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Item 17

COPPER MOUNTAIN MINE

Location. The Copper Mountain mine is in the northern part of the Rand mining district in Sec. 2, T. 11 N., R. 31 E. and Sec. 35, T. 12 N., R. 31 E. on a spur extending northeast from the Gabbs Valley Range (see Army Map Service, Walker Lake topographic quadrangle map), 5 miles northwest of the Rand mine.

History and Production. The mineral deposits at the Copper Mountain mine were discovered in 1906. Reportedly, (Schrader, ____) over a million dollars of copper-gold-silver ore has been produced, mostly before 1920.

Developments. There are over 6,000 feet of workings in the mine. The workings were developed through 3 shafts and several adits, and occur in an area 3,000 feet long, 1,000 feet wide, and 310 feet deep.

Previous Work. Schrader (____) described the geology of the mine in some detail.

The Rocks. In the mine area, Jurassic-Triassic limestone has been intruded by irregular masses and dikes of quartz monzonite porphyry. Granodiorite dikes intruded the limestone, but apparently are older than the quartz monzonite; aplite dikes cut both the limestone and quartz monzonite. The granodiorite apparently is an early stage differentiate and the aplite a late stage differentiate of the same magma from which the quartz monzonite was derived. Tertiary rhyolite, latite, and andesite extrusive rocks partially cover the other rocks.

The quartz monzonite porphyry is reddish-gray, medium-grained, and consists of equal amounts of andesine-oligoclase and orthoclase, quartz, hornblende, augite, biotite, and accessory magnetite and titanite. The parallel arrangement of the larger minerals locally gives the quartz monzonite a schistose appearance.

The aplite is composed of interlocking orthoclase and quartz with minor sodic plagioclase, biotite, hornblende, magnetite, and zircon. The granodiorite consists mainly of oligoclase and oligoclase-andesine with some orthoclase, quartz, augite, and sphene.

Contact Metamorphism. The limestone in contact with the quartz monzonite porphyry has been garnetized, garnetiferous zones also extending out from the contact into the limestone. Other skarn minerals including epidote, and actinolite are present in smaller amounts. The garnet is mainly grossularite with lesser andradite (?).

Ore Bodies. Irregular bodies of copper ore containing minor gold and silver values occur in the quartz monzonite porphyry, garnetized limestone, and unaltered limestone, most commonly on or associated with the quartz monzonite contact, but also in the quartz monzonite some distance from the contact. The quartz monzonite in which the copper mineralization occurs is intensely hydrothermally altered.

The primary mineralization consists chiefly of chalcopyrite, cupriferous pyrite, and chalcocite. In the quartz monzonite, the sulfide minerals most commonly occur as disseminated grains and streaks, forming a porphyry-type deposit. In the limestone, the sulfides commonly also occur as large masses.

The oxidized mineralization consists of chalcopyrite, chalcocite, chrysocolla, malachite, cuprite, covellite, hematite, "limonite", and gypsum.

Massive bodies of chalcocite and chalcopyrite are common at a depth of 60 to 100 feet and probably represent a zone of enrichment.

Quartz and calcite veinlets are common throughout the mineralized areas.

Molybdenum Minerals. Molybdenite is present in the mineralized areas both in the garnetized limestone and in the hydrothermally-altered quartz monzonite.

Molybdenite is especially abundant in the 15-foot ore shoot and in the face of the east drift on the 300-foot level of the mine, in both places being "so thickly disseminated in the hydrothermally altered quartz monzonite as to produce a salt-pepper pattern . . . . and it almost completely coats slickensided surfaces . . . ." (Schrader, ____). In the 15-foot-wide ore shoot, the molybdenite is associated with chalcopyrite and chalcocite, and cut by later quartz veins.

(1968)

from John Schilling's notes