Open-File 43-13

Report on the

Copper Mining Company Property

Bumping Lake Mining District

Yakima County, Washington

Location

The Copper Mining Company property consists of some 42 claims located on Miners Ridge in Secs. 12, 13, and 14 of T.15 N., R.11 E., and Secs. 7, 8, 18, 17, 19, and 20 in T.15 N., R.12 E., Bumping Lake Mining District, Yakima County, Washington. Miners Ridge is a high steep ridge between Deep Creek on the east and Bumping River on the west and is situated directly south of Bumping Lake. The main camp and mill are at Copper City at an elevation of about 4,000 feet on Deep Creek, a distance of 12 miles south of the settlement of Goose Prairie. The property is 70 miles by road northwest of the city of Yakima and is reached by means of U. S. Highway No. 410 to American River, then over a dirt road to Goose Prairie, Bumping Lake and Copper City. The mine workings are on the east side of the ridge near its crest at an elevation of about 5,200 feet, and are accessible by 2½ miles of narrow road from the mill at Copper City.

Ownership and production

The property is owned by the Copper Mining Company of Yakima, Washington, Lin B. Bissell of Yakima, President, Reuben P. Root of Goose Prairie, Washington, Vice President and Manager, and W. H. Bruemmof Yakima, Secretary and Treasurer. The company was originally capitalized for $1,000,000.

Very little ore has been shipped from the property. Some copper was removed and concentrated in the early stages of

development, but no important shipments of tungsten concentrates have been made although a small amount of scheelite was taken out during development work in 1933.

Equipment and workings

Equipment of the Copper Mining Company at Copper City consists of a group of substantial buildings, including an office and bunkhouses, and a mill for concentrating the tungsten and copper ore. At the mine there are a number of buildings, a blacksmith and tool shop and compressor equipment. No work has been done at the property for over a year, but most of the equipment is still on the property.

Numerous openings have been made on the 42 claims of the company, but the principal openings, and the only ones of interest for the tungsten showings, consist of the lower, middle, and upper Bird adits on the Clara and Clara "B" claims. The position and extent of these workings are shown on Fig. 1. The lower Bird adit has about 620 feet of drifts and cross-cuts, the middle adit about 80 feet, and the upper adit about 155 feet. These adits are opened on the same vein.

General geology

The area of the mine is included in the Mount Aix Quadrangle, and the map illustrates the rugged character of the topography. On the topographic map, the mine is located near the flat area which is 4 miles from the west end of Bumping Lake on a bearing of S. 5 degrees W.

The country rock is a portion of the Snoqualmie granodiorite which is cut by a series of feldspar porphyry and quartz porphyry dikes. On the maps these dikes are differentiated from the

granodiorite only in the mine workings, although outcrops of them occur at several places on the surface. The dikes seem to have little or no relation to the mineralization or to the localization of the veins.

A series of shear zones in granodiorite, which trend about N. 65 degrees W. form the locus of vein deposition in the area, and several faults which strike N. 10 degrees E. are of later origin and offset the veins by 10 or 15 feet.

Ore deposits

Only one vein in the district, the Bird vein, contains the tungsten mineral scheelite in significant amounts. This vein consists of a hydrothermally altered and mineralized shear zone in the granodiorite, which for the most part is localized between fairly well-defined walls. The shear zone itself varies in thickness between a fraction of an inch and a zone 7 or 8 feet wide, and it may be traced on the surface for over 2,000 feet. Within the zone of sheared granodiorite there are usually one or more lenses or veins of quartz, sulfides and sporadic scheelite. Quartz is frequently absent, and the veins consist of massive sulfides, or sulfides and small amounts of scheelite. These veins occur along one wall or the other of the shear zone, or as a series of small parallel lenses localized along planes within the shear zone. Although the shear zone is usually prominently developed, the actual vein material rarely exceeds a thickness of 2 feet, and is usually less than a foot in thickness. Some few portions of the whole shear zone itself are sufficiently impregnated with mineral matter to make the whole mass into ore.

The minerals in the vein consist of quartz, chalcopyrite, arsenopyrite, pyrite, scheelite and a little molybdenite. Of

these, the quartz, pyrite, chalcopyrite and scheelite are widely, though often sparsely, distributed through the vein, and the molybdenite and arsenopyrite are more or less confined to the exposures in the lower tunnel.

