

Mining Definitions and Terms

Adit - A horizontal or nearly horizontal passage driven from the surface for the working or dewatering of a mine. If driven through the hill or mountain to the surface on the opposite side it would be a tunnel.

Apex - The top of terminal edge of the vein on the surface or its nearest point to the surface (blind apex). The apex is the point from which the vein has a dip and strike, else no extra lateral rights could be conferred by the apex.

Anticline - A region of folded strata which forms a local elevated crest (see Figure 2).

Assay - The analysis of rock to determine metal content.

Bedded Deposit - An ore deposit of tabular form that lies horizontally or only slightly inclined to the horizontal, and is commonly parallel to the stratification of the enclosing rocks.

Conformable Beds - The simplest form of rock strata in which each stratum (layer) is superimposed on another.

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

Costean - A trench or series of small pits through the surface soil or debris to the underlying rock in places for the purpose of exposing the outcrop of a mineral deposit and determining its course (see Figure 1).

Country Rock - The rock in which the ore deposit is enclosed. It is the general mass of adjacent rock as distinguished from that of a vein, or lode.

Crosscut - A horizontal opening driven across the course of a vein or in general across the direction of the main workings. A connection from a shaft to a vein (see Figure 1).

Cut Off Grade - The lowest value of metallic content that can be economically mined. Is used to determine the physical boundary of the orebody (see Figure 3).

Development - The work of driving openings to and in a proven orebody to prepare it for mining, and transporting the ore.

Dip - The angle at which a bed, stratum or vein is inclined from the horizontal (see Figure 1).

Disseminated ore - Ore in which small specks of pure ore are surrounded by large masses of rock.

Drift - A horizontal opening in or near an ore body and parallel to the course of the vein or long dimension of the ore body.

Epigenetic Deposits - Deposits formed after the enclosing rock, often by a solution penetrating into rocks and depositing minerals.

Exploitation - The work of mining and marketing ore.

Exploration - The work involved in gaining knowledge of the size, shape, position and value of an ore body.

Fault - A discontinuity between two portions of the earth's surface that have moved relative to each other. A fault is a failure surface and is evidence of severe earth stresses (see Figures 1,2).

Float - Composed of loose pieces of ore or particles of metal and is produced by the weathering of an outcrop.

Foot Wall - The wall or rock under a vein. It is called the floor in bedded deposits (see Figure 1).

Gossan - The ferruginous deposit filling the upper part of some mineral veins or forming a superficial cover over masses of pyrite. It consists mainly of hydrated iron oxides and results from removal of the sulphur as well as the copper or other sulphides originally present. (see Figure 3)

Gangue - The worthless minerals that are associated with the valuable minerals in an ore. much of this gangue as possible is removed by the processes of concentrating and smelting.

Hanging Wall - The wall or rock on the upper side of an inclined vein. It is called the roof in bedded deposits (see Figure 1).

Igneous Intrusive Rocks - Orebodies formed by deposits from mineral-rich solutions that permeate fractured host rock.

Lateritic Deposits - Deposits formed by the leaching away of soluble minerals, leaving behind a laterite, such as nickel or bauxite.

Level - Mines are customarily worked from shafts through horizontal passages or drifts called levels. These are commonly spaced at regular intervals in depth and are either numbered from the surface in regular order or designated by their actual elevation below the top of a shaft (see Figure 1).

Massive Ore - Ore which is in relatively pure form (see Figure 1).

Masses - Large ore bodies of irregular shape, the long axis of which may extend in any direction.

Mining - The process of obtaining useful minerals from the earth's crust and includes both underground and surface excavations.

Ore - A mineral deposit that can be worked at a profit under the existing economic conditions.

Orogenic Movements - Large movements of the Earth's crust that are associated with mountain building. Sometimes cause eruption or intrusion of igneous rock with subsequent mineralization.

Outcrop - Commonly considered as the surface exposure of a mineral deposit. However, the uppermost part of a mineral deposit may be covered with soil or overburden and thus the outcrop may be hidden (see Figure 1).

Placer (Alluvial) Deposits - Deposits formed when syngenetic deposits are brought to the surface, broken into stable particles and transported varying distances.

Powder factor - The quantity (mass) of explosive required to break one cubic meter of rock to the required fragmentation.

