NBMG OFR 83-11
See also 83-12 for geochemical results.

(94)
Item 6

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KLONDYKE DISTRICT

The Klondyke mining district (sometimes called Southern Klondyke) is about 17 km south of Tonopah and approximately 3 km east of U.S. Highway 95. Silver lode deposits were discovered in March 1899 by J. G. Court and T. J. Bell, although Chinese miners worked placers in the area in the middle 1870's. Mines and prospects at Klondyke are concentrated in three localities which Chipp (1969) has called the main mining area (SE/4 S24,T1N,R43E), the east Klondyke mining area (C S30,T1N,R42E), and Klondyke Peak mining area (SW/4 S25,T1N,R42E).

The ore deposits at Klondyke have been described by numerous workers. Much of the following is from Bonham and Garside (1979) p. 131, 132). Lincoln (1923) gives a detailed list of older references. Hewett (1936) reports the production from 1903 to 1932 as 16,606 tons of ore yielding 2,405.64 oz gold, 425,583 oz silver, 10,861 lbs copper, and 257,080 lbs lead with a total value of $529,052. The workings consist of over 1,000 m of adits, shafts, drifts, and inclines.

Recent activity in the district consists mainly of sampling and claim staking. There does not appear to be much surface or underground work done since the district's workings were described by Chipp (1969). Recent sampling and drilling was done in 1981 on the playa at the east side of Mud Lake 10 km southeast of the Klondyke district.

The ore deposits of the Klondyke district are argentiferous quartz veins in argillite units of the Cambrian Emigrant Formation. Ball (1906) reports a few veins in muscovite granite in the main mining area. Veins can be up to 3 m wide but are more commonly 30 to 60 cm in width. The veins occur in fault zones which are commonly parallel or subparallel to bedding, and often pinch out within a short distance (Chipp, 1969). In the east Klondyke mining area, mineralization is associated with a thrust fault that has emplaced Ordovician Palmetto cherts and limestones over the Cambrian Emigrant argillites. Most of the production is from shallow workings less than 3 m deep (Chipp, 1969), and hypogene sulfide minerals are rare.

Most of the oxide ore mined consisted of a mixture of cerrusite, jarosite, hematite, limonite, and manganese oxides. Also reported are malachite, chrysocolla, chalcocite?, digenite, covellite, and minor anglesite (Chipp, 1969), as well as rare calcite, gypsum, turquoise, and native sulfur. Cerargyrite is reported to be the main silver mineral but could not positively be identified during Chipp's (1969) study. Spurr (1903, p. 375) reported the possible presence of stetefeldite, although it was not found by Chipp. Gangue minerals consist of milky-white quartz with a small amount of microscopic sericite. Supergene enrichment was apparently a major factor in the formation of the ore bodies, and Chipp (1969) reports that at depth the early miners rejected the denser vein material containing sulfides for the thin-walled quartz boxworks filled with oxidation minerals. Where cores of sulfide minerals are observed, bornite is replaced by digenite and covellite, and galena is partially altered to cerrusite.

Hydrothermal alteration in the district consists of silicification, sericitization, and bleaching of dark-colored carbonate rocks. The silicification has produced several large areas of jasperoid in carbonate rocks, especially in the southern part of the district. Calc-silicate minerals occur in a wide contact-metamorphic aureole around a muscovite granite intrusive.

Based on the above observation, unoxidized hypogene veins probably consist of argentiferous(?) galena, pyrite, bornite, and possibly some unknown silver minerals localized in a quartz gangue. Scheelite was reported from one thin vein. Assays of relatively unoxidized material assayed from 90 to 210 oz of silver and 0.13 oz of gold per ton (Chipp, 1969).

The muscovite granite at Klondyke is present near the mineralized area and contains a few silver veins. It is a distinctive rock, and is the only evidence of pre-Tertiary igneous activity in the area. It is likely that the argentiferous vein mineralization is related to the muscovite granite and is probably of the same age or very slightly younger. Medium to coarse muscovite collected from the granite was dated at 104 m.y. (Silberman and others, 1975).

A turquoise property, the Smith Black Matrix Min, is reportedly located in the district in the SW/4 S29,T1N,R43E. Turquoise occurs in veinlets that are reportedly up to 2 cm in width. A quantity was shipped from the prospect in 1910 by the California Gem Company (Morrissey, 1968, p. 9). Albers and Stewart (1972) have also reported iron from the Klondyke district. Several small bodies of specularite a few feet in maximum dimension occur in the Mule Spring and Emigrant Formations near the contact with muscovite granite.

Recent exploration activity on the eastern part of the Mud Lake Playa 10 km southeast of the Klondyke district is reportedly for gold. It is rumored that anomalous gold values were obtained from surface and shallow drill-hole samples. The gold is reportedly crystalline and less than 5 m in diameter, suggesting a supergene mode of formation, possibly precipitation from gold-bearing meteoric waters in an area of evaporation in the vadose zone of the playa. There is some suggestion that the gold values were present only(?) in the upper crust on the playa.

Anomalous amounts of As, Bi, Mo, Sb, Cu, Ag, Hg, Pb, Zn, W, and Mn are present in samples of vein matter and altered wallrocks from the Klondyke district (Bonham and Garside, 1982).

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