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**A GLOSSARY  
OF THE DIAMOND-DRILLING INDUSTRY**

By Albert E. Long



UNITED STATES DEPARTMENT OF THE INTERIOR

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# A GLOSSARY OF THE DIAMOND-DRILLING INDUSTRY<sup>1</sup>

BY

ALBERT E. LONG<sup>2</sup>

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## *Introduction*

**T**HIS GLOSSARY is published by the Bureau of Mines as a contribution to the mining literature to fill a long-felt need for a compilation of the terms used by the diamond-drilling industry.

The first step toward preparation of the glossary was taken in October 1955 when the Diamond Core Drill Manufacturers Association (DCDMA) proposed that the Bureau of Mines undertake the compilation and publication of a glossary of the terms used by the diamond-drilling industry.

The work was authorized in July 1956, and a preliminary draft of the glossary was completed in May 1958. Copies of the draft were submitted for review to members of the DCDMA and appropriate personnel of the Bureau of Mines. The final draft, incorporating the many helpful suggestions of the reviewers representing both the diamond-drilling industry and the Bureau of Mines, was completed in March 1959.

## ACKNOWLEDGMENTS

The compilation of this glossary, although primarily the effort of the author, could not have been brought to fruition without the numerous corrections and suggestions of the many, herein unnamed, representative members of the Bureau of Mines and the DCDMA who reviewed the preliminary draft. The author is especially indebted to Messrs. Adrian E. Ross and Frank C. Sturges whose enthusiastic interest and zeal for authenticity led them to spend an inordinate amount of time reviewing various proposed drafts. At considerable personal expense, they met with the author and other Bureau representatives on several occasions in Washington, D.C., and Reno, Nev., to edit and draft key definitions.

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<sup>1</sup> Work on manuscript completed March 1959.

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## SCOPE OF GLOSSARY

This glossary attempts to present by definition the meaning of terms as used by the diamond-drilling industry and to furnish descriptive information regarding the use of diamond-drilling equipment and processes in garnering physical data needed by mining, civil, petroleum, and other professional engineering groups. This glossary attempts to furnish the following information:

1. Terms, letter names, and abbreviations commonly used in the diamond-drilling industry, primarily confined to the geographical limits of the United States.

2. Synonyms, especially those accepted as standard by the DCDMA, are defined by listing the synonyms, with reference made to the preferred term.

3. Hyphenation and spelling of the defined term follow the practice presented in the diamond-drill-equipment catalogs, diamond-drilling handbooks, DCDMA Bulletin 2, and published literature reporting the technology of diamond drilling.

4. Compound terms are listed alphabetically according to the first word, as "Double-tube core barrel" and not "Core barrel, double-tube."

5. Variant usages of terms, letter names, and abbreviations.

6. Variant spellings of various terms with reference to the preferred spelling.

7. Historical change in the meaning of a term when significant or needed to avoid confusion.

8. Foreign-language terms are included if no English equivalent exists or if the English and foreign terms are commonly used interchangeably.

9. Pronunciations are not given except in a few instances where the pronunciation is unusual or difficult.

10. Tables (in the appendix) give dimensional characteristics of major classes of drill fittings, which, for space reasons, could not be included in the definitions without causing confusion.

## OMISSIONS AND RESTRICTIONS

1. Geologic, petrographic, and mineralogic terms:

Restricted to a few general terms commonly used by diamond drillers. Definitions, as presented in the glossary, are the meaning as generally used by the average diamond driller and not necessarily exact or technically correct.

2. Mining terms:

Definitions are limited to those terms the meanings of which are significantly different to miners and diamond drillers.

3. Petroleum- and churn-drilling terms:

Definitions are confined to the petroleum- and churn-drilling processes, tools, equipment, etc., adapted and commonly used by the diamond-drilling industry in currently normal drilling and/or various sampling operations.

4. Purely colloquial terms:

Purely colloquial terms have been omitted except those in common use in a general area of the United States. These terms are defined together with a reference to the preferred or more widely used term.

## ABBREVIATIONS

Abbreviations and cross reference symbols used in the definitions, to conserve space, are as follows:

ASCE	American Society of Civil Engineers.
CDDA	Canadian Diamond Drilling Association.
DCDMA	Diamond Core Drill Manufacturers Association.
=	Synonymy certain.
<i>q.v.</i>	Indicates term preferred and defined.
<i>Also called</i>	Synonymous term.

*Sec; See also* Reference to a related term generally closely synonymous or the definition of a term that will help to clarify the term defined.

*Compare* The definition of a related or diametrically opposed term that will help to clarify the meaning of the terms compared.

## DIAMOND-DRILLING TERMS

- A.** 1. A DCDMA letter name for a range of diamond-drill fittings intended to be used together with the appropriate casing having an inside diameter of approximately 2 inches or somewhat less. *See* appendix, tables 1 and 3.
2. Letter name for a nonstandard, special noncoring bit the outside set diameter of which ranges from 1.639 to 1.641 inches, a size more commonly used in Australia and Canada than in the United States.
3. One of several letter symbols used to designate low-quality or -grade drill diamonds; this quality and grade also may be designated by letter symbols or terms, such as Casting, Fair, 1A, Single A, WA-3.
4. Letter symbol sometimes, although rarely, used to designate high-quality or -grade drill diamonds. *See* AAA.
5. Letter name for nonstandard and now obsolete size of core bit and/or casing. *See* appendix, table 1; *see also* A bit, A casing.
- AA.** One of several letter symbols used to designate medium-quality or -grade drill diamonds; this quality also may be designated by symbols or terms, such as B, Double A, 2 A, Good, R, Second, WA-2.
- AAA.** One of several letter symbols used to designate high-quality or -grade drill diamonds; this quality also may be designated by symbols or terms, such as Best, E, F, Fine, First, G, H, High, Select round, 3A, Triple A, WA-1.
- AAAA.** A letter symbol sometimes used to designate quality of drill diamonds better than AAA grade; such diamonds also may be designated by symbols or terms, such as Creams, 4A, Quadruple A, Special, Special rounds. *Also called* Gem, Gem grade.
- AB.** Letter name for a nonstandard, special, concave noncoring bit having a set outside diameter of 1.720 inches, which is used on a reaming shell the set diameter of which is 1.750 inches.
- Abandon.** To stop drilling and remove drill rig from site of borehole before intended depth or target is reached.
- A bit.** A nonstandard, obsolete-size diamond-drill bit. *See* appendix, table 1.
- Abrade.** The wearing away of diamonds, drill-bit matrices, and drill-stem equipment by frictional contact with the rock material penetrated or by contact with the cuttings produced by the action of the drill bit in drilling a borehole.
- Abrasion hardness.** Hardness expressed in quantitative terms or numbers indicating the degree to which a substance resists being worn away by frictional contact with an abrasive material, such as silica or carborundum grits. *Also called* Abrasion resistance, Wear resistance. *Compare* Scratch hardness.
- Abrasion resistance.** =Abrasion hardness, *q.v.*
- Abrasive.** A hard substance having the ability to grind away the surface of a material against which it is rubbed, as the quartz fragments produced by the cutting action of a diamond bit in drilling a borehole in a siliceous rock abrade bit matrices and drill-string equipment.
- Abrasive formation.** A rock consisting of small, hard, sharp-cornered, angular fragments or a rock the cuttings from which, produced by the action of a drill bit, are hard, sharp-cornered, angular grains, which grind away or abrade the metal on bits and drill-stem equipment at a rapid rate. *Also called* Abrasive ground.
- Abrasive ground.** =Abrasive formation, *q.v.*
- Absorbent formation.** A rock or rock material, which, by virtue of its dryness, porosity, or permeability, has the ability to drink in or suck up a drilling liquid, as a sponge absorbs water. *Also called* Absorbent ground.
- Absorbent ground.** =Absorbent formation, *q.v.*
- Absorption rate.** The rate, expressed in quantitative terms, at which a liquid, such as a drilling circulation medium, is absorbed by the rocks or rock materials penetrated by the drill bit.
- Abuse.** To misuse a piece of drilling equipment, as in running a diamond bit too long, subjecting it to excessive feed pressures, or running it over broken core or tramp iron.
- AC.** 1. Letter name for a 1¼-inch-outside-diameter experimental diamond-drill rod sponsored by the CDDA. The AC rod has been discarded and superseded by the AW drill rod.
2. An abbreviation for alternating current.
- A casing.** A nonstandard, obsolete-type diamond-drill casing. *See* appendix, table 1.
- Accelerator.** 1. Any substance that when added to a cement, such as calcium chloride added to portland cement, shortens its normal setting time.
2. Device controlling the rate at which fuel is injected into a combustion-type engine and hence controlling its speed. *Also called* Throttle.
- Accessory.** 1. In a strict sense, only those tools or small parts, etc., normally supplied with a drill machine by the manufacturer without their being specifically ordered by the buyer of the drill. In a general sense, the term is commonly and synonymously used for auxiliary. *See* Auxiliary.
2. A term applied to minerals occurring in small quantities in a rock, the presence of which is ignored in naming the rock.
- Acetylene.** A gas (C<sub>2</sub>H<sub>2</sub>), produced by the action of water on calcium carbide, that burns with a brilliant white flame and hence was much used formerly as an illuminating gas in mines and around drill rigs. When combined with oxygen, acetylene burns to produce an intensely hot flame and hence now is used principally in welding and in metal-cutting flame torches.
- Acid bath.** A vessel containing an acid solution strong enough to attack and dissolve the diamond-matrix metal in a worn or dull bit crown, thereby releasing the diamonds, which can be recovered and reset in another bit or reused in some other manner.
- Acid bottle.** A tubular soda-lime-glass bottle designed to hold hydrofluoric acid and fit inside a clinometer case during an acid-dip survey. *See* Acid-dip survey. *Also called* Acid-dip bottle, Acid-dip test tube, Acid-etch tube, Acid-etch vial, Acid-test tube, Acid tube, Acid vial, Angle-test tube, Culture tube, Etch tube, Sargent tube, Vial.
- Acid-dip bottle.** =Acid bottle, *q.v.*
- Acid-dip survey.** A method of determining the angular inclination of a borehole in which a glass, test-tubelike bottle partly filled with a dilute solution of hydrofluoric acid is inserted in a watertight metal case. When the assemblage is lowered into a borehole and left for 20 to 30 minutes, the acid etches the bottle at a level plane from which the inclination of the borehole can be measured. *Also called* Acid-dip test, Acid test.

- Acid-dip test.** =Acid-dip survey, *q.v.*
- Acid-dip test tube.** =Acid bottle, *q.v.*
- Acid-etch tube.** =Acid bottle, *q.v.*
- Acid-etch vial.** =Acid bottle, *q.v.*
- Acid test.** 1. =Acid-dip survey, *q.v.*  
2. A severe or decisive trial, as of usability or authenticity.
- Acid-test tube.** =Acid bottle, *q.v.*
- Acid tube.** =Acid bottle, *q.v.*
- Acid vial.** =Acid bottle, *q.v.*
- Acid-vial culture tube.** =Acid bottle, *q.v.*
- Acid water.** Water that contains sulfate or other acid in solution strong enough to affect adversely the setting rate of cement or to irritate skin and corrode clothing or metals. Also sometimes used as a name for a dilute solution of hydrofluoric acid.
- Adamantine drill.** =Shot drill, *q.v.*
- Adamantine shot.** =Shot, *q.v.* See Shot 1.
- Adapter.** 1. =Sub, *q.v.*  
2. A component part modifying a device so as to enable one to use the device in more ways than one.
- Added diamonds.** As used by the diamond-bit manufacturing industry, the number or carat weight of new diamonds that must be added to the resetttable diamonds salvaged from a worn bit in order to have enough to set a new bit.
- Adjustable pipe tongs.** =Brown tongs, *q.v.*
- Adobe.** 1. =Mudcap, *q.v.*  
2. A firm sticky clay.
- A drill rod.** A former standard diamond-drill rod superseded in 1954 by the DCDMA standard AW drill rod. See appendix, table 1.
- Advance.** 1. To deepen a borehole.  
2. Rate at which a drill bit penetrates a rock formation.  
3. Feet drilled in any specific unit of time.
- A-Frame.** Two poles or legs supported in an upright position by braces or guys and used as a drill mast. Also called Double mast.
- Agar.** An organic substance derived from certain species of seaweed, which forms a thin gelatinous liquid when added to boiling water and on cooling forms a firm jellylike mass. Used in surveying drill holes with a Maas compass.
- Agitator.** A device used to stir or mix grout or drill mud. Not to be confused with Shaker or Shale shaker.
- Air.** 1. Atmospheric air delivered under compression to bottom of drill hole through the drill stem and used in place of water to clear the drill bit of cuttings and to blow them out of the borehole. See Air circulation.  
2. Air piped under compression to work areas and used to operate drilling or mining machinery.  
3. The current of atmospheric air circulating through and ventilating a drill cellar or the workings of a mine.
- Airblast.** 1. A term improperly used by some diamond drillers as a synonym for air circulation. See Air circulation.  
2. A disturbance in underground workings accompanied by a strong rush of air. The rush of air, at times explosive in force, is caused by the ejection of air from large underground openings, the sudden fall of large masses of rock, the collapse of pillars, slippage along a fault, or a strong current of air pushed outward from the source of an explosion.
- Air block.** Air trapped in the upper end of an unvented inner tube of a double-tube core barrel, which, when sufficiently compressed, acts like a solid and stops further advance of core into the inner tube. Also called Air cushion.
- Air circulation.** A large volume of air, under compression, used in lieu of a liquid as a medium to cool the bit and eject the cuttings from a borehole. Also called Air flush.
- Air cock.** Petcock-type valve for bleeding-off air trapped in pumps, pumplines, or hydraulic systems.
- Air cushion.** 1. Air trapped in the bottom of a dry borehole by the rapid descent of a tight string of borehole equipment.  
2. =Air block, *q.v.*  
3. An airtight inflatable bag or container used as a device for arresting motion without shock, by confined air.
- Air dome.** A cylindrical or bell-shaped container closed at the upper end and attached in an upright position above and to the discharge of a piston-type pump. Air trapped inside the closed cylinder acts as a compressible medium, whose expansion and contraction tends to reduce the severity of the pulsations imparted to the liquid discharged by each stroke of a pump piston. Also called Bonnet, Pressure dome.
- Air drill.** 1. A small diamond drill driven by either a rotary or a reciprocating-piston air-powered motor, used principally in underground workings.  
2. As used by miners, a percussive or rotary-type rock drill driven by compressed air.
- Air flush.** =Air circulation, *q.v.*
- Air hammer.** 1. Sharp, vibratory impacts in a liquid pump or piping system caused by entrapped air.  
2. Reciprocating motion induced in a drill string by excessive air pressure at face of drill bit when air is used in lieu of a liquid as a bit coolant and cuttings-removal agent.  
3. A pneumatically actuated hammer.
- Air hoist.** A small portable hoisting machine usually mounted on a column and powered by a compressed air motor. Also called Tugger.
- Air hole.** 1. Venthole in upper end of inner tube of a double-tube core barrel to allow air and/or water entrapped by the advancing core to escape.  
2. A void, cavity, or flaw in a casting or bit crown.
- Air-line lubricator.** =Line-oiler, *q.v.*
- Air motor.** A motor driven by compressed air; may be either a vane- or gear-type rotary or a reciprocating piston-type motor.
- Air rig.** A drill machine powered by an air-driven motor. Compare Air drill.
- Air rod puller.** See Rod puller.
- Air slug.** A mass of air under compression entrapped in the liquid circulated through a borehole drill string or a liquid-piping system.
- Air swivel.** A device similar to a water swivel but designed to conduct air under compression into a rotating drill stem when air instead of a liquid is used as an agent to flush drill cuttings out of a borehole. Compare Water swivel.
- Air tongs.** Air-actuated breakout tongs. See Breakout tongs.
- Air valve.** 1. A device used to release unwanted or entrapped air from a waterline, pump, or hydraulic system. See Air cock.  
2. A device to regulate volume of compressed air fed into, or released from, an air-driven machine or piping system.
- Alidade.** 1. A device having a level bubble combined with a quarter or half circle graduated in degrees, which is used by drillers to determine the inclination of a drill stem and/or borehole at the collar of the borehole. Also called Angle level, Angle rule, Clinometer, Clinometer rule.  
2. An instrument used in plane-table surveying, consisting of a telescope or sighting device pivoted to swing through a vertical graduated arc atop a vertical stand attached to a steel rule, one edge of which is parallel with the sight line of the telescope.  
3. Sometimes incorrectly used as a synonym for Transit or Theodolite.



**Align.** =Aline, *q.v.*

**Alignment.** =Alinement *q.v.*

**Alignment clamp.** =Alinement clamp, *q.v.*

**Aline.** 1. To position a drill so that its drill stem is centered on a point and parallel to a predetermined angle and compass direction. *Also called* Line in, Lineup.

2. To reposition a drill and bring its drill stem over the center and parallel with a newly collared drill hole.

**Alinement.** Positioned in conformance to a straight line between two points. *Compare* Aline.

**Alinement clamp.** A set-screw-equipped, universal-type clamp from one side of which a slotted angle-iron wand, about 18 inches long, extends outward from the clamping device at 90°. May be made to fit any size drill rod and is used in pairs, leapfrog fashion, to orient successive rods in a specific compass direction as they are lowered into a borehole being surveyed by the acid-bottle method. By this means the bearing and inclination of a drill hole may be determined in formations or under conditions where a Maas or other type magnetic compass cannot be used.

**Alkali.** A sodium-carbonate, potassium-carbonate or, more commonly, any bitter-tasting salt or water, generally occurring in arid and semiarid regions.

**Alkali water.** A water having a bitter or sodalike taste. If strongly alkaline, the water is unfit to drink or use in mixing cements.

**Alligator.** 1. =Safety clamp, *q.v.*

2. A pronged, steel, hingelike device by means of which the abutting ends of a flat drive belt can be fastened or "laced" together.

**Allowance.** 1. The calculated difference between the volume occupied by a cement slurry when mixed and the volume it will occupy on setting.

2. Living expense or premium wage paid to drill-crew members working in remote areas under rigorous conditions.

3. Sometimes incorrectly used as a synonym for Tolerance. *See* Tolerance.

**Alluvial.** 1. A term commonly, although incorrectly, used by some drillers as a synonym for Overburden. *See* Overburden.

2. Relating to deposits made by flowing water.

**Alluvial diamonds.** Diamonds found in association with water-laid materials.

**Alluvium.** As incorrectly used by some drillers—the broken, earthy rock material directly below the soil layer and above the solid, unbroken bed or ledge rock. In a strict sense, alluvium should be applied only to soil and/or fragmented rock materials deposited by water upon land not permanently submerged beneath the waters of lakes and seas.

**Aloes rope.** A special kind of rope made from aloes fibers, formerly used as a drive-hammer rope because it was more durable and stronger than jute- and hemp-fiber ropes.

**AM.** Letter name for an A-range, nonstandard, special short-shank, pin-threaded, core bit, designed for use with a mud-laden circulation fluid. The AM bit is used on a reaming shell having a set outside diameter of 1.892 inches. The set diameters of the bit, in inches, are: Outside, 1.861; inside, 1.062.

**American pump.** =Sand pump, *q.v.*

**American system.** *See* Churn drill.

**American-system drill.** =Churn drill, *q.v.*

**AMS.** Letter name for an A-range, nonstandard, special split-inner-tube, swivel-type double-tube core barrel using face-discharge, short-shank, box-threaded core bits cutting a 1.032-inch-diameter core. AMS bits are available in full-face and step-face designs.

**Anchor.** 1. To fasten down or hold in place.

2. Heavy object buried in ground to which a guy or snake line may be attached. *Also called* Deadman.

**Anchor bolt.** 1. A bolt or other device used to secure a diamond-drill base to a solid foundation. It may or may not be threaded.

2. A lag screw used to anchor drill base to platform or sills.

**Anchor line.** Cable connecting anchor with drill barge, float, other vessel, or drilling tower.

**Anchored tower.** A steel, towerlike derrick designed to serve as a drill platform and for support of drive pipe or casing in drilling boreholes in formations underlying bodies of water. The tower is held upright in the water by lines fastened to anchors. *Compare* Drill tower, Drilling tower.

**Anchor plates.** Plates attached to a drill base used to anchor or fasten the drill to the drill platform or platform sills with anchor bolts or lag screws.

**Ancillary.** =Auxiliary, *q.v.*

**Angle hole.** A borehole that is drilled at an angle not perpendicular to the earth's surface. *Also called* Incline hole.

**Angle level.** *See* Alidade 1.

**Angle of dip.** =Dip, *q.v.*

**Angle rule.** =Clinometer rule, *q.v.*

**Angle test tube.** =Acid bottle, *q.v.*

**Angola.** A diamond from the Angola district, Africa; also, a diamond having the appearance characteristic of those produced in the Angola district.

**Annular borer.** Any tubular tool used to obtain a cylindrical core as a sample. *Compare* Core Drill, Diamond drill, Shot drill.

**Anomaly.** A local feature distinguishable structurally or by radioactive, geochemical, electric, magnetic, or gravity measurements, indicating either a favorable or unfavorable area to explore for minerals, water, gas, or petroleum.

**Anomaly drilling.** Boreholes drilled to explore the formations above, in, or adjacent to an anomaly.

**Anvil.** The stationary serrated jaw piece or plate of a safety clamp, adjustable pipe wrench, or jaw-type rock crusher. Also sometimes incorrectly used as a synonym for Drive hammer. *Also called* Anvil block, Anvil heel, Anvil jaw, Heel.

**Anvil block.** *See* Anvil.

**Anvil heel.** *See* Anvil.

**Anvil jaw.** *See* Anvil.

**AO.** Letter name used at one time for an experimental oversize drill rod, superseded in 1954 by DCDMA standard design and size designated as AW.

**Apex.** 1. Point in center of the face of a concave, noncoring bit.

2. The highest point at which an ore vein is found in place; it may or may not outcrop.

**Apex angle.** Included angle measured between the slopes of the inside faces of a concave, noncoring bit, which may range from as small an angle as 70° to a maximum of about 120°.

**API.** 1. *Abbr.* American Petroleum Institute, an organization supported by those employed in or especially interested in the petroleum industry. The organization sponsors standardization of the tools and equipment used in the petroleum industry, some of which are now used by the diamond-drilling industry. When the abbreviation is appended to a term for a tool or piece of equipment it means that it has been manufactured in accordance with specifications considered standard by the API.

2. Commonly used in the Midwestern United States to mean in good or perfect condition.

**Apparent angle.** =Etch angle, *q.v.*

- Apparent dip.** The below-horizon angle of the inclination of a planar surface determined by trigonometric methods, based on information obtained from a borehole or measurements of the trace of the surface of a core sample. If the borehole intersects the planar surface at any angle less than perpendicular, the apparent dip will always be an angle less than the true dip. *Compare* True dip; also Etch angle.
- Apparent width.** The width of a vein or other tabular formation as determined by borehole intercepts. This width will always be greater than the true width if the borehole intersects the vein at any direction other than perpendicular to the surface of the vein.
- Approved.** 1. Equipment and/or tools manufactured in accordance with accepted industrial standard, such as drilling equipment manufactured in accordance with specifications accepted as standard by the DCDMA, the CDDA, or the API.  
2. Explosives, lamps, motors, and other pieces of mining machinery and equipment approved by the Federal Bureau of Mines for use in mines, especially under conditions where combustible gases may be encountered, as in some coal mines.
- Arc cutter.** A device consisting of a bit attached to knuckle-jointed rods used to drill a curved borehole or branched holes from a parent borehole. *Compare* Whipstock.
- Area cover.** The area within a group of boreholes drilled in advance or around an underground opening for the purpose of detecting the presence of water-bearing fissures or formations. *Compare* Cover 2.
- Areometer.** An instrument for measuring the specific gravity of liquids. *Compare* Baumé hydrometer, Marsh funnel, Twaddell hydrometer, Specific-gravity hydrometer.
- A rod.** *See* A drill rod.
- A rod bit.** A Canadian standard, noncoring bit having a set diameter of 1.865 inches. More commonly called 1½ A drill-rod bit.
- ASCE.** *Abbr.* American Society of Civil Engineers.
- Assessment drilling.** Drilling done to fulfill the requirement that a prescribed amount of work be done annually on an unpatented mining claim to retain title.
- Atomizer.** 1. =Jet mixer, *q.v.*  
2. =Line oiler, *q.v.*  
3. An apparatus for converting liquid into a fine spray or fog.
- AU.** A letter name once used to designate an experimental-design diamond-drill rod having an outside diameter of 1¾ inches. Superseded in 1954 by the DCDMA standard drill rod designated by the letter name AW. *See* AW.
- Auger.** 1. A short spiral-shaped tool run on a torque bar to drill soils and soft rocks, serving also as a platform to retain the cuttings for removal by raising the auger to the surface.  
2. A drill rod with continuous helical fluting, which acts as a screw conveyor to remove cuttings produced by an auger-drill head. *See* Continuous-flight auger.  
3. The process of drilling holes using auger equipment.
- Auger bits.** Hard steel or tungsten-carbide-tipped cutting teeth used in an auger run on a torque bar or in an auger-drill head run on a continuous-flight auger.
- Auger boring.** The hole and/or the process of drilling a hole using auger equipment.
- Auger drill.** 1. A drill using an auger run on a torque bar. *See* Auger 1.  
2. A drill using an auger-drill head run on continuous-flight augers. *See* Auger 2.
- Auger-drill head.** Tool that holds the auger bits (cutting teeth), run on continuous-flight augers.
- Auger fork.** Tool used to span the top of an auger-drill hole and engage and support the weight of a string of continuous-flight augers.
- Auger head.** =Auger-drill head, *q.v.*
- Augering.** Drilling holes with auger equipment.
- Auger rod.** 1. =Torque bar, *q.v.*  
2. =Continuous-flight auger, *q.v.*
- Auger system.** 1. =Torque bar, *q.v.*  
2. =Auger rod, *q.v.*  
3. The downhole assemblage of auger rods, bit, etc. used when augering a borehole.
- Automatic chuck.** 1. A hydraulically actuated drill chuck. *Also called* Hydraulic chuck.  
2. A self- or power-rotated chuck on a pneumatic rock drill, as a stoper, drifter, or jackhammer.
- Automatic feed.** 1. A hydraulic-control system of valves that once set and without the manual assistance of drill runner will reduce or increase feed pressure applied to drill stem as hardness of rock penetrated changes.  
2. Pneumatic rock drill equipped with a power-actuated feed mechanism.
- Automatic feedoff.** A weight-sensitive device, which may be installed on the drill hoist line and used to maintain automatically a preset feed-weight on the drill bit by feeding the drill string downward when drilling off the hoist line with a Kelly.
- Automatic spider.** A foot and/or hydraulically actuated drill-rod clamping device similar to a Wommer safety clamp. *See* Wommer safety clamp.
- Auxiliary.** Tools or other equipment, such as a pump, drill rods, casing, core barrel, bits, water swivel, safety clamp, etc., required for use with a drill machine to carry on specific drilling operations. *Compare* Accessory.
- AW.** DCDMA letter name for a DCDMA standard, A-range, W-group, and W-design diamond-drill rod. May also be used as a size and/or design designation as applied to tools or equipment intended to fit and be used with AW drill rods, as elevators, elevator plugs, foot safety clamp jaws, drill-chuck jaws, lifting bails, water swivels, diamond-drill swivel heads, etc. *See* appendix, table 1.
- AWM.** DCDMA letter name for a DCDMA standard, A-range, W-group, M-design, swivel-type, double-tube core barrel and those fitting parts, as the long-shank, box-threaded core bits, reaming shells, core lifters, etc., made to be run in an AX borehole and to cut an AX core. The AWM-letter-name bits, reaming shells, core barrel, and core barrel parts are identical to the corresponding AXM-letter-name items with one exception, that is, the head of the AWM core barrel is threaded to accommodate AW drill rods instead of A drill rods. *Compare* AXM; *see* appendix, table 1.
- AWX.** DCDMA letter name for A-range, W-group, X-design, single- and double-tube core barrels and their fitting bits, reaming shells, core lifters, etc., made to be run in an AX borehole and to cut an AX core. Before 1954 AWX-letter-name items were designated as AX-series items. All AWX- and AX-series core barrels and fitting parts are identical, except that the heads of the AWX core barrels are threaded to fit AW drill rods, whereas the AX-series core-barrel heads were threaded to fit A drill rods. *See* appendix, table 1.
- AX.** 1. A DCDMA letter name applied to X-group and/or X-design drill fittings in the A range. *See* appendix, tables 1 and 3.  
2. A DCDMA borehole-size letter name commonly used to designate the diameter of a borehole produced by the use of A-range, X- and M-design ream-

- ing shells having an outside set diameter of 1.890 inches.
3. A DCDMA core-size letter name commonly used to designate the diameter of a core produced by A-range, X- and M-design core bits having an inside set diameter of 1.185 inches.
4. A diamond-drill-rod letter name commonly and incorrectly applied to a drill rod properly designated by the letter name A. *See* appendix, table 1.
5. A core-bit-size designation commonly applied to a bit having inside and outside set diameters of 1.185 and 1.865 inches, respectively.
6. A DCDMA letter name for a DCDMA standard casing that will fit inside a BX borehole and inside of which can be run downhole drilling equipment and drill fittings designed for use in an AX borehole. *See* appendix, table 3.
- AX bit.** *See* AX 5; *see also* appendix, table 1.
- AXBP.** Letter name for a nonstandard, special, non-coring bit having a set outside diameter of  $1\frac{1}{8}$  inches, which is used on a reaming shell the set outside diameter of which is  $1\frac{5}{64}$  inches. Sometimes incorrectly called an AX bit.
- AXC.** Letter name for a nonstandard, special swivel-type, double-tube core barrel using a long-shank, box-threaded core bit, the inside and outside set diameters of which are 1.067 and 1.885 inches, respectively.
- AX casing.** *See* AX 6.
- AXD.** Letter name for a nonstandard, special swivel-type, double-tube core barrel using core bits designated as AXD, AXD2, and AXD2L, the inside and outside set diameters of which are 1.136 and 1.865 inches, respectively. The AXD core bit is short shank, face discharge, and box threaded. The AXD2 is similar to the AXD but pin threaded and with optional face discharge. The AXD2L is the same as an AXD2 but longer shanked to permit its attachment directly to the bottom end of the AXD core barrel, whereas a reaming shell must be used to couple the AXD and AXD2 bits to an AXD core barrel.
- AX drill rod.** *See* AX 4; *see also* appendix, table 1.
- AXH.** Letter name for a nonstandard, special swivel-type, double-tube core barrel using a short-shank, box-threaded core bit having inside and outside set diameters of 1.185 and 1.865 inches, respectively.
- AXK.** Letter name for a nonstandard, special core barrel using a core bit having the same inside and outside set diameters as an AXT bit.
- AXL.** Letter name for a nonstandard design, A-range swivel-type double-tube core barrel using a short-shank box-threaded core bit having inside and outside set diameters of 1.185 and 1.865 inches, respectively.
- AXM.** Letter name applied, before 1954, to a core barrel and its fitting parts as bits, reaming shells, core lifters, etc., identical to items (with one exception) now designated by the letter name AWM. *See* AWM, M design; *see also* appendix, table 1.
- AX rod.** *See* AX 4; *see also* appendix, table 1.
- AXS.** Letter name for an A-range, X-design, step-face bit having inside and outside set diameters of 1.185 and 1.865, respectively. *See* Step-face bit.
- AX S.A.G.** Letter name for a nonstandard, special core bit the set outside and inside diameters of which are 1.874 and 1.125 inches, respectively.
- AXT.** Letter name for a CDDA standard, thin-wall core bit having inside and outside set diameters of 1.280 and 1.865 inches, respectively.
- Azimuth.** 1. The horizontal angle measured clockwise from magnetic or astronomical North, usually expressed in degrees. Also incorrectly called Bearing.  
2. A horizontal circle divided into 360, or 4 sets of 90, major divisions, called degrees, and attached to a magnetic compass.
- Azimuth test.** To determine the horizontal compass direction that a borehole is trending at a specific depth by means of one of several borehole-surveying instruments.
- B.** 1. A DCDMA letter name for a range of drill fittings intended to be used together with the appropriate casing having an inside diameter of approximately  $2\frac{1}{2}$  inches or somewhat less. *See* appendix, tables 1 and 3.  
2. One of several letter symbols used to designate a medium quality or grade of drill diamonds. *Compare* AA.  
3. Letter name for nonstandard and now obsolete size of core bit and/or casing. *See* B bit, B casing.  
° **B.** *Abbr.* Baumé degree. *See* Baumé.
- Back end.** 1. = Core-barrel head, *q.v.*  
2. = Thrust yoke, *q.v.*
- Backfill.** 1. The process of sealing and filling, and/or the material used to seal or fill, a borehole when completed to prevent its acting as a course along which water may seep or flow into rock formations or mine workings.  
2. The process of filling, and/or the material used to fill, a mine opening.
- Back hub.** = Backsight hub, *q.v.*
- Backing.** The pieces of soft copper wire or horseshoe nail placed under or around a diamond set in a bit by a handsetter as a filler or cushion material. *Also called* Bedding, Calking.
- Backlash.** 1. The violent recoil and whipping movement of the free ends of a rope or wire cable broken under strain.  
2. The lost motion in poorly fitted gears.
- Back off.** 1. To unscrew or disconnect.  
2. To lift bit and drill stem some distance away from the bottom of, or an obstruction in, a borehole.  
3. To move drill head backward on the drill base away from borehole.
- Back pressure.** 1. Resistance transferred from rock into drill stem when bit is being fed at a faster rate than the bit can cut.  
2. Pressure expressed in pounds per square inch (p.s.i.) applied to the underside of the piston in the hydraulic-feed cylinder to partially support the weight of the drill rods and hence reduce pressure on the bit.  
3. The hydrostatic head or pressure that a pump must overcome to move liquids to a higher level.  
4. Pressure caused by resistance in a pipe or opening because the opening is too small for the free escape of the gas or fluid.  
5. Rock pressures affecting the uppermost portion or roof in an underground mine opening.
- Backsight.** 1. To sight on a Backsight hub.  
2. A term commonly, although incorrectly, used as a synonym for Backsight hub.  
3. As used in making a survey with a transit, theodolite, or level, the sight taken to a known point or object to determine the angle reading in degrees or elevation in feet by turning the instrument from the backsight point to the new point or object.
- Backsight hub.** A mark or stake placed by an engineer or drill foreman at some distance behind the position a drill will occupy in a specific compass direction from the borehole marker for an incline hole to enable the driller to set the drill and drill the borehole in the intended direction. *Also called* Back hub, Backsight.
- Backup.** 1. To cushion or fill in under and around a handset-diamond with pieces of soft copper or annealed, malleable iron or steel, such as used for horseshoe nails. *Compare* Backing.

2. To fill a void between timbering and unbroken ground with broken rock or pieces of scrap timber.
3. To brace, shore up, or strengthen in any manner.
- Backup gear.** See Reverse-feed gear.
- Backup wrench.** A pipe wrench the handle of which is anchored against a solid, as the frame of a diamond drill.
- Bad ground.** 1. Soft, highly fractured, or cavernous rock formations in which drilling a borehole is a slow procedure involving time-consuming cementing or casing operations.  
2. Rock formations in which mine openings cannot be safely maintained unless heavily timbered or supported in some manner.
- Bagasse.** The dried and pulverized or shredded sugar cane fibers sometimes added to a drilling fluid to plug crevices in and prevent loss of circulation liquid from a borehole.
- Bag system.** System whereby a driller uses, and is responsible for, a specific group of drill bits given to him in a bag or box at the beginning of each shift.
- Bail.** 1. As used by the diamond- and rotary-drilling industries (a) a U-shaped steel rod with the open ends formed into eyes fitting over two lugs projecting from the sides of a water swivel, or (b) a U-shaped steel rod with open ends attached to an open-sided, latch-equipped, circular collar, which fits around a drill rod and under the base of a water swivel. Both types of bails are designed to permit circulation of fluid through the drill rod string while the rods are suspended on the hoist line or while the rods are being raised or lowered a few feet with the hoisting cable.  
2. As used by the churn drillers, to remove a liquid from a borehole by use of a tubular container attached to a wire line. See Bailer.  
3. The handle on a bucket, cage, or skip by means of which it may be lifted or lowered.  
4. A large clevis.
- Bailer.** A long cylindrical vessel fitted with a bail at the upper end and a flap or tongue valve at the lower extremity. It is used to remove water, sand and mud-laden or cuttings-laden fluids from a borehole. When fitted with a plunger to which the bailing line is attached, it sucks the liquid in as it is lifted and is then called a Sand pump or an American pump.
- Bailer line.** Wire rope or line attached to a bailer and only used to raise and lower a bailer in a borehole.
- Bailing bucket.** 1. =Bailer, *q.v.*  
2. A container into which the contents of a bailer are emptied.  
3. A container attached to cable or wire rope used to lift water out of a mine shaft or other working place.
- Bailing ditch.** Ditch conducting liquids, emptied from a bailer, away from the borehole to a collecting pool or sump.
- Bailing drum.** A hoist or winding drum on a churn or other type of drill on which is wound the bailer rope or line used when bailing out a borehole.
- Bailing reel.** =Bailing drum, *q.v.*
- Bailing tub.** A container into which the contents of a bailer are emptied.
- Bailing tube.** =Bailer, *q.v.*
- Balance.** 1. Beam device specifically designed and calibrated to determine specific gravity by weighing methods, as in determining specific gravity of drilling mud.  
2. A scale consisting of two pans suspended from a pivoted beam used to determine weight of diamonds or other precious stones or metals.
- Balk.** Refusal of a drill bit to cut and/or the refusal of a drivepipe, sampling barrel, or cone penetrometer to be driven deeper.
- Ball and socket reamer.** A borehole-reaming device consisting of a bit attached to a ball-and-socket or knuckle-joint member, which in turn is connected to the drill rods and used in borehole-deviation drilling. Also called Arc cutter.
- Ballas.** A hard, spherical aggregate of many very small diamond crystals, usually cryptocrystalline, arranged radially and more or less concentrically around a central point. Because of their structure, ballas are classed as industrials, which are occasionally used in diamond-drill bits and other diamond tools. The term is also incorrectly used as a name applied to rounded, single-crystal forms of diamond. Also called Shot bort.
- Ball bearing.** A friction-reducing device consisting of hard steel balls in a circular race; also a descriptive term applied to some pieces of equipment, such as a swivel-type, double-tube core barrel, using ball bearings as load-bearing members on rotating parts.
- Ball-bearing core barrel.** =Swivel-type, double-tube core barrel, *q.v.*
- Balling formation.** Rock or formations that, when drilled, produce cuttings and sludge, which tend to collect on, and adhere to, borehole walls and drill-stem equipment in sticky or gummy masses. Compare Gummy, Sticky.
- Ball joint.** 1. A flexible coupling consisting of a hemispherical piece to which a matching concave piece is loosely fitted.  
2. A flexible pipe joint made in the shape of a ball or sphere and a fitting concave hemispherical piece.
- Ball valve.** A device allowing liquids to flow unimpeded in one direction, consisting of a ball or sphere of steel or other suitable material held against a circular opening of smaller diameter than the ball by gravity or a spring. When liquid flow is from the direction of the ball toward the opening, the ball is forced against the seat and seals the opening. If flow is from the opening toward the sphere, the ball is pushed away from the opening allowing the liquid to pass.
- Band.** 1. =Brake band, *q.v.*  
2. A flexible ribbon of steel.
- Band brake.** A flexible circular ribbon of steel lined with wooden blocks or asbestos-impregnated material that through a hand or mechanically actuated lever can be brought to bear on the surface of a projecting flange on a hoisting drum, capstan, or wheel and, through friction, control the rotation of the drum, capstan, or wheel.
- Band wheel.** A large flat pulley over which runs the main drive belt transmitting power from the engine to the main crankshaft on a churn or cable-system drill.
- Bank.** 1. That part of the footage of a borehole drilled but not reported for purpose of reporting the footage as having been drilled at some later date. Also called Lay-by.  
2. Several like pieces of drilling equipment set close together in a row; for example, several diesel-powered generators would be called a power bank. Compare Battery 1.  
3. To cover fire in a steam boiler with ashes to keep fire burning low but alive for several hours.  
4. Terracelike bench from which ore is obtained in an open-pit mine.
- Bank pump.** Auxiliary pump placed on the bank of a stream or a lake and used to pump water to a distant drill. Also called Supply pump.
- Bar.** 1. A length of steel pipe equipped with a flat cap at one end and a jackscrew on the opposite end by means of which the pipe may be wedged securely in a vertical or horizontal position across an underground workplace to serve as a base on which a small diamond or rock drill may be mounted. Also called Drifter bar, Drill bar, Drill column.

2. A heavy steel rod with either pointed or flattened ends used as a pry or as a tool by miners to dislodge loose rock in roof or sidewalls of an underground workplace.
3. A bank of sand, gravel, or other material, especially at the mouth of a river or a bay.
- Bardine process.** A process used to rejuvenate diamond-drill rods or rotary-drill pipe by relieving fatigue stresses.
- Bar drill.** A small diamond or other type of rock drill mounted on a bar and used in an underground workplace. *Also called* Bar rig.
- Bare.** The uncased portion of a borehole. *Also called* Barefoot, Barefooted, Blank, Naked, Open, Open hole.
- Barefoot: Barefooted.** = Bare, *q.v.*
- Barite.** A barium sulfate mineral, BaSO<sub>4</sub>, having a density of approximately 4.3. When finely ground it is commonly used as a heavy loader in drill muds. *Also called* Barytes, Heavy spar.
- Barium sulfate.** Same as Barite.
- Barrel.** 1. The cylindrical part of a pump from which the movement of the piston causes a liquid or gas to be forcibly ejected. Also, the cylindrical part of a hydraulic jack or of a hydraulic-feed mechanism on a diamond drill.  
2. The drum of a hoist.  
3. Commonly, although incorrectly, used as a synonym for Core barrel.  
4. A cylindrical container having a capacity of 55 gallons. *Also called* Drum.  
5. A crude-petroleum measure of quantity equal to 42 gallons.
- Barren.** Not productive, or containing no minerals of value.
- Barren hole.** = Blank hole, *q.v.*
- Bar rig.** Small diamond or other rock drill designed to be mounted and used on a bar. *Also called* Bar drill.
- Barytes.** = Barite, *q.v.*
- Basalt.** As used in a general sense by drillers, a dark-colored igneous or volcanic rock.
- Base.** 1. Foundation or supporting structure on which a drill is mounted.  
2. The point or line from which a start is made. As used by drillers, a line of stakes set by an engineer or drill foreman to be used as a guide to line up and point the drill in a specific compass direction.  
3. The minimum price used as a basis for determining the total cost when drilling is done on contract.  
4. The most abundant metal in an alloy.
- Base line.** *See* Base 2.
- Basement.** *See* Base rock 2.
- Basement rock.** *See* Base rock 2.
- Base plug.** A tapered cylinder, generally of wood, placed in a borehole and into which a deflection drive wedge may be driven in a random or oriented position. *Also called* Deflecting plug, Deflection plug.
- Base rock.** 1. As used by some drillers, the solid rock immediately underlying the overburden material.  
2. As used by drillers in the Midwestern United States, the igneous rock formations underlying the sedimentary rocks. *Also called* Basement, Basement rock, Pavement.
- Basic price.** As used by the drilling and mining industries, a guaranteed price to be paid for a specific quantity of materials or type of service.
- Basket.** 1. A type of single-tube core barrel made from thin-wall tubing with the lower end notched into points, which are intended to pick up a sample of granular or plastic rock material by bending in on striking the bottom of the borehole or a solid layer. May be used also as a fishing tool to recover an article lost or dropped into a borehole. *Also called* Basket barrel, Basket tube, Sawtooth barrel.  
2. Wire-mesh strainer in top of a core barrel to strain out bits of debris, which might clog up the water ports in the core barrelhead.  
3. = Basket core lifter, *q.v.*
- Basket barrel.** 1. Same as Basket 1.  
2. A core barrel fitted with a basket core lifter.
- Basket core.** Sample of rock or rock material recovered by using a basket tube or core barrel. *See* Basket 1.
- Basket core lifter.** A type of core lifter consisting of several fingerlike springs brazed or riveted to a smooth-surfaced ring having an inside diameter slightly larger than the core size being cut. *Also called* Basket, Basket lifter, Finger lifter.
- Basket lifter.** = Basket core lifter, *q.v.*
- Basket tube.** Same as Basket 1.
- Bastard.** 1. Of unusual make, shape, or proportion not fitting standard pieces of equipment or tools.  
2. A hard, massive boulder.
- Bastard quartz.** 1. A round or spherical-shaped boulder of quartz embedded in a soft or decomposed rock.  
2. As used by miners, an unmineralized, hard, glassy white quartz.
- Battery.** 1. A number of similar machines or similar pieces of equipment placed side by side on a single or separate base and operated by means of common connections as a unit. *Compare* Bank 2.  
2. A blasting machine.  
3. A combination of chemically activated accumulators, which after charging may be used for a considerable time as a source of direct-current electricity. *Also called* Storage battery.
- Baumé.** An arbitrary numerical scale for indicating the relative density of liquids, utilizing a Baumé hydrometer. Each unit is called a Baumé degree, abbreviated as °B. *See* Baumé gravity, Baumé hydrometer.
- Baumé degree.** *See* Baumé, Baumé gravity, Baumé hydrometer.
- Baumé gravity.** An arbitrary scale for measuring the density of liquids. The scale gives the Baumé gravity of water at 60° F. as 60 Baumé degrees when the actual specific gravity of water is 1.0. *See* Baumé hydrometer, Hydrometer.
- Baumé hydrometer.** An instrument used for measuring the Baumé density of a fluid. This is in the form of a straight glass tube, which is floated in the fluid in question, the level of the fluid coming in line with the graduation of the scale marked on the neck of the hydrometer. The heavier or denser the fluid the less distance the hydrometer sinks and the lower the reading, and vice versa. The density of pure water is recorded as being 10 Baumé degrees.
- B bit.** A nonstandard core bit no longer in common use except in drilling deep boreholes to sample gold-bearing deposits in South Africa. The set outside and inside diameters of a B bit are plus or minus 2<sup>1</sup>/<sub>16</sub> and 1<sup>1</sup>/<sub>8</sub> inches, respectively.
- bb1.** *Abbr.* barrel.
- BC.** Letter name for a former CDDA standard diamond-drill rod having an outside diameter of 2<sup>1</sup>/<sub>8</sub> inches. The BC drill rod has been discarded and superseded by the BW-letter-name drill rod. *See* appendix, table 1.
- B casing.** A nonstandard and now obsolete casing superseded by casing designated by the letter name BX. *See* appendix, tables 1 and 3.
- Bearing.** 1. The compass direction of a line as referred to the cardinal points, such as N. 10 W., S. 45 W.  
2. The direction as indicated by a compass.  
3. The strike of a vein.

4. The points of support of a beam, shaft, or axle.  
5. A friction-reducing device. *See* Ball bearing 2.
- Bearing stake.** Stakes set on a line indicating the horizontal direction an inclined borehole is to be drilled.
- Bearing test.** Same as Azimuth test.
- Bed.** 1. The smallest division of a stratified series of rocks more or less clearly defined from its neighbors above and below. *Also called* Layer, Stratum.  
2. A tabular mineral deposit lying in a plane parallel to the rock stratification.  
3. The body of the main frame or base of an engine.
- Bedding.** 1. Pieces of soft metal placed under or around a handset diamond as a cushion or filler. *Also called* Backing, Calking.  
2. The individual laminae or strata of a sedimentary rock.
- Bedding planes.** The planes or surfaces separating individual laminae, beds, or strata of sedimentary rock.
- Bedrock.** Any solid rock, in place, underlying the overburden. *Also called* Ledge rock and, colloquially, Ledge.
- Bedrock test.** Borehole drilled to determine the character of bedrock and character and depth of overburden overlying such bedrock.
- Bell.** 1. =Bell tap, *q.v.*  
2. A gong used to signal at a mine shaft; also, to signal by ringing such a gong.
- Bell jar.** =Jar collar, *q.v.*
- Bell-mouth socket.** A horn socket equipped with a bell-like, flaring mouth. *See* Horn socket.
- Bell screw.** =Bell tap, *q.v.*
- Bell socket.** =Bell tap, *q.v.*
- Bell tap.** A cylindrical fishing tool having an upward-tapered inside surface provided with hardened threads. When slipped over the upper end of lost, cylindrical, downhole drilling equipment and turned, the threaded inside surface of the bell tap cuts into and grips the outside surface of the lost equipment. *Also called* Bell, Bell screw, Bell socket, Box bill, Die, Die collar, Die nipple.
- Belly.** Widened places in a borehole caused by sloughing of loose material from the borehole sidewalls.
- Bellybuster.** 1. A safety rope or belt used by a driller's helper or derrickman while working in the drill derrick or tripod.  
2. A railing placed at belt height around an elevated work platform as in a drill tripod or derrick.
- Bentonite.** A plastic clay, the particles of which are extremely fine, some being colloidal in size and having great liquid absorptive properties; wetted with water the particles swell 12 to 15 times their dry-bulk size. Dried and pulverized, bentonite is one of the principal ingredients that drillers add to form a colloidal-type drill mud. *See* Drill mud.
- Best.** One of several terms used to designate high-quality drill diamonds. *Compare* AAA.
- Bevel bit.** =Bevel-wall bit, *q.v.*
- Bevel gear.** 1. Cone-shaped gear encircling the drive rod in a diamond-drill swivel head, which meshes with a matching gear attached to the drive shaft from the drill motor. By means of these gears the drill-string equipment can be made to rotate. *Also called* Miter gear.  
2. Any gear the teeth of which are inclined to the shaft axis of the gear.
- Bevel-wall bit.** A core bit having the inside surface of the shank cut to a taper into which a tapered-wall (split-ring) core lifter may be fitted. *Also called* Bevel bit, Taper-wall bit. Sometimes incorrectly called Standard bit, Standard core bit.
- Bevel-wall core shell.** =Bevel-wall reaming shell, *q.v.*
- Bevel-wall reaming shell.** A reaming shell the inside wall of which is tapered and into which a split-ring core lifter may be fitted. *Also called* Bevel-wall core shell, Taper-wall core shell.
- B.H. Abbr.** commonly used for Blasthole and/or Borehole.
- B. H. bit.** 1. A noncoring or blasthole bit.  
2. A CDDA standard-size noncoring bit having a set outside diameter of 1¼ inches. Normally referred to as a 1¼-B. H. bit.
- Big-stone bit.** *See* Large-stone bit.
- Bind.** 1. To prevent normal operation of drill-string equipment in a borehole, such as by constriction or friction created by swelling or caving ground, settlement or balling of cuttings, an obstruction, or an offset or crooked hole, or as the result of insufficient clearance cut by use of undergage bits or reaming shells.  
2. To cause to cohere; to give consistency to by means of an agent, such as by drilling mud in a loose, sandy, or fragmented formation.
- Binder.** Anything that causes loose mineral grains, or particles of other material, to cohere or be bound together, such as cement in an aggregate, or drilling mud in a loose sand or overburden material.
- Bit.** Any device that may be attached to, or is, an integral part of a drill string and is used as a cutting tool to bore into or penetrate rock or other materials by utilizing power applied to the bit percussively or by rotation.
- Bit blank.** A steel bit in which diamonds or other cutting media may be inset by hand peening or attached by a mechanical process such as casting, sintering, or brazing. *Also called* Bit shank, Blank, Blank bit, Shank.
- Bit clearance.** 1. Technically, the difference between the outside diameter of a set bit and the outside set diameter of the reaming shell. Loosely, the term is used to denote the clearing action of a bit, which is a function of the waterways and the mode in which the diamonds or other cutting media are set in the cutting face of the bit, and also the difference between the outside set diameter of a bit and the outside diameter of the bit shank. *Compare* Clearance.  
2. Incorrectly and loosely used as a synonym for Diamond exposure. *See* Diamond exposure.
- Bit contour.** The configuration of the crown or cutting face of a bit as seen in cross section.
- Bit core.** The central, removable, and replaceable portion or pilot of a noncoring or other type of bit. *Compare* Core 1 and 2.
- Bit cost.** Bit-use cost generally expressed in monetary units per foot or per hundred feet of borehole drilled. For a specific diamond bit the bit cost per foot drilled usually is calculated in the manner shown as follows:
- $$\frac{(R-S)Z+(CO+BL+ST-SC)}{Y} = X$$
- where
- R=Diamonds in original bit, in carats  
S=Resetttable diamond salvaged, in carats  
Z=Diamond cost per carat, in dollars  
CO=Cut-out charge, in dollars  
BL=Cost of bit blank in dollars  
ST=Setting charge in dollars  
SC=Credit value of scrap diamonds in dollars  
Y=Number of feet bit drilled  
X=Bit costs in dollars, per foot drilled.
- Bit count.** = Diamond count, *q.v.*
- Bit crown.** = Crown, *q.v.* *See* Crown 1.
- Bit-crown metal.** =Diamond matrix, *q.v.*
- Bit die.** = Bit mold, *q.v.*
- Bit end.** Refers to the end of a reaming shell to which the bit is attached.

- Bit face.** That part of the bit crown that comes in contact with the bottom of a borehole. It does not include that part of the bit crown that contacts the walls of the borehole.
- Bit feed.** *See* Feed rate 1.
- Bit gage.** The inside and/or outside diameter of a set bit; also, a tool or device used to measure such diameters. *Compare* Gage ring, Setting gage.
- Bit insert.** A shaped hard-metal piece, which is inserted in a slot or hole in a bit by brazing or peening to serve as a cutting edge or abrasion-resistant point or plane. *Compare* Insert bit.
- Bit life.** The average number of feet of borehole a bit may be expected to drill in a specific type of rock under normal operating or specified conditions.
- Bit load.** The weight or pressure applied to a bit in drilling operations expressed as the number of pounds or tons of weight applied. *Also called* Bit pressure, Bit weight, Drilling pressure, Drilling weight, Drill pressure.
- Bit matrix.** =Diamond matrix, *q.v.* *See* Diamond matrix 1.
- Bit mold.** A steel, carbon, or ceramic die in which the shape of a bit crown is incised and provided with pips, grooves, or holes in which diamonds are set and held by suction or an adhesive. Filling the die with a matrix alloy by a casting or a powder metal-sintering process affixes the shank to a diamond-inset bit crown having a shape conforming to that incised in the die. *Also called* Bit die, Crown die, Crown mold.
- Bit performance.** The achievement of a bit as gaged by the overall cost of using a specific bit per a unit measure of borehole drilled, or by the total number of feet of borehole drilled per bit.
- Bit pilot.** The small cylindrical portion that is of smaller diameter and projects beyond the main body of a pilot-type, noncoring bit.
- Bit pressure.** =Bit load, *q.v.*
- Bit reaming shell.** Obsolete name for Reaming shell.
- Bit ring.** 1. *See* Setting ring.  
2. Obsolete name for Core bit.
- Bit r.p.m.** The speed at which a bit is rotated, expressed in the number of revolutions per minute.
- Bit setter.** Formerly an individual skilled in the art of setting diamonds in a bit blank by a hand-peening and calking technique to produce a complete bit; currently an individual who places diamonds in pips provided in a bit die or mold used in producing a diamond bit by mechanical methods. *See* Mechanical-set bit.
- Bit shank.** 1. The threaded part of a bit.  
2. Sometimes incorrectly used as a synonym for Bit blank.
- Bit slug.** *See* Bit insert.
- Bit speed.** 1. The number of revolutions a bit is rotated per minute.  
2. A term sometimes incorrectly used to express the number of bit revolutions required to advance the bit 1 inch with a screw-feed diamond-drill machine.
- Bit taper.** The inside conical bevel or seat in a bevel-wall bit in which a core lifter is carried.
- Bit thrust.** The hydraulic pressure applied to a drill bit when drilling, as shown in pounds per square inch by the pressure gages on the hydraulic-feed cylinders of a diamond drill or the total pressure in pounds as calculated by multiplying the recorded hydraulic pressure by the square-inch area of the piston in the hydraulic-feed cylinder. *Also called* Drilling thrust.
- Bit wall.** That portion of a bit between the crown and the shank of the bit.
- Bit weight.** 1. Total weight, in carats, of the diamonds set in a diamond bit.  
2. Weight or load applied to a diamond bit during drilling operation. *See* Bit load.
- Black diamond.** =Carbon, *q.v.* *See* Carbon 1.
- Blackjack.** 1. A heavy black oil sometimes used as a rod dope. *See* Blackstrap.  
2. A dark, brownish-black variety of a zinc sulphide mineral.
- Black light.** Commonly used as a descriptive name for the invisible radiations produced by an ultraviolet lamp. *See* Lamp 1 and 2.
- Blackstrap.** A black, heavy oil sometimes used as a drill-rod dope or lubricant and as a mine-car-wheel lubricant. *Also called* Blackjack.
- Blank.** 1. An interval in a borehole from which core either was not recovered or was lost, or in which no minerals of value were encountered.  
2. =Bit blank, *q.v.*
- Blank bit.** =Bit blank, *q.v.*
- Blank hole.** 1. A borehole in which no minerals or other substance of value were penetrated. *Also called* Barren hole, Dry hole.  
2. The uncased portion of a borehole. *Also called* Bare, Barefoot, Barefooted, Naked.
- Blank off.** To line a specific portion of a borehole with casing or pipe for the purpose of supporting the sidewalls or to prevent ingress of unwanted liquids or gas. *Also called* Case, Case off, Seal off.
- Blank pipe.** Unperforated pipe or casing set in a borehole.
- Blank reaming shell.** A reaming shell in which no reaming diamonds or other cutting media are inset on the outside surface.
- Blast.** 1. The operation of increasing the diamond exposure on a bit face by removing some of the matrix metal through the abrasive action of grains of sand carried in a high-pressure stream of air. *Also called* Sand blast.  
2. The operation of breaking rock by means of an explosive.
- Blasthole.** A hole in which an explosive charge is placed.
- Blasthole bit.** A noncoring bit. *Compare* Noncoring bit, Plug bit.
- Blasthole drill.** Any rotary, percussive, fusion-piercing, churn, or other type of drilling machine used to produce holes in which an explosive charge is placed. *Also called* Shothole drill.
- Blasthole machine.** =Blasthole drill, *q.v.*
- Blasting cap.** A detonator used to set off an explosive charge. *Also called* Cap.
- Blasting machine.** A portable dynamo, which generates enough electric current to detonate electric blasting caps when the machine rack bar or handle is given a quick, downward push. *Also called* Battery.
- Blau gas (Blue gas).** =Bottle gas, *q.v.*
- Bleed.** 1. To drain off water or entrapped air from a piping system or container. *Compare* Bleeder.  
2. To give off or exude small amounts or droplets of water or gas, such as from a stratum of rock or coal.
- Bleeder.** 1. A connection located at a low place in an air or gas line or container so that by means of a small valve the condensed water, or other liquid, can be drained or bled off from the line or container without discharging the air or gas.  
2. A fine adjustment valve (needle valve) connected to the bottom end of a hydraulic feed cylinder in the swivel head of a diamond drill. By means of the bleeder the speed at which the hydraulic piston travels can be minutely controlled.
- Bleed off.** *See* Bleed 1.
- Blind.** 1. To drill with the circulation medium (water or drill mud) escaping into the sidewalls of the borehole and not overflowing the collar of the drill hole.  
2. A vein that does not outcrop.

3. An underground opening not connected with other workings nearby and at about the same elevation.
- Blind bit.** = Noncoring bit, *q.v.*
- Blind hole.** A borehole in which the circulating medium carrying the cuttings does not return to the surface.
- Block.** 1. The wedging of core or core fragments or the impaction of cuttings inside a bit or core barrel, which prevents further entry of core into the core barrel, thereby producing a condition wherein drilling must be discontinued and the core barrel pulled and emptied to forestall loss of core through grinding or the serious damage of the bit or core barrel. *Also called* Core block. *See also* Grind 1.  
2. An obstruction in a borehole.  
3. A grooved pulley or sheave encased in a frame or shell, which is provided with a hook, eye, clevis, or strap by which it may be attached to an object. It is used to change the direction of a pull applied by a rope or cable, or, when used in pairs, to exert increased force. Blocks are classed as single, double, triple, etc., according to the number of pulleys contained in a single shell.  
4. A sheave.
- Block and fall.** = Block and tackle, *q.v.*
- Block and tackle.** Two blocks with reeved rope or cable. *See* Block 3.
- Block hole.** 1. A small hole drilled into a rock or boulder into which an anchor bolt or a small charge of explosive may be placed.  
2. A term used by drillers, miners, and quarrymen for a method of breaking undesirably large blocks of stone or boulders by the discharge of an explosive loaded into shallow holes drilled into the blocks or boulders.
- Block off.** 1. To fill and seal undesirable openings, fissures, or caving zones in a borehole by cementation or by lining the borehole with pipe or casing. *Also called* Blank off, Case off, Seal off.  
2. Secure a mine opening against the flow or escape of gas, air, or liquid by erecting rock, concrete, steel, wood, or cloth barriers.  
3. Erect barriers to prevent men from entering unsafe areas in underground workings.
- Block out.** To delineate the area in which a desirable mineral occurs by systematic core drilling or by underground openings.
- Blocky.** 1. Rock formations in which the core produced tends to break and block or jam inside the bit or core barrel.  
2. Rock that breaks away in thick blocks from the roof of a mine working.
- Bloocy line.** A pipe or flexible tube conducting cuttings-laden air or gas from the collar of a borehole to a point far enough removed from drill rig to keep the air around the drill dust free.
- Blow count.** The number of blows that must be delivered by a specific-weight, freely falling drive hammer dropping a specific distance to force a drive sampler 12 inches into a soil material.
- Blowhole.** An air bubble or void in a bit crown or casting. *See* Airhole 2.
- Blowout.** 1. The high-pressure, sometimes violent, and uncontrolled ejection of water, gas, or oil from a borehole.  
2. As used by miners, a large outcrop beneath which the parent vein is smaller.
- Blowout plug.** A sub (adapter) by means of which the upper end of an inner tube of a double-tube core barrel can be coupled to the fluid-circulation system of a drill.
- Blowout preventer.** A rotatable or stationary device attached to drivepipe or casing at the collar of a borehole, consisting of an assemblage of bypass and gate or disk valves which may be closed around the drill rods, or which can be closed completely if the drill rods are withdrawn from the borehole. Used to contain and control the flow of liquids or gases under high pressure encountered while drilling a borehole.
- Blue gas.** = Bottle gas, *q.v.*
- Blunt-edge stones.** *See* Blunt stones.
- Blunted stones.** *See* Blunt stones.
- Blunt stones.** Rounded, water-worn carbon, or carbon whose sharp edges have been rounded by repeated use, grinding, tumbling in a ball mill, or other artificial means.
- BM.** Letter name for an A-range, nonstandard, special-short-shank, pin-thread core bit having set inside and outside diameters of 1.386 and 2.329 inches, respectively. It is used on a core barrel designed for core drilling with a mud-laden drill fluid.
- BMS.** Letter name for a B-range nonstandard, special-split-inner-tube, swivel-type, double-tube core barrel using face discharge, with short-shank box-threaded core bits cutting a 1.281-inch-diameter core. BMS bits are produced in both full-face and step-face designs.
- BO.** Letter name for an experimental-size-and-design diamond-drill rod superseded in 1954 by a DCDMA standard drill rod designated by the letter name BW. *See* appendix, table 1.
- Boart.** = Bort, *q.v.*
- Boartz.** = Bort, *q.v.*
- Body.** 1. = Bit blank, *q.v.*  
2. The fluidity of a drilling mud expressed in the number of seconds in which a given quantity of mud flows through a given aperture, such as the aperture in a Marsh funnel.  
3. = Clinometer case, *q.v.*  
4. A term used to indicate the viscosity or fluidity of a lubricating oil. For example, a heavy-body oil is thick and viscous and a light-body oil is thin and fluid.  
5. An ore body or a pocket of mineral.
- Boiler.** A skid- or wheel-mounted closed vessel, usually cylindrical, used to generate steam for operating steampowered machines, such as pumps and drills.
- Bonnet.** 1. = Air dome, *q.v.*  
2. The access cover on the valve chest of a pump or the steam chest on a steam engine.  
3. The bell-shaped dome extending above the main body of a steam boiler. *Also called* Pressure dome.  
4. The covering over a mine cage.
- Book fashion.** A method of arranging core in a box. Core representing the shallowest depth is placed in the first groove starting at the left end of the box with the core from the progressively deeper portions of the borehole arranged as one would read the words and lines in a book.
- Boom.** 1. A spar or beam projecting out over the drill floor from the tripod or derrick, by means of which heavy drill tools and equipment may be moved and safely handled. Generally installed only when deep or large-diameter boreholes, requiring heavy tools, are drilled.  
2. Long adjustable steel arm on a drill jumbo on which drifter, or other type, pneumatic drills are mounted.
- Boomer.** 1. Originally, an oilfield worker who migrated from one boom field to another; now, commonly, a member of a drill crew who works on one job a short time, quits, and moves on to another locality to seek employment. *Also called* Drifter.  
2. A combination ratchet and lever device used to tighten a chain or line about a loaded truck or wagon to hold the load in place.
- Boort.** = Bort, *q.v.*



- Booster pump.** A pump used to increase the pressure of fluids, such as to increase the pressure of water delivered to a drill when the source pressure is too low to be used for drilling operations. *Compare* Line pump.
- Booting.** The ejection of balled drill cuttings from the collar in long tubelike masses.
- Bore.** 1. To cut a circular hole by the rotary motion of a cutting tool.  
2. A circular hole made by boring.  
3. A tunnel, especially during the time it is being excavated.  
4. Inside diameter of a cylinder, such as the inside diameter of piston cylinders on a pump or reciprocating engine.
- Borebit.** 1. An obsolete name for Core bit.  
2. As used by Soil and Foundation testing engineers, any type of cutting head or bit that is rotated to cut through or take a sample of soil, overburden, or bedrock materials.
- Borehole.** A circular hole made with a rotary or diamond drill with an auger or other rotated cutting tools or bits for exploring rock or other formations in search of minerals or water, or for blasting, foundation and soil testing, drainage, and other purposes. *Also called* Boring, Drill hole. *Compare* Drill hole.
- Borehole survey.** 1. The process of determining the course of, and the target point reached by, a borehole, using one of several different azimuth and dip-recording apparatuses small enough to be lowered into a borehole; also, the record of the information thereby obtained. *Also called* Drill-hole survey.  
2. The process of determining the mineralogical, structural, or physical characteristics of the formations penetrated by a borehole using electrical logging apparatus small enough to be lowered into a borehole; also, the record of the information thereby obtained.
- Bore rod; boring rod.** Term used primarily by Soil and Foundation testing engineers for the equipment customarily called a drill rod by drillers and miners.
- Boring.** As used by the Soil and Foundation testing profession, the act or process of making a circular hole with a drilling (boring) tool; also, the hole so made. *Compare* Drilling.
- Boring bit.** *See* Borebit 2.
- Boring contract.** *See* Drill contract.
- Boring contractor.** = *See* Drill contractor.
- Boring head.** 1. The part of a drill machine more commonly called swivel head by persons associated with the diamond-drilling industry. *See* Swivel head.  
2. = Drill bit, *q.v.*
- Boring log.** = Drill log, *q.v.*
- Borings.** Used by the Soil and Foundation testing profession as a synonym for boreholes and/or the materials removed from a borehole. *Compare*, Core, Cuttings, Sample.
- Bort.** Originally the term was used as a name for all crystalline diamonds not usable as gems; later it was used to designate those diamonds not usable as gems or toolstones. Currently the term commonly is applied to low-grade industrials suitable only for use in a fragmented form. *See* Fragmented bort. Also sometimes spelled Boart, Boartz, Boort, Borts, Bortz, Bowr.
- Bort bit.** = Diamond bit, *q.v.*
- Borts.** = Bort, *q.v.*
- Bort-set bit.** = Diamond bit, *q.v.*
- Bortz.** = Bort, *q.v.*
- Bortz bit.** = Diamond bit, *q.v.*
- Bortz-set bit.** = Diamond bit, *q.v.*
- Bottle gas.** A gas consisting of volatile hydrocarbons, from propane to pentane, mixed with hydrogen and methane under pressure. It withstands pressure and hence may be transported in steel tanks under pressure in liquefied form. May be used as a fuel to operate combustion-type engines in lieu of gasoline. Sold under various trade names but more commonly known as Propane, Butane, LP gas, Blau gas, or Blue gas.
- Bottom.** 1. Surface in a borehole parallel to face of a drill bit.  
2. To place a drill bit in contact with the bottom of a borehole.  
3. To complete a borehole.  
4. The landing at the bottom of a vertical or inclined mine shaft.
- Bottom discharge bit.** = Face discharge bit, *q.v.*
- Bottomed.** A completed borehole, or the point at which drilling operations in a borehole are discontinued.
- Bottom equipment.** The tools or equipment attached to the lower end of a drill string and normally used at or near the bottom of a borehole. Also nondrilling equipment placed and operated at or near the bottom of a borehole, such as a pump unit or strainer.
- Bottom-hole.** A point at, or near, the bottom of a borehole.
- Bottom-hole pressure.** 1. The load, expressed in pounds or tons, applied to a bit or other cutting tool while drilling.  
2. The pressure, expressed in pounds per square inch (p.s.i.), produced at the bottom of a borehole by the weight of the column of circulation or other liquid in a borehole.  
3. The pressure, expressed in pounds per square inch (p.s.i.), exerted by gas or liquids ejected from the rocks at or near the bottom of a drill hole.
- Bottom-hole temperature.** The temperature of the rock and/or other media encountered at or near the bottom of a borehole.
- Boulder.** In a general sense, any large, usually rounded, fragment of rock lying on the surface or embedded in soil or overburden or in glacial water-deposited materials. In a strict sense, as recommended in the Proceedings of the ASCE, vol. 84, No. SM4, October 1958, a rock fragment usually rounded by weathering or abrasion, having an average dimension of 12 inches or more.
- Boulder buster.** 1. A heavy, pyramidal- or conical-point steel tool, which may be attached to the bottom end of a string of drill rods and used to break, by impact, a boulder encountered in a borehole. *Also called* Boulder cracker.  
2. An explosive used to break rock fragments by blockholing or mudcapping methods.
- Boulder clay.** The stiff, hard, and usually unstratified clay of glacial origin in which boulders are scattered at random.
- Boulder cracker.** = Boulder buster, *q.v.* *See* Boulder buster 1.
- Bounce.** The rapid up-and-down reciprocating motion induced in a drill string by rod vibration, drill-string wrap-up, excessive volume or pressure of circulation media, or the running of a bit on and over small, loose materials on the bottom of a drill hole.
- Bowl.** = Spider, *q.v.*
- Bowl and slips.** = Spider and slips, *q.v.*
- Bowlder.** Variant and archaic spelling of Boulder.
- Bowr.** = Bort, *q.v.*
- Box.** 1. The internal-threaded portion of a coupling or connector. The DCDMA-accepted standard synonym for Female thread.  
2. To place core samples in a lidded, traylike, partitioned container for safekeeping after they have been removed from the core barrel; also, the container in which core samples are placed after they have been removed from a core barrel. *Also called* Core box, Core tray.

