with time, of a clay subsequent to its deposition, remolding, or modification by the application of shear stress. { 'rest 'hārd·ən·iŋ }

rest magma The part of magma that remains after many minerals have crystallized

- from it during a long series of differentiations. Also known as residual liquor. { 'rest ɹ mag · mə }
- restricted** Referring to tectonic transport or movement in which elongation of particles is transverse to the direction of movement. { ri' strik · təd }
- restricted basin** A depression in the floor of the ocean in which the water circulation is topographically restricted and therefore generally is oxygen-depleted. Also known as barred basin; silled basin. { ri' strik · təd 'bās · ən }
- resurgent** Referring to magmatic water or gases that were derived from sources on the earth's surface, from its atmosphere, or from country rock of the magma. { ri' sər · jənt }
- resurgent cauldron** A cauldron in which the cauldron block has been uplifted following subsidence, usually in the form of a structural dome. { ri' sər · jənt 'kól · drən }
- resurrected** Pertaining to a surface, landscape, or feature (such as a mountain, peneplain, or fault scarp) that has been restored by exhumation to its previous status in the existing relief. Also known as exhumed. { rez · ə' rek · təd }
- retgersite** $\text{NiSO}_4 \cdot 6\text{H}_2\text{O}$ A deep emerald green tetragonal mineral consisting of a hydrated nickel sulfate. { 'ret · gər · sīt }
- reticular** See reticulate. { re'tik · yə · lər }
- reticulate** **1.** Referring to a vein or lode with netlike texture **2.** Referring to rock texture in which crystals are partly altered to a secondary material, forming a network that encloses the remnants of the original mineral. Also known as mesh texture; reticular; reticulated. { rə'tik · yə · lət }
- reticulated** See reticulate. { rə'tik · yə · lād · əd }
- reticulated bar** One of a group of slightly submerged sandbars in two sets, both of which are diagonal to the shoreline, forming a crisscross pattern { rə'tik yə · lād əd 'bār }
- retinalite** A massive, honey-yellow or greenish serpentine mineral with a waxy or resinous luster; a variety of chrysolite. { 'ret · ən · ə' līt }
- retinasphalt** A light-brown variety of retinite usually found with lignite { ·ret · ən' a · sfólt }
- retinite** A fossil resin, such as glessite, krantzite, muckite, and ambrite, composed of 6-15% oxygen, lacking succinic acid, and found in brown coals and peat. { 'ret · ən · ít }
- retrograde metamorphism** Formation of metamorphic minerals of a lower grade of metamorphism at the expense of minerals which are characteristic of a higher grade. Also known as diaphthoresis; retrogressive metamorphism. { 're · trə' grād · med · ə' mór · fiz · əm }
- retrograde reservoir** Hydrocarbon reservoir in which hydrocarbons are initially in the vapor phase, as pressure is reduced, the bubble-point line is passed and liquids are formed, upon further pressure reduction, a vapor phase is again formed { 're · trə' grād 'rez · əv · wär }
- retrograding shoreline** A shoreline that is being moved landward by wave erosion { 're · trə' grād · iŋ 'shór · līn }
- retgression** See recession. { ɹe · trə' gresh · ən }
- retrogressive metamorphism** See retrograde metamorphism. { ɹe trə' gres · iv · med · ə' mór · fiz · əm }
- retzian** $\text{Mn}_2\text{Y}(\text{AsO}_4)_2(\text{OH})_4$ A chocolate brown to chestnut brown, orthorhombic mineral consisting of a basic arsenate of calcium, rare earths, and manganese. { 'ret · sē · ən }
- reversal of dip** Change in the dip direction of bedding near a fault such that the beds curve toward the fault surface in a direction exactly opposite that of the drag folds. Also known as dip reversal. { ri' vər · səl əv 'dip }
- reversed** See overturned. { ri' vərst }
- reversed arc** A curved belt of islands which is concave toward the open ocean, the opposite of most island arcs. { ri' vərst 'ärk }
- reverse fault** See thrust fault. { ri' vər · s 'fólt }
- reverse-flowage fold** A fold in which flow from deformation has thickened the anticlinal

reverse saddle

crests and thinned the syndinal troughs, contrary to the normal flow pattern of a flow fold. {ri'vərs ɪflō·ij 'föld}

reverse saddle A mineral deposit associated with the trough of a synclinal fold and following the bedding plane. Also known as trough reef. {ri'vərs ɪsəd·əl}

reverse similar fold A fold whose strata are thickened on the limbs and thinned on the axes, contrary to the pattern of a similar fold. {ri'vərs 'sim·ə·lər 'föld}

reverse slip fault See thrust fault. {ri'vərs 'slip 'fölt}

reverse slope A hill descending away from a ridge. {ri'vərs ɪslöp}

reversing dune A dune that tends to develop unusual height but migrates only a limited distance because seasonal shifts in dominant wind direction cause it to move alternately in nearly opposite directions. {ri'vərs·iŋ 'dün}

revet-crag One of a series of narrow, pointed outliers or ridges of eroded strata inclined like a revetment against a mountain spur. {rə'vet 'krag}

revived fault scarp See rejuvenated fault scarp. {ri'vīvd 'fölt 'skärp}

revived folding See recurrent folding. {ri'vīvd 'föld·iŋ}

revolution A little-used term to describe a time of profound crustal movements, on a continentwide or worldwide scale, which led to abrupt geographic, climatic, and environmental changes that were related to changes in forms of life. {rev·ə'lü·shən}

rework Any geologic material that has been removed or displaced by natural agents from its origin and incorporated in a younger formation. {'rē·wərk}

rezbanyite $Pb_3Cu_2Bi_{10}S_{16}$ A metallic-gray mineral composed of sulfide of lead, copper, and bismuth. {rez'ban·yīt}

rhabdite See schreibersite. {'rab·dīt}

rhabdophane $(Ce,Y,La,Di)(PO_4)·H_2O$ A brown, pinkish, or yellowish-white mineral consisting of a hydrated phosphate of cerium, yttrium, and rare earths. {'rab·də·fān}

Rhaetian A European stage of geologic time, the uppermost Triassic (above Norian, below Hettangian of Jurassic). Also known as Rhaetic. {'rē·shən}

Rhaetic See Rhaetian. {'rēd·ik}

rhegmagenesis Orogeny characterized by the development of large-scale strike-slip faults. {reg·mə'jen·ə·səs}

rheid A substance (below its melting point) which deforms by viscous flow during applied stress at an order of magnitude at least three times that of elastic deformation under similar circumstances. {'rē·əd}

rheid fold A fold whose strata deform by viscous flow as if they were fluid. {'rē·əd·föld}

rheidity Relaxation time of a substance, divided by 1000: {rē'id·əd·ē}

rheoignimbrite An ignimbrite, on the slope of a volcanic crater, that has developed secondary flowage due to high temperatures. {rē·ō'ig·nim·brīt}

rheomorphic intrusion The injection of country rock that has become mobilized into the igneous intrusion that caused the rheomorphism. {rē·əɪmōr·fik in'trū·zhən}

rheomorphism Mobilization of a rock by at least partial fusion accompanied by, and sometimes promoted by, addition of new material by diffusion. {rē·əɪmōr·fiz·əm}

rhexistasy The mechanical breaking up and transport of old soils or other surface residual materials. {rek'sis·tə·sē}

rhizoconcretion See root cast. {rī·zō·kän'krē·shən}

rhizosphere The soil region subject to the influence of plant roots and characterized by a zone of increased microbiological activity. {'rī·zə·sfīr}

Rhodanian orogeny A short-lived orogeny that occurred at the end of the Miocene Period. {rō'dān·ē·ən ó'rāj·ə·nē}

rhodite A mineral consisting of a native alloy of rhodium (about 40) and gold. {'rō·dīt}

rhodizite $CsAl_4Be_4B_{11}O_{25}(OH)_4$ A white mineral composed of a basic borate of cesium, aluminum, and beryllium, occurring as isometric crystals. {'rōd·ə·zīt}

rhodochrosite $MnCO_3$ A rose-red to pink or gray mineral form of manganese carbonate with hexagonal symmetry but occurring in massive or columnar form; isomorphous with calcite and siderite, has a hardness of 3.5-4 on Mohs scale, and a specific gravity of 3.7; a minor ore of manganese. {'rōd·ə'krō·sīt}

- rhodolite** A violet-red garnet species composed of a mixture of almandite and pyrope in about a 3:1 ratio. { 'rōd·əl·īt }
- rhodonite** $MnSiO_3$ A pink or brown mineral inosilicate crystallizing in the triclinic system and commonly found in cleavable to compact masses or in embedded grains; luster is vitreous, hardness is 5.5-6 on Mohs scale, and specific gravity is 3.4-3.7. { 'rōd·ən·īt }
- rhombochasm** A parallel-sided gap in the sialic crust occupied by simatic crust, probably caused by spreading and separation. { 'rām·bə·kəz·əm }
- rhomboclase** $HFe^{2+}(SO_4) \cdot 4H_2O$ A colorless mineral composed of hydrous acid ferric sulfate, occurring in rhombic plates. { 'rām·bək·lās }
- rhombohedral iron ore** See hematite, siderite { 'rām·bō|hē drəl 'ī ərn 'ōr }
- rhomboid ripple mark** An aqueous current ripple mark characterized by a reticular arrangement of diamond-shaped tongues of sand, with each tongue having two acute angles, one pointing upcurrent and the other pointing downcurrent. { 'rām·bōid 'rip·əl·mārk }
- rhomb-porphury** A porphyritic alkaline syenite composed of an alkali feldspar groundmass with augites having rhombohedral cross sections as the principal phenocryst minerals. { 'rām'pōr·fə·rē }
- rhourd** A pyramid-shaped sand dune, formed by the intersection of other dunes. { rōrd }
- rhyacolite** See sanidine. { rī'ak·ə·līt }
- rhyodacite** A group of extrusive porphyritic igneous rocks containing quartz, plagioclase, and biotite phenocrysts in a fine-grained to glassy groundmass composed of alkali feldspar and silica minerals. Also known as dellenite; quartz lattice. { rī'əd; ə·sīt }
- rhyolite** A light-colored, aphanitic volcanic rock composed largely of alkali feldspar and free silica with minor amounts of mafic minerals; the extrusive equivalent of granite. { 'rī·ə·līt }
- rhyolitic glass** Volcanic glass that is chemically equivalent to rhyolite { 'rī əlīd ik 'glas }
- rhyolitic lava** A highly viscous, silica-rich lava. { 'rī·ə'līd·ik 'lə·və }
- rhyolitic magma** A type of magma formed by differentiation from basaltic magma in combination with assimilation of siliceous material, or by melting of portions of the earth's sialic layer. { 'rī·ə'līd·ik 'mag·mə }
- rhyolitic tuff** A tuff composed of fragments of rhyolitic lava. { 'rī·ə'līd·ik 'təf }
- rhythmic accumulations** Regular patterns of ripples and cusps in sediment on the beach or the sea floor, formed by currents and waves. { 'rith·mik ə'kyū·mə'lā·shənz }
- rhythmic crystallization** In igneous rocks, a phenomenon in which different minerals crystallize in concentric layers, giving rise to orbicular texture. { 'rith·mik 'krist·əl 'ā·shən }
- rhythmic layering** A type of layering in an igneous intrusion which is easily observable and in which there is repetition of zones of varying composition. { 'rith·mik 'lə·ər·iŋ }
- rhythmic sedimentation** A repetitious, regular sequence of rock units formed by sedimentary succession and indicating a frequent, predictable recurrence of the same sequence of conditions. { 'rith·mik 'sed·ə·men'tā·shən }
- rhythmic stratification** The occurrence of sediment layers in repetitive patterns, such as a regular alternation of layers of lime and clay. { 'rith·mik 'strəd·ə·fə'kā·shən }
- rhythmic succession** A succession of rock units showing continual and repeated changes of lithology. { 'rith·mik sək'sesh·ən }
- rhythmite** An independent unit of a rhythmic succession or of beds that were developed by rhythmic sedimentation. { 'rith·mīt }
- rib** A layer or dike of rock forming a small ridge on a steep mountainside. { rib }
- rib-and-furrow** The bedding-plane expression for micro-cross-bedding, consisting of sets of small, transverse arcuate markings confined to long, narrow, parallel grooves oriented parallel to the current flow and separated by narrow ridges. { 'rib ən 'fər ə }

riband jasper

riband jasper See ribbon jasper. { 'rib·ənd 'jas·pər }

ribbed moraine One of a group of irregularly subparallel, locally branching generally smoothly rounded and arcuate ridges that are convex in the downstream direction of a glacier but that curve upstream adjacent to eskers. { 'ribd mə'ran }

ribble See ripple till. { 'rib·əl }

ribbon One of a set of parallel bands in a rock or mineral. { 'rib·ən }

ribbon banding A banding produced in the bedding of a sedimentary rock by thin strata of contrasting colors, giving the rock an appearance which suggests bands of ribbons. { 'rib·ən 'band·iŋ }

ribbon bomb An elongate and flattened volcanic bomb derived from ropes of lava. { 'rib·ən 'bäm }

ribbon diagram A continuous geologic cross section that is drawn in perspective along a curved or sinuous line. { 'rib·ən 'dī·ə'gram }

ribbon jasper Banded jasper with parallel, ribbonlike stripes of alternating colors or shades of color. Also known as riband jasper. { 'rib·ən 'jas·pər }

ribbon reef A linear reef within the Great Barrier Reef off the northeast coast of Australia, having inwardly curved extremities, and forming a festoon along the precipitous edge of the continental shelf. { 'rib·ən 'rēf }

ribbon rock A rock showing a succession of thin layers of differing composition or appearance. { 'rib·ən 'rək }

ribbon slate Slate produced by incomplete metamorphism of clearly visible residual bedding planes that cut across the cleavage surface. { 'rib·ən 'slāt }

ribbon structure A succession of thin layers of different mineralogy and texture often contorted and deformed. { 'rib·ən 'strək·chər }

ribbon vein See banded vein. { 'rib·ən 'vān }

rice coal Anthracite that will pass through circular holes in a screen, the holes measuring $\frac{7}{16}$ inch (7.9 millimeters), but not $\frac{3}{16}$ inch (4.8 millimeters), in diameter. { 'rīs 'köl }

richellite $\text{Ca}_3\text{Fe}_{10}(\text{PO}_4)_8(\text{OH},\text{F})_{12}\cdot n\text{H}_2\text{O}$ A yellow mineral composed of hydrous basic iron calcium fluophosphate; occurs in masses. { rə'she·līt }

Richmondian A North American stage of geologic time (Upper Ordovician (above Maysvillian, below Lower Silurian). { rich'mən·dē·ən }

richterite $(\text{Na},\text{K})_2(\text{Mg},\text{Mn},\text{Ca})_6\text{Si}_8\text{O}_{22}(\text{OH})_2$ A brown, yellow, or rose-red monoclinic mineral composed of basic silicate of sodium, potassium, magnesium, manganese, and calcium; a member of the amphibole group. { 'rik·tə·rīt }

rickardite Cu_3Te_4 A deep-purple mineral composed of copper telluride occurring in masses. { 'rik·ər·dīt }

ricolettaite A dark-colored syenite-gabbro containing anorthite as the plagioclase, along with olivine and augite. { 'rik·ə'led·ə·īt }

rideau A small ridge or mound of earth, or a slightly elevated piece of ground. { ri'dō }

ridge An elongate, narrow, steep-sided elevation of the earth's surface or the ocean floor. { rij }

ridge fault A fault structure that is a set of two faults bounding a horst. { 'rij 'fölt }

ridge-top trench A trench, occasionally found at or near the crest of high, steep-sided mountain ridges, formed by the creep displacement of a large slab of rock along shear surfaces more or less parallel with the side slope of the ridge. { 'rij 'təp 'trench }

riebeckite $\text{Na}_2(\text{Fe},\text{Mg})_5\text{Si}_8\text{O}_{22}(\text{OH})_2$ A blue or black monoclinic amphibole occurring as a primary constituent in some acid- or sodium-rich igneous rocks. { 'rē·be·kīt }

riebungsbreccia A breccia developed during folding. { 'rē·bæŋz·brech·ə }

Riecke's principle The principle that solution of a mineral occurs most readily at points of greatest external pressure, and crystallization occurs most readily at points of least external pressure; applied to recrystallization in metamorphic rock. { 'rē·kəz 'prin·sə·pəl }

riedenite An igneous rock composed of large tabular biotite crystals in a granular groundmass of nosean, biotite, pyroxene, and small amounts of sphene and apatite. { 'rēd·ən·īt }

- riegel** A low, traverse ridge of bedrock on the floor of a glacial valley. Also known as rock bar; threshold; verrou. { 'rē·gəl }
- rift** **1.** A narrow opening in a rock caused by cracking or splitting. **2.** A high, narrow passage in a cave. { rift }
- rift-block mountain** A mountain range which is a horst block bounded by normal faults { 'rift ɪblæk 'maʊnt·ən }
- rift-block valley** A valley which occupies a graben. { 'rift ɪblæk 'val·ē }
- rift lake** See sag pond. { 'rift ɪlæk }
- rift valley** A deep, central cleft with a mountainous floor in the crest of a midoceanic ridge. Also known as central valley; midocean rift. { 'rift ɪval·ē }
- rift-valley lake** See sag pond. { 'rift ɪval·ē ɪlæk }
- right-lateral fault** See dextral fault. { 'rīt ɪlad·ə·rəl 'fɔlt }
- right-lateral slip fault** See dextral fault. { 'rīt ɪlad·ə·rəl 'slip ɪfɔlt }
- right side up** See right way up. { 'rīt 'sīd 'əp }
- right-slip fault** See dextral fault. { 'rīt ɪslip ɪfɔlt }
- right way up** The state of strata where the present upward succession of layers is the original (normal) order of deposition. Also known as right side up. { 'rīt 'wā 'əp }
- rill** A small, transient runnel. { ril }
- rillenstein** A pattern of tiny solution grooves of about 1 millimeter or less in width, formed on the limestone surface of a karstic region. { 'ril·ən·stīn }
- rill erosion** The formation of numerous, closely spaced rills due to the uneven removal of surface soil by streamlets of running water. Also known as rilling; rill wash; rillwork. { 'ril ɪ'rō·zhən }
- rilling** See rill erosion. { 'ril ɪŋ }
- rill mark** A small, dendritic channel formed on beach mud or sand by a rill, especially if on the lee side of a partially buried obstruction. { 'ril·märke }
- rillstone** See ventifact. { 'ril·stōn }
- rill wash** See rill erosion. { 'ril·wəʃ }
- rillwork** See rill erosion. { 'ril·wɜrk }
- rima** A long, narrow aperture, cleft, or fissure. { 'rī·mə }
- rim cement** A thin layer of calcium carbonate, hematite, or silica developed on the surface of detrital grains during diagenesis. { 'rim sɪ·mənt }
- rimmed kettle** A morainal depression with raised edges. { 'rɪmd 'ked·əl }
- rimmed solution pool** A pool in rock with a hardened rim resulting from deposition of lime during evaporation at low tide. { 'rɪmd sə'lū·shən 'pūl }
- rimming wall** A steep, ridgelike erosional remnant of continuous layers of porous permeable, poorly cemented, detrital limestones, believed to form under tropical or subtropical conditions by surface-controlled secondary cementation of an original steep slope and followed by differential erosion that brings the cemented zone into relief. { 'rim ɪŋ 'wɔl }
- rimpylite** A group name for several green and brown hornblendes with high contents of (Al,Fe)₂O₃. { 'rim ɪpə·līt }
- rim ridge** A minor ridge of till defining the edge of a moraine plateau. { 'rim ɪrɪdʒ }
- rimrock** A top layer of resistant rock on a plateau outcropping with vertical or near vertical walls. { 'rim·ræk }
- rimstone** A calcium-containing deposit ringing an overflowing basin such as a hot spring. { 'rim·stōn }
- rim syncline** In salt tectonics, a local depression that develops as a border around a salt dome, as the salt in the underlying strata is displaced toward the dome. Also known as peripheral sink. { 'rim 'sɪn·klɪn }
- rincon** **1.** A small, secluded valley. **2.** A bend in a stream. { rɪŋ'kɔn }
- ring complex** An association of two ring-shaped igneous intrusive forms, ring dikes and cone sheets. { 'rɪŋ ɪkəm·pleks }
- ring depression** The annular structurally depressed area surrounding the central uplift of a cryptoexplosion structure, faulting and folding may be involved in its formation. Also known as peripheral depression; ring syncline. { 'rɪŋ dɪ·presh·ən }
- ring dike** A roughly circular dike that is vertical or inclined away from the center of the arc. Also known as ring-fracture intrusion. { 'rɪŋ ɪdɪk }

ring fault

- ring fault** 1. A fault that bounds a rift valley. 2. A steep-sided fault pattern that is cylindrical in outline and associated with cauldron subsidence. Also known as ring fracture. { 'rɪŋ 'fɔlt }
- ring fissure** A roughly circular desiccation crack formed on a playa around a point source (generally a phreatophyte). { 'rɪŋ 'fɪʃ-ər }
- ring fracture** See ring fault. { 'rɪŋ 'frak-çər }
- ring-fracture stoping** Large-scale magmatic stoping that is associated with cauldron subsidence. { 'rɪŋ 'frak-çər 'stɔp-ɪŋ }
- ringite** An igneous rock formed by the mixing of silicate and carbonatite magmas. { 'rɪŋ-ɪt }
- ring silicate** See cyclosilicate. { 'rɪŋ 'sɪl-ə-kæt }
- ring structure** A formation on the surface of the earth, moon, or a planet, having a ring-shaped trace in plan. { 'rɪŋ 'stræk-çər }
- ring syncline** See ring depression. { 'rɪŋ 'sɪn-klɪn }
- rinkite** See mosandrite. { 'rɪŋ 'kɪt }
- rinkolite** See mosandrite. { 'rɪŋ 'kə-lɪt }
- rinneite** $\text{NaK}_3\text{FeCl}_6$ A colorless, pink, violet, or yellow mineral composed of sodium potassium iron chloride, occurring in granular masses. { 'rɪn-ē-ɪt }
- rip channel** A channel, often more than 2 meters (6.6 feet) deep, carved on the shore by a rip current. { 'rɪp 'çan-əl }
- ripe** Referring to peat, in an advanced state of decay. { 'rɪp }
- ripidolite** $(\text{Mg}, \text{Fe}^{2+})_9\text{Al}_6\text{Si}_5\text{O}_{20}(\text{OH})_{16}$ A mineral of the chlorite group; consists of basic magnesium iron aluminum silicate. Also known as aphrosiderite. { rə'pɪd-əl-ɪt }
- ripple** A very small ridge of sand resembling or suggesting a ripple of water and formed on the bedding surface of a sediment. { 'rɪp-əl }
- ripple bedding** A bedding surface characterized by ripple marks { 'rɪp-əl 'bed-ɪŋ }
- ripple biscuit** A bedding structure produced by lenticular lamination of sand in a bay or lagoon. { 'rɪp-əl 'bɪs-kət }
- ripple drift** A pattern of cross-lamination formed by sedimentary deposits on both sides of a migrating ripple. { 'rɪp-əl 'drɪft }
- ripple index** On a rippled surface, the ratio of the crest-to-crest distance to the crest-to-trough distance. { 'rɪp-əl 'ɪn-deks }
- ripple lamina** An internal sedimentary structure formed in sand or silt by currents or waves, as opposed to a ripple mark formed externally on a surface. { 'rɪp-əl 'lɑm-ə-nə }
- ripple load cast** A load cast of a ripple mark showing evidence of penecontemporaneous deformation in the accumulation of its trough and crest and in the oversteepening of the component laminae. { 'rɪp-əl 'lɔd 'kɑst }
- ripple mark** 1. A surface pattern on incoherent sedimentary material, especially loose sand, consisting of alternating ridges and hollows formed by wind or water action. 2. One of the ridges on a ripple-marked surface. { 'rɪp-əl 'mɑrk }
- ripple scour** A shallow, linear trough with transverse ripple marks { 'rɪp-əl 'skaʊr }
- ripple symmetry index** A measure of the degree of symmetry of a ripple mark, equal to the ratio of the length of the gentle (upcurrent) side to the steep (downcurrent) side. { 'rɪp-əl 'sɪm-ə-trē 'ɪn-deks }
- ripple till** A till sheet containing low, winding smooth-topped ridges lying at right angles to the direction of ice movement, and grouped into narrow belts up to 48 miles (80 kilometers) long that are generally parallel to the direction of ice movement. Also known as ribble. { 'rɪp-əl 'tɪl }
- rise** A long, broad elevation which rises gently from its surroundings, such as the sea floor. { rɪz }
- rise pit** A pit through which an underground stream rises to the surface with a calm and steady flow. { 'rɪz 'pɪt }
- riser** A steeply topographic feature, such as a steep slope between terraces. { 'rɪz-ər }
- Riss** 1. A European stage of geologic time: Pleistocene (above Mindel below Würm). 2. The third stage of glaciation of the Pleistocene in the Alps. { rɪs }

- Riss-Würm** The third interglacial stage of the Pleistocene in the Alps, following the Riss glaciation and preceding the Würm glaciation. { 'ris'virm }
- river bar** A ridgelike accumulation of alluvium in the channel, along the banks, or at the mouth of a river. { 'riv·ər ,bär }
- river basin** The area drained by a river and all of its tributaries. { 'riv·ər ,bās·ən }
- riverbed** The channel which contains, or formerly contained, a river. { 'riv·ər ,bed }
- river bottom** The low-lying alluvial land along a river. Also known as river flat { 'riv·ər ,bād·əm }
- river-deposition coast** A deltaic coast characterized by lobate seaward bulges crossed by river distributaries and bordered by lowlands. { 'riv·ər ,dep·ə'zish·ən ,kōst }
- river drift** Rock material deposited by a river in one place after having been moved from another. { 'riv·ər ,drift }
- river flat** See river bottom. { 'riv·ər ,flat }
- river morphology** The study of the channel pattern and the channel geometry at several points along a river channel, including the network of tributaries within the drainage basin. Also known as channel morphology; fluvimorphology; stream morphology. { 'riv·ər mōr'fāl·ə·jē }
- river plain** See alluvial plain. { 'riv·ər ,plān }
- river run gravel** Natural gravel as found in deposits that have been subjected to the action of running water. { 'riv·ər 'rən ,grav·əl }
- river terrace** See stream terrace. { 'riv·ər ,ter·əs }
- riverwash** **1.** Soil material that has been transported and deposited by rivers. **2.** An alluvial deposit in a river bed or flood channel, subject to erosion and deposition during recurring flood periods. { 'riv·ər ,wāsh }
- ripping** The splitting off, cracking, or fracturing of rock, especially by frost action. { 'riv·iŋ }
- road** One of a series of erosional terraces in a glacial valley, formed as the water level dropped in an ice-dammed lake. { rōd }
- roaring sand** A sounding sand, found on a desert dune, that sets up a low roaring sound that sometimes can be heard for a distance of 1200 feet (400 meters). { 'rōr·iŋ 'sand }
- robinsonite** $Pb_7Sb_{12}S_{25}$ A mineral composed of lead antimony sulfide. { 'rāb·ən sənīt }
- rocdrumlin** See rock drumlin. { 'rākl'drəm·lən }
- roche moutonnée** A small, elongate hillock of bedrock sculptured by a large glacier so that its long axis is oriented in the direction of ice movement; the upstream side is gently inclined, smoothly rounded, but striated, and the downstream side is steep, rough, and hackly. { 'rōch 'müt·ən'jə }
- rock** **1.** A consolidated or unconsolidated aggregate of mineral grains consisting of one or more mineral species and having some degree of chemical and mineralogic constancy. **2.** In the popular sense, a hard, compact material with some coherence, derived from the earth. { rāk }
- rock asphalt** See asphalt rock. { 'rāk 'as·fōlt }
- rock association** A group of igneous rocks within a petrographic province that are related chemically and petrographically, generally in a systematic manner such that chemical data for the rocks plot as smooth curves on variation diagrams. Also known as rock kindred. { 'rāk ə'sō·shē'liā·shən }
- rock bar** See riegel. { 'rāk ,bär }
- rock bench** See structural bench. { 'rāk ,bench }
- rockbridgeite** $Fe^{2+}Fe_6^{3+}(PO_4)_4(OH)_x$ A basic phosphate mineral containing iron, isomorphous with frondelite. { 'rāk ,brī·jīt }
- rock-bulk compressibility** One of three types of rock compressibility (matrix, bulk, and pore); the fractional change in volume of the bulk volume of the rock with a unit change in pressure. { 'rāk 'bālk kəm'pres·ə'bil·əd·ē }
- rock cave** See shelter cave. { 'rāk ,kāv }
- rock cleavage** The capacity of a rock to split along certain parallel surfaces more easily than along others. { 'rāk ,klē·vij }

rock control

- rock control** The influences of differences in earth materials on development of landforms. { 'ræk kən·trōl }
- rock cork** See mountain cork. { 'ræk ,kɔrk }
- rock creep** A form of slow flowage in rock materials evident in the downhill bending of layers of bedded or foliated rock and in the slow downslope migration of large blocks of rock away from their parent outcrop. { 'ræk ,krēp }
- rock crystal** A transparent, colorless form of quartz with low brilliance, used for lenses, wedges, and prisms in optical instruments. Also known as berg crystal; crystal; mountain crystal; pebble; quartz crystal. { 'ræk ,krist·əl }
- rock cycle** The interrelated sequence of events by which rocks are initially formed, altered, destroyed, and reformed as a result of magmatism, erosion, sedimentation, and metamorphism. { 'ræk ,sī·kəl }
- rock-defended terrace** **1.** A river terrace having a ledge or outcrop of resistant rock at its base which serves as protection against undermining. **2.** A marine terrace having a mass of resistant rock at the base of the cliff which protects against wave erosion. { 'ræk dɪfən·dəd 'ter·əs }
- rock desert** An upland desert in which bedrock is either exposed or is covered with a thin veneer of coarse rock fragments. { 'ræk ,dez·ərt }
- rock drum** See rock drumlin. { 'ræk ɪdrəm }
- rock drumlin** A smooth, streamlined hill modeled by glacial erosion, which has a core of bedrock usually veneered with a layer of glacial till and which resembles a true drumlin in outline and form but is generally less symmetrical and less regularly shaped. Also known as drumlinoid; false drumlin; rocdrumlin; rock drum. { 'ræk ɪdrəm·lən }
- rock element** The coherent, intact piece of rock that is the basic constituent of the rock system and which has physical, mechanical, and petrographic properties that can be described or measured by laboratory tests. { 'ræk ,el·ə·mənt }
- rock fabric** See fabric. { 'ræk ,fab·rɪk }
- rock failure** Fracture of a rock that has been stressed beyond its ultimate strength. { 'ræk ,fæl·yər }
- rockfall** **1.** The fastest-moving landslide, free fall of newly detached bedrock segments from a cliff or other steep slope; usually occurs during spring thaw. **2.** The rock material moving in or moved by a rockfall. { 'ræk ,fɔl }
- rock fan** A fan-shaped bedrock surface whose apex is where a mountain stream debouches upon a piedmont slope, and which occupies an area where a pediment meets the mountain slope. { 'ræk ,fan }
- rock-floor robbing** A form of sheetflood erosion in which sheetfloods remove crumbling debris from rock surfaces in desert mountains. { 'ræk ɪflɔr ,ræb·ɪŋ }
- rock flour** A fine, chemically unweathered powder of rock-forming minerals produced by pulverization of rock fragments during natural transport or crushing. Also known as glacial flour. { 'ræk ,flaʊ·ər }
- rock flowage** See flow. { 'ræk ,flō·ɪj }
- rockforming** Referring to any minerals which commonly occur in important proportions in common rocks. { 'ræk ,fɔrm·ɪŋ }
- rock fragment** A component of a sedimentary rock consisting of polymineralic or polygranular sand grains that are abraded particles of igneous, sedimentary, or metamorphic rocks. { 'ræk ,frag·mənt }
- rock glacier** Boulders and fine material cemented by ice about a meter below the surface. Also known as talus glacier. { 'ræk ,glā·shər }
- rock-glacier creep** A rapid talus creep of tongues of debris in a cold region, caused by the expansive force of the alternate freeze and thaw of ice in the interstices of the debris. { 'ræk ɪglā·shər ,krēp }
- rock gypsum** Massive, coarsely crystalline to earthy, finely granular type of gypsum found in gyp rock. { 'ræk ,jɪp·səm }
- rocking stone** A stone or boulder, often of great size, so finely poised upon its foundation (as on the side of a hill or cliff) that it can be moved slightly backward and forward with little force (as with the hand) and still retain its original position. Also known as roggan. { 'ræk·ɪŋ ,stɔn }

- rock island** See meander core. { 'rāk ·ī·lənd }
- rock kindred** See rock association. { 'rāk ·kin·drəd }
- rock matrix compressibility** One of three types of rock compressibility (matrix, bulk, and pore); the fractional change in volume of the solid rock material (grains) with a unit change in pressure. { 'rāk ·īmā·triks kəm·pres·ə'bil·əd·ē }
- rock meal** See rock milk. { 'rāk ·mēl }
- rock milk** A soft, white, earthy or powdery variety of calcite. Also known as agaric mineral; bergmehl; forril farina; rock meal. { 'rāk ·milk }
- rock pedestal** See pedestal. { 'rāk ·ped·ə·stəl }
- rock pediment** A pediment formed on the surface of bedrock. { 'rāk ·ped·ə·mənt }
- rock permeability** The ability of a rock to receive, hold, or pass fluid materials (oil, water, and gas) by nature of the interconnections of its internal porosity. { 'rāk ·pər·mē·ə'bil·əd·ē }
- rock pillar** **1.** A column of rock produced by differential weathering or erosion, as along a joint plane. **2.** In a cave, a pillar-type structure that is residual bedrock rather than a stalacto-stalagmite. { 'rāk ·pil·ər }
- rock pool** A tidal pool formed along a rocky shoreline. { 'rāk ·pūl }
- rock river** A very long and narrow rock stream. { 'rāk ·riv·ər }
- rock salt** See halite. { 'rāk ·sɔlt }
- rock shelter** A cave that is formed by a ledge of overhanging rock. { 'rāk ·shel·tər }
- rock silk** A silky variety of asbestos. { 'rāk ·silk }
- rockslide** The sudden, rapid downward movement of newly detached bedrock segments over a surface of weakness, such as of bedding, jointing, or faulting. Also known as rock slip. { 'rāk·slīd }
- rock slip** See rockslide. { 'rāk ·slip }
- rock stack** A rocky crag that has been uplifted from an old sea floor. { 'rāk ·stak }
- rock step** See knickpoint. { 'rāk ·step }
- rock-stratigraphic unit** A lithologically homogeneous body of strata characterized by certain observable physical features, or by the dominance of a certain rock type or combination of rock types; rock-stratigraphic units include groups, formations, members, and beds. Also known as geolith; lithologic unit; lithostratigraphic unit; lithostratigraphic unit; rock unit. { 'rāk ·strəd·ə'graf·ik 'yü·nət }
- rock stream** Rocks moving (or already moved) in a mass down a slope under the influence of their own weight. { 'rāk ·strēm }
- rock terrace** A stream terrace on the side of a valley composed of resistant bedrock which remains during erosion of weaker overlying and underlying beds. { 'rāk ·ter·əs }
- rock type** **1.** One of the three major rock groups: igneous, sedimentary, metamorphic. **2.** A rock having a unique, identifiable set of characters, such as basalt. { 'rāk ·tīp }
- rock unit** See rock-stratigraphic unit. { 'rāk ·yü·nət }
- rock varnish** See desert varnish. { 'rāk ·vər·nish }
- rock wood** See mountain wood. { 'rāk ·wūd }
- rod** A rodlike sedimentary particle characterized by a width-length ratio less than 2/3 and a thickness-width ratio more than 2/3. Also known as roller. { 'räd }
- rodding** In metamorphic rocks, a linear structure in which the stronger parts, such as vein quartz or quartz pebbles, have been shaped into parallel rods. { 'räd·iŋ }
- rodingite** A medium- to coarse-grained, commonly calcium-enriched gabbroic rock containing grossular and diallage as essential minerals. { 'röd·iŋ·gīt }
- rodite** See diogenite. { 'röd·dīt }
- roedderite** $(\text{Na,K})_2(\text{Mg,Fe})_5\text{Si}_{12}\text{O}_{30}$ A silicate meteorite mineral. { 'räd·ə·rīt }
- roemerite** $\text{FeFe}_2(\text{SO}_4)_4 \cdot 14\text{H}_2\text{O}$ A rust-brown to yellow mineral composed of hydrous ferric and ferrous iron sulfate. { 'rām·ə·rīt }
- roesslerite** $\text{MgH}(\text{AsO}_4) \cdot 7\text{H}_2\text{O}$ A monoclinic mineral composed of hydrous acid magnesium arsenate; it is isomorphous with phosphoroeslerite. { 'res·lə·rīt }
- roestone** See oolite. { 're·stōn }
- rofla** An extremely narrow, tortuous gorge, frequently formed by meltwater streams flowing from a glacier. { 'rō·flə }

rogenstein

- rogenstein** An oolite in which the oolites are united by argillaceous cement. { 'rō·gən·stīn }
- roggan** See *rocking stone*. { 'ræg·ən }
- roll** A primary sedimentary structure produced by deformation involving subaqueous slump or vertical foundering. { rōl }
- roller** See *rod*. { 'rō·lər }
- rolling beach** At the base of a sea cliff, the upper part of an accumulation of boulder sand pebbles which is being ground to sand and finer particles. { 'rōl·iŋ 'bēch }
- Romanche trench** A 24,320-foot-deep (7370-meter) trench in the Mid-Atlantic Ridge near the equator. { rō'mänsh 'trench }
- romeite** $(Ca,Fe,Mn,Na)_2(Sb,Ti)_2O_6(O,OH,F)$ A honey-yellow to yellowish-brown mineral composed of oxide of calcium, iron, manganese, sodium, antimony, and titanium, occurring in minute octahedrons. { 'rō·mē·īt }
- rongstockite** A medium- to fine-grained plutonic rock composed of zoned plagioclase, orthoclase, some cancrinite, augite, mica, hornblende, magnetite, sphene, and apatite. { rəŋ'stä·kīt }
- roof** **1.** The rock above an orebody. **2.** The country rock bordering the upper surface of an igneous intrusion. { ruf }
- roofed dike** A dike that has an upward termination. { 'rūft 'dik }
- roof foundering** Collapse of overlying rock into a magma chamber following excavation of a large quantity of magma. { 'rūf 'faʊn·drɪŋ }
- roof pendant** Downward projection or sag into an igneous intrusion of the country rock of the roof. Also known as *pendant*. { 'rūf 'pen·dənt }
- room** An open area in a cave. { rūm }
- rooseveltite** $BiAsO_3$ A gray mineral consisting of bismuth arsenate, occurs as thin botryoidal crusts. { 'rōz·vəl·tīt }
- root** **1.** The lower limit of an ore body. Also known as *bottom*. **2.** The part of a fold nappe that was originally linked to its root zone. { rūt }
- root cast** A slender, tubular, near-vertical, and commonly downward-branching sedimentary structure formed by the filling of a tubular opening left by a root. Also known as *rhizoconcretion*. { 'rūt 'kast }
- root clay** See *underclay*. { 'rūt 'klā }
- rootless vent** A source of lava that is not directly connected to a volcanic vent or magma source. { 'rūt·ləs 'vent }
- ropy lava** See *pahoehoe*. { 'rō·pē 'lä·və }
- root sheath** A hollow root cast. { 'rūt 'shēth }
- root zone** **1.** The area where a low-angle thrust fault steepens and descends into the crust. **2.** The source of the root of a fold nappe. { 'rūt 'zōn }
- rosasite** $(Cu,Zn)_2(OH)_2(CO_3)$ A green to bluish-green and sky blue mineral consisting of a carbonate-hydroxide of copper and zinc. { 'rōz·ə'sīt }
- roscherite** $(Ca,Mn,Fe)_2Al(PO_4)(OH) \cdot 2H_2O$ A dark-brown mineral composed of hydrous basic phosphate of aluminum, calcium, manganese, and iron, occurring as monoclinic crystals. { rəsh·ə'rīt }
- roscoelite** $K(V,Al,Mg)_3Si_3O_{10}(OH)_2$ Tan, grayish-brown or greenish-brown vanadium-bearing mica mineral occurring in minute scales or flakes. { 'rä·skō·līt }
- rose diagram** A circular graph indicating values in several classes of vector properties of rocks such as *cross-bedding direction*. { 'rōz 'dī·ə·gram }
- roselite** $(Ca,Co)_2(Co,Mg)(AsO_4) \cdot 2H_2O$ A pink or rose-colored, monoclinic mineral consisting of a hydrated arsenate of calcium, cobalt, and magnesium. { 'rōz·ə·līt }
- rose opal** An opaque variety of common opal having a fine red color. { 'rōz 'ō·pəl }
- rose quartz** A pink variety of crystalline quartz; commonly massive and used as a gemstone. Also known as *Bohemian ruby*. { 'rōz 'kwɔrts }
- rosette** Rose-shaped, crystalline aggregates of barite, marcasite, or pyrite formed in sedimentary rock. { rō'zet }
- rosieresite** A yellow to brown mineral composed of hydrous aluminum phosphate containing lead and copper, occurring in stalactitic masses. { 'rōzē'er·ə'sīt }
- rosin tin** A red or yellow variety of cassiterite. Also known as *resin tin*. { 'räz·ən 'tɪn }
- Rosiwal analysis** A quantitative method of estimating the volume percentages of the

minerals in a rock, in which thin sections of a rock are examined under a microscope which has a micrometer to measure the linear intercepts of each mineral along a particular set of lines. { 'rāz·ə·wəl ə·nal ə·səs }

rossite $\text{CaV}_2\text{O}_6 \cdot 4\text{H}_2\text{O}$ A yellow, triclinic mineral consisting of a hydrated calcium vanadate. { 'rò·sīt }

rosterite See vorobyevite. { 'rā·stə·rīt }

rosthornite A brown to garnet-red variety of retinite with a low (4.5) oxygen content found in lenticular masses in coal. { 'rās·thər·nīt }

rotary fault A fault in which displacement is downward at one point and upward at another point. Also known as pivotal fault; rotational fault. { 'röd·ə·rē 'fölt }

rotational bomb A bomb whose shape is formed by spiral motion or rotation during flight. { rō'tā·shən·əl 'bām }

rotational fault See rotary fault. { rō'tā·shən·əl 'fölt }

rotational landslide A landslide in which shearing takes place on a well-defined curved shear surface, concave upward in cross section, producing a backward rotation in the displaced mass. { rō'tā·shən·əl 'lan·slīd }

rotational movement Apparent fault-block displacement in which the blocks have rotated relative to one another, so that alignment of formerly parallel features is disturbed. { rō'tā·shən·əl 'mūv·mənt }

Rotliegende A European series of geologic time Lower and Middle Permian { 'röt·lē·gən·də }

rotten spot See pothole. { 'rät·ən 'spät }

rougemontite A coarse-grained igneous rock composed of anorthite, titanite, and small amounts of olivine and iron ore. { 'rūzh·män·tīt }

roundness The degree of abrasion of sedimentary particles, expressed as the radius of the average radius of curvature of the edges or corners to the radius of curvature of the maximum inscribed sphere. { 'raund·nəs }

roundstone Any naturally rounded rock fragment of any size larger than a sand grain (diameter greater than 2 millimeters), such as a boulder, cobble, pebble, or granule. { 'raund·stōn }

routivarite A fine-grained igneous rock containing orthoclase, plagioclase, quartz, and garnet. { 'rūd·əl·vā·rīt }

rouvillite A light-colored thevalite composed predominantly of labradorite and nepheline, with small amounts of titanite, hornblende, pyrite, and apatite. { 'rūv·əl·īt }

rouvite $\text{CaU}_2\text{V}_2\text{O}_{16} \cdot 20\text{H}_2\text{O}$ A purplish- to bluish-black mineral consisting of a hydrated vanadate of calcium and uranium; occurs as dense masses, crusts, and coatings. { 'rū·vīt }

roweite $(\text{Mn},\text{Mg},\text{Zn})\text{Ca}(\text{BO}_2)_2(\text{OH})_2$ A light-brown mineral composed of basic borate of calcium, manganese, magnesium, and zinc. { 'rō·rīt }

