JUDGES' BENCHBOOK
OF THE
BLACK LUNG BENEFITS ACT

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Glossary of Coal Mining Terms

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Abandoned areas - section, panels and other areas that are not ventilated and examined in the manner required for work places.

Active workings - any place in any mine where miners are normally required to work or travel.

Advance - exploitation in the same direction, or order of sequence, as development is known as mining in advance.

Advance workings - workings in the solid strata.

Air course - a passage through which air is circulated.

Air lock - the passage, closed at both ends by stopping with doors, connecting two airways along which currents of air having different pressures are flowing.

Air shaft - a shaft used exclusively for conducting air.

Air split - the division of a current of air into two or more parts.

Airway - any passage through which air is carried.

"American Table of Distances" - the current edition of "The American Table of Distances for Storage of Explosives" published by the Institute of Makers of Explosives.

Anemometer - instrument for measuring air velocity.

Angle of repose - the maximum angle from horizontal at which a given material will rest on a given surface without sliding or rolling.

Anthracite - coal with a volatile ratio equal to 0. 12 or less.

Anticlinal axis - the ridge of an anticline.

Anticline - an- upward sold or arch of rock strata.

Aquifer - a water bearing bed of porous rock, often sandstone.

Arching - fracture processes around a mine opening leading to stabilization by an arching effect.

Area (of an airway) - average width multiplied by average height of airway, expressed in square feet.

Auger - a rotary drill for soft materials that utilizes a screw device to penetrate, break, and then transport the drilled material. Auger-type devices are popular in soft coal. To aid penetration and decrease wear on the auger rods, a hard-faced bit is used at the contact between drill and fresh material.

Auxiliary ventilation - portion of main ventilating current directed to face of dead end entry by means of an auxiliary fan and tubing.

Average concentration - a determination which accurately represents the atmospheric conditions with regard to respirable dust to which each miner in the active working of a mine is exposed.

BTU - British Thermal Unit - The quantity of heat required to raise the temperature of one pound of distilled water 1° F. at its point of maximum density.

Back entry - an entry that is back from the working face.

Band - slate or rock interstratified with coal. Also called "slate ban "sulphur band," etc.

Barricaded - to obstruct passage of persons, vehicles, or flying materials.

Barricading - Enclosing part of a mine to prevent inflow of noxious gases from a mine fire or an explosion.

Barrier - something that bars or keeps out. Barrier pillars are solid blocks of coal left between two mines or sections of a mine to prevent accidents due to inrushes of water or gas or to protect heading against crushing.

Beam - a bar or straight girder used to support a span of roof between two support props or walls.

Beam-Building - the creation of a strong inflexible beam by bolting, or otherwise fastening together several weaker layers. In coal mining this is the theoretical effect of roof bolting.

Bearing plate - a plate used to distribute a given load. In roof bolting plate used between the bolt head and the roof.

Bed - a stratum of coal or other sedimentary deposit.

Belt or belt conveyor - an endless belt on which coal or other materials can be carried which is generally constructed of flame resistant material or of reinforced rubber or rubber-like substance.

Belt idler - a roller, usually of cylindrical shape, which is supported on a frame and which, in turn, supports or guides a conveyor belt. Idlers are not powered but turn by reason of contract with the moving belt.

Belt take-up - a belt pulley, generally under a conveyor belt and in by the drive pulley, kept under strong tension parallel to the belt line. Its purpose is to automatically compensate for any slack

in the belting created by start-up, etc.

Bench - one of two or more divisions of coal seam separated by slate or formed by the process of cutting the coal.

Berm - a pile or mound of material capable of restraining a vehicle.

Binder - a streak of impurity in a coal seam.

Bit - this hardened and strengthened device at the end of a drill rod that transmits the energy of breakage to the rock. A bit may be either "detachable" from or "integral" with its supporting drill rod.

Black damp - a term generally applied to carbon dioxide. Strictly speaking, it is a mixture of carbon dioxide and nitrogen. It is also applied to an atmosphere depleted of oxygen, rather than having excess of carbon dioxide.

Blast - a controlled explosion which is used loosen the substance being mined for loading.

Blasting agent - any material consisting of a mixture of a fuel and oxidizer which:

1. is used or intended for use in blasting
2. is not classed as an explosive by the Department of Transportation.
3. contains no ingredient classed as an explosive by the Department of Transportation.
4. cannot be detonated by a No. 8 blasting cap when tested as recommended by the Bureau of Mines Information Circular 8179.

Blasting area - the area near blasting operations in which concussion or flying material can reasonably be expected to cause injury.

Blasting cap - a detonator containing a charge of detonating compound, which is ignited by electric current, or the spark of a fuse. Used for detonating explosives.

Blasting circuit - electric circuits used to fire electric detonators or to ignite an igniter cord by means of an electric starter.

Blasting switch - a switch used to connect a power source to a blasting circuit.