Prospect - A mineral property the value of which has not been proved by exploration.

Prospecting - Searching for ore.

Raise - A vertical or inclined opening driven upward from a level to connect with the level above, or to explore the ground for a limited distance above one level. After two levels are connected, the connection may be called a winze or a raise, depending upon which level is taken as the point of reference (see Figure 1).

Saddle Reefs - Typical orebody form which is caused by igneous intrusive rocks permeating fractures in an anticline (see Figure 2).

Shaft - A vertical or inclined excavation in a mine extending downwards from the surface or from some interior point as a principal opening through which the mine

is exploited. A shaft is provided with a hoisting engine at the top for handling men, rock and supplies, or it may be used only in connection with pumping or ventilation operations (see Figure 1).

Shoot - The valuable minerals are commonly concentrated in certain portions of a vein that have one dimension much longer than the others. This shoot or "chimney" of ore is usually highly inclined to the horizontal.

Stope - An excavation from which ore has been extracted. The term stoping is commonly applied to the extraction of ore, but does not include the ore removed in sinking shafts and in driving levels, drifts and other development openings.

Strike - The horizontal course or bearing of an inclined, bed, stratum or vein; the direction of a horizontal line in the plane of an inclined bed, stratum or vein.

Sump - An excavation made underground to collect water, from which water is pumped to the surface or to another sump nearer the surface. Sumps are placed at the bottom of a shaft, near the shaft on a level or at some interior point (see Figure 1).

Supergene Enrichment - Deposition of minerals leached away from an outcrop. Causes a region of high metal content at shallow depth below the surface (see Figure 3).

Syncline - A region of folded strata that forms a local depression (see Figure 2).

Syngenetic Deposits - Deposits formed contemporaneously with their parent rock and enclosed by it.

Tunnel - A horizontal or nearly horizontal underground passage that is open to the atmosphere at both ends. The term is loosely applied in many cases to an adit (see Figure 1).

Unconformity - A substantial break or gap in the geologic record where a rock unit is overlain by another that is not next in stratigraphic succession. Often is caused by shorelines (see Figure 2)

Vein - A mineralized zone having a more or less regular development in length, width and depth to give it a tabular form and commonly inclined at a considerable angle to the horizontal. The term lode is commonly used synonymously for vein (see Figure 1).

Waste - The barren rock in a mine. It is also applied to the part of the ore deposit that is too low in grade to be of economic value at the time, but this material may be stored separately in the hope that it can be profitably treated later.

Winze - A vertical or inclined opening sunk from a point inside a mine for the purpose of connecting with a lower level or of exploring the ground for a limited depth below a level (see Figure 1).

