

IRON HAT DISTRICT

LOCATION

The Iron Hat mining district, also known as the Aldrich district, is at the northeastern end of the Tobin Range. It includes mines and prospects in the vicinity of Smelser Pass and to the south along the east flank of the Tobin Range to Lee Canyon. Mines to the north of the Iron Hat district are described in the Buffalo Mountain mining area, and those on the west flank of the northern Tobin Range are included in the Tobin and Sonoma Range mining area (see Johnson, 1977, pl. 2A). The name Cherry Creek district or mining area has been used for the area of prospects near Cherry Creek in the center of the district.

HISTORY

Silver-lead ore was discovered in the Iron Hat district in the 1880's. The available production records are incomplete; total production has been small, probably between \$15,000 and \$30,000 (Johnson, 1977, p. 62). In 1944-45 \$9,626 was recovered from the Valmy Mine from 341 tons of ore containing 3 oz of gold, 5,331 oz silver, 800 lb copper, and 66,700 lb lead. This production was probably from what is now called the Silver-Lead Mine, as suggested by the size and condition of dumps, and the presence of sulfide minerals on those dumps.

The Ore Drag Mine in Lee Canyon apparently was first worked in 1940?, when approximately 26 tons of ore averaging 62% antimony were produced (Lawrence, 1963, p. 200). In 1942 approximately 8 tons of tungsten ore containing 111 units of WO_3 were produced (Johnson, 1977).

Recent exploration activity in the area consists of rotary drilling and bulldozer trenching in an area of copper prospects about 6 km northeast of Smelser Pass and along a canyon 1 km north of Cherry Creek. Probably both of these exploration efforts were for precious metals.

GEOLOGIC SETTING

The northern end of the Tobin Range is underlain by a structurally and stratigraphically complex sequence of Pennsylvanian, Permian, and Triassic sedimentary and volcanic rocks (Johnson, 1977, pl. 1). Much of this part of the range is cut by high-angle faults. The major geologic units present are the Pennsylvanian-Permian Pumpernickel and Havallah Formations (greenstone, quartzite, chert, and argillite), the Triassic Cane Spring and Augusta Mountain Formations (limestone, dolomite, and subordinate clastic rocks), and the Triassic Panther Canyon and China Mountain Formations (conglomerate, sandstone, shale, and dolomite).

ORE DEPOSITS

The district name "iron hat" refers to the iron-bearing weathered product or gossan that forms over a sulfide deposit. Indeed the sulfide-bearing veins in the district do have iron hats of limonite

gossan. The district contains three types of deposits: copper-bearing veins, lead-silver veins, and an antimony vein deposit.

Several properties at the north end of the district (northeast of Smelser Pass) contain copper mineralization along shear zones in Havallah and Panther Canyon Formations. These units are intruded by granodiorite a few kilometers to the northwest, and the copper mineralization may be related to that intrusive event. Oxide copper minerals (chrysocolla, azurite, malachite, chalcocite) occur with iron oxide minerals in the oxidized portions of the veins. Pyrite and chalcopyrite were noted at one property (Dry Hill No. 5 claim) and tetrahedrite was present at another (BVL claims). Wallrocks are locally silicified, and spotty quartz occurs as gangue. Felsic porphyry dikes? are present in the vicinity of some mines.

In the central part of the district, in the vicinity of Cherry Creek, lead-silver deposits are found. The ores consist of galena, pyrite, sphalerite, and sparse chalcopyrite? in a gangue of white barite and jasperoid. The mineralization occurs as lenticular replacements and vein-like bodies in Triassic dolomite. The oxidized portions of the deposits reportedly contain cerussite, hemimorphite (Ferguson, Roberts, and Muller, 1952; Papke, 1984, p. 120), cerargyrite (Payne, 1965, p. 12), limonite, and sparse colored oxide copper minerals. Veins, which are often defined by gossan and massive white barite, generally trend north or northeast and dip steeply. The veins and stockworks of barite are often enclosed in jasperoid or jasperoid breccia. Intermediate to felsic dikes, sills, and irregular small plugs are observed at a number of localities near the mines (Payne, 1965, p. 9). Vanderburg (1936, p. 8) reports that lead ore shipped from one mine contained 42 oz silver per ton.

The Ore Drag Mine is located in Lee Canyon, about 4 km south of Cherry Creek area. Stibnite, scheelite, and antimony oxides occur with quartz gangue in a N70°W, 60-75°S shear zone in Augusta Mountain Formation limestone, shale and chert (Lawrence, 1963, p. 200-201; Johnson, 1977, p. 62). The wallrocks are silicified. Samples of antimony ore contain 0.36 and 0.48 oz silver per ton (Lawrence, 1963, p. 201).

SELECTED REFERENCES

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