Bleeder or bleeder entries - special air courses developed and maintained as part of mine ventilation system and designed to continuously move air-methane mixtures emitted by the gob away from active workings and into mine-return air courses.

Block - a dimensional delineation of the ore; as "a block of ore" or the reserves are blocked out."

Bolt torque - turning force in foot-pounds applied to a rood bolt to achieve an installed tension.

Borehole - any deep or long drill-hole, usually associated with a diamond drill or an oil well drill.

Borer - a device for making holes. The difference between a borer (used for making tunnels, circular shafts and the like) and a drill is the size of the hole produced. Borers take the large range of plus 3-4 feet. Because of the size involved, a borer is usually much more complex than a drill.

Boss - any member of the managerial ranks who is directly in charge miners (as "shift-boss, face-boss, fire-boss, " etc.). Higher ranking personnel are called foreman, superintendents, managers, and so forth.

"Box-type magazine" - a small, portable magazine used to store limited quantities of explosives or detonators for short periods of time in locations at the mine which are convenient to the blasting sites at which they will be used.

Brattice or brattice cloth - fire resistant fabric or plastic partition in any mine passage used to confine the air and force it into the working place. Also termed "line brattice", line canvas" or "line curtain".

Break line - the line which roughly follows the rear edges of coal pillar that are being mined. The line in which the roof of a coal mine is expected to break.

Breakthrough - a passage for ventilation which is cut through the pillars between rooms.

Bridge carrier - a rubber tire mounted mobile conveyor, about 30 feet long. Used as an intermediate unit to create a system of articulated conveyors between a mining machine and a room or entry conveyor.

Bridge conveyor - a short conveyor hung from the boom of a mining or loading machine, with the other end attached to a receiving bin that dollies along a frame supported by the room or entry conveyor tail-piece. Thus, as the machine boom moves, the bridge conveyor keeps it in constant connection with the tailpiece.

Bruising - digging up the bottom or taking down the top to give more headroom in roadways.

Bug dust - the fine particles of coal or other material resulting from the boring or cutting of the coal face by drill machine.

Bump or Burst - a violent dislocation of the mine workings which is attributed to high stresses in the rock surrounding the working.

Butt cleat - a short, poorly defined vertical cleavage plane in a coal seam, usually at right angles to the long face cleat.

Butt entry - a coal mining term that has different meanings in different locations. It can be synonymous with panel entry, submain entry, or in its older sense it refers to an entry that is "butt" on to the coal cleavage (that is, at right angles to the face).

Cage - in a mine shaft, the device, similar to an elevator car, that is used for hoisting men and materials.

Cannel coal - a massive, non-caking block coal with a fine even grain and a conchoidal fracture which has a high percentage of hydrogen, burns with a long, yellow flame, and is extremely easy to ignite.

Canopy - a protective cab on a mining machine.

Canvas - the term is usually applied to brattice cloth, which is a heavy canvas of cotton, hemp or flax, frequently fireproofed.

Cap - a miner's safety helmet.

Cap - a highly sensitive encapsulated explosive that is used to detonate larger but less sensitive explosives.

Cap block - a flat piece of wood inserted between the top of the prop and the roof to provide bearing support.

Car - a railway wagon, especially any of the wagons adapted to carrying coals ore and waste underground.

Car-dump - the mechanism for unloading a loaded car.

Carbide bit - more correctly cemented tungsten carbide. A cutting or drilling bit for rock or coal, made by fusing an insert of molded tungsten carbide to the cutting edge of a steel bit shank.

Cast - a directed throw; in strip-mining, the overburden is cast from the virgin ore or coal to the previously mined area.

Cave - a collapse of the mine workings.

Certified - a person who has passed an examination to do a required job.

Chain conveyor - a conveyor where the material is moved along solid paps (troughs) by the action of scraper cross bars attached to powered chains.

Chain pillar - the pillar of coal left to protect the gangway or entry and parallel airways.

Check curtain - sheet of brattice cloth lung across an airway to control passage of air current.

Chock - large hydraulic jacks used to support roof on longwall and shortwall mining systems. See *Crib*.

Chute - a structure designed to allow the gravity transfer of bulk sol Often only the structure at the

mouth of a pass or pocket is called a chute.

Clay vein - a body of claylike material that fills a void in a coal bed.

Cleat - the vertical cleavage of coal seems. The main set of joints along which coal breaks when mined.

Coal dust - particles of coal that can pass a No. 20 sieve.

Coal Mine - an area of land and all structures, facilities, machinery, tools, equipment, shafts, slopes, tunnels, excavations, and other property, real or personal, placed upon, under, or above the surface of such land by any person, used in, or to be used in, or resulting from, the work of extracting in such area bituminous coal, lignite, or anthracite from its natural deposits in the earth by any means or method, and the work of preparing the coal so extracted, and includes custom coal preparation facilities.

Collar - The term applied to the timbering or concrete around the mouth or top of a shaft.