R tectonite A tectonite in which the fabric is believed to have resulted from rotation. { 'ār 'tek·tə·nīt }

rubble **1.** A loose mass of rough, angular rock fragments, coarser than sand. **2.** See talus. { 'rəb·əl }

rubble drift **1.** A rubbly deposit (or congeliturbate) formed by solifluction under periglacial conditions. **2.** A coarse mass of angular debris and large blocks set in an earthy matrix of glacial origin. { 'rəb·əl 'drift }

rubble tract The part of the reef flat immediately behind and on the lagoon side of the reef front, paved with cobbles, pebbles, blocks, and other coarse reef fragments. { 'rəb·əl 'trakt }

rubellite The red to red-violet variety of the gem mineral tourmaline; hardness is 7-7.5 on Mohs scale, and specific gravity is near 3.04. { 'rū·bə·līt }

rubicelle A yellow or orange-red gem variety of spinel. { 'rū·bə·səl }

rubidium-strontium dating A method for determining the age of a mineral or rock based on the decay rate of rubidium-87 to strontium-87. { rū'bid·ē·əm 'strān·chəm 'dād·ɪŋ }

ruby The red variety of the mineral corundum, in its finest quality, the most valuable of gemstones. { 'rū·bē }

ruby copper ore

ruby copper ore See cuprite. { 'rū·bē 'kăp·ər lôr }

ruby mica The finest grade of Indian mica; used for electrical capacitors. { 'rū·bē 'mī·kə }

ruby silver Either of two red silver sulfide minerals pyrroryrite (dark-ruby silver) and proustite (light-ruby silver). { 'rū·bē 'sil·vər }

ruby spinel A clear-red gem variety of spinel, containing small amounts of chromium and having the color but none of the other attributes of true ruby. { 'rū·bē spə'nel }

ruby zinc See zincite. { 'rū·bē 'ziŋk }

rudaceous Of or pertaining to a sedimentary rock composed of a large quantity of fragments that are larger than sand grains (diameter greater than 2 millimeters). { rü'dā·shəs }

rudite A sedimentary rock composed of fragments coarser than sand grains. { 'rū·dīt }

ruffle A ripple mark produced by an eddy. { 'rəf·əl }

ruffled groove cast A groove cast with a feather pattern, consisting of a groove with lateral wrinkles that join the main cast in the downcurrent direction at an acute angle. { 'rəf·əld 'igrüv 'kəst }

ruggedness number A dimensionless number that expresses the geometric characteristics of a drainage system; derived from the product of maximum basin relief and drainage density within the drainage basin. { 'rəg·əd·nəs 'nəm·bər }

ruin agate A brown variety of agate displaying, on a polished surface markings that resemble or suggest the outlines of ruins or ruined buildings. { 'rū·ən 'ag·ət }

ruin marble A brecciated limestone that, when cut and polished, gives a mosaic effect suggesting the appearance of ruins or ruined buildings. { 'rū·ən 'măr·bəl }

rule of V's The outcrop of a formation that crosses a valley forms an acute angle (a V) that points in the direction in which the formation lies underneath the stream. { 'rül əv 'vēz }

run **1.** A ribbonlike, flat-lying, irregular orebody following the stratification of the host rock. **2.** A branching or fingerlike extension of the feeder of an igneous intrusion. { rən }

runnel A troughlike hollow on a tidal sand beach which carries water drainage off the beach as the tide retreats. { 'rən·əl }

running sand See quicksand. { 'rən·iŋ 'sənd }

runway The channel of a stream. { 'rən·wā }

Rupelian A European stage of middle Oligocene geologic time above the Tongrian and below the Chattian. Also known as Stampian. { rü'pel·yən }

rupture See fracture. { 'rəp·chər }

rupture zone The region immediately adjacent to the boundary of an explosion crater, characterized by excessive in-place crushing and fracturing where the stresses produced by the explosion have exceeded the ultimate strength of the medium. { 'rəp·chər 'zōn }

russellite Bi_2WO_6 A pale yellow to greenish, tetragonal mineral consisting of an oxide of bismuth and tungsten; occurs as fine-grained compact masses. { 'rəs·ə·līt }

rusting The formation of red, yellow, or brown iron oxide minerals by oxidation of mineral deposits. { 'rəst·iŋ }

rutherfordine $(\text{UO}_2)(\text{CO}_3)$ A yellow mineral composed of uranyl carbonate, occurring as masses of fibers. { 'rəθ·ər·fər·dēn }

rutiled quartz Sagenitic quartz characterized by the presence of enclosed needlelike crystals of rutile. Also known as Venus hairstone. { 'rüd·əl·ād·əd 'kwórts }

rutile TiO_2 A reddish-brown tetragonal mineral common in acid igneous rocks, in metamorphic rocks, and as residual grain in beach sand. { 'rüt·ēl }

rutterite A medium-grained, equigranular, dark-pink plutonic rock composed chiefly of microperthite, microcline, and albite, with small amounts of nepheline, biotite, amphibole, graphite, and magnetite. { 'rəd·ə·rīt }

S

- Saalic orogeny** A short-lived orogeny that occurred early in the Permian period between the Autunian and Saxonian stages. { 'sä·lik ó'räj·ə·nē }
- sabach** See caliche. { 'sä'bāk }
- Sabinas** A North American (Gulf Coast) provincial series in Upper Jurassic geologic time, below the Coahuilan. { sə'bēn·əs }
- sabkha** See sebkha. { 'sab·kə }
- sabulous** See arenaceous. { 'sab·yə·ləs }
- saccharoidal** The texture of a rock that is crystalline or granular. Also known as sucrosic; sugary. { 'sak·ə'l·rōid·əl }
- saccus** See vesicle. { 'sak·əs }
- sackungen** Deep-seated rock creep which has produced a ridge-top trench by gradual settlement of a slablike mass into an adjacent valley. { 'səkūŋ·ən }
- saddle** **1.** A gap that is broad and gently sloping on both sides. **2.** A relatively flat ridge that connects the peaks of two higher elevations. **3.** That part along the surface axis or axial trend of an anticline that is a low point or depression. { 'sad·əl }
- saddleback** A hill or ridge with a concave outline along its crest. { 'sad·əl·bək }
- saddle fold** A flexural fold perpendicular to the parent fold and having an additional flexure at its crest. { 'sad·əl·föld }
- saddle point** See col. { 'sad·əl·pōint }
- saddle reef** A mineral deposit associated with the crest of an anticlinal fold and following the bedding plane, usually found in vertical succession. Also known as saddle vein. { 'sad·əl·rēf }
- saddle vein** See saddle reef. { 'sad·əl·vān }
- safflorite** CoAs₂. A cobalt arsenide mineral that occurs in tin-white masses, and is dimorphous with smaltite; found in Canada, Morocco, and the United States. { 'saf·lə·rīt }
- sag** **1.** A pass or gap in a ridge or mountain range shaped like a saddle. **2.** A shallow depression in a relatively flat land surface. **3.** A regional basin with gently sloping sides. { sag }
- sagenite** A variety of rutile that is acicular and occurs in reticulated twin groups of crystals crossing at 60°. { 'saj·ə·nīt }
- sagenitic** Containing acicular minerals. { 'saj·ə·nīd·ik }
- sag pond** A small body of water occupying an enclosed depression or sag formed where active or recent fault movement has impounded drainage. Also known as fault-trough lake; rift lake; rift-valley lake. { 'sag·pänd }
- sahlinite** Pb₁₁(AsO₄)₂O₂Cl₂. A pale sulfur-yellow, monoclinic mineral consisting of a basic chloride-arsenate of lead, occurs in aggregates of small scales. { 'sä·lə·nīt }
- sahlite** See salite. { 'sä·līt }
- Saint Peter sandstone** An artesian aquifer of early Lower Paleozoic age which underlies part of Minnesota, Wisconsin, Iowa, Illinois, and Indiana. { 'sānt 'pēd·ər 'san·stōn }
- Sakmarian** A European stage of geologic time the lowermost Permian, above Stephanian of Carboniferous and below Artinskian. { 'sək'mär·ē·ən }
- sal** See sial. { sal }
- Salado formation** A red-bed formation from the Permian found in southeast New Mexico; contains rock salt and potash salts. { sə'lä·dō fōr·mā·shən }

salammoniac

- salammoniac** NH_4Cl A white, isometric, crystalline mineral composed of native ammonium chloride. {ˌsəl·əˈmō·nē·ək }
- salband** See selvage. {ˈsəl·bænd }
- salcrete** A thin, hard crust of salt-cemented sand grains, occurring on a marine beach that is occasionally or periodically saturated by saline water. {ˈsəl·krēt }
- saléite** $\text{Mg}(\text{UO}_2)_2(\text{PO}_4)_2 \cdot 10\text{H}_2\text{O}$ A lemon-yellow mineral composed of hydrous phosphate of magnesium and uranium. {səˈlā·īt }
- salesite** $\text{Cu}(\text{IO}_3)(\text{OH})$ A bluish-green mineral composed of basic iodate of copper {ˈsāl·zīt }
- salfermic rock** An igneous rock in which the ratio of salic to femic minerals is greater than 3:5 and less than 5:3. {salˈfē·mik ˈrāk }
- salic** **1.** A soil horizon enriched with secondary salts, at least 2 percent, and measuring at least 6 inches (15 centimeters) in thickness. **2.** Pertaining to certain light-colored minerals, such as quartz and feldspars, that are rich in silica or magnesium and commonly occur in igneous rock. {ˈsəl·ik }
- salient** **1.** A landform that projects or extends outward or upward from its surroundings. **2.** An area in which the axial traces of folds are convex toward the outer edge of the folded belt. {ˈsāl·yənt }
- saliferous stratum** A stratum that contains, produces, or is impregnated with salt. Also known as saliniferous stratum. {səˈlɪf·ə·rəs ˈstrəd·əm }
- salina** An area, such as a salt flat, in which deposits of crystalline salts are formed or found. {səˈlɪ·nə }
- salinastone** A sedimentary rock composed mostly of saline minerals which are usually precipitated but may be fragmental. {səˈlɪ·nə·stōn }
- saline-alkali soil** A salt-affected soil with a content of exchangeable sodium greater than 15, with much soluble salts, and with a pH value usually less than 9.5. {ˈsāl·ɪn ˈal·kə·lī ˈsɔɪl }
- salinelle** A mud volcano erupting saline mud. {ˌsə·ləˈnel }
- saline soil** A nonalkali, salt-affected soil with a high content of soluble salts, with exchangeable sodium of less than 15, and with a pH value less than 8.5. {ˈsāl·ɪn ˈsɔɪl }
- saliniferous stratum** See saliferous stratum. {ˌsəl·əˈnɪf·ə·rəs ˈstrəd·əm }
- salinization** In a soil of an arid, poorly drained region, the accumulation of soluble salts by the evaporation of the waters that bore them to the soil zone. {ˌsəl·ən·əˈzā·shən }
- salite** $(\text{Mg},\text{Fe})_2\text{Si}_2\text{O}_6$ A grayish-green to black mineral variety of diopside containing more magnesium than iron; member of the clinopyroxene group. Also spelled sahlite. {ˈsəl·ɪt }
- salitrite** A lamprophyre composed chiefly of titanite and diopside with acmite, accessory apatite, microcline, and occasionally anorthoclase and baddeleyite. {ˈsəl·ə·ˈtrɪt }
- salmosite** A buff-colored mineral composed of hydrous phosphate of manganese and iron occurring in cleavable masses. {ˈsəm·ən·zīt }
- salt-affected soil** A general term for a soil that is not suitable for the growth of crops because of an excess of salts, exchangeable sodium, or both. {ˈsɔlt ɪf·ek·təd ˈsɔɪl }
- salt-and-pepper sand** A sand composed of a mixture of light- and dark-colored grains. {ˈsɔlt ən ɪp·ep·ər ˈsænd }
- salt anticline** A structure like a salt dome but with a linear salt core. Also known as salt wall. {ˈsɔlt ˈant·ɪ·klɪn }
- saltation** Transport of a sediment in which the particles are moved forward in a series of short intermittent bounces from a bottom surface. {sɔltˈtā·shən }
- saltation load** The part of the bed load that is bouncing along the stream bed or is moved, directly or indirectly, by the impact of bouncing particles. {sɔltˈtā·shən ˈlɔd }
- salt bottom** A flat piece of relatively low-lying ground encrusted with salt {ˈsɔlt ˈbɔd·əm }
- salt burst** Rock destruction caused by crystallization of soluble salts that enter the pores. {ˈsɔlt ˈbɜrst }

- salt dome** A diapiric or piercement structure in which there is a central, equidimensional salt plug. { 'sölt 'döm }
- salt-dome breccia** A breccia found in deep shale sequences and occurring as a dome-shaped mass in a broad zone surrounding a salt plug. { 'sölt 'döm 'brech·ə }
- salt field** An area overlying a usually workable salt deposit of economic value. { 'sölt 'fēld }
- salt flat** The level, salt-encrusted bottom of a lake or pond that is temporarily or permanently dried up. { 'sölt 'flat }
- salt glacier** A gravitational flow of salt down the slopes of a salt plug, following the preexisting structure. { 'sölt 'glā·shər }
- salt hill** An abrupt hill of salt, with sinkholes and pinnacles at its summit. { 'sölt 'hil }
- saltierra** A deposit of salt left by evaporation of a shallow salt lake. { 'sal·tē'ər·ə }
- salt pan** 1. An undrained, usually small and shallow, natural depression or hollow in which water accumulates and evaporates, leaving a salt deposit. 2. A shallow lake of brackish water occupying such a depression. { 'sölt 'pan }
- saltpetr cave** A cave in which there are deposits of saltpeter earth. { 'sölt'pēd·ər 'kāv }
- saltpetr earth** A deposit containing calcium nitrate and found in caves. { 'sölt'pēd·ər 'ærth }
- salt pillow** An embryonic salt dome rising from its source bed, still at depth. { 'sölt 'pil·ō }
- salt pit** A pit in which sea water is received and evaporated and from which salt is obtained. { 'sölt 'pit }
- salt plug** The salt core of a salt dome. { 'sölt 'plæg }
- salt polygon** A surface of salt on a playa, having three to eight sides marked by ridges of material formed as a result of the expansive forces of crystallizing salt, and ranging in width from an inch or so to 100 feet (30 meters). { 'sölt 'pāl·igän }
- salt stock** An immature salt dome comprising a pluglike salt diapir that has pierced the overlying strata. { 'sölt 'stāk }
- salt tectonics** The study of the structure and mechanism of emplacement of salt domes. Also known as halokinesis. { 'sölt tek'tän·iks }
- salt wall** See salt anticline. { 'sölt 'wöll }
- salt weathering** The granular disintegration or fragmentation of rock material produced by saline solutions or by salt-crystal growth. { 'sölt 'weth·ə·rɪŋ }
- samarските** (Y,Ce,U,Ca Fe,Pb,Th)(Nb,Ta,Ti,Sn)₂O₆ A velvet-black to brown metamict orthorhombic mineral with splendid vitreous to resinous luster occurring in granite pegmatites. Also known as ampangabeite; urantantalite. { sə'mär'skīt }
- sampleite** NaCaCu₃(PO₄)₄Cl·5H₂O A blue mineral composed of hydrous phosphate and chloride of sodium, calcium, and copper. { 'sam·pə'lit }
- samsonite** Ag₃MnSb₇S₆ A black mineral composed of sulfide of silver, manganese, and antimony occurring in monoclinic prismatic crystals. { 'sam·sə'nīt }
- sanakite** A glassy andesite composed of bronzite, augite, magnetite, and a few large plagioclase and garnet crystals. { 'san·ə'kīt }
- sanbornite** BaSi₃O₉ A white triclinic mineral composed of barium silicate. { 'san·bör'nīt }
- sand** A loose material consisting of small mineral particles, or rock and mineral particles, distinguishable by the naked eye; grains vary from almost spherical to angular, with a diameter range from 1/16 to 2 millimeters. { sand }
- sand apron** A deposit of sand along the shore of a lagoon of a reef. { 'sand 'ā·prən }
- sandarac** See realgar. { 'san·də'rak }
- sand avalanche** Movement of large masses of sand down a dune face when the angle of repose is exceeded or when the dune is disturbed. { 'sand 'av·ə'lanch }
- sandbag** In the roof of a coal seam, a deposit of glacial debris formed by scour and fill subsequent to coal formation. { 'san·bæg }
- sandbank** A deposit of sand forming a mound. hillside bar or shoal. { 'san·bänk }
- sandbar** A bar or low ridge of sand bordering the shore and built up, or near, to the surface of the water by currents or wave action. Also known as sand reef. { 'san·bär }

sandblasting

- sandblasting** Abrasion affected by the action of hard, windblown mineral grains. { 'san·blast·ɪŋ }
- sand cay** See sandkey. { 'san ˌkē }
- sand cone** **1.** A cone-shaped deposit of sand, produced especially in an alluvial cone. **2.** A low debris cone whose protective veneer consists of sand. { 'san ˌkōn }
- sand crystal** A large crystal loaded up to 60% with detrital sand inclusions formed in a sandstone during or as a result of cementation. { 'san ˌkrist·əl }
- sand dike** A sedimentary dike consisting of sand that has been squeezed or injected upward into a fissure. { 'san ˌdīk }
- sand drift** **1.** Movement of windblown sand along the surface of a desert or shore. **2.** An accumulation of sand against the leeward side of a fixed obstruction. { 'san ˌdrɪft }
- sand drip** A rounded or crescentic surface form on a beach sand, resulting from the sudden absorption of overwash. { 'san ˌdrɪp }
- sand dune** A mound of loose windblown sand commonly found along low-lying seashores above high-tide level. { 'san ˌdūn }
- sandfall** See slip face. { 'san ˌfɒl }
- sand flat** A sandy tidal flat barren of vegetation. { 'san ˌflæt }
- sand flood** A vast body of sand moving or borne along a desert, as in the Arabian deserts. { 'san ˌfləd }
- sand gall** See sand pipe. { 'san ˌgɒl }
- sand glacier** **1.** An accumulation of sand that is blown up the side of a hill or mountain and through a pass or saddle, and then spread out on the opposite side to form a wide, fan-shaped plain. **2.** A horizontal plateau of sand terminated by a steep talus slope. { 'san ˌglā·shər }
- sand hill** A ridge of sand, especially a sand dune in a desert region. { 'san ˌhɪl }
- sand hole** A small pit (7-8 millimeters in depth and a little less wide than deep) with a raised margin, formed on a beach by waves expelling air from a formerly saturated mass of sand. { 'san ˌhɒl }
- sand horn** A pointed sand deposit extending from the shore into shallow water. { 'san ˌhɔrn }
- sandkey** A small sandy island parallel with the shore. Also known as sand cay. { 'san·kē }
- sand levee** See whaleback dune. { 'san ˌlev·ē }
- sand lobe** A rounded sand deposit extending from the shore into shallow water. { 'san ˌləb }
- sand pavement** A sandy surface derived from coarse-grained sand ripples, developed on the lower, windward slope of a dune or rolling sand area during a period of intermittent light, variable winds. { 'san ˌpāv·mənt }
- sand pipe** A pipe formed in sedimentary rocks, filled with considerable sand and some gravel. Also known as sand gall. { 'san ˌpɪp }
- sand plain** A small outwash plain formed by deposition of sand transported by meltwater streams flowing from a glacier. { 'san ˌplān }
- sand reef** See sandbar. { 'san ˌrēf }
- sand ridge** **1.** Any low ridge of sand formed at some distance from the shore, and either submerged or emergent, such as a longshore bar or a barrier beach. **2.** One of a series of long, wide, extremely low, parallel ridges believed to represent the eroded stumps of former longitudinal sand dunes. **3.** A crescent-shaped landform found on a sandy beach, such as a beach cusp. **4.** See sand wave. { 'san ˌrɪdʒ }
- sand river** A river that deposits much of its sand load along its middle course, to be subsequently removed by the wind. { 'san ˌrɪv·ər }
- sandrock** A field term for a sandstone that is not firmly cemented. { 'san ˌræk }
- sand roll** See pseudonodule. { 'san ˌrɒl }
- sand run** **1.** A fluidlike motion of dry sand. **2.** A mass of dry sand in motion. { 'san ˌrən }
- sand sea** **1.** An extensive assemblage of sand dunes of several types in an area where a great supply of sand is present; characterized by an absence of travel lines, or directional indicators, and by a wavelike appearance of dunes separated by troughs.

- 2.** The flat, rain-smoothed plain of volcanic ash and other pyroclastics on the floor of a caldera. { 'san 'sē }
- sand shadow** A lee-side accumulation of sand, as a small turret-shaped dune formed in the shelter of, and immediately behind, a fixed obstruction, such as clumps of vegetation. { 'san 'shad·ō }
- sandshale** A sedimentary deposit consisting of thin alternating beds of sandstone and shale. { 'san'shāl }
- sand-shale ratio** The ratio between the thickness or percentage of sandstone and that of shale in a geologic section. { 'san 'shāl 'rā·shō }
- sand sheet** A thin accumulation of coarse sand or fine gravel having a flat surface { 'san 'shēt }
- sandspit** A spit consisting principally of sand. { 'san'spīt }
- sand splay** A floodplain splay consisting of coarse sand particles { 'san 'splā }
- sandstone** A detrital sedimentary rock consisting of individual grains of sand-size particles 0.06 to 2 millimeters in diameter either set in a fine-grained matrix (silt or clay) or bonded by chemical cement. { 'san'stōn }
- sandstone dike** A dike made of sandstone or lithified sand { 'san'stōn 'dīk }
- sandstone sill** A tabular mass of sandstone that has been emplaced by sedimentary injection parallel to the structure or by bedding of preexisting rock in the manner of an igneous sill. { 'san'stōn 'sil }
- sand streak** A low, linear ridge formed at the interface of sand and air or water oriented parallel to the direction of flow, and having a symmetric cross section. { 'san 'strēk }
- sand stream** A small sand delta spread out at the mouth of a gully or a deposit of sand along the bed of a small creek, formed by a torrential rain. { 'san 'strēm }
- sand strip** A long, narrow ridge of sand extending for a long distance downwind from each horn of a dune. { 'san 'strip }
- sandur** See outwash plain. { 'san·dər }
- sandwash** A sandy or gravel stream bed, devoid of vegetation, containing water only during a sudden and heavy rainstorm. { 'san'wāsh }
- sand wave** A large, ridgelike primary structure resembling a water wave on the upper surface of a sedimentary bed that is formed by high-velocity air or water currents. Also known as sand ridge. { 'san 'wāv }
- sand wedge** A wedge-shaped accumulation of sand with the apex downward formed by the filling in of winter contraction cracks. { 'san 'wej }
- sandy bentonite** See arkosic bentonite. { 'san·dē 'bent·ən·īṭ }
- sandy chert** Chert formed in sandy beds by replacement of cement, or the filling of pore spaces, with silica. { 'san·dē 'chərt }
- Sangamon** The third interglacial stage of the Pleistocene epoch in North America, following the Illinoian glacial and preceding the Wisconsin. { 'sɑŋ·gə·mən }
- sanidal** Pertaining to the continental shelf. { 'san·əd·əl }
- sanidine** $KAlSi_3O_8$ An alkali feldspar mineral occurring in clear glassy crystals embedded in unaltered acid volcanic rocks; a high-temperature, disordered form. Also known as glassy feldspar; ice spar; rhyacolite. { 'san·əd·ēn }
- sanidinite** A type of igneous rock composed chiefly of sanidine { sə'niḍ·ən·īṭ }
- sanmartinite** $ZnWO_4$ A mineral composed of zinc tungstate. { san'mɑrt·ən·īṭ }
- sannaite** An extrusive rock containing phenocrysts of barkevikite, pyroxene and biotite (in order of decreasing abundance) in a fine-grained to dense groundmass of alkali feldspar, acmite, chlorite, calcite, and pseudomorphs of mica after nepheline. { 'san·ə·īṭ }
- sansicli** An unconsolidated sediment, consisting of a mixture of sand silt and clay, in which no component forms 50% or more of the whole aggregate. { 'san'sik·əl }
- Santonian** A European stage of geologic time in the Upper Cretaceous, above the Coniacian and below the Campanian. { san'tō·nē·ən }
- santorinite** **1.** A light-colored extrusive rock containing approximately 60-65% silica and calcic plagioclase (labradorite to anorthite) as the only feldspar **2.** A hypersthene andesite containing plagioclase crystals that have labradorite cores and sodic rims and a groundmass with microlites of sodic oligoclase. { san'tōr·ən·īṭ }

sanukite

- sanukite** An andesite characterized by orthopyroxene as the mafic mineral andesine as the plagioclase, and a glassy groundmass. { 'san·ə·kīt }
- saponite** A soft, soapy, white or light-buff to bluish or reddish trioctahedral montmorillonitic clay mineral consisting of hydrous magnesium aluminosilicate and occurring in masses in serpentine and basaltic rocks. Also known as bowlingite; mountain soap; piotine; soapstone. { 'sap·ə·nīt }
- sappare** See kyanite. { 'sa·pər }
- sapphire** Any of the gem varieties of the mineral corundum, especially the blue variety, except those that have medium to dark tones of red that characterize ruby; hardness is 9 on Mohs scale, and specific gravity is near 4.00. { 'sa·fir }
- sapphire quartz** An indigo-blue opaque variety of quartz. { 'sa·fir 'kwōrts }
- sapphirine** $(Mg,Fe)_{1-2}(Al,Fe)_{3}Si_2O_{10}$ A green or pale-blue mineral composed of silicate and oxide of magnesium, iron, and aluminum; usually occurs in granular form. { 'saf·ə·rēn }
- sapping** Erosion along the base of a cliff by the wearing away of softer layers, thus removing the support for the upper mass which breaks off into large blocks and falls from the cliff face. Also known as undermining. { 'sap·ɪŋ }
- Saprist** A suborder of the soil order Histosol consisting of residues in which plant structures have been largely obliterated by decay; saturated with water most of the time. { 'sa·prɪst }
- saprogenous ooze** Ooze formed of putrefying organic matter. { sə·prəj ə·nəs 'ūz }
- saprolite** A soft, earthy red or brown, decomposed igneous or metamorphic rock that is rich in clay and formed in place by chemical weathering. Also known as saprolith; sathrolith. { 'sap·rə·līt }
- saprolith** See saprolite. { 'sap·rə·lɪθ }
- sapropel** A mud, slime, or ooze deposited in more or less open water. { 'sap·rə·pəl }
- sapropel-clay** A sedimentary deposit in which the amount of clay is greater than that of sapropel. { 'sap·rə·pəl 'klā }
- sapropelic coal** Coal formed by putrefaction of organic matter under anaerobic conditions in stagnant or standing bodies of water. Also known as sapropelite. { 'sap·rə·pəl·ɪk 'kōl }
- sapropel-peat** See peat-sapropel. { 'sap·rə·pəl 'pēt }
- sapropelite** See sapropelic coal. { 'sap·rə·pə·līt }
- sarcopsid** $(Fe,Mn,Mg)_4(PO_4)_2$ A mineral composed of a phosphate of manganese, magnesium, and iron. { sər'kəp·səd }
- sard** A translucent brown, reddish-brown, or deep orange-red variety of chalcedony. Also known as sardine; sardius. { sərd }
- Sardic orogeny** A short-lived orogeny that occurred near the end of the Cambrian period. { 'sər·dɪk ó·rəj·ə·nē }
- sardine** See sard. { sər'dēn }
- sardius** See sard. { 'sər·dē·əs }
- sardonyx** An onyx characterized by parallel layers of sard, a deep orange-red variety of chalcedony, and a mineral of different color. { sər'dän·ɪks }
- sarkinite** $Mn_2(AsO_4)(OH)$ A flesh-red monoclinic mineral composed of hydrous manganese arsenate, occurring in crystals. { 'sər·kə·nīt }
- Sarmatian** A European stage of geologic time: the upper Miocene, above Tortonian, below Pontian. { sər'mā·shən }
- sarmientite** $Fe_2(AsO_4)(SO_4)(OH) \cdot 5H_2O$ A yellow mineral composed of basic hydrous arsenate and sulfate of iron; it is isomorphous with diadochite. { 'sər·mē'en·tīt }
- sarnaite** A feldspathoid-bearing syenite composed of cancrinite and acmite. { 'sər·nə·rīt }
- sarospatakite** A micaceous clay mineral composed of mixed layers of illite and montmorillonite. { 'sar·ə'spād·ə·kīt }
- sartorite** $PbAs_2S_4$ A dark-gray monoclinic mineral, occurring in crystalline form. { 'sər·də·rīt }
- sassoline** See sassolite. { 'sas·ə·lēn }
- sassolite** H_3BO_3 A white or gray mineral consisting of native boric acid usually oc-

- curing in small pearly scales as an incrustation or as tabular triclinic crystals. Also known as sassoline. { 'sas·ə·līt }
- satellitic crater** See secondary crater. { 'səd·ə·līt·d·ik 'krād·ə } }
- sathrolith** See saprolite. { 'sath·rə·lith }
- satin spar** A white, translucent, fine fibrous variety of gypsum having a silky luster. Also known as satin stone. { 'sat·ən 'spār }
- satin stone** See satin spar. { 'sat·ən 'stōn }
- saturated mineral** A mineral that forms in the presence of free silica. { 'sach·ə·rād əd 'min·rəl }
- saturated permafrost** Permafrost that contains no more ice than the ground could hold if the water were in the liquid state. { 'sach·ə·rād·əd 'pər·mə·frōst }
- saturated rock** An igneous rock composed principally of saturated minerals. { 'sach·ə·rād·əd 'rāk }
- saturation curve** A curve showing the weight of solids per unit volume of a saturated soil mass as a function of water content. { 'sach·ə·rā·shən 'læv } }
- saturation line** The line, on a variation diagram of an igneous rock series, that represents saturation with respect to silica; rocks to the right of the line are oversaturated and those to the left, undersaturated. { 'sach·ə·rā·shən 'līn }
- Saucesian** A North American stage of geologic time in the Oligocene and Miocene above the Zemorrian and below the Relizian. { sō'sē·zhən }
- sauconite** The zinc-bearing end member of the montmorillonite group, a trioctahedral clay mineral. { 'sō·kə·nīt }
- saucyite** A glassy rhyolitic rock composed of large sanidine phenocrysts in a groundmass of orthoclase microlites and minute crystals of biotite, augite, sphene, zircon, and magnetite. { 'sō·sē·īt }
- saussurite** A white or grayish, tough, compact mineral aggregate composed chiefly of a mixture of albite or oligoclase and zoisite or epidote. { 'sō·sə·rīt }
- saussuritization** A metamorphic process involving replacement of plagioclase in basalts and gabbros by a fine-grained aggregate of zoisite, epidote, albite, calcite, sericite, and zeolites. { sō'sūr·əd·ə'zā·shən }
- savic orogeny** A short-lived orogeny that occurred in late Oligocene geologic time between the Chattian and Aquitanian stages. { 'sav·ik ó'rāj·ə·nē }
- saw-cut** A large canyon that cuts abruptly across a terrace, so that it is visible only from locations near its edge. { 'sō 'kət }
- Saxonian** A European stage of geologic time in the Middle Permian, above the Autonian and below the Thuringian. { sak'sō·nē·ən }
- saxonite** A peridotite composed chiefly of olivine and orthopyroxene. { 'sak sə·nīt }
- scabland** Elevated land that is essentially flat-lying and covered with basalt and has only a thin soil cover, sparse vegetation, and usually deep, dry channels. { 'skab·lənd }
- scabrock** 1. An outcropping of scabland. 2. Weathered material of a scabland surface. { 'skab·rāk }
- scacchite** MnCl₂. A mineral composed of native manganese chloride, found in volcanic regions. { ska·kīt }
- scaglia** A dark, very-fine-grained, somewhat calcareous shale usually developed in the Upper Cretaceous and Lower Tertiary periods of the northern Apennines. { 'skal·yə }
- scallop** See scalloping. { 'skäl·əp }
- scaloped upland** The region near or at the divide of an upland into which glacial cirques have cut from opposite sides. { 'skäl·əpt 'əp·lənd }
- scalloping** A sedimentary structure superficially resembling an oscillation ripple mark, and having a concave side that is always oriented toward the top of the bed. Also known as scallop. { 'skäl·ə·piŋ }
- scalped anticline** See breached anticline. { 'skalpt 'ant·i·klīn }
- scapolite** A white, gray, or pale-green complex aluminosilicate of sodium and calcium belonging to the tectosilicate group of silicate minerals. It crystallizes in the tetragonal system and is vitreous; hardness is 5-6 on Mohs scale, and specific gravity is 2.65-2.74. Also known as wernerite. { 'skap·ə·līt }

scapolitization

- scapolitization** Introduction of or replacement by scapolite. { skap·ə·lid·ə'zā·shən }
- scar** **1.** A steep, rocky eminence, such as a cliff or precipice, where bare rock is well exposed. Also known as scaur; scaw. **2.** See shore platform. { skär }
- scarp** See escarpment. { skärp }
- scarped plain** A terrain characterized by a succession of faintly inclined or gently folded strata. { 'skärpt 'plän }
- scarp face** See scarp slope. { 'skärp 'fäs }
- scarplet** See piedmont scarp. { 'skärp·lät }
- scarpline** A relatively straight line of cliffs of considerable extent, produced by faulting or erosion along a fault. { 'skärp·līn }
- scarp slope** The steep face of a cuesta, or asymmetric ridge, facing in an opposite direction to the dip of the strata. Also known as front slope; inface; scarp face. { 'skärp 'slöp }
- scatter diagram** See point diagram. { 'skad·ər 'dī·ə·gram }
- scaur** See scar. { skär }
- scaw** See scar. { skö }
- schafarzikite** $\text{Fe}_5\text{Sb}_4\text{O}_{11}$ A red to brown mineral composed of iron antimony oxide. { 'shä·fär·zi·kīt }
- schairerite** $\text{Na}_3(\text{SO}_4)(\text{F},\text{Cl})$ A colorless rhombohedral mineral composed of sodium sulfate with fluorine and chlorine, occurring in crystals. { 'shī·rə·rīt }
- schalstein** A slaty rock formed by shearing basaltic or andesitic tuff or lava. { 'shäl·stīn }
- scheelite** CaWO_4 A yellowish-white mineral crystallizing in the tetragonal system and occurring in tabular or massive form in pneumatolytic veins associated with quartz; an ore of tungsten. { 'shā·līt }
- schefflerite** $(\text{Ca},\text{Mn})(\text{Mg},\text{Fe},\text{Mn})\text{Si}_2\text{O}_6$ Brown to black variety of pyroxene that crystallizes in the monoclinic system and contains manganese and frequently iron. { 'shēf·lə·rīt }
- scheteligite** $(\text{Ca},\text{Y},\text{Sb},\text{Mn})_2(\text{Ti},\text{Ta Nb},\text{W})\text{O}_6(\text{O},\text{OH})$ A mineral composed of oxide of calcium, rare-earth metals, antimony, manganese, titanium, columbium, and tantalum. { shə'tel·ə·gīt }
- schirmerite** $\text{PbAg}_4\text{Bi}_4\text{S}_9$ A mineral composed of lead, silver, and bismuth sulfide. { 'shər·mə·rīt }
- schist** A large group of coarse-grained metamorphic rocks which readily split into thin plates or slabs as a result of the alignment of lamellar or prismatic minerals. { shist }
- schist-arenite** A light-colored sandstone containing more than 20% rock fragments derived from an area of regionally metamorphosed rocks. { 'shist 'a·rə·nīt }
- schistose** Pertaining to rocks exhibiting schistosity. { 'shis·tös }
- schistosity** A type of cleavage characteristic of metamorphic rocks, notably schists and phyllites, in which the rocks tend to split along parallel planes defined by the distribution and parallel arrangement of platy mineral crystals. { shis'täs·əd·ē }
- schizolite** A light-red variety of pectolite containing manganese. { 'skiz·əlīt }
- schlieren** Irregular streaks with shaded borders in some igneous rocks, representing the segregation of light and dark minerals or altered inclusions, elongated by flow. { 'shlir·ən }
- schlieren arch** An intrusive igneous body with flow layers which occur along its borders but which are poorly developed or absent in its interior. { 'shlir·ən 'ärch }
- schlieren dome** An intrusive body more or less completely outlined by flow layers which culminate in one central area. { 'shlir·ən 'döm }
- Schmidt net** A coordinate or reference system used to plot a Schmidt projection. { 'shmit 'net }
- Schmidt projection** A Lambert azimuthal equal-area projection of the lower hemisphere of a sphere onto the plane of a meridian; used in structural geology. { 'shmit prə·jek·shən }
- schoepite** $\text{UO}_3 \cdot 2\text{H}_2\text{O}$ A yellow secondary mineral composed of hydrous uranium oxide. { 'ske·pīt }

- schönfelsite** A form of basalt containing embedded crystals of olivine and augite in a complex, dense fine-grained groundmass. { 'shən·fel·zīt }
- schorl** See schorlite. { 'shórl }
- schorlite** The black, iron-rich, opaque variety of tourmaline. Also known as schorl. { 'shór·līt }
- schorlomite** $\text{Ca}_3(\text{Fe,Ti})_2(\text{Si,Ti})_3\text{O}_{11}$. Black mineral of the garnet group that has a vitreous luster and usually occurs in masses; hardness is 7-7.5 on Mohs scale, and specific gravity is 3.81-3.88. { 'shór·lə·mīt }
- schreibersite** $(\text{Fe,Ni})_3\text{P}$. A silver-white to tin-white magnetic meteorite mineral crystallizing in the tetragonal system and occurring in tables or plates as oriented inclusions in iron meteorites. Also known as rhabdite. { 'shrī·bər·sīt }
- schriesheimite** An amphibole peridotite that contains diopside. { 'shre·she·ə·mīt }
- schrockerite** $\text{NaCa}_3(\text{UO}_2)(\text{CO}_3)(\text{SO}_4)\text{F}\cdot 10\text{H}_2\text{O}$. A yellowish secondary mineral composed of hydrous sodium calcium uranyl carbonate, sulfate, and fluoride. { 'shrek·iŋ·ə·rīt }
- schrotterite** An opaline variety of allophane that is rich in aluminum. { 'shräd·ə·rīt }
- schrund line** The base of the bergschrund, or deep crevasse, at a late stage in the excavation of a cirque; the schrund line separates the steep slope of the cirque wall from the gentler slope below. { 'shrünt·līn }
- schultenite** PbHAsO_4 . A colorless mineral composed of lead hydrogen arsenate occurring in tabular orthorhombic crystals. { 'shült·ən·rīt }
- schungite** Amorphous carbon-rich material occurring in Precambrian schists. { 'shūŋ·gīt }
- schuppen structure** See imbricate structure. { 'shüp·ən·sträk·chər }
- schwartzembergite** $\text{Pb}_3(\text{IO}_3)\text{Cl}_2\text{O}_3$. A mineral composed of lead iodate, chloride, and oxide. { 'shwört·səm·bər·gīt }
- scissors fault** A fault on which the offset or separation along the strike increases in one direction from an initial point and decreases in the other direction. Also known as differential fault. { 'siz·ərz·fólt }
- sclerotinite** A variety of inertinite composed of fungal sclerotia. { 'skler·ə·tə·nīt }
- scolecite** $\text{CaAl}_2\text{Si}_2\text{O}_{10}$. A zeolite mineral that occurs in delicate, radiating groups of white fibrous or acicular crystals; sometimes shows wormlike motion upon heating. { 'skäl·ə·sīt }
- scolite** Any of the small tubes in rock believed to be the fossilized burrows of worms. { 'skō·līt }
- scopolite** A crystallite in the form of a rod with terminal brush or plume. { 'sköp·yə·līt }
- score** See scoring. { 'skór }
- scoria** Vesicular, cindery, dark lava formed by the escape and expansion of gases in basaltic or andesitic magma; generally denser and darker than pumice. { 'skór·ē·ə }
- scoria cone** A volcanic cone composed of a vesicular, cindery crust on the surface of lava that is basaltic or andesitic in nature. { 'skór·ē·ə·kōn }
- scoria mound** A volcanic knoll composed of vesicular, cindery crust on the surface of lava that is basaltic or andesitic in nature. { 'skór·ē·ə·maund }
- scoria tuff** A deposit of fragmented scoria in a fine-grained tuff matrix. { 'skór·ē·ə·təf }
- scoring** **1.** The formation of parallel scratches, lines, or grooves in a bedrock surface by the abrasive action of rock fragments transported by a moving glacier. **2.** A scratch, line, or groove produced by this process. Also known as score. { 'skór·iŋ }
- scorodite** $\text{FeAsO}_4\cdot 2\text{H}_2\text{O}$. A pale leek-green or liver-brown orthorhombic mineral consisting of ferric arsenate; isomorphous with mansfieldite and represents a minor ore of arsenic. { 'skór·ə·dīt }
- scorzalite** $\text{FeAl}_2(\text{PO}_4)_2(\text{OH})_2$. A blue mineral composed of basic iron aluminum phosphate; it is isomorphous with lazulite. { 'skór·zə·līt }
- Scotch-type volcano** A volcanic form characterized by concentric cuestas and produced by cauldron subsidence. { 'skäch·itŋ·vəl·kā·nō }
- scour** See tidal scour. { 'skaū·ər }
- scour and fill** The process of first digging out and then refilling a channel instigated

scour channel

by the action of a stream or tide; refers particularly to the process that occurs during a period of flood. { 'skaũ·ər ən 'fil }

scour channel A large, groove-like erosional feature produced in sediments by scour. { 'skaũ·ər 'chan·əl }

scour depression A crescent-shaped hollow in the stream bed near the outside of the stream's bend, caused by water that scours below the grade of the stream. { 'skaũ·ər di·presh·ən }

scouring 1. An erosion process resulting from the action of the flow of air, ice, or water
2. See glacial scour. { 'skaũr·iŋ }

scouring velocity The velocity of water which is necessary to dislodge stranded solids from the stream bed. { 'skaũr·iŋ vər'läs·əd·ē }

scour lineation A smooth, low, narrow (2-5 centimeters or 1-2 inches wide) ridge formed on a sedimentary surface and believed to result from the scouring action of a current of water. { 'skaũ·ər 'lin·ē·ā·shən }

scour mark A mark produced by the cutting or scouring action of a current flowing over the bottom of a river or body of water. { 'skaũ·ər 'mark }

scourway A channel created by a powerful water current, particularly the temporary channels formed by streams on the edge of a Pleistocene ice sheet. { 'skaũ·ər·wā }

scratch hardness test A determination of the resistance of a mineral to scratching by testing it with minerals on the Mohs scale. { 'skræç 'hård·nəs 'test }

scree 1. A mound of loose, angular material, less than 4 inches (10 centimeters).
2. See talus. { skrē }

scroll One of a series of crescent-shaped sediments on the inner bank of a moving channel, deposited there by the stream. { skrōl }

scroll meander A type of forced-cut meander, in which the scrolls built on the inner bank cause erosion of the outer bank. { 'skrōl mē'an·dər }

scyelite A coarse-grained ultramafic igneous rock characterized by poikilitic texture resulting from the inclusion of olivine crystals in crystals of other minerals, especially amphiboles. { 'sī·əlīt }