3. To drill boreholes at the four corners of a square area at equal distances from a centrally located and already completed borehole.
- Box bill.** *See* Bell tap.
- Box tap.** *See* Bell tap.
- Box thread.** The thread on the inside surface of a coupling or tubular connector. Accepted by the DCDMA as the standard term to be used in lieu of Female thread.
- Box-thread bit.** A bit having threads on the inside of the upper end or shank of the bit by means of which the bit may be coupled to a reaming shell, core barrel, or drill rod.
- Box to box.** The two internal-threaded ends of a sub, coupling, or tubular connector piece. *See* Box 1.
- Box to pin.** The internal- and external-threaded ends of a sub, coupling, or tubular connector piece.
- Box-type bit.** = Box-thread bit, *q.v.*
- Brace.** 1. A stiffening member running at an angle, in the vertical plane, between two legs of a drill tripod or derrick. Sometimes improperly used to designate a stiffening member running in a horizontal plane between two legs of a drill tripod or derrick, which properly should be called a grit.  
2. A small handtool to which may be attached a metal- or wood-boring bit and by means of which the attached bit may be rotated.  
3. To shore up, or to strengthen with planks or heavy timber.
- Brace head.** A cross handle attached at the top of a column of drill rods by means of which the rods and attached bit are turned after each drop in chop-and-wash operations while sinking a borehole through overburden. *Also called* Brace key.
- Brace key.** = Brace head, *q.v.*
- Brait.** *Obsolete.* A rough or uncut diamond.
- Brake.** 1. Any device for retarding or stopping by friction, such as a block, lever, or band brought to bear and to rub against the rim or edge of a drum or wheel.  
2. To stop or slow down by means of a brake.
- Brake band.** The flexible-steel-ribbon part of a band brake. *See* Band brake.
- Brakeshoe.** A wooden block or asbestos-impregnated lining attached to the surface of a band brake brought to bear on a flat projecting surface on a hoisting drum, capstan, or wheel. *See* Band brake.
- Branch.** 1. A borehole drilled at an angle diverging from a previously drilled borehole. *See* Wedging.  
2. An underground working place or passageway leading away from a major work area or main passageway.  
3. A small vein departing from the main vein or lode.
- Branch hole.** *See* Branch 1.
- Branching.** *See* Deflecting.
- Brass rod.** A drill rod made wholly of a nonmagnetic alloy consisting essentially of copper and zinc in variable proportions. *See* Nonmagnetic rod.
- Break.** 1. To unscrew, as rods, casing, drill pipe, etc.  
2. To separate core from where it is attached to rock at the bottom of a borehole by a tensional pull applied to the drill string.  
3. A fault, rupture, fracture, or discontinuity in rock formations.
- Break in.** 1. To start drilling operations with a new bit by rotating the bit slowly under a light load for a short period of time before full speed and load are applied to the bit.  
2. To round off sharp corners and points on a carbon through use and repeated resetting in a bit.  
3. To operate any new machine at less than full capacity for a short time.
- Breaking joints.** Unscrewing drill rods, casing, etc., at points where they are joined by threaded couplings. *Compare* Break out.
- Break out.** To pull drill rods or casing from a borehole and unscrew them at points where they are joined by threaded couplings to form lengths that can be stacked in the drill tripod or derrick. *Compare* Breaking joints.
- Breakout gun.** Hydraulic- or compressed-air-actuated device attached to Breakout tongs used to couple or uncouple drill rods, drill pipe, casing, or drive pipe. *Also called* Breakout gun, Makeup gun.
- Breakout tongs.** A heavy wrench, usually mechanically actuated, used to couple or uncouple drill rods, drill pipe, casing, or drive pipe. *Also called* Makeup tongs. *Compare* Chain tongs.
- Breakthrough.** 1. Point at which a drill bit leaves the rock and enters either a natural or a manmade opening.  
2. An opening made, either accidentally or deliberately, between two underground workings.
- Breast drill.** A small, portable hand drill customarily used by handsetters to drill the holes in bit blanks in which diamonds are to be set. The upper end of the drill is provided with a plate against which the breast of the operator is pressed to force the bit into the work. *Compare* Brace 2.
- Breccia.** 1. Any rock formation essentially composed of uncemented, or loosely consolidated, small angular-shaped fragments. *Compare* Broken ground.  
2. A fragmental rock whose components are angular and therefore not waterworn. There are friction or fault breccias, talus breccias, and eruptive breccias. *Compare* Conglomerate.
- Brecciated.** Broken or resembling a breccia.
- Bridge.** 1. Debris that plugs a borehole at a point some distance above the bottom. Between the underside of the bridge and the bottom of the drill hole, the borehole is free of debris.  
2. To deliberately plug a borehole at a point some distance above its bottom.
- Bridged.** A borehole plugged by debris lodged at some point above the bottom of a hole. The hole may be bridged deliberately by introducing foreign material into the hole or accidentally by rock fragments sloughing off the sidewalls of the borehole.
- Bridge over.** *See* Bridge 1 and 2.
- Bridge the hole.** Deliberate plugging of a borehole at a point some distance above the bottom by introduction of some type of foreign material or a plug. *See* Bridge 1 and 2.
- Brilliant.** A relatively clear nongem or industrial diamond having smooth crystal faces that readily reflect light rays. In a strict sense, brilliant is a term applied to a cut gem diamond on which the facets are so arranged as to refract and reflect the maximum amount of light.
- Brine.** A saturated solution of a soluble mineral in water, used either as a nonfreezing circulation medium or as a circulation medium, which, being already a saturated solution, will not dissolve a soluble mineral being cored, such as a salt brine used as a circulation liquid when coring salt or a potash solution when coring potash.
- Broach.** 1. To restore the diameter of a borehole by reaming.  
2. To break down the walls between two contiguous drill holes.  
3. The perpendicular grooves machined into the bit mold in which inside and outside gage stones are set.
- Broaching bit.** 1. A reaming bit. *See* Broach 1.  
2. A tool used to break down the walls between two contiguous boreholes.
- B rod.** A former standard diamond-drill rod having an outside diameter of  $1\frac{29}{32}$  inches. Superseded in 1954 by a new standard drill rod designated by the letter name BW. *See* appendix, table 1.

- B rod bit.** A Canadian standard noncoring bit having a set diameter of 2.315 inches. More commonly called  $2\frac{5}{16}$  B drill-rod bit.
- Broken ground.** 1. A shattered rock formation, or a formation crisscrossed with numerous, closely spaced, uncemented joints and cracks. *Compare* Loose ground and Breccia.  
2. Rock or mineral formations fragmented by blasting with explosives, such as the broken material in a shrinkage stope.
- Broken in.** 1. A newly set bit, which has been rotated slowly under a light load for a short period of time for the purpose of gradually removing the excess matrix and forcing the diamonds to seat themselves. *See* Break in 1.  
2. A carbon the sharp points and edges of which have been rounded through use and repeated re-setting in a bit. *See* Break in 2.
- Broken rock.** *See* Broken ground.
- Broken stone.** 1. A diamond that has been shattered in use.  
2. A diamond that, in use, has lost a portion of its mass by cleaving action.  
3. A diamond the size and shape of which have been changed by deliberate cleaving.
- Broken in stone.** *See* Broken in 2.
- Brooch.** = Broach, *q.v.*
- Brown tongs.** Long-handled, plierlike device similar to a certain type of blacksmith tongs used to handle wash or drill rods in place of a safety clamp in shallow borehole drilling. *Also called* Adjustable pipe tongs, Extension tongs, Lowering tongs.
- Brunton.** A combination compass, clinometer, and transit of pocket size, named for its inventor.
- Brunton compass.** = Brunton, *q.v.*
- BU.** Letter name once used to designate an experimental-design diamond-drill rod having an outside diameter of  $2\frac{3}{16}$  inches. Superseded in 1954 by a standard drill rod designated by the letter name BW. *See* BW.
- Bucket.** 1. A synonym for Bailer; also for Calyx.  
2. Various types and sizes of tubular containers equipped with auger- or other-type cutting edges and used to make borings in earthy or soft formation by rotary methods.  
3. An open-top can, equipped with a bail, used to hoist broken rock or water and to lower supplies and equipment to men working in a mine shaft or other underground opening.
- Bucket auger.** A short helical auger incorporating a steel tube to help hold the cuttings on the auger during withdrawal from the drill hole. *See* Auger 1.
- Bucket rig.** = Rotary bucket drill, *q.v.*
- Buckle.** 1. The bend in a piece of drill-stem equipment induced by excessive feed pressure.  
2. The deformation of component members of a drill derrick, tripod, or mast, caused by attempting to hoist too heavy a load or by applying excessive strain when pulling on stuck casing, etc.
- Buckling length.** The length of drill rod that will withstand flexure or bending when subjected to a specific feed pressure or compressional load.
- Buckling load.** The maximum load expressed in pounds or tons that can be imposed on a string of drill rods, casing, or pipe, or on a drill tripod, derrick, or mast without the string; also, a part being bent or buckled. *Compare* Collapsing strength.
- Buck shot.** = Shot, *q.v.* *See* Shot 1.
- Buck up.** 1. To screw two threaded members, such as drill rods, together tightly.  
2. To shore up with lagging or to brace.
- Bug.** 1. A bullet or go-devil. *See* Bullet 2.  
2. = Vug, *q.v.*
- Bug dust.** 1. Fine, dry, dustlike particles of rock ejected from a borehole by a current of pressurized air when compressed air, instead of a liquid, is used as a cuttings-removal agent.  
2. Fine coal or rock material resulting from dry boring, drilling, or use of other cutting machines in underground work places.
- Buggy.** = Vuggy, *q.v.*
- Bug hole.** = Vug, *q.v.*
- Build up.** To increase the thickness of a metal part by welding additional metal to the surface of the part.
- Built up.** *See* Build up.
- Bulldog.** 1. A type of drill-rod-foot safety clamp built somewhat like a spider and slips but differing by having the slips or movable jaws attached to, and actuated by, a foot-operated lever.  
2. A general term applied to rod and/or casing safety clamps having both fixed and movable serrated jaws that contact and securely grip the rods or casing.  
3. A fishing tool consisting of a steel body, tapered at the top, on which slide two or more wedge-shaped, serrated-face segments. Lowered into a tubular piece of lost equipment, such as casing, the serrated segments are pushed upward toward the narrow part of the body, and when the tool is raised, the segments are forced outward, securely gripping the lost equipment. *Also called* Bulldog spear, Casing dog, Casing spear.  
4. To pull or move a drill machine or auxiliary equipment by means of block and tackle or by power derived from a rope used on the drill cathead or hoist drum. *Also called* Cat, Snake.
- Bulldog clamp.** *See* Bulldog 1.
- Bulldog spear.** *See* Bulldog 3.
- Bulldoze.** To level or excavate earth surface by means of a heavy, adjustable steel blade attached to the front end of a tractor or wheeled vehicle.
- Bullet.** 1. A small, lustrous, nearly spherical industrial diamond.  
2. Conical-nosed, cylindrical weight, attached to a wire rope or line, either notched or seated to engage and attach itself to the upper end of the inner tube of a wire-line core barrel or other retrievable or retractable device placed in a borehole. *Also called* Bug, Go-devil, Overshot.  
3. A scraper with self-adjusting spring blades, inserted in a pipeline and carried forward by the fluid pressure, clearing away accumulations and/or debris from the walls of the pipe. *Also called* Go-devil.  
4. A bullet-shaped weight or small explosive charge dropped to explode a charge of nitroglycerine placed in a borehole. *Also called* Go-devil.
- Bullnose bit.** A noncoring bit having a convex, half-hemispherical-shaped crown or face. *Also called* Wedge bit, Wedge reaming bit, Wedging bit.
- Bull point.** 1. = Boulder buster, *q.v.* *See* Boulder buster 1.  
2. A sharp-pointed steel bar.
- Bull rope.** A heavy rope or cable from which a cable-drill bit and stem are suspended and by means of which they are lifted and dropped, or churned up and down, in drilling a borehole.
- Bull wheel.** 1. The large winding drum on which the drill cable or bull rope of a churn or cable-tool drill is wound.  
2. Large sheave at the top of the mine-shaft head-frame over which the cage- or skip-hoist rope passes.
- Bully.** *Slang.* A laborer employed to help a drill runner operate a drill; also, for an oilfield laborer.
- Bump.** 1. Rebound caused by a sudden release of tension on the drill stem when the core breaks or snaps free of the bottom of the borehole.  
2. Sharp, upward blow applied to drivepipe, casing, or drill stem with a drive hammer.

3. Sudden failure of the floor or walls of a mine opening—generally accompanied by a loud report and a sharp shock or jar.
- Buoyant weight.** The apparent weight of a string of drill tools suspended in a liquid-filled borehole. The apparent weight is the weight of the drill string in air less the weight of the liquid displaced by the drill string when suspended in a liquid-filled borehole.
- Burden.** 1. All types of rock or earthy materials overlying bedrock. *See* Cover, Mantle, Overburden.  
2. Valueless material overlying ore, especially that removed by stripping. *Also called* Mantle, Overburden.
- Burn.** 1. To permit a bit to become overheated in use.  
2. To calcine.
- Burned.** *See* Burn.
- Burned in.** *See* Burn in.
- Burn in.** 1. To run a bit with too little coolant until the heat generated by the bit fuses the cuttings, core, bit, and the bottom of the borehole.  
2. To deliberately run a bit with reduced amount of coolant until core is jammed inside the bit. *See* Dry block.
- Burn out.** To salvage diamonds from a used bit by dissolving the matrix alloy with an acid or by use of an electrolytic process.
- Burnt bit.** A bit that has been overheated and sometimes partially fused. *See* Burn in.
- Burnt crown.** = Burnt bit, *q.v.*
- Bush.** 1. Wooded or bush-covered, uncultivated, and unpopulated or sparsely populated areas, generally far removed from cities.  
2. To insert or attach a bushing.
- Bushing.** 1. = Sub, *q.v.*  
2. Cylindrical sleeve to fill in the space between a small-size drill rod and the inside of a swivel-head drive rod designed to take a larger drill rod.  
3. A fitting for the purpose of connecting dissimilar-size pipes. A sleeve-shaped plug having inside and outside threads to suit the different pipe diameters.
- Butane.** = Bottle gas, *q.v.*
- Butt.** 1. A flat surface at right angles to, and projecting outward at the base of a thread.  
2. To screw threaded members together until butts are firmly seated against each other.  
3. To bring two flat surfaces together.
- Butterfly.** 1. Name applied to valves the inside of which is designed like a damper in a stovepipe.  
2. In pumps, a double clack valve with flaps that work on a common diametral hinge.
- Butterfly valve.** *See* Butterfly.
- Buttweld.** A weld made between two abutting unscarfed ends or edges without overlapping. Both the pin- and box-thread portions of petroleum drill pipe generally are butt-welded electrically to upset-end tubing to form a complete section of drill pipe or rod.
- BW.** 1. DCDMA letter name for a DCDMA standard, B-range, W-group and W-design diamond-drill rod having an outside diameter of  $2\frac{1}{8}$  inches. It also may be used as a size and design designation as applied to tools or equipment intended to fit and be used with BW drill rods, such as elevators, elevator plugs, foot safety-clamp jaws, drill chuck jaws, water swivels, lifting balls, diamond-drill swivel heads, etc.  
2. *Abbr.* Commonly used for Bevel wall.
- BWM.** DCDMA letter name for a DCDMA standard, B-range, W-group, M-design, swivel-type, double-tube core barrel and those fitting parts, as the long-shank, box-threaded bits, reaming shells, core lifters, etc. The BWM-letter-name bits, reaming shells, core barrels, and core-barrel parts are identical to the corresponding BXM-letter-name items, with one exception; that is, the head of the BWM core barrel is threaded to fit BW drill rods, whereas the head of the BXM core barrel is threaded to accommodate B drill rods. *Compare* BXM. *See* M-design core barrel: *see also*, appendix, table 1.
- BWX.** DCDMA letter name for B-range, W-group, X-design single- and double-tube core barrels and their fitting parts, such as bits, reaming shells, core lifters, etc. Before 1954 BWX-letter-name items were designated as BX-series items. All BWX- and BX-series core barrels and fitting parts are identical except that the heads of the BWX core barrels are threaded to fit BW drill rods, whereas the heads of the BX-series core barrels were threaded to accommodate B drill rods. *See* appendix, table 1.
- BX.** 1. DCDMA letter name applied to X-group and/or -design drill fittings in the B range. *See* appendix, tables 1 and 3.  
2. A borehole-size letter name, commonly used to designate the diameter of a borehole produced by the use of B-range, X- and M-design reaming shells having an outside set diameter of 2.360 inches.  
3. A core-size letter name commonly used to designate the diameter of a core produced by B-range, X- or M-design core bits having an inside set diameter of 1.655 inches.  
4. Diamond-drill-rod letter name, incorrectly, although commonly, used to designate a drill rod properly designated by the letter-name A. *See* appendix, table 1.  
5. A core-bit-size designation commonly applied to a bit having inside and outside set diameters of 1.655 and 2.330 inches, respectively.  
6. DCDMA letter name for a DCDMA standard casing and casing fittings that will fit inside an NX borehole and inside of which can be run downhole drill equipment and fittings intended for use in a BX borehole. *See* appendix, table 3.
- BX bit.** *See* BX 5; *see also* appendix, table 1.
- BXBP.** Letter name for a nonstandard, special non-coring bit having a set outside diameter of  $2\frac{5}{16}$  inches, which is used on a reaming shell having a set outside diameter of  $2\frac{1}{32}$  inches.
- BXC.** Letter name for a nonstandard, special, swivel-type, double-tube core barrel using a long-shank, box-threaded core bit, the inside and outside set diameters of which are 1.432 and 2.330 inches, respectively.
- BX casing.** *See* BX 6; *see also* appendix, table 3.
- BXD.** Letter name for a nonstandard, special, swivel-type, double-tube core barrel using core bits designated as BXD, BXD2, and BXD2L, the inside and outside set diameters of which are 1.615 and 2.330 inches respectively. The BXD core bit is short shank, box threaded, and face discharge; the BXD2 is similar to the BXD except for being pin threaded and having the face discharge optional; and the BXD2L is like the BXD bit but longer shanked to permit its attachment directly to the BXD core barrel, whereas a reaming shell must be used to couple BXD and BXD2 bits to the BXD core barrel.
- BX drill rod.** *See* BX 4; *see also* appendix, table 1.
- BXH.** Letter name for a nonstandard, special, swivel-type double-tube core barrel using a short-shank, box-threaded core bit having inside and outside set diameters of 1.655 and 2.330 inches, respectively.
- BXL.** Letter name for a nonstandard-design, B-range, swivel-type double-tube core barrel using a short-shank, box-threaded core bit having inside and outside set diameters of 1.655 and 2.330 inches, respectively.
- BXM.** Letter name applied (before 1954) to a core barrel and its fitting parts, such as bits, reaming shells, core lifters, etc., identical to items (with one

- exception) now designated by the letter name BWM. See BWM, M design; see also appendix, table 1.
- BX rod.** See BX 4; see also appendix, table 1.
- BXS.** Letter name for a B-range, X-design, step-face bit having inside and outside set diameters of 1.655 and 2.330 inches, respectively. See Step-face bit.
- BX S.A.G.** Letter name for a nonstandard, special core bit having inside and outside set diameters of 1.531 and 2.329 inches, respectively.
- Bypass.** 1. To pass to the side of an obstruction in a borehole by deflecting the hole. Also called Drill by.  
2. A pipe passing around a valve to prevent complete stoppage of the flow of a gas or liquid when the valve is closed.
- C.** 1. *Abbr.* Commonly used for Congos. See Congos.  
2. Chemical symbol for carbon.
- Cable.** 1. A flexible rope composed of many steel wires or hemp fibers in groups, first twisted to form strands, several of which are again twisted together to form a rope. Also called Wire cable, Wire line, Wire rope, Steel cable.  
2. See Cable-laid rope.
- Cable clamp.** A U-shaped steel rod with threaded ends and a bar with nuts, provided to clamp over two or more cylindrical pieces to bind them together, as the overlapped ends of two wire ropes. Also called Cable clip, Clamp, Clip.
- Cable clip.** =Cable clamp, *q.v.*
- Cable drill.** =Churn drill, *q.v.*
- Cable drilling.** =Churn drilling, *q.v.*
- Cable-laid rope.** A rope in which both the fibers forming the strands and the strands themselves are twisted to the left.
- Cable speed.** Rate, measured in feet per minute (f.p.m.), at which a cable, under load, may be wound on a hoist drum. Also called Hoist speed, Line speed, Rope speed.
- Cable system drill.** =Churn drill, *q.v.*
- Cable tools.** The bits and other bottom-hole tools and equipment used to drill boreholes by percussive action, using a rope, instead of rods, to connect the drilling bit with the machine on the surface. See Churn drill.
- Cable-tool bit.** A heavy, blunt-edge chisel bit made from a cylinder of solid steel flattened and grooved longitudinally on two sides and used as the cutting tool or bit in drilling a borehole with a churn drill. Also called Spud or Spud bit.
- Cable-tool cuttings.** The rock fragments and sludge produced in drilling a borehole with a churn drill.
- Cable-tool drill.** =Churn drill, *q.v.*
- Cable-tool driller.** =Churn driller, *q.v.*
- Cable-tool drilling.** =Churn drilling, *q.v.*
- Cable-tool men.** Men experienced in drilling boreholes with churn drills and equipment. See Churn drill.
- Cable-tool outfit.** =Churn-drill rig, *q.v.*
- Cable-tool rig.** =Churn-drill rig, *q.v.*
- Cage.** 1. A structure of elastic iron rods slipped into a borehole around the drill rods to stabilize and reduce tendency of rods to vibrate.  
2. The container for the ball in a ball valve.  
3. =Friction head 2, *q.v.*  
4. A wire guard or screen in pipes to prevent passage of solids.  
5. A frame with one or more platforms, used to move men and materials up and down a mine shaft.
- Cake.** 1. Solidified drill sludge.  
2. That portion of a drilling mud adhering to the walls of a borehole.
- Calc.** 1. *Abbr.* Calcareous.  
2. A prefix meaning limy or containing calcium carbonate.
- Calcareous.** Consisting of or containing calcium carbonate as limestone, calcareous shale, or calcareous sandstone.
- Calcium carbide.** A crystalline solid,  $\text{CaC}_2$ , colorless when pure but often resembling gray limestone. It is made by heating lime and carbon together in an electric furnace. Water added to the product causes acetylene to be generated, and this is used as an illuminating gas in drillers' or miners' lamps or as a fuel burned with oxygen to produce the hot flame of welding and cutting torches. Also called Carbide.
- Calcium chloride.** A soluble salt,  $\text{CaCl}_2$ , commonly added to cement in small amounts to hasten its setting and also dissolved in water to produce a freeze-resistant drilling circulation fluid.
- Calf line.** A wire rope or cable wound on the calf wheel of a churn- or rotary-drill machine and used in handling casing. Also called Casing line. See Calf wheel.
- Calf wheel.** A short hoisting drum with a large-diameter driving sprocket, used to wind up the casing line or calf line which is multiple-reeved through the sheaves of the crown and traveling blocks by means of which casing and/or drill pipe is handled.
- Caliber.** The inside diameter or bore of a tube, pipe, or cylinder.
- Caliche.** 1. In a broad sense, any layered rock formation occurring near the surface, consisting of gravel, sand, or other rock debris, and cemented by porous calcium carbonate or ferruginous minerals. See also Hardpan.  
2. In a strict sense, a compact layer of gravel, sand, or other desert debris cemented by a porous calcium carbonate.
- California sampler.** A drive sampler equipped with a piston that can be retracted mechanically to any desired point within the barrel of the sampler.
- Calk.** 1. Topeen and draw metal toward and around a diamond being handset in a malleable-steel bit blank. Also called Peen.  
2. To wick.  
3. To drive oakum or other spongy material into rock crevices or the seams between planks with blunt-edge chisels.
- Calking.** 1. The process of peening and drawing metal toward and around a diamond being handset in a malleable-steel bit blank, or the material used as backing around the diamond. See Backing. Also called Peening.  
2. Wicking.  
3. The process of driving oakum or other spongy material into rock crevices or into the seams between planks with blunt-edge chisels; also, the material so driven.
- Calking iron.** =Calking tool, *q.v.*
- Calking tool.** A blunt chisel or punch used in calking.
- Caliper.** 1. An instrument with two or more expanding spring-steel arms used to determine diameter of a borehole at some distance below the collar.  
2. An instrument used to measure precisely the thickness or diameter of objects or the distance between two surfaces, etc.
- Calyx.** 1. A steel tube attached to the upper end of a core barrel having the same outside diameter as the core barrel. The upper end is open except for two web members running from the inside of the tube to a ring encircling the drill rod. The calyx serves as a guide rod and also as a bucket to catch cuttings that are too heavy to be flushed out of the borehole by the circulation fluid. Also called Bucket, Sludge barrel, Sludge Bucket.  
2. =Shot drill, *q.v.*  
3. A pipe or tube equipped with a sawtooth cutting edge, sometimes used to obtain a core sample of the formation being drilled. Compare Basket.
- Calyx boring.** The process of drilling and/or the hole or core produced with a shot drill.

- Calyx drill.** = Shot drill, *q.v.*
- Calyx rod.** A round drill rod used on a shot drill, usually outside coupled and of larger diameter than diamond-drill rods.
- Camouflet.** A cavity formed in a borehole by the detonation of an explosive charge placed in the borehole. *Also called* Chamber.
- Canadian pole system.** A system of borehole drilling differing from the cable-tool drilling system in that wooden rods screwed together are used in lieu of rope.
- Canal.** *See* Chute 1 or Ditch 1.
- Cant.** 1. To lean; not plumb.  
2. To roll and move logs or heavy sill timbers with a cant hook.
- Cant hook.** A wooden lever with a movable iron hook at the end, used for turning or rolling logs or heavy sill timbers.
- Cap.** 1. To seal, plug, or cover a borehole.  
2. Overburden consisting of unconsolidated material overlying or covering bedrock. *Also called* Cover, Mantle.  
3. A fitting that goes over and closes the end of a pipe.  
4. Barren rock and/or soil covering an ore deposit.  
5. Detonator used to set off an explosive charge. *Also called* Blasting cap.  
6. A piece of plank or timber placed on top of a prop, stull, or post.
- Capacity.** 1. As applied to diamond and rotary drills, the load that the hoisting and braking mechanisms of a drill are capable of handling on a single line, expressed in lineal footage of a specific-diameter drill rod.  
2. As applied to air compressors, the actual amount of air compressed and delivered, expressed in cubic feet per minute (c.f.m.) of free air intake at sea-level pressure.  
3. As applied to pumps, the volume of a liquid the pump will deliver, expressed in gallons per minute (g.p.m.)
- Capillarity.** 1. A phenomenon observable when making borehole-inclination surveys by the acid-etch method, wherein the upper surface of the dilute hydrofluoric acid is seen to curve upward, forming a concave surface. When the acid bottle is in a true vertical or horizontal position, the concave surface is symmetrical, and the resultant etch plane is horizontal. When the acid bottle is tilted, the concave surface is asymmetric in shape; the resultant etch plane is not horizontal, and the angle so indicated is always greater than the true inclination of the borehole. *See* Apparent angle, Capillarity correction.  
2. The peculiar action by which the upper surface of a liquid, in contact with a solid, such as the inside walls of a glass tube, is curved upward when the containing walls are wetted by the liquid and downward when not wetted. *See* Meniscus.
- Capillarity correction.** The deduction of a specific angular value from the apparent angle, as indicated by the plane of the etch line in an acid-survey bottle, to correct for capillarity effects and thereby determine the true inclination angle of a borehole. Proper values to be deducted from the apparent angles read on acid bottles differing in size may be determined by referring to charts, graphs, or tables prepared for that purpose. *See* Capillarity-correction chart.
- Capillarity-correction chart.** A chart, graph, or table from which the amount of capillarity correction may be ascertained and deducted from an apparent angle reading taken from an acid-etch line in an acid bottle of specific size to determine the true angle of inclination of a borehole surveyed by the acid-etch method. *Also called* Correction chart, Test-correction chart. *See* Capillarity correction.
- Capillarity-correction graph.** A capillarity-correction chart.
- Capillarity-correction table.** A capillarity-correction chart.
- Capping.** 1. The process of sealing or covering a borehole and/or the material or device used to seal or cover a borehole.  
2. The name given to a method by which the spouting flow of a liquid or gas from a borehole may be stopped or restricted; also, the mechanism attached to borehole collar piping and so used.  
3. Sometimes incorrectly used as a synonym for overburden.
- Cap rock.** 1. Sometimes used as a synonym for hardpan or a layer of caliche overlying soft earthy or other unconsolidated rock materials.  
2. A comparatively impervious layer of rock immediately overlying a salt dome or water-, oil-, or gas-bearing formations.  
3. The layer of rock, generally barren, next overlying a mineral deposit.
- Capstan.** 1. A spoollike drum mounted on a vertical axis used for heavy hoisting or pulling. It is operated by steam, electric power, or hand pushes or pulls against bars inserted in sockets provided in the upper flange or head.  
2. Sometimes used as a synonym for Cat head.
- Carat.** A unit of weight for precious stones, especially diamonds. The international metric carat (abbreviated M.C. or C.M.) of 200 milligrams (3.086 grains troy) is currently generally accepted as standard throughout the world.
- Caratage.** = Carat weight, *q.v.*
- Carat count.** The number of near-equal-size diamonds having a total weight of 1 carat or 200 milligrams; hence, 40 small diamonds weighing 1 carat would be called 40-count diamonds, or 8 diamonds weighing 1 carat would be 8-count diamonds.
- Carat-goods.** Diamonds averaging about 1 carat each in weight.
- Carat loss.** Amount of diamond material lost or worn away by use in a drill bit expressed in carats.
- Carat weight.** Total weight of diamonds set in a drill bit expressed in carats. *Also called* Caratage.
- Carbide.** 1. Either the carbide compound of tungsten or the bit-crown matrices and shaped pieces formed by the pressure-molding and sintering of a mixture of powdered tungsten carbide and other binder metals, such as cobalt, copper, iron, and nickel. *See* Cemented carbide, Sintered carbide.  
2. A term commonly used as a synonym for Calcium carbide.
- Carbide insert.** Shaped pieces of a hard metal compound, sometimes inset with diamonds, formed by the pressure molding and sintering of a mixture of powdered tungsten carbide and other binder metals, such as iron, copper, cobalt, or nickel. Inset into holes, slots or grooves in bits, reaming shells, or core barrels, the hard metal pieces become cutting points or wear-resistant surfaces. *Also called* Carbide slugs. *Compare* Carbide 1.
- Carbide slugs.** = Carbide inserts, *q.v.*
- Carboloy.** A trade name, now commonly used by the bit-setting and drilling industries as a synonym for Cemented carbide or Sintered carbide. *See* Carbide 1.
- Carboloy-set.** Diamonds inset in a pressure-molded and sintered matrix metal composed of a cobalt-bonded, powdered-tungsten carbide mixed with varying amounts of other powdered metals, such as iron, nickel, copper, or zinc. *See* Carboloy and Carbide 1.
- Carbon.** 1. A gray-to-black, opaque, tough, hard cryptocrystalline aggregate of diamond crystals occurring in irregular shapes and sizes. It is classed as an industrial diamond and formerly was used exten-

- sively as a cutting-medium inset in diamond-drill bits. More recently, only occasionally used in diamond bits and other tools. *Also called* Black diamond, Carbonado.
2. An elementary substance occurring native in the form of diamonds and graphite and as the chief constituent in coal and petroleum products. *See* Diamond.
- Carbonado.** Carbon, *q.v.* *See* Carbon 1.
- Carbonado bit.** = Carbon bit, *q.v.*
- Carbonate.** Sometimes used as a synonym for Calcareous; also, rarely, as a synonym for Carbon.
- Carbon bit.** A diamond bit in which the cutting medium is inset carbon. *See* Carbon 1.
- Carbon fleck.** *See* Carbon spot.
- Carbon-set bit.** = Carbon bit, *q.v.*
- Carbon spot.** Black fleck or flakelike nondiamond form of carbon inclusion in a diamond crystal.
- Carboy.** 1. A wax bottle in which hydrofluoric acid is stored and transported.
2. A large glass bottle enclosed in a box or in wickerwork, used mainly as a container in which corrosive acids are transported and/or stored.
- Cardinal point.** 1. One of the four points spaced at 90° intervals around the face or wall of a bit.
2. Any one of the four principal compass points, such as North, South, East, and West.
- Carlson compass.** A borehole-surveying device consisting of a gimbal-mounted open frame, rigidly enclosing a graduated circle inside of which is a gimbal-mounted compass. This assemblage, inserted in a glass tube filled with a melted gelatin mixture, is placed inside a tightly sealed brass tube or clinometer. When the tube is lowered into, and suspended at a point in, a borehole for a sufficient length of time to allow the gelatin to set or jell, the position of the gimbal-mounted parts becomes fixed in the solidified gelatin, thereby providing a means whereby the compass course and inclination of the borehole at a specific point may be determined. *Compare* Maas compass.
- Carrot.** 1. A misspelling of carat.
2. Sometimes used as a synonym for Core, especially in England.
- Cartridge.** 1. A cylindrical, waterproof, paper shell filled with cement or other material used in plugging or sealing cavities or caved ground encountered in drilling a borehole.
2. A small metal container about the size of a 12-gauge shotgun shell, fitted with a screw cap. Formerly much used by a hand bit setter as a pocket-size diamond container.
3. A closed cylindrical, waterproof paper shell filled with an explosive.
- Case.** 1. To line a borehole with steel tubing such as casing or pipe.
2. A wooden or pasteboard box in which dynamite, cartons, or boxes of blasting caps, or coils of fuse are transported and/or stored.
- Cased.** 1. A borehole lined with some form of steel tubing, such as casing or pipe. *See* Case in, Case off.
2. Dynamite, cartons of blasting caps, or coils of fuse packed in wooden or pasteboard boxes.
- Case in.** = Case 1, *q.v.*
- Case off.** To line a borehole with some form of steel tubing to prevent entry of broken rock materials, gas, or liquids into the borehole. *Also called* Blank off, Block off, Case.
- Cased off.** *See* Case off.
- Casing.** 1. Special steel tubing welded or screwed together and lowered into a borehole to prevent entry of loose rock, gas, or liquid into the borehole or to prevent loss of circulation liquid into porous, cavernous, or crevassed ground.
2. Process of inserting casing in a borehole.
- Casing anchor packer.** A type of packer that can be anchored within the casing.
- Casing barrel.** A joint of casing to which a casing bit and shell is attached and used like a core barrel.
- Casing-barrel reaming shell.** = Casing reaming shell, *q.v.*
- Casing bit.** A bit inset with diamonds or other cutting media, which is coupled to casing and used as a core bit. The set inside diameter of a specific letter-name casing bit is too small to pass a standard core bit having the same letter-name designation. *See* appendix, table 3.
- Casing bowl and slips.** = Casing spider, *q.v.*
- Casing catcher.** A safety device equipped with slips or dogs to catch and grip casing if it is dropped while being lowered into or lifted from a borehole. Also miscalled Tubing catcher, Tubing hanger.
- Casing clamp.** A mechanical device designed to facilitate the hoisting or suspension of casing in a borehole. Made by forming a half circle in a heavy steel bar. When bolted together, in pairs, the bars fit around the outside and tightly grip the casing. Size of clamp is determined by outside diameter of the casing to be handled.
- Casing coupling.** A short, threaded connector, usually pin threaded on both ends, by means of which two pieces of casings may be joined.
- Casing cutter.** A tool used to cut off a length of casing in a borehole at any desired point below the collar of the borehole.
- Casing dog.** 1. A lifting device consisting of one or more serrated sliding wedges working inside a cone-shaped collar. Used to grip and hold casing while it is being raised or lowered into a borehole. *See* Bulldog 2.
2. A fishing tool; *see* Bulldog 3.
- Casing drivehead.** A heavy steel bushing or swelled coupling screwed into the top of a string of casing. The device serves to protect the threads and acts as an anvil for the hammer when driving the casing. *Also called* Casing head.
- Casing drive shoe.** = Casing shoe, *q.v.*
- Casing elevator.** A circular clamp made in halves hinged at one end and closed fast with a latch at the other end. It is equipped with two long heavy chain links that furnish a means of hanging it on the hoist-line hook. Used to raise and lower collared casing or pipe.
- Casing fitting.** An accessory threaded to fit casing. *Compare* Casing coupling.
- Casing float.** A rubber-ball-type check valve, generally placed near the bottom of a long string of casing. Its use reduces the load imposed on the hoisting mechanism in lowering casing into a wet borehole. *Also called* Casing valve, Float valve.
- Casing, flush coupled.** *See* Flush-coupled casing.
- Casing, flush joint.** *See* Flush-joint casing.
- Casing-head stuffing box.** *See* Stuffing box.
- Casing, inserted joint.** *See* Inserted-joint casing.
- Casing, inside coupled.** = Flush-coupled casing, *q.v.*
- Casing head.** 1. = Casing drivehead, *q.v.*
2. A fitting attached to top of casing on an oil well to separate oil from gas, to allow pumping and the cleaning of the borehole, etc. *Also called* Christmas tree.
- Casing hook.** A hook connecting the hoisting block and line to the links of the casing elevator.
- Casing knife.** Device similar to and used in same manner as a casing cutter. *See* Casing cutter.
- Casing line.** Cable or wire rope wound on a hoisting drum and used only to raise or lower casing in a borehole. *Also called* Calf line.
- Casing off.** Process of inserting a line of casing in a borehole. *See* Case, Case-off.
- Casing pipe.** = Casing, *q.v.*

- Casing puller.** A screw or hydraulic jack used to pull casing or drill rods stuck in a borehole.
- Casing reaming shell.** A sleeve designed to serve as a reaming coupling between a casing bit or set casing shoe and a joint of corresponding-size casing, which is being used as a core barrel. *Also called* Casing-barrel reaming shell.
- Casing ripper.** An expanding-type cutting device, which can be lowered into a cased hole on drill rods or a line. Cutter is designed to rip longitudinal slits to free the casing at a coupling or to perforate the casing.
- Casing shoe.** A steel sleeve threaded to fit and be coupled to the bottom end of diamond-drill casing as a cutting head and protector when the casing is driven through overburden. The inside diameter of a specific letter-name-range casing shoe (whether plain or inset with diamonds or other cutting media) is always large enough to permit other downhole drill fittings having the same letter-name-range designation to be run inside and through the casing shoe. When a casing shoe is set with diamonds or other cutting media it is called a Set casing shoe, which should not be confused with Casing bit. *Also called* Casing drive shoe. *Compare* Casing bit, Set casing shoe.
- Casing-shoe bit.** 1. =Set casing shoe, *q.v.*  
2. Sometimes incorrectly used as a synonym for Casing bit. *See* Casing bit.
- Casing spear.** A fishing tool. *See* Bulldog 3.
- Casing spider.** A holding device resting on the drilling floor, consisting of two or more serrated sliding wedges working inside a heavy cone-shaped bowl or collar, used to suspend casing in a drill hole during makeup or breakout. *Also called* Casing bowl and slips.
- Casing string.** The total amount of any given size of casing inserted in a borehole.
- Casing sub.** 1. A coupling threaded to fit casing at one end and drill rods or other downhole drill equipment at the other end.  
2. A connection used in fishing with a petroleum-type rotary drill.
- Casing substitute.** =Casing sub, *q.v.*
- Casing valve.** =Casing float, *q.v.*
- Casing water swivel.** A special swivel designed to fit on casing at the collar of a borehole around the drill rods. Allows casing to be rotated slowly while maintaining a flow of water between drill rods and inside of casing in addition to the flow of water down the inside of the drill rods. Primarily used with Morisette expansion reamer.
- Cast.** To form in a desired shape by pouring molten metal into a mold, as a bit mold, and allowing it to harden.
- Cast bit.** A bit in which the diamond-set crown is formed on a bit blank by pouring molten metal into a prepared mold. *Also called* Cast-set bit, Cast-metal bit.
- Cast matrix.** Bit-crown matrix material formed by pouring molten metal into a bit mold and allowing it to harden.
- Cast-metal bit.** =Cast bit, *q.v.*
- Cast-metal matrix.** =Cast matrix, *q.v.*
- Castellated bit.** 1. A long-tooth sawtooth bit.  
2. Diamond-set coring bit with a few large diamonds or hard-metal cutting points set in the face of each of several upstanding prongs separated from each other by deep waterways. *Also called* Padded bit.
- Casting alloy.** Any alloy commonly melted and used to produce bit crowns by the casting process. Usually used in referring to copper- and nickel-base alloys.
- Casting bort.** =Castings, *q.v.*
- Casting bronze.** A copper-base alloy used primarily to produce bit crowns by the casting method.
- Casting metal.** =Casting alloy, *q.v.*
- Castings.** One of several terms (and/or letter symbols) commonly used to designate low-quality drill diamonds. *Compare* A 3.
- Cast set.** 1. A bit produced by a casting process. *See* Cast bit. *Compare* Hand set, Sinter set.  
2. A surface-set diamond bit produced by a casting process.
- Cast-set bit.** =Cast bit, *q.v.*
- Cast setting.** The actual process of producing a cast bit. *See* Cast bit, Cast set.
- Cast-setting material.** South African term for very low quality drill diamonds (usually Congos) used in diamond bits.
- Cat.** 1. Any heavy-duty tracklaying tractor, equipped either with or without a dozer blade.  
2. To move a heavy piece of drilling equipment utilizing power derived from the cathead. *See* Bulldog 4.
- Cat block.** 1. A pulley block equipped with a hook instead of an eye.  
2. =Cathead, *q.v.*
- Cathall.** A tool for extracting broken implements or junk from boreholes or wells; a fishing tool.
- Catcher.** =Core lifter, *q.v.*
- Catch pit.** =Sump 1, *q.v.*
- Cathead.** 1. A small, deep-flanged, spoollike winch or capstan mounted on the countershaft of the draw works or hoisting drum near the front and generally to one side of the swivel head of a diamond drill. It is used to wind a line when breaking or making up rod, casing, or pipe joints, or to operate a drive hammer. *Also called* Niggerhead.  
2. Colloquial synonym for drum of the drill hoist.  
3. A small capstan.
- Cathead man.** The member of a drill crew who manipulates the rope or chain wound and snubbed around a cathead. *See* Cathead.
- Cathole.** A small hole dug in the surface of the ground in which the base of a drill-tripod leg is set.
- Catline.** A rope or cable wrapped around a cathead and used to spin up or spin out drill rods, casing, or pipe. *Compare* Spinning chain, Spinning cable, or Spinning rope.
- Caulk.** =Calk, *q.v.*
- Caulking.** =Calking, *q.v.*
- Cave.** 1. Fragmented rock materials, derived from the sidewalls of a borehole, that obstruct the hole or hinder drilling progress.  
2. The partial or complete failure of borehole sidewalls or mine workings.  
3. A synonym for Cellar.  
4. A naturally formed underground cavity.
- Cave-in.** *See* Cave 2.
- Cavern.** A large underground cavity.
- Cavernous.** Containing cavities or caverns, sometimes quite large, frequently occurring in limestones and dolomites and sometimes encountered in lava-flow formations.
- Caving.** The failure and sloughing in of sidewalls of boreholes, mine workings, or excavations.
- Caving ground.** Rock formations that will not stand in the walls of a borehole or underground openings without support such as that offered by cementation, casing, or timber.
- Caving hole.** A borehole in which fragments of the material making up the walls of the hole slough so much that the borehole cannot be kept open without the use of casing or cementation.
- Cavings.** Fragments of borehole wall-rock material that fall into a borehole, sometimes blocking the hole, and which must be washed or drilled out before the borehole can be deepened.



- Cavity.** 1. A natural underground opening or void which may be small or large. *Compare* Cave, Cavern, Vug.  
2. A void in a bit caused by a bubble of gas entrapped in the matrix material during the manufacturing process. *Also called* Bug, Vug.
- CDDA.** *Abbr.* Canadian Diamond Drilling Association.
- Cellar.** Excavated area under drill-derrick floor to provide headroom for casing and pipe connections required at the collar of a borehole, or to serve as a covered sump.
- Cellulose.** Woody fiber of plants, sometimes coarsely ground and added to a drill-circulation medium or to cement slurries as a plugging agent.
- Cement.** 1. Generally, ordinary builders cement of a finely ground, hydroalumina, calcium silicate that, when mixed with water, sets or changes from a heavy liquid into a hard, rocklike substance.  
2. To place cement in a borehole to seal off caves or fissures or to fill cavities or caverns encountered in the process of drilling boreholes.  
3. Material, usually calcareous, siliceous, or ferruginous that binds together fragmented particles of rock.
- Cementation; Cementing.** 1. To fill cavities or plug a drill hole with cement or other material to stop loss of water or entrance of unwanted liquids, gas, or fragmented rock materials into borehole. *Also called* Dental work.  
2. The process by which loose sediments or sands are consolidated into hard rock by injection of chemical solutions, thin cement slurries, or self-hardening plastics.
- Cement barrel.** =Cement injector, *q.v.*
- Cement contractor.** A company or person available for hire by contract, using trained men and special equipment to place large quantities of cement in a borehole.
- Cemented carbide.** Generally a mixture of powdered tungsten carbide and cobalt, subjected to pressure and heat to produce bit crowns, small plates, cubes, or cylinders of material having a much greater hardness than steel. Mixtures also may contain small amounts of titanium, columbium, or tantalum carbide. Cobalt may be replaced by powdered nickel. *See* Carbide 1, Carbide insert. *Also called* Sintered carbide.
- Cement grout.** A pumpable thin slurry consisting primarily of a mixture of cement, sand, and water injected into rock formations through boreholes as a sealant. *Also called* Grout.
- Cement grouting.** The material used in and/or the process of applying or injecting, under pressure, a thin slurry of cement and fine sand into rock formations to seal the joints, cracks, or fissures, or to stabilize and increase the strength of brecciated or unconsolidated material. *Also called* Grouting.
- Cement gun.** =1. Cement injector, *q.v.*  
2. A mechanical device for the application of cement, in the form of gunite, to the walls or roofs of mine openings or building walls. *Also called* Gunite gun.
- Cementing.** *See* Cementation.
- Cement injection.** The process of injecting cement into a borehole by use of a cement injector or by grouting.
- Cement injector.** 1. A device consisting of a long piece of steel tubing having a rupture plate in the bottom and a piston in the upper end. Cement placed in the tube between the rupture plate and the piston is ejected into the borehole by bursting the rupture plate when water pressure, delivered through the drill rods, is applied to the piston. *Also called* Cement barrel, Cement gun.  
2. Mechanical device connected to a high-pressure pump capable of injecting cement under high pressure into rock formations through a borehole. *Compare* Grout injector, Grout machine.
- Cement plug.** Hardened cement material filling a portion of a borehole.
- Cement, quicksetting.** *See* Quicksetting cement.
- Cement slurry.** A pourable or pumpable mixture of water, cement, and fine sand having the consistency of a thick liquidlike heavy cream.
- Cement valve.** A ball, flapper, or clack-type valve placed at the bottom of a string of casing, through which cement is pumped. When pumping ceases, the valve closes and prevents return of cement into the casing.
- Center bore; Centre bore.** =Set inside diameter, *q.v.*
- Center-latch elevator and links.** =Elevator, *q.v.*
- Center plug.** 1. A small diamond-set circular plug, designed to be inserted into the annular opening in a core bit, thus converting it to a noncoring bit.  
2. A detachable, diamond-set pilot portion of a pilot-type noncoring bit.
- Centipoise.** The one-hundredth part of a poise, an absolute unit of fluid viscosity. Viscosity of drill-mud fluid is sometimes expressed in centipoise units. *See* Poise.
- Centrifugal pump.** A nonpositive-displacement pump in which the liquid-propelling parts are paddle wheel-like devices rotating within a case and generally capable only of delivering large volumes of liquid at low pressures. *Compare* Duplex pump, Rotary pump, Triplex pump.
- Chain block.** A combination of sheaves over which chains are arranged in the same manner as the rope in a block and tackle. *Also called* Chain hoist.
- Chain-drive rotary.** =Chain-drive table, *q.v.*
- Chain-drive table.** Rotary drill table turned by means of a sprocket chain running between table and drill-motor drive shaft. *Also called* Chain-drive rotary.
- Chain feed.** Feeding mechanism by which the up-and-down movements of the drill stem are controlled by a link chain running on sprocket gears.
- Chain hoist.** =Chain block, *q.v.*
- Chain tongs.** A steel bar fitted with a serrated end provided with a sprocket chain to embrace the pipe used by drillers to couple and uncouple drivepipe or casing. *Also called* Chain wrench, Pipe tongs.
- Chain wrench.** =Chain tongs, *q.v.*
- Chalk.** 1. =Chalk rock, *q.v.*  
2. To record in writing or to mark with chalk or keel.
- Chalk rock.** A soft, milky-colored rock, such as soft limestone, calcareous tufa, diatomaceous shale, or volcanic tuff.
- Chalk up.** 1. To write up the daily (or shift) drilling record.  
2. To establish an outstanding performance record.
- Chamber.** 1. A camouflet.  
2. To enlarge a portion of a borehole by the use of explosives. *Also called* Spring.  
3. Corrupted form of the word Chamfer.
- Chambering.** 1. A borehole in which portions of the sidewalls are breaking away and forming cavities or small chambers.  
2. The enlargement of a portion of a borehole by the use of explosive charges. *Also called* Springing.
- Chamfer.** To cut at an angle or on a bevel; also, a small groove or furrow.
- Change day.** The day when drill crewmen or a gang of miners are transferred from one work shift to another. *Also called* Swing day.
- Changehouse.** 1. *Compare* Doghouse, Drill shack.  
2. A special building at mines or other works where laborers may wash themselves or change from street to work clothes and vice versa. *Also called* Changing house, Dry, Dryhouse.
- Changing house.** =Changehouse, *q.v.*

- Char.** 1. To oxidize a diamond by excessive heating in presence of oxygen or air.  
2. To reduce to charcoal or carbon by heating.
- Charge.** 1. The explosive placed in a borehole for blasting. *Also called* Load.  
2. To place an explosive in a borehole.
- Charging.** The loading of a borehole with explosives.
- Chatter.** Rapid vibrations caused by overfeeding the bit and/or by drill rods rubbing against sidewalls of borehole.
- Chatter mark.** 1. Spiral or flutelike, round-topped ridge, sometimes seen on outside surface of core. Some drillers claim that such spiral ridges are formed when bit and drill stem chatter or vibrate or when the bit has been overfed.  
2. One of a series of short, curved gouge marks on a glaciated rock surface.
- Check.** 1. To stop or slow down.  
2. To inspect for structural or dimensional imperfections; to examine.  
3. Sometimes used as a synonym for Check valve.
- Check ball.** The ball part of ball-and-socket-type check valve used in the heads of core barrels and in drill-rod-and-casing strings to allow liquids to flow unhindered in one direction only.
- Checkerboard drilling.** *See* Checkerboarded 1.
- Checkerboarded.** 1. An area in which boreholes have been placed at the intersections of equally spaced parallel lines laid out on a square grid or checkerboard pattern.  
2. An area divided into squares of equal size by two groups of equally spaced parallel lines placed at right angles to each other.
- Checkerboarding.** 1. *See* Checkerboarded 1.  
2. To divide property in a manner so that two parties acquire title to alternating and equal-size square sections of land.
- Checkerwork.** *See* Checkerboarded.
- Check sheet.** A sheet on which are printed illustrations of various drilling-equipment assemblies with the component items shown in their relative operating positions and used as a guide in making up a list of the units necessary to do various routine drilling jobs.
- Check valve.** 1. Generally a ball-type valve device placed in core barrels, soil samplers, or drill rods to control the directional flow of liquids. When used on a core barrel, the check blocks the downward flow of the circulation liquid through the inner tube. When used on a rod string, it blocks the upward flow of the circulation liquid through the rods.  
2. Any device that permits a liquid or gas to pass in one direction but automatically closes when the flow is stopped or reversed.
- Cherry picker.** 1. A fishing tool in the modified form of a horn socket. The lower end or mouth is cut away on one side and resembles a scoop; hence, because of its shape, the device, as it is turned, works around and behind an object that has become partly embedded in the wall of the borehole, thus engaging it where a regular horn socket would fail.  
2. Mechanical device used on a single track to lift a mine car, permitting other cars to pass.
- Chew.** 1. To grind into small fragments.  
2. To tear through material in a borehole with a sawtooth or serrated bit.  
3. To gouge or deeply erode an article, such as the surface of a bit, by hard, sharp-cornered rock fragments.
- Chewed.** 1. Ground or reduced to small fragments.  
2. Having been removed by a sawtooth or serrated bit.  
3. Gouged or deeply eroded, such as the surface of a bit, by hard, sharp-cornered fragments of rock.
- Chewed up;** *See* Chewed.
- Chew up.** *See* Chew.
- Chilled shot.** = *See* Shot, *q.v.* *See also* Shot 1.
- Chill point.** 1. The temperature at which a melted gelatin (used in a Maas compass), starts to congeal.  
2. The temperature at which a molten metal, lubricating oil, or grease starts to congeal.
- Chimney.** A long, steep, dipping or vertical, tubular-shaped subterranean solution cavity or natural vent sometimes encountered in rock formations. It may or may not be filled with rocks, rock materials, or minerals.
- Chip.** 1. Small fragment of a diamond, usually thin and tabular in shape.  
2. To break small fragments from the surface of a diamond or other material.  
3. Small, angular, and generally flat pieces of rock or other materials.
- Chip bit.** A bit in which the major portion of the inset diamonds are either diamond chips or thin, tabular-shaped, low-grade drill diamonds.
- Chip diamond.** *See* Chip 1.
- Chipped.** 1. When referring to character of diamond wear, it denotes loss of diamond due to chips and fragments having been broken away from the body of the diamond.  
2. A surface pitted by loss of material in the form of chips.
- Chipping.** 1. The process of handsetting diamond fragments in a bit.  
2. To reduce in size by breaking away small fragments from the parent mass.
- Chisel bit.** 1. = Chopping bit, *q.v.*  
2. A percussive-type rock-cutting bit having a single, chisel-shaped cutting edge extending across the diameter and through the center point of the bit face. *Also called* Chisel-edge bit, Chisel-point bit, Swedish bit.
- Chisel-edge bit.** = Chopping bit, *q.v.*
- Chisel-point bit.** = Chopping bit, *q.v.*
- Chloride of lime.** = Calcium chloride, *q.v.*
- Chock.** 1. A block of wood, sometimes wedge shaped, placed under the ends of the runners on a drill base to prevent movement of a drill or under a mine-car wheel to prevent movement of the car.  
2. To wedge drill-machine runners or drill-truck wheels in place by using chock blocks or wedges.  
3. A square pillar constructed of short, rectangular wooden blocks, used to support the roof in an underground working place.  
4. A square pillar, used to support a mine roof constructed of prop timbers laid in alternate cross layers, log-cabin style. The center area may be filled with waste rock. *Also called* Crib, Pig sty.
- Chock block.** A block of material, usually wood, used as a chock. *See* Chock 1.
- Chock hole.** A small depression dug in the earth in which a wheel of a truck-mounted drill rig is set to prevent the drill from moving.
- Chocolate.** A brown or chocolate-colored drilling mud or rock.
- Chop.** To break up and drill through boulders or other rock and earthy material encountered in sinking a drivepipe or casing through overburden by impact produced by lifting and dropping a chopping-bit-tipped string of drill rods in a borehole. *Also* to break lost core or other obstruction in a borehole in the manner described above.
- Chop ahead.** To break up boulders and other rock material below the bottom of the casing or drivepipe by using a chopping bit attached to drill rods. *See* Chop.
- Chopping bit.** A steel, chisel-shaped cutting-edged bit designed to be coupled to a string of drill rods and used to fragment, by impact, boulders, hardpan, and lost core in a borehole. *Also called* Chisel bit, Chisel-

- edge bit, Chisel-point bit, Long-shank chopping bit, Straight chopping bit. *Compare* Cross chopping bit.
- Christmas tree.** =Casing head, *q.v.* See Casing head 2.
- Chuck.** 1. The part of a diamond or rotary drill that grips and holds the drill rods or kelly and by means of which longitudinal and/or rotational movements are transmitted to the drill rods or kelly. *Compare* Automatic chuck.  
2. The part of a rock-drill machine that grips or holds the drill rod or steel.  
3. To throw away or discard.
- Chuck bolt.** =Chuck screw, *q.v.*
- Chuck nut.** =Chuck screw, *q.v.*
- Chuck screw.** A set screw in the periphery of a diamond-drill chuck body by means of which a serrated jaw within the body of the chuck may be made to grip and hold the drill rod. *Also called* Chuck bolt, Chuck nut.
- Chuck up.** A command indicating that drill rods are to be inserted in the drive rod of a diamond drill and that they are to be clamped in the chuck preparatory to resuming drilling.
- Churn drill; Churn drilling.** Portable drilling equipment, usually mounted on four wheels and driven by steam-, diesel-, electric-, or gasoline-powered engines or motors. The drilling is performed by a heavy string of tools tipped with a blunt-edge chisel bit suspended from a flexible manila or steel cable, to which a reciprocating motion is imparted by its suspension from an oscillating beam or sheave, causing the bit to be raised and dropped, thus striking successive blows by means of which the rock is chipped and pulverized and the borehole deepened; also, the act or process of drilling a hole with a churn drill. Extensively used by the diamond-drilling industry to drive pipe vertically through difficult and deep overburden or fractured barren ground before coring operations with a diamond drill. *Also called* American-system drill, Blast-hole drill, Cable drill, Cable-system drill, Cable-tool drill, Rope-system drill, Shothole drill, Spudder, Spud drill, Well drill.
- Churn driller.** A person experienced in the use and operation of a churn drill and equipment. *Also called* Cable-tool driller.
- Churn-drill outfit.** =Churn-drill rig, *q.v.*
- Churn-drill rig.** A churn-drill machine, complete with accessory tools and equipment required for specific drilling operations.
- Chute.** 1. A ditch or inclined timber trough through which the overflow water or mud from a borehole is conducted from the collar of the hole to the sump. The chute may be fitted with baffles and screens to cause the cuttings to settle in the chute before reaching the sump. *Also called* Canal, Ditch.  
2. An underground raise, shaft, or inclined trough conducting ore by gravity from a higher to a lower level. Also, incorrectly spelled shoot.
- Cinder.** 1. A derogatory synonym for Carbon.  
2. Vesicular or scoriaceous lava fragments from a volcano.
- Circuit.** 1. =Round trip, *q.v.*  
2. Path followed by an electrical current.
- Circulating fluid.** 1. A fluid pumped into a borehole through the drill stem, the flow of which cools the bit, washes away the cuttings from the bit, and transports the cuttings out of the borehole. *Compare* Reverse circulation, Counter flush. *Also called* Circulation fluid, Circulation medium, Drill fluid, Drilling fluid.  
2. The process of causing a fluid to circulate in a borehole.
- Circulating head.** A casing-to-drill-rod coupling. When attached to the top of casing, it is used during the process of pumping cement slurries or circulating water through the casing, forcing the fluid to flow out of the casing into the drill hole between the outside of the casing and the walls of the borehole. *Also called* Stuffing box, Tight head.
- Circulating medium.** Any type of liquid or gas used as a drill-cuttings-removal and bit-coolant agent. *Also called* Circulation medium, Coolant. *Compare* Circulating fluid.
- Circulating water.** =Circulating fluid, *q.v.*
- Circulation.** 1. The passing of any liquid or gas to the end of the drill string and back to the surface in the process of drilling a borehole.  
2. The movement of air currents through mine openings.
- Circulation fluid.** The fluid pumped through and to the end of the drill string and back to the surface in the process of drilling a borehole.
- Circulation medium.** =Circulating medium, *q.v.*
- Circulation velocity.** The speed, generally expressed in lineal feet per second, at which a fluid or gas travels upward in a borehole after passing the face of the bit.
- Circulation volume.** The amount of liquid or gas circulated through the drill-string equipment in drilling a borehole. The amount of liquid circulated is expressed in gallons per minute (g.p.m.), and the amount of a gas, as air, is expressed in cubic feet per minute (c.f.m.).
- Clack.** 1. The hinged, lidlike part of a check, clack, or pump valve. *Also called* Check, Flap, Flapper.  
2. A clack or pump valve.
- Clack seat.** The rim or seat on which the hinged lid or flapper of a clack valve closes.
- Clack valve.** A valve having a lidlike piece hinged on one side within a chamber that permits the flow of a fluid or gas to proceed in one direction only. Usually, the check valve on the pickup end of a drill-pump suction hose is a clack-type valve. *Also called* Check valve, Flap valve, Flapper valve, Foot valve.
- Clamp.** A device to grip and hold in position a piece or part or hold or bind together two or more parts, usually with jaws or cheeks, at least one of which is movable. Also incorrectly called clip. *Compare* Cable clamp.
- Clay.** 1. A common, very fine grained soil of various colors, which exhibits considerable strength when dry but is plastic and tenacious when wet.  
2. A general term applied to the material added to water to prepare a drilling mud. See Bentonite.
- Clay barrel.** See triple-tube core barrel.
- Clay bit.** A mud auger; a mud bit; also, a bit designed for use on a clay barrel. See Clay-boring bit.
- Clay-boring bit.** A special coring bit used on split-inner-tube core barrels. Thickness of bit face is reduced and inside shoulder is not inset with diamonds, to allow a sharp-edged extension of the inner barrel to extend through and project a short distance beyond the face of the bit. *Also called* Clay bit, Mud bit.
- Clay gouge.** A claylike material found in the brecciated or gouge zone of a fault; also, sometimes found in the walls or within ore veins.
- Claypit.** 1. A sump in which a drilling mud is mixed and stored.  
2. A pit or sump in which the return fluid from the borehole is collected and stored for recirculation.
- Clay pocket.** A clay-filled cavity or a mass of clay surrounded by rock or other earthy material.
- Clean.** 1. A borehole free of cave or other obstructing material.  
2. To remove cave or other obstructing material from a borehole.  
3. A mineral virtually free of undesirable nonore or waste-rock material.  
4. Empty.

- Clean cutting.** A rock formation, the cuttings of which do not tend to mud up on the face of a diamond- or other-type bit.
- Clean cuttings.** Rock cuttings that do not ball or adhere to the walls of the borehole; also, rock cuttings not contaminated by cave material or drill-mud ingredients.
- Clean hole.** A borehole free of cave or other obstructing material.
- Cleanout.** 1. To remove cave or other obstructing material from a borehole.  
2. A port or opening provided in the body or base of a machine or other mechanism through which accumulated debris may be removed.
- Cleanout auger.** *See* Cleanout jet auger.
- Cleanout jet auger.** An auger equipped with water-jet orifices designed to clean out collected material inside a driven pipe or casing before taking soil samples from strata below the bottom of the casing. *Also called* Cleanout auger, M.P.F.M. jet auger.
- Clean up.** To police and tidy up drill and premises around a drill rig.
- Clear.** 1. *See* Clean 1.  
2. Translucent diamonds with few visible spots or flaws.  
3. Water that has not been recirculated in drilling and hence is free of drill cuttings and sludge. Also applied to return water when it contains little or no entrained cuttings or sludge.  
4. A safe working place.
- Clearance.** 1. Technically, the annular space between downhole drill-string equipment, such as bits, core-barrels, casing, etc., and the walls of the borehole with the downhole equipment centered in the hole. Loosely, the term is commonly and incorrectly used as a synonym for exposure. *See* Exposure.  
2. The amount of open space around a drill or piece of mining equipment in an underground work place.
- Cleavage.** 1. A fragment of a crystalline substance, such as a diamond produced by cleaving.  
2. As used by crystallographers, the tendency for crystalline substances, such as diamonds, to split along planes that are always parallel to at least one of the possible crystal faces peculiar to the crystal structure of a specific mineral or substance.  
3. As used by petrographers, the tendency for rocks to split along definite, parallel, closely spaced planes, which may be highly inclined to the bedding planes. It is a secondary structure, commonly confined to bedded rocks, developed by pressure, and generally accompanied by some recrystallization of the minerals in the rock. Not to be confused with jointing. *Compare* Joint, Joint plane.
- Cleavage plane.** The crystallographic plane, which can be likened to the grain in wood, along which a crystalline substance such as diamond may be split easily. *See* Cleavage 2.
- Cleavages.** As used by the diamond-cutting and diamond-bit-setting industries, the more or less flat diamond fragments produced by splitting a crystalline diamond along the octahedral plane. Such fragments are used primarily as a material from which special-shaped, diamond-pointed cutting tools are produced.
- Cleave.** To split a crystalline substance such as a diamond along a cleavage plane.
- Cleaving.** The act of breaking or splitting a crystalline substance such as a diamond, along one of its cleavage planes.
- Clevis.** A U- or stirrup-shaped steel piece with holes in the end of each arm through which a bolt connects, thus forming a link. Used as a connecting link between chains or lines or to hang a sheave in a drill tripod or derrick.
- Climb.** The tendency of an inclined diamond-drill hole to follow an upward-curving, increasingly flat course; also, the tendency of a diamond or other rotary-type bit to drill a hole curved in the updip direction when holes are drilled in alternating hard- and soft-layer rock having bedding planes that cross the borehole at an angle other than 90° to the face of the bit.
- Clinometer.** 1. A borehole-surveying device consisting of a rubber-stoppered, glass culture tube partially filled with a dilute solution of hydrofluoric acid enclosed in a watertight brass or steel container the upper end of which is equipped with box threads fitting the pin thread of a drill-rod coupling. When attached to the lower end of a line of drill rods and suspended at a point in a borehole for approximately 1 hour, the acid etches the inside of the glass tube, forming what appears to be a line where the upper surface of the acid is in contact with the tube. The inclination of that line is measured and with necessary corrections for capillarity indicates the dip of the borehole at the point where the clinometer was suspended. In addition to the above end or plain type, there is the line clinometer and a special type used with the Hall-Rowe wedging device.  
2. A simple device for measuring vertical angles, ground slopes, dips, etc. Consists of a hinged bar or sighting tube on which is mounted a circular scale and a pendulum or small spirit level.
- Clinometer case.** The watertight brass or steel tube encasing an acid bottle used in determining inclination of a borehole by an acid-dip survey. *See* Clinometer. *Also called* Body, Clinometer shell.
- Clinometer rule.** A simple angle-measuring device consisting of a folding rule, the two arms of which are attached to either side of a graduated hinge member and one arm of which is equipped with a small spirit level. *Also called* Angle rule, Degree rule.
- Clinometer shell.** = Clinometer case, *q.v.*
- Clip.** = Cable clamp, *q.v.* Also = Clamp, *q.v.*
- Closed-spiral auger.** A soil-sampling auger made by spirally twisting a flat steel ribbon to form a tube-like, hollow-center, corkscrewlike device.
- Close in.** 1. To wall-in and roof-over the drill platform for protection of workers from rain and cold.  
2. To shut off the flow, as from an oil, gas, or artesian well.
- Close-jointed.** A term applied to rocks having closely spaced joint planes.
- Closure.** The difference in the relative position of the bottom and the collar of a borehole expressed in horizontal distance in a specific compass direction.
- Clustered carbide.** = Interspersed carbide, *q.v.*
- Cobalt.** A tough, lustrous, nickel-white metal, commonly used as the metal binding or cementing powdered particles of tungsten carbide together to form a hard, wear-resistant, metallike mixture.
- Cobalt-bonded.** Particles of a refractory material, as powdered tungsten carbide, cemented together with cobalt to form a metallike mixture.
- Cobalt-cemented.** = Cobalt-bonded, *q.v.*
- Cobble.** As recommended by the ASCE in their Proceedings, volume 84, No. SM4, October 1958, a usually rounded or semirounded rock fragment having an average dimension ranging from 3 to 12 inches.
- Cock.** *See* Drain valve.
- Coil drag.** A fishing tool designed to pick up pebbles, bits of iron, etc., from the bottom of a drill hole.
- Coining.** = Hot-pressing, *q.v.*
- Coke.** A derogatory synonym for Carbon, Carbonado, or Black diamond.
- Cold noser.** *See* Wildcatter.
- Cold-nosing.** Running an unhooused drill in cold weather.  
2. Synonym for Wildcatting.

- Cold-press.** The act or process of subjecting bit-matrix-powder metal mixtures in a mold to high pressure before sintering.
- Collapse.** 1. The failure of a tripod or derrick caused by overloading or improper structural design resulting in tripod breaking or falling.  
2. Complete cave-in of walls of a borehole or mine workings.
- Collapsing strength.** The load expressed in pounds or tons, which, if exceeded, results in the collapse of a structure, such as a drill tripod, derrick, or A-frame.
- Collar.** 1. The mouth or opening of a borehole or the process of starting to drill a borehole.  
2. A pipe coupling or sleeve.  
3. = Friction head, *q.v.* See also Friction head 2.  
4. The mouth of a mine shaft.
- Collarbound.** Pipe held in a borehole by sediments or drill cuttings packed tightly above and around the couplings of an outside-coupled pipe or casing.
- Collar buster.** A cutting tool used to sever casing above the point at which it is collarbound or frozen in the borehole.
- Collared.** 1. A borehole just begun, in which a length of pipe has been placed.  
2. Pipe or drill rods coupled together by means of threaded couplings, the outside diameter of which is larger than the outside diameter of the pipe or rods.  
3. A drill hole deep enough in rock to keep the drill from slipping.
- Collared casing.** Ordinary pipe joined with pipe collars or couplings.
- Collar-in.** The act or process of beginning a borehole.
- Collaring.** 1. The process of beginning the drilling of a borehole.  
2. The process of beginning the excavation of a mine shaft or the drilling of rock-drill holes.
- Collaring bit.** A fishtail-, spudding-, or other-type bit used exclusively for beginning a borehole.
- Collar socket.** A fishing tool designed to slip over and grip a casing or pipe coupling.
- Colloid.** 1. A jellylike or gelatinous substance, as the colloid formed when ground Bentonite is mixed with water.  
2. Extremely small particles of material so finely ground that when mixed in a fluid the particles remain permanently suspended.
- Colloidal clay.** A clay, such as Bentonite, which, when mixed with water, forms a gelatinouslike liquid.
- Colloidal mud.** A drilling mud in which the gelatinous constituents, such as Bentonite, will remain in suspension in water for a long time.
- Column.** 1. A synonym for Drill column.  
2. The drill-circulation liquid confined within a borehole.  
3. A long section of drill core.  
4. The water confined within a pipe above a pump.
- Column of mud.** = Mud column, *q.v.*
- Combination drill.** A drill equipped for cable-tool and/or diamond-drilling operations, or for cable-tool and/or rotary-drilling operations.
- Combination driller.** A driller versed in cable-tool and diamond- or rotary-drilling techniques.
- Combination rig.** = Combination drill, *q.v.*
- Combination sampler.** A universal-type soil-sampling device in which some of the constructional features of two or more special-use samplers are combined.
- Combination socket.** A fishing tool.
- Come-along.** 1. An open, fixed-jaw spanner used to grip, hold, and lift rods, casing, or piping. Compare Lowering iron.  
2. A device consisting of two serrated jaws so attached to a ring that a pull on the ring causes the opposing jaws to close and grip a wire, cable, or any cylindrical piece of drill equipment.
- Come out.** To withdraw or hoist the drill string or tools from a borehole.
- Coming out.** The process of withdrawing or hoisting the drill string or tools from a borehole.
- Company account.** Drilling done by a company on its property using its own equipment operated by personnel working for the company.
- Compass.** 1. A Maas or other compass device used in borehole-survey work.  
2. An instrument for determining directions, usually by a device having a magnetic needle free to turn in a horizontal plane.
- Compass deflection.** 1. The difference, expressed in degrees, between the direction a magnetic compass needle points and true or astronomical north.  
2. Differences, expressed in degrees, between magnetic-north directions and the direction a magnetic compass points, owing to local magnetic interference.
- Competent.** 1. Rock formations in which no artificial support is needed to maintain a cavefree borehole.  
2. Rock capable of withstanding an applied load under given conditions without failing or collapsing.
- Compound.** A lubricant applied to wire rope to improve or increase its resistance to corrosion or abrasion.
- Concave bit.** A noncoring bit having a concave, conical-shaped crown or face.
- Concave crown.** = Concave bit, *q.v.*
- Concentration.** 1. The area covered by the diamonds as compared with the total area of the cutting surface of a surface-set bit.  
2. The volume of diamonds, expressed in percent, compared to the total volume of the crown of an impregnated bit.  
3. The percentage of acid compared with the volume of water added to produce a dilute solution.
- Concentric pattern.** Diamonds set in bit face in concentric circles so that a slight uncut ridge of rock is left between stones set in adjacent circles. Compare Eccentric pattern.
- Concretion.** A spheroidal, discoidal, or nodular inclusion in a rock of sedimentary origin, generally much harder and of different composition than the embedding sedimentary material. Compare Inclusion.
- Conditioning period.** Time spent in circulating a higher-than-normal volume of fluid through the drilling string while slowly rotating and lowering the string from the last few feet above to the bottom of a borehole to wash away any obstructing material before resuming coring operations.
- Condition the hole.** To circulate a higher-than-normal volume of drill fluid while slowly rotating and lowering the drill string from a point a few feet above the bottom to the bottom of the borehole to wash away obstructing materials before resuming coring operations.
- Conductor.** 1. A relatively short length of pipe driven through the unconsolidated zone of top soil as the first step in collaring a borehole. Also called Conductor pipe, Stand pipe.  
2. In petroleum drilling, the piping carried through overburden to bed rock or the first string of casing placed in a borehole.
- Conductor pipe.** = Conductor, *q.v.*
- Conductor string.** See Conductor 2.
- Conduit.** 1. Pipe or casing placed in a borehole. See Casing, Drive pipe.  
2. A tube or trough for receiving and protecting electric and telephone wires.
- Cone.** 1. Geometric pattern formed by the recessed portion of the face of a concave bit.  
2. Geometric pattern of the rock plug or stickup left in the bottom of a borehole drilled by a concave bit.  
3. Beveled coupling device on a small diamond drill or percussion rock drill by means of which it may be attached to a drill column.