Collar - see *Crossbar*.

Colliery - English name for coal mine.

Competent - a person that is capable of performing a given job, but not certified.

Component - (as applied to coal mining equipment) - an integral part of a machine that may be removed from the machine in its entirety.

Continuous miner - a machine that constantly extracts ore (usually, but not always, coal) while it loads it. This is differentiated from a conventional, or cyclic, unit which must stop the extraction process in order for loading to commence.

Continuous mining - any coal mining process that tears the coal from the face mechanically, and loads continuously, thus eliminating the cycles of cutting, drilling, and shooting.

Contour - an imaginary line which connects all points on a surface having the same elevation.

Conventional mining - an older system than continuous mining, using the cyclical operations of cutting, drilling, shooting, and loading.

Conveyor - an apparatus for moving material from one point to another in a continuous fashion. This is accomplished with endless (that is, looped) procession of hooks, buckets, wide rubber belt, etc.

Core - the innermost portion; in this case, the cylindrical rock sample produced by the cutting action of a diamond drill.

Cover - the overburden on any deposit.

Creep - the forcing of pillars into soft bottom by the weight of a strong roof. In surface mining, a very slow movement of slopes downhill.

Crib - a roof support of prop timbers or ties, laid in alternate cross layers, log-sabin style. It may or may not be filled with debris. Also called a chock or cog.

Crop coal - coal at the outcrop of the seam. It is usually considered of inferior quality due to partial oxidation, although this is not always true.

Crossbar - the horizontal member of a roof timber set supported by props located either on roadways or at the face.

Crosscut - a passageway driven between the entry and its parallel air course or air courses for ventilation purposes. Also, a tunnel driven from one seam to another through or across the intervening measures; sometimes called Crosscut Tunnel. In vein mining an entry perpendicular to the vein.

Cross entry - an entry running at an angle with the main entry.

Cut - in coal mining, to mechanically slice a coal seam.

Cutter - a machine, usually used in coal, that will cut a 3 to 4-inch slot. The slot provides room toward which the coal can be broken from the seam. Also applies to the men who operate the machines, and to those men engaged in the cutting of coal by pick or drill.

Cutter bar - that portion of a coal cutter which provides the track for the cutter chain.

Cycle mining - a system of mining in more than one working place where a miner takes a lift from the face and moves to another face while permanent roof support is established in the provisions working face.

Detectors - specialized chemical or electronic instruments used to determine gases.

Detonator - a device containing a small detonating charge that is used for detonating an explosive, including, but not limited to blasting caps, exploiters, electric detonators, and delay electric blasting caps.

Development - the work one on a mine after exploration to provide access to the ore and to provide haulageways for the exploitation period.
Diamond drill - a rotary drill used for long holes and exploratory work that is typified by industrial diamonds set into the bit to give it hardness. The bit is a hollow cylinder so that as it cuts it leaves a cylindrical core or sample behind.

Diffusion - blending of a gas and air resulting in a homogeneous mixture. Because of two or more

gases.

Diffuser fan - fan mounted on continuous miner to assist and direct air delivery from machine to the face.

Dip - the inclination of a geologic structure (bed, vein, fault, etc.) from the horizontal; dip is always measured downwards at right angles to the strike. The complement of dip is called hade in older mining literature.

Disabling injury - any work injury which does not result in death but which either results in any permanent impairment to the injured person or causes the injured person to lose one full day or more from work after the day of injury.

Draw slate - a soft slate, shale, or rock from 2 to 24 inches thick located immediately above certain coal scams, which falls quite easily when-the coal support is withdrawn.

Dilute - to lower concentration of a mixture; in this case, concentration of any hazardous gas in mine air by addition of fresh intake air.

Drift (coal) - entry above water level and generally on the slope of a hill driven horizontally into the coal seam.

Drifter - a durable and heavy rotary - percussion drill used to create the many holes necessary for a good drift round.

Drill - a machine utilizing rotation, percussion (hammering) or a combination of both to make holes. If the hole is much over 1-2 feet in diameter, the machine is called a borer.

Drilling - the using of such a machine to create holes for exploration or for loading with explosives.

Down-cast - refers to a ventilation shaft where the flow of air is downwards, into the mine.

Dummy - a paper bag filled with sand, clay, etc., used for stemming a charged hole.

Dump - to unload, specifically a load of ore coal or waste; the mechanism for unloading, as a car dump (sometimes called triple); or the pile created by such unloading, as a waste dump (also called heap, pile, tip, etc.).

Electrical grounding - to connect with the ground to made the earth part of circuit.

Entry - an underground passage used for haulage, ventilation, or as a manway; a coal heading; a working place where the coal is extracted from the seam in the initial mining.

Entry stumps - pillars of coal left at the mouths of rooms to support the road, entry, or gangway until the entry pillars are drawn.

Exploitation - this is the process of economic recovery or removal of the developed mineral body.