Scythian stage A stage in the lesser Triassic series of the alpine facies. Also known as Werfenian stage. { 'sith·ē·ən 'stāj }

sea arch An opening through a headland, formed by wave erosion or solution (as by the enlargement of a sea cave, or by the meeting of two sea caves from opposite sides), which leaves a bridge of rock over the water. Also known as marine arch; marine bridge; sea bridge. { 'sē 'ärç }

seabeach A beach along the margin of the sea. { 'sē·bēç }

seabed See sea floor. { 'sē·bed }

sea bottom See sea floor. { 'sē 'bäd·əm }

sea bridge See sea arch. { 'sē 'brɪj }

sea cave A split or hollow opening, usually at sea level, in the base of a sea cliff, formed by waves acting on weak parts of the weathered rock. Also known as marine cave; sea chasm. { 'sē 'kāv }

sea channel A long, narrow, U-shaped or V-shaped shallow depression of the sea floor, usually occurring on a gently sloping plain or fan. { 'sē 'chan·əl }

sea chasm See sea cave. { 'sē 'kæz·əm }

sea cliff An erosional landform, produced by wave action, which is either at the seaward edge of the coast or at the landward side of a wave-cut platform and which denotes the inner limit of the beach erosion. { 'sē 'klɪf }

sea fan See submarine fan. { 'sē 'fan }

sea floor The bottom of the ocean. Also known as seabed; sea bottom. { 'sē 'flɔr }

sea-floor spreading The hypothesis that the ocean floor is spreading away from the midoceanic ridges and is being conveyed landward by convective cells in the earth's mantle, carrying the continental blocks as passive passengers; the ocean floor moves away from the midoceanic ridge at the rate of 0.4 to 4 inches (1 to 10 centimeters) per year and provides the source of power in the hypothesis of plate tectonics. Also known as ocean-floor spreading; spreading concept; spreading floor hypothesis. { 'sē 'flɔr 'spred·iŋ }

sea-foam See sepiolite. { 'sē 'fōm }

sea gully See slope gully. { 'sē ,gəl·ē }

sea knoll See knoll. { 'sē ,nōl }

sea level The level of the surface of the ocean, especially, the mean level halfway between high and low tide, used as a standard in reckoning land elevation or sea depths. { 'sē ,lev·əl }

sealing-wax structure A primary sedimentary flow structure produced by slumping, characterized by the lack of a sharply defined slip plane at the base or a contemporaneous erosion plane at the top, and occupying a zone of highly fluid contortion in an otherwise normal sedimentary succession. { 'sēl·iŋ l'waks ,strək·chər }

seam 1. A stratum or bed of coal or other mineral. 2. A thin layer or stratum of rock. 3. A very narrow coal vein. { sēm }

seamanite $Mn_3(PO_4)(BO_3) \cdot 3H_2O$ A pale- to wine-yellow orthorhombic mineral that is a phosphate and borate of manganese; occurs in crystals. { 'sē·mā·nīt }

seamount An elevation of the sea floor that is either flat-topped or peaked, rising to about 3000-1000 feet (900-300 meters) or more, with the summit approximately 1000-6000 feet (300-1800 meters) below sea level. { 'sē·maünt }

seamount chain Several seamounts in a line with bases separated by a relatively flat sea floor. { 'sē·maünt ,chān }

seamount group Several closely spaced seamounts not in a line { 'sē·maünt ,grüp }

seamount range Three or more seamounts having connected bases and aligned along a ridge or rise. { 'sē·maünt ,rānj }

sea mud A rich, slimy deposit in a salt marsh or along a seashore, sometimes used as a manure. Also known as sea ooze. { 'sē ,məd }

sea ooze See sea mud. { 'sē ,ūz }

sea peak A peaked elevation of the sea floor, rising 3300 feet (1000 meters) or more from the floor. { 'sē ,pēk }

searlesite $NaB(SiO_3)_2 \cdot H_2O$ A white mineral composed of hydrous sodium borosilicate occurring as spherulites. { 'sərl·zīt }

seascarp A submarine cliff that is relatively long, high, and straight { 'sē·skərp }

seashore 1. The strip of land that borders a sea or ocean. Also known as seaside; shore. 2. The ground between the usual tide levels. Also known as seastrand { 'sē·shòr }

sea slope The slope of land toward the sea. { 'sē ,slōp }

seasonally frozen ground Ground that is frozen during low temperatures and remains so only during the winter season. Also known as frost zone. { 'sēz·ən·lē l'frō·zən 'graünd }

seastrand See seashore. { 'sē·strand }

seat clay See underclay. { 'sēt ,klā }

seat earth See underclay. { 'sēt ,ərth }

sea terrace See marine terrace. { 'sē ,ter·əs }

sea valley A relatively shallow, wide depression with gentle slopes in the sea floor, the bottom of which grades continuously downward. { 'sē ,val·ē }

seawall A steep-faced, long embankment situated by powerful storm waves along a seacoast at high-water mark. { 'sē·wòl }

sebastianite A plutonic rock composed of euhedral anorthite, biotite, and some augite and apatite, but without feldspathoids and quartz. { sī'bas·chə·nīt }

sebcha See sebkha. { 'seb·kə }

sebkha See sebkha. { 'seb·kə }

sebkha A geologic feature, in North Africa, which is a smooth, flat, plain usually high in salt; after a rain the plain may become a marsh or a shallow lake until the water evaporates. Also known as sabkha; sebcha; sebkha; sibjet. { 'seb·kə }

secondary A term with meanings that changed from early to late in the 19th century, when the term was confined to the entire Mesozoic era; it was finally replaced by Mesozoic era. { 'sek·ən·der·ē }

secondary clay A clay that has been transported from its place of formation and re-deposited elsewhere. { 'sek·ən·der·ē 'klā }

secondary coast A relatively stable seacoast or shoreline whose features are the result of present-day marine processes. { 'sek·ən·der·ē 'kōst }

secondary consolidation

- secondary consolidation** Consolidation of sedimentary material, at essentially constant pressure, resulting from internal processes such as recrystallization. { 'sek·ən·der·ē kən·säl·ə'dā·shən }
- secondary crater** An impact crater produced by the relatively low-velocity impact of fragments ejected from a large primary crater. Also known as satellitic crater. { 'sek·ən·der·ē 'kräd·ər }
- secondary enlargement** Overgrowth by chemical deposition on a mineral grain of additional material of identical composition in optical and crystallographic continuity with the original grain, crystal faces characteristic of the original mineral often result. Also known as secondary growth. { 'sek·ən·der·ē in'lärj·mənt }
- secondary enrichment** The addition to a vein or ore body of material that originated later in time from the oxidation of decomposed ore masses that overlie the vein. { 'sek·ən·der·ē in'rich·mənt }
- secondary geosyncline** A geosyncline appearing at the culmination of or after geosynclinal orogeny. { 'sek·ən·der·ē jē·ō'sin·klīn }
- secondary growth** See secondary enlargement. { 'sek·ən·der·ē 'grōth }
- secondary interstices** Openings in a rock that formed after the enclosing rock was formed. { 'sek·ən·der·ē in'tər·stə:sēz }
- secondary limestone** Limestone deposited from solution in cracks and cavities of other rocks. { 'sek·ən·der·ē 'līm·stōn }
- secondary mineral** A mineral produced in an enclosing rock after the rock was formed as a result of weathering or metamorphic or solution activity, and usually at the expense of a primary material that came into existence earlier. { 'sek·ən·der·ē 'min·rəl }
- secondary porosity** The interstices that appear in a rock formation after it has formed, because of dissolution or stress distortion taking place naturally or artificially as a result of the effect of acid treatment or the injection of coarse sand. { 'sek·ən·der·ē pə'räs·əd·ē }
- secondary stratification** The layering that occurs when sediments that were at one time deposited are resuspended and redeposited. Also known as indirect stratification. { 'sek·ən·der·ē 'sträd·ə·fä'kä·shən }
- secondary stratigraphic trap** See stratigraphic trap { 'sek·ən·der·ē 'sträd·ə'graf·ik 'trap }
- secondary structure** A structure such as a fault, fold, or joint resulting from tectonic movement that started after the rock in which it is found was emplaced. { 'sek·ən·der·ē 'sträk·chər }
- secondary tectonite** A tectonite having a deformation fabric. { 'sek·ən·der·ē 'tek·tə·nīt }
- second bottom** The first terrace rising over a floodplain. { 'sek·ənd 'bäd·əm }
- secretion** A secondary structure formed of material deposited (from solution) within an empty cavity in any rock, especially a deposit formed on or parallel to the walls of the cavity, the first layer being the outer one. { si'krē·shən }
- sectile** Pertaining to a mineral whose texture is tenacious enough to be cut with a knife. { 'sek·təl }
- section** **1.** An inclined or vertical surface that is uncovered either naturally (as a sea cliff or stream bank) or artificially (as a strip mine or road cut) through a part of the earth's crust **2.** A description or scale drawing of the successive rock units or geologic structures shown by the exposed surface, or their appearance if cut through by any intersecting plane. **3.** See columnar section; geologic section; thin section; type section. { 'sek·shən }
- sedcundine dike** A dike which has been intruded into hot country rock. { 'sek·ən·dīn 'dik }
- sedentary soil** Soil that still lies on the rock from which it was formed. { 'sed·ən·ter·ē 'sōil }
- sedifluction** The subaquatic or subaerial movement of material in unconsolidated sediments, occurring in the primary stages of diagenesis. { 'sed·ə'fläk·shən }
- sediment** **1.** A mass of organic or inorganic solid fragmented material, or the solid fragment itself, that comes from weathering of rock and is carried by, suspended in,

or dropped by air, water, or ice; or a mass that is accumulated by any other natural agent and that forms in layers on the earth's surface such as sand, gravel, silt, mud fill, or loess. **2.** A solid material that is not in solution and either is distributed through the liquid or has settled out of the liquid. { 'sed·ə·mənt }

sedimentary breccia A rock composed of fragments that are larger than 2 millimeters in diameter and are the result of sedimentary processes, characterized by imperfect mechanical sorting of its materials and by a higher concentration of fragments from one local source or by a wide variety of materials mixed together in no particular pattern. Also known as sharpstone conglomerate. { 'sed·ə·lmen·trē 'brech·ə }

sedimentary differentiation The progressive separation (by erosion and transportation) of a well-defined rock mass into physically and chemically unlike products that are resorted and deposited as sediments in more or less separate areas. { 'sed·ə·lmen·trē 'dif·ə·ren·chē'ā·shən }

sedimentary dike A tabular mass of sedimentary material that cuts across the structure or bedding of preexisting rock in the manner of an igneous dike and that is formed by the filling of a crack or fissure by forcible injection or intrusion of sediments under abnormal pressure, or by simple infilling of sediments. { 'sed·ə·lmen·trē 'dik }

sedimentary facies A stratigraphic facies differing from another part or parts of the same unit in both lithologic and paleontologic characters. { 'sed·ə·lmen·trē 'fā·shēz }

sedimentary insertion The emplacement of sedimentary material among deposits or rocks already formed, such as by infilling, injection, or intrusion, or through localized subsidence due to solution of underlying rock. { 'sed·ə·lmen·trē in'sər·shən }

sedimentary intrusion See intrusion. { 'sed·ə·lmen·trē in'trū·zhən }

sedimentary laccolith An intrusion of plastic sedimentary material (such as clayey salt breccia) forced up under high pressure and penetrating parallel or nearly parallel to the bedding planes of the invaded formation, characterized by a very irregular thickness. { 'sed·ə·lmen·trē 'lak·ə·lith }

sedimentary lag Delay between the formation of potential sediment by weathering and its removal and deposition. { 'sed·ə·lmen·trē 'lag }

sedimentary petrography The description and classification of sedimentary rocks. Also known as sedimentography. { 'sed·ə·lmen·trē pə'træg·rə·fē }

sedimentary petrology The study of the composition, characteristics, and origin of sediments and sedimentary rocks. { 'sed·ə·lmen·trē pə'trɔlə·jē }

sedimentary quartzite See orthoquartzite. { 'sed·ə·lmen·trē 'kwɔrt·sīt }

sedimentary rock A rock formed by consolidated sediment deposited in layers. Also known as derivative rock; neptunic rock, stratified rock. { 'sed·ə·lmen·trē 'rāk }

sedimentary structure A structure in sedimentary rocks, such as cross-bedding, ripple marks, and sandstone dikes, produced either contemporaneously with deposition (primary sedimentary structures) or shortly after deposition (secondary sedimentary structures). { 'sed·ə·lmen·trē 'strək·chər }

sedimentary tectonics Folding and deformation in geosynclinal basins caused by subsidence and buckling of strata. { 'sed·ə·lmen·trē tek'tən·iks }

sedimentary trap An area in which sedimentary material accumulates instead of being transported farther, as in an area between high-energy and low-energy environments. { 'sed·ə·lmen·trē 'trap }

sedimentary tuff A tuff containing a small amount of nonvolcanic detrital material. { 'sed·ə·lmen·trē 'tʌf }

sedimentary volcanism The expelling, extruding, or breaking through of overlying formations by a mixture of sediment, water, and gas, driven by the gas under pressure. { 'sed·ə·lmen·trē 'vəl·kəniz·əm }

sedimentation **1.** The act or process of accumulating sediment in layers. **2.** The process of deposition of sediment. { 'sed·ə·mən'tā·shən }

sedimentation basin A depression in the ocean floor with a wide, flat bottom in which sediment accumulates. { 'sed·ə·mən'tā·shən 'bās·ən }

sedimentation curve A curve showing cumulatively, and in successive units of time the amount of sediment accumulated or removed from an originally uniform suspension. { 'sed·ə·mən'tā·shən 'kʌrv }

sedimentation diameter

sedimentation diameter The diameter of a sedimentary particle, determined from the measurement of a hypothetical sphere of the same gravity and settling velocity as those of a given sedimentary particle in the same fluid. { 'sed·ə·mən'tā·shən dī'am·əd·ər }

sedimentation radius One-half of the sedimentation diameter. { 'sed·ə·mən'tā·shən rād·ē əs }

sedimentation rate See rate of sedimentation. { 'sed·ə·mən'tā·shən rāt }

sedimentation trend The direction in which sediments were laid down { 'sed·ə·mən'tā·shən trənd }

sedimentation trough A depression in the ocean floor with a narrow U- or V-shaped bottom in which sediment accumulates. { 'sed·ə·mən'tā·shən tróf }

sedimentation unit A sedimentary deposit formed during one distinct act of sedimentation. { 'sed·ə·mən'tā·shən yü·nət }

sediment-delivery ratio The ratio of sediment yield of a drainage basin to the total amount of sediment moved by sheet erosion and channel erosion. { 'sed·ə·mənt dī'līv·ə·rē rā·shō }

sedimentography See sedimentary petrography. { 'sed·ə·mən'täg·rə·fē }

sedimentology The science concerned with the description, classification, origin, and interpretation of sediments and sedimentary rock. { 'sed·ə·mən'täl·ə·jē }

sediment-production rate Sediment yield per unit of drainage area, derived by dividing the annual sediment yield by the area of the drainage basin. { 'sed·ə·mənt prə'dak·shən rāt }

sediment vein A sedimentary dike formed by the filling of a fissure from above with sedimentary material. { 'sed·ə·mənt vān }

sediment yield The amount of material eroded from the land surface by runoff and delivered to a stream system. { 'sed·ə·mənt yēld }

Seelandian A European stage of geologic time in the lowermost Paleocene { zā'lān·dē ən }

seep An area, generally small, where water, or another liquid such as oil, percolates slowly to the land surface. { sēp }

seepage face A belt on a slope, such as the bank of a stream, along which water emerges at atmospheric pressure and flows down the slope. { 'sēp·ij fās }

segregated vein A fissure filled with mineral matter derived from country rock by the action of percolating water. Also known as exudation vein. { 'seg·rə·gād·əd vān }

segregation The formation of a secondary feature within a sediment after deposition due to chemical rearrangement of minor constituents. { 'seg·rə'gā·shən }

segregation banding A compositional band in gneisses that is the result of segregation of material from an originally homogeneous rock. { 'seg·rə'gā·shən band·iŋ }

seif dune A large, tapering, longitudinal dune or chain of sand dunes with a sharp crest that in profile consists of a succession of peaks and cols. { 'sāf dūn }

seismic area See earthquake zone. { 'sīz·mīk er·ē·ə }

seismic ray The path along which seismic energy travels. { 'sīz·mīk rā }

seismic stratigraphy A branch of stratigraphy in which sediments and sedimentary rocks are interpreted in a geometrical context from seismic reflectors. { 'sīz·mīk strə'tīg·rə·fē }

seismic vertical 1. The point on the earth's surface directly over the point within the earth from which an earthquake impulse originates. 2. The vertical line between the surface point and the point of origin. { 'sīz·mīk 'vərd·ə·kəl }

sekaninaite A violet variety of cordierite in which magnesium is largely replaced by ferrous iron. Also known as iron cordierite. { sə'kän·ən·ə'īt }

selagite A mica trachyte characterized by abundant tabular biotite crystals in a holocrystalline groundmass of orthoclase and diopside, and possibly quartz and olivine. { 'sel·ə'jīt }

selective fusion The fusion of only a portion of a mixture, such as a rock. { si'lek·tiv 'fyü·zhən }

selective replacement The replacement of one mineral by another, preferentially within an altered rock mass. { si'lek·tiv ri'plās·mənt }

selenite The clear, colorless variety of gypsum crystallizing in the monoclinic system

- and occurring in crystals or in crystal mass. Also known as spectacle stone. { 'sel ə·nīt }
- selenite butte** A small tabular mound, rising 3-10 feet (1-3 meters) above a playa, composed of lake sediments capped with a veneer of selenite formed by deflation of the playa or by the effects of rising groundwater. { 'sel ə·nīt 'byüt }
- self-rising ground** The puffy, irregular, surface or near-surface zone of certain playas, formed by the effects of capillary rise of groundwater. { 'self 'rīz·iŋ 'graünd }
- seligmannite** $PbCuAsS_3$ A metallic gray orthorhombic mineral, occurring in crystals. { 'sel ə·g·mə·nīt }
- sellaite** MgF_2 A colorless mineral composed of magnesium fluoride occurring in tetragonal prismatic crystals. { 'sel ə·īt }
- selvage** The marginal zone of an igneous mass, generally characterized by a fine-grain, or sometimes glassy, texture. Also known as salband. { 'sel·vij }
- semianthracite** Coal which is between bituminous coal and anthracite in metamorphic rank, and which has a fixed-carbon content of 86-92%. { 'sem ə·an·thrə·sīt }
- semibituminous coal** Coal that is harder and more brittle than bituminous coal, has a high fuel ratio, contains 10-20% volatile matter, and burns without smoke; ranks between bituminous and semianthracite coals. { 'sem·i·bə'tü·mə·nəs 'kōl }
- semibolson** A wide desert basin or valley whose central playa is absent or poorly developed, and which is drained by an intermittent stream that flows through canyons at each end and reaches a surface outlet. { 'sem·i·bōls·ən }
- semibright coal** A type of banded coal defined microscopically as consisting of between 80 and 61% bright ingredients such as vitrain, clarain, and fusain, with clarodurain and durain composing the remainder. { 'sem·i·brīt 'kōl }
- semicratonic** See quasi-cratonic. { 'sem·i·krə'tän·ik }
- semicrystalline** See hypocrystalline. { 'sem·i·krist ə·l ə·n }
- semidull coal** A type of banded coal consisting mainly of clarodurain and durain with from 40 to 21% bright ingredients such as vitrain, clarain, and fusain. { 'sem·i·dəl 'kōl }
- semifusinite** A coal maceral with a well-defined woody structure and optical properties intermediate between those of nitrite and those of fusinite. { 'sem·i'fyüz ə·nīt }
- semischist** A partly metamorphosed sedimentary rock, exhibiting some foliation. { 'sem·i'shist }
- semisplint coal** Banded coal that is intermediate between bright-banded and splint coal, and has 20-30% opaque attritus and more than 5% anthraxylon. { 'sem·i'splint 'kōl }
- semseyite** $Pb_3Sb_4S_{21}$ A gray to black mineral composed of lead antimony sulfide. { 'sem·sē·īt }
- senaitite** $(Fe,Mn,Pb)TiO_3$ A black mineral consisting of a lead- and manganese-bearing ilmenite; occurs as rough crystals and rounded fragments. { 'sen ə·īt }
- senarmontite** Sb_2O_3 A colorless or grayish mineral composed of native antimony trioxide occurring in masses or as octahedral crystals. { 'sen ə·r'män·tīt }
- Senecan** A North American provincial series of geologic time forming the lower part of the Upper Devonian, above the Erian and below the Chautauquan. { 'sen·i·kən }
- senescence** The part of the erosion cycle at which the stage of old age begins. { si'nes ə·ns }
- senesland** A land surface intermediate between a matureland and a peneplain. { 'sen ə·s·land }
- senjierite** $Cu(UO_2)_2(VO_4)_2 \cdot 8-10H_2O$ A yellowish-green mineral composed of hydrous copper uranyl vanadate. { 'senj ə·ē·ərīt }
- senile** Pertaining to the stage of senility of the cycle or erosion. { 'sē·nīl }
- senility** The stage of the cycle of erosion in which erosion of a land surface has reached a minimum, most of the hills have disappeared, and base level has been approached. { si'nīl ə·d ə }
- Senonian** A European stage of geologic time forming the Upper Cretaceous, above the Turonian and below the Danian. { sə'nō·nē·ən }
- sensitive clay** A clay whose shear strength is reduced to a very small fraction of its former value on remolding at constant moisture content. { 'sen ə·d·iv 'klā }

sensitivity

- sensitivity** The effect of remolding on the consistency of a clay or cohesive soil, regardless of the physical nature of the causes of the change. {ˌsen·səˈtɪv·əd·ē}
- separate** See soil separate. {ˈsep·rət}
- separation** The apparent relative displacement on a fault, measured in any given direction. {ˌsep·əˈrā·shən}
- sepiolite** $Mg_4(Si_2O_5)_3(OH)_2 \cdot 6H_2O$ A soft, lightweight, absorbent, white to light-gray or light-yellow clay mineral found principally in Asia Minor, used for tobacco pipe bowls and ornamental carvings. Also known as meerschaum, sea-foam. {ˈsē·pē·əˈlɪt}
- septarian** Pertaining to the irregular polygonal pattern of internal cracks developed in septaria. {sepˈtar·ē·ən}
- septarian boulder** See septarium. {sepˈtar·ē·ən ˈbɔɪl·dər}
- septarian nodule** See septarium. {sepˈtar·ē·ən ˈnɔɪ·l̩}
- septarium** A large (32-36 inches or 80-90 centimeters in diameter) spheroidal concretion, usually composed of argillaceous carbonate, characterized by internal cracking into irregular polygonal blocks that become cemented together by crystalline minerals. Also known as beetle stone; septarian boulder; septarian nodule; turtle stone. {sepˈtar·ē·əm}
- Sequanian** Upper Lower Jurassic (Upper Lusitanian) geologic time. Also known as Astartian. {səˈkwā·nē·ən}
- sequence** **1.** A sequence of geologic events, processes, or rocks, arranged in chronological order. **2.** A geographically discrete, major informal rock-stratigraphic unit of greater than group or supergroup rank. Also known as stratigraphic sequence. **3.** A body of rock deposited during a complete cycle of sea-level change. {ˈsē·kwəns}
- sequence stratigraphy** A branch of stratigraphy that subdivides the sedimentary record along continental margins and in interior basins into a succession of depositional sequences as regional and interregional correlative units. {ˈsē·kwəns strəˈtɪg·rə·fē}
- sequential landform** One of an orderly succession of smaller landforms that are developed by the erosion, weathering, and mass wasting of larger initial landforms. {sɪˈkwən·chəl ˈlænd·fɔrm}
- serandite** $Na(Mn,Ca)_2Si_3O_8(OH)$ A rose-red mineral composed of a basic silicate of manganese, lime, potash, and soda occurring in monoclinic crystals. {ˈser·ənˈdɪt}
- seriate** Having crystals that vary gradually in size. {ˈsɪr·ē·āt}
- sericite** A white, fine-grained potassium mica, usually muscovite in composition, having a silky luster and found as small flakes in various metamorphic rocks. {ˈser·əˈsɪt}
- sericitic sandstone** A sandstone in which sericite (derived by decomposition of feldspar) intermingles with finely divided quartz and fills the voids between quartz grains. {ˌser·əˈsɪd·ɪk ˈsænd·stɔn}
- sericitization** A hydrothermal or metamorphic process involving the introduction of or replacement by sericite. {ˌser·əˈsɪd·əˈzā·shən}
- series** **1.** A number of rocks, minerals, or fossils that can be arranged in a natural sequence due to certain characteristics, such as succession, composition, or occurrence. **2.** A time-stratigraphic unit, below system and above stage, composed of rocks formed during an epoch of geologic time. {ˈsɪr·ēz}
- serpentine** $(Mg,Fe)Si_2O_6(OH)_2$ A group of green, greenish-yellow, or greenish-gray ferromagnesian hydrous silicate rock-forming minerals having greasy or silky luster and a slightly soapy feel; translucent varieties are used for gemstones as substitutes for jade. {ˈsər·pənˈtēn}
- serpentine jade** A variety of the mineral serpentine resembling jade in appearance and used as an ornamental stone. {ˈsər·pənˈtēn ˈjäd}
- serpentine rock** See serpentinite. {ˈsər·pənˈtēn ˈræk}
- serpentinite** A rock composed almost entirely of serpentine minerals. Also known as serpentine rock. {ˈsər·pənˈtēnɪt}
- serpentinization** A hydrothermal process by which magnesium-rich silicate minerals are converted into or replaced by serpentine minerals. {ˌsər·pənˈtē·nəˈzā·shən}
- serpent kame** See esker. {ˈsər·pənt ˈkām}
- serpierite** $(Cu,Zn,Ca)_2(SO_4)(OH)_6 \cdot 3H_2O$ A bluish-green mineral composed of hydrous

- basic sulfate of copper, zinc, and calcium; occurs in tabular crystals and tufts. { 'sər·pē·ə·rīt }
- serrate** Pertaining to topographic features having a notched or toothed edge or a saw-edge profile. { 'se·rāt }
- serrate ridge** See arête. { 'se·rāt 'rij }
- set** A group of essentially conformable strata or cross-strata, separated from other sedimentary units by surfaces of erosion, nondeposition, or abrupt change in character. { set }
- settlement** The subsidence of surficial material (such as coastal sediments) due to compaction. { 'sed·əl·mənt }
- settling** The sag in outcrops of layered strata, caused by rock creep. Also known as outcrop curvature. { 'set·liŋ }
- Sevier orogeny** The deformation that occurred along the eastern edge of the Great Basin in Utah (eastern edge of the Cordilleran miogeosyncline) during times intermediate between the Nevadan orogeny to the west and the Laramide orogeny to the east, culminating early in the Late Cretaceous. { se'vyā ō'rāj·ə·nē }
- seybertite** See clintonite. { 'sī·bər·dīt }
- shaft** A passage in a cave that is vertical or nearly vertical. { shaft }
- shale** A fine-grained laminated or fissile sedimentary rock made up of silt- or clay-size particles; generally consists of about one-third quartz, one-third clay materials, and one-third miscellaneous minerals, including carbonates, iron oxides, feldspars, and organic matter. { shāl }
- shale ball** A meteorite partly or wholly converted to iron oxides by weathering. Also known as oxidite. { 'shāl 'ból }
- shale break** A thin layer or parting of shale between harder strata or within a bed of sandstone or limestone. { 'shāl 'brāk }
- shale crescent** A crescent formed by the filling of a ripple-mark trough by shale. { 'shāl 'kres·ənt }
- shale reservoir** Underground hydrocarbon reservoir in which the reservoir rock is a brittle, siliceous, fractured shale. { 'shāl 'rez·əv·wār }
- shalification** The formation of shale. { 'shāl·ə·fə'kā·shən }
- shallow inland seas** Epeiric seas which periodically cover cratonic areas as a result of continental subsidence or eustatic rises in sea level. { 'shal·ō 'in·lənd 'sēz }
- shallow marginal seas** Epeiric seas along the cratonic margins. { 'shal·ō 'mār·jənəl 'sēz }
- shaly** Pertaining to, composed of, containing, or having the properties of shale, especially readily split along close-spaced bedding planes. { 'shāl·ē }
- shaly bedding** Laminated bedding varying between 2 and 10 millimeters in thickness. { 'shāl·ē 'bed·iŋ }
- shandite** Ni₃PbS₂. A rhombohedral mineral composed of nickel lead sulfide occurring in crystals. { 'shan·dīt }
- shantung** A monadnock in the process of burial by Huangho deposits. { 'shan'təŋ }
- Shantung soil** See Noncalcic Brown soil. { 'shan'təŋ 'sōil }
- shard** A vitric fragment in pyroclastics, having a characteristically curved surface of fracture. { 'shärd }
- sharkskin pahoehoe** A type of pahoehoe displaying numerous tiny spines or spicules on the surface. { 'shärk'skin pä'hō·ē·hō·ē }
- shark-tooth projection** Sharp pointed projections several centimeters in length formed by the pulling apart of plastic lava. { 'shärk 'tūtθ prä'jek·shən }
- sharpite** (UO₂)(CO₃)·H₂O. A greenish-yellow mineral composed of hydrous basic uranyl carbonate. { 'shär·pīt }
- sharp sand** An angular-grain sand free of clay, loam, and other foreign particles. { 'shärp 'sand }
- sharpstone** Any rock fragment having angular edges and corners and being more than 2 millimeters in diameter. { 'shärp'stōn }
- sharpstone conglomerate** See sedimentary breccia. { 'shärp'stən kən'gləm ə·rət }
- shatter breccia** A tectonic breccia composed of angular fragments that show little rotation. { 'shad·ər 'brech·ə }

shatter cone

- shatter cone** A striated conical rock fragment along which fracturing has occurred. { 'shad·ər·kōn }
- shatter zone** An area of randomly fissured or cracked rock that may be filled by mineral deposits, forming a network pattern of veins. { 'shad·ər·zōn }
- shattuckite** $\text{Cu}_3(\text{SiO}_3)_2 \cdot \text{H}_2\text{O}$ A blue mineral composed of basic copper silicate occurring in fibrous masses. { 'shad·ə·kīt }
- sheaf structure** A bundled arrangement of crystals that is characteristic of certain fibrous minerals, such as stibnite. { 'shēf·strək·chər }
- shear cleavage** See slip cleavage. { 'shir·klē·vij }
- shear fold** A similar fold whose mechanism is shearing or slipping along closely spaced planes that are parallel to the fold's axial surface. Also known as glide fold; slip fold. { 'shir·fōld }
- shear joint** A joint that is a shear fracture; it is a potential plane of shear. Also known as slip joint. { 'shir·jōint }
- shear moraine** A debris-laden surface or zone found along the margin of any ice sheet or ice cap, dipping in toward the center of the ice sheet but becoming parallel to the bed at the base. { 'shir·mə·rān }
- shear plane** See shear surface. { 'shir·plān }
- shear slide** A landslide, especially a slump, produced by shear failure usually along a plane of weakness such as a bedding or cleavage plane. { 'shir·slīd }
- shear sorting** Sorting of sediments in which the smaller grains tend to move toward the zone of greatest shear strain, and the larger grains toward the zone of least shear. { 'shir·sōrd·iŋ }
- shear structure** A local structure in which earth stresses have been relieved by many small, closely spaced fractures. { 'shir·strək·chər }
- shear surface** A surface along which differential movement has taken place parallel to the surface. Also known as shear plane. { 'shir·sər·fəs }
- shear zone** A tabular area of rock that has been crushed and brecciated by many parallel fractures resulting from shear strain; often becomes a channel for underground solutions and the seat of ore deposition. { 'shir·zōn }
- sheer** A steep face of a cliff. { shir }
- sheet** **1.** A thin flowstone coating of calcite in a cave. **2.** A tabular igneous intrusion, especially when concordant or only slightly discordant. { shēt }
- sheet crack** A planar crack attributed to shrinkage of sediment due to dewatering. { 'shēt·krak }
- sheet deposit** A stratiform mineral deposit that is more or less horizontal and extensive relative to its thickness. { 'shēt·dī·pāz·ət }
- sheet drift** An evenly spread deposit of glacial drift that did not significantly alter the form of the underlying rock surface. { 'shēt·drift }
- sheeted fissure** A closely spaced fissure. { 'shēd·əd·'fish·ər }
- sheeted vein** A vein filling a shear zone. { 'shēd·əd·'vān }
- sheeted zone** An area of mineral deposits consisting of sheeted veins. { 'shēd·əd·'zōn }
- sheet erosion** Erosion of thin layers of surface materials by continuous sheets of running water. Also known as sheetflood erosion; sheetwash; surface wash; unconcentrated wash. { 'shēt·ī·rō·zhən }
- sheetflood erosion** See sheet erosion. { 'shēd·fləd·ī·rō·zhən }
- sheeting** The process by which thin sheets, slabs, scales, plates, or flakes of rock are successively broken loose or stripped from the outer surface of a large rock mass in response to release of load. Also known as exfoliation. { 'shēd·iŋ }
- sheeting plane** In igneous rocks, the primary cleavage plane or parting. { 'shēd·iŋ·plān }
- sheeting structure** A fracture or joint formed by pressure-release jointing or exfoliation. Also known as exfoliation joint; expansion joint; pseudostratification; release joint; sheet joint; sheet structure. { 'shēd·iŋ·strək·chər }
- sheet joint** See sheeting structure. { 'shēt·jōint }
- sheet mineral** See phyllosilicate. { 'shēt·mīn·rəl }
- sheet sand** See blanket sand. { 'shēt·sənd }

- sheet sandstone** A thin, blanket-shaped deposit of sandstone of regional extent { 'shēt 'san·stōn }
- sheet silicate** See phyllosilicate. { 'shēt 'sil·ə·kæt }
- sheet spar** A sheet crack filled with spar. { 'shēt 'spär }
- sheet structure** See sheeting structure. { 'shēt 'stræk·chər }
- sheetwash** 1. The detritus deposited by a sheetflood 2. See sheet erosion { 'shēt·wäsh }
- shelf** 1. Solid rock beneath alluvial deposits 2. A flat, projecting ledge of rock 3. See continental shelf. { shelf }
- shelf break** An obvious steepening of the gradient between the continental shelf and the continental slope. { 'shelf 'bräk }
- shelf channel** A valley formed in a shelf by erosion. { 'shelf 'chan·əl }
- shelf edge** The demarcation, without dramatic change in gradient, between continental shelf and continental slope. { 'shelf 'ej }
- shelf facies** A sedimentary facies characterized by carbonate rocks and fossil shells and produced in the neritic environments of marginal shelf seas. Also known as foreland facies; platform facies. { 'shelf 'fā·shēz }
- shelfstone** A speleothem formed at the water's edge as a horizontally projecting ledge { 'shelf·stōn }
- shell** 1. The crust of the earth. 2. A thin hard layer of rock. { shel }
- shell marl** A light-colored calcareous deposit formed on the bottoms of small fresh-water lakes, composed largely of uncemented mollusk shells and precipitated calcium carbonate, along with the hard parts of minute organisms. { 'shel 'märl }
- shell sand** A loose aggregate that is largely composed of shell fragments of sand size { 'shel 'sand }
- shelly** 1. Pertaining to a sediment or sedimentary rock containing the shells of animals 2. Pertaining to land abounding in or covered with shells. { 'shel·ē }
- shelly facies** A nongeosynclinal sedimentary facies that is commonly characterized by abundant calcareous fossil shells, dominant carbonate rocks (limestones and dolomites), mature orthoquartzitic sandstones, and a paucity of shales. { 'shel·ē 'fā·shēz }
- shelly pahoehoe** A type of pahoehoe characterized by open tubes and blisters on the surface. { 'shel·ē pä'hō·ē·hō·ē }
- shelter cave** A cave which extends only a short way underground, and whose roof of overlying rock usually extends beyond its sides. Also known as rock cave. { 'shel·tər 'kāv }
- shelter porosity** A type of primary interparticle porosity created by the sheltering effect of relatively large sedimentary particles which prevent the infilling of pore space by finer clastic particles. { 'shel·tər pä'räs·əd·ē }
- shergottite** An achondritic stony meteorite that is composed chiefly of pigeonite and maskelynite. { 'shər·gə'tīt }
- sheridanite** $(Mg,Al)_x(Al,Si)_4O_{10} \cdot (OH)_x$ A pale-green to colorless talclike mineral composed of basic magnesium aluminum silicate. { 'shər·ə·də'nīt }
- sherry topaz** A brownish-yellow to yellow-brown variety of topaz resembling sherry wine in color. { 'sher·ē 'tō·paz }
- shield** 1. The very old, rigid core of relatively stable rocks within a continent around which younger sedimentary rocks have been deposited. Also known as continental shield. 2. See palette. { shēld }
- shield basalt** A basaltic lava flow from a group of small, close-spaced shield-volcano vents that coalesced to form a single unit. { shēld bæ'sōlt }
- shield cone** A cone or dome-shaped volcano built up by successive outpourings of lava. { shēld 'kōn }
- shield volcano** A broad, low volcano shaped like a flattened dome and built of basaltic lava. Also known as basaltic dome; lava dome. { 'shēld vəl·kā·nō }
- shift** The relative displacement of the units affected by a fault but outside the fault zone itself. { shift }
- shifting** The movement of the crest of a divide away from a more actively eroding

shingle

stream (as on the steeper slope of an asymmetric ridge) toward a weaker stream on the gentler slope. { 'shif·t·iŋ }

shingle Pebbles, cobble, and other beach material, coarser than ordinary gravel but roughly the same size and occurring typically on the higher parts of a beach. { 'shiŋ·gəl }

shingle barchan A dunelike ridge formed of shingle perpendicular to the beach in shallow water. { 'shiŋ·gəl bār·kän }

shingle beach A narrow beach composed of shingle and commonly having a steep slope on both its landward and seaward sides. Also known as cobble beach. { 'shiŋ·gəl ,bēch }

shingle-block structure See imbricate structure. { 'shiŋ·gəl ɪblək 'stræk·chər }

shingle rampart A rampart of shingle built along a reef on the seaward edge. { 'shiŋ·gəl 'ram·pärt }

shingle ridge A steeply sloping bank of shingle heaped upon and parallel with the shore. { 'shiŋ·gəl ,ri:dʒ }

shingle structure See imbricate structure. { 'shin·gəl ,stræk·chər }

shingling See imbrication. { 'shiŋ·gliŋ }

shoal A submerged elevation that rises from the bed of a shallow body of water and consists of, or is covered by, unconsolidated material, and may be exposed at low water. { 'shōl }

shoal breccia A breccia formed by the action of waves and tides on a shoal, and resulting from diastrophism or aggradation. { 'shōl ,brech·ə }

shoal reef A reef formed in irregular masses amid submerged shoals of calcareous reef detritus. { 'shōl ,rēf }

shock breccia A fragmental rock formed by the action of shock waves, such as suevite formed by meteorite impact. { 'shäk ,brech·ə }

shock lithification The conversion of originally loose fragmental materials into coherent aggregates by the action of shock waves, such as those generated by explosions or meteorite impacts. { 'shäk ,lith·ə·fə·kə·shən }

shock metamorphism The complete permanent changes (physical, chemical, mineralogic, morphologic) in rocks caused by transient high-pressure shock waves that act over short-time intervals, ranging from a few microseconds to a fraction of a minute. { 'shäk ,med·ə'mór·fiz·əm }

shock zone A volume of rock in or around an impact or explosion crater in which a distinctive shock-metamorphic deformation or transformation effect is present. { 'shäk ,zōn }

shoestring A long, relatively straight and narrow sedimentary body having a width/thickness ratio of less than 5:1, usually 1:1. { 'shū·striŋ }

shoestring rill One of several long, narrow, uniform channels, closely spaced and roughly parallel with one another, that merely score the homogeneous surface of a relatively steep slope of bare soil or weak, clay-rich bedrock, and that develop wherever overland flow is intense. { 'shū·striŋ ,ril }

shoestring sand A shoestring composed of sand and usually buried in mud or shale, usually a sandbar or channel fill. { 'shū·striŋ ,sænd }

shonkinite A dark-colored syenite composed principally of augite and orthoclase with some olivine, hornblende, biotite, and nepheline. { 'shāŋ·kə·nīt }

shoot See ore shoot. { shūt }

shore **1.** The narrow strip of land immediately bordering a body of water. **2.** See sea-shore. { shōr }

shoreface The narrow, steeply sloping zone between the seaward limit of the shore at low water and the nearly horizontal offshore zone. { 'shōr·fās }

shoreface terrace A wave-built terrace in the shoreface region, composed of gravel and coarse sand swept from the wave-cut bench into deeper water. { 'shōr·fās ,ter·əs }

shoreline The intersection of a specified plane of water, especially mean high water, with the shore; a limit which changes with the tide or water level. Also known as strandline; waterline. { 'shōr·līn }

shoreline cycle The cycle of changes through which sequential forms of coastal fea-

- tures pass during shoreline development, from the establishment of a water level to the time when the water can do no more work. { 'shòr·līn ɹsī·kəl }
- shoreline-development ratio** A ratio indicating the degree of irregularity of a lake shoreline, given as the length of the shoreline to the circumference of a circle whose area is equal to that of the lake. { 'shòr·līn di'vel·əp·mənt ɹrā·shō }
- shoreline of depression** A shoreline of submergence that implies an absolute subsidence of the land. { 'shòr·līn əv di'presh·ən }
- shoreline of elevation** A shoreline of emergence that implies an absolute rise of the land. { 'shòr·līn əv ɹel·ə'vā·shən }
- shoreline of emergence** A straight or gently curving shoreline formed by the dominant relative emergence of the floor of an ocean or a lake. Also known as emerged shoreline; negative shoreline. { 'shòr·līn əv i'mər·jəns }
- shoreline of submergence** A shoreline, characterized by bays, promontories, and other minor features, formed by the dominant relative submergence of a landmass. Also known as positive shoreline; submerged shoreline. { 'shòr·līn əv səb'mər·jəns }
- shore platform** The horizontal or gently sloping surface produced along a shore by wave erosion. Also known as scar. { 'shòr ɹplat·fòrm }
- shore terrace** **1.** A terrace produced along the shore by wave and current action. **2.** See marine terrace. { 'shòr ɹter·əs }
- shortite** $\text{Na}_2\text{Ca}_2(\text{CO}_3)_3$ A mineral composed of sodium and calcium carbonate. { 'shòr·tīt }
- shoshonite** A basaltic rock composed of olivine and augite phenocrysts in a groundmass of labradorite with orthoclase rims, olivine, augite, a small amount of leucite, and some dark-colored glass. { shə'shō·nīt }
- shot copper** Small, rounded particles of native copper, molded by the shape of vesicles in basaltic host rock, and resembling shot in size and shape. { 'shät ɹkəp·ər }
- shoulder** **1.** A short, rounded spur protruding laterally from the slope of a mountain or hill. **2.** The sloping segment below the summit of a mountain or hill. **3.** A bench on the flanks of a glaciated valley, located at the sharp change of slope where the steep sides of the inner glaciated valley meet the more gradual slope above the level of glaciation. **4.** A joint structure on a joint face produced by the intersection of plume-structure ridges with fringe joints. { 'shōl·dər }
- shoved moraine** See push moraine. { 'shəvd mə'rān }
- shrinkage** The decrease in volume of soil, sediment, fill, or excavated earth due to the reduction of voids by mechanical compaction, superimposed loads, natural consolidation, or drying. { 'shriŋ·kij }
- shrinkage crack** A small crack produced in fine-grained sediment or rock by the loss of contained water during drying or dehydration. { 'shriŋ·kij ɹkrak }
- shrinkage index** The numerical difference between the plastic limit of a material and its shrinkage limit. { 'shriŋ·kij ɹin·deks }
- shrinkage limit** That moisture content of a soil below which a decrease in moisture content will not cause a decrease in volume, but above which an increase in moisture will cause an increase in volume. { 'shriŋ·kij ɹlim·ət }
- shrinkage pore** An irregular pore formed in muddy sediment by shrinkage. { 'shriŋ·kij ɹpɔr }
- shrinkage ratio** The ratio of a volume change to the moisture-content change above the shrinkage limit. { 'shriŋ·kij ɹrā·shō }
- shrub-coppice dune** A small dune formed on the leeward side of bush-and-clump vegetation. { 'shrəb ikəp·əs 'dün }
- shungite** A hard, black, amorphous, coallike material composed of more than 98% carbon. { 'shəŋ·tīt }
- shutridge** A ridge formed by vertical, lateral, or oblique displacement of a fault traversing a ridge-and-valley topography with the displaced part of a ridge shutting in the adjacent ravine or canyon. { 'shəd·ə'riŋ }
- sial** A petrologic term for the silica- and alumina-rich upper rock layers of the earth's crust; gives rise to granite magma; the bulk of the continental blocks is sialic. Also known as granitic layer; sal. { 'sī·əl }
- siberite** A violet-red or purplish lithian variety of tourmaline. { sɹ'bi·rīt }

sibjet

sibjet See sebkha. { 'sib·jət }

sicklerite (Li,Mn)(PO₄) A dark-brown mineral composed of hydrous lithium manganese phosphate occurring in cleavable masses. { 'sik·lə·rīt }

side canyon A ravine or other valley smaller than a canyon, through which a tributary flows into the main stream. { 'sīd·'kan·yən }

sideraerolite See stony-iron meteorite. { 'sīd·ə·rə'ler·ə·līt }

siderite FeCO₃ A brownish, gray, or greenish rhombohedral mineral composed of ferrous carbonate; hardness is 4 on Mohs scale, and specific gravity is 3.9. Also known as chalybite; iron spar; rhombohedral iron ore; siderose; sparry iron; spathic iron; white iron ore. { 'sīd·ə·rīt }

sideroferrite A variety of native iron occurring as grains in petrified wood. { 'sīd·ə·rə'fe·rīt }

siderogel A mineral consisting of truly amorphous FeO(OH) and occurring in some bog iron ores. { 'sīd·ə·rə·jel }

siderolite See stony-iron meteorite. { 'sīd·ə·rə·līt }

sideromelane Any iron-rich mafic mineral. { 'sīd·ə·rə'me·lān }

sideronatriite Na₂Fe(SO₄)(OH)·3H₂O A yellow mineral composed of basic hydrous sodium iron sulfate occurring in fibrous masses. { 'sīd·ə·rə'nā·trīt }

sideronitic texture In mineral deposits, a mesh of silicate minerals so shattered and pressed as to force out solutions and other volatiles. { 'sīd·ə·rə'nīd·ik'teks·chər }

siderophyllite An iron-rich variety of biotite. { 'sīd·ə·rə'fil·īt }

siderophyre A stony-iron meteorite containing bronzite and tridymite crystals in a nickel-iron network. Also known as siderophyre. { 'sīd·ə·rə'fīr }

siderophyre See siderophyre. { 'sīd·ə·rə'f·ə·rē }

siderose See siderite. { 'sīd·ə·rōs }

siderosphere See inner core. { 'sīd·ə·rə'sfir }

siderotil (Cu,Fe)SO₄·5H₂O A white to yellowish or pale greenish-white mineral consisting of ferrous sulfate pentahydrate; occurs as fibrous crusts and groups of needlelike crystals. { 'sīd·ə·rə'til }

siegenite (Co,Ni)₂S₄ A mineral composed of nickel cobalt sulfide. { 'sē·gə'nīt }

sierozem A soil found in cool to temperate arid regions characterized by a brownish-gray surface on a lighter layer based on a carbonate or hardpan layer. { 'sir·ə·zem }

sieve deposition The formation of coarse-grained lobate masses on an alluvial fan whose material is sufficiently coarse and permeable to permit complete infiltration of water before it reaches the toe of the fan. { 'siv·dep·ə·zish·ən }

sieve lobe A coarse-grained lobate mass produced by sieve deposition on an alluvial fan. { 'siv·ləb }

sigmoidal dune A dune with an S-shaped ridge crest formed by the merger of crescentic dunes. { sig'moid·əl'dün }

sigmoidal fold A recumbent fold having an axial surface which resembles the Greek letter sigma. { sig'moid·əl'fōld }

silcrete A conglomerate of sand and gravel cemented by silica. { 'sil·krēt }

silex A pure or finely ground quartz. { 'sī·leks }

silexite Chert occurring in calcareous beds Igneous rock composed mainly of primary quartz. { sī'lek·sīt }

silica SiO₂ Naturally occurring silicon dioxide, occurs in five crystalline polymorphs (quartz, tridymite, cristobalite, coesite, and stishovite), in cryptocrystalline form (as chalcedony), in amorphous and hydrated forms (as opal), and combined in silicates. { 'sil·ə·kə }

silica sand Sand having a very high percentage of silicon dioxide; a source of silicon { 'sil·ə·kə'sand }

silica stone A sedimentary rock composed of siliceous minerals { 'sil·ə·kə'lstōn }

silicate Any of a large group of minerals whose crystal lattice contains SiO₄ tetrahedra, either isolated or joined through one or more of the oxygen atoms. { 'sil·ə·kət }

silication The conversion to or the replacement by silicates. { 'sil·ə'kā·shən }

siliceous Describing a rock containing abundant silica, especially free silica. { sə'lish·əs }

siliceous earth A loose, friable, soft, porous, lightweight, fine-grained, and usually