- Cone angle.** The angle included between the opposite sides of the cone in a concave bit, measured in degrees.
- Cone bit.** 1. Synonym for Roller bit.  
2. A cone-shaped noncoring bit, which may be set with diamonds or other cutting media.  
3. Colloquial term, improperly applied to Bullnose bit.
- Cone-face bit.** A cone or concave-face bit.
- C-one or C-1.** A symbol commonly used to designate the best quality drill-diamond-grade Congos. *See* Congos, C-two.
- Cone penetration test.** An in situ soil-testing procedure whereby, through the use of a cone penetrator, information may be obtained to allow an engineer to calculate some of the load-bearing characteristics of silty or fine-to-medium-coarse sand materials.
- Cone penetrator.** A 30° to 60° cone having a basal diameter approximately the same size as an A-size diamond-drill rod used to determine the force required to thrust the cone downward into silty or fine-to-medium-coarse sands, and hence to obtain information that a foundation or soils engineer may use to calculate some of the load-bearing capabilities of such formations. *Also called* Cone penetrometer.
- Cone penetrometer.** A cone penetrator equipped with a device that will register the pressure required to drive the cone downward into the formation being tested. *See* Cone penetrator, Penetrometer..
- Cone rock bit.** =Roller bit, *q.v.*
- Conglomerate.** A rock of sedimentary origin composed of an aggregate of rounded and waterworn pebbles and boulders cemented together into a coherent rock. *Also called* Pudding stone.
- Congo boart.** =Congos, *q.v.* Also=Congo bort, *q.v.*
- Congo bort.** Congos used industrially as bort. *See* Bort, Congos.
- Congc bortz.** =Congo bort, *q.v.*
- Congo diamond.** *See* Congos.
- Congo rounds.** Spherical- or near-spherical-shaped Congos. *See* Congos.
- Congos.** 1. Originally and commonly used as a name for a variety of diamonds found in the Belgian Congo diamond district in Africa and more recently as a descriptive term applied to all diamonds having the appearance and characteristics of those produced in the Belgian Congo. Congos are white to gray-green and yellow, drusy-surfaced, opaque-to-somewhat-translucent diamonds, having shapes corresponding to the many forms characteristic of the isometric (cubic) crystal system. At one time, Congos were considered fit only for use in fragmented form, but a considerable number are now used as toolstones and drill diamonds. *See* Diamond.  
2. Sometimes designates drill diamonds ranging from 1 to 8 stones per carat in size.
- Connecting rod.** A rodlike device linking a piston to a crankshaft. *Compare* Piston rod.
- Consolidation hole.** Boreholes into which chemical solutions or grout are injected to cement or consolidate fragmental rock material. *Compare* Grout hole.
- Contact.** 1. The surface where two different rock units come together.  
2. As used by drillers in the Midwestern United States, the upper surface of the basement or igneous rocks underlying the sedimentary rocks.
- Contact bed.** A stratum of rock lying adjacent to and in contact with a formation of different character.
- Contaminate.** The admixture or introduction of undesired substances to a medium, thereby reducing the value of the medium or making it unfit for its intended use. Example: Cave material from nonore zones admixed with sludge sample from an ore zone.
- Contamination.** The act or process of a substance being diluted or admixed with another material, which may render the original substance unfit for use. *See* Contaminate.
- Continuous coring.** A borehole-drilling technique whereby the cuttings-removal agent is countercirculated through an inside flush-coupled-type drill string to deliver both the cuttings and core produced to a tray or container at the surface.
- Continuous-flight auger.** A drill rod with continuous helical fluting, which acts as a screw conveyor to remove cuttings produced by an auger drill head. *Also called* Auger. *See* Auger 2.
- Contour.** 1. The profile or cross-sectional outline of a bit face.  
2. An imaginary line on the surface of the ground, every point of which is at the same altitude.
- Contract drilling.** Drilling work done for a company or person by a person or company furnishing the drilling equipment and labor for a specified cost, which is based on the amount and type of work. *Compare* Company account.
- Control.** 1. An attempt to guide a borehole to follow a predetermined course through the use of wedges or by manipulation of the drill string.  
2. A mechanism by which the speed or rate of an operation may be regulated.  
3. The base or basis by which similar values may be compared.
- Control head.** A large gate valve designed to provide a clear opening for the passage of drilling tools into a borehole and to act as a head or cap on the casing at the collar of a borehole.
- Control pipe.** A pipe of sufficient diameter and length to contain a core barrel. The upper end of the pipe is equipped with a rod-stuffing box and relief valve, and the lower end is coupled to the exposed side of a control-head gate valve. Used to enable a driller to remove core barrel from borehole when a high-pressure flow of water is encountered in drilling.
- Controlled atmosphere.** An atmosphere circulated through, or contained in, a muffle furnace or other heating unit, the oxygen content of which is regulated or adjusted to a level low enough to prevent oxidation of diamonds during the sintering stage of producing a diamond bit by a powder-metal process.
- Controlled footage.** The specified maximum number of feet of borehole a single diamond- or other-type bit may be allowed to drill in a specific-type rock, as predetermined by the drill foreman.
- Conventional coring.** 1. Cutting and recovering core by generally accepted methods and standard diamond-drilling equipment.  
2. As used by individuals associated with petroleum-well-drilling operations, to cut and recover core using any type of annular-shape cutting head other than a diamond bit. *See* Calyx 3 for an example.
- Coolant.** 1. Any medium, such as air, water, gas, oil, mud, etc., used as a circulation medium in drilling operations.  
2. A cooling agent, such as a liquid applied to the edge of a cutting tool to absorb and carry off frictional heat.
- Coolant fluid.** =Coolant, *q.v.*
- Core.** 1. A cylindrical sample of rock and/or the process of cutting such a sample by use of an annular (hollow) drill bit. Sometimes incorrectly called Bit core.  
2. The central portion of a bit mold, that forms the inside diameter of the bit.  
3. A cone or inverted V-shaped stub of rock left in the bottom of a drill hole by a cone noncoring bit. *Compare* Stand off.  
4. The central part of a rope or cable that forms a cushion for the strands.

- Core analysis.** 1. The characteristics of the minerals contained in a specific section of a core sample as determined petrographically, by metallurgical treatments, and/or by chemical or cupelling methods. *Also called* Core assay, Core values.  
2. As used by the petroleum industry, a study of a core sample to determine its water and oil content, porosity, permeability, etc.
- Core assay.** Sometimes used as a synonym for Core analysis, but more commonly it infers that the mineral content of a core sample has been determined by fire methods.
- Core barrel.** A length of tubing, usually 10 feet long, designed to form the coupling unit between the core bit and reaming shell and the drill-rod string. It carries or contains the core produced until the core can be raised to the surface. The barrels are of single or double tubing and of swivel or rigid type.
- Core-barrel bit.** Obsolete name for a core bit that could be coupled directly to the bottom end of a core barrel.
- Core-barrel head.** The coupling unit between the single- or dual-tube, tubular body of a core barrel and the drill-rod string. For the swivel-type double-tube core barrel, the core-barrel head also contains the bearing mechanism to which the inner of the two body tubes is attached.
- Core-barrel rod.** =Guide rod, *q.v.*
- Core basket.** =Core picker, *q.v.*
- Core bit.** An annular-shaped bit designed to cut a core sample of rock in boreholes. The cutting points may be serrations, diamonds, or other hard substances inset in the face of the bit.
- Core-bit tap.** A tapered, tap-threaded fishing tool designed to recover a core bit lost in a borehole.
- Core block.** An obstruction inside a bit, reaming shell, or core barrel consisting of impacted core fragments or drill cuttings, which prevents entry of core into the core barrel.
- Core boring.** As used by soil- and foundation-testing engineers, a synonym for Core, Core drilling.
- Core borings.** As used by soil- and foundation-testing engineers, a synonym for Core, Cuttings, Drill sludge.
- Core box.** A lidded wood, metal, or cardboard container designed to hold core in parallel grooves.
- Core breaker.** 1. =Core lifter, *q.v.*  
2. A sharp-cornered pluglike device inside an annular-shaped bit, which breaks up any core produced into pieces small enough to be washed out of the borehole as cuttings.
- Core catcher.** 1. Sievelike tray or device on or in which the core is ejected continuously from the upper end of a drill string, and is caught and held when core is recovered by counter-flow or reverse-flow continuous-core-drilling techniques.  
2. =Core lifter, *q.v.*
- Core-catcher case.** =Lifter case, *q.v.*
- Core drill.** 1. A mechanism designed to rotate and cause an annular-shaped rock-cutting bit to penetrate rock formations, produce cylindrical cores of the formations penetrated, and lift such cores to the surface, where they may be collected and examined. *See also* Adamantine drill, Calyx drill, Diamond drill, Rotary drill, Shot drill.  
2. The act or process of producing a cylindrical core of rock, using a core-drilling machine and equipment.
- Core-drill fittings.** All pieces of equipment used in drilling a borehole for the purpose of collecting cores of the rock formation penetrated, such as bits, core barrels, drill rods, casing, drivepipe, other related or accessory tools, and equipment.
- Core drilling.** Process of obtaining cylindrical rock samples by means of annular-shaped rock-cutting bits rotated by a borehole-drilling machine.
- Core-drill sampling.** The act or process of obtaining cylindrical samples of rock in the form of a core. *See* Core.
- Core equipment.** Bits, core barrels, and other bottom-hole and drill-string equipment used when core samples are being recovered from rock formations through which a borehole is drilled.
- Core exposure.** Length of core that is subjected to washing action of circulation medium when exposed between the bit face and lower end of the inner tube of a core barrel or core-barrel extension.
- Core extractor.** 1. A special tool that works like a screw or hydraulic jack, used to push core out of a core barrel. *Also called* Core plunger, Core pusher.  
2. A fishing tool designed to recover core dropped from a core barrel and resting on the bottom of a borehole. *Also called* Basket, Core basket, Core fisher, Core grabber, Core picker.
- Core fisher.** =Core picker, *q.v.*
- Core grabber.** 1. A term used by drillers for the engineer, geologist, or fieldman who supervises the drilling and the collection of core and sludge; keeps records of progress, extras, time, etc.; and does preliminary logging of core, core splitting, preparation and shipment of samples, and all other supervisory work within his experience and capacity on a diamond-drilling job. *Also called* Core snatcher, Sample grabber.  
2. =Core picker, *q.v.*
- Core gripper.** =Core lifter, *q.v.*
- Core-gripper case.** =Lifter case, *q.v.*
- Core grouting.** Material used in and/or the act or process of injecting small fragments of rock or coarse sand into a core barrel to wedge the core inside the barrel when no core lifter is used, as when using straight-wall bits or drilling with a shot drill.
- Core head.** Obsolete synonym for Core bit.
- Core house.** =Core shack, *q.v.*
- Core intersection.** The point in a borehole where an ore vein or body is encountered, as shown by the core; also, the width or thickness of the ore body, as shown by the core. *Also called* Core interval.
- Core interval.** =Core intersection, *q.v.*
- Core jam.** =Core block, *q.v.*
- Core library.** A structure in which boxed cores from numerous recorded localities are stored and kept available for inspection and study. *Compare* Core house, Core shack, Core shanty.
- Core lifter.** DCDMA name for a split, fluted ring of spring steel used in a core-barrel assembly to hold and retain core while the core barrel is being hoisted from a borehole. Other types sometimes used are: Basket, Finger, and Sliding wedge. *Also called* Core catcher, Core grabber, Core gripper, Core spring, Ring lifter, Spring lifter, Split-ring lifter.
- Core-lifter adapter.** Device used in Canada between a straight-wall bit and core barrel in which a core spring may be placed. Usually used only on EXK and AXK barrels to recover core when dry blocking is inadvisable.
- Core-lifter case.** =Lifter case, *q.v.*
- Core-lifter wedges.** The tapered sliding wedges that grip and hold the core inside a wedge core lifter.
- Core loss.** The portion of rock cored but not recovered. *Compare* Core recovery.
- Core orientation.** The act or process of using information obtained from magnetic polarity measurements of a piece of core in an attempt to determine the downhole bearing of the structural features of the rock formation as displayed in the core.
- Core picker.** 1. A core-fishing device consisting of a tube fitted internally at its lower end with flat, flexible spring fingers that permit core to enter the tube but close when the device is hoisted from the borehole, preventing its escape. *Also called* Basket, Core

- basket, Core extractor, Core fisher, Core grabber.  
2. =Core lifter, *q.v.*
- Core plunger.** 1. The flat pistonlike head on the end of a bar or rod of a core-extractor device.  
2. A synonym for Core extractor.
- Core pusher.** =Core extractor, *q.v.* See also Core extractor 1.
- Core rack.** 1. A framework built to support several tiers of core boxes.  
2. Grooved or partitioned tray, supported on legs or sawhorses, on which core is placed when removed from a core barrel for inspection or temporary storage before being placed in boxes.
- Core recovery.** Core withdrawn from a borehole. The amount withdrawn generally is expressed as a percentage of the theoretical total obtainable or in general terms, as excellent, good, fair, or poor. *Compare* Core loss.
- Core run.** Technically, the distance cored per round trip, which is expressed in number of feet or in relative terms, as short, long. Core blocks may occur before core barrel is filled; the barrel then is short of being full, resulting in a short core run. Loosely, amount of core recovered per round trip.
- Core sample.** One or several pieces of whole or split parts of core selected as a sample for analysis or assay.
- Core saw.** A machine capable of rotating at high speed, equipped with a thin metal disk having diamonds inset in its edge. Used somewhat like a bench saw to cut core longitudinally into sections. *Compare* Core splitter.
- Core shack.** A roofed and enclosed structure in which core-filled boxes are stored. *Also called* Core house, Core shanty.
- Core shanty.** =Core shack, *q.v.*
- Core shell.** =Reaming shell, *q.v.*
- Core snatcher.** 1. See Core grabber 1.  
2. =Core lifter, *q.v.*
- Core splitter.** Tool employing a chisel to split core longitudinally in half, rarely in quarter, sections. One half usually is assayed, and the other half is retained and stored. Term also may be applied to a diamond saw used for the same purpose.
- Core spring.** =Core lifter, *q.v.*
- Core-spring adapter.** =Core-lifter adapter, *q.v.*
- Core-spring case.** =Lifter case, *q.v.*
- Core storage.** See Core library.
- Core table.** 1. Table on which core in boxes or trays is placed while being examined or logged.  
2. See Core rack 2.
- Core tongs.** A come-along-type open-end wrench used to grip and handle core as it is being removed from a large-diameter or extra-long core barrel suspended in a vertical position above the drill platform.
- Core tray.** An open or lidless core box. See Core box, Core rack 2.
- Core tube.** =Inner tube, *q.v.*
- Core values.** Used in a general sense as a synonym for Core analysis, Core assay. In a strict sense the term should not be used to designate the mineral content of the core sample unless the valuable mineral is gold, silver, platinum, etc.
- Core wash.** 1. The portion of the core lost through erosive action of the drill-circulation fluid.  
2. The act or process of erosion of core by washing action of the drill circulation fluid.
- Coring bit.** =Core bit, *q.v.*
- Coring equipment.** See Core equipment.
- Coring weight.** The amount of feed pressure that should be applied to a core bit to obtain optimum results in the way of core recovery and bit performance while drilling a specific rock.
- Corkscrew.** 1. A device resembling a corkscrew, used as a fishing tool. *Compare* Jamaica open-spiral auger.  
2. A borehole following a spiraled course.  
3. A cylindrical surface, such as the outer surface of a piece of spirally grooved core. *Also called* Fluted core.
- Corkscrew core.** See Fluted core.
- Corncob.** =Taper bit, *q.v.*
- Corncob bit.** Obsolete synonym for Taper bit. See Taper bit.
- Corona.** A Spanish term meaning crown. Sometimes used in the Southwestern United States as a synonym for diamond bit.
- Correcting wedge.** A deflection wedge used to deflect a crooked borehole back into its intended course. See Deflecting wedge.
- Correction chart.** A chart, graph, or table giving the true angle of the inclination of a borehole for specific apparent angles as read from the etch line in a specific-size acid bottle. See Capillarity-correction chart.
- Correction table.** See Correction chart.
- Corroded.** 1. A diamond surface that has the appearance of having been etched by acid.  
2. Eaten away, or with the surface pitted by a corrosive liquid or gas.
- Corrugated friction socket.** A fishing tool.
- Corundum.** Aluminum oxide, a mineral,  $Al_2O_3$ . The colored and clear varieties form the gems sapphire and ruby; the granular impure variety is called emery and sometimes is used as a substitute for chilled steel shot in drilling small-diameter holes.
- Counterbored coupling.** A drill-rod coupling in which the opening at each end is counterbored or tapered to an included angle of  $20^\circ$ ; hence drilling fluid can flow through the coupling with less turbulence and loss of head than when pumped through a standard drill-rod coupling. *Also called* Stream-flow-rod coupling.
- Countercurrent circulation.** =Counterflush, *q.v.*
- Counterflush.** =Reverse circulation, *q.v.*
- Country rock.** 1. General term applied to rock.  
2. Rock adjacent to or surrounding a mineral deposit or dike in which no minerals of economic interest occur.
- Couple.** 1. To connect or screw together.  
2. =Double, *q.v.* See Double 1.
- Coupled.** Connected together.
- Couplet.** =Double, *q.v.* See also Double 1.
- Couple up.** =Couple, *q.v.* See also Couple 1.
- Coupling.** A connector for drill rods, casing, or pipe with identical box or pin threads at either end. *Compare* Sub.
- Cover.** 1. The pattern or number of drill holes (pilot holes) deemed adequate to detect water-bearing fissures or structures in advance of mine workings. *Compare* Area cover.  
2. Synonym for Overburden.  
3. Shelter over and around a drill rig.  
4. Total thickness of material overlying mine workings or an ore body. *Also called* Burden, Mantle.
- Cover gap.** The area in advance of mine workings not adequately probed by pilot holes to detect the presence of water-bearing fissures or structures. *Compare* Cover 1.
- Cover hole.** One of a group of boreholes drilled in advance of mine workings to probe for and detect water-bearing fissures or structures.
- Cow sucker.** A cylindrical heavy piece of iron attached to a cable or wire line, making it descend rapidly into a borehole when the cable or line is not attached to a string of drilling tools or equipment. *Also called* Bug, Bullet, Go-devil.



- Cradle.** Device by means of which a small diamond or percussive-type drill may be attached to a drill column or arm. *Also called* Saddle.
- Creams.** Sometimes designates a very high quality drill diamond. *Compare* AAAA.
- Creep.** 1. A very slow gradual movement of the drill-hoist drum when the brake is worn or not securely set.  
2. To rise above the surface of a liquid upon the walls of a vessel in which the liquid is contained. *See* Capillarity.
- Crib.** 1. A drill base made of timber stacked log-cabin fashion.  
2. To support walls of an excavation by lining the opening with timbers and boards.
- Critical pressure.** 1. The maximum feed pressure that can be applied to a diamond bit without damaging the bit or core barrel.  
2. The minimum load, in pounds per effective diamond cutting point in a bit face, at which the diamonds cut the rock. Below this load, the diamonds slide on the rock surface without penetrating the rock, and the diamonds polish, become dull, and are rendered unfit for further use in that particular ground unless reset.
- Critical speed.** The speed at which a rotating drill stem begins to vibrate excessively; hence by either decreasing or increasing the rotational speed of the drill stem the vibration may be reduced or alleviated.
- Critical temperature.** The temperature at which a change takes place in the physical form of a substance, for example, the change of diamond to the amorphous form of carbon begins at a temperature of 1,800° F. in presence of oxygen.
- Crooked hole.** A borehole that deviates from its intended course.
- Crop out.** =Outcrop, *q.v.*
- Cropping.** =Outcrop, *q.v.*
- Croppings.** =Outcrops, *q.v.* *See also* Outcrop.
- Crossarm.** 1. The top member of a drill derrick or H-frame from which the sheave wheel is suspended.  
2. Horizontal bar fitted between two drill columns on which a small diamond or other type rock drill can be mounted. *Compare* Side arm.
- Cross bit.** 1. =Cross chopping bit, *q.v.*  
2. A percussive rock-drill bit having cruciform cutting edges.
- Cross-bladed chisel bit.** =Cross chopping bit, *q.v.*
- Cross chopping bit.** Bit with cutting edges made by two chisel edges crossing at right angles with the intersection of chisel edges at the center of the bit face. Used to chop (by impact) lost core or other obstructions in a borehole. *Also called* Cross bit, Cross-bladed chisel bit, Cruciform bit.
- Crosscut.** 1. A borehole directed so as to cut through a rock strata or ore vein essentially at right angles to the dip and strike of the rock strata, a vein, or a related structure.  
2. An underground passage driven across the course of a vein or related structure.
- Crosspiece.** =Crossarm, *q.v.*
- Crowd.** 1. Used by some drillers as a synonym for over-feed.  
2. As used by handsetters, the uneven calking of a diamond resulting in its being pinched or forced out of its intended position in a bit.  
3. To place or set diamonds too closely together in the crown of a bit.
- Crown.** 1. As used by the drilling and bit-setting industries in the United States, the portion of the bit inset or impregnated with diamonds formed by casting or pressure-molding and sintering processes; hence the steel bit blank to which the crown is attached is not considered part of the crown.  
2. The topmost part of a drill tripod, derrick, or mast.  
3. Used in some countries other than the United States as a synonym for Bit.
- Crown block.** A pulley, set of pulleys, or sheaves at the top of a drill derrick on and over which the hoist and/or other lines run. *Also called* Crown pulley, Crown wheel.
- Crown die.** =Bit mold, *q.v.*
- Crown life.** =Bit life, *q.v.*
- Crown metal.** =Diamond matrix, *q.v.* *See* Diamond matrix 1.
- Crown mold.** =Bit mold, *q.v.*
- Crown pulley.** =Crown block, *q.v.*
- Crown wheel.** =Crown block, *q.v.*
- Cruciform bit.** 1. =Cross chopping bit, *q.v.*  
2. Percussive rock drill bit having four chisel-shaped cutting edges in the form of a cross on the face of the bit. *Also called* Cross bit.
- Crushing board.** =Bort, *q.v.*
- Crushing bort.** =Bort, *q.v.*
- Crushing bortz.** =Bort, *q.v.*
- Crystal.** 1. The regular solid geometric form assumed by a crystallized chemical element or compound, such as the dodecahedral, octahedral, cuboid, or other shapes assumed by a diamond.  
2. A clear, flawless diamond.
- Crystal face.** One of the several flat or plane exterior surfaces of a crystal. *See* Crystal.
- Crystalline.** 1. A substance or rock composed largely or wholly of mineral crystals.  
2. Transparent, clear, or pure.
- Crystallized.** 1. Erroneously used to describe drill-string equipment or machine parts that have failed by fatigue fractures caused by prolonged subjugation to vibration, bending, or twisting.  
2. Converted from an amorphous or molten state to a crystalline form.
- Crystals.** Australian synonym for Drill diamonds.
- C. S. jar block.** C. S. jar collar, *q.v.*
- C. S. jar collar.** A thick-wall steel collar, the inside surface of which is tapered to fit two serrated-face taper sleeves. The assembly may be fitted at any point over a casing or pipe and serves as a drive collar in sinking casing or pipe by driving and chopping. *Also called* Self-tightening jar collar, Self-tightening jar coupling, Simmons jar block, Simmons jar collar.
- CS-17-30.** *Abbr.* First of a series of Commercial Standards Bulletins covering diamond-core-drill fittings published by the National Bureau of Standards. The CS-17-30 bulletin was followed by revisions designated as CS-17-32, CS-17-42, and CS-17-47, all of which have been superseded by the DCDMA Standards Bulletin No. 2 published in 1954.
- CS-17-32.** *See* CS-17-30.
- CS-17-42.** *See* CS-17-30.
- CS-17-47.** *See* CS-17-30.
- C-two or C-2.** Commonly designates the lowest of two qualities of Congo diamonds normally used as drill-grade diamonds.
- C-2.** *See* C-two.
- Cube.** A relatively rare crystal form of diamond having six equal-area faces at right angles to each other.
- Culture tube.** =Acid bottle, *q.v.*
- Cup.** =Cup leather, *q.v.*
- Cup leather.** The shallow, cup-shaped packing disk or ring on a pump or hydraulic piston made of leather or a resilient material such as rubber-impregnated fabrics.
- Curf.** =Kerf, *q.v.*
- Curtain.** =Cover, *q.v.* *See also* Cover 2.
- Curtain hole.** =Cover hole, *q.v.*

- Cutoff.** 1. The number of feet a bit may be used in a particular type of rock (as specified by the drill foreman).  
2. The point in the stroke of the piston of a steam engine where the entrance of live steam is stopped by the closure of the inlet valve.  
3. To close, shut off, or terminate.  
4. Minimum percentage of mineral in an ore that can be mined profitably.
- Cut stone.** Originally, an artificially broken and shaped carbon; now, generally, a faceted diamond used as an ornament. *See Gem.*
- Cutters.** =Under-reamer lug, *q.v.* *See also* Cutting edge 2.
- Cutting edge.** 1. The point or edge of a diamond or other material set in a bit that comes in contact with and cuts, chips, or abrades the rock. *Also called* Cutting point.  
2. That part of a bit in actual contact with rock during drilling operations.
- Cutting face.** That part of a bit containing the cutting points, excluding the points inset as reamers.
- Cutting grain.** The direction along a plane on which a diamond can be most easily abraded.
- Cutting point.** =Cutting edge, *q.v.* *See also* Cutting edge 1.
- Cutting rate.** =Feed rate, *q.v.*
- Cuttings.** The particles of rock produced in a borehole by the abrasive or percussive action of a drill bit; excess material caused by the rubbing of core against core or core against steel; erosive effect of the circulating liquid; or cavings from the borehole. *Also called* Borings, Drill cuttings, Drillings, Sludge.
- Cutting size.** =Set diameter, *q.v.*
- Cutting speed.** =Feed rate, *q.v.*
- Cutting stones.** Diamonds set in a bit face having points or edges that will be in contact with and will cut or abrade the rock when drilling. *Compare* Cutting edge, Reaming stones.
- Cutout.** 1. The act or process of removing diamonds from a used or dull bit by dissolving the crown metal by corrosive action of an acid or electrolytic dissolution. Also, the diamonds recovered or salvaged by such means.  
2. Opening made in a mine working in which a drill or other equipment may be placed so as not to interfere with other mining operations.
- Cylinder bushing.** Different bore-size metal sleeves replacing the liners in a pump pressure cylinder, thereby changing pump delivery from low pressure with high volume to a higher pressure with lower volume, or vice versa. *Compare* Pump liner.
- Cylinder clearance.** The volume remaining between the head of a piston and the end of the enclosing cylinder with the piston at the end of the stroke. In steam engines the clearance is the lineal distance between the piston and the cylinder head.
- Cylinder displacement.** The volume swept out of a cylinder in one working stroke.
- Cylinder liner.** A replaceable tubular insert lining the pressure cylinder of a piston pump or the cylinder of a reciprocating engine. *Compare* Cylinder bushing.
- Damp.** 1. To slow down or reduce mechanical vibrating and/or fluctuations in the flow of liquids or gases through a confining pipe or other system.  
2. Noxious gaseous products formed in a coal mine, as distinguished from pure air.
- Dampener.** 1. A mechanical modulating device used to reduce deleterious effect of sharp line-pressure fluctuations on pressure gages. *Also called* Damper, Gage saver.  
2. A resilient material having the ability to absorb vibrations.
- Damper.** A mechanical modulating device. *See* Dampener 1.
- Damsite testing.** Boreholes drilled to determine petrological and structural features of the rock or overburden materials at or near the area on which the foundations of a dam will rest.
- Davis bit.** =Davis cutter bit, *q.v.*
- Davis cutter bit.** An annular-shaped, sawtoothlike bit used on shot drills to cut core in soft formations in which shot is ineffective as a cutting medium. *Also called* Davis bit.
- Daylight.** 1. A synonym for Day shift.  
2. When an underground mine working meets the surface it is said to daylight.
- Day shift.** A group of drillers, miners, or laborers, who work during the daylight hours. *Also called* Daylight.
- DCDMA.** *Abbr.* Diamond Core Drill Manufacturers Association. A group of drilling-equipment manufacturers associated for the purpose of standardizing drill equipment and fittings in the United States.
- Dead center.** 1. Perfectly aligned and centered.  
2. A position in which a single-cylinder engine cannot start itself because the crank arm parallels the centerline of the piston and cylinder, a condition that may occur when the piston is at either end of the stroke.
- Dead end.** 1. The end of a drilling line or cable made fast to some stationary part of the drill rig or to a deadman.  
2. The closed end of a pipe or pipe system.  
3. An unventilated underground mine passage extending some distance beyond other mine workings into solid rock.
- Deadline.** 1. The part of a block-and-tackle cable from the traveling block to the deadline anchor.  
2. The unused part of a pipe system.
- Deadline anchor.** The fixed point on a drill rig or deadman to which a deadline of a block and tackle is attached.
- Dead load.** The downward pressure on a structure caused by gravity only, such as the weight of a long string of drill rods suspended from the sheave in a drill derrick. *Also called* Static load.
- Deadman.** A buried log, timber, concrete block, or the like serving as an anchor for a guyline or a deadline, or as an anchor to which a pulling line can be attached.
- Dead true.** 1. A core barrel or drill rod that does not oscillate or vibrate when rotated at high speed is said to be "dead true."  
2. Perfectly straight and centered.
- Declination.** 1. The angular change in the course of a borehole induced by deflection techniques, usually expressed in degrees.  
2. The angular difference between true north and the direction in which a magnetic needle points on a compass.  
3. Sometimes a synonym for inclination. *See* Inclination.
- Deep hole.** 1. According to diamond drillers, a term currently understood to apply to boreholes 3,000 feet or more in depth.  
2. In petroleum drilling, a borehole over 8,000 feet deep.
- Deflect.** To intentionally change the course of a borehole at a point some distance below the collar. *Also called* Wedge, Wedge off.
- Deflected.** A borehole the course of which has intentionally or unintentionally been changed at some point below the collar.
- Deflecting.** The act or process of intentionally or unintentionally changing the course of a borehole at a point some distance below the collar.

- Deflecting core.** The core removed from a deflected borehole.
- Deflecting plug.** 1. =Base plug, *q.v.*  
2. Sometimes used by petroleum drillers as a synonym for Deflecting wedge.
- Deflecting wedge.** A class of devices intentionally placed in a borehole to change its course. All such devices are basically long, tapered, concave metal plugs which can be set at a predetermined point and bearing in a borehole to deflect or change its course. *Also called* Correcting wedge, Deflecting plug, Deflection wedge, Hall-Rowe wedge, Spade-end wedge, Thompson wedge.
- Deflection.** A change in the intended course of a borehole produced intentionally or unintentionally by various conditions encountered in the drill hole or by the operational characteristics of the drilling equipment used. *Also called* Deviation.
- Deflection angle.** The angular change in the course of a borehole produced accidentally or intentionally.
- Deflection bit.** A taper bit, generally a Bullnose type, used to drill down past the deflecting wedge when deflecting a borehole.
- Deflection dial.** The load indicating gage on a penetrometer, which is a soil-testing device used to determine some of the load-bearing characteristics of silt and sandy soils. *See* Cone penetrator.
- Deflection plug.** =Base plug, *q.v.*
- Deflection wedge.** =Deflecting wedge, *q.v.*
- Deflector-wedge ring.** An annular steel ring attached to the upper end of a deflecting wedge, having a slightly smaller diameter than that of the borehole in which the wedge is inserted, serving as a stabilizing ring to hold and center the wedge in the borehole. *Also called* Rose ring.
- Degree rule.** =Clinometer rule, *q.v.*
- Demagnetize.** To deprive of magnetic polarity, as in demagnetizing drill rods by applying heat or by laying them on the ground.
- Denison core barrel.** =Denison sampler, *q.v.*
- Denison sampler.** A large-size, swivel-type double-tube core barrel designed for soil-testing work to obtain relatively undisturbed corelike samples of soft rock and/or soil formations. The inner tube is provided with a thin-wall liner and a finger- or basket-type core lifter or core-retaining device. *Also called* Denison core barrel.
- Density.** 1. The ratio of the mass of any volume of a substance to the mass of an equal volume of a standard substance. For example, water is used as the standard substance to which the ratio of a quantity of a drill mud is compared.  
2. Having the quality of being dense, hard, or compact.
- Densimeter.** An apparatus used to determine the relative density or specific gravity of a substance, such as of a drilling mud.
- Dental work.** The act or process of filling cracks, crevices, or caverns encountered in drilling a borehole with cement or grout; also, the cracks, etc., so filled.
- Deposit.** The natural occurrence of a useful mineral or ore to the extent and degree of concentration to invite exploitation.
- Depth marker.** A small metal tag or wooden block placed in the core box at the bottom of the core recovered from each run, on which is marked the depth at which the core was cut in the borehole.
- Derrick.** The framed wood or steel tower placed over a borehole to support the drilling tools for hoisting and pulling, drill rods, casing, or pipe. Sometimes incorrectly called a Tower.
- Derrick cellar.** =Cellar, *q.v.*
- Derrick crown.** The topmost part of a derrick on which the sheave wheel or crown block is mounted.
- Derrick floor.** The working platform at the base of the derrick, more or less level with the collar of a borehole or at a level slightly above the top of the casing or standpipe.
- Derrick irons.** 1. The crown block or sheave wheel.  
2. Hardware used in constructing a framed wooden derrick.
- Derrickman.** A drill-crew member whose duties require that he work on a platform built in the derrick at a considerable height above the drill or derrick floor.
- Derrick pulley.** A sheave or pulley mounted on the crown of a drill derrick.
- Design.** A type of diamond-drill fitting that, when standardized has specific dimensions and thread characteristics establishing interchangeability of parts made by different manufacturers, and size by specific dimension of the set core-bit inside diameter. Design characteristics supplement the group characteristics that provide for integration of ranges. The design characteristics of drill fittings are established by the second letter in two-letter names and by the third letter in three-letter names. Letters denoting design may establish interchangeability of all parts, as in the M-design core barrel, or only of certain parts, as in the X-design core barrel. *See* M, X; *see also* appendix, table 1. *Compare* Group, Range.
- Development drilling.** Delineation of the size, mineral content, and disposition of an ore body by drilling boreholes.
- Deviate.** To change the course of a borehole. *Compare* Deflect, Walk, Wander.
- Deviating.** =Deflecting, *q.v.*
- Deviation.** 1. =Deflection, *q.v.*  
2. The distance, measured in a horizontal plane, between two surveyed points in a borehole or between the collar and any point below the collar in a borehole. *Also called* Dislocation, Throw.
- Devil's pitchfork.** A fishing tool.
- Diamant.** 1. Obsolete English spelling of Diamond.  
2. French spelling of Diamond.
- Diamond.** The hardest known substance composed of carbon crystallized in the isometric system, the more common crystal forms being the octahedron and rhombic dodecahedron. The cube and some complex and combination forms of the isometric system are found, as well as rounded, distorted, twinned, and cryptocrystalline forms. Although very hard, diamond has excellent cleavage and breaks readily under a blow, yielding flat surfaces parallel to the octahedral planes. Diamonds usually are classified as either "Gems" or "Industrials" on the basis of color, shape, size, crystal form, and the size and location of inclusions or other imperfections. Diamonds sometimes also are classified on a geographical basis, such as Angolas, Brazilians, Congos, Sierra Leones, or West Africans. This does not strictly mean that diamonds so classed come from that specific geographical area but that they are similar to stones characteristically produced by mines in that locality. A method for synthesizing diamonds has been developed, and small industrial diamonds have been produced on a commercial scale. These synthetic diamonds are commonly called "Manmade" and/or "MM diamonds."
- Diamond bit.** Any bit having diamonds inset in its crown, which serve as the cutting points or media. Commonly *also called* Boart bit, Boart-set bit, Bort bit, Bort-set bit, Bortz bit, Bortz-set bit.
- Diamond broker.** A person who buys packets of diamonds from the marketing agency of the Diamond Syndicate or other source, re-sorts the diamonds, and acts as a retail agent selling directly to consumers. *Compare* Diamond buyer, Diamond dealer.

- Diamond buyer.** A person who buys diamonds directly from the producer at or near the site where the diamonds are found or mined. Not to be confused with Diamond broker who is sometimes mis-called a Diamond buyer.
- Diamond chip.** A fragment of a diamond crystal. *Also called* Chip, Chip diamond.
- Diamond cleavage.** The plane along which a diamond crystal can be split easily. The four planes paralleling the faces of an octahedron are those generally referred to as the cleavage planes, or diamond cleavage. All crystalline diamonds are more or less brittle and will be fractured by a sufficiently violent blow, but the irregular surface of a fracture cannot be mistaken for the brilliant flat surface produced by cleaving. The carbon has no cleavage, and in ballas cleavage is absent or very poorly defined.
- Diamond cleaving.** The act or process of splitting diamonds into smaller pieces, which may be more readily used as tool points, gems, or drill diamonds.
- Diamond concentration.** The ratio of the area of a single-layer bit face covered by the inset diamonds or, in an impregnated bit, the bulk proportion of the crown occupied by diamonds.
- Diamond content.** The number of carats of diamonds inset in the crown of a diamond bit. *Also called* Stone content, Stone weight.
- Diamond core drill.** A rotary-type drill machine using equipment and tools designed to recover rock samples in the form of cylindrical cores from rocks penetrated by boreholes. *See* Core drill, Diamond drill.
- Diamond Core Drill Manufacturers Association.** *See* DCDMA.
- Diamond coring.** The act or process of obtaining a core sample of rock material using a diamond-inset annular bit as the cutting tool.
- Diamond count.** 1. The number of diamonds set in the crown of a specific diamond bit. *Also called* Bit count, Stone count.  
2. Sometimes incorrectly used to indicate the average size of the diamonds inset in a specific bit. *See* Carat count.
- Diamond cutter.** 1. An individual skilled in the art of shaping diamonds as gems.  
2. A tool in which a single diamond, shaped as a cutting point, is inset.
- Diamond dealer.** A synonym for Diamond broker.
- Diamond drill.** Any one of a number of different sizes and kinds of machines designed to impart a rotary and longitudinal movement to a string of hollow rods to which a bit having inset diamonds as the cutting points acts as a rock-cutting head capable of drilling either vertical or inclined boreholes, sometimes to great depths. Water pumped downward through the hollow, sectional rods acts as a bit coolant and washes away the rock fragments produced by the abrasive, rather than percussive, action of the bit upward out of the hole. The machine may be driven by diesel or gasoline-combustion engines or by electric-, steam-, or airpowered motors and generally is equipped with a hoist capable of lifting and handling, on a single line, a specific-size string of drilling tools equal in length to the footage specified as the capacity of the drill. Such drills generally are used in mineral prospecting and development work but also are used to drill blastholes and to do various types of soil and foundation-testing work. *Also called* Adamantine drill, Core drill, Diamond core drill, Rotary drill.
- Diamond-drill cover.** Boreholes drilled with a diamond drill and bits into rock surrounding an underground opening for the purpose of detecting water-bearing fissure or structures. *Compare* Cover.
- Diamond-drill crew.** The men needed to operate a diamond drill properly.
- Diamond driller.** A person trained and skilled in the art of operating a diamond drill.
- Diamond-drill-hole probe.** *See* Geiger-Mueller probe.
- Diamond drilling.** The act or process of drilling boreholes using bits inset with diamonds as the rock-cutting tool. The bits are rotated by various types and sizes of mechanisms motivated by steam, internal-combustion, hydraulic, compressed-air, or electric engines or motors. *See* Diamond drill.
- Diamond-drill men.** Members of a diamond-drill crew or persons trained to perform one or more duties connected with the operation of a diamond drill.
- Diamond-drill pipe.** = Drill rod, *q.v.*
- Diamond-drill rod.** = Drill rod, *q.v.*
- Diamond dust.** Finely fragmented and powdered diamonds used as a cutting, grinding, and polishing medium.
- Diamond exposure.** The proportional mass of a diamond protruding beyond the surface of a matrix metal in which the diamond is inset. *Compare* Bit clearance.
- Diamond grade.** The worth of a diamond as based on an individual sorter's interpretation of somewhat arbitrary standards of color, presence of flaws, soundness, and shape.
- Diamondiferous.** Any substance containing diamonds; generally applied to rock or alluvial material containing diamonds but also may be used in referring to other diamond-impregnated substances, such as the crown of a diamond-impregnated bit.
- Diamond impregnated.** Having diamonds distributed throughout a matrix. *Compare* Surface set.
- Diamond-impregnated bit.** = Impregnated bit, *q.v.*
- Diamond life.** The amount of cutting a diamond will accomplish before being completely worn away by abrasion. In bits, diamond life usually is expressed in the number of feet drilled in a specific rock before the inset diamonds become too dulled to continue cutting or are lost by "roll out" or completely worn away by abrasion.
- Diamond loss.** The difference between the amount of diamond set in a bit and the usable diamond salvaged from the same bit when worn is considered the diamond loss. The loss may be expressed in carat per bit, in carat per foot drilled, or in carat per 100 feet of borehole drilled in a specific rock.
- Diamond matrix.** 1. A metal or metal alloy forming the material in which the diamonds inset in a bit crown are embedded. *Also called* Bit-crown metal, Bit-crown matrix, Bit matrix, Crown metal, Matrix.  
2. The rock material in which diamonds are formed naturally and occur, such as in Kimberlite.
- Diamond needle.** A small-diameter hollow metal tube attached to a flexible rubber tube through which air is pulled by a suction or vacuum pump. The suction created at the tip of the metal tube enables a bit setter to pick up and place a small diamond in a bit mold with greater facility than with tweezers. Called a needle because the metal tube generally is made by using a discarded hypodermic needle. *Also called* Diamond pickup needle, Diamond pickup tube, Diamond pipe.
- Diamond orientation.** The act or process of purposely setting a diamond in a bit or cutting tool in such a manner that a specific crystal face or hard vector plane of the diamond will be the face or plane in contact with the material being cut or abraded by the diamond.
- Diamond-particle bit.** A surface-set or impregnated type of diamond bit in which the inset diamonds are small fragments of diamonds.
- Diamond pattern.** Manner in which the inset diamonds are arranged or distributed about the crown of a bit with or without conforming to some predetermined geometric arrangement.

- Diamond pickup needle.** =Diamond needle, *q.v.*
- Diamond pickup tube.** =Diamond needle, *q.v.*
- Diamond pipe.** =Diamond needle, *q.v.*
- Diamond-point bit.** =Mud bit, *q.v.*
- Diamond powder.** Same as Diamond dust.
- Diamond pressure.** The proportional amount of the total feed pressure applied to a diamond bit theoretically borne by an individual diamond inset in the face of the bit. *Also called* Pressure per diamond, Pressure per stone, Stone pressure.
- Diamond quality.** =Diamond grade, *q.v.*
- Diamond salvage.** The recovery of diamond, reusable and scrap, from diamond bits and tools by acid or electrolytic dissolution of the matrix in which the diamond is inset.
- Diamond saw.** A circular metal disk having diamonds or diamond dust inset in its cutting or peripheral edge. Employed to cut rocks and other brittle substances too hard to be cut by a saw blade having nondiamond-cutting-edged teeth.
- Diamond-saw splitter.** =Core saw, *q.v.*
- Diamond scale.** Instrument on which diamonds are weighed with weight units calibrated in carats; scales vary from a folding 50-carat-capacity type, small enough to fit in a coat pocket when closed, to those large enough to weigh several thousand carats at one time.
- Diamond scrap.** As used in the diamond-drilling industry—broken diamonds and diamond fragments deemed unfit for reuse in a diamond bit. In other industries using diamond-pointed tools, any piece of diamond salvaged from a tool and deemed unfit for reuse in the same kind of tool.
- Diamond screen.** A perforated metal or wire-cloth sieve used to sort diamonds or fragments of diamonds according to size.
- Diamond-set.** Contains inset diamonds.
- Diamond-set bit.** A rock-boring or rock-cutting tool, the cutting points of which are inset diamonds.
- Diamond-set inserts.** Small, shaped metallic slugs inset with diamonds designed to be brazed or welded into slots or depressions machined in a metal bit or reaming-shell blank.
- Diamond-set ring.** A powdered metal-alloy band encircling a reaming shell in which diamonds are inset mechanically.
- Diamond setter.** Formerly, persons skilled in the art of handsetting a diamond bit; also, persons trained to set diamonds in a mold to produce a so-called mechanically set bit. A few are being trained currently to handset, but the technique is rapidly becoming a lost art.
- Diamond shoe.** 1. A diamond-set washover shoe.  
2. Term sometimes erroneously applied to a diamond-set casing bit and/or a set casing shoe.
- Diamond size.** According to the diamond-drilling and bit-setting industries, the size of a diamond is always expressed in the number of nearly equal size diamonds having a total weight of 1 carat; hence an 8-diamond size means 8 stones weighing, in toto, 1 carat; a 40-diamond size means that there are 40 diamonds having a total weight of 1 carat.
- Diamonds per carat.** The number of relatively equal size diamonds having a total weight of 1 carat. *Also called* Stones per carat.
- Diamond system.** =Diamond drill, Diamond drilling, *q.v.*
- Diamond tools.** 1. Tools and equipment used to drill a borehole with diamond-set bits.  
2. Any tool the cutting point of which is a diamond, sometimes an inset whole stone or a shaped fragment of a diamond.
- Diamond tweezers.** Sharp, pointed tweezers used to pick up and manipulate single diamonds.
- Diamond wear.** =Diamond loss, *q.v.*
- Diamond wheel.** 1. A grinding stone or wheel in which the abrasive agent is fragmented diamonds or diamond dust.  
2. A synonym for Diamond saw.
- Diamontiferous.** *See* Diamondiferous.
- Die.** 1. =Bell tap, *q.v.*  
2. The form used in the process of manufacturing diamond-set bits by casting or powder metal methods. *Also called* Bit mold.  
3. A tool used to cut threads on bolts or piping.
- Die collar.** =Bell tap, *q.v.*
- Die nipple.** =Bell tap, *q.v.*
- Diesel rig.** Any drill machine powered by a diesel engine.
- Digging bit.** According to English drillers, a noncoring bit usually similar to a steel drag or mud bit.
- Dike.** 1. An embankment of earth around a drill sump or tank.  
2. An embankment to impound a body of water or mill tailing.  
3. A relatively long, thin body of igneous rock, which, while molten, was injected into a fissure in older rocks and has chilled and solidified. Not to be confused with sill or vein. *Also spelled* Dyke.
- Dike rock.** The solidified igneous rock, which, while molten, was injected into a fissure in older rocks. Not to be confused with rock forming a vein or sill. *See* Dike 3.
- Dilly hole.** 1. A small-diameter cased hole alongside the borehole proper. The dilly hole is as deep as the kelly or grief stem is long and acts as a receptacle in which the kelly may be stored during round trips, casing, or other operations in which it is not used.  
2. A small sludge-catchment basin placed between the collar of the borehole and the main drill sump.
- Dilution.** =Contamination, *q.v.*
- Dip.** The angle of a slope, vein, rock stratum, or borehole as measured from the horizontal plane downward.
- Dip compass.** An instrument to measure magnetic intensity by means of a magnetic needle fixed to swing in a vertical plane so that it can readily be deflected downward by magnetic materials. Used to explore for subsurface deposits containing magnetic materials. *May also be called* Dip needle, Dipping compass, Dipping needle, Doodle bug, Magnetometer.
- Dip needle.** =Dip compass, *q.v.*
- Dipping compass.** =Dip compass, *q.v.*
- Dipping needle.** =Dip compass, *q.v.*
- Dip reading.** An angular measurement taken in an inclined borehole by using one of several types of borehole-surveying devices or techniques.
- Dip test.** As used in the diamond-drilling industry, an angular measurement of the inclination of a borehole taken with a clinometer. *See* Acid-dip survey.
- Direct-acting pump.** A pump in which the water cylinder and piston are connected by the same piston rod to the steam or air cylinder so that the stream or air pressure acts straight through to the water piston.
- Direct-dip-reading chart.** *See* Direct-reading capillarity chart.
- Directional drilling.** Drilling a borehole whose course is controlled and made to reach a specific target area by deflection techniques.
- Directional work.** *See* Directional drilling.
- Direct-reading capillarity chart.** A graduated scale printed on transparent paper, which, when used in the prescribed manner, enables one to determine the true angle a borehole is inclined from readings taken directly on the etch plane in an acid bottle. This eliminates the need for a protractor or goniometer and for a capillarity-correction chart.

- Dirt.** 1. The overburden, consisting of unconsolidated rock, glacial debris, or other earth material overlying bedrock.  
2. Clay or other useless waste or nonore material produced in mining.
- Disk bit.** =Disk bit, *q.v.*
- Discharge.** Outflow from a pump, drill hole, piping system, or other mechanism.
- Dish.** *See* Pan 1 and 2.
- Disk bit.** A roller-type rock bit with smooth-edged cutter disks instead of toothed or serrated cones. The term is seldom used, as the disk bit has been more or less replaced by serrated-tooth roller-cone rock bits.
- Dislocation.** 1. The shifting of the relative position of a boulder in a borehole or of the rock on either side of a crack or fissure cutting across a borehole.  
2. The offset in a borehole. *Also called*, Deviation, Throw.
- Displacement.** 1. The volume of liquid delivered by a single stroke of a pump piston.  
2. Sometimes used as a synonym for Offset Deflection, Deviation, Dislocation, Throw.  
3. The capacity of an air compressor, usually expressed in cubic feet of air per minute (c.f.m.).
- Distribution.** *See* Diamond pattern.
- Ditch.** 1. The artificial course or trough in which the drill-circulation fluid is conducted from the collar of the borehole to the sump; also, to dump and discard contents of a bailer, without taking a sample, into a ditch leading away from the collar of a borehole. *Also called* Canal, Chute.  
2. To throw away or discard.
- Divining rod.** *See* Dousing rod.
- Dobie.** 1. The mudcap or adobe method of secondary blasting and/or breaking boulders on the surface or in a borehole. *See* Mudcap.  
2. A synonym for Adobe.
- Doctor.** 1. To treat a poor-quality carbon with substances such as oil, wax, guttapercha, solder, gum, or resin, to camouflage its defects, hence changing its appearance to make it look like a better grade stone. *Also called* Dope.  
2. A makeshift, temporary repair.  
3. As used in the mining industry, to salt.
- Dodecahedron.** As used by the diamond-bit-setting industry, a diamond having 12 rhombic-shaped crystal faces, which, in crystallography, is called a rhombic dodecahedron. *Also called* Brazilian stone by diamond-bit setters because, before discovery of the African diamond fields, practically all diamonds, other than carbon, produced in Brazil and used in diamond bits were dodecahedral-shaped diamonds.
- Dog.** 1. Any of the various devices used for holding, gripping, or fastening something.  
2. To hold, grip, or fasten.  
3. A nonstandard or poorly made tool or piece of drilling equipment.
- Doghouse.** 1. The structure enclosing the drill platform and machine.  
2. A small shelter in which members of a drill crew change clothing.
- Dog leg.** 1. An abrupt, angular change in the course of a borehole; also, the deflected borehole drilled from a parent hole to make an additional intersection of a vein or other structure.  
2. An abrupt bend or kink in a wire rope or cable.  
3. An abrupt bend in a path, piping system, or road.
- Dog-leg severity.** Same as Deflection angle, Hole curvature.
- Dollie.** *See* Dolly.
- Dolly.** 1. A low wheel-mounted frame designed to support heavy pieces of equipment while being moved.  
2. A stationary roller.
- Dome.** 1. The steam chamber of a boiler. *Compare* Air dome.  
2. An uplift in which the beds, or strata, dip outward and downward in all directions from a center.
- Donkey engine.** A small auxiliary engine, formerly steam motivated.
- Donkey hoist.** A small auxiliary hoisting drum and engine operated by steam, by compressed air, and sometimes by an electric motor or internal-combustion engine.
- Donkey pump.** A small pump of the direct-acting type provided with a flywheel.
- Doodlebug.** *See* Douse, Douser.
- Doodlebugger.** *See* Douser.
- Door-type sampler.** A soil-sampling tube or barrel equipped with an auger-type cutting shoe and made to be rotated to obtain samples of sand, gravel, and other granular material. The body of the sampler is essentially a tube in which a small opening or window is machined and equipped with a covering, which can be latched shut while the sample is being taken. When sampler is removed from the ground, the latch is released and the sample removed through the door or window. *Also called* Window-type sampler.
- Dope.** 1. Heavy grease or other material used to protect or lubricate drill rods and/or open gears, chain and sprockets, etc. *Also called* Gunk, Rod dope, Rod grease.  
2. To apply a lubricant to drill rods, rod couplings, open gears, etc.  
3. To doctor a drill diamond. *See* Doctor 1.
- Double.** 1. A stand of two standard lengths of drill rods or drill pipe coupled together. *Also called* Couple, Couplet.  
2. Two consecutive work shifts or tours.
- Double A.** One of several terms (or letter symbols) used to designate medium-quality drill diamonds. *See* AA.
- Double-action pump.** A pump whose water cylinders are equipped with intake and discharge valves at each end; hence liquid is delivered by the pump on both the forward and the backward strokes of the pump piston.
- Double block.** 1. A pair of multiple-sheave blocks reeved with rope or lines; a block and tackle.  
2. Two pulleys or small sheaves mounted on a single shaft within a frame or shell.
- Double-cone bit.** A roller-type bit having two serrated, cone-shaped cutting members. *See* Roller bit.
- Double core barrel.** =Double-tube core barrel, *q.v.*
- Double corkscrew.** A fishing tool having a pair of projecting, intertwined, corkscrew-shaped prongs.
- Double drill column.** A pair of drill columns connected by a heavy horizontal arm on which a rotary- or percussive-type drill machine can be mounted. *See* Drill column.
- Double drum.** Hoisting device having two cable spools or drums rotating in opposite directions.
- Double extra heavy.** =Double extra strong, *q.v.*
- Double extra strong.** A certain class of very thick walled pipe, which sometimes is used as a drivepipe; often incorrectly called double extra heavy or extra heavy pipe.
- Double hydraulic.** A diamond-drill hydraulic-feed mechanism having two parallel pressure cylinders with piston rods connected by means of a yoke to the drive rod between the two cylinders.
- Double jack.** 1. A two-hand heavy hammer, usually weighing about 10 pounds. *Compare* Single jack.  
2. A double or twin-screw drill column.
- Double mast.** *See* A-frame.

- Double-round nose.** The cross-sectional view of the cutting-face portion of a coring bit when its profile is a full half circle, the radius of which is one-half the wall thickness or kerf of the bit face.
- Double-round nose bit.** *See* Double-round nose.
- Double shift.** Two drill crews at work, one crew relieving the other; also, one crew working two consecutive shifts.
- Double-tube barrel.** =Double-tube core barrel, *q.v.*
- Double-tube core barrel.** Core barrels consisting of two nesting tubes attached to a common headpiece threaded to connect to a drill rod. The inside tube holds the core, and the bottom end of the outside tube is threaded to connect with a reaming shell to which a coring bit is fitted. A narrow annular space is left between the tubes; through this the cuttings-removal fluid is conducted from the drill rod to the face of the bit and thence to the outside of the outer tube. The core enters the inner tube, where it is protected from the wash effects of the circulating fluid except for a short space between the lower end of the inner tube and the face of the bit. Numerous kinds of rigid- and swivel-type double-tube core barrels are manufactured.
- Double-tube core barrel, rigid type.** A double-tube core barrel having both the inner and outer tubes rigidly coupled to a common headpiece.
- Double-tube core barrel, swivel type.** A double-tube core barrel having the upper end of the inner tube coupled to the core-barrel head by means of an anti-friction device, such as a roller or ball bearing; hence the inner tube tends to remain stationary when the outer tube, which is rigidly coupled to the core-barrel head, is rotated.
- Double-tube rigid barrel.** =Double-tube core barrel, rigid type, *q.v.*
- Douce.** =Douse, *q.v.*
- Doucer.** =Douser, *q.v.*
- Doucing.** =Dousing, *q.v.*
- Doucing rod.** =Dousing rod, *q.v.*
- Douse.** 1. Commonly used by drillers as a synonym for scientific (geophysical) devices, such as the seismograph, torsion balance, magnetometer, dip needle, etc., used to locate and delineate subsurface structures in which water, oil, or minerals may occur. *Also called* Doodlebug, Doodlebugger, Douce, Doucer, Dowse, Dowser.  
2. To locate and delineate subsurface structures in which water, oil, or minerals may occur by the use of various scientific devices, such as the seismograph, torsion balance, magnetometer, dip needle, etc. *Also called* Doodlebugging, Doucing, Dowsing.  
3. Commonly used by drillers as synonym for devices, as divining rod, forked tree limb, or other non-scientific contraptions, supposedly useful in locating subsurface formations containing water, oil, or minerals. *Also called* Divining rod, Doodlebug, Douce, Doucer, Doucing rod, Dowse, Dowser, Dowsing rod.  
4. To supposedly locate and delineate formations bearing water, oil, or mineral by use of a divining rod or other non-scientific contraption. *Also called* Doodlebugging, Doucing, Dowsing.
- Douser.** 1. =Douse, *q.v.* *See* Douse 1.  
2. Commonly used by drillers as a name for a person skilled in the use of geophysical devices. *Also called* Doodlebugger, Doucer, Dowser. *Compare* Douse 1 and 2.  
3. Commonly used by drillers as a name for a person supposedly having the ability to locate formations in which water, oil, or minerals occur by the use of divining rod or other non-scientific contraption. *Also called* Doodlebugger, Doucer, Dowser. *Compare* Douse 2, 3.
- Dousing rod.** Commonly used by drillers as a name applied to a wooden wand, rod, forked tree limb, or twig (usually witch hazel) supposedly useful in locating formations bearing water, oil, or mineral. *Also called* Divining rod, Doodlebug, Dowsing rod. *Compare* Douser 2, 3.
- Down dip.** Parallel to or in general direction of the dip of a bed, rock stratum, or vein.
- Down-grade.** 1. To classify a substance as lower quality than warranted.  
2. To reduce the value by the addition of a dilutant, as in adding waste rock to ore.
- Down hole.** 1. A borehole drilled at any angle inclined downward in a direction below the horizon.  
2. In a borehole. *Compare* Down-hole equipment.  
3. Sometimes used as a synonym for Bottom hole.
- Down-hole equipment.** Any piece of drilling equipment used inside the borehole below the collar.
- Down time.** Drilling time lost in repair, fishing, cementing operations, or moving rig from one hole to another.
- Dowse.** =Douse, *q.v.*
- Dowser.** =Douser, *q.v.*
- Dowsing rod.** =Dousing rod, *q.v.*
- Drag.** 1. Resistance created by friction.  
2. The up- or down-tilted curve in rock beds or strata adjacent to a fault.  
3. The fragments of ore and/or rock torn from an ore lode or rock strata by a fault. Such fragments are scattered along the line of the fault and usually are enclosed within crushed or brecciated pieces of the rock formation traversed by the fault.
- Drag angle.** The angle at which the leading surface of a cutting plane or point meets the surface to be cut. If less than 90°, the angle is said to be negative; if over 90° it is called a positive rake or drag angle. *Compare* Rake.
- Drag bit.** Various kinds of rigid steel bits provided with fixed (as contrasted to the movable or rolling cutting points of a roller bit) and sometimes replaceable cutting points, which are rotated to drill boreholes in soft to medium-hard rock formations. *See* Diamond-point bit, Fishtail bit, Mid bit.
- Drag breccia.** Fragments of rock in the brecciated zone of a fault. *See* Drag 3.
- Drag chain.** A chain used to make fast a wheel of a vehicle or wound around a skid runner on a drill to act as a braking device.
- Drag rake.** =Negative rake, *q.v.*
- Drag twist.** A borehole fishing tool similar to a corkscrew. *See* Corkscrew.
- Drainage hole.** =Drain hole, *q.v.*
- Drain hole.** 1. A borehole drilled into a water-bearing formation or mine workings through which the water can be withdrawn or drained.  
2. Any hole provided in the base covering or housing on a machine through which oil or liquids can be withdrawn.
- Drain valve.** Small petcock or valve through which unwanted liquids that collect in a pipe system or mechanism are drained.
- Draw.** 1. To pull bit-blank metal toward a diamond by peening and calking when handsetting a diamond bit.  
2. To hoist.
- Drawpoint.** Heavy chisel cut across the face of a bit blank a short distance from a diamond to serve as a starting point for calking the metal toward and around a diamond being handset.
- Draw works.** A countershaft and drum substituted in rotary drilling for the band wheel, calf wheel, bull wheel, and sand reel used in the cable-tool method as a means of handling drill-string-equipment casing and drivepipe in the course of drilling a borehole; modern designs provide gears for several speeds.

- Dress.** 1. To resurface worn teeth on a roller or other bit by welding on a hard-surfacing alloy. *See* Face 2, Hardface 1.  
2. To recalk the worn face of a handset diamond bit.  
3. To resharpen and restore to size the bits used in cable-tool drilling.
- Dresser.** A person skilled in the art of heating, shaping, and sharpening churn-drill bits. *Also called* Tool dresser.
- Drift.** 1. The deviation of a borehole from its intended direction or target. *Compare* Walk.  
2. Rock, sand, clay, or material deposited by glacial ice or water.  
3. A horizontal underground passage parallel to or along a vein or related structure.  
4. To excavate a drift; to drive.  
5. A tool used for flattening dents or straightening the inward bulges in casing or other pieces of tubular equipment.
- Drift angle.** 1. The angular deviation of a borehole from vertical and/or its intended course.  
2. *See* Deflection angle.
- Drift angle buildup.** The rate of the increase in the drift angle which is generally expressed as the number of degrees increase for a specific drilled footage. Example, 2° per 100 feet.
- Drift clay.** *See* Boulder clay.
- Drifted.** 1. A borehole the course of which has deviated or departed from the intended direction or did not reach its intended target.  
2. Inward-bulged casing that has been straightened by the use of a drift. *See* Drift 5.  
3. A horizontal underground passage parallel to or along a vein or related structure.
- Drifter.** 1. A drill crewman, miner, or laborer who travels from place to place, only working a short period of time at each place. *Compare* Boomer.  
2. An air-driven, percussive rock drill; *also called* a Leyner or Liner.  
3. A person skilled in the use of air-driven, percussive rock drills and other processes utilized in excavating horizontal underground passages or tunnels.
- Drifter bar.** *See* Drill column.
- Drift indicator.** Various types of mechanical or photographic devices used to determine the compass bearing and inclination of the course of a borehole. *Compare* Clinometer, Maas compass.
- Drifting.** 1. Deviating from the intended direction, such as a borehole during the process of drilling.  
2. Excavating a horizontal underground passage parallel to or along a vein or related structure.  
3. Straightening inward bulges in casing by using a special tool. *See* Drift 5.
- Drill.** 1. Any cutting tool or form of apparatus using energy in any one of several forms to produce a circular hole in rock, metal, wood, or other material. *See* Calyx drill, Churn drill, Core drill, Diamond drill, Rock drill, Rotary drill, Shot drill.  
2. To make a circular hole with a drill or cutting tool.
- Drillability.** The relative speed at which a material may be penetrated by a drill bit. High drillability denotes easy penetration at a fast rate.
- Drill ahead; Drilling ahead.** 1. To sink a borehole into solid or unconsolidated rock material, such as overburden or glacial till, to a considerable depth below the bottom of the casing or drivepipe.  
2. To restart or resume drilling operation.  
3. To drill boreholes in advance of mine workings to explore for or locate old mine workings or a water-bearing formation.
- Drill bar.** A drill column that is set horizontally instead of vertically in an underground workplace.
- Drill base.** Metal or wood framework on which a drilling machine is mounted.
- Drill bit.** One of a number of different types of detachable cutting tools used to cut circular holes in rock, wood, metal, etc. *Also called* Drill crown in Africa and England.
- Drill boart, Drilling boart.** =Drill diamonds, *q.v.*
- Drill bort; Drilling bort.** =Drill diamonds, *q.v.*
- Drill bortz; Drilling bortz.** =Drill diamonds, *q.v.*
- Drill by; Drilled by; Drilling by.** Same as Bypass 1.
- Drill cable; Drilling cable.** In a strict sense, the term should only be used to designate the heavy rope or cable used as the connecting link between the drill stem and the walking beam on a churn drill. However, the term now is commonly used to signify any cable or wire rope used in hoisting drill rods, casing, and other borehole-drilling equipment used with a drill machine, such as a calyx drill, diamond drill, etc. *Also called* Drilling line, Drill line.
- Drill casing.** =Casing, *q.v.*
- Drill capacity.** The lineal feet of drill rod of a specified size that a hoist on a diamond or rotary drill can lift or that the associated brake is capable of holding on a single line; also sometimes used to designate the size of a drill machine, based on the depth to which it is capable of drilling.
- Drill collar; Drilling collar.** A length of extra heavy wall drill rod or pipe connected to a drill string directly above the core barrel or bit, the weight of which is used to impose the major part of the load required to make the bit cut properly. A drill collar is usually of nearly the same outside diameter as the bit or core barrel on which it is used. Not to be confused with Guide rod.
- Drill column.** 1. A length of steel pipe equipped with a flat cap at one end and a jack screw on the opposite end by means of which the pipe can be wedged securely in a vertical or horizontal position across an underground opening to serve as a base on which to mount a small diamond or rock drill. *Also called* Bar, Drifter bar, Drill bar, Jack bar.  
2. A synonym for Drill stem.
- Drill control; Drilling control.** A mechanism that is regulated manually or set to control automatically the speed at which a bit penetrates rock being drilled.
- Drill contract; Drilling contract.** An agreement between a drilling contractor and a second party specifying the conditions under which boreholes are to be drilled for the second party. In soil- and foundation-testing work, a drill or drilling contract commonly is called a Boring contract.
- Drill contractor; Drilling contractor.** Owner of an equipped drill machine who will, under specified conditions and for an agreed price, drill boreholes for another party. A contractor doing soil- and foundation-testing work commonly is called a Boring contractor.
- Drill core.** A solid, cylindrical sample of rock produced by an annular drill bit, generally rotatively driven but sometimes cut by percussive methods. *See* Core.
- Drill crew.** Men needed to operate a drill machine properly.
- Drill crown; Drilling crown.** =Drill bit; Drilling bit, *q.v.*
- Drill cuttings.** *See* Cuttings, Sludge.
- Drill derrick; Drilling derrick.** *See* Derrick.
- Drill diamonds.** Industrial diamonds used in diamond-drill bits and reaming shells for coring, cutting, or reaming rock. Drill diamonds usually contain obvious imperfections and inclusions, although the finer grades approach toolstones in quality. *Also called* Drill bort, Drilling bort, Drilling diamonds, Drillings. *Compare* Toolstones. *See* Industrials.
- Driller.** A person who has acquired enough knowledge and skill to enable him to operate and to assume the responsibility of operating a drill machine. *Also called* Drill man, Drill runner, Runner, Tool pusher.



- Driller's mud.** A mineral-laden fluid used as a circulation medium when drilling a borehole with a diamond- or rotary-drilling machine. *See* Mud.
- Drill fittings.** Devices, parts, and pieces of equipment used down hole in drilling a borehole. *Also called* Down-hole equipment.
- Drill floor; Drilling floor.** A plank-covered work area around the collar of a borehole at the base of a drill tripod or derrick.
- Drill fluid; Drilling fluid.** Usually water or mud-laden water (sometimes applied to compressed air, natural gas, or oil) circulated through a drill string to keep the bit cool and to wash cuttings produced away from the bit face. *Also called* Circulation fluid, Fluid circulation.
- Drill footage.** The number of lineal feet of borehole drilled, usually expressed in number of feet per shift.
- Drill free, Drilling free.** A condition occurring when the bit is no longer cutting because it is being held suspended above the bottom of the borehole by the drill rods or by a blocking or upstanding piece of core. *Also called* Drill off.
- Drill goods.** =Drillings, *q.v.* *See* Drillings 1.
- Drill head; Drilling head.** 1. Synonym for Swivel head.  
2. Obsolete synonym for Drill bit.  
3. =Auger drill head, *q.v.*
- Drill hole.** 1. Technically, a circular hole drilled by forces applied percussively; loosely and commonly, the name applies to a circular hole drilled in any manner.  
2. Used by diamond drillers as a synonym for Borehole. *Compare* Borehole.
- Drill-hole returns.** The circulation fluid and entrained cuttings overflowing the collar when drilling a borehole.
- Drill-hole survey.** *See* Borehole survey.
- Drill in; Drilling in; Drilled in.** 1. The act or process of setting or advancing casing or pipe through overburden with a drill machine by rotating a bit-shod string of casing or pipe.  
2. To drill through the cap rock into an underlying oil-, water-, or gas-bearing formation.
- Drilling.** The act or process of making a circular hole with a drill. *See* Drill. *Compare* Boring.
- Drilling life.** *See* Bit life.
- Drilling pressure; Drill pressure.** *See* Bit load.
- Drillings.** 1. =Drill diamonds, *q.v.*  
2. Incorrectly used as a synonym for Cuttings.  
3. Sometimes designates drill diamonds ranging from 4 to 23 stones per carat in size.
- Drilling thrust.** *See* Bit load.
- Drilling tower; Drill tower.** =Derrick, *q.v.*
- Drilling weight; Drill weight.** Total weight, expressed in pounds or tons, applied to a bit while drilling. *Also called* Bit load, Bit thrust, Drilling pressure, Drilling thrust.
- Drill jars; Drilling jars.** 1. A loose-fitting or sliding connector in a drill stem by means of which a sharp, jarring blow can be delivered to a string of drill tools to dislodge the string when it is stuck in a borehole.  
2. Incorrectly used as a synonym for Drive hammer.
- Drill line; Drilling line.** Sometimes used as a synonym for Drill cable, Drill string.
- Drill log; Drilling log.** The record of the events and the type and characteristics of the formations penetrated in drilling a borehole. *Also called* Boring log. *Compare* Log.
- Drill machine; Drilling machine.** A portable mechanism used in drilling boreholes, drill holes, or wells. *Also called* Drill, Drill rig.
- Drillman.** 1. A synonym for Driller.  
2. A member of a drill crew.
- Drill material; Drilling material.** =Drill diamond, *q.v.*
- Drill mud; Drilling mud.** Water mixed with clay (usually bentonite) and sometimes other material such as ground barite, oil, etc., used as a rotary and/or diamond-drill circulation medium. *Compare* Circulation fluid, Drill fluid.
- Drill off; Drilling off.** Used by rotary and diamond drillers as a synonym for Drill free. *See* Drill free.
- Drill out; Drilling out.** 1. To penetrate or remove an obstruction in a borehole by a drilling operation.  
2. To complete a borehole or group of boreholes.  
3. To determine location and areal extent of an ore body or petroleum reservoir by a number of boreholes.
- Drill over; Drilling over.** 1. The act or process of drilling around the outside of casing or drill-string equipment stuck in a borehole, using a washover shoe or a bit and core barrel.  
2. To drill down over core lost in a borehole.
- Drill pattern; Drilling pattern.** The placement of a number of boreholes in accordance to a predetermined geometric arrangement.
- Drill pipe; Drilling pipe.** A petroleum driller's term for drill rods. The term "pipe" usually is applied to Pk and larger size drill rods, all of which may or may not be externally flush coupled. *Compare* Drill rod.
- Drill platform; Drilling platform.** =Drill floor, Drilling floor, *q.v.*
- Drill pressure; Drilling pressure.** *See* Bit load.
- Drill rate; Drilling rate.** 1. The number of feet of borehole drilled in a specified interval of time. Example: Drilling rate was 80 feet per day.  
2. Price, expressed in dollars, per foot of borehole completed in accordance with terms specified in a drill contract.  
3. A synonym for Feeding rate, Feed rate.
- Drill rig, Drilling rig.** A drill machine complete with all tools and accessory equipment needed to drill boreholes.
- Drill rod; Drilling rod.** Hollow, externally flush-coupled rods connecting the bit and core barrel in a borehole to the swivel head of a rotary-drill rig on the surface. Unit lengths of rod are usually 10 feet long and composed of two threaded parts, (a short pin-threaded coupling and a box-threaded length of heavy-wall steel tubing) connected together. The term "drill pipe" is applied to rods used in a similar manner on rotary rigs in petroleum-drilling operations. *Also called* Diamond-drill pipe, Diamond-drill rod, Drill pipe. *Compare* Drill pipe. *See* appendix, table 1, for rod sizes in general use.
- Drill-rod bit.** A noncoring bit designed to be coupled to a reaming shell threaded to couple directly on a drill rod instead of a core barrel.
- Drill-rod drive quill.** =Drive quill, *q.v.*
- Drill rope.** A left-lay, plant-fiber rope, usually about 1¼ inches in diameter, used on diamond drills in drivepiping operations in lieu of the wire hoisting line, as it can be wrapped around the hoist drum or cathead to manipulate a chopping bit or drive hammer more easily than can a wire hoisting cable.
- Drill runner.** *See* Driller.
- Drill series.** =Drill diamonds, *q.v.*
- Drill shack.** The shelter enclosing the working area around the collar of a borehole. *Compare* Change house.
- Drill shanty.** *See* Drill shack.
- Drill site; Drilling site.** Spot where drill rig will be or has been set up.
- Drill sludge; Drilling sludge.** *See* Cuttings.
- Drill speed; Drilling speed.** May be used by drillers as a synonym for any one of the following: Drill bit r.p.m., Drill rate, Feed rate, Feed ratio, Feed speed, Rate of penetration.