Exploration - the search for mineral deposits and the work done or establishing the extent of a mineral deposit.

Explosive - any rapidly combustive or expanding substance. The energy released during this rapid combustion or expansion can be used to break coal or shale.

Face - the principle operating place in a mine. The working place where fresh ore or coal is exposed and being extracted. A mine may have many operating faces.

Face cleat - the principle cleavage plane or joint, at right angles to stratification of the coal seam.

Face conveyor - any conveyor used parallel to a working face which delivers cost into another conveyor or into a car.

Fall - a mass of roof rock or coal from the side which has fallen in a part of a mine.

Fan booster - a large fan installed in the main air current, and thus in tandem with the main fan. Generally forbidden in coal mines.

Fan drift - a short tunnel or passage leading from the top of the air shaft to the fan.

Fan signal - automation device designed to give alarm if main fan slows down or stops.

Fatal injury - any work injury resulting in death regardless of the time intervening between injury and death.

Fault - slip-surface between two portions of the earth's surface that have moved relative to each other. A fault is a failure surface and is evident of high earth stresses.

Feeder - a machine that feeds coal onto a conveyor belt evenly.

Fill - any material that is out back in place of the extracted ore to provide ground support.

Firedamp - the combustible gas, methane, CH. Also, the explosive methane air mixtures with between **5** and **15** percent methane.

First Aid - emergency care of a person who is ill or injured to prevent death, further injury or relieve pain and counteract shock until medical aid is obtained.

Fish plates - the metal bars used to join rails of a track where they meet to form a joint. Also called splice bars.

Fissure - an extensive crack, break, or fracture in the rocks.

Fixed carbon - that part of the carbon which remains behind when coal is heated in a closed vessel until all of the volatile matter is driven off.

Flame resistant - any material that resists combustion.

Flash point - the Minimum temperature at which sufficient vapor is released by a liquid or solid to form a flammable vapor-air mixture at atmospheric pressure.

Flight - the metal strap or cross bar attached to the drag chain of a chain-and-flight conveyor.

Float dust - fine coal-dust particles carried in suspension by air currents and eventually deposited in return entries. Coal dust consisting of particles of coal that can pass through a No. 200 sieve.

Floor - any material that is put back in place of the extracted ore to provide ground support.

Floor section - [also, tail section] a term used in both belt and chain conveyor work to designate that portion of the conveyor at the extreme opposite end from the delivery point. In either type of conveyor it consists of a frame and either a sprocket or a drum on which the chain or belt travel, plus such other devices as may be required for adjusting belt or chain tension.

Fossil - remains, impression, or trace of an animal or plant of past geologic ages preserved in the earth's crust.

Fuse - a cord-like substance used in the ignition of explosives. Black powder is entrained in the cord and when lit burns along the cord at a set rate. A fuse can be used safely to ignite a cap, which is the primer for an explosive.

Gate - an English coal mining term for entry.

Gathering conveyor - any conveyor which is used to gather coal from other conveyors and deliver it either into mine cars or onto another conveyor. The term is frequently or onto another conveyor. The term is frequently used with belt conveyors placed in entries where a number of room conveyors deliver coal onto the belt.

Gob - the term applied to that part of the mine from which the coal has been removed and the space more or less filled up with waste. Also, the loose waste in mine. Also called gaof.

Guard boards - Boards placed alongside and extending below trolley and other power wires which are not more than 6 ½ feet above the rail at crossings where men and animals must pass under, to protect them from contact with the power wires.

Guard rails - an additional rail placed beside the track rail in service to compel the flange of the wheels to run close to the latter in crossing over from points or entering switches.

Guide idler - see *Belt Idler*.

Gunite - a cement applied by spraying to the roof and sides of a mine passage.

Hade - See *Dip*.

Haulage - the horizontal transport of ore, coal, supplies and waste. The vertical transport of the same is called hoisting.

Haulageway - any underground entry or passageway that is designed for this transport, usually by the installation of track or a belt conveyor.

Head - the pressure in fact of water column. Also, that part of the fact nearest the roof.

Headframe - the structure surmounting the shaft which supports the hoist rope pulley, and often the hoist itself.

Head section - a term used in both belt and chain conveyor work to designate that portion of the conveyor used for discharging the coal.

Heaving - applied to the rising of the bottom after removal of the coal.

Hogback - a sharp rise in the floor a seam.

Horseback - a mass of material with a slippery surface in the roof; shaped like horse's back.

Hoist - the mechanism for reeling in the hoist rope; the hoisting prime mover; called winder in English.

Hydraulic - of or pertaining to fluids in motion. Hydraulic cement has composition which permits it to set quickly under water. Hydraulic jacks lift through the force transmitted to the movable part of the jack by liquid. Hydraulic control refers to the mechanical control of various parts of machines, such as coal cutters, loaders, etc. through the operation or action of hydraulic cylinders.