- white siliceous sediment, usually derived from the remains of organisms. { sə'lish·əs 'ærth }
- siliceous limestone** **1.** A dense, dark, commonly thin-bedded limestone representing an intimate admixture of calcium carbonate and chemically precipitated silica that are believed to have accumulated simultaneously. **2.** A silicified limestone, bearing evidence of replacement of calcite by silica. { sə'lish·əs 'līm·stōn }
- siliceous ooze** An ooze composed of siliceous skeletal remains of organisms, such as radiolarians. { sə'lish·əs 'ūz }
- siliceous sediment** A sediment composed of fragmental, concretionary, or precipitated siliceous materials. { sə'lish·əs 'sed·ə·mənt }
- siliceous shale** A hard, fine-grained rock with the texture of shale and with as much as 85% silica. { sə'lish·əs 'shāl }
- siliceous sinter** A white, lightweight, porous, opaline variety of silica, deposited by a geyser or hot spring. Also known as fiorite; geyserite; pearl sinter; sinter. { sə'lish·əs 'sin·tər }
- silicic** Describing magma or igneous rock rich in silica (usually at least 65), granite is a silicic rock. Also known as oversaturated; persilicic. { sə'lis·ik }
- silicification** Introduction of or replacement by silica. Also known as silification. { sə'lis·ə·fə'kā·shən }
- silicified wood** A material formed by the silicification of wood, generally in the form of opal or chalcedony, in such a manner as to preserve the original form and structure of the wood. Also known as agatized wood; opalized wood; petrified wood; wood-stone. { sə'lis·ə·fīd 'wūd }
- silicinate** Pertaining to the silica cement of a sedimentary rock. { sə'lis·ən·āt }
- siliclastic** Pertaining to clastic noncarbonate rocks which are almost exclusively silicon-bearing, either as forms of quartz or as silicates. { 'sil·ə'klas·tik }
- silicomagnesiumfluorite** $\text{Ca}_2\text{Mg}_2\text{Si}_2\text{O}_7(\text{OH})_2\text{F}_{10}$ A mineral composed of basic calcium magnesium fluoride and silicate. { 'sil·ə·kō·mag·nē·zē·ō'flūr·īt }
- silk** Microscopic needle-shaped crystalline inclusions of rutile in a natural gem from which subsurface reflections produce a whitish sheen resembling that of a silk fabric. { silk }
- sill** **1.** Submarine ridge in relatively shallow water that separates a partly closed basin from another basin or from an adjacent sea. **2.** A tabular igneous intrusion that is oriented parallel to the planar structure of surrounding rock. { sill }
- siltenite** Bi_2O_3 A mineral composed of native bismuth oxide, is polymorphous with bismite, and occurs as earthy masses. { 'sil·ənīt }
- sillimanite** Al_2SiO_5 A brown, pale-green, or white neosilicate mineral with vitreous luster crystallizing in the orthorhombic system; commonly occurs in slender crystals, often in fibrous aggregates; hardness is 6-7 on Mohs scale, and specific gravity is 3.23. Also known as fibrolite. { 'sil·ə·mə·nīt }
- silt** **1.** A rock fragment or a mineral or detrital particle in the soil having a diameter of 0.002-0.05 millimeter that is, smaller than fine sand and larger than coarse clay. **2.** Sediment carried or deposited by water. **3.** Soil containing at least 80% silt and less than 12% clay. { silt }
- silting** The deposition or accumulation of stream-deposited silt that is suspended in a body of standing water. { 'silt·iŋ }
- siltite** See siltstone. { 'sil·tīt }
- silt loam** A soil containing 50-88% silt, 0-27% clay, and 0-50% sand. { 'silt·lōm }
- silt shale** A consolidated sediment consisting of no more than 10% sand and having a silt/clay ratio greater than 2:1. { 'silt·shāl }
- silt soil** A soil containing 80% or more of silt, and not more than 12% of clay and 20% of sand. { 'silt·sōil }
- siltstone** Indurated silt having a shale-like texture and composition. Also known as siltite. { 'silt·stōn }
- silttil** A chemically decomposed and eluviated till consisting of a friable, brownish, open-textured silt that contains a few small siliceous pebbles. { 'sil·tīl }
- Silurian** **1.** A period of geologic time of the Paleozoic era covering a time span of

silver glance

between 430-440 and 395 million years ago. **2.** The rock system of this period. {sī'lūr-ē-ən}

silver glance See argentite. { 'sil-vər 'glans }

sima A petrologic term for the lower layer of the earth's crust composed of silica- and magnesia-rich rocks; source of basaltic magma; sima is equivalent to the lower part of the continental crust and the bulk of the oceanic crust. Also known as intermediate layer. { 'sī-mə }

similar fold A fold in deformed beds in which the successive folds resemble each other. { 'sim-ə-lər 'föld }

simple crater A meteorite impact crater of relatively small diameter, characterized by a uniformly concave-upward shape and a maximum depth in the center, and lacking a central uplift. { 'sim-pəl 'kräd-ər }

simple cross-bedding Cross-bedding in which the lower bounding surfaces are nonerosional surfaces. { 'sim-pəl 'krös-bed-ɪŋ }

simple dike An igneous dike emplaced in a single episode. { 'sim-pəl 'dɪk }

simple ore An ore of a single metal. { 'sim-pəl 'ôr }

simple valley A valley that maintains a constant relation to the general structure of the underlying strata. { 'sim-pəl 'val-ē }

simpsonite $AlTaO_6$ A hexagonal mineral composed of aluminum tantalum oxide and occurring in short crystals. { 'sim-sə-nīt }

sincosite $Ca(VO)_2(PO_4)_2 \cdot 5H_2O$ A leek-green mineral composed of hydrous calcium vanadyl phosphate and occurring in tetragonal scales or plates. { 'sɪŋ-kə-sīt }

Sinemurian A European stage of geologic time. Lower Jurassic above Hattangian and below Pliensbachian. { sin-ə'myūr-ē-ən }

singing sand See sounding sand. { 'sɪŋ-ɪŋ 'sænd }

single-cycle mountain A fold mountain that has been destroyed without reelevation of any of its important parts. { 'sɪŋ-gəl 'ɪsɪ-kəl 'maʊnt-ən }

sinhalite $MgAl(BO_4)$ A mineral composed of magnesium aluminum borate; sometimes used as a gem. { 'sin-ə-līt }

sinistral fault See left lateral fault. { 'sin-əs-trəl 'fölt }

sinistral fold An asymmetric fold whose long limb when viewed along its dip appears to have a leftward offset. { 'sin-əs-trəl 'föld }

sink **1.** A circular or ellipsoidal depression formed by collapse on the flank of or near to a volcano. **2.** A slight, low-lying desert depression containing a central playa or saline lake with no outlet, as where a desert stream comes to an end or disappears by evaporation. { sɪŋk }

sinkhole Closed surface depressions in regions of karst topography produced by solution of surface limestone or the collapse of cavern roofs. { 'sɪŋk-hōl }

sinkhole plain A regionally extensive plain or plateau characterized by well-developed karst features. { 'sɪŋk-hōl 'plæn }

sinoite Si_2N_2O A nitride mineral known only in meteorites. { 'sɪn-ə-wīt }

sinople A blood-red or brownish red (with a tinge of yellow) variety of quartz containing inclusions of hematite. { 'sin-ə-pəl }

sinter **1.** A chemical sedimentary rock deposited by precipitation from mineral waters, especially siliceous sinter and calcareous sinter. **2.** See siliceous sinter. { 'sin-tər }

siphon A passage in a cave system that connects with a water trap. { 'sɪ-fən }

siserskite A light steel gray mineral consisting of an alloy of osmium and iridium, occurs in tabular form. { 'sɪs-ər-kɪt }

sitaparite See bixbyite. { sə'tap-ə-rīt }

size analysis See particle-size analysis. { 'sɪz ə-nal-ə-səs }

size-frequency analysis See particle-size analysis. { 'sɪz 'frē kwən-sē ə-nal-ə-səs }

sjogrenite $Mg_xFe_x(OH)_x(CO_3) \cdot 4H_2O$ A hexagonal mineral composed of hydrous basic magnesium iron carbonate. { 'shō-grə-nīt }

skarn A lime-bearing silicate derived from nearly pure limestone and dolomite with the introduction of large amounts of silicon, aluminum, iron, and magnesium. { skärn }

skeleton grain A relatively stable and not readily translocated grain of soil material, concentrated or reorganized by soil-forming processes. { 'skel-ət-ən 'grän }

- skeleton texture** Descriptive of the texture of limestone that consists of an in-place accumulation of skeletal material, that is, the hard parts secreted by organisms. { 'skel·ət·ən·teks·chər }
- skerry** A low, small, rugged and rocky island or reef. { 'sker·ē }
- skialith** A vague remnant of country rock assimilated in granite. { 'skī·əl·lith }
- skid boulder** An isolated angular block of stone resting on the floor of a playa, derived from an outcrop near the playa margin, and associated with a trail or mark indicating that the boulder has recently slid across the mud surface. { 'skid·bōl·dər }
- Skiddavin** See Arenigian. { skə'dav·ən }
- skiu** See morvan. { skyō }
- skip cast** The cast of a skip mark. { 'skip·kəst }
- skip mark** A crescent-shaped mark that is one of a linear pattern of regularly spaced marks made by an object that skipped along the bottom of a stream. { 'skip·märk }
- skleropelite** An argillaceous or allied rock which has been indurated by low-grade metamorphism, is more massive and dense than shale, and differs from slate by the absence of cleavage. { sklə'rəp·əlīt }
- skolite** A scaly, dark-green variety of glauconite rich in aluminum and calcium and deficient in ferric iron. { 'skō·līt }
- skomerite** A fine-grained, compact extrusive rock containing microscopic grains and crystals of augite, olivine, and phenocrysts of decomposed plagioclase (probably albite) in a groundmass of plagioclase, thought to be more calcic than the phenocrysts. { 'skäm·ə·rīt }
- skutterudite** (Co,Ni)As₃. A tin-white mineral with metallic luster composed of cobalt and nickel arsenides; crystallizes in the isometric system but commonly is massive; hardness is 5.5-6 on Mohs scale, and specific gravity is 6.6; it is a minor ore of cobalt and nickel. { 'skəd·ə·rə·dīt }
- slab** A cleaved or finely parallel jointed rock, which splits into tabular plates from 1 to 4 inches (2.5 to 10 centimeters) thick. Also known as slabstone. { slab }
- slab jointing** Jointing produced in rock by the formation of numerous cleaved or closely spaced parallel fissures dividing the rock into thin slabs. { 'slab·jōint·iŋ }
- slab pahoehoe** A pahoehoe whose surface consists of a jumbled arrangement of slabs of flow crust. { 'slab pə'hō·ē·hō·ē }
- slabstone** See slab. { 'slab·stōn }
- slack** A hollow or depression between lines of shore dunes or in a sandbank or mudbank on a shore. { slək }
- slaking** 1. Crumbling and disintegration of earth materials when exposed to air or moisture. 2. The breaking up of dried clay when saturated with water. { 'slāk·iŋ }
- slate** A group name for various very-fine-grained rocks derived from mudstone, siltstone, and other clayey sediment as a result of low-degree regional metamorphism; characterized by perfect fissility or slaty cleavage which is a regular or perfect planar schistosity. { slät }
- slate ribbon** A relict ribbon structure on the cleavage surface of slate, in which varicolored and straight, wavy, or crumpled stripes cross the cleavage surface. { 'slät·rīb·ən }
- slavikite** MgFe₃³⁺(SO₄)₂(OH)·18 H₂O. A greenish-yellow mineral composed of hydrous basic magnesium ferric sulfate and occurring as rhombohedral crystals. { 'slav·ə·kīt }
- slice** An arbitrary section of some uniform standard, such as thickness of a stratigraphic unit that is otherwise indivisible for purposes of analytic study. { slīs }
- slickens** A layer of fine silt deposited by a flooding stream. { 'slik·ənz }
- slickenside** A surface that is polished and smoothly striated and results from slippage along a fault plane. { 'slik·ən·sīd }
- slickolite** A vertically discontinuous slip-scratch surface made by slippage and shearing and developed on sharply dipping bedding planes of limestone that shapes the wall of a solution cavity. { 'slik·əlīt }
- slide** 1. A vein of clay intersecting and dislocating a vein vertically, or the vertical dislocation itself. 2. A rotational or planar mass movement of earth, snow, or rock resulting from failure under shear stress along one or more surfaces. { slīd }

slip

- slip** The actual relative displacement along a fault plane of two points which were formerly adjacent on either side of the fault. Also known as actual relative movement; total displacement. {slip}
- slip bedding** Convolute bedding formed as the result of subaqueous sliding { 'slip ,bed·iŋ }
- slip block** A separate rock mass that has slid away from its original position and come to rest down the slope without undergoing much deformation. { 'slip ,bläk }
- slip cleavage** Cleavage that is superposed on slaty cleavage or schistosity characterized by spaced cleavage with thin tabular bodies of rock between the cleavage planes. Also known as close-joints cleavage; crenulation cleavage; shear cleavage; strain-slip cleavage. { 'slip ,klē·vij }
- slip face** The steeply sloping leeward surface of a sand dune. Also known as sandfall { 'slip ,fās }
- slip fold** See shear fold. { 'slip ,föld }
- slip joint** See shear joint. { 'slip ,jōint }
- slip-off slope** The long, low, gentle slope on the inside of the downstream face of a stream meander. { 'slip ,ōf ,slōp }
- slip plane** A planar slip surface. { 'slip ,plān }
- slip sheet** A stratum or rock on the limb of an anticline that has slid down and away from the anticline; a gravity collapse structure. { 'slip ,shēt }
- slip surface** The displacement surface of a landslide. { 'slip ,sər·fəs }
- slope** The inclined surface of any part of the earth's surface. {slōp }
- slope correction** A tape correction applied to a distance measured on a slope in order to reduce it to a horizontal distance, between the vertical lines through its end points. Also known as grade correction. { 'slōp kə·rek·shən }
- slope failure** The downward and outward movement of a mass of soil beneath a natural slope or other inclined surface; four types of slope failure are rockfall, rock flow, plane shear, and rotational shear. { 'slōp ,fāl·yər }
- slope gully** A small, discontinuous submarine valley usually formed by slumping along a fault scarp or the slope of a river delta. Also known as sea gully. { 'slōp ,gəl·ē }
- slope stability** The resistance of an inclined surface to failure by sliding or collapsing. { 'slōp stə·bil·əd·ē }
- slope wash** **1.** The mass-wasting process assisted by nonchanneled running water, by which rock and soil is transported down a slope, specifically, sheet erosion. **2.** The material that is or has been transported. { 'slōp ,wāsh }
- slud** **1.** Muddy material which has moved downslope by solifluction **2.** Ground that behaves as a viscous fluid, including material moved by solifluction and by mechanisms not limited to gravitational flow. {sləd }
- sludge** A soft or muddy bottom deposit as on tideland or in a stream bed. {sləj }
- sludging** See solifluction. { 'sləj·iŋ }
- slump** A type of landslide characterized by the downward slipping of a mass of rock or unconsolidated debris, moving as a unit or several subsidiary units, characteristically with backward rotation on a horizontal axis parallel to the slope; common on natural cliffs and banks and on the sides of artificial cuts and fills. {sləmp }
- slump ball** A relatively flattened mass of sandstone resembling a large concretion, measuring from 0.8 inch to 10 feet (2 centimeters to 3 meters) across, commonly thinly laminated with internal contortions and a smooth or lumpy external form, and formed by subaqueous slumping. { 'sləmp ,bəl }
- slump basin** A shallow basin near the base of a canyon wall and on a shale hill or ridge, formed by small, irregular slumps. { 'sləmp ,bās·ən }
- slump bedding** Also known as slurry bedding. **1.** Any disturbed bedding. **2.** Convolute bedding produced by subaqueous slumping or lateral movement of newly deposited sediment. { 'sləmp ,bed·iŋ }
- slump fault** See normal fault. { 'sləmp ,fōlt }
- slump fold** An intraformational fold produced by slumping of soft sediments, as at the edge of the continental shelf. { 'sləmp ,föld }
- slump overfold** A fold consisting of hook-shaped masses of sandstone produced during slumping. { 'sləmp 'ō·vər·föld }

- slump scarp** A low cliff or rim of thin solidified lava occurring along the margins of a lava flow and against the valley walls or around steep toes after the central part of the lava crust collapsed due to outflow of still-molten underlying layers. { 'slæmp ,skärp }
- slump sheet** A well-defined bed of limited thickness and wide horizontal extent, containing slump structures. { 'slæmp ,shēt }
- slump structure** Any sedimentary structure produced by subaqueous slumping. { 'slæmp ,stræk·chər }
- slurry bedding** See slump bedding. { 'slər·ē ,bed·iŋ }
- slurry slump** A slump in which the incoherent sliding mass is mixed with water and disintegrates into a quasiliquid slurry. { 'slər·ē ,slæmp }
- slush avalanche** A rapid and far-reaching downslope transport of rock debris released by snow supersaturated with meltwater and marking the catastrophic opening of ice- and snow-dammed brooks to the spring flood. { 'sləʃ ,av·ə·lanch }
- smaltite** {Co,Ni}As₂ A metallic-gray isometric mineral composed of nickel cobalt arsenide. { 'smɔl·tīt }
- smaragd** See emerald. { 'sma·ragd }
- smaragdite** A green amphibole mineral that is pseudomorphous after pyroxene in rocks such as eclogite. { smə'rag·dīt }
- smectite** Dioctahedral (montmorillonite) and trioctahedral (saponite) clay minerals, and their chemical varieties characterized by swelling properties and high cation-exchange capacities. { 'smek·tīt }
- smithite** AgAsS₂ A red monoclinic mineral composed of silver arsenic sulfide and occurring as small crystals. { 'smi·thīt }
- smithsonite** ZnCO₃ White, yellow, gray, brown, or green secondary carbonate mineral associated with sphalerite and commonly reniform, botryoidal, stalactitic, or granular; hardness is 5 on Mohs scale, and specific gravity is 4.30-4.45; it is an ore of zinc. Also known as calamine; dry-bone ore; szaskaite; zinc spar. { 'smith·sə·nīt }
- smokestone** See smoky quartz. { 'smök·stōn }
- smoky quartz** A smoky-yellow, smoky-brown, or brownish-gray often transparent variety of crystalline quartz containing inclusions of carbon dioxide; may be used as a semiprecious stone. Also known as cairngorm; smokestone. { 'smök·ē 'kwɔrts }
- smooth chert** A hard, dense, homogeneous chert (insoluble residue) characterized by a conchoidal-to-even fracture surface that is devoid of roughness and by a lack of crystallinity, granularity, or other distinctive structure. { 'smüth 'chərt }
- smooth phase** The part of stream traction whereby a mass of sediment travels as a sheet with gradually increasing density from the surface downward. { 'smüth ,fāz }
- smothered bottom** A sedimentary surface on which complete, well-preserved and commonly very fragile and delicate fossils were saved by an influx of mud that buried them instantly. { 'sməth·ərd 'bäd·əm }
- snowflake obsidian** An obsidian that contains white, gray, or reddish spherulites ranging in size from microscopic to a meter or more in diameter. { 'snō·flāk äb'sid·ē·ən }
- snowflush** An accumulation of drifted snow, windblown soil, and wind-transported seeds on a lee slope, characteristically marked during the winter by a dark patch of soil. { 'snō·fləʃ }
- snow niche** See nivation hollow. { 'snō ,nich }
- snow patch erosion** See nivation. { 'snō 'pæç i·rō·zhən }
- soaprock** See soapstone. { 'söp·ræk }
- soapstone** **1.** A mineral name applied to steatite or to massive talc. Also known as soaprock. **2.** A metamorphic rock characterized by massive, schistose, or interlaced fibrous texture and a soft unctuous feel. **3.** See saponite. { 'söp·stōn }
- sodaclase** See albite. { 'söd·ə·klās }
- soda-granite** **1.** A granite in which soda is more abundant than potash. **2.** A granite that contains soda-plagioclase instead of the orthoclase found in normal granite. { 'söd·ə ,gran·ət }
- sodalite** Na₂Al₂Si₃O₁₂Cl A blue or sometimes white, gray, or green mineral tectosilicate of the feldspathoid group, crystallizing in the isometric system, with vitreous luster,

soda mica

hardness of 5 on Mohs scale, and specific gravity of 2.2-2.4; used as an ornamental stone. { 'söd·ə'līt }

soda mica See paragonite. { 'söd·ə 'mī·kə }

soda microcline See anorthoclase. { 'söd·ə 'mī·krə·klīn }

soda niter NaNO_3 A colorless to white mineral composed of sodium nitrate, crystallizing in the rhombohedral division of the hexagonal system; hardness is 1½ to 2 on Mohs scale and specific gravity is 2.266. Also known as nitrate; Peru saltpeter. { 'söd·ə 'nīd·ər }

soddyite $(\text{UO}_2)_{12}\text{Si}_4\text{O}_{22} \cdot 14\text{H}_2\text{O}$ A pale-yellow orthorhombic mineral composed of hydrous uranium silicate and occurring in fine-grained aggregates or crystals. { 'söd·ē·īt }

sodium-calcium feldspar See plagioclase { 'söd ē·əm 'kal sē əm 'fel·spär }

sodium feldspar See albite. { 'söd·ē·əm 'fel·spär }

sodium illite See brammalite. { 'söd·ē·əm 'i·līt }

sodium tetraborate See sodium borate. { 'söd·ē·əm lte·trə'bór·āt }

soffione A jet of steam and other vapors issuing from the ground in a volcanic area. { 'sä·fē'ō·nē }

soffiosian knob See frost mound. { sə'fō·zhən 'nāb }

soft coal See bituminous coal. { 'söft 'köl }

soft rock **1.** A broad designation for sedimentary rock. **2.** A rock that is relatively nonresistant to erosion. { 'söft 'rāk }

Sohm Abyssal Plain A basin in the North Atlantic about 2400 fathoms (4390 meters) deep, between Newfoundland and the Mid-Atlantic Ridge. { 'söm ə'bis·əl 'plān }

soil **1.** Unconsolidated rock material over bedrock **2.** Freely divided rock-derived material containing an admixture of organic matter and capable of supporting vegetation. { 'söl }

soil air The air and other gases in spaces in the soil; specifically, that which is found within the zone of aeration. Also known as soil atmosphere. { 'söl lēr }

soil atmosphere See soil air. { 'söl lät·mə·sfīr }

soil blister See frost mound. { 'söl 'blis·tər }

soil colloid Colloidal complex of soils composed principally of clay and humus. { 'söl lkä·lōid }

soil complex A mapping unit used in detailed soil surveys, consists of two or more recognized classifications. { 'söl lkäm·pleks }

soil creep The slow, steady downhill movement of soil and loose rock on a slope. Also known as surficial creep. { 'söl 'krēp }

soil element A unit that represents an arbitrarily small volume of soil within a soil mass. { 'söl 'el·ə·mənt }

soil erosion The detachment and movement of topsoil by the action of wind and flowing water. { 'söl i·rōzh·ən }

soil flow See solifluction. { 'söl 'flō }

soil fluction See solifluction. { 'söl 'flək·shən }

soil formation See soil genesis. { 'söl 'fōr·mā·shən }

soil genesis The mode by which soil originates, with particular reference to processes of soil-forming factors responsible for the development of true soil from unconsolidated parent material. Also known as pedogenesis; soil formation. { 'söl 'jən·ə·səs }

soil profile A vertical section of a soil, showing horizons and parent material. { 'söl 'prō·fīl }

soil science The study of the formation, properties, and classification of soil; includes mapping. Also known as pedology. { 'söl 'sī·əns }

soil separate Any of a group of rock or mineral particles, separated from a soil sample, having diameters less than 0.8 inch (2 millimeters) and ranging within the limits of one of the standard classifications of soil particle size. Also known as separate. { 'söl 'sep·rət }

soil series A family of soils having similar profiles, and developing from similar original materials under the influence of similar climate and vegetation. { 'söl 'sir·ēz }

- soil shear strength** The maximum resistance of a soil to shearing stresses. { 'sɔil 'ʃɪr 'strɛŋkθ }
- soil stripes** Alternating bands of fine and coarse material in a soil structure { 'sɔil 'stri:ps }
- soil structure** Arrangement of soil into various aggregates, each differing in the characteristics of its particles. { 'sɔil 'strɛk ·tʃər }
- soil survey** The systematic examination of soils, their description and classification, mapping of soil types, and the assessment of soils for various agricultural and engineering uses. { 'sɔil 'sə:və }
- soil-water belt** See belt of soil water. { 'sɔil 'wɔd ·ər 'belt }
- soil-water zone** See belt of soil water. { 'sɔil 'wɔd ·ər 'zɔn }
- sole** **1.** The bottom of a sedimentary stratum **2.** The middle and lower portion of the shear surface of a landslide. **3.** The underlying fault plane of a thrust nappe. Also known as sole plane. { sɔil }
- sole injection** An igneous intrusion that was put in place along a thrust plane { 'sɔil in'jek ·ʃən }
- sole mark** An irregularity or penetration on the undersurface of a sedimentary stratum { 'sɔil 'mɑ:k }
- sole plane** See sole. { 'sɔil 'plɑ:n }
- soifatara** A fumarole from which sulfurous gases are emitted. { 'sɔil 'fɑ:tɑ:rə }
- solifluction** A rapid soil creep, especially referring to downslope soil movement in periglacial areas. Also known as sludging, soil flow, soil fluction { 'sɔil ə'flɛk ·ʃən }
- solifluction lobe** An isolated, tongue-shaped feature of the land surface with a steep front and a smooth upper surface formed by more rapid solifluction on certain sections of the slope. Also known as solifluction tongue. { 'sɔil ə'flɛk ·ʃən 'lɒb }
- solifluction mantle** The locally derived, unsorted material moved downslope by solifluction. Also known as flow earth. { 'sɔil ə'flɛk ·ʃən 'mɑnt ·əl }
- solifluction sheet** A broad deposit of a solifluction mantle { 'sɔil ə'flɛk ·ʃən 'ʃi:t }
- solifluction stream** A narrow, streamlike deposit of a solifluction mantle { 'sɔil ə'flɛk ·ʃən 'stri:m }
- solifluction tongue** See solifluction lobe. { 'sɔil ə'flɛk ·ʃən 'tʌŋ }
- solodize** To improve a soil by removing alkalies from it. { 'sɔl ·ə'daɪz }
- Solod soil** See Soloth soil. { 'sɔl ·ləd 'sɔil }
- Solonchak soil** One of an intrazonal balamorphic group of light-colored soils rich in soluble salts. { 'sɔil ə'nʃɑ:k 'sɔil }
- Solonetz soil** One of an intrazonal group of black alkali soils having a columnar structure. { 'sɔil ə'nɛts 'sɔil }
- Soloth soil** One of an intrazonal halomorph group of soils formed from saline material, the surface layer is soft and friable, and overlies a light-colored leached horizon which, in turn, overlies a dark horizon. Also known as Solod soil. { 'sɔl ·lət 'sɔil }
- solum** The upper part of a soil profile, composed of A and B horizons in mature soil. Also known as true soil. { 'sɔl ·ləm }
- solution groove** One of a series of continuous, subparallel furrows developed on an inclined or vertical surface of a soluble and homogeneous rock (such as the limestone walls of a cave) by the slow corroding action of trickling water. { sɔ'lju: ·ʃən 'gru:v }
- solution pool** A pool in a rock that is formed by the dissolution of the rock in ocean water. { sɔ'lju: ·ʃən 'pu:l }
- solution potholes** Potholes produced in carbonate rocks by dissolution { sɔ'lju: ·ʃən 'pɔ:t ·hɔ:lz }
- solution transfer** A process whereby pressure solution of detrital mineral grains at contact areas is followed by recrystallization on the less strained parts of the grain surfaces. { sɔ'lju: ·ʃən 'tranz ·fər }
- somma** The rim of a volcano. { 'sɔm ·ə }
- sordawallite** See tachylite. { sɔr'dɑ:wɔ:l'ɪt }
- sorosilicate** A structural type of silicate whose crystal lattice has two SiO₄ tetrahedra sharing one oxygen atom. { 'sɔr ·ə'sɪl ·ə ·kæt }
- sortiite** A type of meteorite similar to the pallasites, with troilite substituting for olivine. { sɔ'rɪd ·ē'ɪt }

sorted

- sorted** **1.** Pertaining to a nongenetic group of patterned-ground features displaying a border of stones, including boulders, commonly alternating with very small particles, including silt, sand, and clay. **2.** Pertaining to an unconsolidated sediment or a cemented detrital rock consisting of particles of essentially uniform size or of particles lying within the limits of a single grade. { 'sórd·əd }
- sorted polygon** A patterned ground having a sorted appearance due to a border of stones and characterized by a polygonal mesh. Also known as stone polygon. { 'sórd·əd 'päl·i·gän }
- sorting** The process by which similar in size, shape, or specific gravity sedimentary particles are selected and separated from associated but dissimilar particles by the agent of transportation. { 'sórd·iŋ }
- sorting coefficient** A sorting index equal to the square root of the ratio of the larger quartile (the diameter having 25% of the cumulative size-frequency distribution larger than itself) to the smaller quartile (the diameter having 75% of the cumulative size-frequency distribution larger than itself). { 'sórd·iŋ ·kō·i·fish·ənt }
- sorting index** A measure of the degree of sorting in a sediment based on the statistical spread of the frequency curve of particle sizes. { 'sórd·iŋ ·iŋ·deks }
- sounding sand** Sand that emits musical, humming, or crunching sounds when disturbed. Also known as singing sand. { 'saund·iŋ ·sand }
- source area** See provenance. { 'sørs ·er·ē·ə }
- source bed** The original stratigraphic horizon from which secondary sulfide minerals were derived. { 'sørs ·bed }
- sourceland** See provenance. { 'sørs·land }
- source rock** **1.** Rock from which fragments have been derived which form a later, usually sedimentary rock. Also known as mother rock; parent rock. **2.** Sedimentary rock, usually shale and limestone, deposited together with organic matter which was subsequently transformed to liquid or gaseous hydrocarbons. { 'sørs ·ræk }
- South African jade** See Transvaal jade. { 'saüth 'af·ri·kən 'jäd }
- souzalite** $(\text{Mg,Fe})_3(\text{Al,Fe})_4(\text{PO}_4)_4(\text{OH})_6 \cdot 2\text{H}_2\text{O}$ A green mineral composed of hydrous basic phosphate of magnesium, iron, and aluminum. { 'sō·zə·līt }
- spall** **1.** A fragment removed from the surface of a rock by weathering. **2.** A relatively thin, sharp-edged fragment produced by exfoliation. **3.** A rock fragment produced by chipping with a hammer. { spəl }
- spalling** The chipping or fracturing with an upward heaving, of rock caused by a compressional wave at a free surface. { 'spól·iŋ }
- spangolite** $\text{Cu}_2\text{Al}(\text{SO}_4)(\text{OH})_{12} \cdot 3\text{H}_2\text{O}$ A dark-green hexagonal mineral composed of hydrous basic sulfate and chloride of aluminum and copper and occurring as crystals. { 'spəŋ·gə·līt }
- spar** Any transparent or translucent, nonmetallic, light-colored, readily cleavable, crystalline mineral; examples are calespar and fluorspar. { spär }
- sparagmite** Late Precambrian fragmental rocks of Scandinavia, characterized by high proportions of microcline. { spə'rag·mīt }
- sparite** See sparry calcite. { 'spä·rīt }
- Sparnacean** A European stage of geologic time; upper upper Paleocene, above Thanetian, below Ypresian of Eocene. { spär'nāsh·ən }
- sparry calcite** A clean, coarse-grained calcite crystal. Also known as calcsparite; sparite. { 'spär·ē 'kal·sīt }
- sparry cement** Clear, relatively coarse-grained calcite in the interstices of any sedimentary rock. { 'spär·ē si'ment }
- sparry iron** See siderite. { 'spär·ē 'ī·ərn }
- spartalite** See zincite. { 'spärd·əl·īt }
- spathic iron** See siderite. { 'spath·ik 'ī·ərn }
- spatter cone** A low, steep-sided cone of small pyroclastic fragments built up on a fissure or vent. Also known as agglutinate cone; volcanello. { 'spad·ər 'kōn }
- spatter rampart** A low, circular ridge of pyroclastics built up around the margins of small volcanoes. { 'spad·ər 'ram·pärt }
- specific retention** The ratio of the volume of water that a given body of rock or soil

- will retain after saturation, and the pull of gravity to the volume of the body itself. {spə'sɪf·ɪk rɪ'ten·chən }
- spectacle stone** *See* selenite. { 'spek·tə·kəl 'stɒn }
- specular hematite** A variety of hematite with a blue-gray color and bright metallic luster. { 'spek·yə·lār 'hē·mə'tɪt }
- specular iron** *See* specularite. { 'spek·yə·lār 'ɪ·ərn }
- specularite** A black or gray variety of hematite with brilliant metallic luster, occurring in micaceous or foliated masses, or in tabular or disklike crystals. Also known as gray hematite; iron glance; specular iron. { 'spek·yə·lārɪt }
- spelean** Of or pertaining to a feature in a cave. { spə'le·ən }
- speleology** The study and exploration of caves. { ,spē·le'äl·ə·jē }
- speleothem** A secondary mineral deposited in a cave by the action of water. Also known as cave formation. { 'spē·le·ə·them }
- spencerite** $Zn_4(PO_4)_2(OH)_2 \cdot 3H_2O$ A pearly white monoclinic mineral composed of hydrous basic zinc phosphate and occurring in scaly masses and small crystals. { 'spen·sərɪt }
- spending beach** In a wave basin, the beach on which the entering waves spend themselves, except for the small remainder entering the inner harbor. { 'spend·ɪŋ ·bēch }
- spengenite** A biocalcarenite containing oolites and fossil debris and having a maximum quartz content of 10%. Also known as Bedford limestone; Indiana limestone. { 'spær·jənɪt }
- sperrylite** $PtAs_2$ A tin-white isometric mineral composed of platinum arsenide, the only platinum compound known to occur in nature; hardness is 6-7 on Mohs scale, and specific gravity is 10.60. { 'sper·ē·lɪt }
- spessartite** **1.** $Mn_2Al_2(SiO_4)_2$ A mineral composed of manganese aluminum silicate with small amounts of iron, magnesium, or other elements. **2.** A lamprophyre composed of a sodic plagioclase groundmass in which green hornblende phenocrysts are embedded; also contains accessory olivine, biotite, apatite, and opaque oxides. { 'spes·ərɪt }
- sphaerite** Light-gray or bluish mineral composed of hydrous aluminum phosphate and occurring in global concretions. { 'sfɪrɪt }
- sphaerolitic** *See* spherulitic. { 'sfɪr·əlɪd·ɪk }
- sphalerite** $(Zn,Fe)S$ The low-temperature form and common polymorph of zinc sulfide, a usually brown or black mineral that crystallizes in the hextetrahedral class of the isometric system, occurs most commonly in coarse to fine, granular, cleanable masses, has resinous luster, hardness of 3.5 on Mohs scale, and specific gravity of 4.1. Also known as blende; false galena; jack; lead marcasite; mock lead; mock ore; pseudogalena; steel jack. { 'sfal·ərɪt }
- sphene** $CaTiSiO_5$ A brown, green, yellow, gray, or black nesosilicate mineral common as an accessory mineral in igneous rocks; it is monoclinic and has resinous luster; hardness is 5-5.5 on Mohs scale; specific gravity is 3.4-3.5. Also known as grothite; titanite. { sfēn }
- sphenochasm** A triangular gap of oceanic crust separating two continental blocks and converging to a point. { 'sfē·nə'kaz·əm }
- sphenolith** A wedge-like igneous intrusion that is partly concordant and partly discordant. { 'sfēn·əlɪθ }
- spherical weathering** *See* spheroidal weathering. { 'sfɪr ə·kəl 'weth ə rɪŋ }
- spheroidal weathering** Chemical weathering in which concentric or spherical shells of decayed rock are successively separated from a block of rock; commonly results in the formation of a rounded boulder of decomposition. Also known as concentric weathering; spherical weathering. { 'sfɪr'ɔɪd·əl 'weth ə rɪŋ }
- spherulite** A spherical body or coarsely crystalline aggregate having a radial internal structure arranged about one or more centers. { 'sfɪr·əlɪt }
- spherulitic** Relating to the texture of a rock composed of numerous spherulites. Also known as globular; sphaerolitic. { 'sfɪr·əlɪd·ɪk }
- spiculite** A spindle-shaped belonite thought to have formed by the coalescence of globulites. { 'spɪk·yə·lɪt }

spilite

- spilite** An altered basalt containing albitized feldspar accompanied by low-temperature, hydrous crystallization products such as chlorite, calcite, and epidote. { 'spī·līt }
- spinel** **1.** $MgAl_2O_4$ A colorless, purplish-red, greenish, yellow, or black mineral, usually forming octahedral crystals, and characterized by great hardness; used as a gemstone. **2.** A group of minerals of general formula AB_2O_4 , where A is magnesium, ferrous iron, zinc, or manganese, or a combination of them, and B is aluminum, ferric iron, or chromium. { spə'nel }
- spinodal decomposition** An unmixing process in which crystals with bulk composition in the central region of the phase diagram undergo exsolution. { spī'nōd·əl də·kām·pə'zish·ən }
- splash erosion** Erosion resulting from the impact of falling raindrops { 'splash i,rōzh·ən }
- splent coal** See splint coal. { 'splent l·kōl }
- splined** Relating to veins that pinch out and are overlapped at that point by another parallel vein. { splīst }
- splint** See splint coal. { splint }
- splint coal** A hard, dull, blocky, grayish-black, banded bituminous coal characterized by an uneven fracture and a granular texture; burns with intense heat. Also known as splent coal; splint. { 'splint·kōl }
- split** A coal seam that cannot be mined as a single unit because it is separated by a parting of other sedimentary rock. Also known as coal split; split coal. { split }
- split coal** See split. { 'split l·kōl }
- spodic horizon** A soil horizon characterized by illuviation of amorphous substances { 'späd·ik hə'rīz·ən }
- Spodosol** A soil order characterized by accumulations of amorphous materials in subsurface horizons. { 'späd·ə·sōl }
- spodumene** $LiAlSi_2O_6$ A white to yellowish-, purplish-, or emerald-green clinopyroxene mineral occurring in prismatic crystals; hardness is 6.5-7 on Mohs scale, and specific gravity 3.13-3.20; an ore of lithium. Also known as triphane. { 'spä·jə·mēn }
- spongework** A pattern of small irregular interconnecting cavities on walls of limestone caves. { 'spən·j·wərk }
- spongolite** A rock or sediment composed chiefly of the remains of sponges. Also known as spongolith. { 'spən·j·gə·līt }
- spongolith** See spongolite. { 'spən·j·gə·lith }
- sporinite** A variety of exinite composed of spore exines which have been compressed parallel to the stratification. { 'spör·ən·īt }
- spotted phyllite** A phyllite rock containing dark spots that represent the beginning of porphyroblast development. { 'späd·əd 'fī·līt }
- spotted slate** A type of slate containing dark spots that represent the beginning of porphyroblast development. { 'späd·əd 'slät }
- spouting horn** A sea cave with a rearward or upward opening through which water spurts or sprays after waves enter the cave. Also known as chimney; oven. { 'spaud·iŋ 'hōrn }
- spreading concept** See sea-floor spreading. { 'spred·iŋ·kän·sept }
- spreading-floor hypothesis** See sea-floor spreading { 'spred·iŋ 'flōr hī·päth·ə·səs }
- spur** A ridge or rise projecting from a larger elevational feature. { spər }
- spurrite** $Ca_3(SiO_4)_2(CO_3)$ A light-gray mineral occurring in granular masses. { 'spər·īt }
- stability** **1.** The resistance of a structure, spoil heap, or clay bank to sliding, overturning, or collapsing. **2.** Chemical durability, resistance to weathering. { stə'bil·əd·ē }
- stack** An erosional, coastal landform that is a steep-sided, pillarlike rocky island or mass that has been detached by wave action from a shore made up of cliffs; applies particularly to a stack that is columnar in structure and has horizontal stratifications. Also known as marine stack; rank. { stak }
- stade** A substage of a glacial stage marked by a secondary advance of glaciers { stād }
- stadial moraine** See recessional moraine. { 'stād·ē·əl mə'rān }