- Drill stem; Drilling stem.** 1. See Drill string.  
2. As used by churn drillers, the heavy steel shaft connecting the blunt chisel-face bit to the churn-drill cable.
- Drill string; Drilling string.** 1. The assemblage of drill rods, core barrel and bit or drill rods, drill collars, and bit in a borehole, which is connected to and rotated by the drill machine on the surface at the collar of the borehole. *Also called* Drill stem.  
2. As used by cable tool or churn drillers, the assemblage of bit, stem, rope, or cable in a borehole connected to the walking beam of the churn drill on the surface.
- Drill sump.** See Sump 1.
- Drill thrust; Drilling thrust.** See Bit load.
- Drill time; Drilling time.** Amount of time, expressed in hours per shift or percent of shift time, that bit is on bottom and drilling.
- Drill tripod.** See Tripod.
- Drill water.** See Drill fluid.
- Drip valve.** See Feed-control valve.
- Drive; Driving.** 1. To advance or sink drivepipe or casing through overburden or broken rock formation by chopping, washing, or hammering with a drive hammer or by a combination of all three procedures.  
2. To excavate a horizontal underground passage or tunnel.  
3. Any power-transmission system such as belt drive, gear drive, chain drive, electric drive, etc.
- Drive block.** See Drive hammer.
- Drive-block extension.** See Drive-hammer extension.
- Drive cap; Driving cap.** See Drive head 1.
- Drive casing.** Heavy, thick-walled casing, which is stronger than standard casing, and hence may be driven through overburden or material with less danger of being damaged than standard casing.
- Drive chuck.** Mechanism at lower end of a diamond-drill drive rod on the swivel head by means of which the movements of the drive rod can be imparted to the drill string. *Also called* Chuck.
- Drive collar.** 1. Extra thick walled pipe or casing coupling against which the blow of a drive block is delivered when driving or sinking drivepipe or casing.  
2. An oversize rod or casing coupling on which the blows of a drive block are delivered when casing is being driven or an attempt is being made to jar loose stuck casing or a drill-rod string.  
3. Incorrectly used as a synonym for Drive shoe, Drive hammer.
- Drive gear; Drive gears.** 1. The gear at the end of a diamond-drill-motor drive shaft, which engages and rotates the diamond-drill swivel-head bevel gear; the latter in turn rotates the swivel-head drive rod.  
2. Equipment used primarily in driving pipe or casing.
- Drive hammer.** A heavy sleeve-shaped weight used as a hammer or piledriver for driving pipe or casing into overburden or other soft rock materials. *Also called* Anvil, Anvil block, Drive block.
- Drive-hammer extension.** An annular-shaped piece of heavy steel, which is made to be attached to the bottom end of a drive block when a heavier-than-normal drive block is needed. *Also called* Drive-block extension.
- Drivehead.** 1. A heavy iron cap or annular coupling fitted to top of pipe or casing to receive and protect the casing from the blow delivered by a drive block when casing or pipe is driven through overburden or other material. *Also called* Drive cap, Driving cap.  
2. The swivel head of a diamond- or rotary-drill machine.
- Drivehead yoke.** A heavy steel ring fitted around a jar rod and resting on a drivehead attached to rods connected to a drive sampler used in soil-sampling operations. The ring is equipped with two links to which the pulldown lines can be attached and by means of which the sampler is forced slowly and steadily downward into the material being sampled.
- Drivepipe.** A thick-walled outside-coupled pipe, fitted at its lower end with a sharp steel shoe. It may be driven through overburden or other material by repeated piledriverlike blows delivered to the upper end of the pipe by a heavy drive block.
- Drivepipe ring.** A heavy sleeve-like device attached to a drill floor to steady and guide the pipe or casing being driven.
- Drivepipe shoe.** A drive shoe threaded to fit on the bottom end of a drivepipe. *Also called* Drive shoe, Pipe-drive shoe, Pipe shoe.
- Drive quill.** 1. The sleeve fitting around and imparting rotational movement to the drive rod in the swivel head of a diamond-drill machine.  
2. A term sometimes incorrectly used as a synonym for Drive rod.
- Drive rod.** 1. Hollow shaft in the swivel head of a diamond-drill machine through which the energy supplied by the drill motor is imparted to the drill string. *Also called* Drive spindle, Spindle, Spindle rod.  
2. A synonym for Jar rod.
- Drive-rod bushing.** A metal sleeve used to fill the annular space between a drill rod and the inside of the upper end of a drive rod or feed screw on the swivel head of a diamond-drill machine. The sleeve steadies the drill rod and reduces its tendency to wobble or vibrate inside the drive rod.
- Drive sample.** A dry sample of soft rock material, such as clay, soil, sand, etc., obtained by forcing, without rotation, a short, tubular device into the formation being sampled by hydraulic pressure or the piledriver action of a drive hammer.
- Drive sampler.** A short tubelike device designed to be forced, without rotation, into soft rock or rock material, such as clay, sand, or gravel, by hydraulic pressure or the piledriver action of a drive hammer to procure samples of material in as nearly an undisturbed state as possible.
- Drive sampling.** The act or process of obtaining dry samples of soft rock material by forcing, without rotation, a tubular device into the material being sampled by pressure generated hydraulically, mechanically, or by the piledriver action of a drive hammer.
- Drivescrew.** The threaded drive rod in a gear-feed swivel head on a diamond drill.
- Drive shoe.** 1. A sharp-edged, heavy-wall sleeve or coupling of rolled, cast, or forged steel, not set with diamonds, attached to bottom end of drivepipe or casing to act as a cutting edge and protector for pipe or casing being driven into overburden or other rock material.  
2. Sometimes incorrectly used as a synonym for Casing shoe bit and/or Pipe-shoe bit. *Also called* Casing shoe, Pipe shoe.
- Drive sleeve; Driving sleeve.** = Drive hammer, *q.v.*
- Drive spindle.** = Drive rod, *q.v.* See Drive rod 1.
- Drive tube.** A synonym for Drive rod, Drive sampler.
- Drive wedge.** A metal wedge, driven into a wooden or soft-metal base plug in a borehole, that acts as a fixed point on which and by means of which a deflection wedge may be set and oriented.
- Drive weight.** = Drive hammer, *q.v.*
- DRN.** *Abbr.* commonly used for Double-round nose.

- Drop.** 1. The small downward descent of the upper section of a drill rod, casing, or pipe into a lower like section when the threads of the box- and pin-threaded parts match, so that upper and lower sections may be screwed together without cross-threading.  
2. The sudden descent of a bit that occurs when a bit encounters a cavity or cuts through a hard rock and enters a very soft rock. *EXAMPLE:* A driller may say "The bit hit a cavity and dropped 6 inches."  
3. To lose equipment in a borehole.  
4. To lower drill-string equipment into a borehole.
- Drop hammer.** = Drive hammer, *q.v.*
- Drop out.** *See* Roll out.
- Dropped core.** Pieces of core not picked up or those pieces that slip out of the core barrel as the barrel is withdrawn from the borehole.
- Drop weight.** = Drive hammer, *q.v.*
- Drown.** 1. The failure of a cement slurry to set properly in a borehole because of its being admixed with too much water.  
2. To flood or mix with an excessive amount of water.
- Drum.** 1. The spoollike part of a hoisting mechanism on which the cable or wire line is wound.  
2. A container having a liquid capacity of 55 gallons. *See* Barrel 4.
- Dry.** 1. A borehole in which no water is encountered or a borehole drilled without use of water or other liquid as a circulation medium. *Also called* Dry hole, Duster.  
2. A borehole that did not encounter mineral or oil- or gas-producing formations. *Also called* Blank hole, Dry hole, Duster.  
3. The changehouse at a mine.
- Dry block; Dry blocking.** The intentional act or process of running a core bit without circulating a drill fluid until the cuttings at and inside the bit wedge the core solidly inside the bit.
- Dry drilling.** Drilling operations in which the cuttings are lifted away from the bit and transported out of a borehole by a strong current of air or gas instead of a fluid.
- Dry hole.** *See* Dry 1 and 2.
- Dryhouse.** *See* Changehouse 2.
- Dry rotary drilling.** *See* Dry drilling.
- Dry running.** To unknowingly or knowingly drill with a bit when the flow of the coolant and cuttings-removal fluid past the bit has been inadvertently or deliberately cut off. *Compare* Dry block, Dry drilling.
- Dry sample.** A sample obtained by drilling procedures in which water or other fluid is not circulated through the drill string and sampling device; hence the in situ characteristics of the sample have not been altered by being mixed with water or other fluid. *Compare* Drive sample.
- Dry-sample barrel.** Short, tubular devices used to obtain dry samples of soil and other soft rock material. *See* Dry sample.
- Dry sampler.** 1. Various auger and/or tubular devices designed to obtain unwetted samples of soft rock material such as clay, sand, soil, etc., by drilling procedures wherein water or other fluid is not circulated during the operation. *Compare* Drive sampler.  
2. A person skilled in the art of dry sampling.
- Dry sampling.** The act or process of obtaining dry samples of soft rock material with various auger or tubular devices utilizing dry-drilling techniques. *See* Dry sample, Dry sampler.
- DT.** *Abbr.* commonly used for Double tube.
- Ducon.** Abbreviation for dust concentrator, which is a device used to collect dry cuttings ejected from a borehole in which air or gas is used as a circulation medium.
- Dummy.** A short piece of core or core-size cylinder of rubber or other material placed in the core lifter in an empty core barrel to guide the first part of a newly cut core into the core lifter. *Also called* Dummy core, Guide core.
- Dummy core.** *See* Dummy.
- Dump.** 1. To empty, as in removing core from a core barrel or ore from a mine car.  
2. A pile or heap of waste rock material or other nonore refuse near a mine.  
3. To discard.
- Dump bailer.** A bailer used in borehole-cementation work, provided with a valving device that empties the contents of the bailer (cement) at the bottom of a borehole. *Also called* Liquid dump bailer.
- Duplex pump.** A positive displacement pump with two water or liquid cylinders side by side and geared so that the piston strokes in the cylinders alternate. Such a pump may be either single or double action, depending on the number and placement of intake and discharge valves on the cylinder and may be designed so as to deliver a low volume of liquid at high pressures. *Compare* Centrifugal pump, Rotary pump, Triplex pump.
- Dust catcher.** A device attached to the collar of a borehole to catch or collect dry, dustlike rock particles produced in dry-drilling a borehole. *Compare* Ducon.
- Dust collector.** *See* Dust catcher, Ducon.
- Duster.** 1. An unproductive borehole drilled in the hope of discovering economically useful amounts of water, mineral, oil, or gas.  
2. A drill-crew member who drifts from job to job and stays at any one place for such a short period of time that the dust kicked up by his feet when he first started to work has hardly settled before he quits and drifts on to another drilling job. *Compare* Boomer, Drifter.
- Dutch penetrometer.** *See* Penetrometer.
- Dyke.** = Dike, *q.v.*
- Dynamic load.** *See* Live load.
- E.** 1. DCDMA letter name for a range of diamond-drill fittings, intended to be used with the appropriate casing, having an inside diameter of approximately 1½ inches (or somewhat less). *See* appendix, tables 1 and 3.  
2. Letter name for nonstandard and now obsolete size of core bit and/or casing. *See* appendix, table 1. *See also* E bit, E casing.  
3. Letter name for a nonstandard, special noncoring bit having an outside set diameter of 1.343 inches and which is used on a reaming shell having a set diameter of 1.375. It is a bit size more commonly used in Australia and Canada than in the United States.  
4. One of several letter symbols used to designate a high-grade drill diamond. *Compare* AAA.
- Earth auger.** A dry-sampling device consisting of a helical-fluted rod encased by a cylindrical tube. The fluted rod is equipped with cutting edges, and the cuttings collect and are retained within the tube. *Compare* Auger.
- Easement.** A legalized permission granted by the owner to allow movement of drilling equipment across his land and/or to allow borehole-drilling operations to be conducted thereon.
- Eastman survey instrument.** Various models of a particular make of mechanical and photographic borehole-drift indicators; the single-shot models are small enough to be used in EX diamond-drill holes. *See* Drift indicator.
- E bit.** A nonstandard and now obsolete size of core bit. *See* appendix, table 1. *See also* E 3.

- EC.** Letter name for a 1½-inch-outside-diameter experimental diamond-drill rod sponsored by the CDDA. The EC rod has been discarded and superseded by the EW drill rod.
- E casing.** Never standard, and now an obsolete size of casing. *See* Mesabi E casing. *See also* appendix, table 1.
- Eccentric bit.** A modified form of fishtail bit in which one wing of the cutting edge is extended further from the center of the bit than the opposite wing.
- Eccentric-bit load.** A bit subjected to a load unevenly distributed and concentrated on one part of the perimeter of the bit face. *Also called* Eccentric-bit pressure, Eccentric load, Eccentric thrust.
- Eccentric-bit pressure.** *See* Eccentric-bit load.
- Eccentric load.** *See* Eccentric-bit load.
- Eccentric pattern.** A mode of arranging diamonds set in the face of a bit in such a manner as to have rows of diamonds forming eccentric circles so that the path cut by each diamond slightly overlaps that of the adjacent stones. *Compare* Concentric pattern.
- Eccentric thrust.** *See* Eccentric-bit load.
- Electric log.** The record or log of a borehole obtained by lowering electrodes into the hole and measuring the various electrical properties of the rock formations traversed.
- Electric logging; electrical logging.** The act or process of taking resistivity, porosity, electrical anisotropy, etc., measurements in a borehole using an electromagnetic teleclinometer or other electrode device.
- Electric survey.** *See* Electric log, Electric logging.
- Electrolytic dissolution.** The act or process of dissolving the diamond matrix metal in the crown of a bit utilizing the chemical decompositional effects of a direct electrical current on a metal object submerged in an acidic solution.
- Electrolytic process.** As used by the diamond-bit-setting industry, the process in which the chemical decompositional effects of subjecting metal objects immersed in an acidic solution to a flow of direct electric current is utilized to dissolve the metal in the crown of a worn diamond bit to free and salvage the diamonds.
- Electromagnetic prospecting.** The act or process of conducting a search for ore bodies, utilizing a geophysical method of measuring electromagnetic waves. *See* Electromagnetic survey.
- Electromagnetic survey.** A geophysical method employing the generation of electromagnetic waves at the earth's surface; when the waves penetrate the earth and meet a conducting formation or ore body, they induce currents in the conducting body, which are the source of new waves radiated from the conductors and detected by instruments at the surface or by a receiving coil lowered into a borehole.
- Electromagnetic surveying.** The act or process of using a geophysical method of systematically measuring electromagnetic waves in a specific area of the earth's surface or in an area adjacent to boreholes. *See* Electromagnetic prospecting, Electromagnetic survey.
- Electronic log.** The record or log of a borehole obtained by lowering a gamma ray, Geiger-Mueller, or scintillation probe into the hole and measuring the gamma-ray emissions of the various rock formations traversed by the borehole.
- Electronic logger.** Various devices that, when lowered into a borehole, are capable of detecting and recording the intensity of the gamma rays emitted by radioactive substances in the rock formation traversed by the borehole. *Also called* Gamma-ray probe, Geiger counter, Geiger-Mueller counter, Geiger-Mueller probe, Geiger probe, Radiation detector, Scintillation counter, Scintillation probe, Scintillometer.
- Electronic logging.** The act or process of logging a borehole with an electronic logger. *See* Electronic logger.
- Elevator.** 1. A hinged circle or latch block provided with long links to hang on the hoist-line hook and used to hoist collared pipe, drill pipe and/or casing, and drill rods provided with elevator plugs. Some large elevators are fitted with slips for use on uncollared or flush-outside tubular equipment.  
2. A term sometimes and incorrectly used as a synonym for Lifting bail.
- Elevator plug.** A short steel plug provided with a pin thread by means of which it may be coupled to the upper end of a stand of drill rods. Its diameter is greater than that of the drill rod to which it is attached, and hence it provides a shoulder that can be grasped by an elevator. When each stand of rod is provided with an elevator plug and an elevator is used in lieu of a rod-hoisting plug, the handling of rods is facilitated and a round trip can be made in less time. *Also called* Rod plug.
- E Mesabi casing.** *See* Mesabi E casing.
- Empire drill.** 1. A small combination drill generally used to sample placer deposits to a maximum depth of approximately 125 feet. A 4-inch flush-joint casing is driven. Inside the casing a toothed shoe is rotated, loosening the material being sampled so that it can be washed to the surface by a strong flow of water.  
2. A term often misused as a synonym for Churn drill.
- Emulsifier.** 1. A synonym for Mud mixer.  
2. A machine for mixing water, oil, or resins with a saponifying or other agent to form an emulsion.  
3. A saponifying or other agent added to water and oil or water and resins, causing them to form an emulsion.
- Emulsion.** A mixture of water and an oily or resinous substance dispersed, generally in water, through the action of a saponifying or other agent. The mud-laden fluids used in petroleum drilling often contain substances that are emulsified; hence diamond drillers often refer to mud used in diamond drilling as an emulsion.
- End clinometer.** A clinometer designed to be fitted only to the bottom end of a drill-rod string as contrasted with a line clinometer that can be coupled into the drill-rod string at any point between two rods.
- EO.** Letter name for a nonstandard, experimental-type oversize E drill rod superseded in 1954 by the DCDMA accepted standard design and size designated as EW. *See* appendix, table 1.
- Epsom salt.** A bitter, colorless, white mineral composed of hydrous magnesium sulfate,  $MgSO_4 \cdot 7H_2O$ . One to two percent of the salt commonly is added to bentonite mud-laden fluids to increase the jelling characteristics of the mud and hence making it more capable of sealing off small cracks and crevices encountered in drilling a borehole.
- E rod bit.** A Canadian standard, noncoring bit having a set diameter of 1.460 inches. More commonly called 1½ E drill rod bit.
- Etch angle.** The angle formed between the true horizon and the actual plane of the etch ring in an acid bottle as measured before capillarity corrections are applied. *Also called* Apparent angle. *Compare* Apparent dip.
- Etching acid.** *See* Hydrofluoric acid.
- Etch line.** A line of demarcation between the etched and unetched portions of the inside of an acid bottle, used to determine the inclination of a borehole by an acid-dip survey.

- Etch method; etching method.** A method, using a soda-lime glass tube partially filled with a dilute solution of hydrofluoric acid, of determining the angle at which a borehole is inclined at any specific point of its course below the collar. *See* Acid-dip survey.
- Etch period; Etching period.** *See* Etch time.
- Etch ring.** =Etch line, *q.v.*
- Etch time; Etching time.** The time required for a dilute solution of hydrofluoric acid, of a specific strength, to etch the inside of an acid bottle enough so that the line of demarcation between the etched and unetched portions of the acid bottle is clearly discernible.
- Etch tube.** =Acid bottle, *q.v.*
- EU.** A letter name once used to designate an experimental-design diamond-drill rod having an outside diameter of  $1\frac{3}{8}$  inches. Superseded in 1954 by the DCDMA standard drill rod designated by the letter name EW. *See* EW.
- EW.** DCDMA letter name for a DCDMA standard, E-range, W-group and W-design diamond-drill rod. May be used also as a size and/or design designation as applied to tools or equipment intended to fit and be used with EW drill rods, such as elevators, elevator plugs, foot-safety-clamp jaws, drill-chuck jaws, lifting bails, water swivels, diamond-drill swivel heads, etc. *See* appendix, table 1.
- EWM.** DCDMA letter name for a DCDMA standard, E-range, W-group, M-design swivel-type double-tube core barrel and those fitting parts, such as the long-shank, box-threaded core bits, reaming shells, core lifters, etc., made to be run in an EX borehole and to cut an EX core. The EWM letter-name bits, reaming shells, core barrels, and core-barrel parts are identical to the corresponding EXM-letter-name items with one exception; that is, the head of the EWM core barrel is threaded to accommodate EW drill rods instead of E drill rods. *Compare* EXM. *See also* appendix, table 1.
- EWX.** DCDMA letter name for E-range, W-group, X-design, single- and double-tube core barrels and their fitting bits, reaming shells, core lifters, etc., made to be run in an EX borehole and to cut an EX core. Before 1954 the EWX-letter-name items were designated as EX-series items. All EWX- and EX-series core barrels and fitting parts are identical except that the heads of the EWX core barrels are threaded to fit EW drill rods, whereas the EX-series core-barrel heads were threaded to fit E drill rods. *See* appendix, table 1.
- EX.** 1. DCDMA letter name applied to X-group and/or X-design drill fittings in the E range. *See* appendix, tables 1 and 3.  
2. A DCDMA borehole-size letter name commonly used to designate the diameter of a borehole produced by the use of E-range, X- and M-design reaming shells having an outside set diameter of 1.485 inches.  
3. DCDMA core-size letter name commonly used to designate the diameter of a core cut by E-range, X- or M-design core bits having an inside set diameter of 0.845 inch.  
4. A letter name, commonly although incorrectly applied to a diamond-drill rod properly designated by the letter name E. *See* appendix, table 1.  
5. Letter name commonly applied as a core-bit-size designation to a bit having inside and outside set diameters of 0.845 and 1.460 inches, respectively.  
6. DCDMA letter name for a DCDMA standard casing that will fit inside an AX borehole and inside of which can be run downhole drilling equipment and drill fittings designed for use in an EX borehole. *See* appendix, table 3.
- EX bit.** *See* EX 5. *See also* appendix, table 1.
- EXBP.** Letter name for a nonstandard, special nonconforming bit (Canadian), the set outside diameter of which is  $1\frac{1}{32}$  inches and which is used on a reaming shell having a set outside diameter of  $1\frac{3}{64}$  inches.
- EX casing.** *See* EX 6. *See also* appendix, table 3.
- Excellent.** Sometimes used to designate high-grade drill diamonds. *Compare* AAA.
- EXD.** Letter name for a nonstandard, special swivel-type double-tube core barrel using core bits designated as EXD, EXD2, and EXD2L, the inside and outside set diameters of which are 0.840 and 1.460 inches, respectively. The EXD core bit is box threaded, face discharge, and short shank. The EXD2 is similar to the EXD except that it is pin threaded and the face discharge is optional. The EXD2L is the same as an EXD2 bit, except that it is longer shanked to permit its attachment to the bottom of an EXD core barrel, whereas a reaming shell must be used to couple the EXD and EXD2 bits to an EXD core barrel.
- EX drill rod.** *See* EX 4. *See also* appendix, table 1.
- EXE.** Letter name for a nonstandard core bit, the set inside and outside diameters of which are 0.905 and 1.460 inches, respectively. Set size of the fitting reaming shell is 1.485 inches.
- EXH.** Letter name for a nonstandard, special swivel-type, double-tube core barrel using a short-shank, box-threaded core bit having inside and outside set diameters of 0.845 and 1.460 inches, respectively.
- EXK.** Letter name for a nonstandard, special core barrel using a core bit having the same set diameters as an EXT bit.
- EXL.** Letter name for a nonstandard-design, E-range, swivel-type double-tube core barrel normally using a short-shank, box-threaded core bit having inside and outside set diameters of 0.845 and 1.460 inches, respectively. The EXL core barrel also may be adapted to use pin-threaded, bevel-wall core bits.
- EXM.** Letter name applied, before 1954, to a core barrel and its fitting parts, such as bits, reaming shells, core lifters, etc., identical to items (with one exception) now designated by the letter name EWM. *See* EWM. *See also* appendix, table 1.
- Expanding cutter.** *See* Expansion cutter.
- Expanding plug.** *See* Expansion plug.
- Expanding waterway.** A channel or groove incised into and across the face of a bit the depth and/or width of which gradually increases from the inside to the outside walls of the bit.
- Expansion bit.** A drill bit that may be adjusted to cut various sizes of holes. The adjustment of some types may be accomplished by mechanical means while the bit is inside the borehole. *Also called* Paddy or Paddy bit.
- Expansion cutter; Expanding cutter.** A borehole drill bit having cutters that may be expanded to cut a larger size hole than the size of the bit in its unexpanded state; also, a device equipped with cutters that may be expanded inside casing or pipe to sever, or cut slits or holes in, the casing or pipe. *Compare* Paddy.
- Expansion plug.** Various devices that may be lowered into a borehole and mechanically expanded to tightly seal or plug the borehole at any predetermined point. *Compare* Deflecting plug.
- Expansion reamer.** A synonym for Under reamer.
- Exploration.** The work involved in looking for mineral deposits and determining their extent by drilling boreholes or by excavations.
- Exploration drilling.** Drilling boreholes by the rotary, diamond, percussive, or any other method of drilling for geologic information or in search of a mineral deposit.
- Exploratory drilling.** *See* Exploration drilling.

- Exposure.** 1. The proportional mass of a diamond or other cutting medium protruding beyond the surface of the metal in which it is inset in the face of the bit. Sometimes incorrectly called Clearance.  
2. An outcrop.
- EX rod.** See EX 4. See also appendix, table 1.
- EXS.** Letter name for an E-range step-face bit set to cut the same size of core and borehole as a DCDMA standard EX core and borehole.
- EXSAG.** Letter name for a nonstandard core bit the outside and inside set diameters of which are 1.454 and 0.873 inches, respectively. The fitting reaming-shell set diameter is 1.484 inches.
- EXT.** CDDA standard-size core bit the set outside and inside diameters of which are 1.460 and 0.905 inches, respectively. The set diameter of the fitting reaming shell is 1.484 inches.
- Extension barrel.** = Extension core barrel, *q.v.*
- Extension core barrel.** A core barrel the length of which may be increased by coupling similar sections.
- Extension coupling.** Coupling consisting of a threaded tubular section around which a loose- or tight-fitting ring is placed. The coupling connects the core barrel to the first drill rod. Also called Guide-ring coupling.
- Extension tongs.** See Brown tongs.
- Extra-heavy drill rod.** Sometimes used as a synonym for Drill collar.
- Extra-heavy pipe.** A class of thick-walled pipe usually designated as double extra strong by pipe manufacturers. Sometimes used in lieu of drill rods in washing operations in sinking pipe through deep overburden.
- Extra-heavy wash rods.** See Extra-heavy pipe.
- Extra-strong pipe.** = Double extra strong, *q.v.*
- Eye assay.** An estimate of the valuable mineral content of a core or ore sample as based on a visual inspection.
- Eyeball assay.** = Eye assay, *q.v.*
- Eyebolt.** A rod or bolt having an eye or loop at one end and threaded at the other end.
- F.** Sometimes used to designate high-quality drill diamonds. Compare AAA.
- Face.** 1. That part of a bit in contact with the bottom of a borehole when drilling is in progress and which cuts the material being drilled. Also called Cutting face, Working face.  
2. To cover or build up a surface, such as the face or cutting points of a bit, with a layer of metal usually applied by a welding method. See Dress 1, Hard face.  
3. One of the flat, more or less smooth, surfaces of a mineral crystal.  
4. The bottom of a drill or borehole.  
5. In any adit, tunnel, stope, or other underground workplace, the end at which work is progressing or was done last. Also called Working face.
- Face-discharge bit.** A bit designed for drilling in soft formations and for use on a double-tube core barrel, the inner tube of which fits snugly into a recess cut into the inside wall of the bit directly above the inside reaming stones. The bit is provided with a number of holes drilled longitudinally through the wall of the bit through which the circulation liquid flows and is ejected at the cutting face of the bit. Also called Bottom-discharge bit, Face-ejection bit.
- Face-ejection bit.** = Face-discharge bit, *q.v.*
- Face of hole.** The bottom of a borehole.
- Face stone.** A diamond inset in the face portion of a bit. Compare Kerf stone.
- Fair.** One of several terms used to designate a low-quality drill diamond. See A3.
- False bottom.** A bed of drift, a large boulder, or slab of rock embedded in alluvial deposits beneath which there may be true bedrock or a layer of additional alluvial material resting directly upon the bedrock.
- Fan.** To drill a number of boreholes each in a different horizontal or vertical direction from a single-drill setup.
- Fan drilling.** See Fan.
- Fann viscosimeter.** A specific make of viscosimeter. See Viscosimeter.
- Fast feed.** See Fast gear.
- Fast-feed gear.** See Fast gear.
- Fast gear.** 1. As used by drillers in referring to the feed gears in a gear-feed swivel head, the pair of gears installed in the head that produces the greatest amount of bit advance per revolution of the drill stem. Also called Fast feed, High feed.  
2. As used by drillers in referring to the speed at which the drill motor rotates the drill stem or hoist drum, the transmission gear position giving the fastest rotation per engine r.p.m.
- Fast line.** That portion of the cable or wire line, reeved through a block and tackle, that runs from the stationary block to the hoisting drum on a drill machine. Compare Deadline.
- Fat clay.** A clay the particles of which swell greatly, forming a colloidal-like material when admixed with water. See Bentonite.
- Fault.** A break in a body of rock where one side moves relative to the other parallel to the plane of the break.
- Fault breccia.** Angular fragments of rock embedded in a cemented mass or in a claylike material in the shear zone of a fault.
- FC.** *Abbr.* Flush-coupled.
- Feed.** 1. The longitudinal movements imparted to a drill stem to cause the bit to cut and penetrate the formation being drilled.  
2. The distance a drill stem on a diamond drill may be advanced into the rock before the rods must be rechucked. EXAMPLE: A driller may say "A drill is equipped with an 18-inch feed," meaning that the bit may be made to drill a maximum distance of 18 inches each time the drill stem is chucked-up in the drive rod of the swivel head.
- Feed control.** System of valves or other mechanical device controlling the rate at which longitudinal movements are imparted to the diamond- or rock-drill stem and/or the cutting teeth on a coal-cutting machine.
- Feed-control valve.** A small valve, usually a needle valve, on the outlet of the hydraulic-feed cylinder on the swivel head of a diamond drill used to control minutely the speed of the hydraulic piston travel and, hence the rate at which the bit is made to penetrate the rock being drilled. Also called Drip valve, Needle valve.
- Feed cylinder.** A hydraulic cylinder and piston mechanism, such as that on a diamond-drill swivel head to transmit longitudinal movements to the drive rod and chuck to which the drilling stem is attached. Also called Hydraulic cylinder.
- Feed gear; Feed gears.** The gearing or assemblage of three to four pairs of matched gears in a gear-feed swivel head of a diamond drill by means of which the drill string coupled to the feed screw is made to advance and penetrate the formation.
- Feedhead.** A synonym for Swivel head.
- Feed nut.** The threaded sleeve fitting around the feed screw on a gear-feed drill swivel head, which is rotated by means of paired gears driven from the spindle or feed shaft. Rotation of feed nut causes the feed screw and attached drilling stem to advance. With a 300-pair of feed gears engaged, the feed nut revolves 300 times to advance the drill stem 1 inch.
- Feed off.** The act or process of applying feed pressure to a drill bit by allowing the hoist line to pay out slowly when the drill stem is suspended from the hoist line and rotated by a "kelly."

- Feed pressure.** 1. Total weight or pressure, expressed in pounds or tons, applied to drilling stem to make the drill bit cut and penetrate the formation being drilled.  
2. Pressure, expressed in pounds per square inch, required to force grout into a rock formation. *Compare* Injection pressure.  
3. Pressure, expressed in pounds per square inch (p.s.i.), required to force-feed water into a steam boiler.
- Feed quill.** A synonym for Feed nut; sometimes improperly used as a synonym for Feed screw.
- Feed rate.** Rate at which a drilling bit is advanced into or penetrates the rock formation being drilled expressed in inches per minute, inch per bit revolution, number of bit revolutions per inch of advance, or feet per hour. *Also called* Cutting rate, Cutting speed, Forward speed, Penetration feed, Penetration rate.
- Feed ratio.** The number of revolutions a drill stem and bit must turn to advance the drill bit 1 inch when the stem is attached to and rotated by a screw- or gear-feed-type drill swivel head with a particular pair of the set of gears engaged. **EXAMPLE:** When a screw-feed swivel head of a diamond drill equipped with three pairs of gears, having a feed ratio of 100, 200, and 400, is operated with the 100-pair engaged, the drill stem must revolve 100 times to advance the bit 1 inch, if the 200-pair is engaged, the drill stem rotates 200 times per inch advanced, and if the 400 pair is engaged the stem must rotate 400 times to advance the bit 1 inch.
- Feed screw.** The externally threaded drill-rod drive rod in a screw- or gear-feed swivel head on a diamond drill, sometimes incorrectly called a Feed quill or Feed spindle.
- Feed shaft.** A short shaft or counter shaft in a diamond-drill gear-feed swivel head rotated by the drill motor through gears or a frictional drive and by means of which the engaged pair of feed gears is driven.
- Feed speed.** Normally used by drillers to denote feed ratios. *See* Feed ratio.
- Feed spindle.** A synonym for Feed shaft; sometimes incorrectly used as a synonym for Drive rod and/or Feed screw.
- Feel.** The act of listening to the action of the engine and pump and occasionally feeling the intensity of the vibration of the drilling string to determine or judge how efficiently the bit is cutting.
- Female.** = Box, *q.v.*
- Female thread.** = Box thread, *q.v.*
- Ferrule.** 1. A synonym for Core-barrel guide ring.  
2. As used by drillers in Africa, a synonym for Case; also for Casing.
- FF.** *Abbr.*, commonly used for Flat face.
- Field setter.** A person skilled in the art of handsetting diamond bits, working at or near the site of one or more operating drills to set bits to be used.
- Fine.** Sometimes used to designate high-quality drill diamonds. *See* AAA.
- Fine industrials.** = Toolstones, *q.v.*
- Finger.** 1. A pair or set of bracketlike projections placed at a strategic point in a drill tripod or derrick, generally at a level with one of the work platforms, to keep a number of lengths of drill rods or casing in place when they are standing in the tripod or derrick. Also one of the flexible prong parts of a basket lifter.  
2. One of the cutting edges on a finger bit. *See* Finger bit.
- Finger basket.** *See* Basket 1.
- Finger bit.** A steel rock-cutting bit having fingerlike, fixed, or replaceable, steel-cutting points affixed.
- Finger board.** A board with projecting dowels or pipe fingers located in the upper part of the drill derrick or tripod to support stands of drill rod, drill pipe, or casing. *Compare* Finger.
- Finger grip.** A fishing tool designed to recover a broken drill rod or dropped tool from a borehole.
- Finger lifter.** A basket-type core lifter.
- Fire up.** Command to start operating a drill either to collar a borehole or to restart work on the first working shift of a day.
- First.** Sometimes used to designate high-quality drill diamonds. *See* AAA.
- First aid.** 1. Emergency, crude repair of a bit made by a drill runner at the drill site.  
2. The assistance or treatment given an injured workman immediately after, or as soon as possible after, the injury occurs.
- Fish; Fishing.** The article recovered and/or the act or processes involved in the recovery of lost drilling tools, casing, or other articles from a borehole.
- Fishing jars.** Jars having a longer stroke than drill jars. They are used in jarring loose a drilling string or casing stuck in a borehole.
- Fishing spear.** A square-shaped, long-tapered tool, screwed on the end of either left-hand-threaded or rosined rods and used to fish or recover drill rods from a borehole one length at a time.
- Fishing string.** A length of drill rods (usually either left-hand-threaded or with the couplings rosined) used in fishing operations.
- Fishing tap.** A thread-cutting tool to cut threads inside a casing or other hollow part that is to be fished from a borehole.
- Fishing tools.** Apparatus of various types used on the end of a drill string to fish or remove from the hole lost pieces of drilling equipment or tramp iron.
- Fishtail; Fishtailing.** The act or process of rotatively drilling a borehole with a fishtail bit.
- Fishtail bit.** A steel, chisel-shaped bit with the cutting edge split in the center. Each half or wing of the chisel edge is slightly bent so as to come in contact with rock formation at a slight, positive rake when the bit is rotated. The shank is equipped with box threads matching those on drill rods. Used to rotary drill in formations where core is not desired. *Also called* Drag bit.
- Fittings.** 1. Auxiliary and accessory tools and equipment needed to drill a borehole using either percussive, churn, rotary, diamond, or other types of drills.  
2. Denotes the pieces to be attached to pipes to connect them or provide outlets, etc.
- Fixed wrench.** A wrench the jaws of which are rigidly fixed and not adjustable; also, a rod-pulling wrench made by welding the movable jaw to the handle of a discarded Stilson or pipe wrench in such a position that the distance between the two jaws of the wrench is about one-eighth inch greater than the diameter of the rod on which the wrench will be used.
- FJ.** *Abbr.* Flush joint.
- Flap.** 1. Same as Clack.  
2. The hinged, flat disk mounted inside the lower end of a split- or other-type dry-sample barrel that closes and holds the sample within the barrel when it is withdrawn from a boring.
- Flapper.** *See* Clack 1.
- Flapper valve.** *See* Clack valve.
- Flap seat.** *See* Clack seat.
- Flap valve.** *See* Clack valve.
- Flat.** 1. A dull diamond bit.  
2. A synonym for Macle.
- Flat bit.** A dull diamond or percussive-type rock-cutting bit.
- Flat-bottom crown.** *See* Flat-face bit.

- Flat face.** *See* Flat-face bit.
- Flat-face bit.** A diamond core bit the face of which, in cross section, is square. *Also called* Flat-bottom crown, Flat-nose bit, Square-nose bit.
- Flat hole.** A borehole following a near horizontal course.
- Flatnose bit.** *See* Flat-face bit.
- Flats.** 1. Small flat areas on diamonds inset in a bit crown caused by abrasion during contact with the rock drilled.  
2. A synonym for Macles. *See* Macle.
- Flat-spiral auger shoe.** A flat-faced dry-sample-cutting device consisting of a short tube of which one-half of the bottom end is equipped with a short, flat, spiral web, tipped with a cutting edge. *Compare* Iwan auger shoe.
- Flaw.** A crack or inclusion in a diamond; also, internal twinning in a diamond.
- Fleet.** The sidewise movement of a rope or cable when winding on the drum of a hoist.
- Fleet angle.** 1. As used by diamond drillers and miners, the angle between the two ends of a hoist drum as a base and the sheave wheel in a drill tripod or derrick or the headframe pulley as the side.  
2. As used by the petroleum drillers, the side angle at which the rope or cable approaches the crown-block sheave or pulley.
- Float.** 1. Used by drillers to describe the tendency of the bit in a flat-angle borehole to follow an increasingly flatter course as the depth of the borehole increases.  
2. Much used by drillers, miners, and geologists for pieces of ore or rock that have fallen from outcrops of veins or strata or have been separated from the parent vein or strata by weathering agencies other than flowing water. Also used as an adjective, as in float mineral, float ore, float rock.  
3. Various forms of ball-and-seat valves commonly inserted in casing and rod strings in such a manner as to keep drilling fluid out of the casing or rod string when lowered into a borehole. *Also called* Float valve.  
4. To lift a material by the buoyant action of a strong current or flow of a liquid; also, that material buoyant enough to float on the surface of a liquid medium.  
5. The floating part of an apparatus for indicating the height of a fluid within a vessel or other container.
- Floater.** 1. A single fragment of float.  
2. A synonym for Float valve.
- Floating block.** =Traveling block, *q.v.*
- Floating-tube barrel.** =Double-tube core barrel, swivel type, *q.v.*
- Floating-tube core barrel.** =Double-tube core barrel, swivel type, *q.v.*
- Float mineral.** *See* Float 2.
- Float ore.** *See* Float 2.
- Float rock.** *See* Float 2.
- Float valve.** 1. A synonym for a ball-and-seat-type apparatus inserted in a pipe, casing, or drill-rod string being lowered into a borehole. *See* Float 3.  
2. A valve operated by a float.
- Floor.** 1. Plank or steel-mesh-covered, level work area at base of a drill tripod or derrick around the collar of a borehole in front of the drill.  
2. The rock underlying a stratified or nearly horizontal deposit, corresponding to the footwall of more steeply dipping deposits.  
3. A plank work platform underground, or that part of any underground opening on which a person walks or on which tracks are laid.
- Floorboard.** A thick wooden-plank member of a drill or other work platform. *See* Floor 1.
- Floor clamp.** =Safety clamp, *q.v.*
- Floor sill.** A large timber laid flat on the ground or in a level, shallow ditch to which are fastened the drill-platform boards or planking.
- Flowmeter.** A device installed in a drilling-fluid circulation system that registers the number of gallons of liquid circulated per minute and also indicates when the flow past the bit ceases.
- Fluid circulation.** *See* Drill fluid.
- Fluid column.** The number of feet of drilling fluid standing in a borehole while the drill is operating and/or the number of feet of drilling fluid remaining in a borehole with the drill string withdrawn.
- Fluid cut.** *See* Fluid wash.
- Fluid lubricated.** The core barrelhead bearings and/or other rotating members in a drill string cooled and lubricated by water or mud-laden fluid circulated as the drilling fluid.
- Fluid passage.** =Waterway, *q.v.*
- Fluid pressure.** 1. The force with which a stream of drilling fluid is ejected from a pump, usually expressed in pounds per square inch.  
2. The force, expressed in pounds per square inch, exerted by the weight of the column of drilling fluid measured at any given depth in a borehole. *Compare* Bottom-hole pressure 2 and 3.
- Fluid volume.** The amount of drilling fluid circulated through the drill string, generally expressed in gallons per minute.
- Fluid wash.** The wearing away of core and parts of a drill string or bit exposed to the erosive forces of the rapid passage of the circulated drilling fluid. *Also called* Fluid cut.
- Fluorescence.** The property by which some minerals and some organic substances, when exposed to ultraviolet radiations, emit a light of a color differing from their own, like the blue-white light emitted by scheelite.
- Fluorescent.** Having the property to produce fluorescence.
- Fluorescent lamp.** 1. Commonly and improperly designates an electric lamplike device emitting ultraviolet radiations or black light.  
2. A glass globe or tube the inner surface of which is coated with a fluorescent substance that produces visible light when excited by an electrical current.
- Fluorescent light.** Light produced by a fluorescent lamp. *See* Fluorescent lamp.
- Flush; Flushed; Flushing.** To clean out by letting in a sudden rush of liquid or gas, as in flushing material from a borehole with a strong, rapidly flowing stream of water.
- Flush-coupled.** Provided with couplings the outside diameter of which is the same as that of the unit pieces on which the coupling is fitted. *See* Flush-coupled casing.
- Flush-coupled casing.** A length (usually 10 feet) of steel tubing one end of which is provided with a short coupling having pin threads on both ends. The outside diameters of the coupling and the casing tube are equal, and the inside diameter of the coupling is usually about three-sixteenths of an inch smaller than the inside diameter of the casing tube.
- Flushing fluid.** *See* Drill fluid and Flush.
- Flush joint; Flush-jointed.** Two similar members joined in such a manner that either or both the outside and inside surfaces of the two members are flush. *See* Flush 2.
- Flush-joint casing.** Lengths (usually 10 feet) of steel tubing provided with a box thread at one end and a matching pin thread on the opposite end. Coupled, the lengths form a continuous tube having a uniform inside and outside diameter throughout its entire length.



- Flush-joint drivepipe.** Thick-walled drivepipe, lengths of which are threaded and coupled together in the same manner as Flush-joint casing. *See* Flush-joint casing.
- Flush-joint pipe.** 1. A pipe or casing threaded and coupled together in the same manner as Flush-joint casing and Flush-joint drivepipe.  
2. As used by individuals associated with the petroleum-drilling industry, a pipe threaded and coupled together in such a manner that the inside surfaces are flush and the outside surfaces are enlarged, forming a shouldered junction.
- Flush out; Flushing out.** *See* Flush.
- Flush-set.** A bit or reaming shell in which the inset diamonds or other cutting points do not protrude beyond the metal holding them in place.
- Flute.** A groove parallel or nearly parallel to the axis of a cylindrical piece, such as the grooves of a splitting core lifter or the grooves in a core-barrel stabilizer ring. Also applied to grooves or webs following a corkscrewlike course around the outside surface of a cylindrical object, like the spiraled webs on an auger stem or rod.
- Fluted core.** Core the outside surface of which is spirally grooved or fluted. *Also called* Corkscrew core.
- Fluted coupling.** A type of Stabilizer.
- Follower chart.** A table showing the size of casing or pipe that should be placed in a borehole drilled with a specific-size bit and/or which sizes of casing or pipe can be nested inside each other.
- Footage.** The number of feet of borehole drilled per unit of time, or that required to complete a specific project or contract.
- Footage block.** *See* Marker block.
- Footage bonus.** Wage payments in addition to regular wage given to drill-crew members for each foot of borehole completed in excess of a specified number of feet drilled in a stated length of time.
- Footage cost.** The total or overall cost of drilling 1 foot of a specific-size borehole under conditions existing at the place where the drilling is done.
- Footage per bit.** The average number of feet of borehole specific types of bits drill or can be expected to drill in a certain rock before the bit becomes dulled and is replaced, discarded, resharpened, or reset.
- Foot clamp.** = Safety clamp, *q.v.*
- Footing.** 1. The characteristics of the material directly beneath the base of a drill tripod, a derrick, or mast uprights. Also, the material placed under such members to produce a firm base on which they may be set.  
2. The material on which the floor sills of a drill floor are set.  
3. The character of the rock formation on which the bottom of a string of casing or drivepipe is set.
- Footmark.** *See* Marker block.
- Foot shoe.** A special pipe or casing shoe equipped with a device, such as a float valve, used on the bottom end of casing or pipe to be floated into a borehole.
- Foot valve.** A clack or ball-and-seat-type valve placed at the bottom end of an upstanding liquid-piping system to allow liquid to enter but not escape from the system.
- Forble.** Four lengths of drill rod or drill pipe connected to form a section, which is handled and stacked in a drill tripod or derrick as a single unit on borehole round trips. Also spelled Fourble.
- Forble board.** A board or platform located in the upper part of the derrick at a suitable elevation so that a man can easily manipulate equipment used to raise or lower drill rods or pipe when same are being handled in stands of four joints each. Also spelled Fourble board.
- Foresight.** 1. To sight on a Foresight hub; also incorrectly used as a synonym for Foresight hub.  
2. Any sight or bearing taken with a compass, transit, theodolite, or level in a forward direction.
- Foresight hub.** A stake or mark placed by a responsible individual at some distance in front of a drill to be used by a driller to point and line up a drill to drill a borehole in a specific direction. *Also called* Front hub. *Compare* Backsight hub.
- Fork-the-hole.** To drill a second hole from some point within a completed borehole by deflection methods and equipment.
- Formation.** 1. A rock the character and mineral constituents of which are more or less uniform throughout and/or the rocks encountered in a specific area or comprising rocks having a certain geologic or mineralogical relationship to one another.  
2. A large and persistent stratum of a specific kind of rock.
- Formation drilling.** Boreholes drilled primarily to determine the structural, petrologic, and geologic characteristics of the overburden and rock strata penetrated. *Also called* Formation testing.
- Formation testing.** 1. A synonym for Formation drilling.  
2. Measurements made in a borehole to determine the porosity, oil production capabilities, etc., of a specific stratum or horizon through which the borehole has been drilled.
- Forward speed.** *See* Feed rate.
- Foundation.** 1. *See* Base rock 1 and 2.  
2. The base and/or the underlying support, either natural or artificial, on which a building, dam, or other structure is constructed.
- Foundation sampling.** = Foundation testing, *q.v.*
- Foundation testing.** Boreholes drilled for purpose of obtaining samples by means of which the characteristics of overburden and/or the rock on which the foundation of a structure will rest can be determined. *Also called* Foundation sampling.
- 4A.** *See* AAAA.
- Fourble.** = Forble, *q.v.*
- Fourble board.** = Forble board, *q.v.*
- f.p.m.** Feet per minute.
- Fracture.** 1. To break.  
2. The manner of breaking and the appearance of a mineral or rock when broken along planes other than cleavage, joint, or bedding.
- Fractured.** Rock cracked or broken into fragments along planes other than joints or bedding.
- Fractured formation.** *See* Fractured ground.
- Fractured ground.** Rock formation shattered and crisscrossed with fissures and fractures. *Compare* Broken ground.
- Fragmented bort.** Low-grade industrial diamonds crushed into sized particles for use in impregnated bits, grinding wheels, and as a polishing medium. *See* Bort.
- Frame and skid mounted.** Drill machine mounted on a wood or steel framework base the bottom member of which is a sled-runnerlike-shaped piece.
- Free circulation.** The circulation of a drilling fluid the flow of which is not restricted by obstructing materials in the borehole or inside the drill string.
- Free-fall drill.** = Churn drill, *q.v.*
- Free flow.** *See* Free circulation.
- Free-piston drive sampler.** A drive-sample barrel in which a piston is free to move upward with the top of the sample during the actual dry-sampling operation.
- Freeze; Freezing; Frozen.** 1. To permit drilling tools, casing, drivepipe, or drill rods to become lodged in a borehole by reason of caving walls, or impaction of sand, mud, or drill cuttings, to the extent that they cannot be pulled out. *Also called* Bind, Seize.

2. To "burn in" a bit. *See* Burn in 1.
3. The premature setting of cement, especially when cement slurry hardens before it can be ejected fully from pumps or drill rods during a borehole-cementation operation.
4. The act or process of drilling a borehole utilizing a drilling fluid chilled to minus-30° to -40° F., as a means of consolidating, by freezing, the borehole wall materials and/or core as the drill bit penetrates a water-saturated formation, such as sand, gravel, etc.
- Freezein.** 1. Used in much the same sense as Freeze 1 and 2.
2. Applicable when drill rods become fastened by solidification or freezing of the drilling fluid in a borehole drilled in permafrost.
3. To become or be fixed in ice.
4. A synonym for Freezeup.
- Freezing overburden.** *See* Freeze 4.
- Freezing process.** *See* Freeze 4.
- Freezeup.** The process and/or season of the year when surface waters become frozen with no prospect of thawing for the remainder of the winter.
- Friable formation.** A rock that breaks easily or crumbles naturally, hence a formation from which good core cannot be obtained easily.
- Friction disc.** =Friction disk, *q.v.*
- Friction disk.** 1. One of a pair of disks on either side of the gear driving the feed nut in a gear-feed swivel head. The disks are held against the gear by compression springs, the tension of which may be adjusted to vary the torque at which the disks will slip and acts similar to an overload throwout clutch preventing the bit from being subjected to more than the amount of torque determined by the preset compression applied to the disks by the compression springs.
2. One of the disks in a clutch used to engage or disengage a motor, at will, from the mechanism driven by the motor or engine.
- Friction feed.** Longitudinal movements or advance of drill stem and bit accomplished by friction devices in a diamond-drill swivel head as opposed to a system consisting entirely of meshing gears. *See* Friction disk.
- Friction head.** 1. The pressure required to overcome the friction created by the flow of a confined liquid, such as the flow of a drill fluid through drill rods.
2. That part of the hydraulic-feed yoke on a diamond drill containing the bearings connected to and by means of which the thrust of the hydraulic-feed pistons is transmitted to the drive rod in the drill swivel head. *Also called* Cage, Collar.
- Friction socket.** A tubular-shaped or slightly inside-tapered fishing tool. The inside surface of the tool is nearly covered with circular pinged protuberances, which, when driven over the lost drill tools, wedge the tools in the socket.
- FRN.** *Abbr.* commonly used for Full-round nose.
- Front hub.** =Foresight hub, *q.v.*
- Frozen up.** To be in a solidified state; also, an article lodged inside a borehole so tightly that it cannot be pulled. *See* Freeze.
- Full diameter.** A synonym for Full gage, Full size.
- Full gage.** 1. A cylindrical or tubular object, such as a bit or reaming shell, the outside and/or inside diameters of which are the size specified. *Also called* Full size.
2. A borehole the inside diameter of which is uniform enough to allow a new-condition bit to follow portions of the hole drilled by other bits cutting the same X-borehole size without reaming. *Also called* Full size.
3. As applied to deflection drilling, the branch borehole is the same diameter as the parent hole. *Also called* Full size.
- Full gauge.** =Full gage, *q.v.*
- Full-hole bit.** =Noncoring bit, *q.v.*
- Full-hole size.** 1. Used by some diamond drillers as a synonym for Full gage.
2. As used by petroleum field drillers, a bit having a minimum outside or cutting diameter of 7 $\frac{3}{8}$  inches. *Also called* Full size.
- Full-radius bit.** =Double-round-nose bit, *q.v.*
- Full-radius crown.** =Double-round-nose bit, *q.v.*
- Full-round nose.** =Double-round nose, *q.v.*
- Full size.** *See* Full gage, Full-hole size.
- Fume cupboard.** =Fume hood, *q.v.*
- Fume hood.** A canopy or glass-door cabinet through which a strong draft of air is pulled to collect and carry away the noxious fumes or gases evolved in the process of salvaging worn diamond bits by dissolving the bit-crown metal with an acid or by an electrolytic method. *Also called* Fume cupboard.
- Fusion piercing.** A method of producing vertical blast-holes by virtually burning holes in rock. The burning device is essentially a long blowpipe consisting of three tubes equipped with jets at the bottom end. Two of the tubes carry kerosine and oxygen, which, when jetted together and ignited, generate a flame having a temperature of about 4,000° F. This flame is directed downward against the rock, superheating a circular area. A following jet of water cools the heated rock, causing it to contract and spall, or, if partially molten, to granulate. The resulting steam evacuates the spall from the hole and also keeps the burner from melting. Also commonly, although incorrectly, called Jet piercing. *See* Linde drill.
- Fusion-piercing drill.** A machine designed to use the fusion-piercing mode of producing holes in rock. Sometimes incorrectly called a Jet drill. *Also called* Linde drill. *See* Fusion piercing.
- G.** Sometimes used to designate high-quality drill diamonds. *See* AAA. *Compare* Good.
- Gage.** 1. Various instruments used for measuring, indicating, or regulating the capacity, quantity, dimensions, power, amount, proportions, etc., of anything; hence, a standard of comparison.
2. The act or process of accurately measuring the diameter, length, thickness, etc., of an article.
3. The size, amount, pressure, etc., as determined by a gage.
- Gage diameter.** The diameter of an object as determined by measurement and/or size as compared to a standard.
- Gage loss.** The diametrical reduction in the size of a bit or reaming shell caused by wear through use.
- Gage ring; Gaging ring.** A circular metal ring the inside diameter of which is a specific standard size. Commonly produced in sizes corresponding to the standard outside set diameters of bits and reaming shells.
- Gage saver.** *See* Dampener 1.
- Gage stone.** Any one of several diamonds set in the crown of a diamond bit in a plane parallel with and projecting slightly beyond the inside and/or outside walls of the bit.
- Galena.** 1. A lead sulfide mineral sometimes used in powdered form by drillers as a drill-mud heavy loader.
2. The most common lead mineral.
- Gamma-ray counter.** An instrument capable of detecting and recording the intensity of gamma rays emitted by a radioactive substance. *Compare* Geiger-Mueller counter, Scintillation counter.
- Gamma-ray detector.** *See* Gamma-ray counter.
- Gamma-ray log.** The record of the variations of the intensity of gamma rays emitted by the strata penetrated by a borehole as recorded on a gamma-ray probe. *Compare* Electronic log.
- Gamma-ray logger.** =Gamma-ray probe, *q.v.*

- Gamma-ray logging.** The act or process of obtaining, by means of a gamma-ray probe, a record of the intensities of gamma rays emitted by the rock strata penetrated by a borehole. *Compare* Electronic logging.
- Gamma-ray probe.** A gamma-ray counter device built into a watertight case small enough in diameter to be lowered into a borehole.
- Gas.** 1. *Abbr.* Gasoline.  
2. Any aeriform liquid other than atmospheric air, such as gaseous carbon dioxide (black damp), carbon monoxide (white damp), methane (fire damp), and the common combustible petroleum-product gases. *Compare* Acetylene, Bottle gas.
- Gas rig.** A borehole drill, either rotary or churn-drill type, driven by a combustion-type engine using a combustible liquid, such as gasoline, or a combustible gas, such as bottle gas, as the source of the motivating energy.
- Gas sand.** A porous stratum of rock in which a gas is entrapped; the gas escapes when the stratum is penetrated by a borehole.
- Gate.** A synonym for Swivel head; also, the swivel ring of the swivel head of a diamond drill.
- Gate valve.** A valve with a sliding disk or "stop gate," which when opened allows the flow to move straight through the valve mechanism. *Also called* Stop-gate valve, Straight-way valve.
- Gauge.** =Gage, *q.v.*
- Gear.** 1. A synonym for Feed gear.  
2. The accessory tools and equipment required to operate a drill.  
3. A set of enmeshing-toothed rotating parts or cog-wheels designed to transmit motion.
- Gear feed.** =Screwfeed, *q.v.*
- Gear-feed head.** =Screwfeed swivel head, *q.v.*
- Gear-feed swivel head.** =Screwfeed swivel head, *q.v.*
- Gear pump.** A type of positive-displacement pump consisting of two tightly enmeshing gears within a close-fitted shell. When the gears are rotated at high speed the pump is capable of delivering a liquid under high pressure, as the pressurized oil delivered to the hydraulic-feed cylinders on a hydraulic-feed drill.
- Geiger counter.** *See* Geiger-Mueller counter.
- Geiger-Mueller counter.** An electronic instrument using a Geiger-Mueller tube to detect and indicate the intensity of gamma-ray emission from a radioactive substance. Used by drillers and prospectors to detect the presence of radioactive minerals of uranium and thorium. *See* Geiger-Mueller tube.
- Geiger-Mueller probe.** A Geiger-Mueller counter encased in a watertight container, which can be lowered into a borehole and used to log the intensity of the gamma rays emitted by the radioactive substances in the rock formations traversed. *Also called* Electronic logger, Geiger probe.
- Geiger-Mueller tube.** A gas-filled tube inside of which a special metal grid is mounted in such a way that the ionization of the gas caused by the passage of a gamma ray through the gas allows an electric current to pass instantaneously from the grid to the enclosing tube. Used in apparatus designed to detect and measure the intensity of gamma rays emitted by a radioactive substance. *See* Geiger-Mueller counter.
- Geiger probe.** *See* Geiger-Mueller probe.
- Geiger test; Geiger testing.** The act or process of using a Geiger-Mueller probe or counter to measure the intensity of the gamma rays emitted by the radioactive substance contained in rocks traversed by a borehole.
- Gel.** A form of matter in a colloidal jellylike state that does not dissolve but remains suspended in a solvent from which it fails to precipitate unless heated or electrolyzed.
- Gelatin; Gelatine.** 1. A hard, transparent, tasteless colloid obtained from animal connective tissues, such as skin, hoof, and horns. The dried material swells on contact with cold water to a jellylike mass or dissolves in hot water to form a firm jellylike mass on cooling. Gelatin dissolved in hot water is used commonly in borehole surveying with a Maas compass. *Compare* Agar.  
2. Commonly used as a synonym for Gelatin dynamite.
- Gelatin dynamite.** A high-strength, plastic, waterproof explosive having a high density, commonly used by drillers to shatter boulders encountered in driving pipe through overburden especially in water-filled or saturated ground. Also used by miners for close work exposed to water. *Also commonly called* Gelatin.
- Gel strength.** The toughness and tenacity of a colloidal gel, generally expressed in qualitative terms such as low or poor, medium or good, and high or excellent. *See* Gel.
- Gem.** 1. As used by drillers and bit setters, a small, virtually flawless, lustrous, nearly spherical, industrial-grade diamond, which on rare occasions may be used as a drill diamond. *Also called* Bullet, Gem grade. *Compare* AAAA.  
2. A diamond free of flaws—as far as can be determined by a trained observer with the aid of a 10-power magnifying glass—and having a color and other characteristics that do not deleteriously affect its value for use as a faceted ornamental (gem) diamond.
- Gem grade.** *See* Gem 1 and 2, *see also* AAAA.
- Geologic drilling.** Drilling done primarily to obtain information from which the geology of the formations penetrated can be determined. *See* Geology. *Compare* Formation testing.
- Geologist.** One versed in the science of geology or engaged in a geological study or investigation. *Also called* by drillers Core snatcher, Rock hound, Sample grabber, or Sniffer.
- Geology.** 1. The structural and age relationship between two or more rock strata or between mineral deposits and surrounding rocks.  
2. The science that treats of the constitution and structure of the earth, the operation of its physical forces, and the history and development of life forms and their structure, especially as recorded in the rocks.
- Geophysical prospecting.** A method of prospecting for subsurface structures, which may contain water, oil, gas, or mineral-bearing rocks, with various types of delicate scientific instruments, such as a torsion balance, seismograph, or magnetometer. *Also called* Geophysical survey, Geophysical surveying.
- Geophysical survey; Geophysical surveying.** *See* Geophysical prospecting.
- Gin.** A small hand-cranked hoist.
- Gin pole.** 1. The center pole of a drill tripod.  
2. A pole used to support hoisting tackle.  
3. The pole or bar on the top of a drill derrick to which a pulley tackle is fastened and used to hoist and place the crown block on top of a drill derrick.
- Girt; Girth.** 1. A brace member running horizontally between the legs of a drill tripod or derrick.  
2. In square-set timbering, a horizontal brace running parallel to the drift.
- Glacial drift.** The rock material, such as boulders, till, gravel, sand, or clay, transported and deposited by a glacier.
- Glacial overburden.** Glacial-drift materials overlying bedrock. *See* Glacial drift.
- Glacial till.** =Glacial drift, *q.v.*
- Glass tube.** =Acid bottle, *q.v.*
- Glass vial.** =Acid bottle, *q.v.*

- Glaze.** The rounded and polished surfaces produced on the exposed portion of diamonds inset in a bit when the bit is rotated at a high speed and subjected to a feed pressure much too low to make the bit cut at its optimum penetration rate. The bit is prematurely dulled and made unfit for additional use in that specific rock formation. *Also called Polish.*
- Glazed.** Diamonds inset in a bit, the exposed surfaces of which have been rounded and polished by under-feeding at a high rotational speed. *See Glaze, Polish.*
- Globe valve.** A valve with an approximately spherical chamber inside of which a bevel disk is pressed against a bevel-ring seat to close the valve.
- Go-devil.** *See* Bullet 2, 3, 4.
- Going in.** The act or process of lowering the drill string, a string of pipe, or casing into a borehole.
- Going off.** A borehole the course of which is deviating from that intended. *Also called Drifting, Walking, Wandering.*
- Gommeson method.** A specialized method of surveying a borehole, utilized when a magnetic compass cannot be used because of local magnetism. The instrument used is essentially a rigid tube, up to 30 feet long, which is lowered into a borehole. The tube fits the borehole closely and contains a fine wire under tension. The difference between the arc of the tube, when bent at a crook in the borehole, and the chord of the wire is indicated by a stylus marking, which can be measured. The dip is read by etch tubes, and a directional orientation taken at the surface is carried down the hole by precise alinement of the tube and rods as they are lowered into the borehole.
- Gone off.** A borehole that has deviated from the intended course.
- Goniometer.** 1. An instrument used to measure the angle of the etch line on an acid-dip-survey acid bottle or the angle of bedding planes relative to the long axis of a drill core. *See* Protractor.  
2. An instrument for measuring the interfacial angles on mineral crystals.
- Good.** A term sometimes used to designate medium-quality drill diamonds. *Compare* AA.
- Gooseneck.** 1. A bent pipe or tube having a swivel joint, so that its outer end may be revolved.  
2. The bent-tube part of a water swivel to which the water hose is connected.  
3. A T-shaped connection for supplying water to the top end of wash rods in penetrating overburden. It is fitted with pipe handles by means of which the wash rods may be turned.
- Gouge angle.** The angle at which the surface of a cutting edge is inclined in relation to the surface of the material being cut. *See* Negative rake, Positive rake.
- Gouge rake.** =Positive rake, *q.v.*
- g.p.m.** *Abbr.* gallons per minute.
- Grab.** A fishing tool.
- Grade.** 1. To sort and classify diamonds, such as drill diamonds, into quality groupings, each group containing diamonds having somewhat similar characteristics deemed to affect their fitness for use in a specific manner; the least fit are considered as constituting the lowest quality or grade.  
2. The quality group into which diamonds are sorted, such as poor, good, or excellent.
- Granite.** As used in a general sense by drillers, a light-colored, crystalline igneous rock in which the principal constituent minerals are, or appear to be, quartz and feldspar.
- Grapple; Grappel.** An implement used to recover lost core, drill fittings, or junk from a borehole.
- Grappling iron.** A fishing tool consisting of several iron or steel claws for grasping and holding an object fast. *See* Grapple.
- Grasshopper.** A tool used to align and butt pipes preparatory to welding.
- Grassroots.** Commonly used to mean the same as the earth's surface. "From grassroots down" is equivalent to "From the surface downward."
- Gravel.** As recommended by the ASCE in their Proceedings, volume 84, No. SM4, October 1958, rounded or semirounded particles of rock that will pass a 3-inch screen and be retained on a U.S. Standard No. 4 sieve, hence, having average dimensions ranging from more than 4.7 mm. (approximately three-sixteenths of an inch) to less than 3 inches.
- Gravity bar.** A 5-foot length of heavy half-round rod forming the link between the wedge-orienting coupling and the drill-rod swivel coupling on an assembled Thompson retrievable borehole-deflecting wedge.
- Gravity feed.** Applicable when the weight of the drill rods is great enough to impose an adequate pressure on a bit to make it cut properly.
- Gravity tube.** An instrument used to measure the specific gravity of drilling mud.
- Grease monkey.** =Oiler, *q.v.* *See also* Oiler 2.
- Grid.** The imaginary lines by means of which the surface of an area is divided into squares when a checkerboard placement of boreholes is followed. *See* Checkerboarded.
- Grief joint.** =Kelly, *q.v.*
- Grief stem.** =Kelly, *q.v.*
- Grind; Grinding.** 1. The act or process of continuing to drill after the bit or core barrel is blocked, thereby crushing and destroying any core that might have been produced.  
2. To polish or sharpen by friction.
- Grindings.** =Cuttings, *q.v.*
- Groove.** 1. The long, tapered, half-round slot in the deflection wedge that acts as a guide in directing the bit to follow a new course in deflecting a borehole.  
2. Any of the spiral depressions on a cylindrical object, such as the spiral depression on the surface of fluted core or the rifling in a gun barrel.
- Ground.** 1. Any rock or rock material.  
2. As used by miners, any specific part of a mineral deposit, or the rock in which a mineral deposit occurs.  
3. In electricity, a connection with the earth; a negative or ground plate.
- Ground pressure.** The pressure to which a rock formation is subjected by the weight of the superimposed rock and rock material or by diastrophic forces created by movements in the rocks forming the earth's crust. Such pressures may be great enough to cause rocks having a low compressional strength to deform and be squeezed into and close a borehole or other underground opening not adequately strengthened by an artificial support, such as casing or timber. *Also called* Rock pressure. *Compare* Bottomhole pressure 3.
- Ground water.** The water that permeates and fills the pores and fissures of the rock masses of the earth in an unbroken sheet.
- Ground-water level.** The level below which the pores and fissures of the rock and subsoil, down to unknown depths, are full of water. *Also called* Ground-water table, Water table.
- Ground-water table.** =Ground-water level, *q.v.*

- Group.** An integrated grouping of ranges of diamond-drill fittings wherein boreholes drilled with one range can be cased and continued with the next smaller range. The second letter in two- and three-letter names is called the group letter because in combination with the range letter it establishes specific dimensions for all diameters affecting the nesting of casings. The group characteristics established are: Set reaming-shell outside diameter, casing outside diameter, and casing-coupling inside diameter. In two-letter names the group letter also may establish the design characteristics affecting core size and interchangeability of parts. *See* X, W; *see also* appendix, table 1. *Compare* Design, Range.
- Grout.** 1. A pumpable slurry of neat cement or a mixture of neat cement and fine sand, commonly forced into a borehole to seal crevices in a rock to prevent ground water from seeping or flowing into an excavation, to seal crevices in a dam foundation, or to consolidate and cement together rock fragments in a brecciated or fragmented formation. *Also called* Cement grout.  
2. The act or process of injecting a grout into a rock formation through a borehole.
- Grout core.** Core obtained by drilling into and through formations into which grout has been injected and allowed to set.
- Grout curtain.** An area into which grout has been injected to form a barrier around an excavation or under a dam through which ground water cannot seep or flow.
- Grout hole.** A borehole drilled for the express purpose of using it as a means by which grout may be injected into the rock surrounding the borehole. *Compare* Consolidation hole.
- Grout-hole drilling.** The act or process of drilling holes into which grout is to be injected.
- Grouting.** The act or process of injecting grout into crevices of a rock, usually through a borehole drilled into the rock to be grouted; also, the grout thus injected.
- Grout injection.** An act or process of forcing grout into crevices in rock formations, usually through a borehole, by pressure pumps.
- Grout injector.** 1. A synonym for Cement injector.  
2. A machine that mixes the dry ingredients for a grout with water and injects it, under pressure, into a grout hole. *Compare* Grout machine.
- Grout machine; Grouting machine.** A mechanism by which grout may be pressure-injected into a grout hole. The machine is essentially a closable cylindrical container large enough to hold the neat cement slurry made with one bag of cement. The slurry is placed inside the container and compressed air or steam allowed to enter the top of the container forcing the slurry out of the bottom of the container through a quick-opening plug valve into the grout pipe and grout hole. The process is intermittent, requiring the refilling of the container after each batch of slurry has been ejected. *Compare* Grout injector 2.
- Grout off.** To seal off flow of water by grout injections.
- Grout pipe.** A tube or pipe firmly anchored in the collar of a grout hole through which grout is injected into the hole.
- Grout-pipe drill mounting.** A drill mounted on a framework clamped or attached to a grout pipe.
- Growler board.** A notched or fingered plank or light timber used to aline ends of pipe being screwed together, as when laying a waterline.
- Guardrail.** A safeguard to prevent accidental injury to persons who may come near working machines or too near the edge of an elevated work platform. Guardrails generally are two rails made of 1¼-inch pipe, one set at 42 inches and the other at 21 inches above the floor. The two rails, with supporting posts, constitute the guardrail. *Compare* Belly-buster.
- Guide.** 1. *See* Guide coupling.  
2. A pulley to lead a driving belt or rope in a new direction or to keep it from leaving its desired direction.
- Guide core.** *See* Dummy.
- Guide coupling.** A short coupling with a projecting reamer guide or pup to which is attached a reaming bit. A guide coupling serves to couple a reaming bit to a reaming barrel.
- Guide pulley.** *See* Guide 2.
- Guide ring.** A longitudinally grooved annular ring made almost full borehole size, which is fitted to an extension coupling between the core barrel and the first drill rod. *Also called* Ferrule.
- Guide-ring coupling.** = Extension coupling, *q.v.*
- Guide rod.** A heavy drill rod coupled to and having the same diameter as a core barrel on which it is used. It gives additional rigidity to the core barrel and helps to prevent deflection of the borehole. *Also called* Core-barrel rod, Oversize rod. *Compare* Drill collar.
- Gummed-in.** *See* Stuck.
- Gummy.** Applicable when rock or formation being drilled produces cuttings and sludge, which tend to fill the waterways of a bit or to adhere massively to the borehole walls or drill-stem equipment. *Compare* Sticky.
- Gunk.** 1. Used by some drillers as a synonym for Rod dope, Rod grease.  
2. Any gummy substance that collects inside the working parts and hinders the operation of a machine or other mechanical apparatus.
- Guniting.** *See* Cement gun 2.
- Guy.** 1. A wire line or rope attached to the top of a drill derrick or pole and extending obliquely to the ground, where it is fastened to a deadman or guy anchor.  
2. A rope that holds the end of a boom or spar in place.
- Guy anchor.** The object to which the lower end of a guy is attached. *Also called* Deadman.
- Guyed.** Held upright and steadied by one or more guys.
- Guy line; Guy lines.** A guy or several guys. *See* Guy.
- Guy ring.** A ring on the head block or top of a drill pole, derrick, or tripod to which guys are attached.
- Guy rope.** *See* Guy.
- Guy wire.** *See* Guy.
- Guy-wire slide.** A mechanism attached to a guy that a drillman, tripodman, or derrickman can grasp and slide to safety in an emergency.
- H.** 1. A Canadian size symbol applied to the diamond-drill swivel head the drive rod and chuck of which have an inside diameter large enough to accommodate Standard NX casing.  
2. Letter name for a size series of bits, core barrels, reaming shells, drill rods, casing, etc., originated and used in Canada. They are larger than NX and NW letter-name items and are used as a tie-in with oil-well drill-pipe standards. A 3⅞-inch roller bit can follow an H-size bit and core barrel. *See* appendix, table 4.  
3. Sometimes used to designate high-quality drill diamonds. *See* AAA.
- Half-round nose.** *See* Medium-round nose.
- Half-turn socket.** A borehole fishing tool having jaws bent in a half circle to engage lost tools that lean to one side in a borehole.
- Hall-Rowe wedge.** A tapered concave metal plug or wedge that can be set in a drill hole at a predetermined depth and bearing to deflect or straighten an off-course borehole.