Hydrocarbon - a chemical compound containing only hydrogen and carbon.

Inby - in the direction of the working face.

Incline - any entry to a mine that is not vertical (shaft) or horizontal (adit). Often incline is reserved for those entries that are too steep for a belt conveyor (+ 17 - 18), in which case a hoist and guide rails are employed. A belt-conveyor incline in termed a slope.

Intake - the passage through which fresh air is drawn or forced into a mine or to a section of a mine.

Intermediate section - a term used in belt and chain conveyor work to designate a section of the conveyor frame occupying a position between the head and foot sections.

Jackleg - a percussion drill used for drifting or stopping that is mounted on a telescopic leg which

has an extension of about 8 feet. The leg and machine are hinged so that the drill need not be in the same direction as the leg.

Job Safety Analysis - a job breakdown that gives a safe, efficient job procedure.

Jumbo - a drill carriage on which several drills of drifter type are mounted.

Kettle bottom - a smooth, rounded piece of rock, cylindrical in shape, which may drop out of a roof of a mine without warning. The origin of this feature is thought to be the remains of the stump of a tree which has been replaced by sediments so that the original form has been rather preserved.

Kerf - the undercut of a coal face.

Lagging - boards, 2-3 " thick and 8-12 1, wide, originally used to lag-in, or enclose, a timber set.

Lamp - the electric cap lamp worn for visibility.

Lamp - the flame safety lamp used in coal mines to detect methane gas concentrations and oxygen deficiencies.

Lease - an agreement between the owner of mineralized land and a mining operator allowing the operator to remove the ore for a rental consideration called a royalty.

Lift - the amount of coal obtained in one mining cycle from a continuous miner.

Lignite - a brownish-black coal in which the vegetal material has been altered more than in the case of peat but not as much as in sub-bituminous coal.

Load - the act of placing explosives in a drill hole.

Load - the act of transferring broken material into a haulage device.

Loading machine - any device for transferring broken or blasted, ore or coal rock into the haulage equipment.

Longwall - a system of mining coal in which all of the coal is removed except the shaft pillars and sometimes the main-road pillars; characterized by its breadth (300-10001) and by its continuous nature.

Loose coal - coal fragments larger in size than coal dust.

Low voltage - up to and including 660 volts (Federal).

MESA - Mining Enforcement Safety Administration.

MRE instrument - the gravimetric dust sampler with four channel horizontal elutriator developed

by the Mining Research Establishment of the National Coal Board, London, England.

Main entry - a main haulage road. Where the coal has cleats, main entries are driven a right angles to the face cleats.

Main fan - mechanical ventilator installed at surface; operated either exhausting or blowing to induce airflow through mine roadways and workings.

Manhole - a refuge hole constructed in the side of a gangway, tunnel, or slope; five feet or more deep, not more than four feet wide, and six feet high or the height of the seam.

Manifold system - auxiliary ventilating system by which all faces are ventilated simultaneously with one auxiliary fan installation.

Mantrip - transportation of men, by rail or rubber tire, to and from work area.

Manway - an entry used exclusively for men to travel from the shaft bottom or drift mouth to the working section; it is always on the intake air in gassy mines. Also, a small passage at one side or both sides of a breast, used as a traveling way for the miner, and sometimes as an airway, or chute, or both.

Methane (CH_4) - the most common explosive gas found in coal mines; it is tasteless, colorless, odorless, and nontoxic. Methane mixtures are called "firedamp."

Methane monitor - an electronic detector mounted or a piece of mining equipment that detects and monitors methane.

Mine - an economically viable plant for the extraction of minerals from the earth. A mine includes all the equipment, structures, and buildings involved in this process.

Mine roof - the layer of hardened clay, limestone, sandstone, or other material that lies over the coal bed; rock or other material above the coal seam.

Mine run - the unscreened coal, just as it is mined, less dirt and slate.

Mine ventilation - the provision of a directed flow of fresh and return air along all underground roadways, traveling roads, workings, and service parts.

Miner - any individual working in a mine.

Mining - any extractive process for the economic removal of minerals from the earth. Mining is a materials handling industry with the special function of transporting minerals from their natural place to a treatment plant.

Misfire - the complete or partial failure of a blasting charge to explode as planned.

Mud cap - a charge of high explosive fired in contact with the surface of a rock after being covered with a quantity of wet mud, wet earth, or sand, without any borehole being used. Also termed adobe, dobie, and sandblast (illegal in coal mining).

Natural ventilation - ventilation of a mine without the aid of fans or furnaces, the heat being imparted to the air by the strata, men, animals, etc., causing it to flow in one direction, or to ascent.

Nips - the devices at the end of the trailing cable to a mining machine used for connection the trailing cable to the trolley wire and ground.

Occupational illness - means any abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to environmental factors associated with employment. It includes acute and chronic illnesses or diseases which may be caused by inhalation, absorption, ingestion, or direct contact.