- Staffordian** A European stage of geologic time forming the middle Upper Carboniferous, above Yorkian and below Radstockian, equivalent to part of the upper Westphalian. {stɑ'fɔrd·ē·ən }
- stainerite** See heterogenite. { 'stī·nē·ə·rīt }
- stage** **1.** A developmental phase of an erosion cycle in which landscape features have distinctive characteristic forms. **2.** A phase in the historical development of a geologic feature **3.** A major subdivision of a glacial epoch **4.** A time-stratigraphic unit ranking below series and above chronozone, composed of rocks formed during an age of geologic time. {stāj }
- stalactite** A conical or roughly cylindrical speleothem formed by dripping water and hanging from the roof of a cave; usually composed of calcium carbonate. {stə'lak·tīt }
- stalacto-stalagmite** A columnar deposit formed by the union of a stalactite with its complementary stalagmite. Also known as column; pillar. {stəl·lak·tō stə'lag·mīt }
- stalagmite** A conical speleothem formed upward from the floor of a cave by the action of dripping water; usually composed of calcium carbonate. {stə'lag·mīt }
- Stampan** See Rupelian. { 'stam·pē·ən }
- standard mineral** A mineral that, on the basis of chemical analyses, is theoretically capable of being present in a rock. Also known as normative mineral. { 'stan·dərd 'min·rəl }
- stanfieldite** $\text{Ca}_3(\text{Mg},\text{Fe},\text{Mn})_3(\text{PO}_4)_4$ A phosphate mineral found only in meteorites. { 'stan·fēldīt }
- stannite** $\text{Cu}_2\text{FeSnS}_4$ A steel-gray or iron-black mineral crystallizing in the tetragonal system and occurring in granular masses; luster is metallic, hardness is 4 on Mohs scale, and specific gravity is 4.3-4.53. Also known as bell-metal ore; tin pyrites. { 'sta·nīt }
- star ruby** An asteriated variety of ruby with normally six chatoyant rays. { 'stär 'rū·bē }
- star sapphire** A variety of sapphire exhibiting a six-pointed star resulting from the presence of microscopic crystals in various orientations within the gemstone. { 'stär 'sa·fir }
- starved basin** A sedimentary basin in which rate of subsidence exceeds rate of sedimentation. { 'stärvd 'bās·ən }
- static granitization** The formation of a granitic rock by a metasomatic process in the absence of compressive forces or strains. { 'stad·ik 'gran·əd·ə'zā·shən }
- static metamorphism** Regional metamorphism caused by heat and solvents at high lithostatic pressures. Also known as load metamorphism. { 'stad·ik 'med·ə'mɔr 'fiz·əm }
- staurolite** $\text{FeAl}_3(\text{SiO}_4)_2(\text{OH})_2$ A reddish-brown to black neosilicate mineral that crystallizes in the orthorhombic system, has resinous to vitreous luster, hardness is 7-7.5 on Mohs scale, and specific gravity is 3.7. Also known as cross-stone; fairy stone; grenatite; staurotide. { 'stör·ə'līt }
- staurotide** See staurolite. { 'stör·ə'tīd }
- steatite** A compact, massive, fine-ground rock composed principally of talc but with much other material. { 'stē·ə'tīt }
- steatization** Introduction of or replacement by talc or steatite. { stē·əd ə'zā·shən }
- S tectonite** A tectonite whose fabric is dominated by planar surfaces of formation or deformation, such as slate. { 'es 'tek·tə·nīt }
- steel jack** See sphalerite. { 'stēl 'jak }
- steigerite** $4\text{AlVO}_3 \cdot 13\text{H}_2\text{O}$ A canary-yellow mineral composed of hydrous aluminum vanadate and occurring in masses. { 'stī·gə·rīt }
- steinkern** **1.** Rock material formed from consolidated mud or sediment that filled a hollow organic structure, such as a fossil shell. **2.** The fossil formed after dissolution of the mold. Also known as endocast; internal cast. { 'stīn·kərn }
- step** A hitch or dislocation of the strata. {step }
- step fault** One of a set of closely spaced, parallel faults. Also known as distributive fault; multiple fault. { 'step 'fölt }
- Stephanian** A European stage of Upper Carboniferous geologic time forming the Upper

stephanite

Pennsylvanian, above the Westphalian and below the Sakmarian of the Permian. {stə'fān·ē·ən }

stephanite Ag_5SbS_4 An iron-black mineral crystallizing in the orthorhombic system and having a metallic luster; an ore of silver. Also known as black silver; brittle silver ore; goldschmidtine. { 'stef·ə·nīt }

steptoe An isolated protrusion of bedrock, such as the summit of a hill or mountain, in a lava flow. { 'step·tō }

stercorite $\text{Na}(\text{NH}_4)\text{H}(\text{PO}_4) \cdot 4\text{H}_2\text{O}$ A white to yellowish and brown, triclinic mineral consisting of a hydrated acid phosphate of sodium and ammonium. { 'stər·kərīt }

sternbergite AgFe_2S_3 A dark-brown or black mineral composed of silver iron sulfide and occurring as tabular crystals or flexible laminae. { 'stər·bər·gīt }

sterrettite See kolbeckite. { 'ster·ə·tīt }

stewartite **1.** A steel-gray, iron-containing variety of bort that has magnetic properties. **2.** $\text{Mn}_3(\text{PO}_3)_2 \cdot 4\text{H}_2\text{O}$ A brownish-yellow mineral composed of hydrous manganese phosphate occurring in minute crystals or fibrous tufts in pegmatites. { 'stü·ər·tīt }

stibiconite $\text{Sb}_3\text{O}_6(\text{OH})$ A pale yellow to yellowish- or reddish-white mineral consisting of a basic or hydrated oxide of antimony; occurs in massive form, as a powder, and in crusts. { 'stib·ə·kə·nīt }

stibiocolumbite $\text{Sb}(\text{Nb,Ta,Cb})\text{O}_4$ A dark brown to light yellowish- or reddish-brown, orthorhombic mineral consisting of an oxide of antimony and tantalum-columbium. { 'stib·ē·ō'käl·əm·bīt }

stibium See antimonite. { 'stib·ē·əm }

stibnite See antimonite. { 'stib·nīt }

stichtite $\text{Mg}_6\text{Cr}_2(\text{CO}_3)(\text{OH})_{16} \cdot 4\text{H}_2\text{O}$ A lilac-colored rhombohedral mineral composed of hydrous basic carbonate of magnesium and chromium. { 'sti·kīt }

stilbite $\text{Ca}(\text{Al}_2\text{Si}_7\text{O}_{18}) \cdot 7\text{H}_2\text{O}$ A white, brown, or yellow mineral belonging to the zeolite family of silicates; crystallizes in the monoclinic system, occurs in sheaflike aggregates of tabular crystals, and has pearly luster; hardness is 3.5-4 on Mohs scale, and specific gravity is 2.1-2.2. Also known as desmine. { 'stil·bīt }

stillstand A period during which a land area, a continent, or an island remains stationary with respect to the interior of the earth or to sea level. { 'stil·stand }

stilpnomelane $\text{K}(\text{Fe,Mg,Al})_3\text{Si}_4\text{O}_{10}(\text{OH})_2 \cdot \text{H}_2\text{O}$ A black or greenish-black mineral composed of basic hydrous potassium iron magnesium aluminum silicate; occurs as fibers, incrustations, and foliated plates. { 'stilp·nō'me'lān }

stinkstone A stone containing decomposing organic matter that gives off an offensive odor when rubbed or struck. { 'stɪŋk·stōn }

stipoverite See stishovite. { stə'päv·ə·rīt }

stishovite SiO_2 A polymorph of quartz, a dense, fine-grained mineral formed under very high pressure (about 1×10^6 pounds per square inch or 7×10^9 pascals); it is the only mineral in which the silicon atom has a coordination number of six; specific gravity is 4.28. Also known as stipoverite. { 'stish·ə·vīt }

stock **1.** A usually discordant, batholithlike body of intrusive igneous rock not exceeding 40 square miles (103.6 square kilometers) in surface exposure and usually discordant. **2.** See pipe. { stäk }

stockwork A mineral deposit in the form of a network of veinlets diffused in the country rock. { 'stäk·wərk }

stokesite $\text{CaSnSi}_3\text{O}_6 \cdot 2\text{H}_2\text{O}$ A colorless orthorhombic mineral composed of hydrous calcium tin silicate occurring in crystals. { 'stök·sīt }

stolzite PbWO_4 A tetragonal mineral composed of native lead tungstate, it is isomorphous with wulfenite and dimorphous with raspite. { 'stōl·zīt }

stone **1.** A small fragment of rock or mineral. **2.** See stony meteorite. { stōn }

stone bubble See lithophysa. { 'stōn lɪbəb·əl }

stone coal See anthracite. { 'stōn kōl }

stone polygon See sorted polygon. { 'stōn 'päl·i·gän }

stone ring A ring of stones surrounding a central area of finer material; characteristic of sorted circle and sorted polygon. { 'stōn 'rɪŋ }

stony-iron meteorite Any of the rare meteorites containing at least 25% of both nickel-

- iron and heavy basic silicates. Also known as iron-stony meteorite; lithosiderite; sideraerolite; siderolite; syssiderite. { 'stō·nē ɪ·ɹ·ərn 'mēd·ē·ə·rīt }
- stony meteorite** Any meteorite composed principally of silicate minerals especially olivine, pyroxene, and plagioclase. Also known as aerolite; asiderite; meteoric stone; meteorolite; stone. { 'stō·nē 'mēd·ē·ə·rīt }
- stoping** See magnetic stoping. { 'stōp·ɪŋ }
- storm beach** A ridge composed of gravel or shingle built up by storm waves at the inner margin of a beach. { 'stōrm ɪ·bēç }
- storm delta** See washover. { 'stōrm ɪ·dɛl·tə }
- stoss** Of the side of a hill, knob, or prominent rock, facing the upstream side of a glacier. { stās }
- stoss-and-lee topography** A type of glaciated landscape in which small hills or other landforms exhibit gentle eroded slopes on the up-glacier or upstream side and less eroded, steeper slopes on the lee side. { ɪstās ənd ɪlē tə'pæg·rə·fē }
- strain shadow** See pressure shadow, undulatory extinction { 'strān ɪ·ʃad·ō }
- strain-slip** A rock fracture resulting in a slight displacement. { 'strān ɪ·slɪp }
- strain-slip cleavage** See slip cleavage. { 'strān ɪ·slɪp ɪ·klē·vɪj }
- strand** A beach bordering a sea or an arm of an ocean. { strand }
- strand flat** See wave-cut platform. { 'strand ɪ·flət }
- strandline** **1.** A beach raised above the present sea level **2.** The level at which a body of standing water meets the land. **3.** See shoreline. { 'strand ɪ·lɪn }
- strath** **1.** A broad, elongate depression with steep sides on the continental shelf **2.** An extensive remnant of a broad, flat valley floor that has undergone degradation, following uplift. { strath }
- strath terrace** An extensive remnant of a strath from a former erosion cycle. { 'strath ɪ·tɛr·əs }
- stratification** An arrangement or deposition of sedimentary material in layers, or of sedimentary rock in strata. { ɪ·strəd·ə·fə'kā·ʃən }
- stratification index** A measure of the beddedness of a stratigraphic unit, expressed as the number of beds in the unit per 100 feet (30 meters) of section. { ɪ·strəd·ə·fə'kā·ʃən ɪn·dɛks }
- stratification plane** A demarcation between two layers of sedimentary rock, often signifying that the layers were deposited under different conditions. { ɪ·strəd·ə·fə'kā·ʃən ɪ·plān }
- stratified drift** Fluvio-glacial drift composed of material deposited by a meltwater stream or settled from suspension. { 'strəd·ə·fɪd 'drɪft }
- stratified rock** See sedimentary rock. { 'strəd·ə·fɪd 'rāk }
- stratiform** **1.** Descriptive of a layered mineral deposit of either igneous or sedimentary origin. **2.** Consisting of parallel bands, layers, or sheets. { 'strəd·ə·fɔrm }
- stratigrapher** A geologist who deals with stratified rocks, for example, the classification, nomenclature, correlation, and interpretation of rocks. { strə'tɪg·rə·fər }
- stratigraphic geology** See stratigraphy { ɪ·strəd·əɪ·grəf·ɪk jē'əl·ə·jē }
- stratigraphic map** A map showing the areal distribution, configuration, or aspect of a stratigraphic unit or surface, such as an isopach map or a lithofacies map. { ɪ·strəd·əɪ·grəf·ɪk 'mæp }
- stratigraphic oil fields** Hydrocarbon reserves in stratigraphic (sedimentary) traps formed by the positioning of clastic materials through chemical deposition. { ɪ·strəd·əɪ·grəf·ɪk 'oɪl ɪ·fēlz }
- stratigraphic separation** See stratigraphic throw { ɪ·strəd·əɪ·grəf ɪk ɪ·sep·ə'rā·ʃən }
- stratigraphic sequence** See sequence { ɪ·strəd·əɪ·grəf ɪk ɪ'sē kwəns }
- stratigraphic throw** The thickness of the strata which originally separated two beds brought into contact at a fault. Also known as stratigraphic separation. { ɪ·strəd·əɪ·grəf·ɪk 'θrō }
- stratigraphic trap** Sealing of a reservoir bed due to lithologic changes rather than geologic structure. Also known as porosity trap; secondary stratigraphic trap. { ɪ·strəd·əɪ·grəf·ɪk 'træp }
- stratigraphic unit** A stratum of rock or a body of strata classified as a unit on the basis of character, property, or attribute. { ɪ·strəd·əɪ·grəf·ɪk ɪ'yü·nət }

stratigraphy

- stratigraphy** A branch of geology concerned with the form, arrangement, geographic distribution, chronologic succession, classification, correlation, and mutual relationships of rock strata, especially sedimentary. Also known as stratigraphic geology. {strə'tig·rə·fē}
- stratotype** A specifically bounded type section of rock strata to which a time-stratigraphic unit is ascribed, ideally consisting of a complete and continuously exposed and deposited sequence of correlatable strata, and extending from a readily identifiable basal boundary to a readily identifiable top boundary. {'strəd·ə·tīp}
- stratovolcano** A volcano constructed of lava and pyroclastics, deposited in alternating layers. Also known as composite volcano. {istrəd·ō·vāl'kā·nō}
- stratum** A mass of homogeneous or gradational sedimentary material, either consolidated rock or unconsolidated soil, occurring in a distinct layer and visually separable from other layers above and below. {'strəd·əm}
- stray** A lenticular rock formation encountered unexpectedly in drilling an oil or a gas well; it differs from an adjacent persistent formation in lithology and hardness. {strā}
- stray sand** A stray composed of sandstone. {'strā 'sand}
- streak** The color of a powdered mineral, obtained by rubbing the mineral on a streak plate. {strēk}
- stream-built terrace** See alluvial terrace. {'strēm |bɪlt 'ter·əs}
- stream capacity** The ability of a stream to carry detritus, measured at a given point per unit of time. {'strēm kə'pəs·əd·ē}
- stream channel** A long, narrow, sloping troughlike depression where a natural stream flows or may flow. Also known as streamway. {'strēm 'chan·əl}
- stream-channel form ratio** The mathematical relationship between a stream channel width, depth, and channel perimeter. {'strēm 'chan·əl 'fōrm ,rā·shō}
- stream erosion** The progressive removal of exposed matter from the surface of a stream channel by a stream. {'strēm ɪ,rō·zhən}
- stream frequency** A measure of topographic texture expressed as the ratio of the number of streams in a drainage basin to the area of the basin. Also known as channel frequency. {'strēm ,frē·kwən·sē}
- stream gradient** The angle, measured in the direction of flow, between the water surface (for large streams) or the channel flow (for small streams) and the horizontal. Also known as stream slope. {'strēm ,grād·ē·ənt}
- stream-gradient ratio** Ratio of the stream gradient of a stream channel of one order to the stream gradient of the next higher order channel in the same drainage basin. Also known as channel gradient ratio. {'strēm ,grād·ē·ənt ,rā·shō}
- stream load** Solid material transported by a stream. {'strēm ,lōd}
- stream morphology** See river morphology. {'strēm mōr'fāl·ə·jē}
- streamsink** An opening in the surface of the earth down which a stream disappears underground. {'strēm,sɪŋk}
- stream slope** See stream gradient. {'strēm ,slōp}
- stream terrace** One of a series of level surfaces on a stream valley flanking and parallel to a stream channel and above the stream level, representing the uneroded remnant of an abandoned floodplain or stream bed. Also known as river terrace. {'strēm ,ter·əs}
- stream tin** The mineral cassiterite occurring as pebbles in alluvial deposits. {'strēm ,tɪn}
- stream transport** Movement of rock material in and by a stream. {'strēm 'tranz·pɔrt}
- streamway** See stream channel. {'strēm ,wā}
- strengite** $\text{FePO}_4 \cdot 2\text{H}_2\text{O}$ A pale-red mineral crystallizing in the orthorhombic system, isomorphous with variscite and dimorphous with phosphosiderite, and specific gravity 2.87. {'strɛŋ,ɪt}
- stress mineral** Any mineral whose formation in metamorphosed rock is favored by shearing stress. {'stres ,mɪn·rəl}
- stretched pebbles** Pebbles in a sedimentary rock which have been elongated from their original shape by deformation. {'strecht 'peb·əlz}

- stretch fault** See stretch thrust. { 'stretʃ ˌfɔlt }
- stretch thrust** A reverse fault developed as a result of shear in the middle limb of an overturned fold. Also known as stretch fault. { 'stretʃ ˌθrɒst }
- striated ground** See striped ground. { 'striːəd ˌəd ˈgraʊnd }
- striation** **1.** One of a series of parallel or subparallel scratches, small furrows or lines on the surface of a rock or rock fragment; usually inscribed by rock fragments embedded at the base of a moving glacier. **2.** One of a series of parallel, shallow depressions or narrow bands on the cleavage face of a mineral caused either by growth twinning or oscillatory growth of different crystal faces. { striːə ˌʃən }
- strigovite** $\text{Fe}_3(\text{Al},\text{Fe})_3\text{Si}_3\text{O}_{11}(\text{OH})_7$ A dark-green mineral of the chlorite group, composed of basic aluminum iron silicate; occurs as crystalline incrustations. { 'strig-əvɪt }
- strike** The direction taken by a structural surface, such as a fault plane, as it intersects the horizontal. Also known as line of strike. { strik }
- strike fault** A fault whose strike is parallel with that of the strata involved. { 'stri:k ˌfɔlt }
- strike joint** A joint that strikes parallel to the bedding or cleavage of the constituent rock. { 'stri:k ˌdʒɔɪnt }
- strike separation** The distance of separation on either side of a fault surface of two formerly adjacent beds. { 'stri:k ˌsep ˌərə ˌʃən }
- strike-separation fault** See lateral fault { 'stri:k ˌsep ərə ˌʃən ˌfɔlt }
- strike-slip fault** See strike-slip fault. { 'stri:k ɪʃlɪp ˌfɔlt }
- strike slip** The component of the slip of a fault that is parallel to the strike of the fault. Also known as horizontal displacement; horizontal separation. { 'stri:k ˌslɪp }
- strike-slip fault** A fault whose direction of movement is parallel to the strike of the fault. Also known as strike-shift fault. { 'stri:k ɪslɪp ˌfɔlt }
- string** A very small vein, either independent or occurring as a branch of a larger vein. Also known as stringer. { striŋ }
- stringer** See string. { 'striŋ ˌər }
- stringer lode** A lode that consists of many narrow veins in a mass of country rock { 'striŋ ˌər ˌləd }
- striped ground** A pattern of alternating stripes formed by frost action on a sloping surface. Also known as striated ground; striped soil. { 'stript ˈgraʊnd }
- striped soil** See striped ground. { 'stript ˈsɔɪl }
- stripped illite** See degraded illite. { 'stript ˈɪlɪt }
- stripped plain** The upper, exposed surface of a resistant stratum that forms a stripped structural surface when extended over a considerable area. { 'stript ˈplæn }
- stripped structural surface** An erosion surface formed in an area underlain by horizontal or gently sloping strata of unequal resistance where the overlying softer beds have been removed by erosion. Also known as stripped surface. { 'stript ɪ'strʌk ˌtʃæ ˌræl ˈsær ˌfæs }
- stripped surface** See stripped structural surface. { 'stript ˈsær ˌfæs }
- stromatite** Chorismite having flat or folded parallel layers of two or more textural elements. Also known as stromatolith. { 'strō ˌməɪtɪ }
- stromatolite** A structure in calcareous rocks consisting of concentrically laminated masses of calcium carbonate and calcium-magnesium carbonate which are believed to be of calcareous algal origin; these structures are irregular to columnar and hemispheroidal in shape, and range from 1 millimeter to many meters in thickness. Also known as callenia. { strə'mad ˌəlɪtɪ }
- stromatolith** **1.** A complex sill-like igneous intrusion interfingering with sedimentary strata. **2.** See stromatite. { strə'mad ˌəlɪθ }
- strombolian** A type of volcanic eruption characterized by fire fountains of lava from a central crater. { strəm ˈbō ˌlə ˌən }
- stromeyerite** CuAgS A metallic-gray orthorhombic mineral with a blue tarnish composed of silver copper sulfide occurring in compact masses. { 'strō ˌmī ˌərɪtɪ }
- strontianite** SrCO_3 A pale-green, white gray, or yellowish mineral of the aragonite group having orthorhombic symmetry and occurring in veins or as masses; hardness is 3.5 on Mohs scale, and specific gravity is 3.76. { 'strän ˌtʃē ˌənɪt }

structural analysis

structural analysis See structural petrology. { 'stræk·chə·rəl ə'nal·ə·səs }

structural bench A bench typifying the resistant edge of a terrace that is being reduced by erosion. Also known as rock bench. { 'stræk·chə·rəl 'bench }

structural contour map A map representation of a subsurface stratigraphic unit; depicts the configuration of a rock surface by means of elevation contour lines. { 'stræk·chə·rəl 'kän·túr·map }

structural fabric See fabric. { 'stræk·chə·rəl 'fab·rik }

structural geology A branch of geology concerned with the form, arrangement, and internal structure of the rocks. { 'stræk·chə·rəl jē'äl·ə·jē }

structural high Any of various structural features such as a crest, culmination, anticline, or dome. { 'stræk·chə·rəl 'hī }

structural low Any of various structural features such as a basin, a syncline, a saddle, or a sag. { 'stræk·chə·rəl 'lō }

structural petrology The study of the internal structure of a rock to determine its deformational history. Also known as fabric analysis; microtectonics; petrofabric analysis; petrofabrics; petrogeometry; petromorphology; structural analysis. { 'stræk·chə·rəl pi'träl·ə·jē }

structural terrace A terracelike landform developed where generally steeply inclined and otherwise uniformly dipping strata locally flatten. { 'stræk·chə·rəl 'ter·əs }

structural trap Containment in a reservoir bed of oil or gas due to flexure or fracture of the bed. { 'stræk·chə·rəl 'trap }

structural valley A valley whose form and origin is attributable to the underlying geologic structure. { 'stræk·chə·rəl 'val·ē }

structure **1.** An assemblage of rocks upon which erosive agents have been or are acting **2.** The sum total of the structural features of an area. **3.** The form taken by a mineral, such as tabular or fibrous. **4.** A macroscopic feature of a rock mass or rock unit, best seen in an outcrop. { 'stræk·chər }

structure contour A contour that portrays a structural surface, such as a fault. Also known as subsurface contour. { 'stræk·chər 'kän·túr }

structure-contour map A map that uses structure contour lines to portray subsurface configuration. Also known as structure map. { 'stræk·chər 'kän·túr·map }

structure map See structure-contour map. { 'stræk·chər·map }

structure section A vertical section showing the observed or inferred geologic structure on a vertical surface or plane. { 'stræk·chər 'sek·shən }

struvite $Mg(NH_4)PO_4 \cdot 6H_2O$ A colorless to yellow or pale-brown mineral consisting of a hydrous ammonium magnesium phosphate, and occurring in orthorhombic crystals; hardness is 2 on Mohs scale, and specific gravity is 1.7. { 'strü·vīt }

stuffed mineral A mineral having extra ions of a foreign element within its larger interstices. { 'stəft 'min·rəl }

sturtite A black mineral composed of hydrous silicate of iron, manganese, calcium, and magnesium; occurs in compact masses. { 'stərd·īt }

stylolite An irregular surface, generally parallel to a bedding plane, in which small toothlike projections on one side of the surface fit into cavities of complementary shape on the other surface; interpreted to result diagenetically by pressure solution. { 'stī·lə·līt }

stylotypite See tetrahedrite. { 'stī·lə·tī·pīt }

S-type magma Magma formed from sedimentary source material. { 'es 'tīp 'mag·mə }

subaerial Pertaining to conditions and processes occurring beneath the atmosphere or in the open air, that is, on or adjacent to the land surface. { 'səb·er·ē·əl }

subage A subdivision of a geologic age. { 'səb·āj }

subaqueous dune A dune resulting from entrainment of grains by the flow of moving water. { 'səb·ā·kwē·əs 'dün }

subarkose Sandstone that is intermediate in composition between arkose and pure quartz sandstone; it contains less feldspar than arkose. { səb'är·kōs }

subbituminous coal Black coal intermediate in rank between lignite and bituminous coal; has more carbon and less moisture than lignite. { 'səb·bə'tü·mə·nəs 'kōl }

- subcapillary interstice** An interstice in which the molecular attraction of its walls extends across the entire opening; it is smaller than a capillary interstice. { ʔsəb'kəp·ə'ler·ē in'tər·stəs }
- subconchoidal** Pertaining to a fracture that is partly or vaguely conchoidal in shape { ʔsəb·kən'kɔid·əl }
- subcrop** An occurrence of strata beneath the subsurface of an inclusive stratigraphic unit that succeeds an unconformity on which there is marked overstep. { 'səb·krəp }
- subduction** The process by which one crustal block descends beneath another such as the descent of the Pacific plate beneath the Andean plate along the Andean Trench { səb'dək·shən }
- suberinite** A variety of provittrinite composed of corky tissue. { sü'ber·ənīt }
- subfeldspathic** Referring to mature lithic wacke or arenite containing an abundance of quartz grains with less than 10% feldspar grains. { ʔsəb·fel'spəθ·ik }
- subgelisol** Unfrozen ground beneath permafrost. { ʔsəb'jel·ə'sól }
- subglacial** Pertaining to the area in or at the bottom of, or immediately beneath, a glacier. { ʔsəb'glā·shəl }
- subglacial moraine** See ground moraine. { ʔsəb'glā·shəl mə'rān }
- subgraywacke** An argillaceous sandstone with a composition intermediate between graywacke and orthoquartzite, a clay matrix is usually present but it amounts to less than 15%. { ʔsəb'grā·wək·ə }
- subhedral** **1.** Pertaining to an individual mineral crystal that is partly bounded by its own crystal faces and partly bounded by surfaces formed against preexisting crystals. **2.** Descriptive of a crystal having partially developed crystal faces. { ʔsəb'hē·drəl }
- subidiomorphic** See hypidiomorphic. { ʔsəb'id·ē·ə'mór·fik }
- subjacent** Being lower than but not directly underneath. { ʔsəb'jās·ənt }
- subjacent igneous body** An igneous intrusion without a known floor and which presumably enlarges downward. { ʔsəb'jās·ənt 'ig·nē·əs 'bäd·ē }
- sublacustrine** Existing or formed on the bottom of a lake. { ʔsəb·lə'kəs·trən }
- sublacustrine channel** A channel eroded in a lake bed either before the lake existed or by a strong current in the lake. { ʔsəb·lə'kəs·trən 'chan·əl }
- sublimation vein** A vein of mineral that has condensed from a vapor { ʔsəb lə'mā·shən 'vān }
- sublitharenite** A sandstone which contains between 5 and 25% rock fragments and in which the rock fragments are more abundant than feldspar grains. { ʔsəb·li'thər·ənīt }
- submarine canyon** Steep-sided valleys winding across the continental shelf or continental slope, probably originally produced by Pleistocene stream erosion, but presently the site of turbidity flows. { ʔsəb·mə'rēn 'kan·yən }
- submarine cave** See submarine fan. { ʔsəb·mə'rēn 'kāv }
- submarine delta** See submarine fan. { ʔsəb·mə'rēn 'del·tə }
- submarine fan** A shallow marine sediment that is fan- or cone-shaped and lies off the seaward opening of large rivers and submarine canyons. Also known as abyssal cave; abyssal fan; sea fan; submarine cave; submarine delta; subsea apron. { ʔsəb·mə'rēn 'fan }
- submarine geology** See geological oceanography { ʔsəb mə'rēn jé'əl·ə·jē }
- submarine isthmus** A submarine elevation joining two land areas and separating two basins or depressions by a depth less than that of the basins. { ʔsəb·mə'rēn 'is·məs }
- submarine peninsula** An elevated portion of the submarine relief resembling a peninsula. { ʔsəb·mə'rēn pə'nin·sə·lə }
- submarine pit** A cavity on the bottom of the sea. Also known as submarine well { ʔsəb·mə'rēn 'pit }
- submarine plain** See plain. { ʔsəb·mə'rēn 'plān }
- submarine relief** Relative elevations of the ocean bed, or the representation of them on a chart. { ʔsəb·mə'rēn ri'lēf }

submarine topography

- submarine topography** Configuration of a surface such as the sea bottom or of a surface of given characteristics within the water mass. { ɪsəb·mə'ren tə'pɑːg·rə·fē }
- submarine trench** See trench. { ɪsəb·mə'ren 'trentʃ }
- submarine weathering** A slow alteration of the form, texture, and composition of the sea floor from chemical, thermal, and biological causes. { ɪsəb·mə'ren 'weth·ə·rɪŋ }
- submarine well** See submarine pit. { ɪsəb·mə'ren 'wel }
- submerged coastal plain** The continental shelf as the seaward extension of a coastal plain on the land. Also known as coast shelf. { səb'mærɪd 'kɔst·əl 'plæn }
- submerged lands** Lands covered by water at any stage of the tide, as distinguished from tidelands which are attached to the mainland or an island and are covered or uncovered with the tide; tidelands presuppose a high-water line as the upper boundary, submerged lands do not. { səb'mærɪd 'lɑnz }
- submerged shoreline** See shoreline of submergence. { səb'mærɪd 'ʃɔr·lɪn }
- submergence** A change in the relative levels of water and land either from a sinking of the land or a rise of the water level. { səb'mər·jəns }
- subsea apron** See submarine fan. { 'səb·sē 'ɑ·prən }
- subsequent** Referring to a geologic feature that followed in time the development of a consequent feature of which it is a part. { 'səb·sə·kwənt }
- subsequent fold** See cross fold. { 'səb·sə·kwənt 'fɔld }
- subsequent valley** A valley eroded by a stream developed subsequent to the system of which it is a part. { 'səb·sə·kwənt 'vəl·ē }
- subsidiary fracture** See tension fracture. { səb'sɪd·ē·er·ē 'frak·tʃər }
- subsoil** 1. Soil underlying surface soil. 2. See B horizon. { 'səb·sɔɪl }
- substratum** Any layer underlying the true soil. { ɪsəb'strəd·əm }
- subsurface contour** See structure contour. { ɪsəb'sər·fəs 'kɑntʊr }
- subsurface geology** The study of geologic features beneath the land or sea-floor surface. Also known as underground geology. { ɪsəb'sər·fəs jē'əl·ə·jē }
- succession** A group of rock units or strata that succeed one another in chronological order. { sək'sesh·ən }
- succinite** An amber-colored variety of grossularite. { 'sək·sə·nɪt }
- sucrosic** See saccharoidal. { sū'krō·sɪk }
- sudburite** A basic basalt composed of hypersthene, augite, and magnetite, among other minerals. { 'səd·bərɪt }
- suevite** A grayish or yellowish fragmental rock associated with meteorite impact craters; resembles tuff breccia or pumiceous tuff but is of nonvolcanic origin. { 'swā·vɪt }
- sugary** See saccharoidal. { 'shʊg·ə·rē }
- sulfate mineral** A mineral compound characterized by the sulfate radical SO_4 . { 'səl·fāt 'mɪn·rəl }
- sulfide mineral** A mineral compound characterized by the linkage of sulfur with a metal or semimetal. { 'səl·fɪd 'mɪn·rəl }
- sulfoborite** $\text{Mg}_6\text{H}_4(\text{BO}_3)_3(\text{SO}_3)_2 \cdot 7\text{H}_2\text{O}$ A mineral composed of hydrous acid sulfate and borate of magnesium. { 'səl·fə'bɔrɪt }
- sulfohalite** $\text{Na}_4(\text{SO}_4)_2\text{FCl}$ A mineral composed of sulfate, chloride, and fluoride of sodium. { ɪsəl·fə'hɑlɪt }
- sulfur** A yellow orthorhombic mineral occurring in crystals, masses, or layers, and existing in several allotropic form S_8 ; the native form of the element. { 'səl·fər }
- sulfur ball** A bubble of hot volcanic gas encased in a sulfurous mud skin that solidified on contact with air. { 'səl·fər 'bɔl }
- sulfur-mud pool** See mud pot. { 'səl·fər 'mæd 'pʊl }
- sullage** Mud, silt, or other sediments carried and deposited by flowing water. { 'səl·ɪj }
- sulvanite** Cu_3VS_4 A bronze-yellow mineral composed of copper vanadium sulfide occurring in masses. { 'səl·və·nɪt }
- sun crack** See mud crack. { 'sən 'krak }
- sundtite** See andorite. { 'sən'tɪt }
- sun opal** See fire opal. { 'sən 'ɔ·pəl }

- sunstone** An aventurine feldspar containing minute flakes of hematite; usually brilliant and translucent, it emits reddish or golden billowy reflection. Also known as heliolute. { 'sən ˌstɒn }
- supercapillary interstice** An interstice that is too large to hold water above the free water surface by surface tension; it is larger than a capillary interstice. { 'sü·pär·kəp·ə·ler·ē in'tər·stəs }
- supercontinent** A large continental mass, such as Pangea, that existed early in geologic time and from which smaller continents formed and separated by fragmentation and drifting. { 'sü·pär·kənt·ən·ənt }
- superficial deposit** See surficial deposit. { 'sü·pär'fish·əl di'pāz·ət }
- supergene** Referring to mineral deposits or enrichments formed by descending solutions. Also known as hypergene. { 'sü·pär·jēn }
- supergroup** A lithostratigraphic material unit of the highest order. { 'sü·pär·gru:p }
- superimposed** Pertaining to layered or stratified rocks. { 'sü·pär im'pōzd }
- superimposed fan** An alluvial fan developed on, and having a steeper gradient than, an older fan. { 'sü·pär·im'pōzd 'fan }
- superimposed fold** See cross fold. { 'sü·pär·im'pōzd 'föld }
- superimposed glacier** A glacier whose course is maintained despite different preexisting structures and lithologies as the glacier erodes downward. { 'sü·pär·im'pōzd 'glā·shər }
- superimposed valley** A valley eroded by or containing a superimposed stream. { 'sü·pär·im'pōzd 'val·ē }
- superincumbent** Pertaining to a superjacent layer, especially one that is situated so as to exert pressure. { 'sü·pär·in'kəm·bənt }
- superjacent** Pertaining to a stratum situated immediately upon or over a particular lower stratum or above an unconformity. { 'sü·pär'jā·sənt }
- supermature** Pertaining to a texturally mature clastic sediment whose grains have become rounded. { 'sü·pär·mə'chür }
- superposition** **1.** The order in which sedimentary layers are deposited, the highest being the youngest. **2.** The process by which the layering occurs. { 'sü·pär·pə'zish·ən }
- superprint** See overprint. { 'sü·pär·print }
- supracrustal rocks** Rocks that overlie basement rock. { 'sü·pär'krəst əl 'rāks }
- supratidal sediment** The sediment deposited immediately above the high-tide level. { 'sü·pär'tid·əl 'sed·ə·mənt }
- supratidal zone** Pertaining to the shore area immediately marginal to and above the high-tide level. { 'sü·pär'tid·əl zōn }
- surface creep** A stage of the wind erosion process in which grains of sand move each other along the surface. { 'sär·fəs·krēp }
- surface deposit** See surficial deposit. { 'sär·fəs di'pāz·ət }
- surface geology** The scientific study of the features at the surface of the earth. { 'sär·fəs jē·äl·ə·jē }
- surface soil** The soil extending 5 to 8 inches (13 to 20 centimeters) below the surface. { 'sär·fəs 'sōil }
- surface wash** See sheet erosion. { 'sär·fəs 'wāsh }
- surficial deposit** Unconsolidated alluvial, residual, or glacial deposits overlying bedrock or occurring on or near the surface of the earth. Also known as superficial deposit; surface deposit. { 'sär'fish·əl di'pāz·ət }
- surficial geology** The scientific study of surficial deposits, including soils. { 'sär'fish·əl jē·äl ə jē }
- surf ripple** A ripple mark formed on a sandy beach by wave-generated currents. { 'särf 'rip·əl }
- sursassite** $Mn_3Al_2Si_3O_{11} \cdot 3H_2O$ A mineral which is composed of hydrous manganese aluminum silicate. { 'sär'sä'sīt }
- susannite** $Pb_3(SO_4)(CO_3)_2(OH)_2$ A greenish or yellowish, rhombohedral mineral that is dimorphous with leadhillite. { 'sü'zə·nīt }
- suspended load** The part of the stream load that is carried for a long time in suspension. Also known as suspension load. { 'sə'spen·dəd 'lōd }

suspension load

suspension load See suspended load. {sə'spen·shən ˈlɒd}

sussexite $MnBO_3OH$ A white mineral composed of basic manganese borate occurring in fibrous veins. { 'səs·iks·it }

sutured Referring to rock texture in which mineral grains or irregularly shaped crystals interfere with their neighbors, producing interlocking, irregular contacts without interstitial spaces. { 'sü·chərd }

svabite $Ca_3(AsO_4)_3F$ A colorless, yellow, rose, or reddish-brown mineral composed of fluoride-arsenate of calcium. { 'sfä·bīt }

svanbergite $SrAl_3(PO_4)(SO_4)(OH)_6$ A colorless to yellow mineral composed of basic phosphate and sulfate of strontium and aluminum; it is isomorphous with corkite, hinsdalite, and woodhouseite. { 'sfän·bær·gīt }

swale **1.** A slight depression, sometimes swampy, in the midst of generally level land.

2. A shallow depression in an undulating ground moraine due to uneven glacial deposition. **3.** A long, narrow, generally shallow, troughlike depression which lies between two beach ridges and is aligned roughly parallel to the coastline. {swäl }

swallow hole An opening that occurs occasionally at the bottom of a sinkhole which permits direct drainage from the surface into an underground channel. { 'swäl·õ·höl }

swartzite $CaMg(UO_2)(CO_3)_3 \cdot 12H_2O$ A green monoclinic mineral composed of hydrous carbonate of calcium, magnesium, and uranium. { 'swört·sīt }

swash **1.** A narrow channel or ground within a sand bank, or between a sand bank and the shore. **2.** A bar over which the sea washes. {swäsh }

swash mark A fine, wavy or arcuate line or minute ridge consisting of fine sand, seaweed, and other debris on a beach; marks the farthest advance of wave uprush. Also known as debris line; wave line; wavemark. { 'swäsh·märk }

swedenborgite $NaBe_3SbO_7$ A colorless to wine-yellow mineral composed of sodium beryllium antimony oxide. { 'swēd·ən·bör·gīt }

swell **1.** The volumetric increase of soils on being removed from their compacted beds due to an increase in void ratio. **2.** A local enlargement or thickening in a vein or ore deposit. **3.** A low dome or quaquaversal anticline of considerable areal extent; long and generally symmetrical waves contribute to the mixing processes in the surface layer and thus to its sound transmission properties. **4.** Gently rising ground, or a rounded hill above the surrounding ground or ocean floor. {swel }

swelled ground A soil or rock that expands when wetted. { 'sweld·graünd }

swelling clay Clay that can absorb large amounts of water, such as bentonite. { 'swel·inj ˈklā }

swinestone Limestone containing black bituminous matter which gives off an objectionable odor when rubbed. { 'swīn·stōn }

syenite A visibly crystalline plutonic rock with granular texture composed largely of alkali feldspar, with subordinate plagioclase and mafic minerals; the intrusive equivalent of trachyte. { 'sī·ənīt }

syenodiorite Plutonic rock consisting of acid plagioclase, orthoclase, and a ferromagnesian mineral. { 'sī·ən·dī·ərīt }

syenogabbro Plutonic rock consisting of basic plagioclase, orthoclase, and a dark mineral such as augite. { 'sī·ən·nō'ga·brō }

sylvanite $(Au,Ag)Te_2$ A steel-gray, silver-white, or brass-yellow mineral that crystallizes in the monoclinic system and often occurs in implanted crystals. Also known as goldschmidtite; graphic tellurium; white tellurium; yellow tellurium. { 'sil·və·nīt }

sylvite KCl A salty-tasting, white or colorless isometric mineral, occurring in cubes or crystalline masses or as a saline residue; the chief ore of potassium. Also known as leopoldite; sylvine. { 'sil·vīt }

symmetrical fold A fold whose limbs have approximately the same angle of dip relative to the axial surface. Also known as normal fold. { sə'me·trə·kəl 'föld }

symmetric ripple mark A ripple mark whose cross-section profile is symmetric { sə'me·trik 'rip·əl·märk }

symmict Referring to a sedimentation unit that is structureless and in which coarse- and fine-grained particles are mixed more extensively in the lower part. { 'sim·ikt }

- symmictite** An eruptive breccia that is homogenized and is made up of a mixture of country rock and intrusive rock. { sə'mik'tīt }
- symmicton** See diamicton. { sə'mikt·ən }
- symplectite** See symplektite. { sim'plek'tīt }
- symplektite** An intimate intergrowth of two different minerals. Also spelled symplectite. { sim'plek'tīt }
- symplesite** $Fe_2(AsO_4)_3 \cdot 8H_2O$ A blue to bluish-green triclinic mineral composed of hydrous iron arsenate. { 'sim·plə'sīt }
- synadelphite** (Mn,Mg,Ca,Pb)(AsO₄)(OH)₂ A black mineral composed of basic arsenate of manganese, often with magnesium, calcium, lead, or other metals { 'sɪn·ə'del·fīt }
- synantectic** Refers to a mineral that was formed by the reaction of two other minerals { 'sɪn·ən'tek·tik }
- synantexis** Deuteric alteration. { 'sɪn·ən'tek·səs }
- synchisite** See synchysisite. { 'sɪŋ·kə'sīt }
- synchronous** Geological rock units or features formed at the same time { 'sɪŋ krə'nəs }
- synchronous pluton** Any pluton whose time of emplacement coincides with a major orogeny. { 'sɪŋ·krə'nəs 'plū'tæn }
- synchysite** (Ce,La)Ca(CO₃)₂F A mineral composed of fluoride and carbonate of calcium, cerium, and lanthanum. Also spelled synchisite. { 'sɪŋ·kə'sīt }
- synclinal valley** Pertaining to a topographic valley whose sides coincide with a synclinal fold. { 'sɪn'klɪn·əl'val·ē }
- syncline** A fold having stratigraphically younger rock material in its core, it is concave upward. { 'sɪn·klɪn }
- synclinorium** A composite synclinal structure in a region of lesser folds { 'sɪn·klə'nɔr·ē·əm }
- syngensis** In place formation of unconsolidated sediments { 'sɪn'jən ə səs }
- syngenetic** **1.** Pertaining to a primary sedimentary structure formed contemporaneously with sediment deposition. **2.** Pertaining to a mineral deposit formed contemporaneously with the enclosing rock. Also known as ideogenous. { 'sɪn·jə'nɛd·ɪk }
- syngenite** $K_2Ca(SO_4)_2 \cdot H_2O$ A colorless or white mineral composed of hydrous potassium calcium sulfate occurring in tabular crystals. { 'sɪn·jə'nīt }
- synkinematic** See syntectonic. { 'sɪn·kɪn·ə'mad·ɪk }
- synorogenic** Referring to a geologic process occurring at the same time as orogenic activity. { 'sɪn·ɔr·ə'jən·ɪk }
- syntaxial overgrowth** A crystallographically oriented overgrowth of two alternating chemically identical substances. { 'sɪn'tak·sē·əl 'ɔ·vər·grəʊθ }
- syntectic** See syntexis. { 'sɪn'tek·tik }
- syntectonic** Refers to a geologic process or event occurring during tectonic activity. Also known as synkinematic. { 'sɪn·tek'tən·ɪk }
- syntexis** Magma made by the melting of two or more rock types and the assimilation of country rock. Also known as syntectic. { 'sɪn'tek·səs }
- synthem** A chronostratigraphic unit that defines an unconformity-bounded regional body of sediments and represents a cycle of sedimentation in response to changes in relative sea level or tectonics. { 'sɪn·them }
- syserskite** Mineral composed of an alloy of osmium (50-80%) and iridium (20-50%) { 'sɪs·ər'skīt }
- syssiderite** See stony-iron meteorite. { sə'sɪd·ər'īt }
- system** **1.** A major time-stratigraphic unit of worldwide significance, representing the basic unit of Phanerozoic rocks. **2.** A group of related structures, such as joints. **3.** A chronostratigraphic unit, below erathem and above series. { 'sɪs·təm }
- systematic joints** Joints occurring in patterns or sets and oriented perpendicular to the boundaries of the constituent rock unit. { 'sɪs·tə'mad·ɪk 'jɔɪns }
- systems tract** A discrete package of distinctive sediment types (facies) that are laid down during different phases of a cycle of sea-level change. { 'sɪs·təmz 'trakt }
- szaibelyite** (Mn,Mg)(BO₃)(OH) A white to buff or straw yellow, orthorhombic mineral

szaskaite

consisting of a basic borate of manganese and magnesium; occurs as veinlets, masses, or embedded nodules. { sã'bel'yít }

szaskaite See smithsonite. { sə'skã'īt }

szmikite $MnSO_4 \cdot H_2O$ A monoclinic mineral composed of hydrous manganese sulfate. { 'smi:kīt }

szomolnokite $FeSO_4 \cdot H_2O$ A yellow or brown monoclinic mineral composed of hydrous ferrous sulfate. { sə'mäl·nə:kīt }