Mining Definitions and Terms - Figure 1

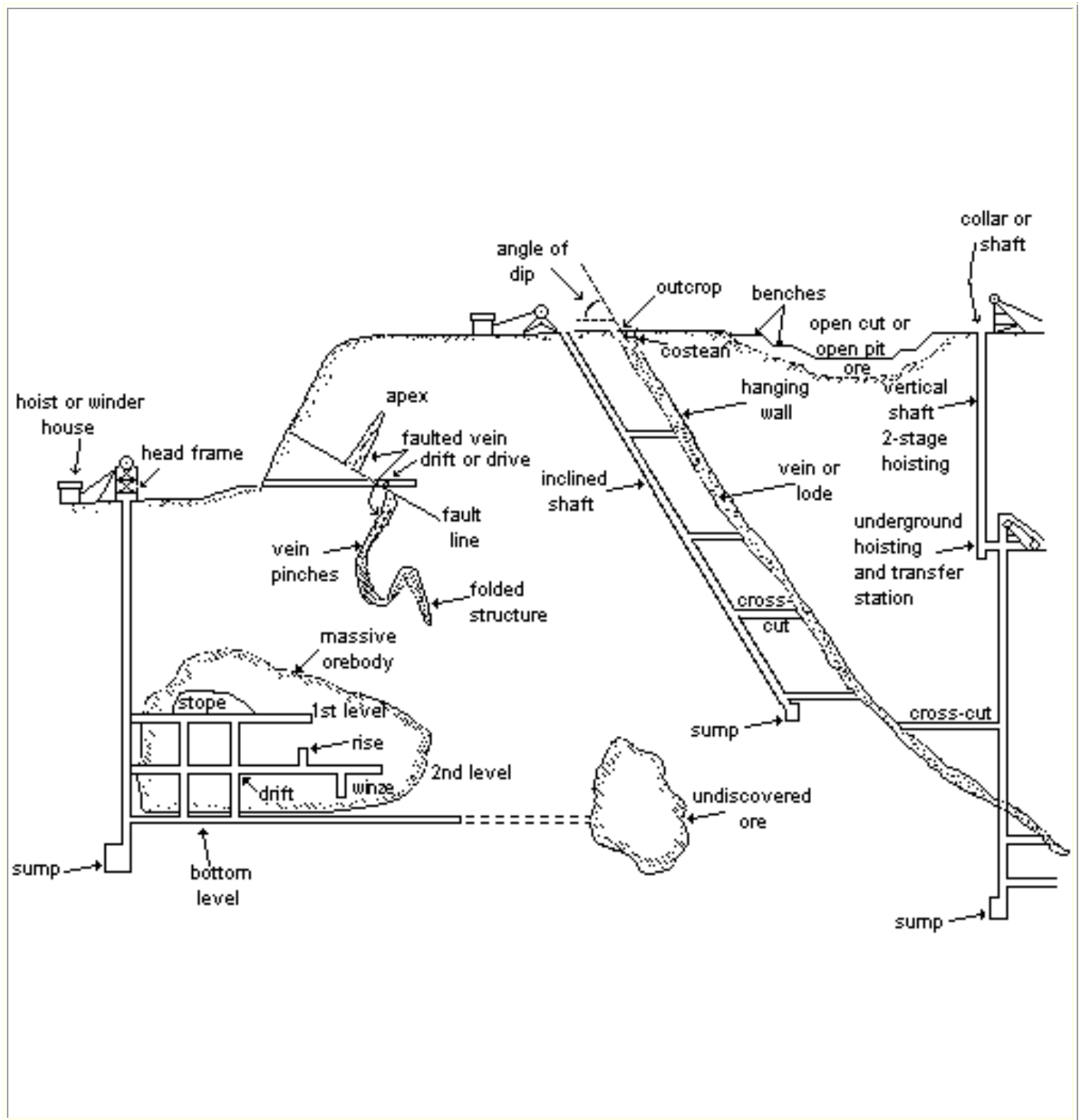


Figure 1: Composite sketch to illustrate mining terms.

