COPPER CANYON MINE

Location and Access. The Copper Canyon mine is in the Battle Mountain mining district along the east side of Copper Canyon in the southern part of the Battle Mountain Range in Sec. 27, T. 31 N., R. 44 E. (see U. S. Geological Survey, Antler Peak topographic quadrangle map), in northern Lander County 12 miles (18 road-miles) southwest of the town of Battle Mountain.

History and Production. The Copper Canyon mine has been the most productive mine in the Battle Mountain district. Claims were located in Copper Canyon as early as 1866. Before 1948, copper and gold were produced. After 1947, important amounts of lead, zinc, and silver also were produced. In 1949, production was 1,213 ounces of gold, 194,077 ounces of silver, 126,197 pounds of copper, 2,808,900 pounds of lead, and 1,343,650 pounds of zinc.

Development. The mine consists of two shafts and workings on four levels, the deepest level being 700 feet. A glory hole 400 feet long and over 200 feet wide extends down to the 300-foot level.

Previous Work. Roberts (1951) contains a brief description and geologic map of the quadrangle in which the mine is located and includes a description of the geology at the mine.

The Rocks. The mine is principally in the Pennsylvanian Battle formation which in the mine area consists of a lower conglomerate, middle hornfels, and an upper dense unit of quartzite and conglomerate. The formation dips steeply westward on the upper levels, but is vertical or overturned on the lower levels.

Just west of the mine, chert and argillite of the Pennsylvanian (?) Pumpernickel formation is faulted against the Battle formation. On the east, conglomerate, sandstone, shale, and limestone of the Mississippian (?) Harmony formation unconformably underlies the Battle formation, their contact usually being a fault.

A body of quartz monzonite some 2,500 feet long east-west and 1,200 feet wide crops out 1/4 mile north of the mine, and a number of quartz monzonite dikes are exposed in the mine.

The quartz monzonite body is gray, medium- to coarse-grained, porphyritic to equigranular, and consists of 20 to 40 percent orthoclase, 20 to 40 percent andesine, 20 to 35 percent quartz, and 5 to 15 percent biotite and hornblende. The two feldspars usually occur in equal amounts.

Structures. The ore bodies occur between two parallel faults, striking north and dipping 65° W., some 800 feet apart. Another fault occurs between and roughly parallels the two bordering faults. Several other high angle faults with random orientations extend between the bordering faults.

Ore Bodies. Oxidized, enriched, and primary ore bodies have been mined.

The primary mineralization is composed of quartz, calcite, siderite, pyrite, arsenopyrite, chalcopyrite, pyrrhotite, galena, sphalerite, and marcasite, and locally molybdenite and a little scheelite, both in veins and disseminated deposits. There are two types of disseminated deposits: (1) copper-gold bodies (relatively abundant chalcopyrite, little sphalerite or galena); and (2) lead-zinc-silver bodies (relatively little chalcopyrite, but abundant sphalerite and galena). The copper-gold bodies occur in the lower chloritic conglomerate of the Battle formation; on the upper levels of the mine these bodies ranged from 1.0 to 4.0 percent copper and averaged 0.10 ounces of gold per ton, on the lower levels the copper content decreasing to less than 0.5 percent copper and the gold content remaining the same. The one lead-zinc-silver body was on the 700 foot level in the middle hornfels and averaged 2.5 percent lead, 1.5 percent zinc, and 3.0 ounces of silver per ton.

The oxidized ore occurred near the surface, and consisted of malachite, azurite, chrysocolla, abundant "limonite", and locally high gold values in altered and leached rock.

The enriched ore was mainly along fault zones, and consisted of chalcocite and cuprite with minor copper carbonates and sulfides. Enrichment rarely

extended below the 300-foot level.

Molybdenum Minerals. Molybdenite is locally abundant in the mine associated with chalcopyrite and pyrite. A specimen of wulfenite from the Battle Mountain district is in the Mackay School of Mines museum in Reno, but nothing more is known about its occurrence.

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from John Schilling's notes