T

- tabbyite** A variety of solid asphalt found in the western United States, used as rubber filler and with roofing materials. { 'tā·bē·īt }
- tabetisol** See talik. { tə'bed·ə·səl }
- tablemount** See guyot. { 'tā·bəl·maunt }
- table reef** A small, isolated organic reef which has a flat top and does not enclose a lagoon. { 'tā·bəl·rēf }
- tabular** Referring to a sedimentary particle whose length is two to three times its thickness. { 'tab·yə·lər }
- tabular spar** See wollastonite. { 'tab·yə·lər 'spär }
- tachyhydrite** $\text{CaMg}_2\text{Cl}_6 \cdot 12\text{H}_2\text{O}$ A honey yellow, hexagonal mineral consisting of a hydrated chloride of calcium and magnesium; occurs in massive form. { 'tak·ə·hī·drit }
- tachylite** A black, green, or brown volcanic glass formed from basaltic magma. Also known as basalt glass; basalt obsidian, hyalobasalt, jaspoid, sordawalite, wichtsite. { 'tak·ə·līt }
- Taconian orogeny** A process of formation of mountains in the latter part of the Ordovician period, particularly in the northern Appalachians. Also known as Taconic orogeny. { tək'ō·nē·ən ó'rāj·ə·nē }
- Taconic orogeny** See Taconian orogeny. { tək'än·ik ó'rāj·ə·nē }
- taconite** The siliceous iron formation from which high-grade iron ores of the Lake Superior district have been derived; consists chiefly of fine-grained silica mixed with magnetite and hematite. { 'tak·ə·nīt }
- tactite** A rock with a complex mineralogical composition, formed by contact metamorphism and metasomatism of carbonate rocks. { 'tak·tīt }
- taele** See frozen ground. { 'tā·lə }
- taeniolite** $\text{KLiMg}_2\text{Si}_4\text{O}_{10}\text{F}_2$ A white or colorless mica mineral. { 'tē·nē·ə·līt }
- taenite** A meteoritic mineral consisting of a nickel-iron alloy, with a nickel content varying from about 27 to 65%. { 'tē·nīt }
- tagilite** See pseudomalachite. { 'tag·ə·līt }
- Tahuian** A local Eocene time subdivision in Australia whose identification is based on foraminiferans. { tə'wī·ən }
- talc** $\text{Mg}_3\text{Si}_4\text{O}_{10}(\text{OH})_2$ A whitish, greenish, or grayish hydrated magnesium silicate mineral crystallizing in the monoclinic system, it is extremely soft (hardness is 1 on Mohs scale) and has a characteristic soapy or greasy feel. { tal·k }
- talcose rock** A rock having a soft and soapy feel, that is, resembling talc. { 'tal·kōs·rāk }
- talc schist** A schist in which talc is the dominant schistose material. { 'tal·k lshist }
- talik** A Russian term applied to permanently unfrozen ground in regions of permafrost usually applies to a layer which lies above the permafrost but below the active layer that is, when the permafrost table is deeper than the depth reached by winter freezing from the surface. Also known as tabetisol. { 'tä·lik }
- talus** Also known as rubble, scree. **1.** Coarse and angular rock fragments derived from and accumulated at the base of a cliff or steep, rocky slope. **2.** The accumulated heap of such fragments. { 'tal·əs }

talus creep

- talus creep** The slow, downslope movement of talus. { 'tal·əs ,krēp }
- talus glacier** See rock glacier. { 'tal·əs ,glā·shər }
- talus slope** A steep, concave slope consisting of an accumulation of talus. Also known as debris slope. { 'tal·əs ,slōp }
- tamarugite** $\text{NaAl}(\text{SO}_4)_2 \cdot 6\text{H}_2\text{O}$ A colorless, monoclinic mineral consisting of a hydrated sulfate of sodium and aluminum; occurs as crystals and masses. { ,tam·ə'ru'gīt }
- tangeite** See calciovolborthite. { ,tan·jē'īt }
- tantalite** $(\text{Fe},\text{Mn})\text{Ta}_2\text{O}_6$ An iron-black mineral that crystallizes in the orthorhombic system and commonly occurs in short prismatic crystals; luster is submetallic, hardness is 6 on Mohs scale, and specific gravity is 7.95; principal ore of tantalum. { 'tant·əl'īt }
- tanteuxenite** $(\text{Y},\text{Ce},\text{Ca})(\text{Ta},\text{Nb},\text{O})_2(\text{O},\text{OH})_6$ A brown or black variety of euxenite with tantalum substituting for niobium. Also known as delorenzite; eschwegeite. { tan'tyūk·sə'nīt }
- taphrogenesis** See taphrogeny. { ,taf·rə'jen·ə·səs }
- taphrogeny** The formation of rift or trench phenomena, characterized by block faulting and associated subsidence. Also known as taphrogenesis. { tə'frāj·ə·nē }
- taphrogeosyncline** A geosyncline formed as a rift basin between faults { ,taf·rō·jē·ō'sin·klīn }
- tapiolite** $\text{Fe}(\text{Ta},\text{Nb})_2\text{O}_6$ A mineral that is isomorphous with mossaite, occurs in pegmatites or detrital deposits; an ore of tantalum. { ,tap·ē·əl'īt }
- taranakite** $\text{KAl}_3(\text{PO}_4)_3(\text{OH}) \cdot 9\text{H}_2\text{O}$ A white, gray, or yellowish-white mineral consisting of a hydrated basic phosphate of potassium and aluminum. { ,tar·ə'nā·kīt }
- tarapacaite** K_2CrO_4 A bright canary yellow, orthorhombic mineral consisting of potassium chromate; occurs in tabular form. { ,tar·ə·pə'kāk'īt }
- tarbuttite** $\text{Zn}_2(\text{PO}_4)(\text{OH})$ A triclinic mineral of varying color, consisting of basic zinc phosphate. { 'tär·bətīt }
- tarnish** The altered color and luster of a mineral surface; characteristic of copper-bearing minerals. { 'tär·nish }
- tar sand** A type of oil sand; a sand whose interstices are filled with asphalt that remained after the escape of the lighter fractions of crude oil. { 'tär ,sand }
- tar seep** Natural tar that, because of its close proximity to the ground surface, seeps from cracks in the earth or from between rocks, often forming pits or pools. { 'tär ,sēp }
- tasmanite** An impure coal, transitional between cannel coal and oil shale. Also known as combustible shale; Mersey yellow coal; white coal; yellow coal. { 'taz·mə'nīt }
- tavistockite** $\text{Ca}_2\text{Al}_2(\text{PO}_4)_2(\text{OH})_6$ A white, orthorhombic mineral consisting of a basic phosphate of calcium and aluminum. { ,tav·ə'stāk'īt }
- Tchernozem** See Chernozem. { 'chər·nə·zem }
- teallite** PbSnS_2 A grayish-black, orthorhombic mineral consisting of lead tin sulfide. { 'tē'īt }
- tear fault** A very steep to vertical fault associated with and perpendicular to the strike of an overthrust fault. { 'tar ,fölt }
- tectite** See tektite. { 'tek'tīt }
- tectofacies** A lithofacies that is interpreted tectonically. { ,tek·tə'fā·shēz }
- tectogene** A long, relatively narrow downward fold of sialic crust considered to be an early phase in mountain-building processes. Also known as geotectogene. { 'tek·tə·jēn }
- tectogenesis** See orogeny. { ,tek·tə'jen·ə·səs }
- tectonic analysis** See petrotectonics. { tek'tän·ik ə'nal·ə·səs }
- tectonic breccia** A breccia developed from brittle rocks, formed as a result of crustal movements and produced by lateral or vertical pressure. Also known as dynamic breccia; pressure breccia. { tek'tän·ik 'brech·ə }
- tectonic conglomerate** See crush conglomerate. { tek'tän·ik kən'gläm·ə·rət }
- tectonic cycle** The orogenic cycle which relates larger crustal features, such as mountain belts, to a series of stages of development. Also known as geosynclinal cycle. { tek'tän·ik 'sī·kəl }

- tectonic framework** The relationship in space and time of subsiding, stable, and rising tectonic elements in a sedimentary source area. {tek'tän·ik 'främ·wærk}
- tectonic land** Linear fold ridges and volcanic islands which existed for a short time in the interior sections of an orogenic belt during the geosynclinal phase. {tek'tän·ik 'land}
- tectonic lens** An elongate, sausage-shaped body of rock formed by distortion of a continuous incompetent layer enclosed between competent layers, similar to a boudin, but genetically distinct. {tek'tän·ik 'lens}
- tectonic map** A map which shows the architecture of the upper portion of the earth's crust. {tek'tän·ik 'map}
- tectonic moraine** An aggregation of boulders incorporated in the base of an overthrust mass. {tek'tän·ik mə'ræn}
- tectonic patterns** The arrangement of the large structural units of the earth's crust, such as mountain systems, shields or stable areas, basins, arches, and volcanic archipelagoes. {tek'tän·ik 'pad·ærnz}
- tectonic plate** Any one of the internally rigid crustal blocks of the lithosphere which move horizontally across the earth's surface relative to one another. Also known as crustal plate. {tek'tän·ik 'plāt}
- tectonic rotation** Internal rotation of a tectonite in the direction of transport. {tek'tän·ik rō'tā·shən}
- tectonics** A branch of geology that deals with regional structural and deformational features of the earth's crust, including the mutual relations, origin, and historical evolution of the features. Also known as geotectonics. {tek'tän·iks}
- teconite** A rock in which the history of its deformation is reflected in its fabric. {'tek·tə·nīt}
- tecosilicate** A structural type of silicate in which all four oxygen atoms of the silicate tetrahedra are shared with neighboring tetrahedra; tectosilicates include quartz, the feldspars, the feldspathoids, and zeolites. Also known as framework silicate. {'tek·tō'sil·ə·kāt}
- tectosome** A body of strata representing a tectotope. {'tek·tə·sōm}
- tectosphere** The region of the earth's crust occupied by the tectonic plates. {'tek·tə·sīr}
- teeleite** $\text{Na}_2\text{BO}_2\text{Cl}\cdot 2\text{H}_2\text{O}$ A mineral composed of hydrous chloride and borate of sodium. {'tē·pə·līt}
- teineite** $\text{CuTeO}_4\cdot 2\text{H}_2\text{O}$ A greenish to yellowish, probably triclinic mineral consisting of a hydrated sulfate-tellurate of copper; occurs as crystals. {'tā·nīt}
- tektite** A collective term applied to certain objects of natural glass of debatable origin that are widely strewn over the land and in sediments under the oceans; composition and size vary, and overall shapes resemble splash forms; most tektites are believed to be of extraterrestrial origin. Also known as obsidianite; tectite. {'tek·tīt}
- telemagmatic** Pertaining to a hydrothermal mineral deposit that is distant from its magmatic source. {'tel·ə·mag'mad·ik}
- telescope structure** An alluvial fan structure characterized by younger fans with flatter gradients spreading out between older fans with steeper gradients. {'tel·ə·skōp·stræk·chər}
- telethermal** Pertaining to a hydrothermal mineral deposit precipitated at a shallow depth and at a mild temperature. {'tel·ə'thər·məl}
- telinite** A variety of provitrinite composed of plant cell-wall material. {'tē·lə·nīt}
- tellurite** TeO_2 A white or yellowish orthorhombic mineral consisting of tellurium dioxide, and occurring in crystals; it is dimorphous with paratellurite. {'tel·yə·rīt}
- tellurium glance** See nagyagite. {tə'lūr·ē·əm 'glans}
- tellurobismuthite** Bi_2Te_3 A pale lead gray hexagonal mineral consisting of a bismuth and tellurium compound; occurs as irregular plates or foliated masses. {'tel·yə·rō'biz·mə·thīt}
- temporal unit** A stratigraphic unit defined in terms of time-related characteristics. {'tem·prəl·yü·nət}
- temporary base level** Any base level, other than sea level, below which a land area

tennantite

temporarily cannot be reduced by erosion. Also known as local base level. { 'tem·pə·rer·ē 'bās /lev·əl }

tennantite (Cu,Fe)₁₂As₄S₁₃ A lead-gray mineral crystallizing in the isometric system, it is isomorphous with tetrahedrite; an important ore of copper. { 'ten·ən'tīt }

tenorite CuO A triclinic mineral that occurs in small, shining, steel-gray scales, in black powder, or in black earthy masses; an ore of copper. { 'ten·ə'rīt }

tension crack An extension fracture caused by tensile stress. { 'ten·chən /krak }

tension fault A fault in which crustal tension is a factor, such as a normal fault. Also known as extensional fault. { 'ten·chən /fólt }

tension fracture A minor rock fracture developed at right angles to the direction of maximum tension. Also known as subsidiary fracture. { 'ten·chən /frak·chər }

tension joint A joint that is a tension fracture. { 'ten·chən /jóint }

tepee structure A disharmonic sedimentary structure consisting of a fold that resembles an inverted depressed V in cross section. { 'tē·pē /strək·chər }

tepetate See caliche. { /tep·ə'täd·ē }

tephra Denotes all pyroclastics of a volcano. { 'tef·rə }

tephrite A group of basaltic extrusive rocks composed chiefly of calcic plagioclase, augite, and nepheline or leucite, with some sodic sanidine. { 'te·frīt }

tephrochronology The dating of different layers of volcanic ash for the establishment of a sequence of geologic and archeologic occurrences. { /tef·rō·krə'nal·ə·jē }

tephroite Mn₂SiO₄ An olivine mineral that occurs with zinc and manganese minerals. { 'tef·rō'īt }

terlinguaite Hg₂OCl A sulfur yellow to greenish-yellow, monoclinic mineral consisting of an oxychloride of mercury. { tər'liŋ·gwə'īt }

terminal moraine An end moraine that extends as an arcuate or crescentic ridge across a glacial valley; marks the farthest advance of a glacier. Also known as marginal moraine. { 'tər·mən·əl mə'rān }

ternary diagram A triangular diagram that graphically depicts the composition of a three-component mixture or ternary system. { 'tər·nə·rē 'dī·ə·gram }

terrace **1.** A horizontal or gently sloping embankment of earth along the contours of a slope to reduce erosion, control runoff, or conserve moisture. **2.** A narrow coastal strip sloping gently toward the water. **3.** A long, narrow, nearly level surface bounded by a steeper descending slope on one side and by a steeper ascending slope on the other side. **4.** A benchlike structure bordering an undersea feature. { 'ter·əs }

terracette A small steplike form developed on the surface of a slumped soil mass along a steep grassy incline. { /ter·ə'set }

terra miraculosa See bole. { 'ter·ə mi·rak·yə'lō·sə }

terrane A rock formation, a cluster of rock formations, or the general area of outcrops. { tər'rān }

terra rossa A reddish-brown soil overlying limestone bedrock. { 'ter·ə 'ròs·ə }

terrestrial sediment A sedimentary deposit on land above tidal reach { tər'es·trē əl 'sed·ə·mənt }

terrestrial sediment Shallow marine sedimentary deposits composed of eroded terrestrial material. { tər'rij·ə·nəs 'sed·ə·mənt }

Tertiary The older major subdivision (period) of the Cenozoic era, extending from the end of the Cretaceous to the beginning of the Quaternary, from 70,000,000 to 2,000,000 years ago. { 'tər·shē'er·ē }

teschmacherite (NH₄)HCO₃ A colorless to white or yellowish, orthorhombic mineral consisting of ammonium bicarbonate; occurs as compact, crystalline masses. { 'tesh·ə·mäk·ə·rīt }

teschenite A granular hypabyssal rock composed principally of calcic plagioclase, augite, and sometimes hornblende, with some brotite and analcime. { 'tesh·ən'īt }

Tethys **1.** A sea which existed for extensive periods of geologic time between the northern and southern continents of the Eastern Hemisphere. **2.** A composite geosyncline from which many structures of the present Alpine-Himalayan orogenic belt were formed. { 'tē·thəs }

tetradymite Bi₂Te₂S A pale steel-gray mineral that usually occurs in foliated masses

in auriferous veins; has metallic luster, hardness of 1.5-2 on Mohs scale, and specific gravity of 7.2-7.6. {tə'trad·ə'mīt }

tetrahedrite (Cu,Fe,Zn,Ag)₁₂Sb₄S₁₃; A grayish-black mineral crystallizing in the isometric system as tetrahedrons and occurring in massive or granular form; luster is metallic, hardness is 3.5-4 on Mohs scale, and specific gravity is 4.6-5.1; an important ore of copper. Also known as fahlore, gray copper ore; panabase; stytotypite. {te-trə'hē-drīt }

texture 1. The physical nature of the soil according to composition and particle size
2. The physical appearance or character of a rock; applied to the megascopic or microscopic surface features of a homogeneous rock or mineral aggregate, such as grain size, shape, and arrangement. { 'teks·chər }

thalassocratic 1. Pertaining to a thalassocraton 2. Referring to a period of high sea level in the geologic past. { thə'lās·ə'lkrad·ik }

thalassocraton A craton that is part of the oceanic crust. { 'thal·ə'sāk·rə'tān }

thalweg 1. A line connecting the lowest points along a stream bed or a valley. Also known as valley line. 2. A line crossing all contour lines on a land surface perpendicularly. { 'täl·veg }

Thanetian A European stage of geologic time, uppermost Paleocene, above Montian, below Ypresian of Eocene. { thə'nē·shən }

thenardite Na₂SO₄ A colorless grayish-white, yellowish, yellow-brown, or reddish, orthorhombic mineral consisting of sodium sulfate. { thə'när-dīt }

theralite A dark-colored, visibly crystalline rock composed chiefly of pyroxene with smaller amounts of calcic plagioclase and nepheline. { 'ther·ə'līt }

thermal aureole See aureole. { 'thər·mə'l 'ör·ē·ōl }

thermal metamorphism Metamorphism that results from temperature-controlled and induced chemical reconstitution of preexisting rocks, with little influence of pressure. Also known as thermometamorphism. { 'thər·mə'l lmed·ə'l'mór·fiz·əm }

thermal structure A distinct structural pattern, such as a dome or anticline, defined by the arrangement of metamorphic zones of increasing grade. { 'thər·mə'l 'strək·chər }

thermokarst topography An irregular land surface formed in a permafrost region by melting ground ice. { 'thər·mə'kärst tə'päg·rə·fē }

thermometamorphism See thermal metamorphism { 'thər mō'lmed ə'l'mór·fiz·əm }

thermonatrite Na₂CO₃·H₂O A colorless to white, grayish, or yellowish orthorhombic mineral consisting of sodium carbonate monohydrate; occurs as a crust or efflorescence. { 'thər·mə'nā·trīt }

thick-bedded Pertaining to a sedimentary bed that ranges in thickness from 60 to 120 centimeters (2 to 4 feet). { 'thik·bed·əd }

thick-skinned structure Any large-scale structure, such as a fold or fault, believed to have originated as a result of basement movement beneath overlying rocks. { 'thik lskind 'strək·chər }

thill See underclay. { thil }

thin-bedded Pertaining to a sedimentary bed that ranges in thickness from 2 inches to 2 feet (5 to 60 centimeters). { 'thin·bed·əd }

thin-out Gradual thinning of a stratum, vein, or other body of rock until the upper and lower surfaces meet and the rock disappears. { 'thin·äut }

thin section A piece of rock or mineral specifically prepared to study its optical properties; the sample is ground to 0.03-millimeter thickness, then polished and placed between two microscope slides. Also known as section. { 'thin 'sek·shən }

thin-skinned structure Any large-scale structure, such as a fold or fault, confined to and originating within a thin layer of rocks above a surface of décollement. { 'thin lskind 'strək·chər }

thiospinel Any mineral with the spinel structure having the general formula AB₂S₄. { 'thī·ō·spə'nel }

thixotropic clay A clay that weakens when disturbed and increases in strength upon standing. { 'thik·sə'ltröp·ik 'klā }

tholeiite 1. A group of basalts composed principally of plagioclase, pyroxene, and iron

thomsenolite

oxide minerals as phenocrysts in a glassy groundmass. **2.** Any rock in the group. { thō'lē·ə·īt }

thomsenolite $\text{NaCaAlF}_6 \cdot \text{H}_2\text{O}$ A colorless to white, monoclinic mineral consisting of a hydrated aluminofluoride of sodium and calcium; it is dimorphous with pachnolite. { 'tām·sə·nə·līt }

thomsonite $\text{NaCa}_2\text{Al}_5\text{Si}_5\text{O}_{20} \cdot 6\text{H}_2\text{O}$ Snow-white zeolite mineral forming orthorhombic crystals and occurring in masses of radiating crystals; hardness is 5-5.5 on Mohs scale. { 'tām·sə·nīt }

thoreaulite SnTa_2O_7 A brown, monoclinic mineral consisting of an oxide of tin and tantalum; occurs as rough, prismatic crystals. { 'thō·rō·līt }

thorianite ThO_2 A radioactive mineral that crystallizes in the isometric system, occurs in worn cubic crystals, is brownish black to reddish brown in color, and has resinous luster; hardness is 7 on the Mohs scale, and specific gravity is 9.7-9.8. { 'thōr·ē·ə·nīt }

thorite ThSiO_4 A brownish-yellow to brownish-black and black radioactive mineral that is tetragonal in crystallization; hardness is about 4.5 on Mohs scale, and specific gravity is 4.3-5.4. { 'thōr·īt }

thorogummite A silicate mineral and chemical variant of thorium silicate, with similar properties; isostructural with thorite and zircon; it is deficient in silica and contains small amounts of OH in substitution for oxygen. { 'thōr·ə'gə·mīt }

thortveitite $(\text{Sc,Y})_2\text{Si}_2\text{O}_7$ A grayish-green mineral occurring in orthorhombic crystals; a source of scandium. { tōrt'vī·tīt }

thread An extremely small vein, even thinner than a stringer. { θred }

thread-lace scoria Scoria whose vesicle walls have collapsed and are represented only by a network of threads. { 'θred lās 'skōr·ē·ə }

three-point method A method used to determine the dip and strike of a structural surface from three points of varying elevation along the surface. { 'θrē l'pōint 'meth·əd }

threshold See riegel. { 'θresh·hōld }

through valley **1.** A depression eroded across a divide by glacier ice or meltwater streams. **2.** A valley excavated by a through glacier. { 'θrū 'val·ē }

throw The vertical component of dip separation on a fault, or generally the amount of vertical displacement on any fault. { θrō }

thrust Overriding movement of one crystal unit over another. { θrəst }

thrust block See thrust nappe. { 'θrəst 'blāk }

thrust fault A low-angle (less than a 45° dip) fault along which the hanging wall has moved up relative to the footwall. Also known as reverse fault; reverse slip fault; thrust slip fault. { 'θrəst 'fōlt }

thrust moraine See push moraine. { 'θrəst mə·rān }

thrust nappe The body of rock that makes up the hanging wall of a thrust fault. Also known as thrust block; thrust plate; thrust sheet; thrust slice. { 'θrəst 'nəp }

thrust plate See thrust nappe. { 'θrəst 'plāt }

thrust sheet See thrust nappe. { 'θrəst 'shēt }

thrust slice See thrust nappe. { 'θrəst 'slīs }

thrust slip fault See thrust fault. { 'θrəst 'slip 'fōlt }

thucolite Concentrations of carbonaceous matter in ancient sedimentary rocks. { 'θū·kə·līt }

thulite A pink, rose-red, or purplish-red variety of epidote that contains manganese, used as an ornamental stone. { 'θū·līt }

Thuringian A European stage of Upper Permian geologic time, above the Saxonian and below the Triassic. { θə'rin·jē·ən }

tidal delta A sand bar or shoal formed in the entrance of an inlet by the action of reversing tidal currents. { 'tīd·əl 'del·tə }

tidal flat A marshy, sandy, or muddy nearly horizontal coastal flatland which is alternately covered and exposed as the tide rises and falls. { 'tīd·əl 'flət }

tidal inlet A natural inlet maintained by tidal currents. { 'tīd·əl 'in·lət }

tidalite Any sediment transported and deposited by tidal currents. { 'tīd·əl·īt }

tidal scour Sea-floor erosion caused by strong tidal currents, resulting in removal of

- inshore sediments and formation of deep holes and channels. Also known as scour. { 'tīd·əɫ 'skaür }
- tie bar** See tombolo. { 'tī ,bär }
- tiemannite** HgSe A steel gray to blackish-lead gray mineral consisting of mercuric selenide; commonly occurs in massive form. { 'tē·mə·nīt }
- tiger's-eye** A yellowish-brown crystalline variety of quartz, a translucent, fibrous, broadly chatoyant gemstone that may be dyed other colors. { 'tī·gəz ,ī }
- tight fold** See closed fold. { 'tīt 'föld }
- tight sand** A sand whose interstices are filled with finer grains of the matrix material, thus effectively destroying porosity and permeability. Also known as close sand { 'tīt 'sand }
- tilasite** CaMg(AsO₄)F A gray, gray-violet, olive green, or apple green, monoclinic mineral consisting of a fluorarsenate of calcium and magnesium. { 'tīl·ə·sīt }
- till** Unsorted and unstratified drift consisting of a heterogeneous mixture of clay, sand, gravel, and boulders which is deposited by and underneath a glacier. Also known as boulder clay; glacial till; ice-laid drift. { tīl }
- till billow** An undulating mass of glacial drift that is disposed in an irregular pattern with regard to the direction of movement of the ice. { 'tīl ,bīl·ō }
- tilleyite** Ca₅(Si₂O₇)(CO₃)₂ A white mineral consisting of a carbonate and silicate of calcium. { 'tīl·ē·īt }
- tillite** A sedimentary rock formed by lithification of till, especially pre-Pleistocene till { 'tī·līt }
- tilloid** **1.** A nonglacial till-like deposit **2.** A rock of uncertain origin which resembles tillite. { 'tī·lōid }
- till plain** An extensive, relatively flat area overlying a till. { 'tīl ,plān }
- till sheet** A sheet, layer, or bed of till. { 'tīl ,shēt }
- tilt block** A tilted fault block. { 'tīlt ,bläk }
- tilted interface** Oil-water interface in which water moves in a generally linear direction under an oil accumulation which is, for instance, in an anticline. { 'tīl·təd 'in·tər·fās }
- tilth** The physical condition of a soil as expressed in terms of fitness for growth of specified plants or crops. { tīlth }
- time correlation** A correlation of age or mutual time relations between stratigraphic units in separated areas. { 'tīm ,kär·ə'lā·shən }
- time line** **1.** A line that indicates equal geologic age in a correlation diagram **2.** A rock unit represented by a time line. { 'tīm ,līn }
- time-rock unit** See time-stratigraphic unit. { 'tīm 'rāk ,yü·nət }
- time-stratigraphic facies** A stratigraphic facies based on the amount of geologic time during which deposition and nondeposition of sediment occurred. { 'tīm l'strad·ə'graf·ik ,fā·shēz }
- time-stratigraphic unit** A stratigraphic unit based on geologic age or time of origin. Also known as chronolith; chronolithologic unit; chronostratic unit; chronostratigraphic unit; time-rock unit. { 'tīm l'strad·ə'graf·ik ,yü·nət }
- time-transgressive** See diachronous. { 'tīm tranz·gres·iv }
- tincal** See borax. { 'tin·kal }
- tincalconite** Na₂B₂O₅·5H₂O A colorless to dull-white mineral, crystallizing in the rhombohedral system; one of the principal ores of borax and boron compounds. Also known as mohavite; octahedral borax. { tin'kal·kə·nīt }
- tin pyrites** See stannite. { 'tin 'pī·rīts }
- tin stone** See cassiterite. { 'tin ,stōn }
- tinticite** Fe₄(PO₃)₂(OH)₂·3½H₂O A creamy white mineral with a yellowish-green tint, consisting of a hydrated basic iron phosphate. { 'tin·tī·kīt }
- titanaugite** Ca(Mg,Fe,Ti)(Si,Al)₂O₆ A variety of augite rich in titanium and occurring in basaltic rocks. { 'tīt·ən'ō·gīt }
- titanic iron ore** See ilmenite. { tī'tan·ik 'ī·ərn 'òr }
- titanite** See sphene. { 'tīt·ən·īt }
- Tithonian** Southern European equivalent of the Portlandian stage (uppermost Jurassic) of geologic time. { tī'thō·nē·ən }

Toarcian

- Toarcian** A European stage of geologic time; Lower Jurassic (above Pliensbachian, below Bajocian). { tō'är·shən }
- tobacco jack** See wolframite. { tə'bak·ō·jak }
- toe** The leading edge of a thrust nappe. { tō }
- tombolo** A sand or gravel bar or spit that connects an island with another island or an island with the mainland. Also known as connecting bar; tie bar; tying bar. { 'täm·bä'lō }
- tombolo cluster** See complex tombolo. { 'täm·bä'lō·kläs·tär }
- tombolo series** See complex tombolo. { 'täm·bä'lō·sir·ēz }
- tonalite** See quartz diorite. { 'tön·əl·īt }
- Tongrian** A European stage of geologic time, lower Oligocene (above Ludian of Eocene, below Rupelian). Also known as Lattorfian. { 'täŋ·grē·ən }
- tongue** **1.** A minor rock-stratigraphic unit of limited geographic extent, it disappears laterally in one direction. **2.** A lava flow branching from a larger flow. { təŋ }
- tonstein** Kaolinitic bands in certain coalfields which have characteristic fossil fauna from short-lived but widespread marine invasions. { 'tän·shtīn }
- tool mark** Any of the wide variety of current marks, such as groove marks, prod marks, and skip marks, produced by the continuous contact or intermittent impact of solid, current-borne objects against a muddy bottom. { 'tül·märk }
- top** See overburden. { täp }
- topaz** $\text{Al}_2\text{SiO}_4(\text{F},\text{OH})$ A red, yellow, green, blue, or brown nesosilicate mineral that crystallizes in the orthorhombic system and commonly occurs in prismatic crystals with pyramidal terminations; hardness is 8 on Mohs scale, and specific gravity is 3.4-3.6; used as a gemstone. { 'tō·paz }
- topaz quartz** See citrine. { 'tō·paz·kwörtz }
- topographic infancy** See infancy. { 'täp·ə'gräf·ik·'in·fən·sē }
- topographic maturity** See maturity. { 'täp·ə'gräf·ik·mæ'chür·əd·ē }
- topographic old age** See old age. { 'täp·ə'gräf·ik·'öld·'äj }
- topographic profile** See profile. { 'täp·ə'gräf·ik·'prō·fil }
- topset bed** One of the nearly horizontal sedimentary layers deposited on the top surface of an advancing delta. { 'täp·set·lbed }
- topsoil** **1.** Soil presumed to be fertile and used to cover areas of special planting. **2.** Surface soil, usually corresponding with the A horizon, as distinguished from subsoil. { 'täp·sōil }
- torbanite** A variety of coal that resembles a carbonaceous shale in outward appearance; it is fine-grained, black to brown, and tough. Also known as bitumenite; kerosine shale. { 'tör·bæ·nīt }
- torbernite** $\text{Cu}(\text{UO}_2)_2(\text{PO}_4)_2 \cdot 8\text{-}12\text{H}_2\text{O}$ A green radioactive mineral crystallizing in the tetragonal system and occurring in tabular crystals or in foliated form. Also known as chalcolite; copper uranite; cuprouranite; uran-mica. { 'tör·bær·nīt }
- torose load cast** One of a group of elongate load casts with alternate contractions and swellings, which may terminate down current in bulbous, teardrop, or spiral forms. { 'tör·rōs·'lōd·kast }
- Torrert** A suborder of the soil order Vertisol; it is the driest soil of the order and forms cracks that tend to remain open; occurs in arid regions. { 'tör·ört }
- torreyite** $(\text{Mg},\text{Mn},\text{Zn})_7(\text{SO}_4)(\text{OH})_{12} \cdot 4\text{H}_2\text{O}$ A bluish-white mineral consisting of a hydrated basic sulfate of magnesium, manganese, and zinc; occurs in massive form. { 'tör·ē·īt }
- Torrox** A suborder of the soil order Oxisol that is low in organic matter, well drained, and dry most of the year; believed to have been formed under rainier climates of past eras. { 'tör·äks }
- torsion fault** See wrench fault. { 'tör·shən·fölt }
- Tortonian** A European stage of geologic time: Miocene (above Helvetian, below Sarmatian). { 'tört·nē·ən }
- total displacement** See slip. { 'tōd·əl·di'spläs·mənt }
- total porosity** The ratio of total void space in porous oil-reservoir rock to the bulk volume of the rock itself. { 'tōd·əl·pə'räs·əd·ē }
- total slip** See net slip. { 'tōd·əl·slip }

- tourmaline** $(\text{Na,Ca})(\text{Al,Fe,Li,Mg})_3\text{Al}_6(\text{BO}_3)_3\text{Si}_6\text{O}_{18}(\text{OH})_4$ Any of a group of cyclosilicate minerals with a complex chemical composition, vitreous to resinous luster, and variable color, crystallizes in the ditrigonal-pyramidal class of the hexagonal system, has piezoelectric properties, and is used as a gemstone. { 'túr·mə·lən }
- Tournaisian** European stage of lowermost Carboniferous time. { túr·nā·zhən }
- trace** The intersection of two geological surfaces. { trās }
- trace fossil** A trail, track, or burrow made by an animal and found in ancient sediments such as sandstone, shale, or limestone. Also known as ichnofossil { 'trās·fās·əl }
- trace slip** That component of the net slip in a fault which is parallel to the trace of an index plane on a fault plane. { 'trās·slip }
- trace-slip fault** A fault whose net slip is trace slip. { 'trās·slip·fólt }
- trachybasalt** An extrusive rock characterized by calcic plagioclase and sanidine, with augite, olivine, and possibly minor analcime or leucite. { ltra·kē·bəs'ól't }
- trachyte** The light-colored, aphanitic rock (the volcanic equivalent of syenite), composed largely of alkali feldspar with minor amounts of mafic minerals. { 'tra·kít }
- trachytoid texture** The texture of a phaneritic extrusive igneous rock in which the microclites of a mineral, not necessarily feldspar, in the groundmass have a subparallel or randomly divergent alignment. { 'trak·ət'óid·teks·chər }
- traction** Transport of sedimentary particles along and parallel to a bottom surface of a stream channel by rolling, sliding, dragging, pushing, or saltation { 'trak·shən }
- trail** A line of rock fragments that were picked up by glacial ice at a localized outcropping and left scattered along a fairly well-defined tract during the movement of a glacier. { trāl }
- transcurrent fault** A strike-slip fault characterized by a steeply inclined surface. Also known as transverse thrust. { ltranz'ikə·rənt·fólt }
- transform fault** A strike-slip fault with offset ridges characteristic of a midoceanic ridge { 'tranz·fórm·fólt }
- transgression** Geologic evidence of landward extension of the sea. Also known as invasion; marine transgression. { tranz'grəsh·ən }
- transgressive deposit** Sediment deposited during transgression of the sea or during subsidence of the land. { tranz'gres·iv·di'pāz·ət }
- transgressive overlap** See onlap.
- transition zone** 1. A region within the upper mantle bordering the lower mantle, at a depth of 246-600 miles (410-1000 kilometers), characterized by a rapid increase in density of about 20% and an increase in seismic wave velocities. 2. A region within the outer core, transitional to the inner core. { tran'zish·ən·zōn }
- translational fault** A fault in which there has been uniform movement in one direction and no rotational component of movement. Also known as translatory fault. { tran'slā·shən·əl·fólt }
- translational movement** Movement, as of fault blocks, that is uniform, without rotation, so that parallel features maintain their orientation. { tran'slā·shən·əl·'müv·mənt }
- translatory fault** See translational fault. { 'tran·slā·tór·ē·fólt }
- translucent attritus** Attritus composed principally of transparent humic degradation matter. Also known as humodurite. { tran'slūs·əns·ə'tríd·əs }
- transportation** A phase of sedimentation concerned with movement by natural agents of sediment or any loose or weathered material from one place to another { -tranz·pər'tā·shən }
- Transvaal jade** A mineral that is not a true jade but a green grossularite garnet. Also known as South African jade. { trans'vāl·'jäd }
- transverse bar** A slightly submerged sand bar extending perpendicular to the shoreline. { trans'vərs·bär }
- transverse basin** See exogeosyncline. { trans'vərs·bās·ən }
- transverse dune** A sand dune with a nearly straight ridge crest formed by the merger of crescentic dunes, elongated at right angles to the direction of prevailing winds, with a gentle windward slope and a steep leeward slope. { trans'vərs·'dün }
- transverse fault** A fault whose strike is more or less perpendicular to the general structural trend of the region. { trans'vərs·fólt }

transverse fold

transverse fold See cross fold. {trans'ivərs 'föld}

transverse joint See cross joint. {trans'ivərs 'jóint}

transverse ripple mark A ripple mark formed nearly perpendicular to the direction of the current. {trans'ivərs, 'rip·əl·márk}

transverse thrust See tranġcurrent fault. {trans'ivərs 'thrəst}

transverse valley 1. A valley perpendicular to the general strike of the underlying strata. 2. A valley cutting perpendicularly across a ridge, range, or chain of mountains. Also known as cross valley. {trans'ivərs 'val·ē}

trap 1. Any dark-colored, fine-grained, nongranitic, hypabyssal or extrusive rock. Also known as trappide; trap rock. 2. See oil trap. {trap}

trapdoor fault A circular fault that is hinged at one end. {'trap'dór·fólt}

trap rock See trap. {'trap·lräk}

trappide See trap. {'tra·pid}

traveling dune See wandering dune. {'trav·əl·iŋ 'düŋ}

traverse A line of survey or sampling across a thin section of geological region. {'tra'vərs}

travertine Concretionary limestone deposited at the mouth of a hot spring. {'trav·ər'tēŋ}

treanorite See allanite. {'trā·nə·rīt}

tremolite $\text{Ca}_2\text{Mg}_5\text{Si}_8\text{O}_{22}(\text{OH})_2$ Magnesium-rich monoclinic calcium amphibole that forms one end member of a group of solid-solution series with iron, sodium, and aluminum; occurs in long blade-shaped or short stout prismatic crystals and also in masses or compound aggregates. {'trem·ə·līt}

trench A long, narrow, deep depression of the sea floor, with relatively steep sides. Also known as submarine trench. {trench}

trend The direction of an outcrop of a layer, vein, fold, or other kind of geologic feature. Also known as direction. {trend}

Trentonian A North American stage of geologic time. Middle Ordovician (above Wilderness, below Edenian); equivalent to the upper Mohawkian. {tren'tō·nē·ən}

treptomorphism See isochemical metamorphism. {'trep·tə'mōr·fiz·əm}

triangular facet A triangular-shaped steep-sloped hill or cliff formed usually by the erosion of a fault-truncated hill. {'trī·anj·gyə·lər 'fas·ət}

Triassic The first period of the Mesozoic era, lying above Permian and below Jurassic, 180-225 million years ago. {'trī·ə·sik}

tributary glacier A glacier that flows into a larger glacier {'trib yə'ter ē 'glā shər}

trichalcite $\text{Cu}_2\text{Ca}(\text{AsO}_4)_2(\text{CO}_3)(\text{OH})_4 \cdot 6\text{H}_2\text{O}$ A verdigris green to blue-green, orthorhombic mineral consisting of hydrated copper arsenate. Also known as tyrolite. {'trī'kal·sīt}

trichite A black, straight or curved, hairlike crystallite. {'trī·kīt}

tridymite SiO_2 A white or colorless crystal occurring in minute, thin, tabular crystals or scales; a high-temperature polymorph of quartz. {'trid·ə·mīt}

trigonite $\text{MnPb}_2\text{H}(\text{AsO}_4)_2$ A sulfur yellow to yellowish-brown or dark brown, monoclinic mineral consisting of an acid arsenite of lead and manganese; occurs in domatic form. {'trī·gə·nīt}

triphane See spodumene. {'trī·fāŋ}

triphylite $\text{Li}(\text{Fe}^{2+}, \text{Mn}^{2+})\text{PO}_4$ A grayish-green or bluish-gray mineral crystallizing in the orthorhombic system; it is isomorphous with lithiophilite. {'trif·ə·līt}

triplite $(\text{Mn}, \text{Fe}, \text{Mg}, \text{Ca})_2(\text{PO}_4)_2(\text{F}, \text{OH})$ A dark brown, chestnut brown, reddish-brown, or salmon pink, monoclinic mineral consisting of a fluophosphate of iron, manganese, magnesium, and calcium; occurs in massive form. {'trip·līt}

tripoli A lightweight, porous, friable, siliceous sedimentary rock that may have a white, gray, pink, red, or yellow color; used for polishing metals and stones. {'trip·ə·lē}

tripolite See diatomaceous earth. {'trip·ə·līt}

trippkeite CuAs_2O_4 A greenish-blue, tetragonal mineral consisting of copper arsenite {'trip·kē·īt}

tripuhyite FeSb_2O_6 A greenish-yellow to dark brown mineral consisting of iron antimonate; occurs as microcrystalline aggregates. {'trip·ə'wē·īt}

- troctolite** A gabbro composed principally of calcic plagioclase and olivine. Also known as forellenstein. { 'träk·tə·līt }
- troegerite** $(\text{UO}_2)_3(\text{AsO}_4)_2 \cdot 12\text{H}_2\text{O}$ A lemon yellow, tetragonal mineral consisting of a hydrated uranium arsenate. { 'treg·ə·rīt }
- troilite** FeS A meteorite mineral crystallizing in the hexagonal system, a variety of pyrrhotite. { 'trōi·līt }
- troley** A basin-shaped depression in strata. Also known as lum. { 'träl·ē }
- trona** $\text{Na}_2(\text{CO}_3) \cdot \text{Na}(\text{HCO}_3) \cdot 2\text{H}_2\text{O}$ A gray-white or yellowish-white mineral that crystallizes in the monoclinic system and occurs in fibrous or columnar layers or masses. Also known as urao. { 'trō·nə }
- Tropept** A suborder of the order Inceptisol, characterized by moderately dark A horizons with modest additions of organic matter, B horizons with brown or reddish colors, and slightly pale C horizons; restricted to tropical regions with moderate or high rainfall. { 'trä·pept }
- trough** **1.** A small, straight depression formed just offshore on the bottom of a sea or lake and on the landward side of a longshore bar **2.** Any narrow, elongate depression in the surface of the earth. **3.** An elongate depression on the sea floor that is wider and shallower than a trench. Also known as submarine trench. **4.** The line connecting the lowest points of a fold. { 'trōf }
- trough crossbedding** A variety of crossbedding in which the lower crossbedding surfaces are smoothly curved, rather than planar. { 'trōf 'krös·bed·iŋ }
- trough fault** One of a set of two faults bounding a graben. { 'trōft 'fōlt }
- trough reef** See reverse saddle. { 'trōf 'rēf }
- trough surface** A surface or plane connecting the troughs of the bed of a syncline. Also known as synclinal axis; trough plane. { 'trōf 'sär·fəs }
- trough valley** See U-shaped valley. { 'trōf 'val·ē }
- trudellite** $\text{Al}_6(\text{SO}_4)_2\text{Cl}_2(\text{OH})_{12} \cdot 30\text{H}_2\text{O}$ An amber yellow, hexagonal mineral consisting of a hydrated basic sulfate-chloride of aluminum; occurs as compact masses. { 'trü'de·līt }
- true crater** The primary depression formed by impact or explosion before modification by slumping or by deposition of ejected material. Also known as primary crater. { 'trü 'kräd·ər }
- true dip** See dip. { 'trü 'dip }
- true soil** See solum. { 'trü 'sōil }
- tschermakite** $\text{Ca}_2\text{Mg}_3(\text{Al,Fe}^{3+})_2(\text{Al,Si}_6)\text{O}_{22}(\text{OH,F})_2$ An amphibole mineral. { 'chər·mä·kīt }
- tsumebite** $\text{Pb}_2\text{Cu}(\text{PO}_4)(\text{SO}_4)(\text{OH})$ An emerald green, monoclinic mineral consisting of a hydrated basic phosphate and sulfate of lead and copper. { 'tsü·mä·bīt }
- tube** A passage in a cave having smooth sides and an elliptical to nearly circular cross section. { 'tüb }
- tufa** A spongy, porous limestone formed by precipitation from evaporating spring and river waters, often onto leaves and stems of neighboring plants. Also known as calcareous sinter; calcareous tufa. { 'tü·fə }
- tuffaceous** Pertaining to or similar to tufa. { 'tü'fä·shəs }
- tuff** Consolidated volcanic ash, composed largely of fragments (less than 4 millimeters) produced directly by volcanic eruption, much of the fragmented material represents finely comminuted crystals and rocks. { 'täf }
- tuffaceous** Pertaining to sediments which contain up to 50% tuff. { 'tä'fä·shəs }
- tuff ball** See mud ball. { 'täf 'ból }
- tuff lava** See welded tuff. { 'täf 'läv·ə }
- tuft** See mound. { 'täft }
- tumuli lava** A type of lava flow forming ovoid mounds, a few feet high and a few tens of feet long, caused by buckling up of the crust. { 'tü·myə·lī 'lä·və }
- tungstate** Any species of mineral containing the radical WO_4 , such as wolframite. { 'täŋ·stāt }
- tungstenite** WS_2 A dark lead gray mineral consisting of tungsten disulfide, occurs in massive form, in scaly or feathery aggregates. { 'täŋ·stə·nīt }
- tungstite** $\text{WO}_3 \cdot \text{H}_2\text{O}$ A bright yellow, golden yellow, or yellowish-green mineral thought

turanite

to consist of hydrated tungsten oxide; occurs in massive form and as platy crystals. { 'tærj, stit }

turanite $\text{Cu}_5(\text{VO}_4)_2(\text{OH})_4$ An olive green, orthorhombic mineral consisting of basic copper vanadate; occurs as reniform crusts and spherical concretions. { 'túr·ə·nīt }

turbidite Any sediment or rock transported and deposited by a turbidity current, generally characterized by graded bedding, large amounts of matrix, and commonly exhibiting a Bouma sequence. { 'tær·bə·dīt }

Turkey stone See turquoise. { 'tær·kē·stōn }

Turonian A European stage of geologic time: Upper or Middle Cretaceous (above Cenomanian, below Coniacian). { tú·rō·nē·ən }

turquoise $\text{CuAl}_6(\text{PO}_4)_4(\text{OH})_8 \cdot 4\text{H}_2\text{O}$ A semitranslucent sky-blue, bluish-green, apple-green, or greenish-gray mineral that crystallizes in the triclinic system and occurs in veinlets or as crusts of massive, concretionary, and stalactite shapes; an important gem mineral. Also known as calaite; Turkey stone. { 'tær·kwóiz }

turtle stone See septarium. { 'tærd·əl·stōn }

tychite $\text{Na}_6\text{Mg}_2(\text{SO}_4)(\text{CO}_3)_4$ A white, isometric mineral consisting of a sulfate-carbonate of sodium and magnesium. { 'tī·kīt }

tying bar See tombolo. { 'tī·iŋ·bär }

type C1 carbonaceous chondrite A type of carbonaceous chondrite that is strongly magnetic, has a lower density than the other two types, contains sulfates, and has a carbon content of about 3.5%. { 'tīp l'sēlwən ,kär·bə'nā·shəs 'kän·drīt }

type C2 carbonaceous chondrite A type of carbonaceous chondrite that is weakly magnetic or nonmagnetic, has most of its sulfur present as free sulfur, and contains about 2.5% carbon. { 'tīp l'sēltü ,kär·bə'nā·shəs 'kän·drīt }

type C3 carbonaceous chondrite A type of carbonaceous chondrite that has a lower percentage of water and a higher density than the other two types, and usually consists largely of olivine. { 'tīp l'sēlthre ,kär·bə'nā·shəs 'kän·drīt }

type locality **1.** The place at which a stratigraphic unit is typically displayed and from which it derives its name. **2.** The place where a geologic feature was first recognized and described. { 'tīp lö·kal·əd·ē }

type section That sequence of strata identified as the original sequence for a location or area; the standard against which other stratigraphy of parts of the area are compared. Also known as section. { 'tīp ,sek·shən }

tyrolite See trichalcite. { 'tīr·ə·līt }

tyuyamunite $\text{Ca}(\text{UO}_2)_2(\text{VO}_4)_2 \cdot 5\text{-}8\text{H}_2\text{O}$ A yellow orthorhombic mineral occurring in incrustations as a secondary mineral; an ore of uranium. Also known as calciocarnotite. { ,tyü·ə'mü·nīt }