- Hammer.** 1. A synonym for Drive hammer.  
 2. To pound or drive with pilehammerlike blows delivered by a drive hammer.  
 3. The sharp, pulsating noises in a pipe caused by fluctuating flows of liquid or gas through the pipe or by the rapid expansion or contraction of the pipe from sudden changes of temperature of the liquid or gas flowing through a pipe system.
- Hammer drop.** The measured distance a drive hammer is dropped when driving a dry or drive-sample barrel in soil or foundation-testing operations.
- Hammer weight.** The weight of a drive hammer, in pounds, used in driving a dry or drive-sample barrel in sampling formations in soil- and foundation-testing work.
- Hand feed.** A drill machine in which the rate at which the bit is made to penetrate the rock is controlled by a hand-operated ratchet and lever or a hand-turned wheel meshing with a screw mechanism.
- Hand hoisting.** To lift drill rods and core-barrel assembly out of a borehole by hand.
- Handlebars.** Part of a soil- or foundation-testing apparatus having bars extending horizontally outward from rods connected to a vane tester. A spring scale is attached to the extended bars and the reading of the amount of pull required to turn the rod and vane tester through each 30° segment of a 90° arc is registered on the spring scale and recorded by the operator.
- Hand pulled.** See Hand hoisting.
- Hand set.** A bit in which the diamonds are set into holes drilled into a malleable-steel bit blank and shaped to fit the diamonds; the diamonds are placed in the prepared holes and securely cinched into place by pulling or drawing the metal toward and tightly calking it around each diamond by peening. The entire operation is by hand and rapidly is becoming a seldom-practiced art, as the hand method has been almost completely superseded by so-called mechanical setting methods.
- Hang.** 1. To suspend drill-string or other downhole equipment in the drill derrick or tripod either on the hoisting line or on hooks provided in the crown block for that purpose.  
 2. To suspend casing or pipe in a borehole in a clamp resting on blocks at the collar of the hole.
- Hanging load.** 1. The weight that can be suspended on a hoist line or hook device in a drill tripod or derrick without causing the members of the derrick or tripod to buckle.  
 2. The weight suspended or supported by a bearing, as the weight of the inner tube and contained core suspended by the bearing in the core-barrel head.
- Hanging sheave.** The sheave or pulley wheel hooked to and suspended from the drill tripod clevis and over which the drill hoist line runs.
- Hard face.** 1. A layer of hard, abrasion-resistant metal applied to a less-abrasion-resistant metal part by plating, welding, or other techniques. See Dress 1, Face 2.  
 2. The crystal face of a diamond lying parallel or nearly so with a hard vector plane of the crystal.
- Hard facing.** The act or process of applying a layer of an abrasion-resistant metal to or over the surface of a metal part or cutting tool; also, the hard or abrasion-resistant metal so applied.
- Hard metal.** A metal or an alloy that is harder and usually more resistant to abrasion than the hardest of steels.
- Hardness.** As used by individuals associated with the drilling and bit-setting industry, the relative ability of a mineral to scratch another mineral or to be penetrated by a Knoop indenter; also, the relative ability of a metal to resist being penetrated by the indenter point of a Vickers, Brinnell, or Rockwell hardness-testing apparatus.
- Hardness scale.** Quantitative units by means of which the relative hardness of minerals and metals can be determined, which for convenience is expressed in Moh's, Knoop, or scleroscope units for minerals and Vickers, Brinnell, or Rockwell units for metals.
- Hardness test.** A determination of the relative hardness of a mineral, as made on a specimen, using appropriate hardness-testing apparatus and techniques. See Hardness and Hardness scale.
- Hardpan.** A layer of extremely dense soil.
- Hard-rock driller.** 1. A driller who alibis for the low amount of footage of borehole drilled by claiming that the rock penetrated during his tour or shift was unusually hard.  
 2. A miner employed to operate a drill in a mine in which the rocks are generally igneous or metamorphosed and considered hard as compared with softer sedimentary rocks, such as those in which coal and salt generally occur.
- Hard-rock drilling.** Drilling done in dense and solid igneous or highly silicified rocks, which can be penetrated economically only by diamond bits, as opposed to that done in softer rocks easily cut by roller or wing-type rotary bits.
- Hard vector.** Due to the arrangement of the molecules within some mineral crystals, such as diamond, the substance is found to be harder in certain planes or directions in relation to the axes of the mineral crystals. These hard planes are referred to as hard vectors.
- Hazardous helper.** Commonly used as a synonym for Cathead.
- H bit.** A core bit manufactured and used in Canada having set inside and outside diameters of 2.875 and 3.875 inches, respectively. The matching reaming shell has a set outside diameter of 3.906 inches.
- HBP.** Letter name designating a noncoring bit the set outside diameter of which is 3 $\frac{3}{8}$  inches. The matching reaming-shell set outside diameter is 3 $\frac{59}{64}$  inches.
- H casing.** Flush-coupled and/or flush-joint casing, made and used in Canada, having a minimum inside diameter of 3 $\frac{15}{16}$  inches and an outside diameter of 4 $\frac{1}{2}$  inches.
- HD.** *Abbr.* commonly used for Hydraulic.
- H drill rod.** A Canadian outside-flush-coupled drill rod having an outside diameter of 3 $\frac{1}{2}$  inches, the couplings of which have an inside diameter of 1 $\frac{1}{4}$  inches.
- Head.** 1. Variously used as a synonym for Core-barrel head, Drill head, Swivel head.  
 2. Same as Hydraulic head 1 and 2.
- Headblock.** Commonly used as a synonym for Crown, block, Derrick pulley, and Sheave wheel.
- Headgear.** The part of a drilling machine or apparatus that remains on the surface at the collar of a borehole. The term seldom is so used by American drill operators, as they apply it to protective head coverings worn by miners, aviators, and soldiers—similar to head coverings referred to as Tin hats or Safety hats by drillers.
- Headroom.** 1. Distance between the drill platform and the bottom of the sheave wheel.  
 2. Height between the floor and the roof in a mine opening.
- Heavy loader.** Powdered minerals having a high specific gravity, as barite, iron oxide, litharge, or galena; such minerals added to drill-mud liquids increase the specific gravity or weight of the mud.
- Heavy mineral.** 1. A mineral having a high specific gravity the cuttings of which are washed out of a borehole only by a very strong, rapidly flowing stream of drill-circulation fluid.  
 2. A synonym for Heavy loader.

- Heavy mud.** A drilling mud having a high specific gravity, usually attained by adding minerals such as ground barite or other heavy loaders to the usual ingredients making up a drill mud.
- Heavy spar.** A synonym for Barite.
- Heel.** 1. The fixed jaw on an adjustable-wrench safety clamp or on a rock crusher. *See* Anvil.  
2. The collar of a borehole.
- Helper.** A driller's or miner's assistant, working under his direction and assisting him in the operation of a drill or in mining operations.
- Hematite.** One of the commonest ores of iron ( $Fe_2O_3$ ), which, when pure, contains about 70 percent iron and 30 percent oxygen. Commonly prepared as a finely ground powder for use as a heavy loader in drill muds.
- HF.** Symbol for hydrofluoric acid.
- H-frame.** *See* A-Frame.
- High.** Sometimes used to designate the best quality of industrials normally used as drill diamonds. *See* AAA.
- High feed.** *See* Fast gear 1.
- High-feed gear.** *See* Fast gear 1.
- High gear.** 1. *See* Fast gear 2.  
2. Drilling and/or mining operations conducted at peak efficiency with output per man or piece of equipment used being near or exceeding the theoretical capacity.
- High grade.** 1. Sometimes used to designate the best quality of industrials normally used as drill diamonds. *See* AAA.  
2. To steal or pilfer interesting pieces of core, or core containing a valuable mineral, such as gold.  
3. A rich ore.
- High pressure.** A liquid or aeriform gas pressurized to more than 150 p.s.i.
- High-pressure hose.** A flexible hose reinforced with coiled or woven metal wires forming a tube capable of containing a liquid or gas under high pressure without bursting.
- High-pressure line.** A pipe or hose acting as a conductor through which a high-pressure stream of liquid or gas flows.
- High-pressure pump.** A pump capable of discharging a liquid or gas pressurized to a minimum of 150 p.s.i. Discharge pressures of as much as 2,500 p.s.i. may be attained by specially designed pumps.
- High-pressure valve.** A valve designed to operate and withstand high pressures without jamming or bursting.
- High quality.** *See* High grade 1.
- High-speed machine.** A diamond drill capable of rotating a drill string at a minimum of 2,500 r.p.m. as contrasted with the normal maximum speed of 1,600 to 1,800 r.p.m. attained by the average diamond drill.
- Hindsight hub.** = Backsight hub, *q.v.*
- Hogback.** 1. A ridge or line of high hills with sharp summits and steeply sloping sides.  
2. A ridge formed by the outcropping edge of tilted strata.
- Hoist.** 1. The windlass mechanism incorporated as an integral part of a power-driven drilling machine used to handle, hoist, and lower drill-string equipment, casing, pipe, etc., while drilling, or to snake the drill from place to place.  
2. The act or process of lifting drill string, casing, or pipe out of a borehole.  
3. A power-driven windlass for raising ore, rock, or other material from a mine and for lowering or raising men and material.
- Hoist speed; Hoisting speed.** *See* Cable speed.
- Hoisting block.** 1. The lower block of a block and fall bearing the hoisting hook.  
2. Incorrectly used as a synonym for Sheave wheel.  
3. A traveling block or sheave.
- Hoisting drum.** The flanged cylindrical part of a windlass around and on which the hoist rope or cable is wound. *Also called* Spool.
- Hoisting plug.** A pin-thread heavy-bodied coupling provided with a swivel-mounted eye in the end opposite the pin-thread end. When attached to the hook on the drill-hoist line, the pin-thread end can be screwed into the rods to hoist and otherwise handle drill-string equipment when making borehole round trips. *Also called* Plug, Screw plug, Swivel plug.
- Hoisting power.** The capacity of the hoisting mechanism on a drill machine. May be expressed in terms of the number of lineal feet of a specific-size drill rod a hoist can lift on a single line or in terms of the total weight it can handle, figured in pounds or tons. *Compare* Capacity 1.
- Holdup.** Any breakdown or delay that results in loss of drilling time.
- Hole.** A drill hole, borehole, or well.
- Hole curvature.** The amount, expressed in degrees, that a borehole has diverged from its intended course in a distance of 100 feet.
- Hole deviation.** 1. Sometimes used synonymously for Hole curvature.  
2. The change in the course or direction a borehole follows. The change may be the result of operational characteristics of the equipment used, of rock structures encountered, or of intentional deflection through the use of deflection wedges, whipstocks, etc.
- Hole face.** *See* Bottom 1.
- Hole-in.** To start drilling a borehole. *Also called* Collar, Spud, Spud-in.
- Hollow reamer.** A tool or bit used to correct the curvature in a crooked borehole. *Compare* Reaming bit.
- Hook load.** The total weight of equipment or drilling tools suspended on a hoisting hook.
- Hook speed.** Same as Cable speed, Hoist speed.
- Horadium.** 1. The drilling of a number of horizontal boreholes radiating outward from a common center; a single drill site or drill setup.  
2. A synonym for Horizontal-ring drilling.
- Horizon.** 1. An identifiable rock stratum regionally known to contain or be associated with rock containing valuable minerals. *Compare* Marker 1.  
2. In geology, any given definite position or interval in the stratigraphic column or scheme of stratigraphic classification. Also, the surface separating two beds, hence having no thickness.  
3. An imaginary horizontal line or plane.
- Horizontal departure.** The amount, expressed in feet or degrees, a borehole has digressed horizontally from the intended target.
- Horizontal-ring drilling.** *See* Horadium.
- Horn socket.** A fishing tool especially designed to recover lost collared drill rods or drill pipe. It consists of a smooth-wall, tapered socket, the larger end down, equipped with a spring latch, which grips the drill rod under the collar when it is slid down over the top of the lost drill rod. When the socket is equipped with a flaring (bell-shaped) mouth it is called a Bell-mouth socket.
- Horse.** 1. To move or raise a heavy piece of machinery or timber by using a pinchbar as a lever. *Also called* Pinch.  
2. A mass of country rock embedded in a vein or other type of mineral deposit.
- Hose.** A strong flexible pipe, generally made of spirally wound, rubber-impregnated, fabric strips, used to convey liquids or gases under pressure. *Compare* High-pressure hose.
- Hot-pressing.** The subjection of the powder-metal material in a bit mold or die to pressure the instant the mass reaches the incipient melting point or while the mass is still hot. *Also called* Coining.

- hp.** *Abbr.* horsepower.
- HP.** Questionably used as an abbreviation for High pressure.
- H rod.** A drill rod having an outside diameter of  $3\frac{1}{2}$  inches. *See* H drill rod.
- Hub.** A survey point marked with a stake or metal pin and used as a reference point by means of which a drill operator may set and line up a drill machine to drill a borehole at a specific spot in a predetermined direction.
- Hurdy-gurdy drill.** A hand auger used to drill boreholes in soft rock or rock material such as soil, clay, coal, etc.
- Husky.** A synonym for diamond-drill helper; also, a Bully or Roustabout.
- Hydraulic cement.** A cement that sets under water as contrasted with cements that will not.
- Hydraulic cementing.** A borehole-cementing operation using a downhole cement injector. *See* Cement injector.
- Hydraulic chuck.** A diamond-drill rod chuck having jaws with clamping and unclamping movements actuated hydraulically instead of by hand-turned setscrews. *Also called* Automatic chuck.
- Hydraulic circulating system.** A method used to drill a borehole wherein water or a mud-laden liquid is circulated through the drill string during drilling. *See* Diamond drill.
- Hydraulic cylinder.** As applied to a diamond drill, a synonym for Feed cylinder. *See* Feed cylinder.
- Hydraulic feed.** A method of imparting longitudinal movement to the drill rods on a diamond or other rotary-type drill by a hydraulic mechanism instead of mechanically by gearing. *See* Feed cylinder.
- Hydraulic head.** 1. A synonym for Hydraulic swivel head.  
2. The height of a fluid column, usually considered as water, which maintains a pressure on a surface, the amount of pressure being directly proportional to the depth of the fluid standing above the point at which the pressure is taken. This pressure may be given in pounds per unit area, or simply as the height of the water column in feet or inches. Pure water at 60° F. exerts a pressure of 0.4331 p.s.i. for each foot of depth.
- Hydraulic jack.** A lifting device consisting of a cylindrical body and a movable piston, which is made to move longitudinally as hydraulic fluid under pressure is injected into the cylinder between the piston and the base of the jack.
- Hydraulic machine.** 1. A borehole-drilling machine on which the bit-feeding mechanism is hydraulically actuated.  
2. A machine powered by a motor activated by the confined flow of a stream of liquid, such as oil or water under pressure.
- Hydraulic oil.** A light, nonviscous, neutral, flame-resistant oil used as an actuating fluid in hydraulic cylinders or systems.
- Hydraulic pressure.** 1. The total thrust, expressed in pounds or tons, that the hydraulic-feed mechanism on a drill can impose on a drill string; also, the pressure of the fluid within the hydraulic cylinders, generally expressed in pounds per square inch.  
2. A synonym for Hydraulic head. *See* Hydraulic head 2.
- Hydraulic swivel.** *See* Hydraulic swivel head.
- Hydraulic swivel head.** The swivel head of a drill machine equipped with hydraulically actuated cylinders and pistons to exert pressure on and move the drill rod string longitudinally. *See* Swivel head.
- Hydraulic underreamer.** An underreamer with cutting lugs that can be expanded or retracted by a hydraulically actuated device. *See* Underreamer.
- Hydrofluoric acid.** An aqueous solution of hydrogen fluoride. A diluted solution commonly used by drillers to determine the angle at which a borehole is inclined. *See* Acid-dip survey, Clinometer.
- Hydrofluoric acid test.** *See* Acid-dip survey.
- Hydrometer.** An instrument used for determining the density or specific gravity of fluids, such as drilling mud or oil, by the principle of buoyancy. The instrument is in the form of a glass tube, which is floated in the fluid and sinks to a greater or lesser depth depending on the density of the fluid—the amount of submergence being indicated by gradations or divisions on the stem of the instrument. These divisions vary according to various systems, and may be marked according to the Baumé or Twaddell specific-gravity system of measurements. *See* Baumé hydrometer, Marsh funnel, Specific-gravity hydrometer, Twaddell hydrometer.
- Hydrostatic pressure.** The pressure developed by a liquid within a liquid-saturated, porous, or crevassed rock. The hydrostatic pressure of the liquid in a saturated porous rock, as measured at the bottom of a borehole, generally is approximately equal to the hydraulic head developed by a vertical column of water as high as the depth of the borehole measured downward from the water table. *See* Hydraulic head 2.
- Ice plug.** An ice obstruction formed by a circulation medium freezing inside the drill-rod couplings while the rods are racked up or standing in the drill derrick or tripod in extremely cold weather. Such plugs may loosen when rods are lowered into the borehole and may be ejected from the open end of the rod with enough force to injure drill crewmen severely.
- i.d.** *Abbr.* inside diameter. Usually written ID in drilling-industry literature.
- I.D.A.** *Abbr.* Industrial Diamond Association of America, Inc. Sometimes written IDA.
- ID gage stone.** *See* Inside-gage stone.
- Idler.** A sheave or pulley running loose on a shaft to guide or support a rope, cable, drive belt, or drive chain.
- Idler gear.** Same as Neutral gear.
- Igneous.** In petrology, rock formed by solidification of a molten material. Those solidifying deep within the earth's crust are plutonic; those ejected and solidifying on the surface are volcanic.
- Igneous rock.** *See* Igneous.
- Impact load.** A force delivered by a blow as opposed to a force applied gradually and maintained over a long period.
- Impervious; Impassable.** Rock strata, such as tight clays, shales, etc., which cannot be penetrated by water, petroleum, or gas.
- Impervious bed.** A bed or stratum through which water, gas, or petroleum will not move under ordinary hydrostatic pressure.
- Impound.** To collect in a reservoir or sump provided near a borehole the water, drill cuttings, etc., ejected therefrom.
- Impregnated.** 1. A metallic material in which fragments of diamond or other hard substances (in unflocculated distribution) are intermixed and embedded. *See* Impregnated bit.  
2. Said of rock, fabrics, or other bodies the pores of which are more or less filled with extraneous materials such as oil, tar, resins, rubber, etc.  
3. Containing metallic minerals, scattered or diffused throughout the mass. Properly used in referring to country rock containing scattered grains of mineral similar to that in the vein.



- Impregnated bit.** A sintered, powder-metal matrix bit with fragmented bort or whole diamonds of selected screen sizes uniformly distributed throughout the entire crown section. As the matrix wears down, new, sharp diamond points are exposed; hence the bit is used until the crown is consumed entirely.
- Impression block.** A bell-shaped or hollow, tubular device filled with wax or other water-resistant plastic materials, which is lowered onto an article resting on the bottom of a borehole. The plastic material molds itself about the lost article, and by inspecting the impression so formed the driller can determine which fishing tool is best fitted to recover the lost article.
- Inclination.** The angle of a vein, drill hole, strata, etc., measured in degrees downward from the horizon or the horizontal plane. *See Dip. Compare Drift 1.*
- Incline hole; Inclined hole.** Same as Angle hole.
- Inclinometer.** 1. An instrument for measuring the dip of a drill hole, vein, etc. *Compare Clinometer.*  
2. Sometimes used as a synonym for Thompson clinometer.
- Included angle.** The angle formed between the inward-sloping faces of a concave-face noncoring bit.
- Inclusion.** 1. A crystal, a fragment of another substance, or a minute gas- or liquid-filled cavity enclosed in a crystal, such as a carbon fleck or spot inside a diamond crystal.  
2. A fragment, whatever size, of another rock embedded in an igneous rock. *Compare Concretion.*
- Incompetent.** Soft or fragmented rocks in which an opening, such as a borehole or an underground working place, cannot be maintained unless artificially supported by casing, cementing, or timbering.
- Indentation hardness.** *See Rockwell hardness.*
- Index.** To divide into equal marked parts such as quadrants or degrees of a circle.
- Index mark.** 1. A mark carried from the clinometer to each successive drill rod when the bearing of an inclined borehole is required, where a Maas or other magnetic compass device cannot be used because of local magnetism.  
2. The mark on a Hall-Rowe wedge by means of which the wedge may be oriented in a specific compass direction.
- Indicator.** 1. A synonym for Marker bed. *See Marker 1 or Marker bed.*  
2. Any instrument used to record continuously and visually revolutions per minute, pressure, rate of flow, weight, rate of penetration, depth, temperature, etc.
- Indicator gage.** An instrument used to record or visually indicate quantities, etc. *See Indicator 2.*
- Induction coil.** An apparatus for generating electromagnetic currents in a metal. Commonly used by bit setters as a means of melting and/or sintering metals used in producing bit crowns by casting or other mechanical methods. *Compare Induction furnace, Induction pot.*
- Induction furnace.** An ovenlike apparatus in which the heat is produced by induction coils. *See Induction coil.*
- Induction pipe.** The pipe, port, or valve through which the live steam, other motive fluid, or gas passes into the cylinder of an engine.
- Induction port.** *See Induction pipe.*
- Induction pot.** A refractory bowl or container in which metals are melted by induction currents. *See Induction coil.*
- Induction valve.** *See Induction pipe.*
- Indurated; Hardened.** Applied to rocks hardened by heat, pressure or the addition of some ingredient not commonly contained in the rock referred, such as marls indurated by calcium carbonate or shales indurated by silica.
- Industrial diamonds.** Crystalline and/or cryptocrystalline diamonds having color, shape, size, crystal form, imperfections, or other physical characteristics that make them unfit for use as gems. Industrial diamonds usually are grouped as toolstones, drill diamonds, fragmented bort, ballas, and carbons. *Also called Industrials, Industrial stones. See Diamond.*
- Industrials.** = Industrial diamonds, *q.v.*
- Industrial stones.** = Industrial diamonds, *q.v.*
- Inflow.** Water, other liquid, or gas seeping or flowing from rocks into a borehole or other underground opening.
- Inhibitor.** A substance which, when added to cement, has the capacity to slow down or lengthen the normal time required for that specific cement to set; also, a substance added to drilling mud to check or slow down organic or chemical deterioration or change in the physical characteristics of the drilling mud.
- Inject.** To introduce, under pressure, a liquid or plastic material into cracks, cavities, or pores in a rock formation. *See Grout.*
- Injected hole.** A borehole into which a cement slurry or grout has been forced by high-pressure pumps and allowed to harden.
- Injection pressure.** The total amount of pressure required to force a liquid or grout into cracks, cavities, and pores in rocks or other substance.
- Injector.** 1. Any apparatus used to force, under pressure, material into an opening in another material. *Compare Cement injector.*  
2. A device used to force feed water into a boiler by the direct action of steam.  
3. Mechanism used for spraying fuel oil into the combustion chamber of a combustion-type engine or to spray a fine oil mist into a stream of air or steam. *See Line oiler.*
- In line.** 1. To be over the center of a borehole and parallel with its long axis. *Compare Aline.*  
2. A drill motor mounted in such a manner that its drive shaft and the drive rod in the drill swivel head are parallel; also, a drill motor mounted in such a manner that the shaft driving the drill-swivel-head bevel gear and the drill-motor drive shaft are centered in a direct line and parallel with each other.  
3. Similar units mounted together in a line. *See Bank 2.*
- Inner barrel.** = Inner tube, *q.v.*
- Inner-gage stone.** *See Inside-gage stone.*
- Inner stone.** A diamond inset on the inside wall of a bit crown.
- Inner tube.** The inside tube, which acts as the core container of a double-tube core barrel.
- Inner-tube adaptor.** A tubular part that can be attached to the inner tube of EXT- and AXT letter-name core barrels to adapt them for use with EXK- and AXK-letter-name bits and shells; also sometimes incorrectly used as a synonym for Lifter case.
- Inner-tube core lifter.** A core lifter designed to fit and work inside a tubular container fitted to the lower end of the inner tube of a double-tube core barrel.
- Inner-tube extension.** A tubular part attachable to the lower end of the inner tube of a double-tube core barrel to lengthen the inner tube; also sometimes incorrectly used as a synonym for Lifter case.
- Inner-tube shoe.** The replaceable lower end of an inner tube of a double-tube core barrel.
- In place.** Same as In situ.
- Insert; Inserts.** 1. Formed pieces of sintered cobalt-tungsten carbide mixture (in which diamonds may be inset), brazed into slots or holes in bits or into grooves on the outside surface of a reaming shell to act as cutting points, reaming surfaces, or wear-resistant pads or surfaces of reaming shells or outside surfaces of other pieces of drilling equipment or fittings. *Compare Slug 2.*

2. Anything placed in a hole, groove, or slot prepared for it.
- Insert bit.** A bit into which inset cutting points of various preshaped pieces of hard metal (usually a sintered, tungsten carbide-cobalt powder alloy) are brazed or hand-peened into slots or holes cut or drilled into a blank bit. Hard-metal inserts may or may not contain diamonds. *Also called* Slug bit. *See* Insert.
- Inserted-joint casing.** Casing, the box-thread ends of which are belled or swaged outward to receive the pin-thread portion of another piece of casing when coupled together; also sometimes incorrectly used as a synonym for Flush-coupled casing.
- Insert reaming shell.** A reaming shell the reaming diamonds of which are inset in shaped, hard, metal plates brazed into grooves cut into the outside surface of the shell.
- Insert set.** Bits or reaming shells set with inserts. *See* Insert.
- Insert-type bit.** *See* Insert bit.
- Inset.** A surface into which diamonds or other cutting points are embedded or set; also, the act or process of embedding such materials in a surface.
- Inside clearance.** The difference between the outside diameter of a core and the inside diameter of the core-barrel parts through which the core passes or enters; also, the annular space between the inner and outer tubes in a double-tube core barrel. *See* Clearance.
- Inside coupled.** Coupled in the same manner as flush-coupled casing. *See* Flush-coupled casing.
- Inside-coupled casing.** = Flush-coupled casing, *q.v.*
- Inside face.** That part of the bit crown nearest to and/or parallel with the inside wall of an annular or coring bit.
- Inside gage.** The inside diameter of a bit as measured between the cutting points, such as between inset diamonds on the inside-wall surface of a core bit.
- Inside-gage stone.** A diamond set in the inside-wall surface of the crown of a diamond core bit so that it cuts sufficient inside clearance to permit the core to pass through the bit shank and into the core barrel without binding. *Also called* Inner stone, Inside kicker, Inside reamer, Inside stone.
- Inside kicker.** Same as Inside-gage stone.
- Inside reamer.** Same as Inside-gage stone.
- Inside stone.** Same as Inside-gage stone.
- Inside tap.** A tapered, externally threaded fishing tool, which is inserted inside the open ends of tubular drill fittings lost in a borehole and, when turned, grips and holds them so that they may be lifted and recovered.
- Inside thread.** = Box thread, *q.v.*
- Inside upset.** A tubular piece having ends that are thickened for a short distance on the inside.
- Inside work.** The drilling of boreholes in underground workplaces; also applied to work done on the surface with the drill machine and tripod completely housed.
- In situ.** In its natural place or position; in geology, said specifically of a rock, soil, or fossil when in the same relative position as when originally formed or deposited.
- Inspirator.** = Injector, *q.v.* *See* Injector 2.
- Intake.** 1. The suction pipe or hose for a pump.  
2. In hydraulics, the point at which the water or other liquid is received into a pipe, channel, or pump.  
3. The passage and/or the current of ventilating air moving toward the interior of a mine.
- Integral pilot.** A pilot-type noncoring bit having a pilot section that is an integral, nonreplaceable part of the bit.
- Intercepts.** That portion included between two points in a borehole as between the point where the hole first encounters a specific rock or mineral body and where the hole enters a different or underlying rock formation.
- Intersect.** 1. To cut across or meet—as a borehole cuts through a stratum of rock or encounters a vein.  
2. In mining, to cut across or meet a vein or lode with a passageway; also, the point at which a vein or lode cuts across an earlier formation.
- Intersection.** 1. The point at which a deliberate deflection of the trend of a borehole is made.  
2. The point at which a drill hole enters a specific ore body, fault, or rock material.  
3. Meeting of two ore bodies or veins, or the point at which a vein or ore body meets a fault, dike or rock strata.  
4. The point at which two underground workings connect.
- International metric carat.** A unit of weight equal to 200 milligrams. *See* Carat.
- Interspersed carbide.** Small-size (one-eighth of an inch and larger), irregular-shaped fragments of tungsten carbide slugs mixed with a suitable matrix metal and applied to cutting faces of bits or other cutting tools, as a weldment. *Also called* Clustered carbide.
- Interval.** 1. The distance between two points or depths in a borehole. *Compare* Core intersection.  
2. The perpendicular distance between two parallel lines. **EXAMPLE:** The elevation differential between contour lines.
- Iron.** 1. Colloquially, all derrick and drilling equipment above the heads of the men working on the drill platform.  
2. Any ferrous metal tool or part that must be fished from a borehole. *Also called* Junk.
- Iron hat.** A synonym for Tin hat; also, Safety hat.
- Iron oxide.** 1. A common ore of iron, sometimes prepared as a fine powder for use by drillers as a drill-mud heavy loader.  
2. A common compound of iron and oxygen. **EXAMPLE:** Rust.
- Isostatic.** Subject to equal pressure from every side.
- Iwan auger shoe.** A replaceable cutting head on a dry sampler. It is barrel shaped, like the cutting members on a common post-hole digger.
- Iwan earth auger.** = Iwan-pattern earth auger, *q.v.*
- Iwan-pattern earth auger.** A dry sampler equipped with an Iwan auger shoe or cutterhead. *Also called* Post-hole digger. *See* Iwan auger shoe.
- Jaca.** Brazilian term for carbon or other dark-colored spots or inclusions in a diamond. Sometimes used as a synonym for Carbon spot or Carbon fleck by the older handsetters experienced in setting Brazilian diamond, and by drillers who have worked in Portuguese-speaking countries.
- Jack.** A mechanical device for the purpose of lifting a heavy load; it may be either a screw or hydraulic type. *Also called* Hydraulic jack, Jackscrew, Screw jack.
- Jack board.** A brace used as a support for a pipe jack.
- Jack and circle.** The apparatus consisting of a powerful jack and a steel-toothed circle on which the jack moves. The circle is attached to the drill floor, centered on the borehole collar, and used to tighten or loosen the joints in a string of drill tools.
- Jackhammer.** A handheld percussive-type rock drill. *See* Rock drill 2.
- Jacking pressure.** The amount of pressure exerted by a jack to force a cone penetrometer into a soil being tested.
- Jackknife.** 1. The collapse of a drill tripod or derrick.  
2. Sometimes incorrectly used as a synonym for Telescope.
- Jackknife rig.** A truck-mounted diamond or small rotary drill equipped with a hinged derrick. *See* Seismograph drill.

- Jack latch.** A fishing tool.
- Jackscrew.** 1. A jack in which a screw is used for lifting or exerting pressure; also, the helical-screw part of a jackscrew. *Also called* Screw jack.  
2. A heavy screw set in the base or frame of a drill machine for the purpose of leveling the drill.
- Jam.** The blocking of a core barrel or core bit with core, sometimes deliberately.
- Jamaica auger.** =Jamaica open-spiral auger, *q.v.*
- Jamaica open-spiral auger.** A corkscrewlike spiral tool used in sampling loosely compacted soil deposits.
- Jam nut.** =Lock nut, *q.v.*
- Jamb nut.** =Lock nut, *q.v.*
- Jar.** To loosen or free stuck drill-stem equipment or tools by impacts delivered by quick, sharp, upward-traveling blows delivered by a drive hammer or jars.
- Jar block.** =Drive hammer, *q.v.*
- Jar collar.** A swell coupling attached to the upper exposed end of a drill rod or casing string to act as an anvil against which the impact blows of a drive hammer are delivered and transmitted to the rod or casing string; also sometimes used as a synonym for Drive hammer. *Also called* Bell jar, Drive collar, Jar head.
- Jar coupling.** A set of sliding links in a drill stem by means of which sudden impacts can be delivered to a string of struck drill tools.
- Jar head.** 1. A synonym for Jar collar; also for Drivehead.  
2. That part of a wire-line core barrel that slides up and down on the core-barrel jar staff.
- Jar piece; Jarring piece.** A piece of pipe used for the same purpose and in lieu of either a drive hammer or a jar rod.
- Jar length.** =Jar rod, *q.v.*
- Jar rod.** An extra heavy wall drill rod to which drive collars may be attached when using a drive hammer to jar or loosen drill-string equipment stuck in a borehole. *Also called* Drive rod, Jar length, Jar piece.
- Jars.** A sliding linklike device connecting a churn-drill rope socket to the drill stem during drilling operations or as a coupling connecting a fishing tool to the drill-rod string when fishing. *Also called* Jar coupling.
- Jar sleeve.** *See* Drive hammer, Jar piece.
- Jar staff.** A heavy bolt that forms a sliding connection between the jar and overshot heads of a wire-line core barrel.
- Jar tube.** A threaded tubelike part that connects the wire-line socket to the jar head in a wire-line-core-barrel overshot assembly.
- Jar weight.** =Drive hammer, *q.v.*
- Jaw; Jaws.** One or a set of two or more serrate-faced members between which an object may be grasped and held firmly as in a vice, drill chuck, foot clamp, or pipe wrench. *Compare* Spider.
- Jell; Jells.** 1. The thickening of a cement-slurry mixture that has started to set. *Compare* Gel.  
2. The thickening of a hot solution of gelatin and water, as used in a Maas compass, upon cooling; also, the jellylike substance so formed.
- Jelled.** 1. A cement-slurry mixture in which the incipient set has progressed far enough so that the mixture is no longer pumpable or pourable.  
2. Applicable when a hot solution of gelatin and water has cooled and solidified.
- Jelling.** 1. The time required for a cement slurry to thicken and take on a jellylike consistency.  
2. The time required for a hot solution of gelatin and water to thicken and become jellylike.  
3. The act of thickening.
- Jet.** 1. A forceful stream of fluid or air used to flush cuttings or soft, unconsolidated materials from a borehole.  
2. The act or process of sinking a borehole by means of a jetted fluid or air. *Compare* Jet piercing.  
3. A nozzle or orifice arranged for a directed and rapid efflux of a fluid or gas.
- Jet hole.** 1. A borehole drilled by use of a directed, forceful stream of fluid or air. *See* Jet 1.  
2. A small hole in a nozzle. *See* Jet 2.
- Jet mixer.** An apparatus that utilizes the mixing action of a water stream jetted into dry drill-mud ingredients to form a mud-laden fluid. *Compare* Atomizer, Mud mixer.
- Jet-piercing.** 1. The act or process of drilling a borehole with a directed, forceful stream of fluid or air.  
2. =Fusion-piercing, *q.v.*
- Jet-piercing drill.** =Fusion-piercing drill, *q.v.*
- Jet pump.** A device that causes a relatively large volume of a fluid to be moved through frictional contact with a rapidly injected small stream of a like or different fluid.
- Jetting.** The process of sinking a borehole or the removal of cuttings or loosely consolidated materials from a borehole by using directed, forceful streams of a fluid or air. The term is also applied commonly and improperly to the act or process of drilling by fusion-piercing.
- Jewel.** 1. An exceptionally fine or high-grade drill diamond.  
2. A precious stone; a mineral cut and polished for use as an ornament.
- Fig.** 1. A reciprocating screening device used to remove large drill cuttings from a borehole circulation fluid. *Also called* Shaker.  
2. To drill a borehole with a jig-pole drill.
- Joint.** 1. A standard length of drill rod, casing, or pipe equipped with threaded ends by which two or more pieces may be coupled together; also, two or more standard lengths of drill rods or pipe coupled together and handled as a single piece in round trips.  
2. A fracture or parting that cuts through and abruptly interrupts the physical continuity of a rock mass. Not to be confused with bedding or cleavage.
- Jointing.** The occurrence of joints. *See* Joint 2, Joint plane.
- Joint plane.** A plane along a joint fracture or parting. Not to be confused with bedding and/or cleavage. *See* Joint 2.
- Jointy.** Full of joints or cracks; specifically, full of minute cracks or crevices, as in rock. *See* Joint 2.
- Jones splitter.** A device used to reduce the volume of a sample consisting of a belled, rectangular container, the bottom of which is fitted with a series of narrow slots or alternating chutes designed to cast material in equal quantities to opposite sides of the device. *Also called* Sample splitter. *Compare* Riffle.
- Journal.** 1. =Logbook, *q.v.*  
2. That part of a rotating shaft resting in a bearing.
- Journal book.** =Logbook, *q.v.*
- Junk.** 1. Any foreign metallic material accidentally introduced into a borehole.  
2. Very poor or low-grade drill diamonds.
- Junk basket.** A fishing tool used to pick up and remove small pieces of metal from a borehole. *See* Junk.
- Junk iron.** =Junk, *q.v.* *See* Junk 1.
- Junk mill.** A bit designed to grind or cut foreign metallic material or junk in a borehole into pieces small enough to be washed out of the hole or recovered by a basket. *Compare* Milling bit, Rose bit.
- Karat.** A variant and rarely used spelling of Carat.
- Keel.** A lumberman's marking crayon, used by drillers to temporarily mark core boxes or the drill-bit advance on a drill string.
- Kelly.** A heavy-wall square or hexagonal tube or pipe, 10 to 20 feet long, which works inside the matching center hole in the rotary table on a diamond-drill

machine equipped with a rotary table or bushing or on a petroleum-type rotary drill. As the table is rotated, the grief stem turns and drives the drilling-string assembly to which it is coupled. *Also called* Grief joint, Kelly joint, Kelly stem.

**Kelly drive.** The mechanism that encircles a kelly and by means of which it is rotated.

**Kelly joint.** = Kelly, *q.v.*

**Kelly stem.** = Kelly, *q.v.*

**Kerf.** 1. The thickness of the wall of the diamond-inset part of the crown of a core bit.

2. Sometimes incorrectly used as a synonym for nose, as applied to a diamond core bit.

3. The annular groove cut into a rock formation by a core bit.

**Kerf stone.** One of the diamonds inset in the kerf of the crown of a diamond bit. *Also called* Face stone.

**Key.** 1. The pieces of core causing a block in a core barrel the removal of which allows the rest of the core in the core barrel to slide out.

2. An iron rectangle of suitable size and taper to fill the keyways of a shaft and pulley so as to lock both together.

**Key bed.** *See* Marker 1.

**Key rock.** *See* Marker 1.

**Kick.** 1. A quick snap of the drill stem caused by the core breaking in a blocked core barrel or sudden release of a momentary bind.

2. A small sidewise displacement or offset in a borehole caused by the sidewise deviation of a bit when entering a hard, tilted rock stratum underlying a softer stratum.

**Kicker.** A synonym for Gage stone; also, a gage stone handset in the outside surface or wall of the metal shank of a diamond bit.

**Kicker stone.** *See* Gage stone; *see also* Kicker.

**Kickoff point.** The place in a borehole where the first intentional deviation starts. Sometimes abbreviated KOP.

**Kingbolt.** A large bolt that holds the upper end of the tripod legs together and from which the sheave-wheel clevis is suspended.

**Kink.** 1. A sharp angular reflection in a borehole.

2. A dog leg in a wire line or cable.

**Kiruna method.** A borehole-inclination survey method whereby the electrolytic deposition of copper from a solution is used to make a mark on the inside of a metal container. *Compare* Acid-dip survey.

**Knife dog.** A tool that fits around and grips drill rods or any tubular drilling equipment so they can be pulled or lifted from a borehole where workspace in narrow underground openings is too confined to allow the use of a hoisting plug.

**Knoop hardness.** The hardness of a mineral as determined by its ability to withstand indentation by a special wedge-shaped diamond point under a specific load applied in a Knoop testing apparatus. The hardness is given in arbitrary scale units as numbers that express the hardness differences of various minerals more accurately than do Moh's scale units. *Also called* Micro-hardness. A list of the Moh's and Knoop hardnesses of representative minerals follows:

Mineral	Hardness scale units	
	Moh's	Knoop
Talc.....	1	(?)
Gypsum.....	2	32
Calcite.....	3	135
Fluorite.....	4	163
Apatite.....	5	395
Orthoclase.....	6	560
Quartz.....	7	710-790
Topaz.....	8	1, 250
Corundum.....	9	1, 700-2, 200
Tungsten carbide (Wc).....	>9	2, 800
Titanium carbide.....	>9	3, 200
Boron carbide.....	>9	3, 500
Diamond.....	10	8, 000-8, 500

**Knuckle joint.** A mechanism consisting of some form of two forks coupled together by means of a cube or sphere provided with projecting pins extending through holes provided in the outer end of each branch of the fork. When inserted between the bit and the drill rods, the mechanism can be used to deflect a borehole. A similar mechanism often is used as a connection between two shafts on a machine when the ends of the shafts are placed at an angle to each other.

**KOP.** *Abbr.* commonly used for Kickoff point, *q.v.*

**K.T.A.M. auger tube.** = K.T.A.M. double-tube auger, *q.v.*

**K.T.A.M. double-tube auger.** A double-tube soil sampling device designed to be rotated by hand to obtain soil samples from relatively shallow depths. The inner tube is a swiveltube, and its cutting end leads the bottom of the spiral on the outside of the outer tube.

**L.** Letter used to designate a nonstandard design of double-tube swivel-type core barrels and fitting parts, such as core bits, reaming shells, etc., manufactured in E, A, B, and N ranges. *See* AXL, EXL, BXL, and NXL.

**Lag.** 1. Time required for circulation liquid to travel downward from the drill pump through the drill string to the bit or upward from the bottom of the borehole to the collar.

2. The lapse of time between the occurrence of an event or condition and its detection on a recording device.

3. To place planks, slabs, or small timbers over horizontal, or behind upright, members of the mine timber sets to form a ceiling or wall.

**Lamp.** 1. A small, handheld electrical device that produces intense ultraviolet radiation.

2. The use of an electrical lamplike device producing intense ultraviolet radiations to examine visually drill cores or rock specimens for the presence and/or abundance of fluorescent minerals, such as scheelite, autunite, and petroleum.

- Land.** To set or allow the bottom end of a drivepipe or casing to rest at a preselected horizon in a borehole.
- Landing.** 1. A preselected and prepared horizon in a borehole on or at which the bottom end of a drivepipe or casing string is to be set.  
2. A level stage in a mine shaft at which a cage or skip can be loaded or unloaded.
- Lang lay.** A rope or cable in which the individual fibers or wires are twisted in the same direction as the strands.
- Large-diameter design.** A descriptive name used by the DCDMA to designate DCDMA standard-design, double-tube, swivel-type core barrels and fitting parts manufactured in the 4-, 6-, and 8-inch ranges. *See* appendix, table 2.
- Large group.** = Large-diameter design, *q.v.*
- Large series.** = Large-diameter design, *q.v.*
- Large-stone bit.** Bits set with diamonds as large or larger than 8 stones per carat in size.
- Larson ledge finder.** A tool used to reach bedrock when the driven pipe has failed. The tool is a combination of a noncoring bit attached to a standard drill rod operating within a flush-joint casing. On the end of the casing is fitted a casing-shoe bit, which follows about 1½ inches behind the noncoring bit. A special driving connection is provided in the drill-rod string consisting of two pawls that fit into corresponding slots in a sleeve fitted into the casing; hence both the casing and the rod strings may be rotated to penetrate the overburden at equal rates. When the casing-shoe bit is socketed sufficiently in bedrock, the rod string and attached noncoring bit are pulled from the hole and drilling proceeds, using a bit attached to a core barrel and rods.
- Latch.** 1. The locking device on a hoist hook, elevator, lifting bail, etc.  
2. A synonym for Elevator.  
3. The inner-tube locking and unlocking device in the head of a wire-line core barrel.
- Latch jack.** A fishing tool designed to engage and grasp the bail on a bailer.
- Lateral deviation.** The horizontal distance by which a borehole misses its intended target.
- Latex cement.** A specialized cementing material consisting of a portland-type cement, latex, a surface-active agent, and water, having a setting time equivalent to a neat portland-cement slurry. Latex cement shrinks less and is tougher, stronger, less permeable, and more durable than portland cement.
- Lay.** The direction in which the wires and strands that compose a rope or cable are twisted.
- Lay-by.** *See* Bank 1.
- Layer.** *See* Bed 1.
- Lazy bench.** The bench to one side of the drill tripod or derrick floor where visitors and workmen can sit while observing the drilling operation.
- L barrel.** *See* L.
- L bit.** Nonstandard, short-shank, box-threaded, coring bits made for use on nonstandard L-design core-barrel equipment. *See* L.
- Lead.** 1. The longitudinal distance traveled in one revolution by a spiral thread or screw. (Pronounced Leed.)  
2. The distance a bit is held suspended off bottom in a borehole before rotation and downward movement of the drill string is started.  
3. Commonly, although incorrectly, used as a synonym for Ledge, Lode.  
4. A mixture of powdered lead oxide and linseed oil used as a pipe-thread lubricant and sealant. (Pronounced Led.) *Also called* Red lead.
- Lead edge; Leading edge.** The surfaces or inset cutting points on a bit that face in the same direction as the rotation of the bit.
- Lean.** 1. A cement-sand mixture containing a very small or less-than-normal amount of cement.  
2. A rock in which the minerals sought occur in much less than exploitable amounts.
- Leather.** Disk-, cup-, or V-shaped rings of leather used as pressure packing on hydraulic and pump pistons and around piston rods.
- Ledge.** Colloquial synonym for Bedrock.
- Ledge finder.** *See* Larson ledge finder.
- Ledge rock.** = Bedrock, *q.v.* *Compare* False bottom.
- Left hand.** Drill rods, subs, pipe, or other threaded drilling equipment having left-handed threads. *See* Left-handed.
- Left-handed.** Threaded members, such as pipe or drill rods, which can be coupled together only by turning or twisting the members in an anticlockwise or counterclockwise direction as opposed to the clockwise direction used when coupling standard right-hand-threaded components.
- Left lang lay.** Wire or fiber rope or cable in which the wires or fibers in a strand and the strands themselves are twisted to the left.
- Left lay.** A wire or fiber rope or cable in which the strands are laid or twisted to the left.
- Left long lay.** = Left lang lay, *q.v.*
- Left regular lay.** Wire or fiber rope or cable in which the individual wires or fibers in the strands are twisted to the right and the strands to the left. *Also called* Regular-lay left lay.
- Leg.** One of the main upright members of a drill derrick or tripod.
- Letter name.** A single letter or combination of letters used to designate a specific range, group, and/or design of diamond-drill fittings, such as casing, core barrels, drill rods, etc. *See* appendix, tables 1, 3, and 4; *see also* Design, Group, and Range.
- Level.** 1. An instrument for establishing a horizontal line or plane.  
2. The act or process of adjusting something with reference to a horizontal line.  
3. Horizontal passages, drifts, or other underground workplaces the floors of which are approximately on the same horizontal plane.
- Lifeline.** A slide wire or cable extending from a work platform in a drill tripod or derrick at an oblique angle downward to an anchor on the ground, which the derrick or tripod man could grasp and use when sliding to safety in an emergency.
- Lift.** 1. The amount a bit is raised off the bottom of a drill hole by excessive pressure created by pump surges or the forcing of too great a volume of circulation fluid through the bit.  
2. In churn drilling, the vertical movement of the drill tools while drilling.  
3. In pumping, the difference in the elevation between the surface of the liquid being pumped and the elevation at which the pump stands or the elevation at which the liquid is discharged.
- Lifter.** = Core lifter, *q.v.*
- Lifter case.** The sleeve or tubular part attached to the lower end of the inner tube of M-design and some other types of core barrels in which is fitted a core lifter. *Also called* Core-catcher case, Core-gripper case, Core-lifter case, Core-spring case, Inner-tube extension, Ring-lifter case, Spring-lifter case.
- Lifter spring.** = Core lifter, *q.v.*
- Lifting bail.** *See* Bail.
- Lifting capacity.** 1. The weight that the hydraulic cylinders in the swivel head of a diamond drill can raise or lift.  
2. = Drill capacity, *q.v.*
- Lifting dog.** 1. A component part of the overshot assembly that grasps and lifts the inner tube of a wire-line core barrel.  
2. A clawlike hook for grasping cylindrical objects,

- such as drill rods or casing, while raising and lowering them.
- Lime.** 1. A hydrated oxide of calcium, usually called slaked lime, which drillers sometimes add to cement slurries to reduce its viscosity and decelerate its setting time. *Compare* Quicklime.  
2. Sometimes used by drillers as an abbreviated name for any rock consisting predominantly of calcium carbonate minerals.
- Limestone.** As used by drillers, a general name applied to sedimentary rocks composed essentially of calcium carbonate minerals.
- Linde drill.** *See* Fusion-piercing drill.
- Line; Lines.** 1. Wire and/or fiber ropes and cables.  
2. A given direction, bearing, or course.
- Lineal travel.** Commonly used as a synonym for Peripheral speed, as applied to bit rotation; also, a synonym for Rope or Cable speed, as applied to hoisting.
- Line clinometer.** A borehole-survey clinometer designed to be inserted between rods at any point in a string of drill rods. *Compare* Clinometer, End clinometer, Plain clinometer.
- Line in.** *See* Aline.
- Line lubricator.** *See* Line oiler.
- Line of bearing.** 1. The compass direction of the course a borehole follows.  
2. A synonym for Strike as applied to a rock stratum.
- Line of dip.** 1. The direction in which an inclined borehole is pointed.  
2. A synonym for Dip as applied to the inclination of a rock stratum.
- Line of etch.** *See* Etch line.
- Line oiler.** An apparatus inserted in a line conducting air or steam to an air- or steam-actuated machine that feeds small controllable amounts of lubricating oil into the air or steam. *Also called* Air-line lubricator, Atomizer, Line lubricator, Lubricator, Oiler, Oil pot, Pineapple, Pot, Potato.
- Line pump.** A pump connected into the discharge line leading from and located at some distance from the source pump. It picks up the liquid delivered to it by the source pump and forces it to continue to flow beyond the point at which a flow could not be maintained by the pump at the source. *Also called* Booster pump.
- Liner.** 1. A string of casing in a borehole.  
2. A replaceable tubular sleeve inside a hydraulic or pump-pressure cylinder in which the piston travels.
- Line speed.** *See* Cable speed.
- Line surge.** The pressure fluctuations or pulsating flow of a liquid through a pipe, caused by the alternating strokes of the pump pistons.
- Lineup.** A term sometimes used to inquire about the type of work planned and which members of the drill crew will be responsible for its completion. **EXAMPLE:** What's the lineup today?
- Line up.** 1. A command signifying that the drill runner wants the hoisting cable attached to the drill stem, threaded through the sheave wheel, or wound on the hoist drum.  
2. To reposition a drill so that the drill stem is centered over and parallel to a newly collared drill hole.
- Lining.** A replaceable tubular sleeve inside a hydraulic or pump pressure cylinder in which the piston travels.
- Lip.** The cutting edge of a fixed wing bit, such as the cutting edge on a fishtail bit.
- Liquid dump bailer.** *See* Dump bailer.
- Litharge.** A monoxide of lead in powdered form, which drillers sometimes use as a drill-mud heavy loader or mix with linseed oil for use as a pipe-thread lubricant and sealant. *See* Heavy loader.
- Live load.** 1. In drilling, a variable load suspended on the hoist line.  
2. In mechanics, a load that is variable, as distinguished from a load that is constant. *Also called* Dynamic load.
- LM bit.** A nonstandard 1.406-inch set-outside-diameter bit much used in Australia and Canada as a noncorrosive bit. It is used with a 1.428- to 1.438-inch set-outside-diameter reaming shell and LM rods. When set as a core bit, the inside diameter is such that it cuts a standard EX-size core.
- LM rod.** An Australian and Canadian letter name for a nonstandard-size, nonstandard-design drill rod having an outside diameter of  $1\frac{3}{16}$  inches. It is used with XRN bits and shells in blasthole-drilling operations.
- Load.** 1. Sometimes used as a synonym for Bit load.  
2. The act or process of placing an explosive in a borehole; also, the explosive so placed. *See* Charge 1 and 2.  
3. The weight borne by a structure caused by gravity alone (dead load) or by gravity increased by the stress of moving weight (live load), as in the case of hoisting a string of drill rods.
- Load indicator.** A measuring device used to indicate the load or weight suspended on a drill hoisting line or cable.
- Location.** 1. A spot or place where a borehole is to be drilled; a drill site.  
2. The act of fixing, according to law, the boundaries of a mining claim; also the mining claim itself.
- Locknut.** The nut securing the feed gears in the feeding mechanism in a gear-feed swivel head on a diamond drill; also, any extra nut used to secure a principal nut. *Also called* Jamnut, Jambnut.
- Log; Logged; Logging.** The record of, or the act or process of recording, events or the type and characteristics of the rock penetrated in drilling a borehole as evidenced by the cuttings, core recovered, or information obtained from electronic devices.
- Logbook.** A book in which the official record of events or the type and characteristics of the rock penetrated by the borehole is entered. *Also called* Journal, Journal book. *Compare* Log.
- Log sheet.** A sheet of paper on which the rock characteristics, sample assays, and other pertinent data obtained from a single borehole are recorded for future reference. *Compare* Log.
- Long hole.** Underground boreholes and blastholes exceeding 10 feet in depth or requiring the use of two or more lengths of drill steel or rods coupled together to attain the desired depth.
- Long-hole drill.** A rotary- or a percussive-type drill used to drill underground blastholes to depths exceeding 10 feet. *Compare* Long hole.
- Long lay.** =Lang lay, *q.v.*
- Long run.** To fill or nearly fill the core barrel with core on a single trip into the borehole. *Compare* Short run.
- Long-shank chopping bit.** A steel chisel-edged chopping bit having a longer and heavier than normal shank, designed to give added weight and directional stability when chopping an angle hole through overburden.
- Loose.** A synonym for Junk when applied to pieces of metal that must be fished from a borehole.
- Loose diamonds.** *See* Loose goods.
- Loose goods.** Industrial diamonds as purchased from a diamond supplier in bulk.
- Loose ground.** 1. Broken, fragmented, or loosely cemented bedrock material that tends to slough from sidewalls into a borehole. *Also called* Broken ground. *Compare* Breccia.  
2. As used by miners, rock that must be barred down to make an underground workplace safe; also fragmented or weak rock in which underground openings cannot be held open unless artificially supported, as

- with timber sets and lagging. *Compare* Broken ground.
- Loose iron.** *See* Loose, also Junk.
- Loose rock.** *See* Loose ground.
- Loose stone.** 1. A diamond insecurely bonded in a bit matrix.  
2. A diamond detached from a bit and lying on the bottom of a drill hole.  
3. An unset industrial diamond. *Compare* Loose goods.
- Lost circulation.** A condition that occurs when the drilling fluid escapes into crevices or porous sidewalls of a borehole and does not return to the collar of the drill hole. *Also called* Lose returns, Lose water, Lost returns, Lost water.
- Lost-circulation material.** Pulverized or shredded material added to the circulation media or drilling mud to plug cracks or crevices through which the circulation fluid is escaping from a drill hole. Materials sometimes used in combating lost circulation include shredded cellophane, bark, cottonseed hulls, manure, and cement.
- Lost core.** The portion of a core that is not recovered. It may be the soft rock that crumbles and falls from the core barrel or the solid piece or pieces of core that drop to the bottom of a borehole after slipping out of the core barrel while the drill string is being pulled from the drill hole.
- Lost hole.** A borehole in which the target could not be reached because of caving, squeezing, loose ground, or inability to recover lost tools or junk.
- Lost returns.** *See* Lost circulation.
- Lost time.** The time spent in drilling operations on work other than deepening the boreholes such as cementing, breakdowns, fishing, moving, and setups.
- Lost water.** *See* Lost circulation.
- Lot.** A quantity of loose graded or ungraded industrial diamonds, such as drill diamonds in a single package or packet.
- Lowering iron.** A tool used in lieu of a safety clamp to grasp and hold rods during round trips. It is made of a heavy steel bar equipped with an eyelike opening in one end, the inside hole of which is straight walled and about one-eighth of an inch greater in diameter than the drill rod on which it is to be used.
- Lowering tongs.** =Brown tongs, *q.v.*
- Low feed gear.** *See* Slow gear.
- Lower pickup.** The lowest point reached by the traveling block during a hoisting operation.
- Low gear.** 1. *See* Slow gear.  
2. Mining and/or drilling operations carried on at a leisurely pace and at less-than-normal output per man-shift.
- Low-grade.** 1. Sometimes applied to poor- or low-quality drill diamonds. *See* A.  
2. Ores having a relatively small amount of the mineral being mined.
- LP.** 1. *Abbr.* liquefied petroleum. A product generally consisting of liquefied propane or butane or a mixture of such gases. *See* Bottle gas.  
2. A questionable abbreviation sometimes used for low pressure.
- LPG.** *Abbr.* liquefied petroleum gas, primarily propane and butane under pressure. *See* Bottle gas.
- LP gas.** *See* Bottle gas.
- L series.** *See* L.
- L-series bit.** *See* L bit.
- L-series core barrel.** *See* L.
- Lubricator.** *See* Line oiler.
- Lug.** A replaceable cutting member on an expansion reamer.
- M.** The third letter (design letter) in three-letter names of certain core barrels completely standardized by the DCDMA. *See* M-design core barrel; *see also* appendix, table 1.
- Maas compass.** An instrument used to determine the bearing and inclination of the course of a borehole consisting of a nonmagnetic metal container inside of which is a compass needle floating on the surface of a liquid gelatin in a glass tube. When it is lowered into a borehole and suspended at a specific point therein, the gelatin cools and becomes jellylike in consistency, thereby holding the needle firmly in place. The compass segment and a clinometer are always combined in a single metal case; hence the direction and inclination of a borehole can be determined simultaneously.
- Maas survey.** A borehole-surveying technique employing a Maas compass. *See* Maas compass.
- Maas survey instrument.** *See* Maas compass.
- Machine.** All types of drills operated by air, steam, electric, or combustion-type motors and engines.
- Machine drill.** Any mechanically driven diamond, rotary, or percussive-type drill.
- Machine set.** =Mechanical set, *q.v.*
- Macle.** A distorted and/or twinned octahedral diamond, triangular in outline and thin or tabular in section. *Also called* Flat, Flats.
- Made up.** Coupled; the assembled component parts of a drill string or pipe system.
- Magnet.** 1. A fishing tool utilizing the property of magnetism to recover ferrous material or junk lost in a borehole.  
2. Any material that has the property of attracting and/or repelling masses of iron, or of exerting a force on a current-carrying wire.
- Magnetic.** Of, or pertaining to, a mineral, object, area, or locale possessing the properties of a magnet.
- Magnetic needle.** A short wirelike length of metallic material, which displays the properties of a magnet and which, when suspended at its midpoint, will orient itself toward the earth's magnetic north. *Compare* Maas compass.
- Magnetic polarity.** The orientation of the constituent minerals within the rocks of the earth's crust conforming to the earth's magnetic field as it existed at the time the strata were deposited. *See* Core orientation.
- Magnetized.** A body is said to be magnetized when it possesses or can be made to possess that peculiar property whereby under certain circumstances it will naturally attract or repel a similar body in accordance with magnetic laws. **EXAMPLE:** Drill rods become magnetized in use and will strongly attract other iron or steel articles.
- Magnetometer.** An instrument used in prospecting that measures one or more components of a magnetic field.
- Maine sampler.** A drive-type, split-tube soil-sampling device, usually equipped with a flap or clack valve near the cutting shoe. Usually produced in sizes having outside diameters ranging from 4 to 6½ inches.
- Maine-type sampler.** A soil-sampling device that works essentially on the same principle as a Maine sampler.
- Main hole.** The first or primary borehole from which secondary or branch holes are drilled. *Also called* Original hole, Parent hole. *Compare* Branch hole.
- Make up.** To assemble; to couple or screw together. Usually applied to the process of assembling the component parts of a drill string or pipe system.
- Makeup gun.** Same as Breakout gun.
- Makeup time.** The time required to couple together the component parts of a drill or casing string and the lowering of such a string to the working position in a borehole.
- Makeup tongs.** *See* Breakout tongs.

- Male.** =Pin, *q.v.*
- Male thread.** =Pin thread, *q.v.*
- Manila rope.** Broadly, rope or cordage formed from twisted fibers obtained from abaca, agave, or hemp plants.
- Manmade diamonds.** Industrial diamonds produced synthetically. *Also called* MM diamonds. *See* Diamond.
- Mantle.** The soil or other unconsolidated rock material more commonly referred to as overburden. *See* Burden, Cover, Drift, Overburden, Surface.
- Marker.** 1. A stratified rock having characteristics distinctive enough for it to serve as a readily identifiable subsurface reference or geologic horizon in a borehole or mine working. *Also called* Marker bed, Marker formation.  
2. A synonym for Marker block.
- Marker bed.** *See* Marker 1.
- Marker block.** A small block on which the footage below the collar of a borehole is marked and inserted between pieces of core at its appropriate place in a core box to indicate the depth in the borehole at which the core was obtained. *Also called* Footage block, Footmark, Marker.
- Marker formation.** *See* Marker 1.
- Marsh funnel.** A funnellike device of specific volume, equipped with a valved orifice of specific size, by means of which the viscosity of drilling muds may be determined.
- Masonry bit.** A thin-wall-type core bit used for drilling through building walls or floors, coring concrete, or asphalt pavements. *See* Thin-wall bit.
- Mast.** 1. A drill derrick or tripod mounted on a drill unit, which can be raised to operating position by mechanical means.  
2. A single pole, used as a drill derrick, supported in upright or operating position by guys.
- Matrix.** The metal in which the diamonds inset in the crown of a bit are embedded.
- M barrel.** =M-design core barrel, *q.v.*
- M.C. Abbr.** Metric carat. *See* Carat and/or Metric carat.
- M core barrel.** =M-design core barrel, *q.v.*
- McNamara clamp.** A drill-rod safety clamp somewhat similar to a Wommer's safety clamp.
- MD. Abbr.** Measured drilling, depth, *q.v.*
- Measured depth.** =Measured drilling depth, *q.v.*
- Measured drilling depth.** The apparent depth of a borehole as measured along the longitudinal axis of the borehole. The measured drilling depth is always equal to the unoverlapped drilled footage in a borehole. *Also called* Measured depth. Sometimes abbreviated MD.
- M design.** A specific-style, swivel-type, double-tube core barrel and parts manufactured in accordance with design and dimensional standards specified as those of the M design by the DCDMA. *See* M-design core barrel.
- M-design bit.** DCDMA standard design, long-shank, box-threaded core bit made to fit DCDMA standard M-design core barrels. *See* appendix, table 1.
- M-design core barrel.** DCDMA standard-design, double-tube, swivel-type core barrel made in sizes to be used with appropriate standard ranges of diamond-drill fittings. Its distinguishing features are that a 2½° taper core lifter is carried inside a short tubular sleeve (called a lifter case) coupled to the bottom end of the inner tube, and that the lifter case extends downward inside the bit shank to within a very short distance behind the face of the core bit. *Compare* X design. *See* appendix, table 1.
- Mechanical feed.** =Gear feed, *q.v.*
- Mechanical-feed head.** =Gear-feed swivel head, *q.v.*
- Mechanical-feed swivel head.** =Gear-feed swivel head, *q.v.*
- Mechanical set.** Bits produced by the various means in which diamonds are set in a bit mold into which a cast or powder metal is placed, embedding the diamonds and forming the bit crown, as opposed to handsetting. Also, the act or process of producing diamond bits in such a manner. *Also called* Cast set, Machine set, Sinter set. *Compare* Hand set.
- Mechanical-set bit.** A diamond bit produced by mechanical methods as opposed to handsetting methods. *See* Mechanical set.
- Medium-round nose.** A diamond bit the cross-sectional outline of which is partially rounded but not as fully rounded as a double-round nose bit. *Also called* Half-round nose, Modified-round nose. *Compare* Double-round nose.
- Medium-stone bit.** A bit with diamonds ranging from 8 to 40 per carat in size.
- Meniscus.** The curvature of the surface of a liquid column being concave when the container walls are wetted by the liquid and convex when not. *Compare* Capillarity.
- Mesabi casing.** *See* Mesabi E casing.
- Mesabi E Casing.** Nonstandard-size flush-joint casing, usually made from a 1½-inch-inside-diameter and 12¾-inch-outside-diameter standard pipe. *Also called* E casing, E Mesabi casing, Mesabi casing.
- Mesabi structural drilling.** A method of mineral exploration drilling developed on the western Mesabi range and utilizing reverse-circulation wash boring and/or churn drilling to drill through and obtain samples of the soft (wash ore) or fractured bodies of iron ore.
- Mesabi tripod.** A drill tripod having a back upright unit made with two poles spaced about 24 inches apart at the bottom and about 12 inches apart at the top and joined together by step strips to form a ladder. *Compare* Michigan tripod.
- Mesh.** 1. The size of diamonds as determined by sieves.  
2. Engagement or working contact of teeth of gears or of a gear and a rack.
- Metal powder.** A general term applied by drillers, bit setters, and bit manufacturers to various finely ground metals, which when mixed are commonly used to produce sintered-metal diamond bit crowns. *Also called* Powdered metal, Powder metal.
- Metamorphic rock.** Rock that has been changed or altered from its original state by heat, pressure, or other agencies, such as shale changed to slate, sandstone to quartzite, or granite to gneiss.
- Meter.** 1. An instrument to measure and/or record the volumetric flow of liquids, gases, electric current, etc.  
2. A colloquial synonym used for the term "to measure;" usually applied to liquids or gases.  
3. A metric unit of length equal to 39.37 inches.
- Metric carat.** The unit of weight (200 milligrams) adopted in 1913 by most countries as a standard weight to measure diamonds and gems.
- Michigan tripod.** A drill structure consisting of three barked timber poles of pine or fir about 25 feet long, the butt ends of which generally are about 12 inches in diameter. Through the upper or smaller ends of the poles, holes are drilled, through which a 1-inch bolt is passed to join the three poles. On the bolt, a large clevis is hung, the open ends of which straddle the center pole. The sheave is suspended on the clevis, and the poles are placed in a raised position (pyramid fashion) over the drill with the sheave aligned over the hoisting drum and the borehole and the center pole placed behind the drill. In its raised position the tripod is high enough to provide a minimum of 22 feet of headroom above the drill floor. *Compare* Mesabi tripod.
- Micro-hardness.** *See* Knoop hardness.