Open end pillar - a method of mining pillars in which no stump is left; the pockets driven are open on the gob side and the roof is supported by timber.

Outby - nearer to the shaft, and hence farther from the working face. Toward the mine entrance. The opposite of inby.

Outcrop - the part of a stratum which comes to the surface. It may be visible or may be covered with a thin layer or earth.

Overburden - the material of any nature, consolidated or unconsolidated, that overlies a deposit.

Overcast - (Undercast) - enclosed airway which permits one air current to pass over (under) another without interruption.

Panel - a coal-mining block that generally comprises one operating unit.

Panel entry - the last branch of the haulage or entry system in a coal mine.

Panic bar - a switch, in the shape of a bar, used to cut power off at machine in case of an emergency.

Parting
1. a small joint in coal or rock dust.
2. a layer of rock in a coal seam.
3. a side track or turnout in a haulage road.

Peat - a dark-brown or black deposit resulting from the partial decomposition of vegetable matter in marshes and swamps. It is the first step in the formation of coal.

Percussion drill - a drill, usually air powered, that delivers its energy through a pounding or hammering action.

Permissible - that which is allowable or permitted. It is most widely applied to mine equipment and explosives of all kinds which are similar in all respects to samples that, have passed certain tests of the USB, and can be used with safety in accordance with specified conditions where hazards from explosive gas or coal dust exist.

Piggy-back - a bridge conveyor.

Pillar - an area of coal or ore left to support the overlying strata in a mine; sometimes left permanently to support surface works.

Pillar robbing - the systematic removal of the coal pillars between rooms or chambers to regulate the subsidence of the roof. Also termed bridging back the pillar, drawing the pillar, or pulling the pillar.

Pinch - a compression of the walls of a vein or the roof and floor of a coal seam so as to pinch out the coal.

Pinning - roof bolting.

Pitch - the inclination of a seam; the rise of a seam.

Pneumoconiosis - a chronic dust disease of the lung arising from breathing coal dust.

Portal - the structure surrounding the immediate entrance to a mine; the mouth of an audit or tunnel.

Portal bus - track mounted self-propelled personal carrier that carries 8-12 people.

Post - the vertical number of a timber set.

Pot - a rounded mass of roof slate resembling an iron pot. It is separated from the other slate by mud cracks and is liable to fall without warning.

Preparation plant - a place where coal is cleaned, sized, and prepared for market.

Primary roof - the main roof above the immediate top; thickness may vary from a few to several thousand feet.

Primer (booster) - a package or cartridge of explosive which is designated specifically to transmit detonation to other explosives and which does not contain a detonator.

Prop - coal mining term for any single post used as roof support. Props may be timber of steel, if steel, screwed, yieldable, or hydraulic.

Proximate analysis - a physical, or non-chemical test of the constitution of coal. Not precise, but very useful for determining the commercial value. Using the same sample (1 gram) under controlled heating at fixed temperatures and time periods, moisture, volatile matter, fixed carbon and ash content are successively determined. Sulphur and B.T.U. content are also generally reported

with a proximate analysis.

Pyrite - a hard, heavy, shiny, yellow mineral FES2 or iron disulfide, generally in cubic crystals. Also called iron pyrites, fool's gold, sulphur balls. May be applied also to cooper pyrites, tin pyrites, etc., but iron pyrites is the most common sulphide found in coal mines.

Red dog - a non-volatile combustion product of the oxidation of coal or coal refuse. Most commonly applied to material resulting from in situ, uncontrolled burning of coal or coal refuse piles. It is similar to coal ash.

Regulator - device (wall, door) used to control the volume or less in size.

Resin bolting - the newest method of permanent roof support, where steel rods are grouted with resin.

Respirable dust sample - a sample collected with an approved coal mine dust sampler unit attached to a miner, carried by him or so positioned as to measure the concentration of respirable dust to which he is exposed, and operated continuously over an entire work shift of such miner.

Retreat - exploitation in the director opposite of development. Usually relative to the location of the main entry or shaft.

Retreating system - a system or robbing pillars in which the robbing line, or line through the faces of the pillars being extracted, retreats from the boundary toward the shaft or mine mouth.

Return - the air course along which the ventilated air of the mine is returned or conducted to the upcast shaft. The terms return airway and return air course are synonymous with return.

Return air - the air or ventilation that has passed through all the working faces of a split.

Return idler - the idler or roller underneath the cover or cover plates on which the conveyor belt rides after the load which it was carrying has been dumped at the head section and it starts the return trip toward the foot section.

Rib - the side of a pillar or the wall of an entry. The solid coal on the side of any underground passage.

Rider - a thin seam of coal overlying a thicker one. Also, a person who rides with the trains of cars; crop rider, trip rider, swamper, etc.

Ripper - a coal, or other soft ore, extraction machine that works by tearing the coal from the face.

Roadway - an English coal mining term for entry.