U

- Udalf** A suborder of the soil order Alfisol; brown soil formed in a udic moisture regime and in a mesic or warmer temperature regime. { 'ü·dälf }
- Udert** A suborder of the soil order Vertisol; formed in a humid region so that surface cracks remain open only for 2-3 months. { 'ü·därt }
- Udoll** A suborder of the Mollisol soil order; found in humid, temperate, and warm regions where maximum rainfall comes during growing season, has thick, very dark A horizons, brown B horizons, and paler C horizons. { 'ü·dól }
- Udult** A suborder of the soil order Ultisol, organic-carbon content is low, argillic horizons are reddish or yellowish; formed in a udic moisture regime. { 'ü·dült }
- uhligite** A black, pseudoisometric mineral consisting of an oxide of titanium and calcium, with zirconium and aluminum replacing titanium. { ü·lä·gīt }
- Ulatisian** A mammalian age in a local stage classification of the Eocene in use on the Pacific Coast based on foraminifers. { yü·lä'tē·zhən }
- ullexite** $\text{NaCaB}_3\text{O}_6 \cdot 8\text{H}_2\text{O}$ A white mineral that crystallizes in the triclinic system and forms rounded reniform masses of extremely fine acicular crystals. Also known as cotton ball. { 'ü·lek·sīt }
- ulmannite** NiSbS A steel-gray to black mineral consisting of nickel antimonide and sulfide, usually with a little arsenic, occurring massive, and having a metallic luster. Also known as nickel-antimony glance. { 'äl·mənīt }
- ulmic acid** See ulmin. { 'äl·mik 'as·əd }
- ulmin** Alkali-soluble organic substances derived from decaying vegetable matter, occurs as amorphous brown to black gel material. Also known as carbohumic, fundamental jelly; fundamental substance; gelose; humin; humogelite; jelly; ulmic acid; vegetable jelly. { 'äl·mən }
- ulrichite** See uraninite. { 'äl·rə·kīt }
- Ultisol** A soil order characterized by typically moist soils, with horizons of clay accumulation and a low supply of bases. { 'äl·tə·sól }
- ultrabasic** Of igneous rock, having a low silica content, as opposed to the higher silica contents of acidic, basic, and intermediate rocks. { 'äl·trə'bā·sik }
- ultrabasicite** See diaphorite. { 'äl·trə'bā·sīt }
- ultramafic** Referring to igneous rock composed principally of mafic minerals, such as olivine and pyroxene. { 'äl·trə'maf·ik }
- ultravulcanian** A type of volcanic eruption characterized by periodic violent gaseous explosions of lithic dust and solid blocks, with little if any fiery scoria. { 'äl·trə·vəl'kä·nē·ən }
- umangite** Cu_2Se A dark cherry red mineral consisting of copper selenide, occurs in massive form, in small grains or fine granular aggregates. { ü'maŋ·gīt }
- Umbrept** A suborder of the Inceptisol soil order, has dark A horizon more than 10 inches (25 centimeters) thick, brown B horizons, and slightly paler C horizons, soil is strongly acid, and clay minerals are crystalline. occurs in cool or temperate climates. { 'əm·brept }
- unaka** A large residual mass rising above a peneplain that is less well developed than one having a monadnock. { ü'näk·ə }
- unakite** An altered igneous rock composed principally of epidote, pink orthoclase, and quartz. { 'ü·nä·kīt }

unconcentrated wash

unconcentrated wash See sheet erosion. { ɪnˈkəns-ən-trəd-əd ˈwɑʃ }

unconformable Pertaining to strata that do not conform in position, dip, or strike to the older underlying rocks. { ɪn-kənˈfɔr-mə-bəl }

unconformity The relation between adjacent rock strata whose time of deposition was separated by a period of nondeposition or of erosion; a break in a stratigraphic sequence. { ɪn-kənˈfɔr-məd-ē }

unconsolidated material Loosely arranged or unstratified sediment whose particles are not cemented together. { ɪn-kənˈsəl-əd-dād-əd məˈtɪr-ē-əl }

underclay A layer of clay or other fine-grained detrital material underlying a coal bed or comprising the floor of a coal seam. Also known as coal clay; root clay; seat clay; seat earth; thill; underearth; warrant. { ˈən-dərˌklā }

underclay limestone A thin, fresh-water limestone that is relatively free of fossils and is dense and nodular; found in underlying coal deposits. { ˈən-dərˌklā ˈlɪm-stən }

undercliff A subordinate cliff or terrace formed by material which has fallen or slid from above. { ˈən-dərˌklɪf }

underconsolidation Less than normal consolidation of sedimentary material for the existing overburden. { ɪn-dər-kən-səl-əd-ə-shən }

undercutting Erosion of material at the base of a steep slope, cliff, or other exposed rock. { ɪn-dərˌkʌd-ɪŋ }

underearth See underclay. { ˈən-dərˌærθ }

underflow conduit A permeable deposit underlying a surface stream channel. { ˈən-dərˌflō ˈkændü-ət }

underground geology See subsurface geology. { ɪn-dərˌgraʊnd jēˈäl-ə-jē }

underlie To lie or be situated under; to occupy a lower position, or to pass beneath { ˈən-dərˌlī }

undermining See sapping. { ˈən-dərˌmɪn-ɪŋ }

undersaturated Pertaining to igneous rock composed of unsaturated minerals, that is, without free silica. { ɪn-dərˌsach-ə-rād-əd }

underthrust A thrust fault in which the lower, active rock mass has been moved under the upper, passive rock mass. { ɪn-dərˌθrəst }

unfreezing The upward movement of stones to the surface as a result of repeated freezing and thawing of the containing soil. { ɪnˈfrēz-ɪŋ }

ungemachite $K_3Na_0Fe(SO_4)_6(OH)_3 \cdot 9H_2O$ A colorless to pale yellow, hexagonal mineral consisting of a hydrated basic sulfate of potassium, sodium, and iron; occurs in tabular form. { ˈʊŋ-gəˌmākɪt }

uniformitarianism Classically, the concept that the present is the key to the past, the principle that contemporary geologic processes have occurred in the same regular manner and with essentially the same intensity throughout geologic time, and that events of the geologic past can be explained by phenomena observable today. Also known as principle of uniformity. { ˌyü-nəˈfɔr-məˈtɛr-ē-ənɪz-əm }

unsaturated Referring to a mineral that will not form in the presence of free silica { ɪnˈsach-ə-rād-əd }

unsaturated zone See zone of aeration. { ɪnˈsach-ə-rād-əd ˈzɔn }

upper Pertaining to rocks or strata that normally overlie those of earlier formations of the same subdivision of rocks. { ˈʌp-ər }

Upper Cambrian The latest epoch of the Cambrian period of geologic time, beginning approximately 510 million years ago. { ˈʌp-ər ˈkəm-brē-ən }

Upper Carboniferous The European epoch of geologic time equivalent to the Pennsylvanian of North America. { ˈʌp-ər ˈkär-bəˈnɪf-ə-rəs }

Upper Cretaceous The late epoch of the Cretaceous period of geologic time, beginning about 90 million years ago. { ˈʌp-ər kriˈtā-shəs }

Upper Devonian The latest epoch of the Devonian period of geologic time, beginning about 365 million years ago. { ˈʌp-ər dəˈvɔ-nē-ən }

Upper Huronian See Animikean. { ˈʌp-ər hyüˈrɔ-nē-ən }

Upper Jurassic The latest epoch of the Jurassic period of geologic time, beginning approximately 155 million years ago. { ˈʌp-ər jüˈras-ɪk }

upper mantle The portion of the mantle lying above a depth of about 600 miles (1000 kilometers). Also known as outer mantle; peridotite shell. { ˈʌp-ər ˈmant-əl }

- Upper Mississippian** The latest epoch of the Mississippian period of geologic time { 'əp·ər·mis·ə'sip·ē·ən }
- Upper Ordovician** The latest epoch of the Ordovician period of geologic time, beginning approximately 440 million years ago. { 'əp·ər·'ɔr·də'vish·ən }
- Upper Pennsylvanian** The latest epoch of the Pennsylvanian period of geologic time { 'əp·ər·pen·səl'vā·nyən }
- Upper Permian** The latest epoch of the Permian period of geologic time, beginning about 245 million years ago. { 'əp·ər·'pər·mē·ən }
- Upper Silurian** The latest epoch of the Silurian period of geologic time { 'əp·ər·sə'lūr·ē·ən }
- Upper Triassic** The latest epoch of the Triassic period of geologic time, beginning about 200 million years ago. { 'əp·ər·trī'as·ik }
- upsetted moraine** See push moraine. { ɪə'piset·əd mə'rān }
- upthrow** **1.** The fault side that has been thrown upward **2.** The amount of vertical fault displacement. { 'əp·θrɔ }
- upwarp** A broad anticline with gently sloping limbs formed as a result of differential uplift. { 'əp·wɔrp }
- Urelean** A stage of geologic time in Russia: uppermost Carboniferous (above Gzhelian, below Sakmarian of Permian). { yūr·rāl·ē·ən }
- uralite** A green variety of secondary amphibole; it is usually fibrous or acicular and is formed by alteration of pyroxene. { 'yūr·ə·līt }
- uralitization** **1.** A process of replacement whereby pyroxene undergoes alteration resulting in uralite. **2.** Development of amphibole from pyroxene. { yə·rəl·əd·ə'zā·shən }
- uraninite** UO_2 A black, brownish-black, or dark-brown radioactive mineral that is isometric in crystallization; often contains impurities such as thorium, radium, cerium, and yttrium metals, and lead; the chief ore of uranium; hardness is 5.5-6 on Mohs scale, and specific gravity of pure UO_2 is 10.9, but that of most natural material is 9.7-7.5. Also known as coracite; ulrichite. { 'yūr·ə·nə'nīt }
- uranium age** The age of a mineral as calculated from the numbers of ionium atoms present originally, now, and when equilibrium is established with uranium. { yə'rā·nē·əm·rāj }
- uranium-lead dating** A method for calculating the geologic age of a material in years based on the radioactive decay rate of uranium-238 to lead-206 and of uranium-235 to lead-207. { yə'rā·nē·əm·'led·dād·ɪŋ }
- uranium ochre** See gummite. { yə'rā·nē·əm·'ɔ·kər }
- uran-mica** See torbernite. { 'yūr·ən·'mī·kə }
- uranocircite** $Ba(UO_2)_2(PO_4)_2 \cdot 8H_2O$ A yellow-green, tetragonal mineral consisting of a hydrated phosphate of barium and uranium; occurs as crystals. { 'yūr·ə·nō'sər·sīt }
- uranophane** $Ca(UO_2)_2Si_2O_7 \cdot 6H_2O$ A yellow or orange-yellow radioactive secondary mineral; it is dimorphous with β -uranophane. Also known as uranotile. { yə'ran·ə·fān }
- uranopilite** $(UO_2)_6(SO_4)(OH)_{10} \cdot 12H_2O$ A bright yellow, lemon yellow, or golden yellow, monoclinic mineral consisting of a hydrated basic sulfate of uranium; occurs as encrustations and masses. { 'yūr·ə·nō'pī·līt }
- uranosphaerite** $Bi_2O_3 \cdot 2UO_3 \cdot 3H_2O$ An orange-yellow or brick red, orthorhombic mineral consisting of a hydrated oxide of bismuth and uranium. { 'yūr·ə·nō'sfi·rīt }
- uranospinite** $Ca(UO_2)_2(AsO_4)_2 \cdot 8H_2O$ A lemon yellow to siskin green, tetragonal mineral consisting of a hydrated arsenate of calcium and uranium; occurs in tabular form. { 'yūr·ə'nās·pə'nīt }
- uranotantalite** See samarskite. { 'yūr·ə·nō'tant·əl·ɪt }
- uranothorite** A uranium-bearing variety of thorite. { 'yūr·ə·nō'thór·ɪt }
- urao** See trona. { 'yū·rau }
- urban geology** The study of geological aspects of planning and managing high-density population centers and their surroundings. { ɪər·bən·jē'al·ə·jē }
- ureilite** An achondritic stony meteorite consisting principally of olivine and clinobronzite, with some nickel-iron, troilite, diamond, and graphite. { yə'rē·əl·ɪt }

ureyite

- ureyite** $\text{NaCrSi}_2\text{O}_6$ A meteoritic mineral of the pyroxene group. Also known as cosmochlore; kosmochlor. { 'yür·ē·īt }
- urstromthal** A large channel cut by a stream of water from melting ice, flowing along the edge of an ice sheet. { 'ür·ström·täl }
- U-shaped valley** A type of valley with a broad floor and steep walls produced by glacial erosion. Also known as trough valley; U valley. { 'yü lshäpt 'val·ē }
- Ustalf** A suborder of the soil order Alfisol, red or brown soil formed in a ustic moisture regime and in a mesic or warmer temperature regime. { 'üst·älf }
- Ustert** A suborder of the Vertisol soil order; has a faint horizon and is dry for an appreciable period or more than one period of the year. { 'üst·ært }
- Ustoll** A suborder of the soil order Mollisol; formed in a ustic moisture regime and in a mesic or warmer temperature regime; may have a calcic, petrocalcic, or gypsic horizon. { 'üst·ól }
- Ustox** A suborder of the soil order Oxisol that is low to moderate in organic matter, well drained, and dry for at least 90 cumulative days each year. { 'üst·äks }
- Ustult** A suborder of the soil order Ultisol; brownish or reddish, with low to moderate organic-carbon content; a well-drained soil of warm-temperate and tropical climates with moderate or low rainfall. { 'üst·ält }
- utahite** See jarosite. { 'yü·tò·īt }
- U valley** See U-shaped valley. { 'yü 'val·ē }
- uvarnite** $\text{U}_2\text{V}_6\text{O}_{21} \cdot 15\text{H}_2\text{O}$ A brownish-yellow, orthorhombic mineral consisting of a hydrated uranium vanadate; occurs as crystalline masses and coatings. { 'yü·və·nīt }
- uvarovite** $\text{Ca}_3\text{Cr}_2(\text{SiO}_4)_3$ The emerald-green, calcium-chromium end member of the garnet group. Also known as ouvarovite; uwarowite. { ü'var·ə·vīt }
- uwarowite** See uvarovite. { ü'var·ə·vīt }

V

vacuole See vesicle. { 'vak·yə·wōl }

vadose zone See zone of aeration. { 'vā·dōs·zōn }

vaesite NiS₂ An isometric mineral with pyrite structure composed of sulfide of nickel
{ 'vä·sīt }

valencianite A variety of potassium feldspar from Mexico. { və'len·chə·nīt }

valentinite Sb₂O₃ A colorless to snow white mineral consisting of antimony trioxide
{ 'val·ən·tē·nīt }

vallerite CuFeS₂ A sulfide mineral found in meteorites. { və'lır·īt }

valley A relatively shallow, wide depression of the sea floor with gentle slopes. Also
known as submarine valley. { 'val·ē }

valley bottom See valley floor. { 'val·ē·bād·əm }

valley fill Unconsolidated sedimentary deposit which fills or partly fills a valley
{ 'val·ē·fil }

valley flat The small plain at the bottom of a narrow valley with steep sides { 'val·ē
·flat }

valley floor The broad, flat bottom of a valley. Also known as valley bottom, valley
plain. { 'val·ē·flōr }

valley line See thalweg. { 'val·ē·līn }

valley plain See valley floor. { 'val·ē·plān }

valley train A long, narrow body of outwash, deposited by meltwater far beyond the
margin of an active glacier and extending along the floor of a valley. Also known as
outwash train. { 'val·ē·trān }

vanadate Any of several mineral compounds characterized by pentavalent vanadium
and oxygen in the anion; an example is vanadinite. { 'van·ə·dāt }

vanadinite Pb₅(VO₄)₃Cl A red, yellow, or brown opatite mineral often occurring as
globular masses encrusting other minerals in lead mines; an ore of vanadium and
lead hardness is 2.75-3 on Mohs scale, and specific gravity is 6.66-7.10. { və'nād·
ən·īt }

vandenbrandite CuO·UO₂·2H₂O A dark green to black mineral consisting of a hy-
drated oxide of copper and uranium; occurs in small crystals and massive form.
{ 'van·dən'bran·dīt }

vanoxite (V₄)⁴⁺(V₂)⁵⁺O₇·8H₂O A black mineral consisting of a hydrous oxide of va-
nadium; occurs as microscopic crystals and in massive form. { va'nāk·sīt }

vanthoffite Na₆Mg(SO₄)₄ A colorless mineral consisting of a sulfate of sodium and
magnesium; occurs in massive form. { van'tō·fīt }

vapor-dominated hydrothermal reservoir Any geothermal system mainly producing
dry steam, the Geysers area of northern California and the Larderelle region of Italy
are two examples. { 'vā·pər' dom·ə·nād·əd lār·drəl'thər·mə'l 'rez·əv·wār }

variation diagram A diagram constructed by plotting the chemical compositions of
rocks in an igneous rock series in order to show the genetic relationships and the
nature of the processes that have affected the series. Also known as Harker diagram
{ 'ver·ē'ā·shən·dī·ə·gram }

variole A spherule the size of a pea, usually consisting of radiating plagioclase or
pyroxene crystals. { 'ver·ē·ōl }

variolitic

- variolitic** Referring to the texture of basic igneous rock composed of varioles in a finer-grained matrix. { iver·ē·əl'id·ik }
- Variscan orogeny** The late Paleozoic orogenic era in Europe, extending through the Carboniferous and Permian. Also known as Hercynian orogeny. { va'ris·kən ó'räj·ə·nē }
- varulite** (Na,Ca)(Mn,Fe)₂(PO₄)₂ An olive green, orthorhombic mineral consisting of a phosphate of sodium, calcium, manganese, and iron; occurs in massive form. { 'vär·ə'līt }
- varve** A sedimentary bed, layer, or sequence of layers deposited in a body of still water within a year's time, and usually during a season. Also known as glacial varve. { 'värv }
- varve clay** See varved clay. { 'värv·klä }
- varved clay** A lacustrine sediment of distinct layers consisting of varves. Also known as varve clay. { 'värvd·klä }
- vashegyite** 2Al₄(PO₄)₃(OH)₃·27H₂O A white or pale green to yellow and brownish mineral consisting of a hydrous basic aluminum phosphate; occurs in massive and microcrystalline forms. { 'väsh·he·jīt }
- vaterite** CaCO₃ A rare hexagonal mineral consisting of unstable calcium carbonate; it is trimorphous with calcite and aragonite. { 'väd·ə·rīt }
- vauquelinite** Pb₂Cu(CrO₄)PO₄(OH) A monoclinic mineral of varying color, consisting of a basic chromate-phosphate of lead and copper. { 'vök·lə·nīt }
- vauxite** FeAl₂(PO₄)₂(OH)₂·7H₂O A sky blue to Venetian blue, triclinic mineral consisting of a hydrated basic phosphate of iron and aluminum. { 'vök·sīt }
- veatchite** Sr₂B₁₁O₁₆(OH)₅·H₂O A white mineral consisting of hydrous strontium borate. { 'vē·chīt }
- Vectian** See Aptian. { 'vek·chən }
- vectorial structure** See directional structure. { vek'tór·ē·əl 'strək·chər }
- vegetable jelly** See ulmin. { 'vej·tə·bəl 'jel·ē }
- vein** A mineral deposit in tabular or shell-like form filling a fracture in a host rock. { vān }
- veined gneiss** A composite gneiss with irregular layering. { 'vānd 'nīs }
- veinite** A genetic type of veined gneiss in which the vein material was secreted from the rock itself. { 'vā·nīt }
- vein quartz** A rock composed chiefly of sutured quartz crystals of pegmatitic or hydrothermal origin of variable size. { 'vān 'kwörtz }
- venite** Migmatite having mobile portions which were formed by exudation from the rock itself. { 'vē·nīt }
- vent** The opening of a volcano on the surface of the earth. { vent }
- ventifact** A stone or pebble whose shape, wear, faceting, cut, or polish is the result of sandblasting. Also known as glyptolith; rillstone; wind-cut stone; wind-grooved stone; wind-polished stone; wind-scoured stone; wind-shaped stone. { 'ven·tə'fakt }
- Venturian** A North American stage of middle Pliocene geologic time, above Repettian and below Wheelerian. { ven'chür·ē·ən }
- Venus hairstone** See rutiled quartz. { 'vē·nəs 'her'stön }
- vergence** The direction of overturning or of inclination of a fold. { 'vær·jəns }
- vermiculite** (Mg,Fe,Al)₃(Al,Si)₄O₁₀(OH)₂·4H₂O A clay mineral constituent similar to chlorite and montmorillonite, and consisting of trioctahedral mica sheets separated by double water layers; sometimes used as a textural material in painting, or as an aggregate in certain plaster formulations used in sculpture. { vär'mik·yə'līt }
- vermillion** See mercuric sulfide. { vär'mil·yən }
- vernadskite** See antlerite. { vär'nadz·kīt }
- verrou** See riegel. { vər'rü }
- vertical dip slip** See vertical slip. { 'värd·ə·kəl 'dip 'slip }
- vertical separation** The vertical component of the dip slip in a fault. { 'värd·ə·kəl 'sep·ə'rā·shən }
- vertical slip** The vertical component of the net slip in a fault. Also known as vertical dip slip. { 'värd·ə·kəl 'slip }
- Vertisol** A soil order formed in regoliths high in clay, subject to marked shrinking and

- swelling with changes in water content; low in organic content and high in bases. { 'vərd·ə·sól }
- vesicle** A cavity in lava formed by entrapment of a gas bubble during solidification. Also known as air sac; bladder; saccus; vacuole; wing. { 'ves·ə·kəl }
- vesicular structure** A structure that is common in many volcanic rocks and which forms when magma is brought to or near the earth's surface; may form a structure with small cavities, or produce a pumiceous structure or a scoriaceous structure. { və'sik·yə·lər 'stræk·chər }
- vesuvian** See leucite; vesuvianite. { və'sü·vê·ən }
- Vesuvian eruption** See Vulcanian eruption. { və'sü·vê·ən i'rəp·shən }
- Vesuvian garnet** See leucite. { və'sü·vê·ən 'gär·nət }
- vesuvianite** $\text{Ca}_{10}\text{Mg}_2\text{Al}_4(\text{SiO}_4)_5(\text{Si}_2\text{O}_7)_7(\text{OH})_4$ A brown, yellow, or green mineral found in contact-metamorphosed limestones. Also known as idocrase; vesuvian. { və'sü·vê·ənīt }
- veszelyite** $(\text{Cu},\text{Zn})_3(\text{PO}_4)(\text{OH})_3 \cdot 2\text{H}_2\text{O}$ A greenish-blue to dark blue, monoclinic mineral consisting of a hydrated basic phosphate of copper and zinc. { 'ves·əl·yīt }
- villiaumite** NaF A carmine, isometric mineral consisting of sodium fluoride, occurs in massive form. { vē'yō·mīt }
- Vindobonian** A European stage of geologic time, middle Miocene { 'vin də'bō·nē·ən }
- violarite** Ni_2FeS_4 A violet-gray mineral of the linnaeite group consisting of a sulfide of nickel and iron; found in meteorites. { vī'ō·lə·rīt }
- Viséan** A European stage of lower Carboniferous geologic time forming the lowermost Upper Mississippian, above Tournaisian and below lower Namurian. { vi'sā·ən }
- visor tin** Twin crystals of cassiterite characterized by a notch. { 'vī·zər 'tin }
- vitavite** See moldavite. { 'vīd·ə·vīt }
- vitrain** A brilliant black coal lithotype with vitreous luster and cubical cleavage. Also known as pure coal. { 'vi·trān }
- vitreous copper** See chalcocite. { 'vi·trē·əs 'kăp·ər }
- vitreous silver** See argentite. { 'vi·trē·əs 'sil·vər }
- vitric** Referring to a pyroclastic material which is characteristically glassy that is contains more than 75% glass. { 'vi·trik }
- vitric tuff** Tuff composed principally of volcanic glass fragments. { 'vi·trik 'təf }
- vitricification** Formation of a glassy or noncrystalline material { vi·trə fə'kā·shən }
- vitrinite** A maceral group that is rich in oxygen and composed of humic material associated with peat formation; characteristic of vitrain. { 'vi·trə·nīt }
- vitrinoid** Vitrinite occurring in bituminous coking coals; characterized by a reflectance of 0.5-2.0%. { 'vi·trə·nōid }
- vitriol stone** A hard, crystalline material, mainly a mixture of ferric sulfate and aluminum sulfate, that is extracted from weathered pyritic schist and used in the manufacture of sulfuric acid. { 'vi·trē·əl 'stōn }
- vitrophyre** Any porphyritic igneous rock whose groundmass is glassy. Also known as glass porphyry. { 'vi·trə·fir }
- vivianite** $\text{Fe}_3(\text{PO}_4)_2 \cdot 8\text{H}_2\text{O}$ A colorless, blue, or green mineral in the unaltered state (darkens upon oxidation); crystallizes in the monoclinic system and occurs in earth form and as globular and encrusting fibrous masses. Also known as blue iron earth; blue ocher. { 'vi·vê·ənīt }
- vogesite** A syenitic lamprophyre composed of phenocrysts of hornblende in a groundmass of orthoclase and hornblende. { 'vō·gə·sīt }
- voglite** An emerald green to grass green, triclinic mineral consisting of a hydrated carbonate of calcium, copper, and uranium; occurs as coatings of scales. { 'vō·glīt }
- volatile component** A component of magma whose vapor pressures are high enough to allow them to be concentrated in any gaseous phase. Also known as volatile flux. { 'vəl·əd·əl kəm'pō·nənt }
- volatile flux** See volatile component. { 'vəl·əd·əl 'fləks }
- volborthite** $\text{Cu}_3(\text{UO}_4)_2 \cdot 3\text{H}_2\text{O}$ An olive green to green and yellowish-green monoclinic mineral consisting of hydrated copper vanadate. { 'vəl·bōr·thīt }
- volcanello** See spatter cone. { 'vəl·kə'nel·ō }

volcanic ash

- volcanic ash** Fine pyroclastic material; particle diameter is less than 4 millimeters. {vāl'kan·ik 'ash}
- volcanic bombs** Pyroclastic ejecta, the lava fragments, liquid or plastic at the time of ejection, acquire rounded forms, markings, or internal structure during flight or upon landing. {vāl'kan·ik 'bāmz}
- volcanic breccia** A pyroclastic rock that is composed of angular volcanic fragments having a diameter larger than 2 millimeters and that may or may not have a matrix. {vāl'kan·ik 'brech·ə}
- volcanic foam** See pumice. {vāl'kan·ik 'fōm}
- volcanic gases** Volatile matter composed principally of about 90% water vapor, and carbon dioxide, sulfur dioxide, hydrogen, carbon monoxide, and nitrogen, released during an eruption of a volcano. {vāl'kan·ik 'gas·əz}
- volcanic glass** Natural glass formed by the cooling of molten lava, or one of its liquid fractions, too rapidly to allow crystallization. {vāl'kan·ik 'glas}
- volcanicity** See volcanism. {vāl·kə'nis·əd·ē}
- volcaniclastic rock** Clastic rock containing volcanic material in any proportion. {vāl'kan·əklas·tik 'rāk}
- volcanic mud** Sediment containing large quantities of ash from a volcanic eruption, mixed with water. {vāl'kan·ik 'məd}
- volcanic mudflow** The flow of volcanic mud down the slope of a volcano {vāl'kan·ik 'məd/flō}
- volcanic neck** A residual remnant of the pipe or throat of a volcano that was filled with solidified lava after its final eruption. {vāl'kan·ik 'nek}
- volcanic rift zone** A zone comprising volcanic fissures with underlying dike assemblages; occurs in Hawaii. {vāl'kan·ik 'rift rīzōn}
- volcanic rock** Finely crystalline or glassy igneous rock resulting from volcanic activity at or near the surface of the earth. Also known as extrusive rock. {vāl'kan·ik 'rāk}
- volcanics** Igneous rocks that solidified after reaching or nearing the earth's surface. {vāl'kan·iks}
- volcanic vent** The channelway or opening of a volcano through which magma ascends to the surface; two general types are fissure and pipelike vents. {vāl'kan·ik 'vent}
- volcanism** The movement of magma and its associated gases from the interior into the crust and to the surface of the earth. Also known as volcanicity. {vāl·kə'niz·əm}
- volcano** **1.** A mountain or hill, generally with steep sides, formed by the accumulation of magma extruded through openings or volcanic vents. **2.** The vent itself. {vāl'kā·nō}
- volcanology** The branch of geology that deals with volcanism {vāl kə'nāl·ə·jē}
- voltaite** A greenish-black to black, isometric mineral consisting of a hydrated potassium iron sulfate. {vāl·tə·īt}
- voltzite** Zn_3S_4O A rose red, yellowish, or brownish mineral consisting of an oxysulfide of zinc; occurs in implanted spherical globules and as a crust. {vält·sīt}
- vorobievite** See vorobyevite. {və'rō·bē·ə·vīt}
- vorobyevite** A rose-red, purplish-red, or pinkish cesium-containing variety of beryl; used as a gem. Also known as morganite; roosterite; vorobievite; vorobieffite. {və'rō·bē·ə·vīt}
- vougesite** A lamprophyre having an orthoclase and hornblende groundmass in which are embedded hornblende phenocrysts. {vūzh·sīt}
- vrbaite** $Tl_4Hg_3Sb_7As_8S_{20}$ A dark gray-black, orthorhombic mineral that occurs in small crystals. {vər·bæ·īt}
- V-shaped valley** A valley having a cross-sectional profile in the form of the letter V, commonly produced by stream erosion. Also known as V valley. {'vē lshāpt 'val·ē}
- vug** A small cavity in a vein or rock usually lined with minerals differing in composition from those of the enclosing rock. Also known as bughole. {væg}
- Vulcanian eruption** A volcanic eruption characterized by periodic explosive events. Also known as paroxysmal eruption; Plinian eruption; Vesuvian eruption. {lvəl'kā·nē·ən i'rəp·shən}
- V valley** See V-shaped valley. {'vē 'val·ē}

W

wacke Sandstone composed of a mixture of angular and unsorted or poorly sorted fragments of minerals and rocks and an abundant matrix of clay and fine silt { 'wak·ə }

wad A massive, generally soft, amorphous, earthy, dark-brown or black mineral composed principally of manganese oxides with some other minerals, and formed by decomposition of manganese minerals. Also known as black ocher, bog manganese, earthy manganese. { wäd }

wadi In the desert regions of southwestern Asia and northern Africa, a stream bed or channel, or a steep-sided ravine, gully, or valley, which carries water only during the rainy season. Also spelled wady. { 'wäd·ē }

wady See wadi. { 'wäd·ē }

wagnerite $Mg_2(PO_4)F$ A yellow, grayish, flash-red, or greenish, monoclinic mineral consisting of magnesium fluophosphate. { 'väg·nä·rīt }

wairakite $CaAl_2Si_4O_{12} \cdot 2H_2O$ A zeolite mineral that is isostructural with analcime { 'wī·rä·kīt }

wall The side of a cave passage. { wól }

wall reef A linear, steep-sided coral reef constructed on a reef wall. { 'wól írēf }

wall rock Rock that encloses a vein. { 'wól írāk }

wall-rock alteration Alteration of wall rock adjacent to hydrothermal veins by the fluid responsible for formation of the mineral deposit. { 'wól írāk ɔl·tə·rā·shən }

walpurkite $Bi_2(UO_2)(AsO_4)_2O_4 \cdot 3H_2O$ A wax yellow to straw yellow, triclinic mineral consisting of a hydrated arsenate of bismuth and uranium. Also known as waltherite { wäl'pər·jīt }

waltherite See walpurkite. { 'väl·tə·rīt }

wandering dune A sand dune that has moved as a unit in the leeward direction of the prevailing winds, and that is characterized by the lack of vegetation to anchor it. Also known as migratory dune; traveling dune. { 'wän·də·rɪŋ 'dün }

want See nip. { wänt }

wardite $Na_4CaAl_2(PO_4)_8(OH)_{18} \cdot 6H_2O$ A blue-green to pale green, tetragonal mineral consisting of a hydrated basic phosphate of sodium, calcium, and aluminum. { 'wòr·dīt }

warp **1.** An upward or downward flexure of the earth's crust. **2.** A layer of sediment deposited by water. { wòrp }

warrant See underclay. { 'wär·ənt }

warringtonite See brochantite. { 'wär·ɪŋ·tə·nīt }

warwickite $(Mg,Fe)_3Ti(BO_3)_2$ A dark brown to dull black, orthorhombic mineral consisting of a titanoborate of magnesium and iron; occurs as prismatic crystals. { 'wòr·i·kīt }

wash **1.** An alluvial placer. **2.** A piece of land washed by a sea or river. **3.** See alluvial cone. { wāsh }

wash load The finer part of the total sediment load of a stream which is supplied from bank erosion or an external upstream source, and which can be carried in large quantities. { 'wāsh ɔlɔd }

washover Material deposited by overwash, especially a small delta produced by storm

wash plain

waves and built on the landward side of a bar or barrier. Also known as storm delta; wave delta. { 'wāsh ·ō ·vər }

wash plain See outwash plain. { 'wāsh ·plān }

wash slope The gentle slope on a hillside occurring below the gravity slope and lying at the foot of an escarpment or steep rock face; usually covered by an accumulation of talus. Also known as haldenhang. { 'wāsh ·slōp }

waste plain See alluvial plain. { 'wāst ·plān }

water-bearing strata Ground layers below the standing water level. { 'wōd ·ər 'ber ·iŋ 'strad ·ə }

water gap A deep and narrow pass that cuts to the base of a mountain ridge, and through which a stream flows; the Delaware Water Gap is an example. { 'wōd ·ər 'gap }

waterline See shoreline. { 'wōd ·ər ·līn }

water opal See hyalite. { 'wōd ·ər ·ō ·pəl }

water trap A chamber or part of a cave system that is filled with water, due to the dipping of the roof or ceiling below the water level. { 'wōd ·ər 'trap }

wattevilleite $\text{Na}_2\text{Ca}(\text{SO}_4)_2 \cdot 4\text{H}_2\text{O}$ A snow white mineral consisting of a hydrated sulfate of sodium and calcium; occurs as aggregates of acicular or hairlike crystals. { 'wät ·vi ·līt }

wave-built platform See alluvial terrace. { 'wāv 'bilt 'plat ·fōrm }

wave-built terrace See alluvial terrace. { 'wāv 'bilt 'ter ·əs }

wave-cut bench A level or nearly level narrow platform produced by wave erosion and extending outward from the base of a wave-cut cliff. Also known as beach platform; high-water platform. { 'wāv 'kət 'bench }

wave-cut cliff A cliff formed by the erosive action of waves on rock. { 'wāv 'kət 'klif }

wave-cut notch An indentation cut into a sea cliff at water level by wave action. { 'wāv 'kət 'näch }

wave-cut plain See wave-cut platform. { 'wāv 'kət 'plān }

wave-cut platform A gently sloping surface which is produced by wave erosion and which extends into the sea for a considerable distance from the base of the wave-cut cliff. Also known as cut platform; erosion platform; strand flat; wave-cut plain; wave-cut terrace; wave platform. { 'wāv 'kət 'plat ·fōrm }

wave-cut terrace See wave-cut platform. { 'wāv 'kət 'ter ·əs }

wave delta See washover. { 'wāv 'del ·tə }

wave erosion See marine abrasion. { 'wāv i ·rō ·zhən }

wave line See swash mark. { 'wāv ·līn }

wavellite $\text{Al}_3(\text{PO}_4)_2(\text{OH})_3 \cdot 5\text{H}_2\text{O}$ A white to yellow, green, or black mineral crystallizing in the orthorhombic system and occurring in small hemispherical aggregates. { 'wā ·və ·līt }

wavemark See swash mark. { 'wāv ·märk }

wave platform See wave-cut platform. { 'wāv 'plat ·fōrm }

wave ripple mark See oscillation ripple mark. { 'wāv 'rip ·əl ·märk }

waxy A type of mineral luster that is soft like that of wax. { 'wak ·sē }

weathering Physical disintegration and chemical decomposition of earthy and rocky materials on exposure to atmospheric agents, producing an in-place mantle of waste. Also known as clastation; demorphism. { 'weth ·ə ·riŋ }

weathering-potential index A measure of the susceptibility of a rock or mineral to weathering. { 'weth ·ə ·riŋ 'pəltən ·chəl 'in ·dɛks }

weathering rind The outer layer of a pebble, boulder, or other rock fragment that has formed as a result of chemical weathering. { 'weth ·ər ·iŋ 'rīnd }

weather pit A shallow depression (depth up to 6 inches or 15 centimeters) on the flat or gently sloping summit of large exposures of granite or granitic rocks, attributed to strongly localized solvent action of impounded water. { 'weth ·ər 'pit }

webberite $\text{Na}_2\text{MgAlF}_6$ A light gray, orthorhombic mineral consisting of an aluminofluoride of sodium and magnesium; occurs as grains and masses. { 'vā ·bə ·rīt }

websterite See aluminite. { 'web ·stə ·rīt }

weddellite $\text{CaC}_2\text{O}_4 \cdot 2\text{H}_2\text{O}$ A colorless to white or yellowish-brown to brown, tetragonal mineral consisting of calcium oxalate dihydrate. { wə ·de ·līt }

- wehrlite** 1. BiTe A mineral that is a native alloy of bismuth and tellurium. Also known as mirror glance. 2. A peridotite composed principally of olivine and clinopyroxene with accessory opaque oxides. { 'wer·līt }
- weibullite** $\text{Pb}_4\text{Bi}_2\text{S}_6\text{Se}_3$ A steel gray mineral consisting of lead bismuth sulfide with selenium replacing the sulfide, occurs in indistinct prismatic crystals in massive form. { 'wī·bū·līt }
- weinschenkite** 1. $\text{YPO}_4 \cdot 2\text{H}_2\text{O}$ A white mineral consisting of a hydrous yttrium phosphate. Also known as churchite. 2. A dark-brown variety of hornblende high in ferric iron, aluminum, and water. { 'vīn·sheŋ·kīt }
- weissite** Cu_5Te_3 A dark bluish-black mineral consisting of copper telluride, occurs in massive form. { 'wī·sīt }
- welded tuff** A pyroclastic deposit hardened by the action of heat, pressure from overlying material, and hot gases. Also known as tuff lava. { 'wel·dəd 'tʌf }
- welding** Consolidation of sediments by pressure, water is squeezed out and cohering particles are brought within the limits of mutual molecular attraction. { 'weld·ɪŋ }
- well-sorted** Referring to a sorted sediment that consists of particles of approximately the same size and has a sorting coefficient of less than 2.5. { 'wel 'sɔrd·əd }
- Wenlockian** A European stage of geologic time. Middle Silurian (above Tarannon, below Ludlovian). { wen'lāk·ē·ən }
- Wentworth classification** A logarithmic grade for size classification of sediment particles starting at 1 millimeter and using the ratio of 1/2 in one direction (and 2 in the other), providing diameter limits to the size classes of 1, 1/2, 1/4, etc. and 1, 2, 4, etc. { 'went·wɜrθ 'klas·ə·fə'kā·shən }
- Wentworth scale** A geometric grade scale for sedimentary particles ranging from clay particles (diameter less than 1/250 millimeter) to boulders (diameters greater than 256 millimeters), in which the size classes are related to one another by a constant ratio of 1/2 (4, 2, 1, 1/2, etc.). { 'went·wɜrθ 'skāl }
- wernerite** See scapolite. { 'ver·nə·rīt }
- Westphalian** A European stage of Upper Carboniferous geologic time, forming the Middle Pennsylvanian, above upper Namurian and below Stephanian. { west'fāl·yən }
- wetted perimeter** The portion of the perimeter of a stream channel cross section which is in contact with the water. { 'wed·əd pə'rɪm·əd·ər }
- whaleback dune** A smooth, elongated mound or hill of desert sand shaped generally like a whale's back; formed by passage of a succession of longitudinal dunes along the same path. Also known as sand levee. { 'wāl·bak 'dūn }
- Wheelerian** A North American stage of upper Pliocene geologic time, above the Venturian and below the Hallian. { wē'lir·ē·ən }
- wherryite** A light green mineral consisting of a basic carbonate-sulfate of lead and copper; occurs in massive form. { 'wer·ē·rīt }
- whewellite** $\text{Ca}(\text{C}_2\text{O}_4) \cdot \text{H}_2\text{O}$ A colorless or yellowish or brownish, monoclinic mineral consisting of calcium oxalate monohydrate; occurs as crystals. { 'hyū·ə·līt }
- white clay** See kaolin. { 'wīt 'klā }
- white coal** See tasmanite. { 'wīt 'kōl }
- white cobalt** See cobaltite. { 'wīt 'kō·bɔlt }
- white feldspar** See albite. { 'wīt 'fel·spär }
- white garnet** See leucite. { 'wīt 'gär·nət }
- white iron ore** See siderite. { 'wīt 'ī·ərn 'ɔr }
- white mica** See muscovite. { 'wīt 'mī·kə }
- white nickel** See rammelsbergite. { 'wīt 'nik·əl }
- white olivine** See forsterite. { 'wīt 'äl·ə·vēn }
- Whiterock** A North American stage of lowermost Middle Ordovician geologic time, above lower Ordovician and below Marmor. { 'wīt·rāk }
- white schorl** See albite. { 'wīt 'shɔrl }
- white tellurium** See sylvanite. { 'wīt tə'lūr·ē·əm }
- whitleyite** An achondritic stony meteorite consisting essentially of enstatite with fragments of black chondrite. { 'wit·lē·rīt }

whitlockite

- whitlockite** $\text{Ca}_0(\text{Mg,Fe})\text{H}(\text{PO}_4)_7$ A rare mineral that forms hexagonal crystals. { 'wit·lă·kīt }
- wiborgite** See rapakivi. { 'wī·bôr·gīt }
- wichtisite** See tachylite. { 'wik·tə·sīt }
- Widmanstätten patterns** Characteristic figures that appear on the surface of an iron meteorite when the meteorite is cut, polished, and etched with acid. { 'vit·mən·shtät·ən·pad·ərnz }
- Wilk classification** A classification of carbonaceous chondrites into three types, C₁, C₂, and C₃. { 'wik·klas·ə·fə·kā·shən }
- Wilderness** A North American stage of Middle Ordovician geologic time, above Portersfield and below Trentonian. { 'wil·dər·nəs }
- wildflysch** A type of flysch facies that represents a stratigraphic unit with irregularly sorted boulders resulting from fragmentation, and twisted, confused beds resulting from slumping or sliding due to the influence of gravity. { 'vilt·flīsh }
- wilkeite** $\text{Ca}_2(\text{SiO}_4, \text{PO}_4, \text{SO}_4)_3(\text{O,OH,F})$ A rose red or yellow, hexagonal mineral consisting of a basic sulfate-silicate-phosphate of calcium. { 'wil·kē·īt }
- willemite** Zn_2SiO_4 A white, greenish-yellow, green, reddish, or brown mineral that forms rhombohedral crystals and exhibits intense bright-yellow fluorescence in ultraviolet light; a minor ore of zinc. { 'wil·ə·mīt }
- wind-cut stone** See ventifact. { 'win·lăt·stōn }
- wind erosion** Detachment, transportation, and deposition of loose topsoil or sand by the action of wind. { 'wind·i·rō·zhən }
- wind gap** A shallow, relatively high-level notch in the upper part of a mountain ridge, usually an abandoned water gap. Also known as air gap; wind valley. { 'win·gap }
- wind-grooved stone** See ventifact. { 'win·lgrüvd·stōn }
- window** A break caused by erosion of a thrust sheet or a large recumbent anticline that exposes the rocks beneath the thrust sheet. Also known as fenster. { 'win·dō }
- wind-polished stone** See ventifact. { 'win·l·päl·əsh·stōn }
- windrow** Any accumulation of material formed by wind or tide action. { 'win·drō }
- wind-scoured stone** See ventifact. { 'win·l·skaürd·stōn }
- wind-shaped stone** See ventifact. { 'win·lshäpt·stōn }
- wind valley** See wind gap. { 'win·val·ē }
- wing** See vesicle. { wīŋ }
- winter-talus ridge** A wall-like arcuate ridge on the floor of a cirque formed by freezing activity that dislodged boulders from a cirque wall covered with a snowbank. Also known as nivation ridge. { 'win·tər·tā·ləs·rīj }
- Wisconsin** Pertaining to the fourth, and last, glacial stage of the Pleistocene epoch in North America; followed the Sangamon interglacial, beginning about 85,000 ± 15,000 years ago and ending 7000 years ago. { wī'skän·sən }
- witherite** BaCO_3 A yellowish- or grayish-white mineral of the aragonite group that has orthorhombic symmetry, hardness of 3¼ on Mohs scale, and specific gravity 4.3. { 'with·ə·rīt }
- wittichenite** Cu_3BiS_3 A steel gray to tin white, orthorhombic mineral consisting of copper bismuth sulfide; occurs in tabular and massive form. { 'wid·ə·kən·īt }
- wittite** $\text{Pb}_2\text{Bi}_6(\text{S,Se})_4$ A light lead gray, orthorhombic or monoclinic mineral consisting of a sulfide of lead and bismuth. { 'wi·tīt }
- wolfachite** $\text{Ni}(\text{As,Sb})\text{S}$ A silver white to tin white mineral consisting of nickel, arsenic, and antimony sulfide; occurs in small crystals and in aggregates. { 'völ·fäk·īt }
- Wolfcampian** A North American provincial series of geologic time; lowermost Permian (below Leonardian, above Virgilian of Pennsylvania). { 'wulf·kam·pē·ən }
- wolfeite** $(\text{Fe,Mn})_2(\text{PO}_4)(\text{OH})$ A pinkish, wine yellow to yellowish-brown or reddish-brown, monoclinic mineral consisting of a basic phosphate of iron and manganese. { 'wül·fīt }
- wolfram** See wolframite. { 'wül·frəm }
- wolframite** See wolframite. { 'wül·frə·mēn }
- wolframite** $(\text{Fe,Mn})\text{WO}_4$ A brownish- or grayish-black mineral occurring in short monoclinic, prismatic, bladed crystals; the most important ore of tungsten. Also known as tobacco jack; wolfram; wolframine. { 'wül·frə·mīt }