- Micrometer.** An instrument for measuring dimensions precisely. There are many forms, but the most common is a U-shaped instrument. The measurement is made by turning a very fine screw, which gives motion to a scale, mounted in one leg of the U. *Also called Mike.*
- Mike.** A synonym for Micrometer; also, the act or process of determining the size of an object with a micrometer.
- Mill.** To grind or cut away steel or iron with a toothed or serrated-face bit; also, the tool so used.
- Milled.** A metal object lost in a borehole that has been cut or ground away with a mill, milling bit, or rose bit.
- Milling.** The act or process of cutting or grinding away a metal object lost in a borehole with a mill or milling bit.
- Milling bit.** A bit equipped with hardened serrations or teeth used to grind or cut away metallic materials or junk obstructing a borehole. *Also called Junk mill, Rose bit.*
- Mill shoe.** A shoe equipped with a hardened serrated cutting edge used to mill downward over and around a piece of drill-stem equipment lost in a borehole. *See Mill.*
- Miter gear.** *See Bevel gear 1.*
- M.I.T. sampler.** A single-tube, drive-type, soil-sampling barrel especially adapted to sampling deposits of plastic clay where a minimum 5-inch-diameter sample is required. A loop or snare of piano wire is inserted in a groove inside the cutting shoe with the free end of the wire extending through a slot on the side of the sampler to the surface. When pulled, the wire cuts the sample off at the bottom of the cutting shoe.
- Mixed.** Drill diamonds ranging from 23 to 80 per carat in size.
- Mixer.** An apparatus used to thoroughly mix water with drilling-mud ingredients. *Also called Atomizer, Mud mixer.*
- Mixer cone.** A funnel-shaped hopper attached to the body of a mud mixer into and by means of which the dry, powdered, drill-mud ingredients are fed into the mud mixer.
- Mixing pit.** A pit in which drill mud is mixed and stored until the mud is cured and needed for use as a drill circulation fluid.
- MM.** *Abbr.* commonly used for manmade. *See Manmade diamonds.*
- MM diamonds.** =Manmade diamonds, *q.v.*
- Mobile drill.** A drill unit mounted on wheels or crawl-type tracks to facilitate moving.
- Modified California sampler.** A California-type soil sampler modified by the addition of a mechanically retractable piston within the barrel, making it possible to recover four consecutive 4-inch samples instead of three to five 12-inch samples. *See California sampler.*
- Modified-round nose.** =Medium-round nose, *q.v.*
- Mohs' scale.** Arbitrary quantitative units by means of which the scratch hardness of a mineral is determined. The units of hardness are expressed in numbers ranging from 1 through 10, each of which is represented by a mineral that can be made to scratch any other mineral having a lower-ranking number; hence the minerals are ranked from the softest, as follows: Talc (1) ranging upward in hardness through gypsum (2), calcite (3), fluorite (4), apatite (5), orthoclase (6), quartz (7), topaz (8), corundum (9) to the hardest, diamond, with the highest ranking number (10). *Compare Knoop hardness.*
- Monkey board.** A single, unrailed, heavy plank, mounted above the drill platform in the derrick or tripod and serving as a walkway or work platform.
- Moraine.** *See Glacial drift.*
- Moran and Proctor sampler.** A simple, split-tube, drive-type soil-sampling barrel. The sampler is equipped with a thin-walled unsplit brass liner, which can be capped and sealed to act as a watertight shipping container for the sample.
- Moran sampler.** =Moran and Proctor sampler, *q.v.*
- Morisette expansion reamer.** A reaming device equipped with three tapered lugs or cutters designed so that drilling pressure necessary to penetrate rock with a noncoring pilot bit forces the diamond-faced cutters of the reamer to expand outward, thereby enlarging the pilot hole sufficiently to allow the casing to follow the reamer as drilling progresses. The casing is rotated with a pipe wrench while the noncoring and expansion bit is turned by the drill, and the casing is allowed to follow down the reamed-out pilot hole about 1½ to 2 inches behind the upper end of the reamer lugs.
- Morisette reamer.** =Morisette expansion reamer, *q.v.*
- Mother Hubbard bit.** A heavy drag-type or fishtaillike bit having a long grooved shank the diameter of which is only slightly less than the width of the cutting edges; it is designed for drilling boreholes in formations that mud-up excessively.
- Mousehole.** Same as Rathole or Dilly hole, except that the hole is for the purpose of holding a length of drill pipe or rod instead of a Kelly.
- Mousetrap.** A cylindrical fishing tool fitted with an inward-opening flap valve at the bottom end, used to recover small metal fragments from the bottom of a borehole.
- Mouth.** A synonym for Collar, as applied to a borehole.
- Movable jaw.** The jaw or slip of a safety or foot clamp, which can be raised or lowered into or out of the body or frame of the clamp either to engage or to disengage the drill rods being run into or pulled out of a borehole.
- Movable slip.** =Movable jaw, *q.v.*
- M.P.F.M. jet auger.** An auger equipped with cutting blades, designed so that fluid, under pressure, passing through inclined holes just above the blades, washes away the material loosened by the blades, thereby cleaning the inside of the casing without disturbing the material below the bottom of the casing that is to be sampled.
- MRN.** *Abbr.* commonly used for Medium-round nose.
- M series.** =M design, *q.v.*
- M-series, bit.** =M-design bit, *q.v.*
- M-series core barrel.** =M-design core barrel, *q.v.*
- Mud.** 1. The suspension made by mixing the drill-circulation fluid (water) with the fine cuttings produced by the bit when drilling a borehole.  
2. The mixture of water or oil with clay, and sometimes other special materials, used as a drill-circulation liquid in drilling a borehole. *Also called Drill mud.*
- Mud auger.** A diamond-point bit with the wings of the point twisted in a shallow, augerlike spiral. *Also called Clay bit, Diamond-point bit, Mud bit.*
- Mud barrel.** 1. A double-tube core barrel with a greater-than-normal clearance between the inner and outer tubes, for use with mud-laden circulation liquids.  
2. A bailing device to bring to the surface the cuttings formed by the action of the bit at the bottom of a borehole in free-fall or churn drilling.  
3. A small bailer.
- Mud bit.** A pointed-edge, chisel-like tool used for boring drill holes through clay or claylike overburden materials. *Also called Clay bit, Diamond-point bit, Mud auger.*
- Mud cake.** The material filling the cracks, crevices, pores, etc., of the rock or adhering to the walls of the borehole. The cake may be derived from the

- drill cuttings, circulating drill mud, or both; it is formed when the water in the drilling mud filters into porous formations, leaving the mud ingredients as a caked layer adhering to the walls of the borehole.
- Mudcap.** A charge of dynamite or other high explosive fired in contact with the surface of a rock after being covered with a quantity of wet mud, wet earth, or sand. *Also called* Adobe, Dobie, Sandblast. *Compare* Block hole 2.
- Mud column.** The length in feet, as measured from the bottom of a borehole of a drill-mud liquid standing in a borehole either while being circulated during drilling operations or when the drill string is not in the hole.
- Mud drilling.** Drilling operations in which a mud-laden circulation fluid is used.
- Mud fluid.** *See* Drill mud.
- Mud flush.** To clear fragmented materials from a borehole by circulating a mud-laden fluid. *See* Mud drilling.
- Mud hog.** =Mud pump, *q.v.*
- Mud-laden.** A liquid (usually water) mixed with finely ground earthy or clayey materials.
- Mud-laden fluid.** The water or oil fluid in which mud-like solids are suspended, used to support the open bore and cool and clear the cuttings from the bit. The fluid is circulated while rotary- and/or diamond-drilling a borehole. *See* Drill mud.
- Mud mixer.** A machine, pump, hopper, or other apparatus used to mix dry ingredients with water or other liquids to prepare a drill mud. *Also called* Atomizer, Jet mixer, Mixer.
- Mud off.** The act or process of filling a borehole with mud-laden fluid to seal and support the walls, thereby preventing sloughing or the ingress or loss of water or oil.
- Mud pit.** 1. A pit in which drilling mud is mixed, prepared, stored, or caught as it overflows from the drill-hole collar.  
2. A reservoir acting as an intake pond for the suction hose of the mud pump circulating the mud fluid.
- Mud pot.** =Mud swivel, *q.v.*
- Mud pump.** A pump used to pump mud-laden drill fluid to maintain circulation during borehole-drilling operations. *Also called* Mud hog, Slush pump.
- Mud-pump valve.** Valves of special design for use in mud pumps.
- Mudsill.** The bottommost or foundation piece of heavy timber, usually embedded in soil, on which can be placed a structure such as a derrick floor, a drill floor, or a core shack.
- Mud socket.** A device attached to drill rods and used to remove mud or sand from a borehole. *Compare* Mule shoe.
- Mud solution.** *See* Drill mud or Mud 1 and 2.
- Mud sump.** =Mud pit, *q.v.*
- Mud swivel.** A modification of a water swivel specially designed for use when a mud-laden drill fluid is circulated in borehole-drilling operations. *Also called* Mud pot.
- Mud system.** 1. The technique and use of drilling mud as a circulating medium in drilling operations.  
2. The mixer, sump, piping, and other equipment used to prepare, maintain, and transport mud-laden fluid.
- Mud tank.** A large tank or reservoir for mixing and storing drilling mud that is fed to the mud pump for circulation in the borehole. Returning circulation fluid is fed into the tank at the end opposite the pump suction line to allow coarse drill cuttings to settle.
- Mud up.** 1. The act or process of filling, choking, or clogging the waterways of a bit with consolidated drill cuttings. *Also called* Sludging, Sludging up.  
2. The act or process of filling the pores or cracks in the rock surrounding a borehole; also, to cause mud to adhere to the walls of a borehole. *Compare* Mud off.
- Mud viscosity.** The property of a mud-laden fluid to resist flow due to internal friction and the combined effects of adhesion and cohesion. **EXAMPLE:** A Marsh funnel (used to measure the viscosity of mud) will discharge 1 quart of water in about 36 seconds, whereas an equal volume of an average drilling mud is discharged in 40 to 55 or more seconds from the same funnel.
- Mud wall-cake.** =Mud cake, *q.v.*
- Muleshoe.** A short length of tubing coupled to the bottom of a drill string to wash and clean out sand or mud from a borehole, the washing action being aided by cutting off the bottom end of the tubing at an angle of 45° to its longitudinal axis. *Also called* Mud socket.
- Multilayer bit.** A bit set with diamonds arranged in successive layers beneath the surface of the crown. *Compare* Impregnated bit.
- Multiple intersections.** The intercepts that cross a vein, ore body, or other geologic feature, accomplished by drilling several auxiliary boreholes from a single, main, or parent borehole with the aid of wedges and similar deflecting devices.
- Multiple lines.** The rope or line reeved through the multiple pulleys or sheaves of a block and tackle.
- Multiple-shot instrument.** A borehole-survey instrument capable of taking and recording a series of inclination and bearing readings on a single trip into the borehole. *Compare* Single-shot instrument.
- Multiple-shot survey.** A borehole survey using a multiple-shot instrument.
- Mushroom.** 1. A bit that during use has been overheated to the point where it becomes plastic and flattens or deforms.  
2. To flatten or deform a metal object by successive impacts.
- N.** 1. DCDMA letter name for a range of diamond-drill fittings intended to be used together, with the appropriate casing having an inside diameter of approximately (or somewhat less than) 3 inches. *See* appendix, tables 1 and 3.  
2. Letter name for a nonstandard, special core bit used extensively in the Eastern United States in coal-exploration drilling. The set outside and inside diameters of the 'special N core bit are 3.098 and 2.218 inches, respectively. The N bit is used with a reaming shell having a set diameter of 3.140 inches. *Also called* N 3 inch, Pa. Std., Pa. Std. N., Pa. Std. S., PAST, 3 inch, Pennsylvania standard N bit.  
3. Letter name for a nonstandard and now obsolete core bit that cuts a 2<sup>29</sup>/<sub>32</sub>-inch-diameter borehole and a core having a diameter of approximately 2<sup>1</sup>/<sub>16</sub> inches.  
4. Letter name for a nonstandard-size and now-obsolete casing and casing fittings. *See* appendix, table 1.
- Naked.** =Bare, *q.v.*
- Natural carbon.** Carbon the natural "as found" shape of which has not been artificially modified. *Also called* Natural stone.
- Natural diamond.** Nonmanmade diamonds the "as found" shape of which has not been artificially modified. *Compare* Natural stone.
- Natural stone.** Applicable originally to stream-rounded carbons; currently applicable to any nonmanmade diamonds the "as found" shape of which has not been artificially modified.
- N bit.** *See* N 2 and/or N 4.
- NC.** 1. Letter name for a CDDA-sponsored experimental-size and experimental-design diamond-drill rod having an outside diameter of 2<sup>3</sup>/<sub>4</sub> inches. The

- NC drill rod has been discarded and superseded by the drill rod designated by the letter name NW, which has an outside diameter of  $2\frac{3}{8}$  inches.
2. *Abbr.* commonly used for Noncoring.
3. Letter name for a nonstandard swivel-type double-tube core barrel and parts on which a bit having set inside and outside diameters of 2.730 and 3.615 inches, respectively, and a reaming shell having a set diameter of 3.650 inches are used.
- N casing.** *See* N 4.
- Neat.** Cement slurries containing no aggregate, such as sand or gravel.
- Neat cement.** Cement slurry without aggregate. *See* Neat.
- Needle valve.** A valve provided with a long tapering point in place of the ordinary valve disk. The tapering point permits fine gradation of the opening. *Also called* Drip valve. *Compare* Feed-control valve.
- Negative rake.** The orientation of a cutting tool in such a manner that the angle formed by the leading face of the tool and the surface behind the cutting edge is greater than  $90^\circ$ . *Also called* Drag rake.
- Nest.** 1. To place the next-smaller-size casing inside the casing already set in a borehole.  
2. To fit one tube inside another.
- Net drilling time.** The time actually spent in deepening the borehole.
- Neutral gear.** A set of gears, such as in a gear-feed swivel head, that when enmeshed allows the drive rod and attached drill string to be rotated without its being fed forward or backward.
- New diamond.** A diamond that has not been used. *Also called* New stone, Virgin diamond, Virgin stone.
- New stone.** =New diamond, *q.v.*
- Niggerhead.** 1. A cathed or small capstan.  
2. A hard, flintlike, dark-colored rock nodule, boulder, or rounded field stone.
- Nipple.** A short piece of pipe, pin-threaded on both ends.
- NM.** Letter name for an N-range, nonstandard, special, short-shank pin-threaded core bit, designed for use on a special core barrel adapted for core drilling with a mud-laden drill fluid. The inside and outside set diameters of the NM bit are 1.862 and 2.937 inches, respectively, and the fitting reaming-shell set diameter is 2.985 inches.
- NMS.** Letter name for an N-range, nonstandard, special, split-inner-tube, swivel-type, double-tube core barrel and parts. The NMS bit is a short-shank, face-discharge, (full-face or step-face design optional) box-threaded bit having set inside and outside diameters of 1.862 and 2.937 inches, respectively. Set diameter of the fitting reaming shell is 2.985 inches.
- NO.** Letter name for an experimental N-range oversize diamond-drill rod that has been discarded, and which was superseded in 1954 by a DCDMA standard drill rod designated by the letter name NW. *See* appendix, table 1.
- Nodular.** Shaped like, or composed of, nodules.
- Nodule.** A small roundish lump of some mineral or rock, such as a nodule of hard clay, chert, or ironstone.
- Nominal size.** Applicable when dimensions are given in units no smaller than the nearest one-sixteenth of an inch.
- Noncore drilling.** To drill a borehole without taking core.
- Nondiamond core drill.** A rotary or percussive-type drill equipped with core-cutting tools or bits the cutting points of which are not inset with diamonds.
- Noncoring bit.** A general type of bit made in many shapes that does not produce a core and with which all the rock cut in a borehole is ejected as sludge. Used mostly for blasthole drilling and in the unmineralized zones in a borehole where a core sample is not wanted. *Also called* Blasthole bit, Plug bit. *Compare* Fishtail bit, Roller bit.
- Nonmagnetic rod.** A drill rod made of brass, aluminum, or other metal unaffected by magnetism. *See* Brass rod.
- Nonproductive formation.** 1. A rock unit that, because of its stratigraphic position, is presumed to contain no valuable mineral deposits.  
2. A rock unit in which no minerals of interest are found.
- Nonrotating cable.** *See* Nonspin cable.
- Nonspin cable.** A wire or fiber cable so constructed as to reduce twisting to a minimum.
- Nonwetted.** As used by diamond-bit setters, a diamond inset in a metal or alloy that has not adhered to or wetted the surface of the diamond.
- Nonwetting.** As used by diamond-bit setters, a metal or alloy that, when molten, does not adhere to or wet the surface of a diamond.
- Nose.** The lead face of the crown of a diamond bit.
- N rod bit.** A Canadian standard noncoring bit having a set diameter of 2.940 inches. More commonly called a  $2\frac{15}{16}$  N drill-rod bit.
- NS bit.** Letter name for a step-face core bit having the same set diameters as a Pennsylvania standard N bit. *See* N 2.
- N 3 inch.** *See* N 2.
- N 3-inch bit.** *See* N 2.
- NU.** Letter name for an N-range experimental-size and -design diamond-drill rod that was discarded and superseded in 1954 by the DCDMA standard-size and -design drill rod designated by the letter name NW. *See* appendix, table 1.
- Nurse.** To carefully handle drilling tools, equipment, or bits. Also, to use damaged or weakened bits, equipment, or tools in such a manner as not to impose any suddenly applied or excessive strain.
- Nutracker.** =Boulder buster, *q.v.*
- NW.** DCDMA letter name for a DCDMA-standard N-range, W-group and -design diamond-drill rod having an outside diameter of  $2\frac{3}{8}$  inches. May also be used as a size and design designation as applied to drill tools, fittings, and equipment intended to fit and be used with NW drill rods, such as elevators, bails, safety clamps, drill swivel heads, etc.
- NWM.** DCDMA letter name for a DCDMA standard N-range, W-group, M-design, swivel-type double-tube core barrel and those fitting parts such as the long-shank, box-threaded core bits, reaming shells, core lifters, etc. The NWM-letter-name bits, reaming shells, core barrels, and core-barrel parts are identical with the corresponding NXM-letter-name items with one exception; that is, the head of an NWM core barrel is threaded to fit NW drill rods, whereas the head of an NXM core barrel is threaded to accommodate N drill rods. *Compare* NXM. *See* M-design core barrel and appendix, table 1.
- NWX.** DCDMA letter name for N-range, W-group, X-design, single- and double-tube core barrels and their fitting parts, such as bits, reaming shells, core lifters, etc. Before 1954 NWX-letter-name items were designated as NX-series items. All NWX- and NX-series core barrels and fitting parts are identical, except that the heads of the NWX core barrels are threaded to fit NW drill rods; whereas the heads of the NX-series core barrels were threaded to accommodate N drill rods. *See* appendix, table 1.
- NX.** 1. DCDMA letter name applied to X-group and/or -design drill fittings in the N range. *See* appendix, tables 1 and 3.  
2. A borehole-size letter name commonly used to

- designate the diameter of borehole produced by the use of N-range, X- and M-design reaming shells having an outside set diameter of 2.980 inches.
3. A core-size letter name commonly used to designate the diameter of a core cut by N-range, X- and M-design core bits having an inside set diameter of 2.155 inches.
4. Diamond-drill-rod letter name incorrectly, although commonly, used to designate a drill rod properly designated by the letter name N. *See* appendix, table 1.
5. A core-bit-size designation commonly applied to a bit having inside and outside set diameters of 2.155 and 2.945 inches, respectively.
6. DCDMA letter name for a DCDMA standard casing that has an outside diameter of  $3\frac{1}{2}$  inches and inside of which can be run N-range downhole drill equipment and fittings intended for use in a standard NX-size borehole. NX letter name also applied to fittings such as bits, reaming shells, shoes, etc., designed to fit and be used with NX casing. *See* appendix, table 3.
7. CDDA letter name for CDDA standard noncore and core bits having a set outside diameter of 2.940 inches. Set inside diameter of an NX core bit is 2.155 inches.
8. Letter name of a Canadian noncore, nonstandard bit having a set diameter of  $2\frac{31}{32}$  inches, used on a reaming shell having a set diameter of  $3\frac{1}{16}$  inches.
- NX bit.** *See* NX 5, 7, and 8; *see also* appendix, table 1.
- NXPB.** Letter name for a nonstandard, noncore bit having a set diameter of  $2\frac{15}{16}$  inches, used with a reaming shell having a set diameter of  $2\frac{31}{32}$  inches. Sometimes called a  $2\frac{15}{16}$  N bit, a CDDA standard noncore bit having a set diameter of 2.940 inches, used with a reaming shell having a set diameter of 2.970 inches.
- NXC.** Letter name for an N-range, nonstandard, special swivel-type double-tube core barrel and fitting parts. The NXC bit designed to fit the NXC core barrel has inside and outside set diameters of 1.875 and 2.975 inches, respectively; the NXC reaming-shell set diameter is 2.980 inches.
- NX casing.** *See* NX 1 and 6; *see also* appendix, table 3.
- NXD.** Letter name for an N-range nonstandard, special swivel-type double-tube core barrel using core bits designated as NXD, NXD2, and NXD2L, the inside and outside set diameters of which are 2.060 and 2.945 inches, respectively. The NXD core bit is a short-shank, box-threaded, face-discharge bit; the NXD2 is similar to the NXD except that it is pin threaded and the face discharge is optional; the NXD2L is like the NXD bit but longer shanked to permit its attachment directly to the NXD core barrel, whereas a reaming shell must be used to couple the NXD and NXD2 bits to the NXD core barrel.
- NX drill rod.** *See* NX 4; *see also* appendix, table 1.
- NXH.** Letter name for an N-range, nonstandard, special swivel-type, double-tube core barrel using a short-shank, box-threaded core bit having set inside and outside diameters of 2.155 and 2.945 inches, respectively.
- NXL.** Letter name for a nonstandard-design, N-range, swivel-type, double-tube core barrel using a short-shank, box-threaded bit having set inside and outside diameters of 2.155 and 2.945 inches, respectively. The set diameter of the NXL reaming shell is 2.980 inches.
- NXM.** Letter name applied, before 1954, to an N-range core barrel and its fitting bits and parts identical with items (with one exception) now designated by the letter name NWM. *See* NWM and M-design core barrel; *see also* appendix, table 1.
- NX rod.** *See* NX 4; *see also* appendix, table 1.
- NXS.** Letter name for an N-range, X-design, step-face bit having set inside and outside diameters of 2.155 and 2.945 inches, respectively. *See* Step-face bit.
- O.** Letter used to designate design of a range of over-size experimental diamond-drill rods discarded and superseded by the DCDMA standard W-group and -design drill rods. *See* appendix, table 1.
- o.d. Abbr.** outside diameter. Usually written OD in drilling-industry literature.
- Oehman's survey instrument.** A drill-hole-surveying apparatus that makes a photographic record of the compass and clinometer readings.
- Off bottom.** Not touching the bottom or above the bottom of a borehole.
- Off-center waterway.** A waterway port in a noncoring diamond bit, not in the center of the bit face.
- Off grain.** A synonym for Hard vector as applied to a diamond by diamond cutters and setters.
- Off line.** 1. A condition existing when the drive rod of the drill swivel head is not centered and parallel with the borehole being drilled.  
2. A borehole that has deviated from its intended course.
- Offset.** 1. An abrupt change in the trend of a drill hole, usually caused by a small shelflike projection of rock alongside one wall of the drill hole.  
2. To collar and drill a borehole at some distance from the designated site to avoid a difficult setup.  
3. To drill a borehole near one previously drilled for purposes of correlation or to determine the lateral extent of mineralization.  
4. A well drilled near the boundary of a lease opposite a completed well on an adjacent lease.
- Offset chopping bit.** A chisel chopping bit with one wing considerably wider than the other, as measured from the center of the bit.
- Offset hole.** 1. =Branch, *q.v.* *See* Branch 1.  
2. *See* Offset.
- Offset well.** =Offset, *q.v.* *See* Offset 4.
- Offside.** The opposite work-shift.
- Off-sider.** A driller or drill crewman working on the opposite shift.
- Ohio sampler.** A single tube or pipe with a pipe thread on top and the bottom beveled and hardened for driving into the ground to obtain a soil sample.
- Oil-base mud.** A mud-laden drill-circulation medium in which an oil is used as the laden liquid instead of water.
- Oiler.** 1. One of the several types of mechanical devices that deliver oil to machines and into air or steam lines in controllable amounts. *Also called* Atomizer, Line oiler, Lubricator, Oil pot, Pineapple, Pot.  
2. A workman responsible for keeping machinery properly lubricated. *Also called* Grease monkey.
- Oilfield casing.** =Oil-well casing, *q.v.*
- Oilfield rotary.** The type and size of drilling machines used to rotary-drill boreholes in search of petroleum. *See* Rotary drill.
- Oil pot.** =Line oiler, *q.v.*
- Oil pump.** A hydraulic pump supplying oil under pressure to the hydraulic-feed cylinders and pistons of a hydraulic-type swivel head on a diamond drill.
- Oil-well casing.** Ordinary outside-coupled pipe used as borehole casing or drivepipe. *Also called* Oilfield casing.
- Old hole.** *See* Main hole, Parent hole.
- Oldtimer.** 1. A drill runner with 30 to 40 years of experience.  
2. An antiquated drilling rig; generally applied to a steam-motivated diamond drill.
- On bottom.** At rest or touching the bottom of a borehole.
- On grain.** A synonym for Soft vector, as applied to a diamond by bit setters and diamond cutters.

- On line.** 1. A diamond drill with its drive rod centered on and parallel to a borehole.  
2. A borehole the course of which is not deviating from the intended direction.
- On the track.** Diamonds inset in the crown of a bit in concentric circles so that the diamonds in any one circle follow the same groove cut into the rock.
- 1 A.** Sometimes used to designate a low-quality drill diamond. *Compare A.*
- One shot.** A borehole-survey instrument that records a single inclination and/or bearing reading on each round trip into a borehole.
- Open.** 1. A borehole free of any obstructing object or material.  
2. To remove obstructing objects from a borehole.  
3. The uncased part of a borehole. *Also called Bare, Barefoot, Naked.*
- Open drive sampler.** A drive-type soil-sampling device that is essentially a headpiece, threaded to fit a drill rod, to which is attached a removable length of thin-wall brass or steel tubing. *EXAMPLE:* Shelby tube.
- Open hole.** 1. The uncased part of a borehole.  
2. A borehole free of any obstructing object or material.
- Open rock.** Any stratum capable of holding a large amount of water or conveying it along its bed by virtue of its porosity or fissured character.
- Opens.** Large open cracks or crevices and small and large caverns.
- Operator.** 1. A synonym for Driller.  
2. The person, owner, or lessee actually operating a mine.
- Ordinary lay.** =Regular lay, *q.v.*
- Ore.** A natural mineral compound having at least one element that is a metal. The term is applied more loosely to all metalliferous rock or rock containing the compounds of nonmetallic substances, such as sulfur; also, to material mined and worked for non-metallic minerals.
- Ore body.** A fairly continuous mass of ore.
- Ore intersection.** The point at which a borehole, cross-cut or other underground opening encounters an ore vein or deposit; also, the thickness of the ore-bearing deposit so traversed.
- Ore shoot.** *See Shoot 3.*
- Ore zone.** A large deposit of ores or minerals in place; also, a horizon in which ore minerals are known to occur.
- Orient.** 1. To place a diamond in a bit mold in such an attitude that when it is embedded in the crown matrix one of its hard vector planes will come in contact with the rock to be abraded or cut by the diamond.  
2. To place a deflection wedge in a borehole in such an attitude that the concave surface is pointed in a predetermined direction.  
3. To place a piece of core in the same relative plane as it occupied below the surface. *See Core orientation.*
- Orientation.** 1. The act or process of setting a diamond in the crown of a bit in such an attitude that one of its hard vector planes will come in contact with the rock and be the surface that cuts or abrades it.  
2. As used in borehole surveying and directional drilling practice, "orientation" refers to the method and procedure used in placing an instrument or tool, such as a deflection wedge, in a drilled hole so that its directional position, bearing, or azimuth is known.
- Oriented bit.** A surface-set diamond bit with individual stones set so as to bring the hard vector direction or planes of the crystal into opposition with the rock surface to be abraded or cut. *See Orient 1.*
- Oriented core.** A piece of core or other sample of rock set in such an attitude that it occupies the same planal position as it had in place. *Also called Oriented sample. Compare Core orientation.*
- Oriented diamond.** A diamond inset in the crown of a bit in such an attitude that one of its hard vector planes will be the surface that cuts or abrades the rock. *See Orient 1.*
- Oriented rods.** Drill rods that are lined up in reference to a specific mark, carried from rod to rod, as they are lowered into a borehole by using alinement clamps, a transit, or a theodolite.
- Oriented sample.** =Oriented core, *q.v.*
- Oriented survey.** A borehole survey made by lining up a reference mark on the clinometer case with that on the drill rods, which in turn are oriented as they are lowered into the borehole. *See Oriented rods.*
- Orienting coupling.** A rotatable coupling on a Thompson retrievable wedge-setting assembly that may be set and locked in a predetermined position in reference to the gravity-control member. This places the deflection wedge so as to direct the branch borehole in the desired course.
- Original hole.** *See Main hole.*
- Original lot.** A packet of loose ungraded and unsized diamonds as furnished by the London sales outlet of the Diamond Syndicate to a buyer.
- O series.** *See O.*
- Outage.** 1. The difference between the full rated capacity and actual contents of a barrel or tank.  
2. The loss of a volatile liquid such as gasoline ascribed to evaporation or pilferage. *Also called Shrinkage.*
- Outcrop.** To be exposed to view at the surface of the ground, as with strata or veins. *Also called Crop out, Cropping, Croppings, Ledge.*
- Outer barrel.** =Outer tube, *q.v.*
- Outer gage.** =Outside diameter, *q.v.*
- Outer stone.** A diamond set on the outside wall of a bit crown. *Also called Kicker, Outside stone, Reamer, Reamer stone.*
- Outer tube.** The outermost of a pair of nesting tubes of a double-tube core barrel. *Also called Outer barrel, Outside barrel, Outside tube.*
- Outfit.** 1. A drill machine complete with tools and equipment needed to drill boreholes.  
2. To acquire a drill and equip it with tools and equipment needed to drill boreholes.
- Outlet.** 1. A synonym for Discharge, as applied to pumps or a piping system.  
2. The passage by which the ventilating current of air goes out of a mine.  
3. An opening from a mine to the surface.
- Out of gage.** Bits and reaming shells having set inside or outside diameters greater or lesser than those specified as standard. *Also, a borehole the inside diameter of which is undersize or oversize.*
- Output.** The volume of a liquid discharged by a pump; volume of air discharged by a compressor; horsepower delivered by a motor.
- Outside barrel.** =Outer tube, *q.v.*
- Outside clearance.** One-half the total difference between the outside diameter of any piece of downhole equipment and the inside diameter of the borehole.
- Outside diameter.** The maximum length as measured between the terminal ends of an imaginary line drawn to the outside through the center of a circular or spherical object, such as a bit, tube, cylinder, or ball.
- Outside face.** The peripheral portion or that part of a bit crown, roller bit cutter, or any cutting edge of a bit in contact with the walls of the borehole while drilling.
- Outside gage.** =Outside diameter, *q.v.*
- Outside stone.** =Outer stone, *q.v.*
- Outside tap.** =Bell tap, *q.v.*
- Outside tube.** =Outer tube, *q.v.*

- Outside upset.** The act or process of thickening a length of tubing at its ends by increasing its outside diameter without changing the inside diameter; a length of tubing or drill rod so processed.
- Outside wall.** That part of a bit crown, bit shank, reaming shell, core barrel, drill rod, casing, or other piece of downhole equipment that when in use comes in contact with the wall of the borehole.
- Outside work.** Drilling operations conducted on the surface, as opposed to drilling done in underground or enclosed workplaces.
- Oval socket.** A fishing tool used to recover broken drill rods from a borehole.
- Overburden.** 1. Clay, sand, boulder clay, and other unconsolidated materials overlying bedrock. *Also called* Burden, Cover, Drift, Mantle, Surface.  
2. The worthless material covering a body of useful mineral.
- Overburden bit.** A special diamond-set bit, similar to a set casing shoe, used to drill casing through overburden composed of sand, gravel, boulders, etc.
- Overcut.** The process of producing a larger size hole than the outside diameter of the bit and/or reaming shell used, due to the eccentric rotational movements of a bit, core barrel, or drill stem.
- Overdrilling.** The act or process of drilling a run or length of borehole greater than the core-capacity length of the core barrel, resulting in loss of the core.
- Overfeed; Overfeeding; Overfed.** To attempt to make a diamond or rock-drill bit penetrate rock being drilled at a rate in excess of that at which the optimum economical performance of the bit is attained, which needlessly damages the bit and shortens its life.
- Overlap.** 1. The lineal portion of a borehole that must be redrilled subsequent to caving of the hole, the cementing of a section of the hole, or the bypassing of unrecoverable material in the hole.  
2. The lineal portion of a branch hole that nearly parallels the parent hole.
- Overload.** 1. To apply an excessive pressure to a drill string and bit.  
2. A synonym for Overweight. *Compare* Crowd 1 and 3.
- Overshot.** 1. A fishing tool designed to slip over the end of lost drivepipe and grip the collar when pulled upward.  
2. A bullet. *See* Bullet 2.
- Overshot head.** The upper section of the shell containing the lifting-dog assembly on a wire-line core barrel.
- Oversize.** 1. A synonym applicable to those sizes of drill rod the dimensions of which exceed the DCDMA standard sizes designated as the W group.  
2. Incorrectly applied to the size of core barrels and accessory parts, properly called Large-diameter design.  
3. A piece of equipment larger than specified or accepted standard size.
- Oversize core.** 1. Core cut by a thin-wall bit, as opposed to a standard-diameter core.  
2. A core the diameter of which is greater than a standard size.
- Oversize coupling.** 1. = Swelled coupling, *q.v.*  
2. A term sometimes used in Canada as a synonym for Reaming shell.
- Oversize hole.** A borehole the diameter of which is excessive because of the whipping action or eccentric rotation of the drill string and bit.
- Oversize rod.** A synonym for Drill collar, Guide rod.
- Overweight.** A diamond bit in which oversize diamonds are crowded into the bit face or crown. *Compare* Crowd 3, Overload.
- Packer.** A device lowered into a borehole, which automatically swells or can be made to expand at the correct time by manipulation from the surface to produce a watertight joint against the sides of the borehole or the casing.
- Packing.** A yielding material employed to effect a tight joint. *EXAMPLE:* Sheet rubber used for gaskets. The term also is applied to the braided hemp or metallic rings used in some joints to allow considerable or incessant motion, as in a stuffing box through which a piston rod or valve stem runs.
- Padded bit.** A synonym for Castellated bit.
- Paddy.** A borehole drill bit having cutters that expand on pressure. *Also called* Expansion bit, Paddy bit.
- Paddy bit.** *See* Paddy.
- Pan.** 1. A shallow, circular, concave steel or porcelain dish in which drillers or samplers wash the drill sludge to gravity concentrate and separate the particles of heavy dense minerals from the lighter-density rock powder as a quick visual means of ascertaining if the rocks traversed by the borehole contain minerals of value.  
2. The act or process of performing the above operation.
- Pancake auger.** An auger having one spiral web, 12 to 15 inches in diameter, attached to the bottom end of a slender central shaft. This type of auger is used as a removable deadman to which a drill rig or guy line is anchored.
- Pane.** A variant and seldom-used spelling of Peen.
- Panning.** The process of washing drill sludge, earth, or crushed rock in a pan by agitation with water, which concentrates the mineral particles having the greatest specific gravity in the center of the pan. *See* Pan.
- Parcel.** A number of diamonds enfolded in a specific manner inside two tough sheets of paper for shipment.
- Parent hole.** *See* Main hole.
- Parmalee wrench.** A wrench that has a smooth segmented sleeve, which when tightly clamped around the tube of a core barrel will not mar or distort the thin tube when the core barrel is taken apart.
- PAST.** *Abbr.* Pennsylvania Standard. A core bit used extensively in coal-formation core drilling in the Eastern United States coalfield areas. *See* N 2.
- PAST bit.** *See* PAST and N 2.
- PaStd.** *See* PAST and N 2.
- Pa. Std. bit.** *See* PAST and N 2.
- Pa. Std. N.** *See* PAST and N 2.
- Pa. Std. S. bit.** Pennsylvania-Standard size step-face bit. *See* N 2.
- Pattern.** 1. As applied to diamond bits, the design formed by spacing and distributing the diamonds in conformance with a predetermined geometric arrangement on the crown of a bit. *See* Concentric pattern, Eccentric pattern.  
2. The system followed in spacing boreholes. *See* Checkerboarded.
- Pavement.** *See* Base rock 2.
- Pay.** That portion of a formation in which valuable mineral, oil, or gas is found in commercial quantity.
- Pay ore.** Mineral deposits of sufficient quantity and quality to be mined profitably. *Compare* Pay streak.
- Pay streak.** That portion of the vein in which profitable ore occurs.
- Peen.** A variant and seldom-used spelling of Peen.
- Pebble.** = Gravel, *q.v.*
- Peen.** *See* Calk 1.
- Peening.** *See* Calking 1.
- Pegleg.** An abrupt change or sharp bend in the course of a borehole. *Also called* Dog leg.
- Pencil-core bit.** The very-thick-wall medium-round-nose bit that cuts a pencil-size core. The bit is essentially a noncoring bit, and in most instances no attempt is made to recover the very-small-diameter core as a sample.
- Pencil-coring crown.** = Pencil-core bit, *q.v.*

**Penetration feed.** *See* Feed rate.

**Penetration per blow.** The distance a drive-type soil sampler, casing, drive pipe, pile, or penetrometer is driven into the formation being tested by each blow delivered by a specific-size drive hammer allowed to fall a specific distance.

**Penetration rate.** *See* Feed rate.

**Penetration resistance.** As used in soil- or foundation-testing work, the amount of force required to drive a penetrometer or any type of drive sampler a specified distance into the formation being tested. The number of blows delivered by a specific-weight drive hammer required to drive a specific tool, casing, or similar cylindrical drill fitting a distance of 1 foot into a formation also is used sometimes as a measure of penetration resistance. The information so obtained is a relative measure of the compactness of the formation tested.

**Penetrometer.** A cone penetrator having the assemblage of a deflection dial indicator mounted inside a proving ring, which is coupled to the drill rod projecting above the ground. Force is applied to the top of the proving ring, and the amount required to drive the cone into the formation being tested registers, in pounds, on the dial indicator. *See* Cone penetrator.

**Percussion bit.** A rock-drilling tool with chisel-like cutting edges, which when driven by impacts against a rock surface drills a hole by a chipping action.

**Percussion drill.** 1. =Churn drill, *q.v.*

2. A drilling machine usually using compressed air to drive a piston that delivers a series of impacts to the shank end of a drill rod or steel and attached bit.

**Percussion machine.** =Percussion drill, *q.v.*

**Percussion system.** Applicable to drill machines and/or the methods used to drill boreholes by the chipping action of impacts delivered to a chisel-edged bit. *See* Churn drill, Percussion drill.

**Peripheral speed.** The distance a given point on the perimeter of a rotating circular object travels, expressed in feet per second; sometimes incorrectly called Lineal travel by some drillers. *Also called* Surface speed.

**Permafrost.** A permanently frozen soil.

**Permafrost drilling.** Boreholes drilled in subsoil and rocks in which the contained water is permanently frozen.

**Permeability test.** A procedure usually followed to determine the watertightness of the foundation and abutment rocks, as one phase of foundation test drilling done before the construction of dams. The test is performed by placing packer assemblies in diamond-drill holes to segregate each successive different stratum or each 5-foot depth, and water is injected into the borehole space between the packers with a high-pressure pump. The volume of water escaping into the rocks is a measure of the permeability, indicating the amount of water that will seep through the foundation or abutment of the dam and whether or not the dam foundation should be grouted.

**Petcock.** *See* Drain valve.

**Pickard core barrel.** A double-tube core barrel in X-group sizes. The distinguishing feature of the Pickard barrel is that when blocked the inner barrel slides upward into the head, closing the water ports and stopping the flow of the circulating liquid, and no additional drilling can be done without irreparably damaging the bit until the barrel is pulled and the blocked inner tube cleared.

**Picket.** A sighting hub. *See* Backsight hub, Foresight hub.

**Pickup.** A synonym for Lift, as applied to hoisting drill rods from a borehole.

**Pill.** A loosely rolled cylinder of burlap and ¼-inch-mesh hardware cloth pushed down into a borehole

ahead of a string of drill rods to the point where a large crevice or small cavity has been encountered. At this point the cylinder tends to unroll partially, forming a mat that acts as a barrier against which other hole-plugging agents may collect and help seal off the opening.

**Pilot.** 1. A cylindrical steel bar extending through and about 8 inches beyond the face of a reaming bit. It acts as a guide that follows the original unreamed part of the borehole and hence forces the reaming bit to follow and be concentric with the smaller diameter, unreamed portion of the original borehole.

2. The cylindrical diamond-set plug, of somewhat smaller diameter than the bit proper, set in the center and projecting beyond the main face of a noncoring bit. *See* Pilot bit.

**Pilot bit.** A noncoring bit with a cylindrical diamond-set plug of somewhat smaller diameter than the bit proper set in the center and projecting beyond the main face of the bit.

**Pilot hole.** 1. A small hole drilled ahead of a full-sized, or larger, borehole.

2. A borehole drilled in advance of mine workings to locate water-bearing fissures or formations.

3. A small tunnel driven ahead of, and subsequently enlarged to the diameter required in, the following full-size tunnel.

**Pilot-hole cover.** *See* Cover 1.

**Pilot reamer.** An assemblage of a pilot, a pilot reaming bit, and a reaming barrel. *See* Pilot, Pilot reaming bit.

**Pilot reaming bit.** A box-threaded, diamond-set, annular-shaped bit designed to be coupled to a pilot and used to ream a borehole to a specific casing size. *See* Pilot 1 for description of the pilot to which the reaming bit is attached.

**Pilot wedge.** A half-cylinder member, about 5 inches long, coupled to the lower end of a Hall-Rowe deflection wedge, by means of which the deflection wedge may be oriented in a specific manner in reference to a matching half-cylinder surface on the upper end of the wedge (drive wedge). This is driven into the wooden plug placed about 8 feet below the point in a borehole where a deflection is to be made. *Also called* Wedge pilot.

**Pin.** 1. The currently accepted term for that part of a cylindrical or tubular member threaded on its outside surface.

2. As used by handsetters, to build up or repair a worn spot on a bit by inserting a metal pin peened into a hole drilled into the metal of the bit face at the worn or eroded spot.

3. A sharp metal shaft used to fasten two or more objects together; a coupling or dowel.

**Pinch.** 1. The binding action caused when borehole walls close in before casing is emplaced, resulting from rock failure when drilling in formations having a low compressional strength.

2. To caulk a diamond unevenly or too tightly in handsetting, causing the stone to break.

3. To force a diamond bit into an undersize hole, thereby squeezing the bit and possibly damaging the outside or gage stones.

**Pineapple.** =Line oiler, *q.v.*

**Pine tar.** A vegetable tar made from the resin of pines or other conifers. It is used as a lubricant when adherence is one of the important features; hence quite frequently it is mixed with petroleum greases and waxy substances to make an adherent lubricant commonly used as a rod dope.

**Pinned coupling.** Drill-rod couplings that have been permanently attached to the body of the rod by a metal dowel (or pin) driven into a small hole drilled at the point in the rod where the coupling is screwed into the body of the rod.

- Pin thread.** The thread on the outside surface of a cylindrical or tubular member.
- Pin-to-box.** The currently accepted term for a coupling, one end of which is threaded on the outside (pin) and the opposite end threaded on the inside (box). Formerly designated as a male-to-female coupling. *See Sub.*
- Pin-to-pin.** The currently accepted term for a coupling, both ends of which are threaded on the outside. Formerly designated as a male-to-male coupling. *See Sub.*
- Pip.** An indentation provided in the surface of a bit mold or die in which a diamond is set.
- Pipe.** A tube of common steel, usually threaded externally on each end to permit joining two or more lengths together by means of internally threaded couplings. *Compare Drill pipe.*
- Pipe bit.** A bit designed for attachment to standard coupled pipe for use in socketing the pipe in bedrock. Can be set with diamonds or other abrasive materials.
- Pipe clamp.** 1. A device similar to a casing clamp, used in the same manner on a pipe as a casing clamp is used on casing. *See Casing clamp.*  
2. A pipe wrench constructed like a Parmalee wrench.
- Pipe collar.** =Pipe coupling, *q.v.*
- Pipe coupling.** An internally threaded, short, sleeve-like member of ordinary steel used to join lengths of pipe. Sometimes incorrectly called Pipe collar, Pipe sleeve.
- Pipe drive head.** A drive head that is coupled to a pipe. *See Drive head.*
- Pipe drive shoe.** =Drive pipe shoe, *q.v.*
- Pipe elevator.** A device similar to a casing elevator, used to raise and lower outside-coupled pipe in a borehole.
- Pipe friction.** The drag created on the outside of a pipe being driven into overburden by the overburden material pressing and rubbing against the outside surface of the pipe and its couplings. *See Skin friction.*
- Pipe grip.** =Chain tongs, *q.v.*
- Pipe shoe.** =Pipe drive shoe, *q.v.*
- Pipe-shoe bit.** A bit similar to a pipe bit, except that the set inside diameter is larger. Generally, it is used in a one-shot attempt to drill pipe through overburden into bedrock. A pipe-shoe bit is recovered only when the drivepipe is pulled out of the completed borehole.
- Pipe sleeve.** =Pipe coupling, *q.v.*
- Pipe string.** The total amount of any given size of pipe used as standpipe, drivepipe, or casing in a borehole.
- Pipe-thread protector.** =Thread protector, *q.v.*
- Pipe tongs.** =Chain tongs, *q.v.*
- Pipe wiper.** A device built similar to a rod wiper but designed to be used on a drill pipe. *See Rod wiper.*
- Pipe wrench.** An instrument or device having one fixed and one adjustable jaw, both serrated and attached to a handle. When the handle is pulled the jaws grip a cylindrical object with increasing firmness.
- Piping.** The act or process of driving standpipe, drivepipe, or casing into overburden.
- Piston.** The working part of a pump, hydraulic cylinder, or engine that moves back and forth in the cylinder; it is generally equipped with one or several rings or cups to control the passage of fluid. It ejects the fluid from the cylinder, as in a pump, or receives force from the fluid, which causes a reciprocating motion, as in an engine.
- Piston clearance.** The space remaining at the end of a cylinder when the piston has reached the position of its extreme travel toward that end.
- Piston displacement.** Volume in cubic inches, gallons, or other units of measure swept out of a cylinder per stroke, or during a given period, by a piston.
- Piston drive-sampler.** *See Piston sampler.*
- Piston motor.** An engine or motor in which the power derived from air or steam is used to drive one or more reciprocating pistons connected to a crank shaft to produce rotational movement to drive a shaft, pulley, or gearing connected to a device to be driven. Not to be confused with an internal-combustion-type reciprocating engine or motor.
- Piston rod.** A rod or shaft, rigidly coupled to a piston, that moves parallel to the piston and its enclosing cylinder. A rod by which the piston is moved or by which the movement of the piston is transmitted to an attached mechanism. Sometimes confused with Connecting rod.
- Piston sampler.** A drive sampler equipped with either a free or a retractable-type piston that retreats up into the barrel of the sampler in contact with the top of the soil sample as the sampler is pressed into the formation being sampled. *Compare Drive sampler.*
- Piston stroke.** The extreme distance traveled by the piston at each stroke.
- Piston-type sampler.** *See Piston sampler.*
- Pit.** 1. A synonym for Sump, Cellar.  
2. A small hole or indentation in a metal surface caused by corrosion or erosion.  
3. A large hole from which some mineral deposit is dug or quarried.
- Pitch.** 1. The amount of advance of a screw thread, the web on an auger stem, or its cutting head in a single turn, expressed in lineal distance along the axis, or in turns per unit of length. *Compare Lead.*  
2. A synonym for Dip.  
3. The distance between tooth centers, measured on the pitch line, or the number of teeth per unit of diameter, as in a gearwheel.
- PK.** 1. Letter name for an obsolete core bit having outside and inside set diameters of  $3\frac{1}{16}$  and 2 inches, respectively, used with a reaming shell having a set diameter of  $3\frac{3}{32}$  inches.  
2. A letter symbol for a nonstandard drill rod having tapered thread, V-thread couplings, and an outside diameter of  $2\frac{7}{8}$  inches.  
3. A letter name for a nonstandard core barrel designed for use with PK letter-name drill rods and/or PK letter-name bits.
- Plain clinometer.** A clinometer having only its upper end threaded to fit drill rods. *Also called End clinometer. See Clinometer. Compare Line Clinometer, Wedge clinometer.*
- Plain core barrel.** =Single-tube barrel, *q.v.*
- Plain pilot.** A pilot in the surface of which no cutting points, such as diamonds or slugs, are inset. *See Pilot.*
- Platform.** A plank or a mesh-steel-covered level area at the base of a drill tripod or derrick, used as a working space in front of a drill machine around the collar of the borehole. Sometimes the platform is large enough to act as a foundation and anchor for the drill machine. Also, a similar floored area in the tripod or derrick on which a man stands while working in the tripod or derrick. *See Floor, Drill Floor.*
- Plot mark.** A mark made in a bit mold, bit die, or blank bit where a pip or hole is drilled to receive or to encompass a diamond.
- Plug.** 1. =Hoisting plug, *q.v.*  
2. A cylindrical piece of wood or an expandable apparatus placed in a borehole to act as a watertight or gastight seal or as a base into which the drive wedge of a borehole-deflection device is driven.  
3. A steel cylinder placed inside the annular opening in a coring bit to convert it for use as a noncoring bit. The face of the plug may or may not be provided



- with serrations, inset diamonds, or other types of cutting edges.
4. A synonym for Pilot and/or the pilot section of a pilot-type noncoring bit.
5. The act or process of inserting a plug in a borehole; also, to fill a borehole with cement or cap it with a long plug.
6. To fill or seal off cracks, cavities, or other openings in the walls of a borehole.
7. A synonym for Block. *See* Block 1.
- Plug bit.** = Noncoring bit, *q.v.*
- Plugged.** 1. A borehole that has been filled or capped with a long plug, or in which a plug has been inserted.  
2. Cracks or openings in the rocks in the walls of a borehole that have been filled or sealed with cement or other substances.  
3. A borehole that has been drilled with a plug or noncoring bit.  
4. A blocked core barrel or bit.  
5. A coring bit in which a plug has been inserted. *See* Plug 3.
- Plugged bit.** 1. = Noncoring bit, *q.v.* *See also* Plug 3.  
2. A core bit the annular opening of which is tightly closed or blocked by a piece or the impacted fragments of a core.
- Plugging.** 1. The material used, the act, or the process of inserting a plug in a borehole to fill it or the cracks and openings in the borehole sidewalls.  
2. The act or process of drilling a borehole with a noncoring bit. *See* Noncore drilling.
- Plug valve.** A valve or cock opened or closed by the turning of a plug, usually conical in shape. Not to be confused with Needle valve or Globe valve.
- Plunger.** A piston and its attached rod.
- Pneumatic.** Driven or operated by compressed air.
- Pneumatic drill.** A drill of either the piston or hammer type, operated by compressed air.
- Pneumatic lubricator.** = Line oiler, *q.v.*
- Pneumatic rod puller.** An air-driven rod puller. *See* Rod puller.
- Poise.** An absolute unit of fluid viscosity. *See* Centipoise.
- Pole drill.** A churn drill used to drill shallow holes. The drill stem is rigidly connected (by rods or coupled poles) to the reciprocating beam.
- Pole tools.** The tools used with a pole drill.
- Polish.** *See* Glaze.
- Polished.** *See* Glazed 1.
- Polish off.** 1. To dull a diamond bit. *Compare* Glaze, Glazed 1.  
2. To finish or complete.
- Polished off.** 1. A diamond bit that has been dulled.  
2. Finished or completed.
- Poor.** Sometimes used to designate low-quality drill diamonds. *See* A.
- Pop off.** 1. = Pressure-relief valve, *q.v.*  
2. The reduction in pressure effected by release of part of the confined liquid or gas through a pressure-relief valve.
- Pop-off valve.** = Pressure-relief valve, *q.v.*
- Pop valve.** = Pressure-relief valve, *q.v.*
- Porcelain lined.** A pump equipped with a ceramic-coated cylindrical shell lining the pump cylinder. *See* Porcelain liner.
- Porcelain liner.** A cylindrical shell, coated with a special abrasion-resistant, porcelainlike ceramic material, used as the liner of a pump cylinder to resist the abrasive and/or corrosive effects of a recirculated or mud-laden drill fluid, grout, etc.
- Porosity.** The ratio of the pore volume of a rock to its bulk volume, usually expressed in percent of the bulk volume.
- Porosity sample.** A sample for which the porosity or ratio of the volume of all pore space to the total bulk volume of the sample may be determined.
- Porous.** Containing voids, pores, cells, interstices, and other openings, which may or may not interconnect. *See* Porosity.
- Porous formation.** = Porous ground, *q.v.*
- Porous ground.** Any assemblage of rock material that as a result of fracturing, faulting, mode of deposition, etc., contains a high percentage of voids, pores, and other openings.
- Porphyry.** As used in a general sense by drillers, an igneous rock, generally light colored, having relatively large, conspicuous crystals (phenocrysts) embedded in a finer grained or glassy groundmass.
- Port.** 1. A cylindrical opening through the bit shank from which the circulating fluid is discharged at the bit face into the waterways.  
2. Any opening designed as an inlet, outlet, or short passageway for a working gas or fluid.
- Portable drill.** 1. Any size drill outfit that is wheel, skid, or track-mounted so that it can be moved readily as a unit.  
2. Very small, lightweight drills having two to three readily disassembled parts, each weighing not more than 60 pounds and hence readily carried by one man.
- Porthole.** The opening or passageway connecting the inside of a bit or core barrel to the outside and through which the circulating medium is discharged.
- Portland cement.** Ordinary builder's cement. *See* Cement 1.
- Positioning line.** A line on a Hall-Rowe deflecting-wedge clinometer used as the reference line from which the deflection angle on the wedge may be set.
- Positive rake.** The orientation of a cutting tool in a manner so that the angle formed by the leading face of the tool and the surface behind its cutting edge does not exceed 90°. *EXAMPLE:* Teeth in a rip saw. *Also called* Gouge rake.
- Post hole.** A shallow borehole.
- Post-hole digger.** = Iwan-pattern earth auger, *q.v.*
- Pot.** 1. A steam boiler.  
2. = Line oiler, *q.v.*
- Potato.** = Line oiler, *q.v.*
- Potman.** A steam-boiler tender or fireman.
- Powder metal; Powdered metal.** As used in the diamond-drilling industry, the finely divided particles of iron, copper, nickel, zinc, tungsten-carbide, etc., which, when mixed with a suitable binding material and subjected to processing by heat and pressure, may be used as a matrix material to form a bit crown.
- Powder-metal bit.** Any diamond bit, mechanically set, in which finely divided metal powders are used as a matrix to hold the diamonds in place. *Also called* Powder-pressed bit; Powder-set bit; Sinter bit; Sintered-metal bit.
- Powder-metal process.** The process of mechanically setting diamonds in a bit in a matrix of finely divided metal powders. The metal powder is first cold-pressed to compact it in a bit mold or die and then is heated to allow the bonding alloy to melt and bind the powder to the diamonds and bit blank. Hot pressing or coining follows heating of the powder in some modifications of the process.
- Powder-metal process bit.** *See* Powder-metal bit.
- Powder-pressed bit.** *See* Powder-metal bit.
- Powder-set bit.** *See* Powder-metal bit.
- Power tongs.** A mechanically powered wrench used to make up or break out a drill rod, casing, or pipe string.
- Premature block.** An obstruction or block in a core barrel or bit that prevents the entry of core into the barrel before the bit can be advanced far enough to cut a length of core to fill the barrel.
- Premature set.** The hardening of cement in a shorter time than normal or estimated.

- Pressure dome.** 1. =Air dome, *q.v.*  
2. The bonnet on a steam boiler.
- Pressure drop.** The decrease in pressure at which a liquid or gas is made to move between the intake and discharge of a pipeline or drill stem.
- Pressure equalizer.** 1. A diaphragm connected to the fluid column by a series of ports incorporated in the design of some core barrels and preventing the entry of drilling fluids into the core-barrel-head bearings.  
2. A dampener.
- Pressure gage.** An instrument used to measure the force per unit area exerted by a confined fluid or gas.
- Pressure grouting.** The act or process of injecting, at high pressures, a thin cement slurry or grout through a pipeline or borehole to seal the pores or voids in the rock or to cement fragmented rocks together.
- Pressure liner.** A cylindrical liner, the inside diameter of which is smaller than standard, so that when installed in a pump with matching pistons it permits the pump to operate against higher discharge pressures without increasing the horsepower required.
- Pressure packer.** *See* Packer 1.
- Pressure per diamond.** The feed pressure or load applied per diamond in a bit. The total load supported by the bit divided by the number of stones set in the bit face expresses the pressure per stone in numerical values. *Also called* Diamond pressure, Stone pressure.
- Pressure per stone.** =Pressure per diamond, *q.v.*
- Pressure-reducing valve.** A valve using a diaphragm on the low-pressure side to actuate a gate or plug to regulate the flow of fluids or gases to decrease pressure. The low pressure of the low side acting on a larger area balances the force exerted by a high pressure acting on a small area to close the valve.
- Pressure regulator.** A balanced valve equipped with a diaphragm, used to control or restrict the flow of fluid or gas and designed so that the pressure of the fluid plus the force exerted by a spring or lever is sufficient to close the valve against the pressure exerted by the fluid or gas on the high-pressure side, thereby restricting its flow.
- Pressure-release valve.** =Pressure-relief valve, *q.v.*
- Pressure-relief valve.** A safety valve used on pressure vessels or pump discharge lines to release pressures exceeding a preset limit. After the excessive pressure has been released or blown down, the valve usually will close automatically. *Also called* Pop off, Pop-off valve, Pop valve, Pressure-release valve, Safety valve.
- Pressure sleeves.** =Pressure liner, *q.v.*
- Pressure test.** =Permeability test, *q.v.*
- Primary water supply.** The principal or original source from which drilling water is obtained, as opposed to recirculated water.
- Prime.** To add water to displace air and promote suction, such as in an intake on a pump.
- Priming.** The act of adding water to displace air, thereby promoting suction, as in a suction line of a pump.
- Probe.** 1. A small tube containing the sensing element of electronic equipment, which can be lowered into a borehole to obtain measurements and data.  
2. To conduct a search for mineral-bearing ground by drilling or boring.  
3. To lower drill rods, etc., to locate obstructions and/or to determine the attitude of a piece of junk in a borehole.
- Profile.** An outline, contour, or drawing showing the outline of a vertical section through a bit, borehole, etc. As applied to diamond bits, the profile serves to illustrate the shape of the bit crown. *Compare* Double-round nose, Flat face, Single-round nose.
- Progress.** The rate of penetration, usually stated in terms of feet drilled per shift or depth of hole at a stated time.
- Projection.** 1. =Exposure, *q.v.* *See* Exposure 1.  
2. =Outcrop, *q.v.*
- Prongs.** The fingerlike springs on a basket core lifter. *See* Basket core lifter.
- Propane.** *See* Bottle gas.
- Prospect.** 1. To search for minerals or oil by looking for surface indications, by drilling boreholes, or both.  
2. A plot of ground believed to be mineralized enough to be of economic importance.
- Prospect drilling.** The exploratory drilling of boreholes in the search for minerals and petroleum.
- Prospecting.** Searching for minerals or petroleum. *See* Prospect.
- Prospecting hole.** A borehole drilled for the purpose of obtaining information on the occurrence of minerals and petroleum.
- Protractor.** Any one of several goniometerlike devices used to determine the etch angle inside an acid tube. *See* Goniometer.
- Proud.** A South African term for an extreme diamond or slug exposure. *See* Diamond exposure.
- p.s.i. Abbr.** Pounds per square inch.
- Pull.** 1. To hoist drill-stem equipment from a borehole.  
2. The amount of core obtained each time the core barrel is removed from a borehole.
- Pulldown.** A system of pulleys or sheaves reeved with cable or chains attached to the drive rod or kelly and used to increase the cutting pressure on the bit when the weight of the rod is insufficient.
- Pulled.** The extraction of any object or equipment, such as pipe, casing, core, or the drill stem, from a borehole.
- Pulled back.** Applicable when casing, drill string, or rods retreat or lift a short distance from the bottom of a borehole.
- Pulley box.** The bearings on or in which the crown-block-axle ends are supported.
- Pulsate.** *See* Surge.
- Pulsation dampener.** *See* Dampener.
- Pump.** A device for moving, forcing, or lifting liquids; also, the act or process of moving such liquids.
- Pump bucket.** =Cup leather, *q.v.*
- Pump capacity.** The volume of fluid, at a specified pressure, that a pump can transfer or lift when powered by an engine or motor of any given horsepower. Pump capacity also depends on fluid viscosity, pump condition, line friction, etc.
- Pump cup.** =Cup leather, *q.v.*
- Pump-cup leather.** The leather cup-shaped packing used on the pistons of certain classes of pumps. Same as Cup leather.
- Pump discharge.** 1. The port through which a fluid is ejected as it is acted upon by the pump.  
2. The hose or length of pipe transferring a fluid from a pump after the fluid has been acted on by the pump to the point where fluid is to be used or discarded.
- Pump disc; Pump disk.** =Cup leather, *q.v.*
- Pump intake.** 1. The port and/or point at which the suction hose passes a fluid into a pump so that the fluid can be acted on by the pump pistons.  
2. The source from which a fluid is fed to a pump.
- Pump leather.** =Cup leather, *q.v.* =Pump-cup leather, *q.v.*
- Pump lift.** 1. The vertical distance that a pump can suck up water. Theoretically, this should be about 34 feet at sea level; practically, the limit is about 26 feet.  
2. The vertical distance a pump can force water to flow.
- Pump liner.** A replaceable cylindrical or ceramic-coated metal sleeve installed in a pump cylinder inside of which the piston works.
- Pump lining.** =Pump liner, *q.v.*

- Pump load.** The back pressure and/or resistance to flow of fluids that a pump must overcome to force a fluid to flow through a pipeline, drill string, etc.
- Pump packing.** The material placed around drill rods, piston rods, and similar moving parts that, when compacted under a packing gland, serves to prevent leakage of fluids without materially restricting the rotation or the vertical or reciprocating movement of the rod, etc.
- Pump pressure.** The force per unit area or pressure against which the pump is acting to force a fluid to flow through a pipeline, drill string, etc.; also, the pressure imposed on the fluid ejected from a pump.
- Pump station.** The site at which one or more pumps are installed along a pipeline for the purpose of forcing a fluid through the line.
- Pump stroke.** The linear distance through which the piston in a pump travels from one extreme position to the other within the cylinder.
- Pump surge.** The pulsating effect transmitted to a pipeline or drill string at the completion of each compression stroke of a reciprocating-piston pump.
- Pup.** 1. =Guide coupling, *q.v.*  
2. A Pilot and/or Sub.
- Pup joint.** A reaming-bit pilot to which a reaming bit can be coupled. *See* Guide coupling.
- Pyramid-set.** A bit crown, the face of which is covered with a series of stubby pyramids, each apex of which is set with a diamond.
- Quadrant.** One-fourth part of the perimeter of the face of a bit crown; the quarter of a circle; an arc of 90°.
- Quadruple A.** *See* AAAA.
- Quadruple block.** A pair of blocks, each having four sheaves, reeved with rope or cable and used to increase the lifting capacity of a drill-hoisting mechanism; a four-sheave block and tackle.
- Quarter.** 1. The act or process of dividing sludge, core, and other pulverized or granular samples into four equal parts. *See* Quartering.  
2. A synonym for Quadrant as applied to a drill-bit crown.
- Quartering.** 1. The process of obtaining a representative sample of a dried sludge or other pulverized or granular material. The material to be quartered is placed on a metal sheet in a cone-shaped pile. Using a square-point shovel, the cone is cut into four parts and two opposite quarters are taken to form a new cone. The process is repeated until the amount of material remaining is enough to be analyzed.  
2. To split a piece of core longitudinally into four equal parts.
- Quarter points.** The points at which the face of a bit is divided into quadrants. *See* Quadrant.
- Quartzite.** As used in a general sense by drillers, a very hard, dense sandstone.
- Quicklime.** A common name for an oxide of calcium made by calcining calcium carbonate. Sometimes added to portland cement as a setting accelerator. *Compare* Lime, Slaked lime.
- Quicksetting cement.** A hydroalumina-calcium silicate or calcium sulfate-base cement that, because of its special composition and fineness of grind, sets in a shorter period of time than ordinary builder's or portland-type cements.
- Quill.** 1. A sleeve-shaped bushing fitting around and splined or keyed to the drive rod or screw in a drill swivel head. It transmits power received from the drill motor to the drive rod and causes the drive rod to be rotated.  
2. Sometimes incorrectly used as a name for Drive rod and/or Drive screw.  
3. A sleeve or hollow shaft that slides over, or revolves upon, a solid shaft; used in the design of some clutches or in a flexible coupling of the driving shaft and the driven shaft of two machines.
- R.** 1. Letter name applied to a nonstandard special and obsolete size of bits, core barrels, and drill rods that were approximately the same size as PK letter-name items.  
2. Letter symbol sometimes used to designate drill diamonds of medium (regular) quality. *See* AA.
- Race.** 1. A groove along which some part of a machine moves, such as the annular ring in a ball bearing that guides and holds the balls in place.  
2. The excessive speed at which an engine runs when the governor fails to control its speed.
- Rack.** 1. A toothed or notched drill-base-slide and meshing-gear pinion used to facilitate the moving of a drill to clear the borehole when hoisting or lowering the drill string; generally limited to larger, skid-mounted machines.  
2. A framework of wood or metal for the orderly storage of core, pipe rods, etc., in a horizontal position.
- Rack-and-Pinion.** *See* Rack 1.
- Rack back.** To move the drilling machine away from the borehole collar by sliding it on its base, using the rack-and-gear pinion to facilitate moving the machine. *See* Rack 1.
- Rack up.** 1. To move the drilling machine forward into alignment with the borehole, using the rack-and-gear pinion to facilitate moving the machine.  
2. To stack and arrange the drill rods in an orderly fashion in the tripod, mast, or derrick, or horizontally on a rack provided on the ground.  
3. To place core on a rack.
- Radial drill.** A small diamond drill having a drilling head that can be adjusted radially along a rigid horizontal arm radiating from a vertical column; usually driven by air and used to drill radial blast-holes underground. *See* Radial drilling.
- Radial drilling.** The drilling of a number of holes in a single plane and radiating from a common point. *Compare* Horadial.
- Radiation detector.** A device used either on the surface or in drill holes to detect and/or indicate the occurrence or the nearby presence of radioactive minerals. *Also called* Electronic logger, Gamma-ray detector, Geiger counter, Geiger-Mueller counter, Geiger-Mueller probe, Scintillation counter, Scintillometer.
- Radioactive.** Generally, the property possessed by certain elements, such as uranium minerals, of spontaneously emitting alpha, beta, and/or gamma rays by the disintegration of the nuclei of their atoms.
- Radiolite.** =Radiolite survey instrument, *q.v.*
- Radiolite survey instrument.** A one-shot borehole-surveying instrument having the horizontal (compass) and vertical indicator markings painted with a radioactive substance, such as that on the luminous dial of a watch. The positions of these markings are recorded on small, circular, photographic film.
- Rag line.** A rope or cable the strands of which are made of twisted plant fibers, such as hemp.
- Rake.** 1. As used by diamond drillers and bit manufacturers, rake is the angle, measured in degrees, formed by the leading face of a cutting tool and the surface behind the cutting edge. *Compare* Negative rake, Positive rake.  
2. The inclination of anything from the vertical, as of mineral veins, faults, etc.
- Random orientation.** =Random set, *q.v.*
- Random pattern.** The setting of diamonds in a bit crown without regard to a geometric pattern—without regular and even spacing. *Also called* Random set.
- Random set.** 1. The setting of diamonds in a bit crown without regard to the attitude of their vector prop-

- erties. *Also called* Random orientation.
2. =Random pattern, *q.v.*
- Random setting.** *See* Random set and/or Random pattern.
- Range.** An orderly arrangement or family of diamond-drill fittings, such as casing, core barrels, drill rods, etc., with diameters appropriately related to each other and intended to be used together. Ranges commonly are designated by letter names, using letters such as E, A, B, and N individually or as the first letter in two- and three-letter names. *See* appendix, table 1; *compare* Design, Group.
- Rasp.** An instrument used in a borehole for fishing operations, for reducing the length of the box, or for coupling lost tools. *Also called* Mill, Rose bit.
2. A type of rough or coarse-toothed file.
- Rate of advance.** The distance the bit penetrates a rock formation in a unit of time, such as inches per minute or feet per hour.
- Rate of feed.** *See* Feed rate.
- Rate of penetration.** *See* Feed rate, Rate of advance.
- Rathole.** 1. A shallow auxiliary hole alongside the main borehole, in which the kelly is stored when not in use. *See* Dilly hole.
2. A hole drilled at an angle to the main hole by means of a deflection wedge.
3. A small-diameter pilot-type hole drilled a short distance ahead of a larger diameter hole to stabilize a smaller diameter bit and core barrel used to core a limited portion of the borehole. After core drilling is completed, the rathole is reamed out and the larger size hole advanced, usually by some noncoring method.
4. A small sump or settling pond in which the larger sized cuttings from a drill hole are collected between the top of the drill hole and the main settling pond.
- Rathole bit.** A bit designed and used to drill the first portion of a deflected hole alongside and beyond the deflection wedge; also, a bit used to drill a rathole. *Compare* Wedge bit. *See also* Rathole 2, 3.
- Rat-holing.** The act or process of drilling a deflected or pilot hole. *See* Rathole 2, 3.
- Rating.** The maximum capacity of a drill hoist or a prime mover such as an engine, motor, or pump; generally the maximum economical capacity.
- 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.
- Ream.** To enlarge a borehole.
- Ream back.** The act or process of enlarging a squeezed or cave-obstructed borehole to its original size by reaming as the drill string is pulled.
- Reamer.** 1. =Reaming bit, *q.v.*
2. =Reaming shell, *q.v.*
3. =Gage stone, *q.v.* *Compare* Kicker.
4. A tool used to enlarge a borehole. *Compare* Expansion bit, Paddy bit.
- Reamer bit.** =Reaming bit, *q.v.*
- Reamer shell.** =Reaming shell, *q.v.*
- Reamer stone.** *See* Gage stone.
- Reaming.** The act or process of enlarging a borehole.
- Reaming barrel.** A heavy-wall tube or rod, 5 to 10 feet long, acting as a connecting link between a reaming-bit assembly and the drill rods. The diameter of the reaming barrel is slightly smaller than that of the attached reaming bit.
- Reaming bit.** A bit used to enlarge a borehole. *Also called* Broaching bit, Pilot reaming bit, Reamer, Reamer bit.
- Reaming diamond.** *See* Gage stone.
- Reaming pilot.** *See* Pilot 1.
- Reaming pilot adapter.** An adapter or coupling in a reaming pilot assembly attaching the flush-joint casing to the casing reaming shell and the reaming pilot horn by pin and box threads, respectively.
- Reaming pilot horn.** An adapter or coupling in a reaming pilot assembly attached to the reaming pilot adapter. It passes through the reaming shell and casing bit to which is attached the pilot bit.
- Reaming ring.** =Reaming shell, *q.v.*
- Reaming shell.** A short tubular piece designed to couple a bit to a core barrel. The outside surface of the reaming shell is provided with inset diamonds or other cutting media set to a diameter to cut a specific clearance for the core barrel. *Also called* Core shell, Reamer, Reamer shell.
- Reaming stone.** *See* Gage stone.
- Ream out.** To enlarge by reaming.
- Rechuck.** To loosen the chuck, return it to the initial position, and retighten it on the rods so that the bit again may be advanced the distance equal to the length of the feed screw or drive rod on a diamond-drill swivel head.
- Record borehole.** *See* Record hole.
- Record hole.** The first borehole drilled in an area that is cored (all the way) so that a detail record of the formations penetrated can be obtained. *Also called* Stratigraphic hole, Test hole.
- Recovery.** 1. The ratio of the footage of core acquired from core-drilling a specific length of bore hole, expressed in percent.
2. The carat weight of diamonds salvaged from a worn bit.
- Recovery tap.** A fishing tool.
- Redrill; Redrilled.** To reopen a borehole by redrilling after it has been cemented, caved, or lost because of junk in the hole. *Also called* Drill out, Drilled out. *Compare* Overlap.
- Reel.** 1. To haul or bring in by winding an attached cable or rope on a drum.
2. A spool-shaped device (cathead) used as a hoist by winding or wrapping the attached rope or cable.
- Reeve; Reeved.** The orderly arrangement of a rope or cable on a system of pulleys or sheaves to assemble block-and-tackle equipment for handling heavy loads.
- Refusal.** A condition arrived at when driving pipe, casing, piling, etc., when it cannot be driven to a greater depth or made to penetrate the ground a distance of more than 1 foot per 100 blows delivered by a drive hammer.
- Regular.** Sometimes used to designate medium-quality drill diamonds. *See* AA.
- Regular lay.** Wire rope or cable in which the individual wires or fibers forming a strand are twisted in a direction opposite to the twist of the strands. *Also called* Ordinary lay, Standard lay.
- Regular-lay left lay.** =Left regular lay, *q.v.*
- Regular-lay right lay.** =Right regular lay, *q.v.*
- Reins.** The links of a pair of jars.
- Rejuvenate.** The process of relieving fatigue in drill rods. *See* Bardine process.
- Release valve.** =Pressure-relief valve, *q.v.*
- Relief valve.** =Pressure-relief valve, *q.v.*
- Relief hole.** 1. A port or passageway through which the core, as it advances into the inner tube of a double-tube core barrel, forces water out of the inner tube to the outside of the barrel through the inner-tube head.
2. A borehole drilled ahead of underground openings to tap and drain a water-bearing formation. *Also called* Cover hole, Pilot hole.
- Reliever.** 1. =Gage stone, *q.v.*
2. =Pressure-relief valve, *q.v.*
3. Relief hole, *q.v.* *See* Relief hole 2.
- Replaceable ferrule.** =Guide ring, *q.v.*
- Replaceable insert.** Diamond inset plates and other geometric forms fastened to and/or supported by the bit blank by brazing or mechanical locking so

- that they may be replaced when diamond wear exceeds a specified amount.
- Replaceable pilot.** A central interchangeable pluglike portion of a noncoring bit protruding or leading the outside portion of such bits. *See* Pilot 2.
- Replacement bit.** =Reset bit, *q.v.*
- Reset bit.** A bit made by reusing the sound diamonds salvaged from a used bit and setting them in the crown attached to a new bit blank. Some new diamonds usually are added to those salvaged, since generally not all of the salvaged or recovered stones are reusable. *Also called* Replacement bit.
- Reset the chuck.** =Rechuck, *q.v.*
- Resettable; Resettables.** A salvaged diamond or used diamonds in good condition; hence, diamonds that can be used again by being reset in another tool or bit. *Also called* Usable diamond, Usables, Usable stone.
- Resetting.** 1. The act or process of producing a Reset bit. *See* Reset bit.  
2. To rerun a casing string into a borehole by placing its bottom end at a lower point in the hole.
- Restore circulation.** The action taken to fill or seal the cracks or openings through which drill fluid is escaping from the borehole into the rocks forming the walls of the borehole and by which the drill fluid is made to return to and overflow the collar of the borehole.
- Retaining ring.** 1. A shoulder inside a reaming shell that prevents entry of the core lifter into the core barrel.  
2. A term sometimes incorrectly applied to a core lifter.  
3. A soft steel ring between the races of a ball bearing to maintain the correct distribution of the balls in the races.
- Retard.** To increase the time required for cement to set by mechanical agitation or chemically by the use of a retardant.
- Retardant.** A substance that when added to portland-type or other cements prolongs the setting time.
- Retire.** To discontinue the use of a bit when it becomes dull or when the matrix metal is critically worn.
- Retractable wedge.** A type of deflecting wedge that can be retrieved after the deflected hole has been completed.
- Retrieve.** To recover or remove from a borehole; to fish.
- Retrieving ring.** A catch ring on a retractable wedge that engages a lifting device on the deflection barrel or bit enabling the drill runner to remove a deflecting wedge from a borehole after deflection has been effected.
- Retrievable inner barrel.** The inner barrel assembly of a wire-line core barrel, designed for removing core from borehole without pulling the rods.
- Retrievable wedge.** *See* Retractable wedge.
- Return circulation.** That portion of a circulated drill fluid flowing from the face of a bit toward the collar of a borehole. *Compare* Return water.
- Returning fluid.** The water, mud, or other circulated medium reaching the borehole collar after having been circulated past the drill bit.
- Returns.** The drill fluid and entrained sludge that overflows the collar of a borehole.
- Return water.** The drill fluid that reaches the surface and overflows the borehole collar after it has been circulated downward through the rods and past the drill bit.
- Reverse book fashion.** The manner in which core is laid in a core box, starting at the upper-right-hand corner of the box and laying core from right to left in each groove.
- Reverse circulation.** The circulation of bit-coolant and cuttings-removal liquids, drilling fluid, mud, air, or gas down the borehole outside the drill rods and upward inside the drill rods. *Also called* Counter-current, Counterflush.
- Reverse-circulation core barrel.** A core barrel designed so that core tends to float within the barrel when the fluid is circulated down the outside of the rods and returned to the surface inside the rods.
- Reverse feed.** To move bit and drill stem backwards away from borehole bottom while drill stem is rotated.
- Reverse-feed gear.** System of gears in drill swivel head that can be engaged to move the bit and drill stem backwards away from the bottom of the borehole while the drill stem is rotated in a clockwise direction. *Also called* Backup gear.
- Reverse gear.** *See* Reverse-feed gear.
- Reverse reaming.** *See* Ream back.
- Rib.** 1. A hard zone, bed, or horizon within a formation; a silicified zone in a sedimentary stratum.  
2. A ridge, paralleling the long axis of a drill-string member, that acts as a wear-resistant surface.  
3. The hard vector plane or direction in a diamond. *See* Hard vector.
- Rifle.** A device used to reduce the volume or weight of a sample consisting of a thin metal plate on which is mounted a series of metal strips to guide or deflect a small portion of the sample material into a separate container. *Compare* Jones splitter, Sample splitter.
- Rife; Rifed.** As used by drillers, a borehole that is following or has followed a spiral or corkscrew course; also said of a drill core that has spiral grooves appearing on its outside surface.
- Rifing.** 1. The spiral grooving in the walls of a drill hole and/or on the surface of a drill core.  
2. A borehole following a spiraled course.
- Rig.** 1. A drill machine complete with auxiliary and accessory equipment needed to drill boreholes.  
2. To assemble and set up a tripod, derrick, and/or drill machine and put it in order for use. *Also called* Rig up, Set up.
- Rigged.** Drill machine and equipment in place at a drill site and ready to start drilling.
- Rigging.** 1. Process of setting up a drill and its auxiliary equipment preparatory to drilling.  
2. The cables or ropes anchoring a drill derrick, mast, or tripod. *See* Guys.  
3. Sometimes used as a term for the derrick, mast, or tripod complete with anchor, stay ropes, and cables.
- Rigging bar.** A long, extension-type jack bar or drill column for use underground, on which a drilling machine can be mounted.
- Right hand.** Drill rods or threaded fittings having right-handed threads. *See* Right-handed threads.
- Right-handed threads.** Threaded parts that can be coupled only by turning the upper piece in a clockwise direction.
- Right-hand feed screw.** A diamond-drill feed screw that rotates in a clockwise direction.
- Right lang lay.** Wire or fiber rope or cable in which the individual wires or fibers forming a strand and the strands themselves are both twisted to the right. *Also called* Right long lay.
- Right lay.** Wire or fiber rope or cable in which the strands formed from a group of individual wires or fibers are twisted to the right.
- Right long lay.** *See* Right lang lay.
- Right regular lay.** Wire or fiber rope or cable in which the wires or fibers in the strand are twisted to the left and the strands to the right. *Also called* Regular-lay right lay.