The extent and structure of the vein as exposed on the surface and in the workings as shown on Fig. 1. Although the thickness of the shear zone and the amount of the vein material in it varies widely from one exposure to another, the general character of the vein is the same throughout. The vein strikes N. 60 to 70 degrees W. and dips to the northeast at angles which change from about 35 degrees at the upper end to 45 or 55 degrees near the lower end. Small north-south faults offset the vein slightly.

Details of the character of the veins in the lower tunnels are illustrated in Fig. 2. The structure of the porphyry dikes shown in this map was not definitely established, but the dikes apparently had little control on the localization of the shear zone in the granodiorite. The general strike of the shear zone is at a slight angle to that of the dikes, and the break crosses the dike with only a slight ~~diffraction~~ deflection and no tendency to follow the contact.

The position of the best grade of copper and tungsten ore is outlined in general by the position of the stopes where the richer pockets have been removed. The pockety, discontinuous nature of the ore is emphasized by the distribution of these stopes, ~~and~~ but no reason for their localization has been found. The small stope near the center of the lower tunnel was apparently driven in an attempt to intersect the ore shoot in the upper tunnel directly above, but no ore was found.

Distribution, grade and volume of tungsten ore

Distribution, grade and volume of tungsten ore

The scheelite in the mine occurs in streaks, stringers, clusters of crystals, and single crystals either in quartz veins, in the sheared granodiorite, or associated with the sulfides. The principal mode of occurrence of the scheelite is as crystals concentrated in narrow quartz veins, along silicified zones in the granodiorite, or in streaks of sulfides localized by a shear or fracture. Rarely do these zones exceed an inch or two in thickness, and frequently they are only a fraction of an inch. Although these streaks are common in the mine, it is seldom that enough of them occur at any one place to make ore.

Fig. 2 shows assays, obtained from the Copper Mining Company, which illustrate the general tenor of the ore. Most of the vein material in the lower tunnel is quite low in tungsten content. The stope at the east end of the tunnel contains an estimated 0.5 percent WO_3 in portions of its walls, but the vein appears to be narrowing rapidly in both the sides and back of the stope. The west end of the lower drift contains an estimated 1 percent WO_3 in a 2 foot wide portion of the vein which is exposed for about 25 feet along the strike. This represents the most promising showing in the lower tunnel.

The two interconnected tunnels 115 feet above show fair scheelite and have much better assays, but most of the good material has been mined out. A small amount of scheelite ore may exist below the lower of the two levels, on a downward extension of the stope.

The surface outcrops disclose varying amounts of scheelite, none of which, however, represent any volume of ore. The following localities, numbered on Fig. 1, have the characteristics listed below:

2. 6 inch zone of fairly good scheelite, (Est. 0.5 percent WO_3).
3. Scheelite only in fractures and thin seams.
4. Very few specks of scheelite.
5. Assays for WO_3 give a trace and 0.15 percent.
6. Assays for WO_3 give 0.07 and 0.06 percent.
7. Two foot zone with scattered scheelite, (Est. 0.25 percent).
8. Eight inch zone with good scheelite for a distance of 15 feet.
9.& 10. Very few specks of scheelite.
11. Very thin seams of scheelite.
12. Scattered specks of scheelite in oxidized zone.

Summary of grade and possible reserves — Scheelite is scattered throughout the vein but for the most part in such thin stringers as to make a low grade ore. An average grade of 0.25 percent could probably be maintained by selective mining, but the cost would be high. Local pockets of several hundred tons of ore have been found which probably ran between 0.75 percent and 1.00 percent WO_3, and more of these may well be present, but there is no reliable guide to their location.

Outlook

Although the vein carries scheelite rather persistently throughout its entire length, the average content of WO_3 is low, and the scheelite which is present is localized, for the most part, in zones too narrow to be mined easily. A small tonnage of ore may be produced from the thicker, higher grade pockets, but the expense of searching for these is hardly justified.

Recommendations

For the U. S. Geological Survey — No further work is recommended on this property for the present.

For the U. S. Bureau of Mines — No specific recommendations are made for the present time. Although a small amount of development work would probably block out some ore, the prospects for the discovery and production of any appreciable tonnage are slight.

CC To
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Oscarson

S. Warren Hobbs
U. S. Geological Survey
September, 1942