Rob - to extract pillars of coal previously left for support.

Robbed out - that part of a mine from which the pillars have been removed.

Rock - definite combination of certain, usually non-economic, minerals.

Rockbolt or roofbolt - a long self-locking, steel bolt or a grouted wood or plastic rod that is used to pin less competent rock to more firm rock, thus providing for better ground support.

Roll - 1. a high place in the bottom or a low place in the too of a mine passage.
2. a local thickening of roof or floor strata, causing thinning of a coal seam.

Roll Direction - a framework, safety canopy, or similar protection for operator when equipment overturns.

Roof - the stratum overlying a cool seam; the overhead surface of a coal working place.

Roof bolt or Rock bolt - a long steel bolt inserted in a drilled hole used to support mine roof; the unit consists of the bolt, steel bearing plate, and expansion shell.

Roof fall - a coal mine cave; especially in permanent areas such as entries.

Roof jack - a screw- or pump-type hydraulic extension post made of steel used as temporary support.

Roof plank - straight, solid wooden material having a minimum cross-section of eight square inches and minimum thickness of one inch. Used in conjunction with roof bolts for additional bearing surface in supporting the roof.
Roof sag - the sinking, bending, or curving especially in the middle, from weight or pressure.

Roof stress - unbalanced internal forces in the roof or sides created when coal is extracted.

Roof trusses - a combination of steel rods anchored into the roof to create zones of compression and tension forces and provide better support of weak roof and roof under wide areas.

Room - an exploitation area in certain types of coal mines; rooms are separated by pillars; a set of room pillars from a panel.

Room and pillar - a system of mining in Which approximately half of the coal is mined advancing by driving side rooms off entries and leaving narrow pillars between. The pillar coal is removed by several robbing practices.

Room neck - the short passage from the entry to the room in which the miner works.

Rotary drill - a drill whose prime motion is rotation rather than percussion.

Rubbing surface - the total area (top, bottom, and sides) or an airway.

Safety - a term only an individual can accomplish himself.

Safety can - an approved container, of not over 5 gallons capacity, having a spring-closing lid and spout cover.

Safety fuse - a train of powder enclosed in cotton, jute yearn, or water-proofing compounds, which burns at a uniform rate; used for firing a cap containing the detonating compound which in turn sets off the explosive charge.

Safety lamp - a lamp with steel wire gauze converting every opening from the inside to the outside so as to prevent the passage of flame should explosive gas be encountered.

Safety switch - a sectionalizing that also provides shunt protection in blasting circuits between the blasting switch and the shot area.

Sandstone - a sedimentary rock consisting of quartz sand united by some cement (by material such as iron oxide or calcium carbonate).

Scoop - a rubber tire, battery or diesel operated piece of equipment designed for cleaning runways and hauling supplies.

Seam - a stratum or bed or coal.

Secondary roof - the roof strata immediately above the coal bed, requiring support during the excavating of coal.

Self-contained Breathing Apparatus - a self-contained supply of oxygen used during rescue work of coal mine fires and explosions.

Self-rescuer - a small respirator that protects a miner against carbon monoxide.

Shaft - vertical opening through coal mine strata used for ventilation or drainage and/or for hoisting of men or materials.

Shale - a rock formed by consolidation of clay, mud, or silt; has a laminated structure; composed of minerals essentially unaltered since deposition.

Shearer - a mining machine for longwall faces that uses a rotating action to “shear” the material from the face as it progresses along the face.

Shearing - the act of cutting a vertical groove in the coal face.

Shortwall - a system in mining, similar to long-wall, with a much shorter face, generally using a continuous miner.

Shuttle-car - a trackless, one unit, self-powered haulage device used on short runs in bedded deposits to transfer broken material from the loading machine to the end of the conveyor.

Skid - used to hold trips or cars from running out of control. Also a flat bottom personnel or

equipment carrier used in low coal.

Skip - a mine car. Also, a car hoisting out of a slope. Also, a thin slice taken off a room pillar along its length.

Slack - small coal; the finest sized soft coal, usually less than one inch in size.

Slate - a miner's term for any shale or slate accompanying coal. Geologically, it is a dense, fine textured, metamorphic rock, which has excellent paralleled cleavage so that it breaks into thin plates or pencil-like shapes.

Slate bar - the proper long handle tool used to pry down loose and hazardous material from roof, face, and ribs.

Slickenside - a smooth striated polished surface produced on rock by friction.

Slip - a fault. A smooth joint or crack where the strata have moved upon each other.

Slope - an inclined tunnel leading to a seam.

Sloughing - the slow crumbling and falling away of material from roof, rib, and faces.

Slush - to fill mine workings with sand, culm, etc., by hydraulic methods.

Solid - mineral that has not been undermined, sheared out, or otherwise prepared for blasting.

Solid workings - workings driven in the solid coal.

Sounding - knocking on a roof to see whether it is sound or safe to work under.