- Rigid coupling.** A rod-to-feed-screw sub or rod-to-drive-rod sub by means of which the drill rods are coupled directly to the feed screw or drive rod of the diamond-drill swivel head, and the chuck is discarded or eliminated. *Also called* Screw-to-rod adapter.
- Rigid double tube.** =Rigid-type double-tube core barrel, *q.v.*
- Rigid-type core barrel.** Rigid-type double-tube core barrel, *q.v.*
- Rigid-type double-tube core barrel.** A double-tube core barrel in which both the outer and inner tubes are rigidly connected to a single headpiece.
- Rig time.** The hours, days, etc., a drill rig is actually in use in actual drilling and other related borehole-drilling operations.
- Rig up.** =Rig, *q.v.* *See* Rig 2.
- Rig-up time.** The time required to set up and make a drill rig ready for use at the site where a borehole is to be drilled. *Also called* Setup time, Rigging time.
- Ring bit.** Obsolete synonym for Core bit.
- Ring drilling.** =Radial drilling, *qv.* *Compare* Horadium.
- Ringed out.** A diamond bit in the face of which has been gouged a circular groove deeper than, and at least as wide as, the diameter of one row of the inset diamonds.
- Ring gage.** 1. =Gage ring, *q.v.*  
2. A synonym for Setting ring.
- Ring holes.** The group of boreholes radially drilled from a common-center setup. *See* Horadium, Radial drilling.
- Ring lifter.** =Core lifter, *q.v.*
- Ring-lifter case.** =Lifter case, *q.v.*
- Ring-type reaming shell.** A reaming shell the inset reaming diamonds of which are set into a cast- or powder-metal band encircling the outside surface of the shell.
- Ring-type wedge.** A deflecting wedge having a short metal sleeve attached to the uppermost end. The outside diameter of the sleeve is the same as that of the lower, full-circle part of the wedge.
- Ripper step bit.** =Step-face bit, *q.v.*
- Rising current.** The direction in which a drill circulation fluid is flowing after it has passed the bit and continues toward the collar of a borehole.
- Rock base.** =Bedrock, *q.v.*
- Rock bit.** 1. Any one of many different types of roller bits used on rotary-type drills for drilling large-size holes in soft-to-medium-hard rocks; also sometimes applied to drag-type bits. *See* Drag bit, Roller bit.  
2. In mining, a detachable-type chisel or cruciform bit used on percussive drills to drill small-diameter holes in rock.
- Rock cone bit.** =Roller bit, *q.v.*
- Rock cuttings.** *See* Cuttings; Sludge.
- Rock drill.** 1. A drag or roller bit.  
2. As used by miners, a machine used to drill holes in rock either by percussion, effected by reciprocating motion, or by abrasion, effected by rotary motion.
- Rock-drill bit.** *See* Rock bit.
- Rock drilling.** Drilling done in any rock formation underlying the overburden.
- Rock pressure.** =Ground pressure, *q.v.*
- Rock temperature.** The formational temperature at depth. The rate of increase of temperature with depth is highly variable over the earth, but averages 1° F. per 100 feet of depth.
- Rockwell.** A unit of hardness as determined by a Rockwell hardness tester. *See* Rockwell hardness. *Compare* Knoop hardness.
- Rockwell hardness.** The relative resistance of a metal to indentation by the diamond cone of a Rockwell machine, as expressed in Rockwell hardness-scale units. *See* Rockwell machine.
- Rockwell machine.** Trade name for an apparatus that measures the hardness of metals and alloys, in which a diamond-pointed cone is pressed under a specific load into the metal. The relative resistance to penetration (Rockwell hardness) is indicated by a number (Rockwell number) on a dial. The operation is called a Rockwell test.
- Rockwell test.** *See* Rockwell machine.
- Rockwell tester.** =Rockwell machine, *q.v.*
- Rod.** *See* Drill rod.
- Rod adapter.** =Sub, *q.v.*
- Rod bit.** A noncoring bit designed to fit a reaming shell that is threaded to couple directly to a drill rod, thus eliminating the core barrel in blasthole drilling, designated as 1¼ XRT, 1½ E, 1⅞ A, 2⅝ B, and 2⅞ N. *Also called* Blasthole bit.
- Rod clamp.** *See* Safety clamp.
- Rod clearance.** *See* Clearance.
- Rod coupling.** DCDMA name for a double-pin-thread coupling used to connect two drill rods together.
- Rod up.** To couple and lower an assembled drill string into a borehole.
- Rodding up.** The act of coupling and lowering a drill string into a borehole.
- Rod dope.** Grease or other material used to protect or lubricate drill rods. *Also called* Gunk, Rod grease.
- Rod drag.** The rubbing of the rods or drill string on the sidewalls of the borehole. *Also called* Rod friction.
- Rod drop.** The distance of slump or sag in a long string of rods when released from the drill chuck.
- Rod elevator.** A synonym for Elevator and/or Elevator plug.  
*See* Elevator 1, Elevator plug.
- Rod friction.** 1. The drag created in the flow of the drilling liquid by contact and constrictional effects created by the inside surface of the drill rods and couplings. *Compare* Skin friction, Wall friction.  
2. A synonym for Rod drag.
- Rod grease.** =Rod dope, *q.v.*
- Rod guide.** A swelled coupling and/or other mechanical device for centering the drill-rod string in a borehole.
- Rod gun.** =Rod puller, *q.v.*
- Rod plug.** A synonym for Elevator plug.
- Rod puller.** Various mechanisms, essentially a double-acting air-actuated piston equipped with a rod-gripping device, commonly used to pull drill rods from a borehole in underground workings where a small drill without a hoist is used.
- Rod pulling.** The removal of the drilling rods from a borehole.
- Rod pulls.** 1. The number of borehole round trips made in a unit of time.  
2. The number of lengths of drill rod (two or more standard 10-foot lengths coupled together and handled and stacked as unit lengths) needed to reach the bottom of the borehole.
- Rod reaming shell.** A reaming shell designed to be coupled directly to a drill rod. *See* Rod bit.
- Rod reducing bushing.** A pin-to-box sub used to connect one size rod in a string to a larger or smaller size.
- Rod reducing coupling.** A pin-to-pin sub used to connect one size rod to a larger or smaller size. *See* Sub.
- Rod sag.** The bending of a long drill string due solely to its own weight. *Also called* Rod slack.
- Rod shell.** =Rod reaming shell, *q.v.*
- Rod slack.** *See* Rod sag.

- Rod slap.** The impact of drill rods with the sides of a borehole, occurring when the rods are rotating.
- Rod slide.** A wooden guide running from above the swivel head to a few feet below the sheave of the tripod. Used to align drill rods when drilling an angle borehole.
- Rod snap.** A sudden acceleration in rotational speed of the rods followed immediately by a sudden return to the former speed.
- Rod spear.** A long, tapered, four-sided fishing tool. Used to remove a lost drill rod or other tubular piece of drill equipment from a borehole.
- Rod stabilizer.** =Rod guide, *q.v.*
- Rod stand.** The length of drill rod handled and stacked in the tripod or derrick as a unit piece during round trips. *See* Double, Treble.
- Rod string.** The drill rods coupled to form the connecting link between the core barrel and bit in the borehole and the drill machine at the collar of the borehole.
- Rod stuffing box.** An annular packing gland fitting between the drill rod and the casing at the borehole collar. It allows the rod to rotate freely but prevents the escape of gas or liquid under pressure. Especially utilized when drilling with counterflow; when drilling in an area where a high hydrostatic pressure or flow of water may be encountered, as in drilling a cover or pilot hole; or when drilling up holes from an underground drill site.
- Rod vibration.** The eccentric and oscillatory movements of the drill string while being rotated in a borehole. *Compare* Rod slap.
- Rod whip.** *See* Rod slap, Rod vibration.
- Rod wicking.** The soft twisted cotton string used as a packing material to seal the joints of drill rods (when coupled) against leakage of drilling fluid. *See* Wick, Wicking.
- Rod wiper.** An annular rubber disk for wiping mud from rods as they are pulled from the borehole.
- Roller bit.** A type of rock-cutting bit used on diamond and rotary drills. The bit consists of a shank with toothed, circular, or cone-shaped cutter parts affixed to the head of the bit in such a manner that the cutters roll as the bit is rotated. Generally used for drilling 3/8-inch-size or larger holes in soft to medium-hard rocks such as shale and limestone. Usually noncoring and not diamond set. *Also called* Cone bit, Rock bit, Roller cone bit, Roller rock bit, Roller cutter bit.
- Roller-cone bit.** =Roller bit, *q.v.*
- Roller-cone core bit.** A type of roller bit with cutter cones arranged to cut an annular ring leaving an uncut section in the center as core.
- Roller-cutter bit.** =Roller bit, *q.v.*
- Roller rock bit.** =Roller bit, *q.v.*
- Rolling cradle.** A rod slide equipped with rollers that contact the rods and over which the rods roll on being pulled or lowered into an angle borehole.
- Rolling-cutter bit.** =Roller bit, *q.v.*
- Roll out.** When a diamond in a coring bit is retained by less than 50 percent of its volume by the bit matrix material, it frequently is pulled, in toto, from the matrix and is said to "roll out."
- Rope drilling.** =Churn drilling, *q.v.*
- Rope grab.** A three-prong fishing tool with barbs on the inner sides of the prongs, designed to recover rope or wire cable from a borehole.
- Rope socket.** A drop forged-steel device, with a tapered hole, that can be fastened to the end of a wire cable or rope and to which a load may be attached. It may be either the open- or closed-end type.
- Rope spear.** A fishing tool having a shaft upon which are projected barbs used in cable and rotary drilling for fishing up a rope or broken wire line or cable.
- Rope speed.** =Cable speed, *q.v.*
- Rope-system drill.** =Churn drill, *q.v.*
- Rose bit.** A hardened steel or alloy noncore bit with a serrated face to cut or mill out bits, casing, or other metal objects lost in the hole. Also used to mill off the rose-bit dropper on a Hall-Rowe wedge. *Also called* Mill, Milling bit.
- Rose-bit dropper.** The annular-shaped ring at the top of the deflection wedge, the outside diameter of which is the same as the diameter of the borehole in which it is installed, by means of which the wedge is attached to a rose bit and drill-rod string when lowered into position in the borehole.
- Rose-bit pilot.** A plug to keep a rose bit concentric while milling off Hall-Rowe deflecting-wedge top ring or rose-bit dropper.
- Rose ring.** =Deflector-wedge ring, *q.v.*
- Rosin; Rosining.** To melt a resin and apply a coat to the right-handed threads of heated rod couplings; the coating sets when cooled which permits the rods to be used in the same manner as lefthand-threaded rods in fishing operations.
- Rosined joints.** Drill-rod or casing couplings to which hot rosin was applied and which were joined before the rosin cooled.
- Rosing.** The act or process of milling a metal object in a borehole with a rose bit.
- Rotary.** =Rotary table or Rotary-drill rig, *q.v.*
- Rotary bit.** As used in a broad sense by drillers, a roller bit.
- Rotary bucket.** A 12- to 96-inch-diameter post-hole augerlike device the bottom end of which is equipped with cutting teeth similar to those on a flat-spiral auger shoe. The device is used to rotary-drill large-diameter shallow holes to obtain samples of soil lying above the ground-water level.
- Rotary bucket drill.** A rotary-type drill on which a rotary bucket is fastened to the kelly bar. The bucket is equipped with a hinged bottom, which has straight-edged cutting blades or teeth. When rotated by the kelly bar the bucket loads from the bottom; when filled it is withdrawn from the hole and dumped by unlatching the bottom. Holes 12 to 96 inches in diameter can be drilled with this machine in soft, boulder-free ground. *Also called* Bucket rig, Cesspool digger, Dry-hole digger, Rat-hole rig. *See* Bucket auger.
- Rotary drill.** Broadly, various types of drill machines that rotate a rigid tubular string of drill rods to which is attached a bit for cutting the rock to produce a borehole. In the petroleum-drilling industry the term is applied generally to a drill machine using a table mechanism to rotate the drill rods. *Compare* Diamond drill, Shot drill.
- Rotary-drill cuttings.** The chips and pulverized rock produced by the abrasive and chipping action of either a drag, roller bit, or diamond bit when used on a diamond- or rotary-drill machine to drill a borehole. *Compare* Cuttings.
- Rotary driller.** The person in charge of the actual operation of a rotary drill; a driller; a runner.
- Rotary drilling.** The act or process of drilling a borehole using a rotary-drill machine and equipment. *Compare* Diamond drilling, Shot drilling.
- Rotary-drill pipe.** Drill rods used by oilfield-type rotary drills. Drill pipe is usually of larger diameter than the largest size diamond-drill rod and is equipped with tapered modified-V-thread couplings that are generally inside flush and outside upset.
- Rotary-drill rig.** A rotary drill complete with accessory tools and equipment necessary to drill boreholes.
- Rotary hose.** The flexible pressure hose connecting the drill pump to the water or mud swivel.
- Rotary machine.** =Rotary drill, *q.v.*
- Rotary men.** Men trained to operate a rotary drill.
- Rotary mud.** *See* Drill mud, Drilling mud.
- Rotary outfit.** =Rotary-drill rig, *q.v.*

- Rotary pump.** A positive-displacement pump in which the liquid-propelling parts are cams, gears, impeller wheels, etc., rotating within a case, as distinguished from those pumps that move liquids by means of the to-and-fro motion of a piston within a cylinder. *Compare* Centrifugal pump.
- Rotary rig.** = Rotary drill, *q.v.*
- Rotary shoe.** = Washover shoe, *q.v.*
- Rotary shot drill.** 1. Any rotary drill used to drill blast-holes.  
2. = Seismograph drill, *q.v.*
- Rotary speed.** The speed at which the drill stem is turned, usually measured in revolutions per minute.
- Rotary swivel.** = Water swivel or Mud swivel, *q.v.*
- Rotary system.** = Rotary drilling, *q.v.*
- Rotary table.** The geared rotating table that propels the kelly and the drill stem when drilling a borehole with an oilfield-type rotary rig. *Also called* Rotary, Table, Turntable.
- Rotary tool; Rotary tools.** Drilling equipment used on rotary and/or diamond drills; the commonly accepted usage of the term is that applied to equipment used on drills having a rotary table, such as the rigs normally used in oilfield work.
- Rotating sampler.** A soil sampler that rotates to cut and obtain a sample, as opposed to a drive sampler that is pressed into the material to be sampled.
- Rotational speed.** The speed at which a drill string and attached bit is turned.
- Rotation speed.** Same as Rotational speed.
- Rough.** 1. Difficult.  
2. Work done under adverse conditions.  
3. Highly fractured, broken, or caved ground.  
4. A new-condition or uncut diamond.
- Rough diamond.** A diamond in its natural state.
- Rough ground.** Highly fractured, fragmented, or caved rock formations.
- Roughneck.** A laborer employed in oilfield work, sometimes in connection with drilling operations. *Also called* Bully, Roustabout.
- Roughneckproof.** Equipment so ruggedly constructed as to be able to withstand abusive use.
- Rough stone.** = Rough diamond, *q.v.*
- Rounded stone.** A carbon the sharp corners and edges of which have been worn off through use so that the stone is rounded.
- Round-face bit.** A Bullnose bit; also, any bit the cutting face of which is rounded, such as a single- or double-round-nose bit.
- 'Round the clock.** Drilling operations maintained on a 24-hour basis.
- Round trip.** The process of pulling the drill string from a borehole, performing an operation on the string (such as changing a bit, emptying the core barrel, etc.), and then rerunning the drill string into the borehole.
- Roustabout.** *See* Roughneck.
- r.p.m.** *Abbr.* revolutions per minute.
- Rubble.** Loose, unconsolidated overburden consisting mostly of large angular rocks intermixed with a small amount of soil or earthy material.
- Run.** 1. The length of feed or the advance made by a bit before it becomes necessary to rechunk the rods. Feeds on diamond drills are 1 to 3 feet long; thus a 3-foot advance on a machine equipped with a 3-foot feed screw or quill would be one run. *Compare* Pull 2.  
2. Sometimes used as a synonym for Round trip.  
3. To operate a drill or other machine.  
4. As used by churn drillers, the footage of a borehole from which the cuttings are collected as a single sample.  
5. Soft, earthy or sandy materials that will not hold together or stand when wetted are said to "run."
- Runback.** 1. To retract feed mechanism to its starting position when rechunking.  
2. To drill slowly downward toward the bottom of the hole when the drill string has been inadvertently or deliberately lifted off-bottom during a rechunking operation.
- Run dry.** To drill without circulating a drilling fluid or mud. *Compare* Dry block.
- Run in.** 1. To lower the assembled drill rods, core barrel, and bit, or other types of pipe, casing, or drill string into a borehole.  
2. To drill the first few inches slowly at the beginning of a core run or when collaring a borehole.
- Runner.** A synonym for Driller.
- Running.** 1. The act or process of operating a drill, drilling with a bit, or lowering casing, drivepipe, or drill string into a borehole.  
2. Earth and rock that will not stand, especially when wetted, and that falls, flows, or sloughs into a borehole or a workplace in a mine.
- Running block.** *See* Traveling block.
- Running in.** The act or process of lowering a casing, drivepipe, or drill string into a borehole; also used as a synonym for Break in. *See also* Run in 2.
- Running dry.** The act of drilling without circulating a drilling fluid.
- Running sand.** An unconsolidated sand. *See* Run 5.
- Running sheave.** A sheave used as a single-pulley traveling block.
- Run-to-waste.** Drill cuttings that are not collected or saved as a sludge sample and are allowed to collect in the sump; also, the return drill-circulation fluid not returned to a sump for recirculation.
- Saddle.** = Cradle, *q.v.*
- Safety belt.** A belt worn by the derrickman or tripodman to prevent injury due to accidental falls from the top of the derrick. *Also called* Belly buster.
- Safety board.** A board placed in a derrick for a man to stand on when handling drill rods at single, double, triple, or quadruple levels, which means that the boards are placed at suitable heights to handle a stand of drill rods for that number of joints.
- Safety check.** A check valve to slow the excessive travel speed of a piston in a hydraulic cylinder.
- Safety chuck.** Any drill chuck on which the heads of the set screws do not protrude beyond the outer periphery of the chuck.
- Safety clamp.** Any of several types of rod clamps used at the collar of a borehole to hold the drill rods while they are being pulled or lowered. *Also called* Alligator, Automatic spider, Floor clamp, Foot clamp.
- Safety hat.** *See* Tin hat.
- Safety hook.** A hoisting hook with a spring-loaded latch that prevents the load from accidentally slipping off the hook.
- Safety joint.** A coarse-threaded joint in the head of a double-tube core barrel. If the core barrel becomes lodged in the borehole, the safety joint, inner tube, and core can be removed by backing off at the safety joint, thereby facilitating the subsequent fishing job.
- Safety latch.** A latch provided on a hook or elevator to prevent it from becoming detached prematurely. *Compare* Safety hook.
- Safety lock.** An offset swivel coupling that supports the weight of the rods when whipstocking.
- Safety platform.** A platform built in a derrick as a safe working place for men who must be up the derrick to handle elevators, casing, drill rods, etc. *See* Safety board.
- Safety valve.** = Pressure-relief valve, *q.v.*
- Sag.** *See* Rod sag.
- Sag length.** *See* Buckling length.
- Salt.** 1. To accidentally or purposely introduce extra amounts of a valuable or waste mineral into a sample, such as a sludge sample, to be assayed.  
2. To add an accelerator or retardant to cement.



- Salting.** *See* Salt.
- Salvage.** 1. To chemically or electrolytically remove diamonds from used diamond bits.  
2. To recover lost bits or drill pipe from a borehole.
- Salvage count.** Number of resettable diamonds salvaged by cutting out of worn or used diamond bit.
- Salvage value.** The net worth of diamonds recovered from a used or worn diamond bit or other diamond-inset tool.
- Sample.** 1. A section of core or a specific quantity of drill cuttings that represents the whole from which it was removed.  
2. A portion of the ore, systematically taken, by which its quality or value is to be determined.
- Sample extruder.** A mechanical device for removing a soil sample from a sampling tube; usually consists of a piston driven by a jackscrew or a hydraulic mechanism.
- Sample grabber.** *See* Core grabber.
- Sample pan.** *See* Pan 1.
- Sampler.** 1. A mechanical device for selecting a certain fractional part of a drill sludge or ore to be used as an assay sample, such as a split shovel, riffle, or Jones splitter.  
2. One whose duty it is to collect samples for an assay, or to prepare the sample for assay.  
3. A specific device for recovering samples of overburden. *See* Sampler barrel.
- Sampler head.** An adapter or sub for attaching a sampler to a drill-rod string.
- Sample splitter.** A mechanical device for proportionally reducing the physical size of a sample. *See* Jones splitter, Sampler.
- Sampler barrel; Sampling barrel.** As used in soil-testing work, one of several tubelike devices used to cut and recover a core sample of soil or soft rock. It can either be a plain tube designed to be driven or pressed into the formation being sampled, or be equipped with cutter heads and helical flutes for taking the sample by rotary methods.
- Sampler liner; Sampling liner.** A thin-wall tube fitted inside the barrel of a sampler. The liner serves as a retainer for the sample and when sealed at either end is used as a container in which the sample can be transported safely.
- Sampling spoon.** A cylinder with a spoonlike cutting edge for taking soil samples.
- Sampling tip.** The head of a soil auger or soil-sampling barrel.
- Sampler tube; Sampling tube.** A synonym for Sampler barrel; also for Sampler liner.
- Sand.** 1. Sometimes used by drillers as a name for porous, friable sandstone or for an oil-, water-, or gas-bearing formation.  
2. As recommended by the ASCE in their Proceedings, volume 84, No. SM4, October 1958, rounded or semirounded particles of rock that will pass a No. 4, and be retained on a No. 200, U.S. Standard sieve, hence having average dimensions ranging from a maximum of less than 4.7 mm. (about three-sixteenths of an inch) to a minimum of 0.05 mm. (approximately .0029 inch).
- Sand blast.** 1. A stream of sand forcibly projected by air or steam for removing scale from metals or to remove enough matrix metal from the crown of a worn impregnated bit to expose new diamonds to act as new cutting points. *See* Blast 1.  
2. A mudcap in which sand is used instead of mud.
- Sanded in.** Drill-string equipment, casing, or drivepipe so firmly fastened in a borehole by reason of caving walls or impaction of sand, mud, or drill cuttings that the article cannot be pulled from the borehole.
- Sandhog.** = Sand pump, *q.v.* *See also* Sand pump 2.
- Sand line.** A wireline used to raise and lower a bailer or sand pump to remove cuttings from a borehole. *See* Wireline.
- Sand-line drum.** The hoist drum upon which a sand line is wound.
- Sand-line sheave.** The sheave in the crown block over which the sand line runs.
- Sand pump.** 1. A piston-type bailer. *Also called* American pump.  
2. Pump, usually a centrifugal type, capable of handling sand- and gravel-laden liquids without clogging or wearing unduly. *Also called* Sludge pump.
- Sand-pump sampler.** A sand sampler made and used in the same manner as an American pump or Sand pump 1.
- Sand reel.** = Sand-line drum, *q.v.*
- Sand trap.** A device for separating sand and other heavy or coarse particles from a cuttings-laden drill-circulation fluid overflowing the collar of a borehole. *Compare* Shaker.
- Sandstone.** As used in a general sense by drillers, a compact sedimentary rock composed of grains of silica (sand) cemented into a coherent mass.
- Sargent tube.** = Acid bottle, *q.v.*
- Saw bit.** A bit having a cutting edge formed by teeth shaped like those in handsaw. Generally it is used to drill through wooden plugs in a borehole.
- Sawtooth barrel; Saw-toothed barrel.** *See* Basket 1.
- Sawtooth bit; Saw-toothed bit.** A tube-shaped or annular bit with the cutting edge serrated in the form of sawlike teeth. The teeth may be hard faced with stellite or boron-tube material.
- Scaffold.** The framework in the drill tripod on which the helper stands to couple and uncouple drill rods or casing. *Also called* Safety board, Safety platform.
- Scintillation counter.** *See* Electronic logger, Scintillation probe.
- Scintillation probe.** An electronic logging device consisting of a scintillation-type gamma ray detecting unit built into a container small enough to be lowered into a borehole.
- Scintillator.** Brand name of a scintillation counting device.
- Scintillometer.** A gamma-radiation detection device employing a sodium iodide crystal or other phosphor as a detecting unit. *See* Scintillation probe.
- Scout.** 1. One who gathers information about the drilling rig of a rival company for the benefit of his employer. *Also called* Snooper.  
2. An engineer who makes a preliminary examination of promising oil and mining claims and prospects.  
3. One who goes into a potential area, especially for oil or gas, to lease or option the land.
- Scout hole.** A borehole penetrating only the uppermost part of an ore body with the intention of delineating its surface configuration. Also, a shallow hole drilled to scout for an indication of ore or to explore an area in a preliminary manner.
- Scrap.** *See* Diamond scrap.
- Scrap diamond.** *See* Diamond scrap.
- Scratch hardness.** A measure used in testing the ability of a mineral or metal to resist being scratched by another mineral or metal. *See* Abrasion hardness, Hardness scale.
- Screen box.** 1. A container in which diamond screens are inserted and in which the material that passes through a sieve or screen collects and is retained.  
2. Incorrectly used as a synonym for Shaker; also for Shale shaker.
- Screen pipe.** A perforated pipe lined with a fine mesh screen, set in portions of a borehole where the walls must be supported and the ingress of water or oil cannot be restricted. *Also called* Well point.

- Screen size.** A standard for determining the size of diamond particles. The diamonds are passed through screens with openings of specified size. The size of the diamonds is determined by the size of the opening through which the diamonds will not pass.
- Screw.** 1. The feed screw in the swivel head of a gear-feed diamond drill.  
2. A synonym for Chuck screw.  
3. To couple threaded parts.  
4. A synonym for an Auger stem having helical webs.
- Screw bell.** A fishing tool shaped like a Bell, Bell tap, or Bell screw.
- Screwfeed.** A system of gears, ratchets, and friction devices, or some combination of these parts, in the swivel head of a diamond drill, which controls the rate at which a bit is made to penetrate the rock formation being drilled. When controlled by a feed gear, the bit maintains the same penetration rate per revolution regardless of drill-stem revolutions per minute. *Also called* Gear feed, Mechanical feed.
- Screwfeed head.** =Screwfeed swivel head, *q.v.*
- Screwfeed machine.** A general term applied to a diamond drill on which the bit-feeding mechanism is actuated through a system of gears. *Compare* Hydraulic machine.
- Screwfeed swivel head.** A diamond-drill swivel head, equipped with a device consisting of a system of gears, ratchets, friction devices, or some combination of these members, that controls the rate at which the drill stem and bit are fed into the rock. *Also called* Feed head, Gear-feed head, Mechanical-feed swivel head, Screwfeed head.
- Screw jack.** A synonym for Jackscrew.
- Screwplug.** =Hoisting plug, *q.v.*
- Screw-to-rod adapter.** A rigid coupling or sub. When coupled to the drive rod of a screwfeed swivel head of a diamond drill (in place of a chuck), it acts as a device by means of which drill rods can be coupled directly to the screwfeed drive rod. *Also called* Rod adapter.
- Seal.** 1. To secure a borehole or excavation against cave-ins and flowing or escaping gas or liquids by the use of cement or other sealants.  
2. To secure a mine opening against flowing or escaping gas, air, or liquids by injecting grout by coating rock surfaces with gunite, or by erecting rock, concrete, wood, or cloth barriers.
- Seal off.** The use of a cement or other sealant in a borehole. Seal off is not synonymous with Blank off and Case off, where securing the walls of a borehole is accomplished by setting pipe or casing. *Compare* Seal 1.
- Sealed off.** *See* Seal off.
- Sealer.** A container in which unconsolidated core or soil samples are placed to prevent drying or damage in transit. *See* Sampler liner.
- Seam.** 1. A very thin vein of mineral or stratum of sedimentary rock.  
2. As used by churn drillers, a synonym for Crevice.
- Seat.** 1. A synonym for Socket. *See* Socket 1.  
2. The surface against which the closure part of a valve is pressed to close the valve.
- Seated.** 1. Placed in position. *See* Socket 1.  
2. Closed by pressing the closure part of a valve against its seat. *See* Seat 2.
- Second.** Sometimes used to designate a medium-quality drill diamond. *See* AA.
- Sectional core barrel.** A core barrel the length of which can be increased by coupling unit sections together. *See* Extension barrel.
- Sedimentary rock.** Any rock or rocks formed by materials chemically or mechanically laid by water or wind. They are generally characterized by a layered structure known as bedding or stratification. *See* Limestone, Sandstone, Shale.
- Seed bag.** A borehole packer made by filling a fabric bag with flaxseed, which swells when wetted.
- Seismic drill.** =Seismograph drill, *q.v.*
- Seismic survey.** An exploration technique utilizing the variation in the rate of propagation of shock waves in layered media. It is used primarily to delineate subsurface geologic structures of possible economic importance. Seismic surveying is employed most frequently by the petroleum industry.
- Seismograph drill.** A rotary drill, pump, and hinged mast mounted as an integral drilling unit on a truck body and used primarily to drill vertical shallow holes in which explosives are placed and detonated to produce shock waves from the rock strata, which then are measured by seismic recording instruments. *Also called* Jackknife rig, Rotary-shot drill, Seismic drill, Shothole drill.
- Seismograph rod.** A collared, tapered, V-thread-coupling drill rod used on seismograph drills.
- Seize.** 1. A synonym for Bind; also for Freeze.  
2. To cohere or stick to an inadequately lubricated moving part, such as a bearing, piston, or sliding part, through excessive friction, pressure, or temperature.  
3. To protect rope ends by binding with yarn, marline, or fine wire.
- Select.** Sometimes used as a synonym for Select round.
- Selective screwfeed.** A drill screwfeed swivel head fitted with three or more sets of feed gears and a shifting mechanism, whereby the driller can easily select and engage the pair giving the desired rate of feed.
- Select round.** Sometimes used to designate the best quality of industrials normally used as drill diamonds. *See* AAA.
- Self-centering chuck.** A drill chuck that, when closed, automatically positions the drill rod in the center of the drive rod of a diamond-drill swivel head.
- Self-opening reamer.** An underreamer having cutters that expand when they come in contact with, and are pressed against, a surface. *Compare* Expansion bit, Underreamer.
- Self-tightening jar block.** =C-S jar collar, *q.v.*
- Self-tightening jar collar.** =C-S jar collar, *q.v.*
- Semicoring bit.** A noncoring bit that produces a small-diameter core. *Compare* Pencil-core bit.
- Semiround nose.** A bit-crown design in which the radius of the arc forming the rounded portion of the bit face is equal to or greater than the thickness of the bit wall.
- Series.** 1. A term formerly applied to core barrels, casings, rods, etc., and used in the same manner as the currently accepted DCDMA term "design."  
2. As used by persons associated with the diamond industry, parcels of different types of diamonds sold in one lot. *See* Sight.
- Set.** 1. To place a diamond in the crown of a bit.  
2. To place casing in a borehole.  
3. The hardening or firmness displayed by some materials when left undisturbed, such as cement when hardened or gelatin when cooled.
- Set bit.** A bit inset with diamonds or other cutting media.
- Set casing shoe.** DCDMA name for a casing shoe set with diamonds. Often used for a one-shot attempt to drill casing down through overburden to bedrock. *Also called* Casing-shoe bit. *Compare* Casing bit, Casing shoe.
- Set diameter.** The inside and/or outside diameter of a bit measured from the exposed tips of diamonds or other cutting media inset in the wall portions of the bit crown.
- Set i.d.** =Set inside diameter, *q.v.*

- Set inside diameter.** The minimum inside diameter of a set core bit. Usually written Set ID in drilling industry literature. *Also called* Bore, Center bore, Inside gage, Set ID.
- Set o.d.** =Set outside diameter, *q.v.*
- Set outside diameter.** The maximum outside diameter of a set bit. Usually written Set OD in drilling industry literature. *Also called* Outside gage, Set OD.
- Set reaming shell.** A reaming shell a portion of the outside surface of which has embedded diamonds, diamond-inset inserts, or other cutting media, having a set diameter slightly greater than the standard set size of the bit to which the shell is coupled.
- Setscrew.** 1. A synonym for Chuck screw.  
2. A machine screw, sometimes cupped or pointed at one end and screwed through one part tightly upon or slightly into another part to prevent relative movement between the two parts.
- Setter.** An individual trained and skilled in the art of setting diamonds in a bit mold, a bit die, or in the face of a blank bit by handsetting methods. *Also called* Diamond setter.
- Setting block.** A tool to which a blank bit can be coupled and held in a selected position in a vise while handsetting diamonds in a blank bit.
- Setting charge.** The amount charged by bit manufacturers for setting a diamond bit.
- Setting chisels.** The chisels and punches used by a handsetter to peen or calk a diamond in place in the face of a blank bit.
- Setting gage.** Plug or ring gages used by bit setters to measure the inside or outside diameter of a diamond bit.
- Setting pattern.** The geometric arrangement of the inset diamonds in a bit crown.
- Setting plug.** A cylindrical object, having a diameter equal to the inside set diameter of a specific-size bit, used to measure the inside set diameter of a core bit.
- Setting ring.** A ringlike sleeve the inside diameter of which is the same as a specific set outside diameter of a diamond bit or reaming shell; it is used to check the set diameter of a bit or reaming shell. *Also called* Bit gage, Bit ring, Gage ring, Gaging ring, Ring gage, Setting gage.
- Setting rod.** A special diamond-drill rod used to set a deflecting wedge in a borehole.
- Setting shack.** A temporary shelter, located near one or more drills, used as a shop by a diamond-bit handsetter.
- Setting tools.** The chisels, punches, and other equipment used in handsetting a diamond bit.
- Setting up.** 1. The act or process of setting a diamond bit.  
2. *See* Rigging 1.  
3. In mining, to gather the necessary tools and complete all work preparatory to drilling.  
4. The hardening of substances such as cement, plastic, molten gelatin, etc., by cooling or as the result of a chemical action.  
5. The act or process of tightly coupling two threaded parts together.
- Settling box.** A box or container in which drill cuttings or sludges are accumulated and coarse materials permitted to settle.
- Settling tank.** A reservoir or tank into which the return water from a borehole collects and the entrained drill cuttings settle.
- Set up.** *See* Setting up. Also, a synonym for Rig, Rig up.
- Setup time.** 1. The time required for a cement or gelatin to harden.  
2. A synonym for Rig-up time.
- Set weight.** The quantity of diamonds set in a bit, expressed in carats.
- Shaker.** 1. A mechanically vibrated screen through which a returning drill fluid is passed to screen out larger chips, fragments, and drill cuttings before the drill fluid flows into the sump. *Also called* Shale screen, Shale shaker.  
2. Incorrectly used as a synonym for Agitator.
- Shale.** As used in a general sense by drillers, a coherent sedimentary rock consisting of cemented silt and/or claylike materials.
- Shale screen.** *See* Shaker.
- Shale shaker.** *See* Shaker.
- Shank.** 1. The steel-threaded portion of a diamond bit to which the crown is attached. *Also called* Bit blank, Blank, Blank bit.  
2. The body portion of any bit above its cutting edge.
- Shaped stone.** An artificially blunted or shaped carbon or diamond cut to form a point conforming to a specific profile.
- Sharp bit.** 1. A bit in which the exposed acute edges and points of the diamonds have not been worn off, dulled, or blunted by abrasion.  
2. A newly set and unused diamond bit.
- Sharp stone; Sharp stones.** 1. Drill diamonds or carbon having sharp edges and corners that have not been artificially blunted or rounded through use.  
2. New-condition, unused carbon or drill diamonds.
- Shear pin.** A small soft-metal pin, connecting or pinning together two parts of a tool that will break by shearing if an excessive load is placed on the pinned components. The shearing of the pin prevents damage to the overloaded components; thus it is a safety device. *Compare* Shear rivet.
- Shear rivet.** Soft copper rivets used in the Hall-Rowe wedge to connect the drive and pilot wedges; they can be sheared off to leave the drive wedge as a permanent reference in the borehole at the point the hole is to be deflected. *Compare* Shear pin.
- Sheave.** A wheel, grooved around its circumference, that guides and supports a cable or rope between the load and the hoisting engine.
- Sheave wheel.** *See* Sheave.
- Shelby tube.** A thin-walled soil-sampling tube, 12 to 30 inches long, attached to a special rod adapter or sub by means of machine screws. The device is designed to take soil samples by pressing or pushing the tube down into the formation sampled. *Also called* Shelby-tube sampler, Thin-wall drive sampler.
- Shelby-tube sampler.** =Shelby tube, *q.v.*
- Shell.** 1. Incorrectly used by some drillers as a synonym for Reaming shell; also incorrectly used as a synonym for the inner or outer tube of a core barrel.  
2. Any thin-wall tubular device.
- Shell clearance.** The difference between the outside diameter of a bit or core barrel and the outside set or gage diameter of a reaming shell.
- Shell pump.** A simple form of sand pump or sludger consisting of a hollow cylinder with a ball or clack valve at the bottom; it is used with a flush of water to remove detritus from a borehole.
- Shift.** 1. The number of hours or the part of any day worked. *Also called* Tour.  
2. To change the ratio of the driving to the driven gears to obtain the desired rotational speed or to avoid overloading and stalling an engine or motor.
- Shift gear.** A gear on a gear-feed swivel head of a diamond drill by means of which the feed-shifter rod may be moved to engage the shifter-rod pin into the selected feed gear.
- Shift lever.** A short rod or shaft attached to the shift-gear shaft by means of which the ratio of the driving to the driven gears may be changed in a gear-feed swivel head of a diamond drill or other transmission-gear mechanism.

- Ship auger.** An auger having a simple spiral (helical) body and a single cutting edge, with or without a screw on the end but without a spur at the outer end of the cutting edge, used to obtain soil samples in sticky material.
- Shoe.** 1. A coupling of rolled, cast, or forged steel to protect the lower end of the casing or drivepipe in overburden, or the bottom end of a sampler when pressed into a formation being sampled.  
2. That part of a braking mechanism made of wood, steel, or asbestos that contacts the brake flange on a wheel or hoist drum.  
3. A part of a cross head of a compressor or engine.  
4. Pieces of steel fastened to a mine cage and formed to fit over the guides to guide the cage when it is in motion.
- Shoot.** 1. To detonate an explosive in a borehole.  
2. Incorrect spelling of Chute.  
3. A body of ore, usually of elongated form, extending downward or upward in a vein. *Also called* Ore shoot.
- Short hole.** *See* Blasthole, Grout hole.
- Short-hole drill.** A blasthole or grout-hole drill.
- Shot-hole work.** Diamond drilling where the length of borehole generally does not exceed 100 feet.
- Short run.** To be forced by adverse conditions or core blockage to pull the drill string before the core barrel being used is filled to capacity with core. *Compare* Long run.
- Shot.** 1. Small spherical particles of brittle hard steel used as the cutting agent in drilling a borehole with a shot drill. *Also called* Adamantine shot, Buckshot, Chilled shot, Corundum, Steel shot. *See* Shot drill.  
2. An explosive charge or blast.  
3. Of no further use.
- Shot bit.** A short length of heavy-wall steel tubing, ranging from less than 3 inches to more than 6 feet in diameter, with diagonal slots cut in the flat-faced bottom edge. The replaceable flat-faced shoe on a shot-drill core barrel. *See* Shot drill.
- Shot boring.** The act or process of producing a borehole with a shot drill. *See* Shot drill.
- Shot-boring drill.** = Shot drill, *q.v.*
- Shot bort.** 1. Incorrectly used to designate a small spherical-shaped drill diamond. *See* Drill diamond.  
2. = Ballas, *q.v.*
- Shot drill.** A core drill generally employed in rotary-drilling boreholes of less than 3 inches to more than 6 feet in diameter in hard rock or concrete, using chilled-steel shot as a cutting medium. The bit is an annular-shaped, flat-face, steel cylinder with one or more diagonal slots cut in the bottom edge. As the bit and attached core barrel are rotated, small quantities of chilled-steel shot are fed, at intervals, into the drill stem with water. The shot works its way under the flat face of the bit and wears away the rock as the bit rotates. At intervals the core is removed from the borehole in somewhat the same manner as in diamond core-drilling operations. *Also called* Adamantine drill, Calyx drill.
- Shot drilling.** The act or process of drilling a borehole with a shot drill. *See* Shot drill.
- Shot-drill hole.** Borehole produced by a shot drill.
- Shot feed.** A device to introduce chilled-steel shot, at a uniform rate and in the proper quantities, into the circulating fluid flowing downward through the rods or pipe connected to the core barrel and bit of a shot drill.
- Shothole.** 1. A borehole drilled with a shot drill.  
2. The borehole in which an explosive is placed for blasting. *See* Blasthole.
- Shothole drill.** 1. A drill machine that uses chilled-steel shot as a cutting medium. *See* Shot drill.  
2. A drill used to drill holes in which explosive charges are detonated to break rock.
3. A wheel-mounted, portable rotary drill used by seismograph crews to drill boreholes in which explosive charges are detonated. *Also called* Jackknife drill, Seismic drill, Seismograph drill.
- Shot hopper.** A boxlike metal container that, when filled with chilled-steel shot, acts as a reservoir for the shot-feeding device on a shot drill.
- Shoulder.** 1. A line formed by the intersection of the face or leading surface of a bit crown and the straight-wall side surface of the crown.  
2. A ledge formed by an abrupt change in the course of a borehole.  
3. A ledge or projection on drill rods, couplings, pipe, or bits formed at points where an increase or decrease in diameter occurs.  
4. The butt of a threaded part.
- Shoulder stone.** The diamonds set in a bit at or along the line formed by the intersection of the face or leading surface of a bit crown and the straight-walled side surfaces of the bit crown or shank. *Compare* Kerf stone.
- Show.** The detectable presence of mineral, oil, or gas in a borehole, as determined by examination of the core or cuttings.
- Shrinkage.** 1. The settling or reduction in volume of earthen fills, cement slurries, or concrete on setting.  
2. A synonym for Outage.  
3. In bitmaking by the powder-metal processes, the difference between the dimensions of the finished bit crown and those of the bit mold.
- Shut down.** A temporary suspension of work conducted in the process of deepening or advancing a borehole. *Compare* Lost time.
- Shutoff valve.** A device by means of which the flow of gas or fluid can be made to cease—usually not with the intention of metering or regulating the flow.
- Sidarm.** A short bar connected to, and extending outward at a right angle from, a drill column and on which a small diamond or other type of drill can be mounted. *Compare* Crossarm.
- Side rasp.** A curved rodlike fishing tool with a serrated surface to help grip or hold an object lost in a borehole.
- Side thrust.** 1. The lateral force against the borehole walls resulting from the buckling or sag in the drill rods at one or more points above the bit.  
2. The lateral force developed when the area covered by the bit is not uniformly hard.
- Sidetrack.** To bypass or drill-by an obstruction in a borehole.
- Sidetracked.** 1. A term applied when tools or downhole drilling equipment is not recovered from a borehole because of the drilling-by or bypassing techniques used.  
2. A term applied when a borehole has been deflected so as to bypass an obstruction.
- Sidetracking.** The act or process of deflecting and drilling a borehole to the side of and beyond a piece of drill-string equipment permanently lodged in the hole.
- Sidewall coring tool.** An eccentric sampling device that gouges a small sample, sometimes in the form of a core, from the sidewall of a borehole. *Also called* Sidewall sampler.
- Sidewall sampler.** *See* Sidewall coring tool.
- Sierra Leone.** A diamond from the Sierra Leone District in Africa.
- Sieze.** *See* Freeze 1.
- Sight.** A quantity of diamonds of different types and sizes sold as a single group or lot.
- Sighting hub.** A stake or mark used by a driller as a means of setting and orienting a drill so that the borehole can be drilled to follow a predetermined directional course. *See* Hub 1.
- Sill.** 1. *See* Floor sill.  
2. An intrusive sheet of igneous rock.

- Silt.** A very fine soil material or, as recommended by the ASCE in their Proceedings, volume 84, No. SM4, October 1958, soil material that will pass through a U.S. Standard No. 200 sieve (generally considered to range from about 0.002 mm. to 0.05 mm. in size), that is nonplastic or very slightly plastic, and that exhibits little or no strength when air dried.
- Simmons jar block.** =C-S jar collar, *q.v.*
- Simmons jar collar.** =C-S jar collar, *q.v.*
- Simplex pump.** A reciprocating single- or double-action piston pump having one water cylinder.
- Simulated insert bit.** A core bit in the face of which are deeply cut, closely spaced waterways to produce the superficial appearance of an insert-type bit. *Also called* Thedford crown bit.
- Single.** A unit length of pipe, casing, or drill rod.
- Single A.** One of several terms designating low-quality drill diamonds. *See* A 3.
- Single-action pump.** A pump valved so as to discharge liquid at only one end of the water cylinder. *Compare* Double-action pump.
- Single-bladed bit.** =Chopping bit, *q.v.*
- Single block.** A block with one pulley or sheave.
- Single jack.** 1. A lightweight hammer (usually 4 pounds or less). When used in hand-drilling holes in rock, the hammer is held in one hand and the drill is held in the other.  
2. A term sometimes incorrectly used to designate a Sinker drill.  
3. A drill column having a single jackscrew in the bottom end. *See* Drill column.
- Single-layer bit.** =Surface-set bit, *q.v.*
- Single line.** A hoist line that is not reeved through a block and tackle and that runs directly from the hoisting point at the collar of a borehole, over the sheave, and to the hoist drum.
- Single packer.** An expandable rubber bushing used to block off a borehole at one point. *See* Packer 1.
- Single-round nose.** The cross-sectional view of the cutting-face portion of a core bit when the profile is an arc having a radius equal to or greater than the wall thickness. *Compare* Double-round nose.
- Single-round-nose bit.** *See* Single-round nose.
- Single-shot instrument.** A borehole surveying instrument that records only one measurement of the bearing and of the inclination of a hole on a single trip into the borehole.
- Single-shot survey.** A borehole survey made with a single-shot instrument.
- Single tube.** *See* Single-tube core barrel.
- Single-tube core barrel.** A core barrel consisting of a single length of tubing, the upper end of which may be threaded to fit a drill rod or a head, which also contains a drill-rod thread. The lower end can be threaded to fit a reaming shell with its attached coring bit. Circulation fluid is conducted from the drill rod between the core and the inside surface of the core-barrel tube downward past the bit; hence the core inside the core barrel is subject to wash effects of the circulation fluid throughout its length. *Compare* Double-tube core barrel.
- Sink.** 1. To put standpipe, drivepipe, or casing down through overburden by rotation or by driving, chopping, or washing operations, employed singly or in combination.  
2. To drill or put down a borehole.
- Sinter; Sintered.** A process commonly used in making diamond bits, whereby powdered metal is compacted in a diamond-set mold or die and the temperature raised to a point just below melting, thus fusing the entire mass together.
- Sinter bit; Sintered bit.** A bit the crown of which is formed by applying heat and pressure to a mixture of powdered metals covering diamonds set inside a mold or die-shaped to the form of a bit crown. The bit crown thus formed may be a surface-set, multi-layer, or impregnated type.
- Sintered carbide.** *See* Cemented carbide.
- Sintered matrix.** A bit-crown diamond-embedment metal or alloy produced by a sinter powder-metal process. *See* Sinter, Sinter bit.
- Sintered metal.** *See* Sintered matrix.
- Sintered-metal bit.** *See* Sinter bit.
- Sinter set.** *See* Sinter bit.
- Sinter-set bit.** *See* Sinter bit.
- Site.** The location selected where a borehole is to be drilled, engineering work conducted, or a structure erected. *Also called* Location.
- Site investigation.** *See* Foundation sampling.
- Skid.** 1. The sledlike platform forming the base on which a machine or structure is set and slid or skidded into position; also, the sled-runner, bottom-most part of the base of a drill or other machine.  
2. To slide into place on a skid or skids.
- Skid-mounted.** A term applied when a drill or other machine is attached permanently to a skid, a sled-like base, or a base the bottom parts of which are shaped like the runners of a sled.
- Skin friction.** *See* Wall friction 2.
- Skirt-type core spring.** A core lifter, usually a splitting type, having a split, thin tubular extension attached above the beveled portion of the core spring, which slides upward and inside the lower end of the inner tube of a core barrel.
- Skull guard.** *See* Tin hat.
- Slaked lime.** A hydrated oxide of calcium, sometimes mixed by drillers into a cement slurry to lengthen its setting time. *See* Lime. *Compare* Quicklime.
- Slap.** *See* Rod slap.
- Sleeve.** 1. A pump-cylinder liner.  
2. Sometimes incorrectly used as a synonym for a coupling that joins two lengths of pipe.
- Sleeve catcher.** A skirt-type core lifter.
- Slide.** 1. A trough used to guide and to support rods in a tripod when drilling an angle hole. *Also called* Rod slide.  
2. As used by churn drillers, a fault plane or opening encountered in a hole that deflects the bit and/or drill hole.
- Sliding iron.** *See* Lowering iron.
- Slim hole.** 1. Oil driller's term for diamond-drill borehole 5 inches or less in diameter.  
2. Oil-production drill holes begun about 7 inches in diameter at the surface and bottomed in the oil zone with a 4¼-inch-size bit.
- Sling.** 1. A ropelike device used to give additional support to lengths of drill rod too long to stand in the drill derrick without sagging unduly.  
2. A short loop or length of cable with small loops at either end.
- Slip.** 1. One of a set of serrated-face wedges that fits inside the spider of a drill-rod clamping device. *See* Spider and slips.  
2. The rate, expressed in feet per minute, at which a particle of rock will descend or sink in water. *See* Slip velocity.
- Slip bowl.** A Spider. *See* Spider and slips.
- Slip grip.** A hold or grip on a drill rod, casing, or pipe by means of serrated-face steel wedges or slips.
- Slippage.** *See* Slip 2.
- Slip-type core lifter.** A device used like a core spring, consisting of a series of tapered wedges contained in slotted recesses in a circular ring or sleeve; as the core enters the inner tube, it lifts the wedges along the taper, and when the barrel is lifted the wedges are pulled tight against the core.
- Slip velocity.** The rate, expressed in feet per minute, at which a given size and shape of rock particle will descend or settle in water. **EXAMPLE:** The slip ve-

- locity, in water, of a round, flat particle of rock, half an inch in diameter, is about 54 feet per minute.
- Slit-side solid sampler.** A solid-tube sampler with a slight worm twist on the bottom and an offset slit in the side. When rotated, the lip of the slit scrapes a sample from the side of a borehole.
- Slough.** Fragments of rocky material from the wall of the borehole which either fell into and obstructed the borehole or were washed out of the hole with the returns; fragments of material resulting from the enlargement of a borehole.
- Slow feed.** *See* Slow gear.
- Slow feed gear.** *See* Slow gear.
- Slow gear.** 1. When applied to a screwfeed-type drill, the pair of feed gears in the feed mechanism that advances the bit the least amount for each revolution of drill drive rod and/or the coupled drill stem. **EXAMPLE:** A 400-feed gear is slower than a 100-feed gear. *Compare* Feed ratio.  
2. When applied to speed at which the drill motor rotates the drill stem, the transmission-gear position giving the lowest number of bit revolutions per minute per engine revolutions per minute; thus slow gear corresponds to low gear in an automobile.
- Sludge.** *See* Cuttings.
- Sludge assay.** The chemical assaying of drill cuttings for a specific metal or group of metals.
- Sludge barrel.** *See* Calyx 1.
- Sludgebound.** Any part of the drill-string equipment clogged by impacted cuttings.
- Sludge box.** *See* Settling box.
- Sludge bucket.** *See* Calyx 1.
- Sludge man.** *See* Sludge sampler 1.
- Sludge pit.** Same as Sump 1.
- Sludge pump.** *See* Mud hog, Mud pump, Sand pump.
- Sludge sample.** All or part of the drill cuttings collected, dried, and saved for assaying or chemical analysis.
- Sludge sampler.** 1. An individual responsible for collecting and preparing drill cuttings for the purpose of examining, assaying, chemical analysis, or storage. *Also called* Sampler.  
2. A device used to collect and to split drill cuttings. *See* Riffle, Settling box.
- Sludge sampling.** Process of collecting and preparing drill cuttings as samples.
- Sludge-saver.** A device for collecting all the drill cuttings from a given interval of borehole.
- Sludge splitter.** *See* Rifle 1.
- Sludge water.** *See* Return water.
- Sludging.** The act or process of becoming sludgebound. *Compare* Mud up.
- Sludging formation.** A formation from which it is nearly impossible to recover core, so that sampling is done by collecting the drill cuttings or sludge.
- Sludging up.** *See* Sludging.
- Sluff.** 1. Mud cake detached from the wall of a borehole.  
2. A variant, incorrect spelling of slough.
- Slug.** 1. To inject a borehole with cement slurry or various liquids containing shredded materials in an attempt to restore lost circulation by sealing off the openings in the borehole-wall rocks.  
2. Small, shaped pieces of hard metal that can be brazed or handpeened in slots or holes cut in the face of a blank bit. Slugs may or may not contain diamonds. *Compare* Insert.
- Slug bit.** *See* Insert bit.
- Slurry.** 1. A mixture of cement and water, which can be poured or pumped, to which fine sand or other ingredients, such as bentonite, are sometimes added.  
2. Semiviscous material composed of fine sediments mixed with oily or waxlike substances and water, which accumulates in a borehole.  
3. A mud-laden drill-circulation fluid.
- Slush-fitted pump.** A pump equipped with valves capable of passing a mud-laden fluid. *See* Mud hog, Mud pump, Slush pump.
- Slush pit.** An excavation dug near a drill to form a reservoir in which the returns from a borehole are collected and stored. *Also called* Drill sump, Mud pit, Sludge pit, Slush pond, Sump.
- Slush pond.** A Slush pit or Sump.
- Slush pump.** *See* Mud pump.
- Small-stone bit.** 1. In mineral exploration drilling, a diamond bit set with 100-per-carat-size or smaller diamonds.  
2. In petroleum drilling, a diamond bit set with 10-per-carat-size or smaller diamonds.
- Smooth.** 1. The vibration-free rotation of a drill stem.  
2. A dull diamond bit.
- Smooth drilling.** 1. A rock formation in which a high recovery of core can be attained at a high rate of penetration.  
2. A rock formation in which fast rotation of the drill stem, a fast rate of penetration, and a high recovery of core can be achieved with vibration-free rotation of the drill stem.
- Snake.** *See* Bulldog 4.
- Snake fashion.** A method of boxing core. Beginning in the upper-right-hand corner of the core box the core is run from right to left in the first row, from left to right in the second row, left in the third, etc., until the box is filled.
- Snake line.** A line used to skid a drill rig from place to place using a block and tackle or cable, one end of which is attached to a deadman and the other wrapped around the cathead or the hoisting drum.
- Snaking.** Moving a drill rig by the use of its own cathead or hoist unit. *See* Bulldog 4.
- Snatch block.** A single-rope sheave set in a housing provided with a latch link, which can be opened for admission of a rope or line without the necessity of threading the end of the rope through the block.
- Snatch plate.** A thick steel plate through which a hole about one-sixteenth of an inch larger than the outside diameter of the drill rod on which it is to be used is drilled. When drilling a cover or pilot hole that may penetrate formations containing water under pressure, the plate is slipped over the drill rod between the drill and the collar of the borehole, and one edge is fastened to a securely anchored chain. If a high-pressure water-bearing formation is encountered and rods must be pulled, the eccentric pull of the chain causes the outside of the rods to be gripped and held against the pressure of the water. Tapping the plate causes the plate to release its grip momentarily, and the rod moves a short distance out of the hole and may thus be removed from the borehole a short distance each time the plate is tapped.
- Socket.** 1. The point in a borehole, usually in bedrock, at which the bottom end of a string of casing or drivepipe is set.  
2. To lower casing or drivepipe into, and seat it in, a borehole.  
3. An overshot.  
4. A fishing tool designed to encircle and grasp a cylindrical object.  
5. A rope socket.  
6. To spring a borehole. *See* Camouflet.
- Soft formation.** = Soft ground, *q.v.*
- Soft ground.** 1. A rock formation that can be drilled easily at a rapid rate of penetration or one that is friable.  
2. Rock around underground openings that caves easily and must be supported with heavy timbering.
- Soft-ground boring tools.** Drilling tools used in soft ground such as overburden, clay, soft shale, etc.

- Soft skin.** A soft outer skin developed on "burned" diamonds.
- Soft vector.** A plane or direction in a diamond or other mineral having less resistance to abrasion than that of the hard-vector planes. *See* Hard vector.
- Soil.** Sediments or other unconsolidated accumulations of solid particles produced by the physical and chemical disintegration of rocks; they may or may not contain organic matter. *Compare* Silt.
- Soil sample.** A small sample of the soil, representing the area from which it was removed.
- Soil-sample barrel.** A tubular device designed for taking samples of soil.
- Soil sampler.** One of a number of different mechanical devices used for taking samples of an unconsolidated material. *See* Shelby tube, Solid-barrel sampler, Split-tube barrel, Split-tube sampler.
- Soil test.** 1. = Soil sampling, *q.v.*  
2. The laboratory procedure followed in examining and determining the physical characteristics of a soil sample.
- Soil testing.** *See* Soil sampling, Soil test.
- Solid.** 1. A rock having few open cracks, crevices, or joints and relatively unaffected by the weakening effects of weathering.  
2. A diamond free of cracks discernible by eye.  
3. The rock near underground openings that stands well without artificial support.
- Solid-barrel sampler.** A straight-walled cylinder with or without a valve on the bottom. Used for taking soil samples. *Compare* Shelby tube, Split-tube sampler.
- Solid bit.** = Noncoring bit, *q.v.*
- Solid-crown bit.** = Noncoring bit, *q.v.*
- Sort.** To examine and separate diamonds into quality groupings. *See* Grade.
- Sound.** A synonym for Solid, as applied to diamonds and rocks.
- Sounding.** Subsurface investigation by observing the penetration resistance of the subsurface material without drilling holes. This can be done by driving a rod into the ground or by using a penetrometer.
- Sounding rod.** A closed pipe, 1 inch in diameter, with a flush point and a driving tip, used in sounding. *See* Sounding.
- South African.** Whole-stone diamonds having outside faces that are smooth as contrasted to the pebbly, encrusted surface of a Congo diamond; also applied to diamonds produced in South African mines as contrasted to those found in the Sierra Leone, Congo, Brazil, etc.
- Spacer; Spacer block.** 1. A Marker block.  
2. A device for holding two members at a given distance from each other.
- Spade-end wedge.** A type of deflecting wedge. *See* Deflecting wedge.
- Spear.** 1. One of several types of fishing tools designed to be driven and wedged inside of bits, rods, etc., lost in a borehole. *Compare* Fishing tap.  
2. A rodlike fishing tool having a barbed-hook end, used to recover rope, wire line, and other materials from a borehole.
- Spearhead.** A conical head on a wire-line core barrel, engaged by the dogs on the overshot assembly for the purpose of removing the inner tube of the core barrel from a borehole.
- Special.** *See* Special rounds.
- Special rounds.** Sometimes used to designate a very high quality or grade of drill diamonds. *See* AAAA. *Compare* AAA.
- Specific gravity.** In liquids such as drill mud, or solids such as diamond, the weight of a given volume as compared with an equal volume of pure water at 4° C.
- Specific-gravity hydrometer.** A hydrometer indicating the specific gravity or relation of the weight of a given liquid per unit volume to the weight of a given unit volume of water. *Compare* Baumé hydrometer, Hydrometer, Marsh funnel, Twaddell hydrometer.
- Spider.** The bowl part of a spider and slips. *Also called* Bowl. *See* Spider and slips.
- Spider and slips.** A gripping device used to grip and hold rods or casing while coupling or uncoupling them as they are being run into or pulled from a borehole. The device is essentially a heavy cast-steel circular ring called a spider in which the hole is tapered forming a surface against which four quarter-circle-wedge segments fit and slide. The inside faces of the wedge segments (slips) are serrated and shaped to fit snugly the outside of a drill rod or casing. When in use, any downward movement of the rod or casing causes the slips to wedge inside the tapered ring and grip the rod firmly; when the rods are moved upward the slips release. *Also called* Bowl and slips.
- Spin.** To rotate the bit or drill stem or to couple or uncouple parts of a drill, casing, or drivepipe string.
- Spindle.** *See* Drive rod 1.
- Spindle rod.** *See* Drive rod 1.
- Spindle speed.** 1. Same as Bit rotational speed.  
2. The number of times the drive rod of a gear-feed-drill swivel head must turn to advance the attached drill string 1 inch.
- Spin out.** To unscrew lengths of drill rod, casing, or pipe by mechanical means, using a spinning chain, rope, or cable in conjunction with power derived from the cathead or other rotating device.
- Spin up.** To screw lengths of drill rod, casing, or pipe together by mechanical means by using a spinning chain, cable, or rope in conjunction with power derived from the cathead or other rotating device.
- Spinning cable.** A flexible wire or plant-fiber cable or rope used as a spinning chain. *See* Spinning chain.
- Spinning chain.** Link chain wrapped several times around drill rod, casing, or pipe and used on cathead to spin up or spin out such equipment when it is being pulled or run into a borehole. A rope or flexible wire cable may be used in lieu of a chain.
- Spinning rope.** A plant-fiber rope used for the same purpose as a spinning chain. *See* Spinning chain.
- Spiral core.** A piece of core the outside surface of which is rifled. *See* Rifle 1.
- Spiral grooving.** *See* Rifling.
- Spiral hole.** A borehole that follows a corkscrewlike course. *Compare* Rifle 1.
- Split.** The process of dividing a core lengthwise, dividing a granular material into several representative parts so that samples can be sent to several interested parties, or reducing core storage space or the quantity of material retained as a sample.
- Split barrel.** A core barrel that is split lengthwise so that it can be taken apart and the sample removed.
- Split-barrel sampler.** A drive-type soil sampler with a split barrel; also, a swivel-type, double-tube core barrel, the inner tube of which is split.
- Split core.** A core that has been split lengthwise into halves or quarters.
- Split inner-tube core barrel.** A double-tube core barrel with the inner tube split lengthwise.
- Split-ring core lifter.** A hardened steel ring having an open slit, an outside taper, and an inside or outside serrated surface. In its expanded state it allows the core to pass through it freely, but when the drill string is lifted the outside taper surface slides downward into the bevel of the bit or reaming shell, causing the ring to contract and grip tightly the core which it surrounds. *Also called* Core catcher, Core gripper, Core lifter, Ring lifter, Split-ring lifter, Spring lifter.

- Split-ring lifter.** = Split-ring core lifter, *q.v.*
- Split-tube barrel.** = Split-barrel sampler, *q.v.*
- Split-tube sampler.** = Split-barrel sampler, *q.v.*
- Spoil dam.** An earthen dike forming a depression in which returns from a borehole can be collected and retained.
- Spoil pool.** The reservoir formed by a spoil dam in which the returns from a borehole collect and are retained. *Compare* Sludge pit, Sump.
- Spoils.** 1. *See* Cuttings.  
2. The debris or waste material from a mine.
- Spool.** 1. To wind rope or cable on a hoist drum.  
2. A synonym for Cathead.  
3. The drum of a hoist.
- Spoon sampler.** A rotating soil sampler, fitted with an auger-type cutting shoe.
- Spot.** 1. To mark the site at which a borehole is to be drilled, a piece of equipment placed, or a structure built.  
2. To set a drill or piece of machinery at a pre-selected site.  
3. An inclusion in a diamond.
- Sprag.** A synonym for Rod spear.
- Spring.** 1. = Core lifter, *q.v.*  
2. To chamber. *See* Chamber 2.  
3. To enlarge the bottom of a drill hole by small charges of high explosives in order to make room for the full charge; to chamber a drill hole. *Compare* Camouflet.  
4. A synonym for Finger as applied to the fingers of a Basket core lifter.
- Springing.** *See* Chambering 2.
- Spring core lifter.** = Core spring, *q.v.* *Compare* Split-ring core lifter.
- Spring lifter.** = Core lifter, *q.v.* *Compare* Split-ring core lifter.
- Spring-lifter case.** = Core-lifter case, *q.v.*
- Spud.** 1. To begin the drilling of a borehole with a spud or diamond-point bit.  
2. An offset type of fishing tool used to clear a space around tools stuck in a borehole.  
3. A cable-tool drill bit.
- Spud bit.** 1. A mud or diamond-point bit used to drill through overburden or soil down to bedrock.  
2. A broad, dull, chisel-face drilling tool for working in earth down to rock with a churn or cable-tool drill.
- Spud drill.** = Churn drill, *q.v.*
- Spudded-in.** A term applied to a borehole that has been started and the hole has reached bedrock and/or the standpipe has been set.
- Spudder.** A churn drill, churn-drill operator, or the special bit used to begin a borehole by rotary, diamond, or churn drills.
- Spudder drill.** = Churn drill, *q.v.*
- Spudding.** 1. In diamond and/or rotary drilling, a general term applied to drilling through overburden with a fishtail bit, drag bit, or diamond-point bit.  
2. Sinking a conductor, standpipe, or casing with a churn- or cable-type drill rig.
- Spudding bit.** *See* Spud bit.
- Spudding-in.** *See* Spud 1.
- Spudding tools.** Tools used to begin a borehole in earthy materials with a diamond or rotary drill; also, the drilling tools used by a cable-tool or churn drill.
- Spud-in.** *See* Spud 1.
- Square-nose bit.** A flat-face bit.
- Square thread.** A screw thread the cross section of which is square.
- Squeeze.** 1. To inject a grout into a borehole under high pressure.  
2. The plastic movement of a soft rock in the walls of a borehole or mine working that reduces the diameter of the opening.
- Squeeze job.** The high-pressure grouting of a borehole.
- SRN.** *Abbr.* commonly used for Semiround nose; also for Single-round nose.
- Stab.** 1. To guide a pipe, casing, or drill rod so that the threads will engage properly.  
2. To recover a drill tool lost in a borehole by using a spear-shaped or pointed fishing tool.
- Stabilized coupling.** A rod coupling built up to reaming-shell size by welding on an abrasion-resistant metal, applied in ridges parallel to the long axis of the drill rod.
- Stabilizer.** 1. A hardened, splined bushing, sometimes freely rotating, slightly larger than the outer diameter of a core barrel and mounted directly above the core-barrel back head. *Also called* Ferrule, Fluted coupling.  
2. A misnomer for Guide rod.
- Stack.** To stand and rack drill rods in a drill tripod or derrick.
- Staggered holes.** To arrange boreholes in a row, in such a manner that those in one row are placed opposite the spaces between the boreholes in the next row.
- Stand.** 1. Two or more lengths of drill rod or casing coupled together and handled as a unit length as they are taken from a borehole and set upright in a drill tripod or derrick. *See* Double, Forble, Treble.  
2. A drill floor.  
3. To allow a cement slurry to remain undisturbed in a borehole until it hardens or sets.  
4. To set a string of casing in a borehole.
- Standard.** A reference unit or a set of specifications to which the size and design of a part or piece of equipment conforms. *See* API, DCDMA, CDDA.
- Standard bit.** 1. Commonly, although incorrectly, used as a synonym for Bevel-wall bit.  
2. A bit the size and design of which are as specified in standards accepted by the drilling industry, such as those established by the DCDMA or CDDA.
- Standard core bit.** 1. *See* Standard bit 2.  
2. Commonly, although incorrectly, used as a synonym for Bevel-wall bit.
- Standard lay.** = Regular lay, *q.v.*
- Standard penetration test.** A soil-sampling procedure to determine the number of blows by a drive hammer, freely falling a distance of 30 inches per blow, needed to drive a standard sampling spoon 1 foot. The first 6 to 7 inches of penetration is disregarded, but the blows required to drive the sample the ensuing foot are counted.
- Standard pipe.** 1. A coupled pipe conforming to specifications accepted as standard by the API.  
2. As used by plumbers, etc., pipe conforming to specifications adopted as standard by the wrought-pipe makers in 1886.
- Standard rig.** A common misnomer for Cable-tool rig. Churn-drill rig.
- Standby.** A piece of equipment held in readiness to replace a piece that may become inoperative.
- Standing.** 1. A term used by drillers to denote that the operation of deepening a borehole has ceased. *Compare* Shutdown, Standby.  
2. Drill rods or casing stacked vertically in the drill tripod or derrick.
- Standing column.** The column of drilling liquid left in the hole when the drill tools have been removed.
- Stand of drill rods.** *See* Stand 1.
- Standoff.** 1. A short length of core attached to and left standing upright in the bottom of the borehole when the core barrel is pulled.  
2. On taper-tool or drill-pipe joints, the space between the pin- and box-thread shoulders before wrenching up.



