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Item #47
41JEFFERSON CANYON DISTRICT

LOCATION

The Jefferson Canyon mining district is located south of Mount Jefferson on the west side of the central Toquima Range. The mines and prospects of the district are located along the sides of Jefferson Canyon about 6 miles northeast of the town of Round Mountain, Nye County. The old town of Jefferson is in the center of the district and the principal mines of the district are located within a mile square area around Jefferson.

HISTORY

The district was discovered in 1866 (Whitehill, 1873), but no details of the early history are known. Mining began in 1871 when a test lot of ore was sent to Austin for milling (Lincoln, 1923). Originally organized as the Green Isle district in 1873, the name was soon changed to Jefferson. The town of Jefferson started in 1874 and reached its peak in 1876 with a population of 600 (Paher, 1970). The principal mines were the Prussian and the Jefferson, located on the ridge above Berlin Canyon, southwest of Jefferson, and the Kanrohat or Sierra Nevada, located just southeast of Jefferson townsite in Jefferson Canyon. Ten-stamp mills were installed on both the Prussian and Jefferson mines in 1874, and most of the recorded production of the district came from these mines in the period 1874-78 (Kleinhampl and Ziony, 1984). The Kanrohat Mine, discovered in 1873, was active in 1873, 1909, 1917-18 and again in 1927-28, but no production is recorded from this property. Numerous old workings, some of them quite extensive, can be seen at the Silver Shield property on the north side of Jefferson Creek north of the Kanrohat Mine. Carper (1920) mentions the presence of an old smelting furnace, "used by the Spanish and Indians", somewhere on this property. These workings may be the oldest in the district, possibly dating to 1866-67 when Emanuel San Pedro and his party were prospecting in the mountains to the southeast of Mount Jefferson.

Lincoln (1923) credits the district with \$1 million in production but Kleinhampl and Ziony (1984) show a recorded production of \$534,945 during the period 1869-1957.

GEOLOGIC SETTING

The Jefferson Canyon district is situated on the southern boundary of the Mount Jefferson caldera, one of three large, nested calderas which make up the Toquima caldera complex of Boden (1986). The caldera margin at Jefferson is marked by a major fault which forms the ore control for most of the mines of the district. A sequence of Tertiary welded ash-flow tuffs lie within the caldera, extending from the Jefferson mines north to the summit of Mount Jefferson. South of the boundary fault, a thin lens of Cambrian and Ordovician metasedimentary rocks crops out between the mine area and granite of the Toquima pluton to the south. The ash-flow tuff that forms the host rock for mineralization at Jefferson was described by Kleinhampl and Ziony (1984) as the porphyry of Kanrohat which they believe intrudes the older tuff of Mount Jefferson. Boden (1986) does not describe this intrusive relationship and concluded that the ash-flow tuffs exposed at Jefferson are one of the upper units of the thick tuff of Mount Jefferson.

ORE DEPOSITS

The bulk of the production from the Jefferson Canyon district came from the Prussian-Jefferson vein system. The two major mines, the Prussian and Jefferson developed mineralized vein quartz which formed along a $N40^{\circ}W, 60^{\circ}E$ fault contact which separates welded tuff on the northeast from shaly limestones on the southwest. The fault structure is interpreted to be along the ring fracture zone of the Mount Jefferson caldera. At surface, the vein varies between 2 and 5 feet in thickness and consists of manganese-stained quartz with clots of tetrahedrite, silver sulfides, galena, and minor pyrite. Ferguston and Cathcart (1954) describes the veins as irregular quartz veinlets and silicified rock which formed along the major shear zone. Two distinct veins, about 90 feet apart, are described: the western vein corresponds to the main Prussian-Jefferson vein and the eastern vein is the Sierra Nevada or Kanrohat vein. At depth, these veins are said to have been 10 to 15 feet in width. Packard (1909) reported that the early production came from oxidized ores from the upper parts of the veins and that these ores changed to sulfides and sulfantimonides at water level. During examination of the area, specimens of skarn ore were found in the dump of an adit west of the upper Kanrohat portal. This material consisted of silicated rock with garnet, chlorite, and flecks of molybdenite. The source of this rock is unknown but its presence may indicate that deeper workings of the Kanrohat mine penetrated the granite-sedimentary rock contact which crops out south of the mine area.

The Silver Shield, Sailor Boy, Seever workings on the north side of Jefferson Canyon explored mineralized fracture zones in silicified ash-flow tuff. Black calcite, manganese-stained quartz veinlets and manganese oxide-rich gossan occur along low-angle structures which alternately steepen and flatten down dip. Lacy stockworks of quartz veins occur in the footwall of the major low-angle structures, and pale, blue-green copper oxide minerals occur in the soft, layered manganese oxide-rich gossan along the structures. Extensive workings occur for about 1500 to 2000 feet along the canyon here, and several old hoist foundations can be seen along the trace of the mineralized outcrops.

Two major exploration projects have been active at Jefferson Canyon in the past few years. Drilling on the Silver Shield property and surrounding area has reportedly encountered a large area of low-grade silver mineralization. Copper Range Exploration is exploring the area along the south side of Jefferson Canyon, east of the Sierra Nevada Mine, for bulk-mineable silver-gold ore. No announcements have been made of the results of either of these programs.

GEOCHEMICAL RELATIONSHIPS

Geochemical results of samples from Jefferson Canyon show two distinct groupings of ores. Samples taken from the Prussian-Jefferson and Kanrohat (Sierra Nevada) veining system south of Jefferson Canyon show high gold and silver values in association with high manganese, copper, lead, antimony, and zinc. Arsenic values were low to moderate, ranging from 80 to 430 ppm. Samples taken from the north side of Jefferson Canyon, from the Silver Shield area, all contained gold and silver, but values were lower than to the south. These samples were high in manganese but low in copper, lead, antimony, and zinc. Arsenic values were variable, ranging from not detected to more than 2000 ppm.

SELECTED REFERENCES

- Boden, D. R. (1986) Eruptive history and structural development of the Toquima caldera complex, central Nevada: GSA Bull., v. 97, p. 61-74.
- Carper, A. F. (1920) Report on the Silver Shield property, Jefferson Canyon, Nye County, Nevada: NBMG file 247, item 4.
- Ferguson, H. G., and Cathcart, S. H. (1954) Geology of the Round Mountain quadrangle, Nevada: USGS Map GQ-40.
- Lincoln, F. C. (1923) Mining district and mineral resources of Nevada: Reno, NV, Nevada Newsletter Publishing Co.
- Kleinhampl, F. J., and Ziony, J. I. (1984) Mineral resources of northern Nye County, Nevada: NBMG Bull. 99B.
- Kral, V. E. (1951) Mineral resources of Nye County, Nevada: NBMG Bull. 50.
- Paher, S. W. (1970) Nevada ghost towns and mining camps: Berkeley, CA, Howell-North.
- Whitehill, H. R. (1873) Biennial report of the state mineralogist of the State of Nevada for the years 1871 and 1872: Carson City, State Printing Office.