Mining Definitions and Terms - Figure 2

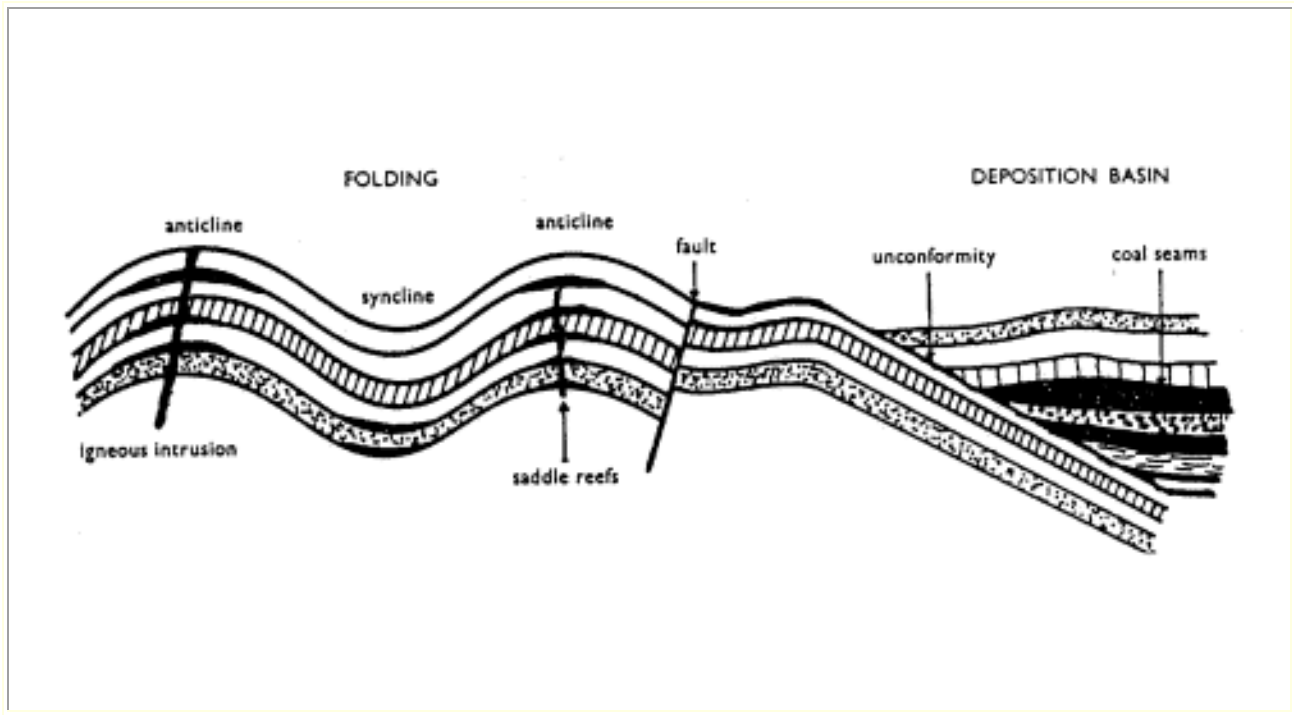


Figure 2 - Geological terms for strata

Mining Definitions and Terms - Figure 3

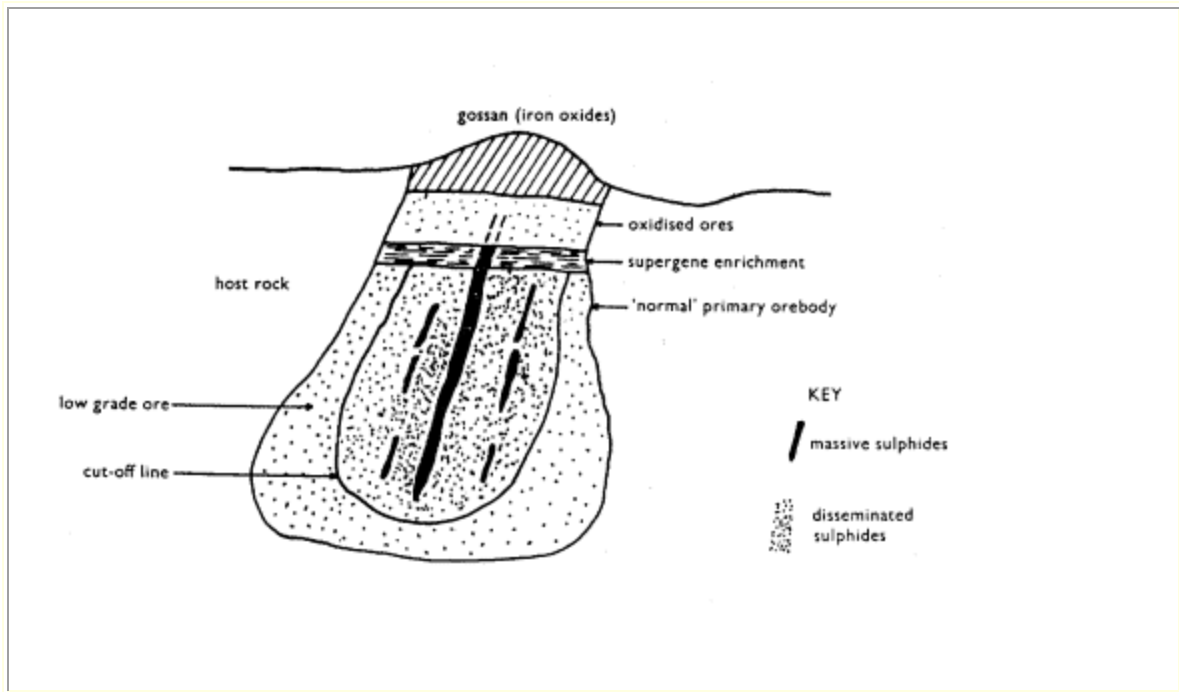


Figure 3 - Geological terms for an orebody