- Standpipe.** 1. A relatively short length of pipe driven into the upper soillike portion of the overburden as the first step of collaring or spudding-in a borehole. *Also called* Conductor, Conductor pipe.  
2. A short piece of pipe wedged or cemented into a borehole after completion to act as a marker and keep collar free of cave.
- Standpiping.** Driving pipe deep enough through overburden to keep soil, sand, etc., out of a borehole. *See* Standpipe.
- Star bit.** =Cross bit, *q.v.*
- Starting barrel.** A short (12 to 24 inches) core barrel used to begin coring operations when the distance between the drill chuck and the bottom of the hole or to the rock surface in which a borehole is to be collared is too short to permit use of a full 5- or 10-foot-long core barrel.
- Starting casing barrel.** A short piece of casing to which a casing bit and shell are attached and used under the same conditions as a starting barrel. *See* Starting barrel.
- Static head.** The height of a standing column of water as measured from the bottom of a borehole upward. Generally expressed in feet but sometimes expressed in pounds of pressure as measured at the bottom of the borehole.
- Static load.** The basal pressure exerted by the weight of a mass at rest, such as the load imposed on a drill bit by the weight of the drill-stem equipment or the pressure exerted on the rocks around an underground opening by the weight of the superimposed rocks. *Also called* Dead load.
- Static pressure.** The basal pressure exerted by the weight of a mass on a unit area, such as pounds per square inch or tons per square foot.
- Stationary inner-tube core barrel.** =Rigid-type double-tube core barrel, *q.v.*
- Stationary jaw.** The fixed jaw of a safety clamp or wrench. *Compare* Anvil, Anvil jaw.
- Stationary-piston drive sampler.** A piston-type sampler in which the position of the piston relative to the sample remains constant during the sampling operation.
- Stationary slip.** =Stationary jaw, *q.v.*
- Steam drill.** A drill machine operated by a steam-powered engine.
- Steam rig.** =Steam drill, *q.v.*
- Steel cable.** A flexible rope, the strands of which are steel wires instead of plant fibers. *See* Cable 1.
- Steel shot.** =Chilled shot, *q.v.*
- Stem.** 1. The assemblage of drill rods in a borehole connecting a drill bit and core barrel to the drill machine.  
2. The heavy iron rod acting as the connecting link between the bit and the balance of the string of tools on a churn drill.
- Step.** Small offset on a piece of core or in a drill hole resulting from a sudden sidewise deviation of the bit as it enters a hard, tilted stratum of rock underlying a softer rock. *Compare* Kick.  
2. One of several terracelike or stairstep concentric configurations on the crown of a diamond bit. *See* Step-face bit.
- Step core bit.** =Step-face, *q.v.*
- Step-face bit.** A thin-nosed bit with diamonds set in several concentric terracelike rows, which form the outside wall.
- Stick.** To become fixed or lodged in a borehole due to the constriction created by swelling ground or to the compaction of cave materials and/or drill cuttings.
- Stickup.** *See* Standoff 1.
- Sticky.** A term applied when drilling rock or a formation so soft that the drill bit tends to penetrate too rapidly and the circulation fluid is unable to clear the cuttings away fast enough to prevent their adhering to and compacting on the surfaces of the bit and other downhole drilling equipment and/or the borehole sidewalls. *Compare* Balling formation, Gummy.
- Still.** Slang for a steam-generating boiler.
- Stinger.** 1. A steel cylinder projecting beyond the face of a cutting bit that serves as a pilot or guide. *See* Pilot.  
2. The pneumatically actuated piston attached to a pointed rod that acts as a feed mechanism on a stoper drill.
- Stinger ream.** To ream a borehole using a reaming bit equipped with a pilot or stinger.
- Stone.** Commonly, although incorrectly, used as a synonym for Diamond.
- Stone concentration.** =Diamond concentration, *q.v.*
- Stone content.** =Diamond content, *q.v.*
- Stone count.** =Diamond count, *q.v.*
- Stone dropout.** *See* Rollout.
- Stone exposure.** =Diamond exposure, *q.v.*
- Stone pressure.** =Diamond pressure, *q.v.*
- Stones per carat.** 1. =Diamonds per carat, *q.v.*  
2. The number of near-equal-size diamonds the weight of which is 1 carat, hence a relative measure of the size of diamonds.
- Stone weight.** =Diamond content, *q.v.*
- Stool pigeon.** A recording device attached to a drill machine, showing on paper the time required to complete certain drilling operations and also how the drill machine was operated during a unit of time.
- Stop-gate valve.** =Gate valve, *q.v.*
- Stovepipe.** Riveted-seam or spiral-welded-seam, thin-wall pipe used as a conductor, standpipe, or casing in a borehole.
- Stovepipe casing.** *See* Stovepipe.
- Straight chopping bit.** =Chopping bit, *q.v.*
- Straight-hole tool.** Annular diamond bit inside of which is mounted a roller bit, used to straighten a crooked borehole in petroleum drilling.
- Straight-side core bit; Straight-sided core bit.** =Straight-wall bit, *q.v.*
- Straight-type wedge.** A plain deflecting wedge, not equipped with a rose or stabilizing ring.
- Straight-wall bit.** An annular-shaped (core) bit the inner walls of which are parallel with the outer walls and not tapered to receive a core lifter.
- Straight-wall core shell.** 1. A reaming shell the outside walls of which are straight and not set with diamonds or hard-metal reaming points.  
2. Sometimes used as a synonym for Blank reaming shell.
- Straightway valve.** =Gate valve, *q.v.*
- Strainer.** A screening device on the suction line of the primary pump or in the head of a core barrel to keep out debris that might clog the pump valves or core barrel.
- Stratigraphic hole.** 1. *See* Record hole.  
2. A borehole drilled specifically to obtain a detailed record of the character and composition of the rock formations penetrated and not for the purpose of locating a mineral deposit.
- Stratified rock.** A rock of sedimentary origin generally lying in distinct parallel beds or layers.
- Stratometric survey.** A system whereby the in situ orientation of a core sample can be reproduced on the surface. A line is inscribed on the smoothed bottom of a borehole, and its azimuth relationship with a compass direction photographically recorded. When cored and removed from the borehole, the inscribed line can be used as a guide in orienting the core on the surface.
- Streamflow coupling.** =Counterbored coupling, *q.v.*
- Streamflow rod coupling.** =Counterbored coupling, *q.v.*

- Streamlined waterway.** A bit waterway the configuration of which is such that the flow of coolant (water or mud-laden liquid) and cuttings is not impeded in any way. *Compare* Expanding waterway.
- String.** Pieces of pipe, casing, or other downhole drilling equipment coupled together and lowered into a borehole. *Compare* String of tools.
- String of tools.** The entire downhole drilling assembly.
- Stroke.** 1. The distance traveled by a piston in a pump or a piston in a hydraulic-feed mechanism on a drill.  
2. The maximum distance a piston moves within a cylinder before the direction of its travel is reversed. *See* Run 1, Travel.  
3. The distance a churn-drill stem and bit are raised for dropping while drilling.
- Structural drill.** A highly mobile diamond- or rotary-drill rig complete with hydraulically controlled derrick mounted on a truck, designed primarily for rapidly drilling holes to determine structure in subsurface strata or for use as a shallow, slim-hole producer or seismograph drill. Capacity is generally about 1,500 feet of 3/8-inch-diameter or NX-size borehole. *See* Seismograph drill, Structural drilling.
- Structural drilling.** Drilling done specifically to obtain detailed information delineating the location of folds, domes, faults, and other subsurface structural features undiscernible by studying strata exposed at the surface. *Compare* Structure drilling.
- Structure.** That part of the geology of a region that pertains to the altitude of the rocks, the nature and amount, if any, of their deformation, and the distribution and mutual relations of their features.
- Structure bit.** 1. A hollow, cylindrical chopping bit used in the Lake Superior iron districts to sample soft or highly fractured iron formations by wash boring.  
2. An obsolete term, colloquially used in the Midwestern United States as a synonym for Core bit.
- Structure drilling.** A form of drilling practiced in the Lake Superior Iron District to sample soft iron formations by countercirculation-wash boring methods.
- Strut.** A diagonal brace between two legs of a drill tripod or derrick; also, a vertical-compression member in a structure or in an underground timber set.
- Stuck.** *See* Sanded in. *Compare* Freeze 1.
- Stuffing box.** A chamber designed to contain packing and to maintain a fluid tight joint about a piston rod where it enters a cylinder or around a drill rod where it enters the casing at the collar of a borehole.
- Sub.** A coupling with different types and sizes of box or pin threads at either end. Used to connect unlike threaded members of drill-string, casing, or drive-pipe equipment together. *Also called* Adapter, Substitute.
- Submarine drilling.** Drilling from the surface of a body of water with a drill mounted on an anchored tower, platform, or barge.
- Submersible pump.** A pump capable of operating when submerged in liquid.
- Substitute.** =Sub, *q.v.*
- Subsurface.** 1. Beneath the surface of the earth.  
2. An underground workplace.
- Suction bailer.** =Sand pump, *q.v.* *See* Sand pump 1.
- Suction hole.** The flexible, reinforced hose that runs from the drill sump to the intake port on a pump.
- Suction pump.** A pump that lifts water or liquids by suction; atmospheric pressure forces the liquid into the vacuum created by the pumping action.
- Sump.** 1. A pit or basin in which the returns from a borehole are collected and stored and in which the cuttings settle before recirculating the cuttings-free drilling fluid.  
2. A cellar under a drill floor.  
3. A catchment basin at the bottom of a mine shaft in which mine waters collect.  
4. A pit or basin in which waste oil products are collected and stored.
- Sunk.** 1. Drilled downward.  
2. As used by miners, excavated downward.
- Supply pump.** *See* Bank pump.
- Surface.** As used in the Lake Superior Iron District, a synonym for Cover, Drift, Mantle, Overburden.
- Surface conductor.** *See* Conductor 1, Standpipe.
- Surface drilling.** Boreholes collared at the surface of the earth, as opposed to boreholes collared in mine workings or under water.
- Surface rig.** A drill rig designed specifically and used only for surface drilling operations. *See* Surface drilling.
- Surface-set bit.** A bit containing a single layer of diamonds set so that the diamonds protrude on the surface of the crown. *Also called* Single-layer bit. *Compare* Multilayer bit.
- Surface speed.** =Peripheral speed, *q.v.*
- Surface string.** A large-diameter drive pipe sunk through the uppermost part of the overburden. *Compare* Conductor, Standpipe.
- Surge.** The uneven rate of flow and regular variations in pressure caused by time lags between pressure strokes on a piston-type pump.
- Survey.** 1. *See* Borehole survey.  
2. The information plotted from a borehole survey.
- Surveying.** The act or process of making a borehole survey. *See* Borehole survey.
- Suspension.** A mixture of a finely divided material in a fluid **EXAMPLE:** Drilling mud is generally a suspension of solid ingredients, such as barite, bentonite, or rock cuttings, in water.
- Swab.** 1. A pistonlike device provided with a rubber cap ring that is used to clean out debris inside a borehole or casing.  
2. A synonym for Bailer and/or Sand pump.  
3. The act of cleaning the inside of a tubular object with a swab.  
4. In petroleum drilling, to pull the drill string so rapidly that the drill mud is sucked up and overflows the collar of the borehole, thus leaving an undesirably empty borehole.
- Swedish bit.** A synonym for Chisel bit. *See* Chisel bit 2.
- Swelled coupling.** 1. A rod coupling having a considerably larger outside diameter than the drill rods to which it is threaded, such as BW rod outside diameter with AW rod threads. *Also called* Over-size coupling.  
2. Canadian and Lake Superior District synonym for Reaming shell. Its usage in this sense is obsolete except in Canada.
- Swelling ground.** A soil or rock that expands when wetted.
- Swing day.** =Change day, *q.v.*
- Swivel.** A shortened term for Water swivel; also for Swivel head.
- Swivel barrel.** A misnomer applied to a swivel-type double-tube core barrel; also, the inner tube of a like-type core barrel.
- Swivel coupling.** A coupling that gives complete rotary freedom to a defecting wedge-setting assembly.
- Swivel head.** The assembly of a spindle, chuck, feed nut, and feed gears on a diamond-drill machine that surrounds and rotates and advances the drill rods and drilling stem. On a hydraulic-feed drill the feed gears are replaced by a hydraulically actuated piston assembly. *Also called* Boring head, Drill head, Drilling head, Gate.
- Swivel-head bevel gear.** The bevel gear mounted on the outside of the drive quill in the swivel head of hydraulic-feed, and/or some types of gear-feed, dia-

- mond drills. The gear meshes with, and is driven by, a matching gear on the drill-motor shaft.
- Swivel hoisting plug.** Same as **Hoisting plug**.
- Swivel hook.** A hoisting hook suspended from a freely rotating (bearing) part in such a manner that the rotation of the drill rods is not transferred to the hoist cable, or vice versa, when the rods are pulled or lowered.
- Swivelneck.** A synonym for a **Water** or a **Mud swivel**. Also called **Gooseneck**.
- Swivel plug.** = **Hoisting plug**, *q.v.*
- Swivel-tube barrel.** A misnomer for a **Swivel-type double-tube core barrel**.
- Swivel-tube core barrel.** A misnomer for **Swivel-type double-tube core barrel**.
- Swivel-type double-tube core barrel.** Double-tube core barrels in which the inner tube is attached to a short shaft by ball, roller, or friction-plate bearings to the headpiece to which the outer tube is rigidly connected. Hence, the inner tube is free and does not spin as the outer barrel is rotated. Also called **Ball bearing core barrel**, **Floating-tube core barrel**. Compare **M-design core barrel**.
- Synthetic diamond.** 1. A diamond produced artificially by subjecting a carbonaceous material to extremely high temperature and pressure, currently and commonly called **MM** and/or **Manmade diamonds**. See **Manmade diamonds**.  
2. A misnomer for **sintered tungsten carbide**.
- Table.** = **Rotary table**, *q.v.*
- Tachometer.** An instrument of the direct-reading type, indicating the speed of a shaft or machine in revolutions per minute.
- Tackle.** An assemblage of ropes or wire cables and pulleys arranged for hoisting or pulling.
- Tackle block.** = **Block and tackle**, *q.v.*
- Tailings.** 1. Borehole returns allowed to run to waste; the parts of the drill cuttings (sludge) that are discarded.  
2. In mining, the residuum after most of the valuable minerals have been extracted from an ore.
- Tap.** 1. To intersect with a borehole and withdraw or drain the contained liquid as water from a water-bearing formation or from underground workings.  
2. A threaded cone-shaped fishing tool. It may be either an inside or an outside tap, depending on whether the tap fits into or over the outside of a piece being fished.  
3. A tool for cutting screw threads (box threads) inside a tubular part or inside a hole.
- Taper bit.** A long cone-shaped noncoring bit used in drilling blastholes and in wedging and reaming operations. When the nose of the bit is rounded and the overall shape resembles the silk end of a corncob the bit often is called a **corncob bit**. Compare **Bull nose bit**.
- Tapered acme.** An acme thread cut on a tapered surface on either the pin or the box ends of a piece of tubular equipment. See **Tapered thread**.
- Tapered core bit.** A core bit having a conical diamond-inset crown surface tapering from a borehole size at the bit face to the next larger borehole size at its upper, shank, or reaming-shell end, as from **EX** to **AX**, or **BX** to **NX**.
- Tapered ledge reamer.** A tapered reaming bit or shell the maximum outside set diameter of which corresponds to a standard **X-group-size** casing, with the smaller end threaded to receive a matching and same-range coring or noncoring bit. Compare **Tapered reamer**.
- Tapered reamer.** A reamer having a conical diamond-inset surface tapering from any borehole size at its lower (bit) end to the next larger borehole size at its upper (core barrel) end, such as **EX** to **AX**, **AX** to **BX**, **BX** to **NX**.
- Tapered step-core bit.** = **Tapered step-face bit**, *q.v.*
- Tapered step-face bit.** A tapered core bit having the cutting face set in the same manner as a step-face bit. Also called **Tapered step-core bit**.
- Tapered tap.** = **Tap**, *q.v.* See **Tap 2**.
- Tapered thread.** 1. A screw thread cut on the surface of a tapered part; it may be either a pin or box thread or a **V-**, **Acme**, or **square-screw thread**.  
2. Used sometimes as a misnomer for a **V-type thread**.
- Taper-type dropper.** A device by which a straight-type wedge can be attached to a diamond-drill rod, lowered, and set in a borehole.
- Taper-wall bit.** = **Bevel-wall bit**, *q.v.*
- Taper-wall core shell.** = **Bevel-wall reaming shell**, *q.v.*
- Tapping assembly.** A mechanical device consisting of a short piece of casing cemented in the collar of a borehole at the upper end of which is affixed a gate or large plug valve followed by a rod stuffing box. Utilizing this assembly, underground drilling can be accomplished safely in areas of high hydrostatic pressure.
- Target.** 1. The point a borehole is intended to reach.  
2. The sliding sight on a leveling rod.
- T-bolt.** A bolt with a T-shaped head, made to fit into a T-shaped slot in a drill swivel head; by means of it the swivel head can be turned to any angle of inclination to drill a borehole. Also, a similar bolt made to fit into a T-slot in the bed of a machine, for the purpose of holding a piece of metal to be machined or to fasten a machine to its base.
- TC.** *Abbr.* commonly used for **Tungsten carbide**.
- TD.** *Abbr.* commonly used for **Total depth**, as applied to a borehole. Also, *abbr.* for **True depth**.
- Tear down.** To disassemble the drilling rig preparatory to moving it to another drill site.
- Tear-down time.** The time needed to disassemble a drill rig.
- Teardrop set.** A surface-set diamond-bit crown molded in a die, prepared so that each inset diamond is backed by a raised teardrop-shaped mound of matrix metal.
- Tee-bolt.** = **T-bolt**, *q.v.*
- Tee-slot.** = **T-slot**, *q.v.*
- Telescope; Telescoped.** To force or jam one segment or part into the part to which it is coupled by applying excessive load. EXAMPLE: To force or "telescope" a core-barrel head into the upper end of the outer tube of the core barrel.
- Telescopic derrick.** A drill derrick divided into two or more sections, made so that the uppermost sections nest successively into the lower sections. In use, the sections are extended and locked into place to form a tall derrick and when moved are nested to form a unit length transportable on a single truck. Compare **Telescopic tripod**.
- Telescopic tripod.** 1. A drill tripod each leg of which is a series of two or more closely fitted nesting tubes, which can be locked rigidly together in an extended position to form a long leg or nested one within the other to shorten the leg while it is being transported from one drill site to another.  
2. A misnomer applied to a drill-hoisting derrick, hinge-mounted on a truck-mounted drill machine, that is raised or lowered by means of hydraulic pistons.
- Template.** A pattern device used as a guide to mark points at which boreholes are to be collared in ring drilling.
- Tension-control cylinder.** A hydraulic piston and cylinder mechanism that can be attached to a rotary-drill feedoff line and adjusted to allow the drill stem to feed downward while maintaining a constant preset tension on the drill string. See **Tension drilling**.

- Tension drilling.** Drilling with part of the weight of the drill string supported by the drill swivel head or suspended on a drilling line, as opposed to drilling with the entire weight of the string imposed on the bit.
- Test.** 1. To explore an unproved area by using boreholes to search for a mineral deposit, or to obtain samples of soil or rock from which the physical characteristics of the sampled formations can be determined, as in foundation testing.  
2. To determine the inclination of a borehole by means of an acid-dip survey.
- Test boring; Test borings.** 1. As used by foundation engineers, the act or process of sinking holes into the overburden (sometimes to considerable depth into bedrock) with rotary or drive sampling equipment for the purpose of recovering samples from which information on the physical characteristics of the materials penetrated can be obtained; also applied to the sample or samples so obtained.  
2. A synonym for Borehole, Drill hole, Drilling.
- Test core.** Core removed from a concrete structure by diamond core drilling and tested in a laboratory to determine the strength and other physical properties of the concrete. Also, core removed from a borehole drilled in search of oil and used to determine the porosity of the core and whether oil is present.
- Test-correction chart.** See Capillarity-correction chart.
- Test hole.** Generally, any borehole drilled to obtain samples whereby the structural and physical characteristics of the rocks penetrated can be determined; more specifically, a hole produced by rotary or driving soil-testing tools in the course of obtaining samples used in soil and foundation-testing work.
- Testing bedrock.** See Bedrock test.
- Test tube; Testing tube.** = Acid bottle, *q.v.*
- Thaw pipe; Thawing pipe.** A string of pipe lowered into a string of drill rods that is frozen in a borehole drilled into permafrost, through which water is circulated to thaw the ice and free the drill rods.
- Theford crown bit.** = Simulated insert bit, *q.v.*
- Thick-wall drive sampler.** = Thick-wall drive sampler, *q.v.*
- Thick-wall sampler.** A soil sampler made from a steel tube having a wall thickness greater than 16 gage. See Drive sampler. Compare Shelby tube.
- Thimble.** An oval grooved ring around which the end of a rope or cable can be wound and clamped to form an eye; sometimes used as a misnomer for Rope socket.
- Thin-wall bit.** A coring bit the kerf or wall thickness of which is about one-half or less that of the wall thickness of the same outside-diameter-size standard coring bit.
- Thin-wall drive sampler.** = Thin-wall sampler, *q.v.*
- Thin-wall sampler.** A soil-sampling barrel made from steel tubing having approximately a 16-gage wall thickness. Compare Shelby tube.
- Thin-wall tube sampler.** = Thin-wall sampler, *q.v.*
- Thompson arc cutter.** = Arc cutter, *q.v.*
- Thompson clinometer.** A clinometer having ports through which a cooling flow of water can be circulated past the acid and gelatin containers.
- Thompson pilot shoulder reamer.** A reaming or coring bit with an articulated steel pilot protruding about 36 inches beyond the face of the bit. The diameter of the pilot is slightly smaller than the set inside diameter of the bit; its upper end is a piston fitted tightly inside a single-tube barrel with its attached coring bit. When lowered into a borehole in which a deflection wedge has been set, the pilot section forces the coring bit to ream out the first part of the deflected hole at a point about 20 inches above the tip of the wedge. Reaming is continued to about 6 inches below the wedge tip, at which point the pilot shoulder reamer is withdrawn and replaced by a bullnose or deflection bit.
- Thompson shoulder reamer.** = Thompson pilot shoulder reamer, *q.v.*
- Thompson wedge.** A retrievable type of deflecting wedge. See Deflecting wedge.
- Thread.** 1. To reeve rope or cable through a sheave or block and tackle.  
2. A spiral-shaped groove forming a screw.  
3. To couple screw-threaded parts.
- Thread cutter.** 1. A tool used to cut screw threads on a pipe or bolt.  
2. A name sometimes applied to a diamond crystal having the shape of an octahedron.
- Thread protector.** A short threaded ring to screw onto a pipe or into a coupling to protect the threads while the pipe is being handled or transported. Also called Pipe-thread protector.
- 3A.** A symbol designating high-quality drill diamonds. See AAA.
- Three-jaw chuck.** A drill chuck having three serrated-face movable jaws that can be made to grip and hold fast an inserted drill rod. See Chuck 1.
- Thribble; Thrible.** = Treble, *q.v.*
- Throttle.** See Accelerator 2.
- Throw.** = Deviation, *q.v.*
- Thrust.** The weight or pressure applied to a bit to make it cut.
- Thrust block.** The antifriction part of the thrust yoke attached to the drive rod in the swivel head of a diamond-drill machine. Also called Cage, Friction head, Thrust collar.
- Thrust collar.** A synonym for Thrust block.
- Thrust plate.** 1. The upper and/or the lower race parts of the thrust bearing in the thrust block or cage on the drive rod in a diamond-drill swivel head.  
2. Incorrectly used as a synonym for Thrust yoke.
- Thrust race.** See Thrust plate.
- Thrust yoke.** The part connecting the piston rods of the feed mechanism on a hydraulic-feed diamond-drill swivel head to the thrust block, which forms the connecting link between the yoke and the drive rod, by means of which link the longitudinal movements of the feed mechanism are transmitted to the swivel-head drive rod. Also called Back end, Cage.
- Tight.** 1. Inadequate clearance or the barest minimum of clearance between working parts.  
2. Unbroken, crack-free, and solid rock in which a naked hole will stand without caving.  
3. A borehole made impermeable to water by cementation or casing.  
4. An impermeable rock formation.  
5. An underground opening having limited space in which to work.
- Tight formation.** See Tight 2 and 4; also Tight rock.
- Tight head.** A synonym for Circulating head, Stuffing box.
- Tight hole.** 1. A borehole the diameter of which is too small for adequate clearance between the drill-stem equipment and/or inserted casing.  
2. A borehole the wall rocks of which are impermeable to water or have been made tight by cementation or insertion of casing.  
3. A borehole-drilling operation access to which and information about which are not released except to authorized persons.
- Tight rock.** 1. Rock formation in which the joints, cracks, or crevices are sealed and impermeable to water.  
2. Rock composed of tightly cemented grains or very fine, even-sized crystals.  
3. Rock that does not chip easily under the impact of cable tools.  
4. A tough, resilient rock.

- Till** 1. =Boulder clay, *q.v.*  
 2. Incorrectly used as a synonym for Glacial drift.
- Tin dish.** *See* Pan 1.
- Tin hat.** A head covering made of reinforced sheet aluminum or plastic-impregnated fabric and shaped somewhat like a sun helmet; worn by drill-crew members for protection and/or to reduce the severity of head injuries from falling objects.
- To gage.** 1. Made "to gage," or a size as specified, especially as applied to the outside set diameter of bits and reaming shells and the inside diameter of a borehole.  
 2. To determine, by measurement or other test, the capacity, quantity, or dimension.
- Toeboard.** A raised edging around the perimeter of a work platform to prevent handtools from being accidentally kicked or knocked off the platform.
- Tolerance.** A specified allowance (either plus or minus) of the given dimension of a finished product to take care of inaccuracies in workmanship of parts to be fitted together. The amount allowed as tolerance is generally small as compared with the standard dimension of the part; for example, the tolerance allowed in the set diameters of a diamond bit is plus or minus five-thousandth (0.005) of an inch.
- Tommy bar.** A short rod used as a lever or handle for turning a jackscrew or a spanner by being inserted loosely in the hole provided for that purpose.
- Tong die.** A hard, replaceable, serrated metal insert in pipe tongs, which comes in contact with and grips the outside of a pipe, casing, or drill rod. *Also called* Tong key.
- Tong key.** =Tong die, *q.v.*
- Tongs.** 1. One of the various tools or wrench devices that can be made to fit and grasp drill rods, casing, or drivepipe. *Compare* Chain tongs.  
 2. Any of the various tools consisting of two pivoted or hinged legs designed to clasp hot metal, such as a churn-drill bit, while it is being dressed. They are made in several sizes and forms essential to a toolie or a blacksmith.
- Tong up.** To couple lengths of drill rod, pipe, or casing, using tongs to grip and screw the members together.
- Tooldresser.** 1. A churn driller's helper. *Compare* Dresser or Junior driller.  
 2. A toolstone-grade diamond inset in a metal shank and used to trim or form the face of a grinding wheel.
- Tool extractor.** An implement for grasping and withdrawing drilling tools when broken, detached, or lost in a borehole. A fishing tool. *Also called* Tool grab.
- Tool grab.** *See* Tool extractor.
- Toolie.** A man who sharpens churn-drill bits; a dresser; a tooldresser.
- Tool joint.** The point at which drill-stem equipment is provided with screw threads by means of which various members can be coupled.
- Toolpusher.** The head driller or drill foreman.
- Toolstones.** Industrial diamonds used for wire-drawing dies, indenter points, shaped-diamond tools, glaziers, and dressers. Toolstones approach gem diamonds in perfection, although not in color. The finer grades may be identical with diamonds sold as low-grade gems. The lower grade toolstones are also sometimes used as drill diamonds.
- Toothed roller bit.** =Roller bit, *q.v.*
- Toothed-shoe cutter.** A drivepipe or casing shoe with a serrated or toothed cutting edge.
- Topside.** 1. Above the drill rig in the derrick or tripod.  
 2. The inlet end of the hydraulic cylinder of a hydraulic-feed mechanism on a diamond drill.
- 3.** On the surface, as opposed to underground.
- Torpedo.** An encased explosive charge slid, lowered, or dropped into a borehole and exploded to clear the hole of obstructions or to open communications with an oil or water supply. *Also called* Bullet.
- Torpedo bit.** A seldom-used synonym for Noncoring bit.
- Torpedo crown.** A Torpedo or Noncoring bit.
- Torque.** The force that tends to produce a twist in a rotating member such as a driving shaft or string of drill rods.
- Torque bar.** Square or vertically fluted bar run on one type of auger drill to rotate, raise, and lower the auger.
- Torque meter.** A device for measuring the actual torque transmitted to the drilling head and/or to the drill-rod string.
- Torque rod.** =Torque bar, *q.v.*
- Torsion.** The state of being twisted, such as by application of a rotational force at one end while the other end is held fast or its movement is restricted.
- Torsion break.** A break in the core caused by accumulation of chips at the bit face. When drilling is stopped to rechuck, these chips fill in around the core. When drilling is resumed, the chips grip the core, and the core is twisted and broken. *Compare* Torsion fracture.
- Torsion fracture.** A spiraled crack in a core caused by torque in a blocked bit or core barrel. *Compare* Torsion break.
- Total bit load.** The total amount of any load or pressure, expressed in pounds or tons, that is applied to a bit when it is in use.
- Total bit pressure.** *See* Total bit load.
- Total critical load; Total critical pressure.** 1. The total load or pressure that must be applied to a bit for its optimum rate of penetration in a specific rock.  
 2. The maximum load that can be applied to a bit without causing damage to the bit. *Compare* Critical pressure 1 and 2.
- Total pressure.** The gross load applied on a given surface.
- Tour.** A work-shift. Sometimes incorrectly spelled Tower.
- Tower.** A misnomer for Derrick and an incorrect spelling of Tour.
- t.p.i. Abbr.** Threads per inch.
- Track.** 1. The groove cut in the rock by a diamond inset in the crown of a bit.  
 2. As applied to a pattern of setting diamonds in a bit crown, an arrangement of diamonds in concentric circular rows in the bit crown, with the diamonds in a specific row following in the track cut by a preceding diamond.  
 3. The slide or rack on which a diamond-drill swivel head can be moved to positions above and/or clear of the collar of a borehole.
- Track diamonds.** Diamonds set in the face or lead portion of the drill-bit crown.
- Track stones.** *See* Track diamonds.
- Tramp iron.** 1. Any loose piece of metal in a borehole.  
 2. Stray pieces of drill steel, picks, tools, etc., unintentionally mixed with an ore.
- Trap.** 1. A device inserted in a pipeline to separate a denser material from one of lesser density, such as entrained water in a stream or a compressed-air line.  
 2. A natural subsurface petroleum reservoir.  
 3. A fine-grained, dark-colored rock of igneous origin, particularly applied to basaltic rocks. *Also called* Trap rock.
- Travel.** 1. The distance traversed by a piston in passing from one extreme position to the other in a cylinder, such as in a diamond-drill hydraulic-feed system or in a piston-type pump. *Compare* Stroke.  
 2. The linear distance traversed by a component in

- moving from one extreme position to the other, as does the traveling block in a block-and-tackle system.
- Traveling block.** The movable unit, consisting of sheaves, frame, clevis and/or hook, connected to, and hoisted or lowered with, the load in a block-and-tackle system. *Also called* Floating block, Running block.
- Traveling sheave.** *See* Traveling block.
- Treble.** Three standard lengths of drill rod or drill pipe connected together and handled and stacked in a drill tripod or derrick as a unit length of rod on borehole round trips. *Also incorrectly spelled* Thribble, Thrible, Tribble, Triple.
- Tribble.** =Treble, *q.v.*
- Tribble.** =Treble, *q.v.*
- Tricone bit.** A roller bit having three cone-shaped cutters in the head of the bit. *See* Roller bit.
- Tricone roller bit.** *See* Tricone bit.
- Trip.** A synonym for Round trip.
- Triple A.** *See* AAA.
- Triple-tube core barrel.** A special core barrel used to take soil samples, as in foundation testing. The inner tube is swivel mounted and nonrotating and extends through, and a short distance beyond, the bit. Hence, the bit only cuts clearance for the outer tube or core-barrel assembly, and the core taken by the inner tube is cut by a spudding action. The triple or core tube is mounted inside the inner tube to receive the core and is split longitudinally to facilitate removal of the core. *Also called* Clay barrel.
- Triplex pump.** A positive-displacement piston pump having three water cylinders mounted side by side. It may be either a single- or double-action type. *Compare* Duplex pump.
- Tripod.** A framework of wood or metal over a drill and platform composed of three principal members (legs) inclined toward, and fastened at, a common joint with a bolt on which a clevis and attached sheave is suspended. It is aligned over the center line of the borehole and the hoisting drum on the drill machine. *Compare* Michigan tripod.
- Tripod bolt.** A large heavy bolt that pins together the upper ends of the three tripod legs.
- Tripod clevis.** A heavy clevis, pinned by the tripod bolt in the top of a tripod, from which the hoisting sheave is suspended.
- Tripping.** 1. The process of pulling and/or lowering drill-string equipment in a borehole.  
2. To open a latch or locking device, thereby allowing a door or gate to open to empty the contents of a skip, bailer, etc.
- Tro-Pari survey instrument.** Trade name of a single-shot borehole surveying instrument combining a compass and inclinometer, which is locked in place by the action of a preset time clock.
- Tramp.** A synonym for Boomer, Drifter, or Duster, as applied to a drill-screw member who moves often from job to job, usually after payday.
- True depth.** The actual depth of a specific point in a borehole measured vertically from the surface in which the borehole was collared. *Also called* True vertical depth. Sometimes abbreviated TD, TVD.
- True dip.** The angle at which veins, strata, etc., dip, as measured vertically downward from the horizon along a line at right angles to the strike of the veins, strata, etc.; also, the dip of a vein, strata, etc., as determined on oriented core. *See* Core orientation, Oriented core. *Compare* Apparent dip.
- True vertical depth.** *See* True depth.
- True width.** The width or thickness of a vein, stratum, etc., as measured perpendicular to or normal to the dip and the strike. The true width is always the least width. *Compare* Apparent width.
- T-slot.** The slot into which the head of a T-bolt fits. *See* T-bolt.
- Tube clamp.** A misnomer for Casing clamp.
- Tubing.** A misnomer for Casing.
- Tubing catcher.** A misnomer for Casing catcher. *See* Casing catcher.
- Tubing hanger.** A misnomer for Casing catcher. *See* Casing catcher.
- Tugger.** *See* Air hoist.
- Tumbled.** Cleaved carbon or other diamonds the sharp edges and corners of which have been rounded and blunted by the tumbling action in a barrel-shaped vessel.
- Tungsten alloy.** An alloy used in drill-bit-crown matrices and in making bit and reaming-shell inserts by powder methods in which the principal constituent is tungsten, generally in the form of carbide. Tungsten-carbide powder usually is mixed with a powdered cobalt or other metal to bind it together in a cohesive mass.
- Tungsten-carbide alloy.** *See* Tungsten alloy.
- Tungsten-carbide insert.** 1. A small plate or slug of tungsten-carbide alloy mounted in the crown or shank of a bit or in grooves on the outside surface of a reaming shell as wear-resistant or rock-cutting surfaces or edges. The term is sometimes incorrectly applied to diamond-set plates of a tungsten-carbide-alloy inset as reaming surfaces in reaming shells.  
2. In mining, a slug composed of tungsten-carbide alloy shaped and mounted in the bit face so that the slug acts as the cutting edge of the bit.
- Turntable.** *See* Rotary table.
- TVD.** *Abbr.* True vertical depth.
- Twaddell hydrometer.** A hydrometer used for liquids heavier than water and marked with the Twaddell scale. Twaddell-scale readings multiplied by a factor of 0.005 give the true specific gravity of the liquid measured. *Compare* Baumé hydrometer, Marsh funnel, Specific-gravity hydrometer.
- Twin packer.** A packer designed so that a borehole can be sealed simultaneously at two separated points. *See* Packer 1.
- Twin pressure packer.** =Twin packer, *q.v.*
- Twistoff.** The breaking off of a member of the drill string, caused by excessive torsional stress.
- 2A.** Sometimes used to designate medium-quality drill diamonds. *See* AA.
- Two-jaw chuck.** A chuck equipped with two movable clamping or holding devices by means of which the motion of the chuck is imparted to the drill rods.
- Type-D drift indicator.** A single-shot borehole-surveying instrument utilizing photographic paper on which is recorded the compass bearing and inclination of the course of a borehole. The Type-D instrument, when mounted in a special thin-walled protective container, is small enough to be used in an AX-size hole.
- Type-M drift indicator.** A single-shot borehole-surveying instrument that records the compass bearing and inclination of the course of a borehole through the action of a strong beam of light directed through the plumb bob onto a light-sensitive paper disk. It is similar to, but larger than, a Type-D drift indicator.
- Type-W drift indicator.** A mechanical single-shot borehole-surveying instrument for use where exceptionally high temperatures are encountered in a hole. It records the compass bearing and inclination of a borehole by making a dot on a special paper by means of a plumb bob, incorporating a depressible stylus.
- U.** A letter used to designate an experimental-design drill rod superseded in 1954 by a design accepted as standard by the DCDMA and designated by the letter name W.
- U series.** *See* U.
- Ultraviolet light.** 1. A lamplike electrical device.  
2. The invisible radiations produced by this lamp, which have the property of causing some substances

- to exhibit fluorescence. *Also called* Black light. *See* Fluorescence.
- Unchuck.** To disengage the drill chuck from the drill stem.
- Unconsolidated.** 1. A rock or material in which a borehole can be drilled with a diamond-point or mud bit.  
2. An accumulation of sediment that has not been cemented and/or compacted.
- Uncouple.** To unscrew or disengage.
- Uncut.** A diamond the original shape of which has not been altered artificially.
- Uncut stone.** *See* Uncut.
- Underfeed; Underfed.** To advance a diamond or other type of rock-drilling bit into rock at a lesser rate than that warranted by the condition of the rock and/or the condition of the bit.
- Underground drilling.** Drilling from underground workings.
- Underream.** To enlarge or ream a borehole below the casing.
- Underreamer.** A tool or device having cutters that can be expanded or contracted by mechanical or hydraulic means and used to enlarge or ream a borehole below the casing or drivepipe. *Also called* Expansion bit, Expansion reamer.
- Underreamer bit.** The assembled device consisting of the lugs or jaws attached to an expanding mechanism used to enlarge or ream a borehole below a string of casing. *See* Underreamer.
- Underreamer cutter.** *See* Underreamer lug.
- Underreamer lug.** A diamond set or other type of expansible or contractable jaw on an underreamer bit. *Also called* Underreamer cutter.
- Underreaming.** *See* Underream.
- Underside.** The discharge end of a cylinder of a hydraulic-feed device in the swivel head of a diamond drill.
- Undersize.** 1. A drill hole that is not to size because of gage loss on the bit and/or the reaming shell with which it was drilled.  
2. A bit or reaming shell the diametric dimensions of which are less than specified as standard.  
3. The portion of a fragmented or ground material that passes through a sieve or screen.
- Undersize core.** Core the outside diameter of which is less than standard.
- Underweight.** A diamond bit the crown of which is inset with diamonds so widely spaced that part of the crown is without cutting points and the bit cannot be made to cut.
- Undisturbed sample.** A soil sample taken in such a manner that its in situ physical characteristics are modified as little as possible.
- Undisturbed soil sample.** *See* Undisturbed sample.
- Unit pressures.** The total pressure divided by the number of area units on which the load is imposed, such as the diamonds in a diamond-bit crown, usually expressed as pounds per square inch, tons per square foot, pounds per diamond, etc.
- Universal clamp.** A clamping device used on a drill column by means of which a horizontal arm can be affixed at any point on the vertical section of a drill column.
- Universal joint.** Articulated joints permitting the transmission of rotary motion from the driving shaft placed at an angle to the driven shaft. *Compare* Knuckle joint.
- Upgrade.** To increase the quality rating of diamonds beyond or above the rating implied by their particular classification.
- Up hole.** A borehole collared in an underground working place and drilled in a direction pointed above the horizontal plane of the drill-machine swivel head.
- Up-hole drilling.** *See* Up hole.
- Up-hole velocity.** The speed, expressed in lineal feet per minute, at which the drill-circulation liquid flows upward in a borehole.
- Upper pickup.** Highest point reached by a traveling block in pulling drill rods.
- Upset.** A tubular part such as a drill rod, the wall thickness of which has been increased by hot forging for a short distance on one or both ends, thereby reinforcing the area in which screw threads are cut. *See* Inside upset, Outside upset.
- Upward velocity.** The rate at which drilling fluid progresses up the borehole. *Compare* Up-hole velocity.
- Usable diamond.** A resettable salvage diamond. *See* Usables.
- Usables.** Salvaged diamonds considered as being fit for resetting and reuse in another bit or tool.
- Usable stone.** = Usable diamond, *q.v.*
- Used bit.** A diamond bit so dulled by use that it is no longer of any value as a cutting tool.
- Used diamond.** A diamond that has been removed from a used bit; also, a carbon the edges and corners of which have been rounded by use but which is reusable.
- Used stone.** = Used diamond, *q.v.*
- Valve.** Any contrivance inserted in a pipe or tube containing a lid, cover, ball, or slide that can be opened or closed to control the flow or supply of liquids, gases, or other shifting material through a passage.
- Vane shear tester.** A device used in soil testing, consisting of flat blades affixed to the end of a rod. It is forced into the soil, and the torque required to shear the soil, in situ, is determined as a measure of the shear strength of the zone tested by rotating the device.
- Vane tester.** = Vane shear tester, *q.v.*
- Vector.** *See* Hard vector.
- Vee thread.** = V-thread, *q.v.*
- Vein.** Ore or other material filling a fissure in rock.
- Vein intersection.** 1. The depth in the borehole at which the hanging and/or footwall of a vein is encountered.  
2. The place where two or more veins cross or meet.
- Vent.** 1. A hole, extending up through the bearing at the top of the core-barrel inner tube, that allows the water and air in the upper part of the inner tube to escape into the borehole.  
2. A small hole in the upper end of a core-barrel inner tube that allows water and air in the inner tube to escape into the annular space between the inner and outer barrels.
- Vent pipe.** *See* Vent tube.
- Vent tube.** 1. Hose or piping conducting air-ejected drill cuttings from the borehole collar to a point some distance from the drill.  
2. An exhaust pipe or tube.  
3. A canvas tubing suspended from a wire in a mine opening to supply fresh air to a working place.
- Vertical head.** 1. *See* Hydraulic head 2.  
2. The vertical distance a pump lifts a liquid.
- Vertical hole.** A borehole drilled vertically downward or upward.
- Vertical ring drilling.** Radial drilling in a vertical plane underground.
- Vial.** = Acid bottle, *q.v.*
- Vibration.** The undesirable oscillatory movements of the drill string.
- Virgin.** New. An unexploited area or rock formation in which boreholes have not been drilled.
- Virgin diamond.** *See* New diamond.
- Virgin stone.** *See* New diamond.
- Viscosimeter.** An instrument used to measure the viscosity of liquids. **EXAMPLE:** The Marsh funnel type measures the time required for a known amount of drilling mud to flow through an aperture of known

- diameter; other specific types are the Fann and Stormer viscosimeters. *See* Marsh funnel.
- Viscosity.** The resistance of a liquid to flow.
- Void.** 1. An open space within a rock or other substance.  
2. That portion of a borehole from which the core could not be recovered.
- Volcanic rock.** Any rock of volcanic origin; volcanic igneous rocks are those erupted as molten masses, forming lava flows, dikes in the crater walls, volcanic plugs, etc.
- Voog.** A misspelling of Vug.
- V-thread.** A screw thread shaped like the letter V.
- Vug.** A small cavity in a rock, usually lined with a crystalline mineral incrustation. Also incorrectly written Voog, Vugg and incorrectly called Bug, Bug hole, Vug hole.
- Vugg.** A misspelling of Vug.
- Vuggy.** A rock containing many vugs. Also incorrectly called Buggy.
- Vug hole.** = Vug, *q.v.*
- W.** The second letter (group letter) in two- and three-letter names applied to drill fittings standardized by the DCDMA. In combination with range letters such as E, A, B, and N, the group letter establishes those group characteristics that permit a borehole drilled with one range of drill fittings to be cased and continued with the next smallest range in the group. The group characteristics (hole size and casing diameters) of the W group are identical with those of the X group. The W group of drill fittings differs from the X group in that W group fittings are threaded to accommodate standard W-group drill rods, whereas the X group was threaded to accommodate the now obsolete E, A, B, and N drill rods. *See* appendix, table 1; *see also* Group.
- WA.** *Abbr.* West African.
- WA-1.** A symbol used to designate high-quality drill diamonds conforming to a standard grading mutually established by the U.S. Corps of Engineers and some members of the Industrial Diamond Association. *Compare* AAA.
- WA-2.** A symbol designating medium-quality drill diamonds conforming to a standard quality mutually established by the U.S. Corps of Engineers and some members of the Industrial Diamond Association. *Compare* AA.
- WA-3.** A symbol designating low-quality drill diamonds conforming to a standard quality mutually established by the U.S. Corps of Engineers and some members of the Industrial Diamond Association. *Compare* A 3.
- Wad.** A term applied when rock cuttings tend to ball and adhere to drill-string equipment and borehole walls in lumps.
- Wagon drill.** A wheel-mounted pneumatic, percussive-type rock drill. Sometimes the name is applied to a wheel-mounted diamond-drill machine.
- Walk.** To deviate from the intended course, such as a borehole that is following a course deviating from its intended direction. *Also called* Deviating, Wander, Wandering.
- Walking.** *See* Walk.
- Walking beam.** 1. An oscillating bar or beam, pivoted at the center and free to rock up and down.  
2. On cable-tool and churn-drill rigs, the beam that carries the string of drilling tools at one end and is connected to a cranked drive wheel at the other. The rotation of the wheel causes the tool string to lift and drop; thus the hole is drilled by concussion.
- Wall cake.** *See* Cake 2.
- Wall cavitation.** The development of enlarged sections in a borehole as the result of caving, erosive action of the circulated liquid, or erosion caused by drill rods rubbing against the borehole walls.
- Wall clearance.** The distance between the wall of the borehole and the outside of a piece of drill-string equipment when the string is centered in the borehole.
- Wall drag.** The amount of friction resulting from the drill rods rubbing against the walls of a borehole or the inside surface of the casing lining a borehole.
- Wall friction.** 1. The drag created in the flow of a liquid or gas because of contact with the wall surfaces of its conductor, such as the inside surfaces of a pipe or drill rod or the annular space between a drill string and the walls of a borehole.  
2. The drag resulting from compaction of loose materials around the outside surfaces of drive pipe, casing, etc. *Also called* Skin friction.
- Wall hook.** A fishing tool shaped like a side rasp, but unlike the side rasp, the surfaces of the wall hook are smooth.
- Walling up.** The building up of a layer of mud cake or compacted cuttings on the borehole sidewalls; the filling of cracks or caved portions of the borehole walls with cement.
- Wall off.** To seal cracks, crevices, etc., in the wall of a borehole with cement, mud cake, compacted cuttings, or casing.
- Wall packing.** The compaction of sticky cuttings that collect and adhere to the walls of a borehole.
- Wall rock.** 1. The rock forming the walls of a borehole.  
2. The rock forming the walls of a vein or lode.
- Wander.** An unintentional change in the course of a borehole. *Compare* Deflect, Walk, Warp.
- Warp.** 1. The amount of a borehole has wandered off course.  
2. To deflect from a normal position or course.
- Wash.** 1. To clean cuttings or other fragmented rock materials out of a borehole by the jetting and buoyant action of a copious flow of water or a mud-laden liquid.  
2. The erosion of core or drill-string equipment by the action of a rapidly flowing stream of water or mud-laden drill-circulation liquid.  
3. The dry bed of an intermittent stream; also, a term applied to a loose, surface deposit of sand, gravel, boulders, etc., especially if auriferous.
- Wash boring.** The process of drilling a borehole by utilizing the jet action of a high-pressure stream of water.
- Wash-boring drill.** A drill rig utilizing the jet action of a high-pressure stream of water to produce a borehole in soft or unconsolidated material.
- Wash-boring gear.** The equipment used in wash boring.
- Washdown spear.** A fishing tool.
- Washing.** The act or process of cleaning, carrying away, or eroding by the buoyant action of flowing water. *See* Wash 1 and 2.
- Washover.** To wash away or remove material from around the outside of casing, pipe, drill stem, junk, or tramp materials in a borehole. *See* Washover shoe.
- Washover bit.** *See* Washover shoe.
- Washover shoe.** A casing-shoelike bit used to drill downward around a piece of drilling equipment stuck in a borehole. *See* Washover.
- Wash pipe.** The pipe that ejects the jet of water through the bit, used in wash boring.
- Wash rod.** A heavy wall pipe used in lieu of drill rods to conduct water downward inside and to the bottom of a drivepipe being sunk through overburden by a wash-and-drive method.
- Wash tube.** *See* Wash rod.
- Wash water.** Water circulated through the drill string, past the bit, and thence out of the borehole between the rods and the walls of the hole while drilling or during washing operations.



- Water-base mud.** A drill mud in which the solids are suspended in water. *Compare* Oil-base mud.
- Water block.** A sudden stoppage of waterflow past the face of a bit while drilling is in progress.
- Water circulation.** The movement of water used as a cuttings-removal and bit-cooling agent downward through the drill string to the bottom of the hole and thence upward outside the drill string to the collar of a borehole while drilling is in progress.
- Watercourse.** 1. = Waterway, *q.v.*  
2. A subsurface opening or passage in rocks through which ground water flows.
- Water-cutoff core barrel.** A core barrel having a device in its head part that closes and stops the flow of drill-circulation liquid when a core block occurs in the inner tube of the core barrel.
- Water-cutoff head.** The head part of a water-cutoff core barrel containing the water-cutoff mechanism.
- Water gage.** 1. A device that measures the pressure at which water is discharged by a pump or the volume of water flowing through a pipe or other conductor.  
2. An instrument used to measure the depth or quantity of water, such as in a steam boiler or water-storage tank.
- Water groove.** = Waterway, *q.v.*
- Water hammer.** Sharp pulsations in a water-piping system caused by the intermittent escape of entrapped air or the intermittent injection of water into the system by a reciprocating-piston pump.
- Water hose.** The hose running from the water swivel on the upper end of a drill stem on a diamond or rotary drill to the pump.
- Water hydraulic.** A water-actuated hydraulic-feed mechanism on a diamond drill. Most hydraulic feeds now are actuated by hydraulic oil pumped through a closed system.
- Water jet.** 1. A high-pressure stream of water ejected from an orifice.  
2. The orifice through which a high-pressure stream of water is ejected.
- Water-jet drilling.** The drilling of boreholes in unconsolidated or earthy formations using the erosive power of a small-diameter stream of water forcefully ejected as the cutting tool. *See* Jet 1.
- Water level.** Sometimes used as a synonym for Water table.
- Water loss.** The amount of drill water that escapes into porous or fractured borehole wall rocks and hence does not return and overflow at the collar of the borehole.
- Water packer.** An expandable device that is placed in a borehole to bar entry of water into the lower part of a hole or to separate two distinct flows of water from different strata. *See* Packer.
- Water passage.** Any opening through which water is made to flow; a waterway.
- Water-pressure.** Pressure at which water is discharged from a pump.
- Water shutoff.** A device used to stop the flow of water, such as the water-cutoff device in the head of a water-cutoff core barrel.
- Water slot.** A groove incised in the face and outside wall of a noncoring bit that serves as a waterway. A synonym for Waterway.
- Water swivel.** A device connecting the water hose to the drill-rod string and designed to permit the drill string to be rotated in the borehole while water is pumped into it to create the circulation needed to cool the bit and remove the cuttings produced. *Also called* Gooseneck, Swivel neck.
- Water table.** *See* Ground-water level.
- Watertight.** 1. A borehole in which the conditions are such that no loss of the circulated drill fluid occurs.  
2. A connection, container, or rock strata so tight as to be impermeable to water.
- Water velocity.** The rate, measured in feet per minute, at which water progresses through a conductor.
- Water volume.** The volume of water pumped through a pipe system or drill string per given unit of time, usually expressed in gallons per minute.
- Waterway.** A groove or slot incised in the surface of a bit or other piece of drill-string equipment to provide a channel through which the circulated drilling fluid can flow. *Also called* Watercourse, Water groove, Water passage, Water slot.
- Wear pad.** A surface covered with a layer of abrasion-resistant metal; a surface in which an abrasion-resistant substance is embedded.
- Wear resistance.** *See* Abrasion hardness.
- Wear ribs.** Hard metal ridges applied to the outside surfaces of bottomhole equipment, built up as close as practicable, to the set-outside-diameter size of a reaming shell, which serve as wear pads.
- Weathered rock.** Rock the character of which has been changed by exposure to decaying conditions found in the zone of weathering. *See* Weathered zone.
- Weathered zone.** A more or less indefinite surface zone wherein the rocks have been exposed to the chemical action of air, water, plants, and bacteria, and to the mechanical action of changes in temperature. The rock so exposed usually crumbles and decays.
- Wedge.** 1. The act or process of changing the course of a borehole by a deflecting wedge.  
2. The tapered wedge used to initiate the deflection of a borehole. *See* Deflecting wedge, Hall-Rowe wedge.  
3. Tapered pieces of core that tend to bind and block a core barrel.
- Wedge bit.** A tapered-nose noncoring bit, used to ream out the borehole alongside the steel deflecting wedge in hole-deflection operations. *Also called* Bull-nose bit, Wedge reaming bit, Wedging bit.
- Wedge clinometer.** An end clinometer the bottom end of which is shaped to match the wedge-guide pin on the drive wedge; hence the two can be fastened together with copper shear rivets. When the drive wedge is driven into the wooden plug in the borehole, the copper rivets break, and after the clinometer has been removed from the borehole the relation of the bearing and inclination readings to the flat face of the projection on the bottom of the clinometer case can be used to orient and place the deflecting wedge in a manner so as to direct the deflected hole to follow the desired course.
- Wedge core lifter.** A core-gripping device consisting of a series of three or more serrated-face, tapered wedges contained in slotted and tapered recesses cut into the inner surface of a lifter case or sleeve. The case is threaded to the inner tube of a core barrel. As the core enters the inner tube, it lifts the wedges up along the case taper. When the barrel is raised, the wedges are pulled tight, gripping the core.
- Wedge off.** To deviate or change the course of a borehole by using a deflecting wedge. *See* Bypass, Deflect.
- Wedge pilot.** That part of the bottom end of a Hall-Rowe deflecting wedge that matches the guide pin on the upper end of the Hall-Rowe drive wedge and by means of which the deflecting wedge can be oriented to direct the deflected borehole in the intended direction.
- Wedge reaming bit.** *See* Wedging reamer.
- Wedge rose bit.** A serrated-face, hardened-metal, noncoring, cone-shaped bit used primarily to mill off part of the stabilizing or rose ring on the top end of a Hall-Rowe deflecting wedge.
- Wedge-set.** A diamond bit the crown of which is cov-

- ered with wedge-shaped configurations in each of which is an inset diamond.
- Wedging.** 1. The act of changing the course of a borehole by using a deflecting wedge.  
2. The lodging of two or more wedge-shaped pieces of core inside a core barrel and hence blocking it.
- Wedging bit.** *See* Wedge bit.
- Wedging reamer.** A reaming bit used to ream down alongside and pass the deflection wedge when deviating a borehole. *Also called* Wedge bit, Wedge reaming bit.
- Weight indicator.** An apparatus for recording and indicating the tension on a drilling line of a diamond or rotary drill. *Compare* Tension drilling.
- Well.** 1. A shaft or hole sunk into the earth expressly to obtain water, oil, or gas.  
2. Commonly used as a synonym for Borehole or Drill hole, especially by individuals associated with the petroleum-drilling industry.
- Well drill.** A drill, usually a churn drill, used to drill water wells. *See* Churn drill.
- Well log.** A record of the formations penetrated by a borehole and their approximate thickness, as determined by an examination of the cuttings or core recovered. *See* Log.
- Well point.** *See* Screen pipe.
- Well rig.** = Well drill, *q.v.*
- Well survey.** = Borehole survey, *q.v.*
- West African.** A diamond produced in Southwest Africa, as opposed to a diamond produced in the Congo or in Brazil. Frequently used interchangeably with South African, as applied to diamonds produced in that area.
- Wet hole.** A borehole that traverses a water-bearing formation from which the flow of water is great enough to keep the hole almost full of water.
- Wet sample.** A sample consisting of sludge, drill cuttings, or other material wetted by the drill-circulation medium.
- Whip.** *See* Rod slap.
- Whip out.** The enlargement of a portion of a borehole caused by the eccentric rotation and slap of the drill rods.
- Whipstock.** Commonly used by petroleum-field drillers to designate the device known to diamond drillers as a deflecting wedge and to the act or process referred to as borehole deflection by diamond drillers.
- Whipstocking.** Commonly used by petroleum-field drillers to designate the act or process referred to by diamond drillers as deflecting a borehole.
- Whipstock point.** The point within the borehole at which a deflection or change in course is desired.
- Whole diamond.** A diamond the (as-mined) shape of which has not been modified artificially.
- Whole stone.** = Whole diamond, *q.v.*
- Whole-stone bit.** A bit the crown of which is either surface set or impregnated with whole diamonds, as opposed to an impregnated or surface-set bit in which the inset diamonds are fragmented diamonds.
- Wick.** To place a soft twisted-cotton string between the rod joints as they are made up or coupled.
- Wicking.** The soft twisted-cotton string used to wick drill-rod joints; the act of placing the cotton string on the rod joints. *See* Wick.
- Wide-mouth socket.** A fishing tool similar to a Bell-mouth socket, lacking a latch.
- Wiggle tail.** A rock-cutting tool or bit used to deflect a borehole that has an articulated pilot part, which also can be attached to a knuckle-jointed device and coupled to the bottom end of a drill string. *Also called* Whipstock.
- Wildcat.** A borehole and/or the act of drilling a borehole in an unproved territory where the prospect of finding anything of value is questionable. It is analogous to a prospect in mining; specifically, it is a mining or oil company organized to develop unproved areas far from any actual point of discovery.
- Wildcat drilling.** The drilling of boreholes in an unproved territory. *Also called* Cold nosing, Wildcatting.
- Wildcat hole.** A borehole drilled in an unproved territory. *See* Wildcat.
- Wildcatter.** An individual or corporation devoted to exploration in areas far removed from points where actual minerals or other substances of value are known to occur. *See* Wildcat. *Also called* Cold noser.
- Wildcatting.** *See* Wildcat drilling.
- Wildcat work.** *See* Wildcat drilling.
- Wilson elevator.** A type of elevator extensively used in the southern part of Africa. *See* Elevator.
- Winch.** A synonym for Hoist. Formerly, a manpower hoisting machine, consisting of a horizontal drum with crank handles.
- Wind.** 1. To hoist.  
2. To spool rope or cable on the drum of a hoist.
- Windlass.** A term commonly used in England, Africa, and Australia to designate a hoist or winch.
- Window-type sample.** = Door-type sampler, *q.v.*
- Windup.** The amount of twist occurring in a string of drill rods when the string is rotated during drilling. There can be as many as several complete revolutions of the rod at the collar before the bottom member of the string begins to rotate. *Also called* Wrapup.
- Wing.** 1. A cutting chisel edge on a percussive bit, which extends from the center to the outside periphery.  
2. One of the cutting edges on a finger or drag bit. *Compare* Finger.  
3. A side or limb on an anticline.
- Wire cable.** *See* Cable 1.
- Wire line.** As used in a general sense, any cable or rope made of steel wires twisted together to form the strands. Specifically, a steel-wire rope five-sixteenths of an inch or less in diameter. *See* Cable 1, Sand line.
- Wire-line barrel.** = Wire-line core barrel, *q.v.*
- Wire-line cable.** A  $\frac{3}{16}$ - or  $\frac{1}{4}$ -inch wire rope used to handle the inner tube of a wire-line core barrel. *See also* Cable 1.
- Wire-line core barrel.** Double-tube, swivel-type core barrels the outside diameters of which are of sizes made to be used in various sizes of diamond- and rotary-drill boreholes, and designed so that the inner-tube assembly is retractable. At the end of the core run, the drill string is broken at the top joint so that an overshot latching device can be lowered on a cable through the drill-rod string. When it reaches the core barrel, the overshot latches onto the retractable inner-tube assembly, which is locked in the core barrel during the core run. The upward pull of the overshot releases the inner tube and permits it to be hoisted to the surface through the drill rods; it is then emptied and serviced and dropped or pumped back into the hole, where it relocks itself in the core barrel at the bottom.
- Wire-line coring.** The act or process of core drilling with a wire-line core barrel. *See* Wire-line core barrel.
- Wire-line drilling.** The drilling of boreholes with wire-line core-barrel drill-string equipment.
- Wire-line drill rod.** Drill rods having couplings that are nearly flush on the inside and designed so that the inner tube of a wire-line core barrel and overshot assembly can be run inside the rods.

- Wire-line drill-rod coupling.** A rod coupling designed for use on wire-line drill rods. *See* Wire-line drill rod, Wire-line core barrel.
- Wire-line drum.** A winding drum or hoist on which the wire line is wound when handling the inner tube and overshot assemblies of a wire-line core barrel.
- Wire-line hoist.** *See* Wire-line drum.
- Wire-line socket.** The socket connecting the wire line to a wire-line core barrel overshot assembly.
- Wire rope.** A rope made of twisted strands of wire. *See* Cable 1.
- Wire strand.** Several steel wires twisted together to form one strand of a wire rope or cable.
- Wommer safety clamp.** A type of foot-operated drill-rod safety clamp the operation of which is similar to a Bulldog safety clamp. *Also called* Automatic spider.
- Working face.** *See* Face 1 and 5.
- Working load.** The maximum weight a hoist line or other rope or cable can carry under working conditions without danger of straining.
- Work platform.** A board or small platform placed at a suitable height in the drill tripod or derrick so that a man standing on it can handle the drill-rod stands. *Compare* Safety board.
- Worm.** A spiral tool shaped like a carpenter's wood-boring auger, with the bottom end shaped like the cutting end of a diamond point or mud bit. It is rotated inside a casing to loosen and clean out debris or to loosen and drill through tough clay at the bottom of a borehole. *Also called* Worm auger, Worm-type auger.
- Worm auger.** *See* Worm.
- Worm-type auger.** *See* Worm.
- Wrapup.** Same as Windup, as applied to the twist in a drill-rod string. *See* Windup 1.
- Wrench.** A tool that grips a nut or pipe and is provided with a handle or lever with which to turn the part gripped. *See* Pipe wrench.
- X.** 1. Second letter (group letter) in two-letter names of standard casing and formerly DCDMA standard core barrels. *See* Group; *see also* W and appendix, table 1.  
2. Third letter (design letter) in three-letter names of core barrels, certain parts of which are standardized by the DCDMA. *See* Design and appendix, table 1.
- XR.** Letter name for a drill rod having an outside diameter of 1 inch and a four-per-inch modified-square-thread coupling. This size rod was formerly in general use in Canada.
- XRA.** Letter name for a size and design of drill bits and reaming shells; also designated as XRT. *See* XRT.
- XRB.** Letter name for a nonstandard core bit having outside and inside set diameters of 1.140 and 0.719 inches, respectively; matching reaming-shell set diameter is 1.171 inches. Also used as a letter name for core barrels and casing of a size to be used with XRB letter-name bits and reaming shells.
- XR/BH.** Letter name for a nonstandard reaming shell having a set diameter of 1.250 inches. The reaming shell is used with XRN letter-name bits and LM letter-name drill rods.
- XRN.** Letter name for a nonstandard noncoring bit having a set diameter of 1.203 inches; matching reaming-shell set diameter is 1.250 inches. *See* XR/BH; *see also* letter name for a Canadian core bit having set outside and inside diameters of 1.225 and 0.735 inches, respectively. *Also called* 1¼ BH bit when noncoring.
- XRT.** Letter name for a CDDA bit having set outside and inside diameters of 1.155 and 0.735 inches, respectively; matching reaming-shell set diameter is 1.175 inches. Also a letter name for drill rods, core barrels, and/or casing designed for use with XRT letter-name bits and reaming shells.
- XRT rod bit.** A CDDA noncoring bit having a set diameter of 1.225 inches. More commonly called a 1¼ XRT drill-rod bit. *Also called* 1¼ BH bit, 1¼ RT bit.
- X-group.** *See* X.
- Yellow dog.** Field name for a drill tripod or derrick lamp, consisting of a metal container with two spouts holding cotton wicks, on which the burning oil gives a very yellow light.
- Yoke.** 1. An interconnecting link between the twin cylinders of a hydraulic-feed diamond drill through which the action of the hydraulic-feed cylinders is transmitted to the drill rods and bit.  
2. A clamp fitted to the casing at the collar of a drill hole, which when anchored by means of wedge bolts prevents grout pressure from forcing the casing out of the hole.
- Zigzag rule.** A wooden rule (generally 6 feet long, folded zigzag fashion in 6-inch lengths), used by drillers, craftsmen, etc., to measure short distances. The rule usually is graduated in feet, inches, and fractions of an inch (sometimes in feet, tenths of a foot, and hundredths of a foot).
- Zone of cementation.** That portion of the earth's crust lying immediately below the zone of weathering, where loose sediments are cemented by the addition of materials introduced by the percolation of water. *See* Caliche.
- Zone of weathering.** The exposed surface of the earth's crust that is subjected to the destructive action of the atmosphere, rain, freezing, and heat. *See* Weathered zone.



# APPENDIX

**TABLE 1.—Steps in development of nomenclature and standardization of downhole diamond-drill fittings**

Chronology, step and year	Nomenclature				Drill fittings (Dimensions in inches)								Remarks		
	Range <sup>1</sup>	Group	Design	Letter name of fitting	Casing		Flush-coupled casing		Core barrels		Drill rods				
					Standard pipe, inside diameter	Extra-heavy pipe, inside diameter	Casing, outside diameter	Coupling, inside diameter	Set reaming shell, outside diameter	Set core bit, inside diameter	Outside diameter (o.d.)	Square threads per inch			
Step 1, before 1930.	E	-----	-----	E	1.610	1.500			$1\frac{1}{2} \pm$	$1\frac{5}{16} \pm$	$1\frac{5}{16}$	3	<p style="text-align: center;"><b>NEVER STANDARD AND OBSOLETE</b></p> <p>Ranges not integrated into a group. Pipe-casing diameters subject to mill tolerances. Dimensional characteristics of the drill fittings produced by different manufacturers varied; fittings were not interchangeable.</p>		
	A	-----	-----	A	2.067	1.939			$1\frac{1}{4} \pm$	$1\frac{1}{8} \pm$	$1\frac{5}{8} \pm$	3			
	B	-----	-----	B	2.469	2.323			$2\frac{1}{2} \pm$	$1\frac{3}{8} \pm$	$1\frac{7}{8} \pm$	5			
	N	-----	-----	N	3.068	2.900			$2\frac{3}{4} \pm$	$2\frac{1}{2} \pm$	$2\frac{3}{8}$	4			
Step 2, before 1930.	E	-----	-----	E			$1\frac{1}{2} \pm$	$1\frac{1}{2} \pm$						<p style="text-align: center;"><b>DCDMA<sup>2</sup> STANDARDS</b></p> <p>Flush-coupled casing integrated as a group, with complete interchangeability of all unit parts.</p>	
	A	-----	-----	A			$2\frac{3}{8} \pm$	$1\frac{1}{2} \pm$							
	B	-----	-----	B			$2\frac{3}{4} \pm$	$2\frac{1}{4} \pm$							
	N	-----	-----	N			$3\frac{1}{2}$	$3 \pm$							
Step 3, 1930.	E	X	-----	EX			$1\frac{3}{16}$	$1\frac{1}{2}$							<p style="text-align: center;"><b>FORMER DCDMA STANDARDS</b></p> <p>Superseded in 1954 by DCDMA W-group standards. Group integrated with X-group casing. See step 3.</p>
	A	X	-----	AX			$2\frac{1}{4}$	$1\frac{2}{32}$							
	B	X	-----	BX			$2\frac{7}{8}$	$2\frac{3}{8}$							
	N	X	-----	NX			$3\frac{1}{2}$	3							
Step 4, 1930.	E	X	-----	EX					1.485	0.845			<p style="text-align: center;"><b>DCDMA STANDARDS</b></p> <p>The bit, core lifter, and bottom end of the reaming shell are the only completely standardized parts of the W-group, X-design core barrels. All dimensional characteristics of the W-group, M-design core barrels, except for internal construction of the core-barrel head, are completely standardized, and parts produced by different manufacturers are interchangeable. The heads of all W-group, X- and/or M-design core barrels are threaded to fit W-group drill rods.</p>		
	A	X	-----	AX					1.890	1.185					
	B	X	-----	BX					2.360	1.655					
	N	X	-----	NX					2.980	2.155					
Step 5, 1948.	E	X	M	EXM					1.485	0.845				<p style="text-align: center;"><b>DCDMA STANDARDS</b></p> <p>The bit, core lifter, and bottom end of the reaming shell are the only completely standardized parts of the W-group, X-design core barrels. All dimensional characteristics of the W-group, M-design core barrels, except for internal construction of the core-barrel head, are completely standardized, and parts produced by different manufacturers are interchangeable. The heads of all W-group, X- and/or M-design core barrels are threaded to fit W-group drill rods.</p>	
	A	X	M	AXM					1.890	1.185					
	B	X	M	BXM					2.360	1.655					
	N	X	M	NXM					2.980	2.155					
Step 6, 1954.	E	W	-----	EW							$1\frac{3}{8}$	3			<p style="text-align: center;"><b>DCDMA STANDARDS</b></p> <p>The bit, core lifter, and bottom end of the reaming shell are the only completely standardized parts of the W-group, X-design core barrels. All dimensional characteristics of the W-group, M-design core barrels, except for internal construction of the core-barrel head, are completely standardized, and parts produced by different manufacturers are interchangeable. The heads of all W-group, X- and/or M-design core barrels are threaded to fit W-group drill rods.</p>
	A	W	-----	AW							$1\frac{3}{4}$	3			
	B	W	-----	BW							$2\frac{1}{8}$	3			
	N	W	-----	NW							$2\frac{5}{8}$	3			
	E	W	X	EWX					1.485	0.845					
	A	W	X	AWX					1.890	1.185					
	B	W	X	BWX					2.360	1.655					
	N	W	X	NWX					2.980	2.155					
	E	W	M	EWM					1.485	.845					
	A	W	M	AWM					1.890	1.185					
	B	W	M	BWM					2.360	1.655					
	N	W	M	NWM					2.980	2.155					

<sup>1</sup> Approximate diameter, in inches, of the different ranges: E=1½, A=2, B=2½, and N=3.  
<sup>2</sup> DCDMA = Diamond Core Drill Manufacturers Association.

TABLE 2.—Dimensional characteristics of large-diameter-design diamond-drill fittings.

Nomenclature		Drill fittings (All dimensions in inches)							Remarks
Ranges <sup>1</sup>	Size, inches	Approximate diameter of borehole	Standard pipe, i.d.	Core barrels					
				Outer tube, o.d.	Inner tube, i.d.	Set reaming shell, o.d.	Set bit		
		o.d.	i.d.						
4	2¾ x 3¾	3¾	4.026	3.625	2.781	3.875	3.840	2.690	DCDMA <sup>2</sup> STANDARDS Diameter of standard pipe subject to mill tolerance.
6	4 x 5½	5½	6.065	5.250	4.125	5.495	5.435	3.970	
8	6 x 7¾	7¾	8.071	7.250	6.125	7.750	7.655	5.970	

<sup>1</sup> Adoption of letters to designate ranges under consideration by DCDMA.  
<sup>2</sup> DCDMA = Diamond Core Drill Manufacturers Association.

TABLE 3.—Dimensional characteristics of flush-coupled diamond-drill casing and fitting parts

Nomenclature			Approximate diameter of borehole cut by casing reaming shell, inches	Casing and fitting parts (All dimensions in inches)							Remarks	
Range	Group	Letter name		Casing o.d.	Casing coupling i.d.	Set casing reaming shell o.d.	Casing shoe		Casing bit			
			Set o.d.				Plain or set i.d.	Set o.d.	Set i.d.	Approximate diameter of core		
E	X	EX	1¾	1.812	1.500	1.890	1.865	1.500	1.865	1.405	1¾	DCDMA <sup>1</sup> STANDARDS X-group casing and fittings fully integrated. Either pin or box threads are standard on casing shoes, set casing shoes, or casing bits.
A	X	AX	2¾	2.250	1.906	2.360	2.330	1.905	2.330	1.780	1¾	
B	X	BX	3	2.875	2.375	2.980	2.945	2.375	2.945	2.215	2¾	
N	X	NX	3¾	3.500	3.000	3.630	3.595	2.995	3.595	2.840	2¾	

<sup>1</sup> DCDMA = Diamond Core Drill Manufacturers Association.

TABLE 4.—Standard dimensional characteristics of H-letter-name diamond-drill fittings  
 [Canadian Diamond Drilling Association]

H fittings	Dimensions of specific parts, inches	Remarks
Drill rods, flush coupled.....	Rod: Outside diameter..... 3¾ <sub>6</sub> Inside diameter..... 3¼ <sub>6</sub> Coupling, inside diameter..... 2¾ <sub>6</sub> Number of threads per inch..... 3	Square-type threads.
Drill pipe.....	Pipe: Outside diameter..... 3½ Inside diameter..... 3 Coupling, inside diameter..... 1¾ Number of threads per inch..... 8	
Core barrel.....	Bit: Inside set diameter..... 2.875 Outside set diameter..... 3.875 Reaming shell, set diameter..... 3.906 Approximate diameter of core..... 2¾	Compare with DCDMA standard 2¾ x 3¾ core barrel and parts. See table 2.
Casing, flush coupled.....	Casing: Outside diameter..... 4½ Inside diameter..... 4¾ Coupling, inside diameter..... 3½ <sub>6</sub> Reaming shell, set diameter..... 4.595 Number of threads per inch..... 5	Square-type threads.
Casing, flush joint.....	Casing: Outside diameter..... 4½ Inside diameter..... 3½ <sub>6</sub> Coupling, inside diameter..... 3½ <sub>6</sub> Reaming shell, set diameter..... 4.595 Number of threads per inch..... 5	

