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Item 6

ANTELOPE DISTRICT

LOCATION

The Antelope district, as defined by Johnson (1977), covers the central Antelope Range in Pershing County generally between the Humboldt County line and Poker Brown gap. This large area includes parts of three other mining districts (Scossa, Placerites, and San Jacinto or Poker Brown) which, in this report, are treated separately.

We are confining the limits of the Antelope district to the northern Majuba Mountains including only the mines at Majuba Hill and the deposits to the west around Antelope Summit.

HISTORY

According to a report by the Southern Pacific Co. (1964) some \$5000 worth of silver ore was produced from the Noble Mine, located about one mile west of Antelope Summit, prior to 1904. The Nevada Superior silver-lead deposit, located about three quarters of a mile southeast of the old Noble Mine, was first developed in 1905 and began shipping ore in 1906 (Johnson, 1977). The Majuba Hill copper deposit was located in 1907, and the other mines in the district were apparently first developed at this time. The Majuba Mine was leased by the Mason Valley Mines Company in 1914 and some direct shipping copper ore was produced during the First World War. Except for a few cars of high grade ore shipped in 1928, the Majuba Mine was idle until 1942. During the period between 1942 and 1953 ores of both copper and tin were shipped from the property (Mackenzie and Bookstrom, 1976). Total production from the Majuba Mine has been approximately 2,849,000 lbs. of copper and 21,000 lbs. of tin (Stevens, 1971).

The immediate area of Majuba Hill was extensively explored for molybdenum between 1971-1974 but minable deposits were not found and the district is now inactive.

GEOLOGIC SETTING

According to Johnson (1977), the central part of the Antelope Range is made up of a thick sequence of Triassic and Jurassic metasedimentary rocks which have been intruded by small sills and dikes of andesite, dacite, latite, and diorite of pre-Tertiary(?) age. The mines in the western part of the district and on the flanks of the Majuba Mountains are located along shear zones and veins in slate, limestone, and quartzite. Majuba Hill is the surface expression of a subvolcanic complex of rhyolite porphyries and breccias intruded during mid-Tertiary into a series of steeply-dipping Triassic(?) argillites (MacKenzie and Bookstrom, 1976). Most, if not all, Majuba intrusives were accompanied by hydrothermal mineralization and alteration.

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ORE DEPOSITS

At the Nevada-Superior Mine, on the northwest end of the district, ore deposits are quartz-replacement veins in thin-bedded phyllites which contain silver-bearing galena and sphalerite. The veins occupy northwest-trending shear zones in the metasedimentary rocks. The vein system at the Last Chance Mine, on the south side of Majuba Hill, is similar but the workings are close to an andesite dike. Other vein occurrences in the metasedimentary rocks are also similar in structure and mineralogy. Some veins, however, strike northeast, and stibnite is present at the DeSoto Antimony Mine.

Several types of mineralization are associated with the various porphyries and breccias at Majuba Hill. An early stage intrusive, the Felsite Stock of MacKenzie and Bookstrom (1976), has associated chalcopyrite, pyrite, arsenopyrite, and pyrrhotite. Some silver and tin accompanies this mineralization. Silicification and weak molybdenum mineralization are associated with the Majuba Porphyry, a younger intrusive phase, and high-grade copper and tin ores are associated with an even later phase intrusive, termed the Late Rhyolite Porphyry. Uranium mineralization has been reported from one copper-tin stope in the Majuba Mine but its age relationship to the other mineralization stages is unknown.

Gold placer deposits are known to occur along the eastern flank of the Majuba Mountains and they continue to be worked intermittently on a small scale. The source of the gold is unknown but it probably originates from small gold-bearing quartz veins which cut metasedimentary rocks in the adjacent mountains.

GEOCHEMICAL RELATIONSHIPS

Geochemical values obtained from ores from the Antelope district seem to show two distinct groupings, but a relationship between the two groups also seems to exist. Samples taken from the Majuba Hill intrusive center have very high tin, boron, beryllium, moderate to high copper, low lead and zinc, high but erratic arsenic and bismuth, and no cadmium or antimony. Samples taken from the vein occurrences on the margins of the district have low but still anomalous tin, boron, and beryllium, copper, high lead and zinc, high but erratic arsenic, bismuth, and cadmium, and low antimony. The apparent common association of tin, boron, and beryllium may indicate that all of the mineralization within the district is related. The variability of concentration could be attributed to zoning.

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