- wollastonite** CaSiO_3 A white to gray inosilicate mineral (a pyroxenoid) that crystallizes in the triclinic system in tabular crystals and has a pearly or silky luster on the cleavages; hardness is 5-5.5 on Mohs scale, and specific gravity is 2.85. Also known as tabular spar. { 'wül·ə·stə·nīt }
- wood coal** See bituminous wood. { 'wüd 'köl }
- wood copper** See olivenite. { 'wüd 'kăp·ər }
- woodhouseite** $\text{CaAl}_3(\text{PO}_4)(\text{SO}_4)(\text{OH})_6$ A colorless to flesh-colored or white, hexagonal mineral consisting of a basic sulfate-phosphate of calcium and aluminum; occurs in small crystals and tabular form. { 'wüd·häu·sīt }
- woodstone** See silicified wood. { 'wüd·stön }
- wood tin** A riniform, brownish variety of cassiterite with fibers radiating concentrically and resembling dry wood. Also known as dneprovskite. { 'wüd 'tin }
- woodwardite** $\text{Cu}_4\text{Al}_2(\text{SO}_4)(\text{OH})_{12} \cdot 2\text{-}4\text{H}_2\text{O}$ A greenish-blue to turquoise blue mineral consisting of a hydrated basic sulfate of copper and aluminum; occurs as botryoidal concretions and in spherulitic form. { 'wüd·wər·dīt }
- woody lignite** See bituminous wood. { 'wüd·ē 'lig·nīt }
- world rift system** The system of interconnected midocean ridges which is the locus of tensional splitting and magma upwelling believed responsible for sea-floor spreading. { 'wərd 'rift 'sis·təm }
- worobieffite** See vorobyevite. { wə'rō·bē·ə·fīt }
- wrench fault** A lateral fault with a more or less vertical fault surface. Also known as basculating fault; torsion fault. { 'renç 'fölt }
- wulfenite** PbMoO_4 A yellow, orange, orange-yellow, or orange-red tetragonal mineral, occurring in tabular crystals or granular masses; an ore of molybdenum. Also known as yellow lead ore. { 'wül·fə·nīt }
- Würm** **1.** A European stage of geologic time: uppermost Pleistocene (above Riss, below Holocene). **2.** Pertaining to the fourth glaciation of the Pleistocene epoch in the Alps, equivalent to the Wisconsin glaciation in North America, following the Riss-Würm interglacial. { 'würm }
- wurtzilite** A black, massive, sectile, infusible, asphaltic pyrobitumen derived from the metamorphosis of petroleum. { 'wərt·sə·līt }
- wurtzite** $(\text{Zn},\text{Fe})\text{S}$ A brownish-black hexagonal mineral consisting of zinc sulfide and occurring in hemimorphic pyramidal crystals, or in radiating needles and bundles { 'wərt·sīt }

X

- xanthochroite** See greenockite. { ɪzan·θrə'krōɪt }
- xanthoconite** Ag_3AsS_3 A dark red to dull orange to clove brown mineral consisting of silver arsenic sulfide. { zan'thæk·ə·nīt }
- xanthophyllite** See clintonite. { ɪzan·θə'fɪlɪt }
- xanthosiderite** See goethite. { ɪzan·θō'sī·dəɪrɪt }
- xanthoxenite** $Ca_2Fe(PO_4)_2(OH) \cdot 1\frac{1}{2}H_2O$ A pale yellow to brownish-yellow, monoclinic or triclinic mineral consisting of a hydrated basic phosphate of calcium and iron; occurs as masses and crusts. { zan'thæk·sə·nīt }
- xenoblast** A mineral which has grown during metamorphism without development of its characteristic crystal faces. Also known as allotrioblast. { 'zēn·ə·blast }
- xenolith** An inclusion in an igneous rock which is not genetically related, such as an unmelted fragment of country rock. Also known as accidental inclusion; exogenous inclusion. { 'zēn·ə·lɪθ }
- xenomorphic** See allotriomorphic. { ɪzēn·əlmór·fɪk }
- xenothermal** Pertaining to a mineral deposit formed at high temperature but at shallow to moderate depth. { ɪzēn·ə'thər·məl }
- xenotime** $Y(PO_4)$ A tetragonal mineral of varying color, consisting of yttrium phosphate. { 'zēn·ə·tīm }
- Xeralf** A suborder of the soil order Alfisol, having good drainage, and found in regions with rainy winters and dry summers in mediterranean climates; the surface horizons tend to become massive and hard during the dry seasons, with some soils having duripans that interfere with root growth. { 'zɪr·älf }
- Xerert** A suborder of the soil order Vertisol, formed in a Mediterranean climate, wide surface cracks open and close once a year. { 'zɪr·ərt }
- Xeroll** A suborder of the soil order Mollisol, formed in a xeric moisture regime, may have a calcic, petrocalcic, or gypsic horizon, or a duripan. { 'zɪr·ól }
- xerothermal period** See xerothermic period. { ɪzɪr·ə'thər·məl 'pɪr·ē·əd }
- xerothermic period** A postglacial interval of a warmer, drier climate. Also known as xerothermal period. { ɪzɪr·ə'thər·mɪk 'pɪr·ē·əd }
- Xerult** A suborder of the soil order Ultisol, formed in a xeric moisture regime, brownish or reddish soil with a low to moderate organic-carbon content. { 'zɪr·əlt }
- xylinite** A variety of provitrinite consisting of xylem or lignified tissue { 'zɪ·lə·nīt }
- xyloid coal** See bituminous wood. { 'zɪ·lōɪd 'kōl }
- xyloid lignite** See bituminous wood. { 'zɪ·lōɪd 'lɪg·nīt }

Y

- yardang** A long, irregular ridge with a sharp crest sited between two round-bottomed troughs that have been carved by wind erosion in a desert region. { 'yär·daŋ }
- yardang trough** A long, shallow, round-bottomed groove, furrow, or trough cut into a desert floor by wind erosion and separated by a yardang from the neighboring trough { 'yär·daŋ 'tróŋ }
- Yarmouth interglacial** The second interglacial stage of the Pleistocene epoch in North America, following the Kansan glacial stage and before the Illinoian. { 'yär·məth lín·tər'glä·shəl }
- yellow arsenic** See orpiment. { 'yel·ō 'ärs·ən·ik }
- yellow coal** See tasmanite. { 'yel·ō 'kōl }
- yellow copperas** See copiapite. { 'yel·ō 'käp·rəs }
- yellow lead ore** See wulfenite. { 'yel·ō 'led 'ór }
- yellow mud** Mud containing sediment having a characteristic yellow color, resulting from certain iron compounds. { 'yel·ō 'mäd }
- yellow pyrite** See chalcopyrite. { 'yel·ō 'pī·rīt }
- yellow quartz** See citrine. { 'yel·ō 'kwórts }
- yellow tellurium** See sylvanite. { 'yel·ō tə'lúr·ē·əm }
- yoked basin** See zeugogeosyncline. { 'yókt 'bäs·ən }
- Yorkian** A European stage of geologic time forming part of the lower Upper Carboniferous, above Lanarkian and below Staffordian, equivalent to part of the lower Westphalian. { 'yór·kē·ən }
- youth** The first stage of the cycle of erosion in which the original surface or structure is the dominant topographic feature, characterized by broad, flat-topped interstream divides, numerous swamps and shallow lakes, and progressive increase of local relief. Also known as topographic youth. { 'yüth }
- yttracrasite** (Y,Th,U,Ca)₂Ti₄O₁₁ A black, orthorhombic mineral consisting of an oxide of rare earths and titanium. { 'i·trə'krä·sīt }
- yttrotantalite** (Y,U,Fe)(Ta,Nb)O₄ A black or brown, orthorhombic mineral consisting of an oxide of iron, yttrium, uranium, columbium, and tantalum; occurs in prismatic and tabular form. { 'i·trə'tant·əl·īt }
- yugawaralite** CaAl₂Si₆O₁₆·4H₂O A zeolite mineral consisting of hydrous calcium aluminum silicate. { 'yü·gə'wär·əl·īt }

zaratite $\text{Ni}_2(\text{CO}_3)(\text{OH})_4 \cdot 4\text{H}_2\text{O}$ An emerald-green mineral consisting of a hydrous basic nickel carbonate and occurring in incrustations or compact masses. { 'zär·ə·tīt }

Zechstein A European series of geologic time, especially in Germany; Upper Permian (above Rothliegende). { 'zek·sh'tīn }

Zemorian A North American stage of Oligocene and Miocene geologic time, above Refugian and below Saucian. { zə'mòr·ē·ən }

zeolite 1. A group of white or colorless, sometimes red or yellow, hydrous tectosilicate minerals characterized by an aluminosilicate tetrahedral framework, ion-exchangeable large cations, and loosely held water molecules permitting reversible dehydration. 2. Any mineral of the zeolite group, such as analcime, chabazite, natrolite, and stilbite. { 'zē·ə·līt }

zeolite facies Metamorphic rocks formed in the transitional period from diagenesis to metamorphism, at pressures of about 2000-3000 bars and temperatures of 200-300°C. { 'zē·ə·līt 'fā·shēz }

zeolitization Introduction of or replacement by a zeolite mineral { zē·əl·əd·ə'zā shən }

zero curtain The layer of ground between the active layer and permafrost where the temperature remains nearly constant at 0°C. { 'zir·ō·kərt·ən }

zeugogeosyncline A geosyncline in a craton or stable area, within which is also an uplifted area, receiving clastic sediments. Also known as yoked basin { 'zü·gō'jē ò'sin·klīn }

zeunerite $\text{Cu}(\text{UO}_2)_2(\text{AsO}_4)_2 \cdot 10\text{-}16\text{H}_2\text{O}$ A green secondary mineral of the autunite group consisting of a hydrous copper uranium arsenate; it is isomorphous with uranospinite. { 'zoi·nə·rīt }

zeylanite See ceylonite. { 'zē·lə·nīt }

zincaluminite $\text{Zn}_6\text{Al}_6(\text{SO}_4)_2(\text{OH})_{26} \cdot 5\text{H}_2\text{O}$ A white to bluish-white and pale blue mineral consisting of a basic hydrated sulfate of zinc and aluminum, occurs in tufts and crusts. { 'zīŋk·əl'lyū·mə·nīt }

zincite $(\text{Zn},\text{Mn})\text{O}$ A deep-red to orange-yellow brittle mineral, an ore of zinc. Also known as red oxide of zinc; red zinc ore; ruby zinc; spartalite. { 'zīŋ·kīt }

zinkenite See zinkenite. { 'zīŋ·kə·nīt }

zinc spar See smithsonite. { 'zīŋk 'spär }

zinc spinel See gahnite. { 'zīŋk spə'nel }

zinkenite $\text{Pb}_6\text{Sb}_4\text{S}_{27}$ A steel-gray orthorhombic mineral consisting of a lead antimony sulfide and occurring in crystals and in masses; has metallic luster, hardness of 3-3.5 on Mohs scale, and specific gravity of 5.30-5.35. Also spelled zinckenite { 'zīŋ·kə·nīt }

zinnwaldite $\text{K}_2(\text{Li},\text{Fe},\text{Al})_6(\text{Si},\text{Al})_8\text{O}_{20}(\text{OH},\text{F})_4$ A pale-violet, yellowish, brown, or dark-gray mica mineral; an iron-bearing variety of lepidolite, the characteristic mica of greisens. { 'tsin·vāl·dīt }

zippeite $(\text{UO}_2)_2(\text{SO}_4)(\text{OH})_2 \cdot n\text{H}_2\text{O}$ An orange-yellow, orthorhombic mineral consisting of a hydrated basic sulfate of uranium. { 'tsip·ə·īt }

zircon ZrSiO_4 A brown, green, pale-blue, red, orange, golden-yellow, grayish, or colorless neosilicate mineral occurring in tetragonal prisms, it is the chief source of

zirconite

- zirconium the colorless varieties provide brilliant gemstones. Also known as hyacinth; jacinth; zirconite. { 'zər·kän }
- zirconite** See zircon. { 'zər·kə·nīt }
- zirkelite** A black mineral consisting of an oxide of zirconium, titanium, calcium, ferrous iron, thorium, uranium, and rare earths. { 'zər·kə·līt }
- zoisite** $\text{Ca}_2\text{Al}_2\text{Si}_2\text{O}_{10}(\text{OH})$ A white gray brown green, or rose-red orthorhombic mineral of the epidote group consisting of a basic calcium aluminum silicate and occurring massive or in prismatic crystals. { 'zoi·sīt }
- zonal soil** In early classification systems in the United States, a soil order including soils with well-developed characteristics that reflect the influence of agents of soil genesis. Also known as mature soil. { 'zōn·əl 'sōil }
- zonal theory** A theory of the formation of mineral deposition and sequence patterns, based on the changes in a mineral-bearing fluid as it passes upward from a magmatic source. { 'zōn·əl 'thē·ə·rē }
- zonation** The condition of being arranged in zones. { zō'nā·shən }
- zone** A belt, layer, band, or strip of earth material such as rock or soil. { zōn }
- zone of accumulation** See B horizon. { 'zōn əv ə·kyü·mə'lā·shən }
- zone of aeration** A subsurface zone containing water below atmospheric pressure and air or gases at atmospheric pressure. Also known as unsaturated zone; vadose zone; zone of suspended water. { 'zōn əv e'rā·shən }
- zone of cementation** The layer of the earth's crust in which unconsolidated deposits are cemented by percolating water containing dissolved minerals from the overlying zone of weathering. Also known as belt of cementation. { 'zōn əv 'sē·men'tā·shən }
- zone of illuviation** See B horizon. { 'zōn əv i·lü·vē'ā·shən }
- zone of soil water** See belt of soil water. { 'zōn əv 'sōil 'wōd·ər }
- zone of suspended water** See zone of aeration { 'zōn əv sə'spen·dəd 'wōd·ər }
- zonochlorite** See pumpellyite. { 'zō·nō'klōr·īt }
- zorsite** $\text{Ca}_2\text{Al}_2\text{Si}_2\text{O}_{10}(\text{OH})$ White gray brown, green, or rose-red orthorhombic mineral of the epidote group; an essential constituent of saussurite. { 'zōr·sīt }
- Zwischengebirge** See median mass. { 'tsfish·ən·gə'bir·gə }

Appendix

Equivalents of commonly used units for the U.S. Customary System and the metric system

1 inch = 2.5 centimeters (25 millimeters)	1 centimeter = 0.4 inch	1 inch = 0.08 foot
1 foot = 0.3 meter (30 centimeters)	1 meter = 3.3 feet	1 foot = 0.3 yard (12 inches)
1 yard = 0.9 meter	1 meter = 1.1 yards	1 yard = 3 feet (36 inches)
1 mile = 1.6 kilometers	1 kilometer = 0.6 mile	1 mile = 5280 feet (1760 yards)
1 acre = 0.4 hectare	1 hectare = 2.47 acres	
1 acre = 4047 square meters	1 square meter = 0.0002 acre	
1 gallon = 3.8 liters	1 liter = 0.26 gallon	1 quart = 0.25 gallon (32 ounces; 2 pints)
1 fluid ounce = 29.6 milliliters	1 milliliter = 0.03 fluid ounce	1 pint = 0.125 gallon (16 ounces)
32 fluid ounces = 946.4 milliliters	1 liter = 1.1 quarts (0.3 gallon)	1 gallon = 4 quarts (8 pints)
1 quart = 0.9 liter	750 milliliters = 25.36 fluid ounces	
1 ounce = 28.4 grams	1 gram = 0.04 ounce	1 ounce = 0.6 pound
1 pound = 0.5 kilogram	1 kilogram = 2.2 pounds	1 pound = 16 ounces
1 ton = 907.18 kilograms	1 kilogram = 1.1×10^3 ton	1 ton = 2000 pounds

$$^{\circ}\text{F} = (1.8 \times ^{\circ}\text{C}) + 32$$

$$^{\circ}\text{C} = (^{\circ}\text{F} - 32) \div 1.8$$

Conversion factors for the U.S. Customary System, metric system, and International System

A. UNITS OF LENGTH

Units	cm	m	in	ft	yd	mi
1 cm	= 1	0.01*	0.39	0.033	0.01	6.21×10^{-6}
1 m	= 100.	1	39.37	3.28	1.09	6.21×10^{-4}
1 in	= 2.54	0.03	1	0.08..	0.03	1.58×10^{-5}
1 ft	= 30.48	0.30	12.	1	0.33..	$1.89.. \times 10^{-4}$
1 yd	= 91.44	0.91	36.	3.	1	$5.68.. \times 10^{-4}$
1 mile	= 1.61×10^5	1.61×10^3	6.34×10^4	5280.	1760	1

B. UNITS OF AREA

Units	cm ²	m ²	in ²	ft ²	yd ²	mi ²
1 cm ²	= 1	10^{-4}	0.16	1.08×10^{-3}	1.20×10^{-4}	3.86×10^{-11}
1 m ²	= 10^4	1	1550.00	10.76	1.30	3.86×10^{-7}
1 in ²	= 6.45	6.45×10^{-4}	1	6.94×10^{-3} ...	7.72×10^{-4}	2.49×10^{-10}
1 ft ²	= 929.03	0.09	1.44	1	0.11.	3.59×10^{-8}
1 yd ²	= 8361.27	0.84	1296.	9	1	3.23×10^{-7}
1 mi ²	= 2.59×10^{10}	2.59×10^6	4.01×10^9	2.79×10^7	3.10×10^6	1

C. UNITS OF VOLUME									
Units	m ³	cm ³	liter	in ³	ft ³	qt	gal		
1 m ³	= 1	10 ⁶	10 ³	6.10 × 10 ⁴	35.31	1.057 × 10 ³	264.17		
1 cm ³	= 10 ⁻⁶	1	10 ⁻³	0.061	3.53 × 10 ⁻⁵	1.057 × 10 ⁻³	2.64 × 10 ⁻⁴		
1 liter	= 10 ⁻³	1000.	1	61.02374	0.03531467	1.056688	0.26		
1 in ³	= 1.64 × 10 ⁻⁵	16.39	0.02	1	5.79 × 10 ⁻⁴	0.02	4.33 × 10 ⁻³		
1 ft ³	= 2.83 × 10 ⁻²	28316.85	28.32	1728	1	2.99	7.48		
1 qt	= 9.46 × 10 ⁻⁴	946.35	0.95	57.75	0.03	1	0.25		
1 gal (U.S.)	= 3.79 × 10 ⁻³	3785.41	3.79	231	0.13	4.	1		
D. UNITS OF MASS									
Units	g	kg	oz	lb	metric ton				
1 g	= 1	10 ⁻³	0.04	2.20 × 10 ⁻³	10 ⁻⁶	1.10 × 10 ⁻⁶			
1 kg	= 1000.	1	35.27	2.20	10 ⁻³	1.10 × 10 ⁻³			
1 oz (avdp)	= 28.35	0.028	1	0.06	2.83 × 10 ⁻⁵	5. × 10 ⁻⁴			
1 lb (avdp)	= 453.59	0.45	16.	1	4.54 × 10 ⁻⁴	0.0005			
1 metric ton	= 10 ⁶	1000.	35273.96	2204.62	1	1.10			
1 ton	= 907184.7	907.18	32000.	2000.	0.91	1			

Conversion factors for the U.S. Customary System, metric system, and International System (cont.)

E. UNITS OF DENSITY

Units	$g \cdot cm^{-3}$	$g \cdot L^{-1}, kg \cdot m^{-3}$	oz $\cdot in^{-3}$	lb $\cdot in^{-3}$	lb $\cdot ft^{-3}$	lb $\cdot gal$
1 $g \cdot cm^{-3}$	= 1	1000.	0.58	0.036	62.43	8.35
1 $g \cdot L^{-1}, kg \cdot m^{-3}$	= 10^{-3}	1	5.78×10^{-4}	3.61×10^{-5}	0.06	8.35×10^{-3}
1 oz $\cdot in^{-3}$	= 1.729994	1730	1	0.06	108	14.44
1 lb $\cdot in^{-3}$	= 27.68	27679.91	16.	1	1728.	231
1 lb $\cdot ft^{-3}$	= 0.02	16.02	9.26×10^{-3}	5.79×10^{-4}	1	0.13
1 lb $\cdot gal^{-1}$	= 0.12	119.83	4.75×10^{-3}	4.33×10^{-3}	7.48	1

F. UNITS OF PRESSURE

Units	Pa, $N \cdot m^{-2}$	dyn $\cdot cm^{-2}$	bar	atm	kg (wt) $\cdot cm^{-2}$	mmHg (torr)	in Hg	lb (wt) $\cdot in^{-2}$
1 Pa, 1 $N \cdot m^{-2}$	= 1	10	10^{-5}	9.87×10^{-6}	1.02×10^{-5}	7.50×10^{-3}	2.95×10^{-4}	1.45×10^{-4}
1 dyn $\cdot cm^{-2}$	= 0.1	1	10^{-6}	9.87×10^{-7}	1.02×10^{-6}	7.50×10^{-4}	2.95×10^{-5}	1.45×10^{-5}
1 bar	= 10^5	10^6	1	0.99	1.02	750.06	29.53	14.50
1 atm	= 101325.0	1013250.	1.01	1	1.03	760.	29.92	14.70
1 kg (wt) $\cdot cm^{-2}$	= 98066.5	980665.	0.98	0.97	1	735.56	28.96	14.22
1 mmHg (torr)	= 133.32	1333.22	1.33×10^{-3}	1.32×10^{-3}	1.36×10^{-3}	1	0.04	0.02
1 in Hg	= 3386.39	33863.88	0.03	0.03	0.03	25.4	1	0.49
1 lb (wt) $\cdot in^{-2}$	= 6894.76	68947.57	0.07	0.07	0.07	51.71	2.04	1

G. UNITS OF ENERGY											
Units	g mass	J	int J	cal	cal _{IT}	Btu _{IT}	kWh	hp h	ft-lb (wt)	cu ft-lb (wt) in ²	liter-atm
1 g mass	= 1	8.99 × 10 ¹³	8.99 × 10 ¹³	2.15 × 10 ¹³	2.15 × 10 ¹³	8.52 × 10 ¹⁰	2.50 × 10 ⁷	3.35 × 10 ⁷	6.63 × 10 ¹³	4.60 × 10 ¹¹	8.87 × 10 ¹¹
1 J	= 1.11 × 10 ⁻¹⁴	1	1.00	0.24	0.24	9.48 × 10 ⁻⁴	2.78 × 10 ⁻⁷	3.73	0.74	5.12 × 10 ⁻³	9.87 × 10 ⁻³
1 int J	= 1.11 × 10 ⁻¹⁴	1.00	1	0.24	0.24	9.48 × 10 ⁻⁴	2.78 × 10 ⁻⁷	3.73 × 10 ⁻⁷	0.74	5.12 × 10 ⁻³	9.87 × 10 ⁻³
1 cal	= 4.66 × 10 ⁻¹⁴	4.18	4.18	1	1.00	3.97 × 10 ⁻³	1.16 × 10 ⁻⁶	1.56 × 10 ⁻⁶	3.09	2.14 × 10 ⁻²	0.04
1 cal _{IT}	= 4.66 × 10 ⁻¹⁴	4.19	4.19	1.00	1	3.97 × 10 ⁻³	1.16 × 10 ⁻⁶	1.56 × 10 ⁻⁶	3.09	2.14 × 10 ⁻²	0.04
1 Btu _{IT}	= 1.17 × 10 ⁻¹¹	1055.06	1054.88	252.16	252	1	2.93 × 10 ⁻⁴	3.93 × 10 ⁻⁴	778.17	5.40	10.41
1 kWh	= 4.01 × 10 ⁻⁸	3600000.	3599406.	860420.7	859845.2	3412.14	1	1.34	2655224.	18439.06	35529.24
1 hp h	= 2.99 × 10 ⁻⁸	2684519.	2684077.	6411615.6	641186.5	2544.33	0.75	1	1980000.	13750.	26494.15
1 ft-lb (wt)	= 1.51 × 10 ⁻¹⁴	1.36	1.36	0.32	0.32	1.29 × 10 ⁻³	3.77 × 10 ⁻⁷	5.05 × 10 ⁻⁷	1	6.94 × 10 ⁻³	0.01
1 cu ft-lb (wt) in ²	= 2.17 × 10 ⁻¹²	195.24	195.21	46.66	46.63	0.19	5.42 × 10 ⁻⁵	7.27 × 10 ⁻⁵	144.	1	1.93
1 liter-atm	= 1.13 × 10 ⁻¹²	101.33	101.31	24.22	24.20	0.10	2.81 × 10 ⁻⁵	3.77 × 10 ⁻⁵	74.73	0.52	1

Appendix

Some historic volcanic eruptions since the eleventh century	
<i>Volcano</i>	<i>Year of eruption</i>
Merapi (Indonesia)	1006
Kelut (Indonesia)	1586
Vesuvius (Italy)	1631
Etna (Italy)	1669
Merapi (Indonesia)	1672
Awu (Indonesia)	1711
Papandayan (Indonesia)	1772
Laki (Iceland)	1783
Asama (Japan)	1783
Unzen (Japan)	1792
Mayon (Philippines)	1814
Tambora (Indonesia)	1815
Galunggung (Indonesia)	1822
Awu (Indonesia)	1856
Krakatau (Indonesia)	1883
Awu (Indonesia)	1892
Mont Pelée, Martinique (West Indies)	1902
Soufrière, St. Vincent (West Indies)	1902
Taal (Philippines)	1911
Kelut (Indonesia)	1919
Lamington (Papua New Guinea)	1951
Merapi (Indonesia)	1951
Agung (Indonesia)	1963
Taal (Philippines)	1965
Mount St. Helens (United States)	1980
El Chichón (Mexico)	1982
Nevado del Ruiz (Colombia)	1985
Unzen (Japan)	1991
Pinatubo (Philippines)	1991

Principal regions of a standard earth model		
	<i>Layer</i>	<i>Approximate depth range, mi (km)</i>
(1)	Ocean layer	0–1.8 (0–3)
(2)	Upper and lower crust	1.8–15 (3–24)
(3)	Lithosphere below the crust	15–50 (24–80)
(4)	Asthenosphere	50–140 (80–220)
(5)	Upper mantle above phase or compositional changes near 240 mi (400 km)	140–240 (220–400)
(6)	Transition region between phase or compositional changes near 240 and 416 mi (400 and 670 km)	240–416 (400–670)
(7)	Lower mantle above core-mantle boundary layer	416–1703 (670–2741)
(8)	Core-mantle boundary layer	1703–1796 (2741–2891)
(9)	Outer core	1796–3200 (2891–5150)
(10)	Inner core	3200–3959 (5150–6371)

Physical properties of some common rocks

Rock	Specific gravity	Porosity, %	Compressive strength, lb/in ²	Tensile strength, lb/in ²
Igneous				
Granite	2.67	1	30,000–50,000	500–1000
Basalt	2.75	1	25,000–30,000	
Sedimentary				
Sandstone	2.1–2.5	5–30	5,000–15,000	100–200
Shale	1.9–2.4	7–25	5,000–10,000	
Limestone	2.2–2.5	2–20	2,000–20,000	400–850
Metamorphic				
Marble	2.5–2.8	0.5–2	10,000–30,000	700–1000
Quartzite	2.5–2.6	1–2	15,000–40,000	
Slate	2.6–2.8	0.5–5	15,000–30,000	

Approximate concentration of ore elements in earth's crust and in ores

Element	in average igneous rocks, %	In ores, %
Iron	5.0	50
Copper	0.007	0.5–5
Zinc	0.013	1.3–13
Lead	0.0016	1.6–16
Tin	0.004	0.01*–1
Silver	0.00001	0.05
Gold	0.0000005	0.0000015*–0.01
Uranium	0.0002	0.2
Tungsten	0.003	0.5
Molybdenum	0.001	0.6

* Placer deposits.

Elemental composition of earth's crust based on igneous and sedimentary rock

Element	Weight %	Atomic %	Volume %
Oxygen	46.71	60.5	94.24
Silicon	27.69	20.5	0.51
Titanium	0.62	0.3	0.03
Aluminum	8.07	6.2	0.44
Iron	5.05	1.9	0.37
Magnesium	2.08	1.8	0.28
Calcium	3.65	1.9	1.04
Sodium	2.75	2.5	1.21
Potassium	2.58	1.4	1.88
Hydrogen	0.14	3.0	

Compositions of important rock types in the earth's crust and the average continental crust

Composition	Anorthosite	Peridotite	Oceanic basalt	Andesite	Dacite	Granodiorite	Granite	Graywacke	Sandy shale	Continental crust upper 9 mi (15 km)
Chemical										
SiO ₂	54.0	44.0	50.0	60.0	65.5	66.0	70.5	64.0	65.5	66.0
TiO ₂	8	2	1.5	8	3	0.5	3	5	5	0.5
Al ₂ O ₃	24.0	2.5	15.5	17.5	15.0	15.5	14.6	14.5	14.0	13.5
Fe ₂ O ₃	8	1.0	1.5	3.0	8	2.0	1.6	1.5	3.5	2.0
FeO	2.5	8.0	8.0	3.2	2.5	2.6	1.8	3.5	2.0	3.0
MgO	1.5	40.0	7.0	2.8	2.0	2.0	8	2.2	1.7	2.0
CaO	10.0	2.5	10.5	6.0	3.7	4.0	2.0	2.6	2.5	4.2
Na ₂ O	4.5	1	2.9	3.5	3.8	3.6	3.5	3.2	1.5	3.5
K ₂ O	1	0.2	2.5	3.0	2.4	2.8	4.3	2.0	4.0	3.0
Mineralogical										
Olivine	—	*	†	—	—	—	—	—	—	—
Fe, T, Mg oxides	†	†	†	*	—	—	—	—	—	†
Pyroxene	†	*	*	*	—	—	—	—	—	—
Amphibole	*	—	*	*	†	†	†	*	†	*
Plagioclase	—	—	*	†	†	*	*	*	*	*
K-feldspar	—	—	—	†	†	†	*	†	*	*
Micas	—	—	—	—	—	—	*	*	*	*
Quartz	—	—	—	—	—	—	—	*	*	*
Chlorites	—	—	—	—	—	—	—	*	*	*
Clay minerals	—	—	—	—	—	—	—	†	*	—

*Major constituent.
†Subordinate mineral

The earth's layers and their seismic velocities

Region	Name	Range of depth, mi (km)	P-wave velocity, mi/s (km/s)	S-wave velocity, mi/s (km/s)
A	Crust	Base varying from 6 to 40 mi (10 to 70 km) depth	Very variable	Very variable
B, C	Upper mantle	From crust to 600 mi (1000 km) depth	4.8–5.6 (8–9)	2.5–3.6 (4–6)
D', D''	Lower mantle	600–1600 (1000–2700) 1600–1700 (2700–2900)	5.6–8.1 (9–13)	3.6–4.2 (6–7)
E	Outer core	1700–2800 (2900–4600)	4.8–6 (8–10)	0
F	Transition region(s)	2800–3090 (4600–5150)	6–10 (10–11)	Uncertain
G	Inner core	3090–3822 (5150–6371)	10 (11)	1.8 (3)

Some useful indicator plants in mineral prospecting

Plant	Ore element	Area
<i>Eriogonum ovalifolium</i> v. <i>ovalifolium</i>	Cu	Montana
<i>Gypsophila patrinii</i>	Cu	Russia
<i>Polycarpea spyrostylis</i>	Cu	Australia
<i>Tephrosia</i> sp.	Cu	Australia
<i>Elscholtzia haichowensis</i>	Cu	China
<i>Haumaniastrum robertii</i>	Cu	Katanga
<i>Becium homblei</i>	Cu	Katanga
<i>Merceya ligulata</i>	Cu	Sweden
<i>Merceya latifolia</i>	Cu	Sweden
<i>Mielichhoferia macrocarpa</i>	Cu	Sweden, Alaska
<i>Armeria maritima</i>	Cu	Wales
<i>Armeria maritima</i> (vulgaris)	Zn	Aachen
<i>Armeria halleri</i>	Zn	Pyrenees
<i>Hutchinsia alpina</i>	Zn	Pyrenees
<i>Thlaspi alpestre</i> v. <i>calaminare</i>	Zn	Aachen
<i>Stellaria verna</i>	Zn	Aachen
<i>Viola lutea</i> v. <i>calaminaria</i>	Zn	Aachen
<i>Silene cobalticola</i>	Co	Katanga
<i>Crotalaria cobalticola</i>	Co	Katanga
<i>Dicoma niccolifera</i>	Ni	Zambia
<i>Hybanthus caledonicus</i>	Ni	New Caledonia
<i>Astragalus bisulcatus</i>	Se	United States (western)
<i>Astragalus pattersoni</i>	Se, U	United States (western)
<i>Astragalus garbancillus</i>	Se, U	Peru
<i>Mechovia grandiflora</i>	Mn	Katanga

Appendix

Geologic column and scale of time							
Eon	Era	Period	Epoch	Dates (10 ⁴ years before present)			
Phanerozoic	Cenozoic	Quaternary	Holocene	0 01			
			Pleistocene				
		Tertiary	↓	Pliocene	1 6		
				Miocene	5 3		
				Oligocene	23 7		
				Eocene	36 6		
				Paleocene	57 8		
				Cretaceous	66 4		
				Jurassic	14 4		
				Triassic	208		
	Mesozoic	↓	Permian	245			
			Pennsylvanian	286			
			Mississippian	320			
			Devonian	360			
			Silurian	408			
			Ordovician	438			
			Cambrian	505			
			Paleozoic	↓	No subdivisions in wide use		570
					Proterozoic*		2500
					Archean*		3800
Hadean		4650					

*Proterozoic plus Archean also called Precambrian.

Minerals found in meteorites

Mineral	Formula or symbol
Native elements, metallic compounds	
Awaruite*	Ni ₁₃ Fe
Carbon	C
Chaoite	C
Lonsdalite*	C
Copper	Cu
Diamond	C
Gold	Au
Sulfur	S
Kamacite*	α -(Fe,Ni)
Taenite*	γ -(Fe,Ni)
Carbides, phosphides, nitrides, silicides	
Cohenite	(Fe,Ni) ₃ C
Carlsbergite*	CrN
Haxonite*	Fe ₂₃ C
Moissanite	γ -SiC
Osbornite*	TiN
Perryite*	(Ni,Fe) ₅ (Si,P) ₂
Rhabdite*	(Ni,Fe) ₃ P
Sreibersite	(Fe,Ni) ₃ P
Senoite*	Si ₂ N ₂ O
Sulfides	
Alabandite	(Mn,Fe)S
Bornite	Cu ₅ FeS ₄
Bravoite	(Fe,Ni)S ₂
Brezinaite*	Cr ₃ S ₄
Chalcopyrite	CuFeS ₂
Chalcopyrrhoite	CuFe ₄ S ₅
Cubanite	CuFe ₂ S ₃
Daubreeilite*	FeCr ₇ S ₄
Djerfisherite	K,CuFe ₁₂ S ₁₃
Gentnerite*	Cu ₈ Fe ₃ Cr ₁₁ S ₁₈
Heazelwoodite	Ni ₃ S ₂
Mackinawite	FeS
Niningerite*	(Mg,Fe)S
Oldhamite*	CaS
Pentiandite	(FeNi) ₉ S ₈
Pyrrhotite	Fe _{1-x} S
Sphalerite	(Zn,Fe)S
Troilite	FeS
Vallerite	4(Fe,Cu)S · 3(Mg,Al)(OH) ₂
Violarite	Ni ₂ FeS ₄
Chlorides	
Lawrencite	(Fe,Ni)Cl ₂
Oxides	
Chromite	FeCr ₂ O ₄
Christobalite	SiO ₂
Hematite	Fe ₂ O ₃
Ilmenite	FeTiO ₃
Maghemite	α -Fe ₂ O ₃
Perovskite	CaTiO ₃
Quartz	SiO ₂
Rutile	TiO ₂
Spinel	MgAl ₂ O ₄
Tridymite	SiO ₂
Wüstite	FeO

*Found only in meteorites

Minerals found in meteorites (cont.)

Mineral	Formula or symbol
Carbonates, phosphates, sulfates	
Apatite	$\text{Ca}(\text{PO}_4)_3\text{Cl}$
Bloedite	$\text{Na}_2\text{Mg}(\text{SiO}_4)_2 \cdot 4\text{H}_2\text{O}$
Breunnerite	$(\text{Mg,Fe})\text{CO}_3$
Brianite*	$\text{Na}_2\text{MgCa}(\text{PO}_4)$
Calcite	CaCO_3
Cassidyite	$\text{Ca}_2(\text{Ni,Mg})(\text{PO}_4)_2 \cdot 2\text{H}_2\text{O}$
Collinsite	$\text{Ca}_2(\text{Mg,Fe})(\text{PO}_4)_2 \cdot 2\text{H}_2\text{O}$
Dolomite	$\text{CaMg}(\text{CO}_3)_2$
Epsomite	$\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$
Farringtonite	$\text{Mg}_2(\text{PO}_4)_2$
Graftonite	$(\text{FeMn})_2(\text{PO}_4)_2$
Gypsum	$\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$
Lipscomite	$(\text{Fe}^{+2},\text{Mn})\text{Fe}_2^{+3}(\text{PO}_4)_2(\text{OH})_2$
Magnesite	$(\text{Fe,Mg})\text{CO}_3$
Merrillite	$\text{Ca}_9(\text{Mg,Fe})\text{H}(\text{PO}_4)_7$
Panethite*	$(\text{CaNa})_2(\text{MgFe})_2(\text{PO}_4)_2$
Siderite	FeCO_3
Stansfieldsite*	$\text{Ca}_4(\text{MgFe})_5(\text{PO}_4)_6$
Whitlockite	$\text{Ca}_9(\text{Mg,Fe})\text{H}(\text{PO}_4)_7$
Organic minerals, oxalates	
Whewellite	$\text{CaC}_2\text{O}_4 \cdot \text{H}_2\text{O}$
Silicates	
Andradite	$\text{Ca}_3\text{Al}_2\text{Si}_3\text{O}_{12}$
Augite	$(\text{Ca,Na})(\text{Mg,Fe,Al,Ti})\text{-}(\text{SiAl})_2\text{O}_6$
Clinopyroxene	$(\text{CaMgFe})\text{SiO}_3$
Chlorite	$(\text{Ni,Mn,Cr,Li,Mg,Fe,Al})_6\text{-}(\text{AlSi})_1\text{O}_{10}(\text{OH})_8$
Cordiorite	$\text{Mg}_2\text{Al}_4\text{Si}_5\text{O}_{15}$
Diopside	$(\text{Ca,Mg})(\text{SiO}_3)_2$
Enstatite	$\text{Mg}_2\text{Si}_2\text{O}_6$
Gehlenite	$\text{Ca}_2\text{Al}_2\text{SiO}_7$
Grossularite	$\text{Ca}_3\text{Al}_2\text{Si}_3\text{O}_{12}$
Hypersthene	$(\text{Mg,Fe})_2\text{Si}_2\text{O}_6$
Krinovite*	$\text{NaMg}_2\text{CrSi}_2\text{O}_{10}$
Majorite*	$\text{Mg}_3(\text{Mg,Si})\text{Si}_2\text{O}_{12}$
Melilite	$\text{Ca}_3(\text{Mg,Al})(\text{Si,Al})\text{O}_7$
Merrhueite*	$(\text{K,Na})_2(\text{Fe}^{+2},\text{Mg})_5\text{Si}_{12}\text{O}_{30}$
Monticellite	$\text{Ca}(\text{Mg,Fe})\text{SiO}_4$
Nepheline	NaAlSiO_4
Olivine	$(\text{Mg,Fe})_2\text{SiO}_4$
Plagioclase	$(\text{Ca,Na})(\text{Al,Si})_4\text{O}_8$
Potash feldspar	$(\text{K,Na})\text{AlSi}_3\text{O}_8$
Richterite	$\text{Na}_2\text{CaMg}_5\text{Si}_8\text{O}_{22}\text{F}_2$
Rhonite	$\text{CaMg}_2\text{TiAl}_2\text{SiO}_{10}$
Roedderite*	$(\text{K,Na})_2\text{Mg}_5\text{Si}_{12}\text{O}_{30}$
Ringwoodite*	$(\text{Mg,Fe})_2\text{SiO}_4$
Sodalite	$\text{Na}_8\text{Al}_6\text{Si}_6\text{O}_{24}\text{Cl}_2$
Wollastonite	CaSiO_3
Ureyite*	$\text{NaCrSi}_2\text{O}_6$
Yagiite*	$(\text{K,Na})_2(\text{Mg,Al})_5(\text{SiAl})_{12}\text{O}_{30}$
Hydrous oxides	
Akaganeite	$\text{FeO}(\text{OH})$
Garnierite	$(\text{NiMg})_3\text{Si}_2\text{O}_5(\text{OH})_4$
Goethite	$\gamma\text{-FeO}(\text{OH})$
Lepedrosite	$\text{FeO}(\text{OH})$
Limonite	$\text{FeO}(\text{OH})\text{H}_2\text{O}$
Opal	$\text{SiO}_2 \cdot n\text{H}_2\text{O}$
Reevesite	$\text{Ni}_6\text{Fe}_2(\text{OH})_{10}(\text{CO}_3) \cdot 4\text{H}_2\text{O}$

Types of volcanic structure

Name	Characteristics
Shield	Low height, broad area; formed by successive fluid flows accumulating around a single, central vent
Cinder cone	Cone of moderate size with apex truncated; circular in plan, gently sloping sides; composed of pyroclastic particles, usually poorly consolidated
Spatter cone	Small steep-sided cone with well-defined crater composed of pyroclastic particles, well consolidated (agglomerate)
Composite cone	Composed of interlayered flows and pyroclastics; flows from sides (flank flows) common, as are radial dike swarms; slightly concave in profile, with central crater
Caldera	Basins of great size but relatively shallow; formed by explosive decapitation of stratocones, by collapse into underlying magma chamber, or both
Plug dome	Domal piles of viscous (usually rhyolitic) lava, growing by subsurface accretion and accompanied by outer fragmentation
Cryptovolcanic structures	Circular areas of highly fractured rocks in regions generally free of other structural disturbances; believed to have formed either by subsurface explosions or by sinking of cylindrical rock masses over magma chambers

Physical properties of some common rocks

Rock	Specific gravity	Porosity, %	Compressive strength, psi*	Tensile strength, psi*
<i>Igneous</i>				
Granite	2.67	1	30,000–50,000	500–1000
Basalt	2.75	1	25,000–30,000	
<i>Sedimentary</i>				
Sandstone	2.1–2.5	5–30	5,000–15,000	100–200
Shale	1.9–2.4	7–25	5,000–10,000	
Limestone	2.2–2.5	2–20	2,000–20,000	400–850
<i>Metamorphic</i>				
Marble	2.5–2.8	0.5–2	10,000–30,000	700–1000
Quartzite	2.5–2.6	1–2	15,000–40,000	
Slate	2.6–2.8	0.5–5	15,000–30,000	

*1 psi = 6.9 kPa

Appendix

Hardness, specific gravity, and refractive indices of gem materials			
Gem material	Hardness	Specific gravity	Refractive index
Amber	2-2½	1.05	1.54
Beryl	7½-8	2.67-2.85	1.57-1.58
Synthetic emerald	7½-8	2.66-2.7	1.56-1.563 to 1.57-1.58
Chrysoberyl and synthetic	8½	3.73	1.746-1.755
Corundum and synthetic	9	4.0	1.76-1.77
Diamond			
Synthetic cubic	10	3.52	2.42
Zirconia	8½	5.80	2.15
Feldspar	6-6½	2.55-2.75	1.5-1.57
Garnet			
Almandite	7½	4.05	1.79
Pyrope	7-7½	3.78	1.745
Rhodolite	7-7½	3.84	1.76
Andradite	6½-7	3.84	1.875
Grossularite	7	3.61	1.74
Spessartite	7-7½	4.15	1.80
Hematite	5½-6½	5.20	
Jade			
Jadeite	6½-7	3.34	1.66-1.68
Nephrite	6-6½	2.95	1.61-1.63
Lapis lazuli	5-6	2.4-3.05	1.50
Malachite	3½-4	3.34-3.95	1.66-1.91
Opal	5-6½	2.15	1.45
Pearl	3-4	2.7	
Peridot	6½-7	3.34	1.654-1.690
Quartz			
Crystalline and synthetic	7	2.66	1.54-1.55
Chalcedony	6½-7	2.60	1.535-1.539
Spinel and flux synthetic	8	3.60	1.718
Synthetic spinel, flame	8	3.64	1.73
Spodumene	6-7	3.18	1.66-1.676
Topaz	8	3.53	1.61-1.63
Tourmaline	7-7½	3.06	1.62-1.64
Turquoise	5-6	2.76	1.61-1.65
Zircon	7½	4.70	1.925-1.98
Metamict	7	4.00	1.81
Zoisite (tanzanite)	6-7	3.35	1.691-1.70

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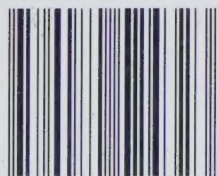
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