Split - air split, any division or branch of the ventilating current. Also, the workings ventilated by one branch. Also, to divide a pillar by driving through it one or more roads.

Squeeze - the settling, without breaking, of the roof and the gradual upheaval of the floor of a mine due to the weight of the overlying strata.

Stemming - the noncombustible material used on top or in front of a charge or explosive.

Stopping - any wall that is built to deflect or impede the flow of ventilating air.

Stopper - a percussion drill, rigidly fixed to a telescoping leg that is used usually for drilling overhead holes.

Strata - plural of stratum.

Stratum - sheetlike layer of sedimentary rock.

Strike - the direction of the line of intersection of a bed or vein with the horizontal plane. The strike of a bed is the direction of a straight line which connects two points of equal elevation on the bed.

Stump - any small pillar.

Subbituminous - black lignite, lignitic coal.

Subsidence (subside to fall away) - In mining, the deformation of the ground mass grounding a mine due to the mining activity.

Sump - the bottom of a shaft, or any other place in a mine, that is used as a collecting point for drainage water.

Sumping - to force the cutter bar of a machine into or under the coal. Also, called a sumping cut, or sumping in.

Support - the all-important function of keeping the mine working open. As a verb, it refers to this function; as a noun it refers to all the equipment and materials--timber, rockbolts, concrete, steel, etc.--that affect this function.

Surface coal mine - a surface area of land and all structures, facilities, machinery, tools, equipment, excavations, and other property placed upon or above the surface of the land to be used in the work of extracting bituminous coal, lignite, or anthracite from its natural deposits in the earth by any means or methods and the work of preparing the coal so extracted, and includes custom coal preparation facilities.

Suspension - the act of hanging. Weaker strata from stronger overlying strata by means of roof bolts.

Syncline - a fold in rock in which the strata dip inward from both sides toward the axis. The opposite of anticline.

Tail piece - also known as foot section pulley. The pulley or roller in the tail or foot section of a belt conveyor around which the belt runs.

Tension - the act of stretching.

Through-steel - a system of dust-collection for rock or roof drilling. The drill-steel is hollow and vacuum is applied at the base, pulling the dust through the steel and into a receptacle on the machine.

Timber - a collecting term for all underground wooden supports.

Timbering plane - a systematic plan used for roof support in a mine.

Torque wrench - a wrench that indicates, as a dial. The amount of torque exerted in tightening a bolt.

Torque meter - a device for measuring the actual torque transmitted to the drilling head and/or to the

inserted roof bolt.

Torsion - a twisting stress of strain. The exertion of a lateral force tending to turn one end of a body about its longitudinal axis while the other end is held fast.

Tractor - a battery operated piece of equipment that pulls trailers of skids or mantrips. Used also for supplies.

Tram - used in connection with moving self-propelled mining equipment. A tramming motor may refer-to an electric locomotive used for hauling loaded trips or it may refer to the motor in a cutting machine which supplies the power for moving or tramming the machine.
Trip - a train of mine cars.

Troughing idlers - the idlers, located on the upper framework of a belt conveyor which supports the loaded belt. They are so mounted that the loaded belt forms a trough in the direction of travel, which reduces spillage and increases the carrying capacity of a belt for a given width.

Tunnel - a horizontal, or nearly so, underground passage, entry, or haulageway, that is open to the surface at both ends. A tunnel must pass completely through a hill or mountain (as opposed to an adit).

Ultimate analysis - precise determination, by chemical means, of the elements and compounds in coal.

Undercast - an air course carried under another air course or roadway.

Undercut - to cut below or undermine the coal face by chipping away the coal by pick or mining machine. In some localities the terms undermine or underhole are used.

Universal coal cutter - a type of coal cutting machine which is designed to make horizontal cuts in a coal face at any point from the bottom or top or to make shearing cuts at any point between the two ribs of the place. The cutter bar can be twisted to make cuts at any angle to the horizontal or vertical.

Up cast - a shaft where the flow of ventilating air is upwards or “in exhaust.”

Velocity - rate of airflow in lineal feet per minute.

Ventilation - the mechanism and processes of maintaining a safe and efficient mine atmosphere. This is, air that is relatively free from explosive and toxic pollutants and that is at a temperature at which labor can be efficiently performed.

Volatile matter - the gaseous part, mostly hydrocarbons, of coal.

Waste - that rock or mineral which must be removed from a mine to keep the mining scheme practical, but which has no value.

Water gage (standard U-tube) - instrument that measures differential pressures in inches of water.

Wedge - a piece of wood tapering to a thin edge used for tightening in conventional timbering.

Working face - any place in a mine where material is extracted from its natural deposit during mining cycle.

Working place - from the outby side of the last open crosscut to the face.

Working section - from the faces to the point where coal is loaded on belts or rail cars to begin its trip.

Yieldable - refers to the design of ground support which allows the support to deflect but not collapse under shifting ground.