4850 0004

(16) Item 4

TOY DISTRICT

LOCATION

The Toy, or Browns, mining district is located about 17 miles southwest of the town of Lovelock in the eastern part of the Trinity Range. The district is in the northwest corner of Churchill County, near the Pershing County border. The St. Anthony Mine, the principal mine, is located in Section 34, T25N,R29E in the center of the district. In this report, the Toy district includes only those mines and prospects associated with the St. Anthony stock. The deposits in the St. Anthony area are sometimes placed into the Jessup district to the southwest or into the Ragged Top district to the north. These districts are considered separate and distinct from Toy and each will be separately described.

HISTORY

As related in Vanderburg (1940), the first mineral locations in the district were made in 1885 for gold and silver but no mining resulted from this early activity. In 1907 two Lovelock residents staked more claims for gold and in 1908, while prospecting their claims by panning, they found a heavy white mineral to be present in their concentrates. The mineral was determined to be the tungsten mineral scheelite, the first occurrence of tungsten to be found in a contact metamorphic deposit in the United States. This discovery led to the discovery of other important contact deposits such as those at Mill City in Pershing County, Nevada, and at Tungsten Hills and Pine Creek in California.

The claims at Toy were patented, but little work was done until the tungsten price began to rise in anticipation of World War I in 1915. A mill was built on the property and tungsten was produced during 1916, 1917 and part of 1918 when the tungsten price dropped and operations ceased. The mill was dismantled in 1921. The mill tailings were retreated in 1925-1956. Total production from the district, through 1956, is 22,859 units of WO_3 (Stager, in prep.). Most of this is from the St. Anthony Mine. At the time of our examination (April 1985) there was no activity in the district.

GEOLOGICAL SETTING

The rocks in the portion of the Trinity Range included in the Toy district include metavolcanic rocks, phyllite and slate, and limestone and marble-all assigned a Triassic and Jurassic age. These rocks have been intruded by a quartz monzonite body, about 1.5 miles wide and 3.5 miles long, that is probably Cretaceous in age. Tertiary volcanic rocks cover the older rocks in the southern part of the district.

NBMG 85-3

ORE DEPOSITS

The tungsten deposits in the district occur along the margins of the quartz monzonite body at those points it has intruded limestone of the sedimentary section. Metamorphism of the limestone has produced tactite along the contact between the two rock types. The tactite here is composed of garnet, diopside, quartz, hornblende, clinozoisite, and calcite with small amounts of pyrite and scheelite.

At the St. Anthony Mine, the intrusive contact dips 30 degrees to 70 degrees south and cuts across the beds at small angles. Tactite is present along only a small part of the contact, but almost all of the tactite is tungsten ore. According to Stager (in prep.), the tactite is rich in fluorite below the 5th level of the mine and pods of galena, sphalerite, and chalcopyrite were also found there. In the upper portion of the mine the tactite is oxidized to a porous, friable aggregate of quartz, iron oxides, and scheelite. The grade of ore mined from the St. Anthony Mine averaged about 1.35% WO_3, the ore zone was from 1 to 15 feet wide in the upper levels of the mine, but narrowed to a pipe-like body at depth. Other small tungsten occurrences have been prospected around the St. Anthony stock contact zone but ore has been produced from only one other, the Payday-Lobo property to the west of the St. Anthony Mine.

At a small tactite zone on the contact zone about half a mile east of the St. Anthony mine workings, stibnite has been found in a small quartz vein. The vein occurs in siliceous wallrock and is apparently not related to the tungsten deposition (Kerr, 1946).

GEOCHEMICAL RELATIONSHIPS

A sample of the St. Anthony tungsten ore (high quartz) showed an association of tungsten, tin, beryllium, bismuth, lead, and zinc. Molybdenum was reported present. A sample of high-garnet ore from the same mine reported similar associations but with uniformly lower values. The high-quartz sample contained over one ounce of silver. Samples from deposits on the west side of the St. Anthony stock contained only low values for tungsten and molybdenum and contained no bismuth or tin. These samples, however, were slightly anomalous in barium.

SELECTED REFERENCES

Kerr, P. F. (1946) Tungsten Mineralization in the United States: GSA Memoir 15.

Lawrence, E. F. (1963) Antimony Deposits of Nevada: NBMG Bull. 61.

Lincoln, F. C. (1923) Mining Districts and Mineral Resources of Nevada: Nevada Newsletter Publishing Co., Reno.

Stager, H. K. (in prep.) Tungsten Deposits of Nevada: NBMG Bull.

Vanderburg, W. O. (1940) Reconnaissance of Mining Districts in Churchill County, Nevada: USBM IC 7093.

Willden, R., and Speed, R. C. (1974) Geology and Mineral Deposits of Churchill County, Nevada: NBMG Bull. 83.