

002739

Emerald Mine *West of No. 6.*
42-117 *July '42*

SUMMARY

82F/3E
82F/SW-10

Scheelite occurs in a contact zone between Nelson granite and Pend d'Oreille sediments. The contact trends east of north, with the contour of the hillside and roughly parallel to the sedimentary strike; the intrusion does not appear to be sill-like. The sediments dip eastward into the hill and towards the granite. The mineralized zone is 1200 feet long.

In the northern section of the zone, 400 feet long, the sediments are argillites, argillaceous quartzites and similar rocks for a considerable distance. In the southern section, south of a presumed fault, the granite is in contact with pure limestones which overlie argillites and quartzitic rocks; the latter rocks are presumed to be in contact with the granite at some depth between 100 and 150 feet.

In the northern section scheelite occurs in strongly altered granite across a width ranging from 25 to 40 feet. In the southern section scheelite is in granite and in strongly altered limestone close to the contact; in addition there are small, bedded vein-replacements as much as 140 feet from the contact. The northern section is large and regular in outline, while the southern section

is quite irregular and is narrower than the northern.

The associates of scheelite are mica (chiefly biotite) and sulphides. The mineral occurs in quartz, in granite that is strongly altered and silicified, in quartz-sulphide masses, in solid sulphide and in strongly altered limestone. The surface of the northern section is oxidized, with the exception of massive sulphide bands, so that the exact character of the gangue is not easy to determine.

The distribution of scheelite, although varying in amount between bands and in pod-like areas, is amazingly uniform over large total widths. Many assays are amazingly high.

The amount of sampling is insufficient to prove average grade, and many samples taken are of more or less oxidized material, but it is believed that in all but a few instances they are closely indicative of actual grade. The most reliable sampling, that about 416 trenches, gives weighted averages of 5.6 percent tungsten trioxide for an east-west length of 34 feet and 4.0 percent tungsten trioxide for a north-south length of 50 feet. These two surfaces alone, carried to a depth of 10 feet, would, at these figures, be productive of \$44,000.

A perfectly reasonable estimate in the northern section gives an area of 30 by 300 feet with an average grade, at the surface, somewhere between 2 and 3½ percent tungsten trioxide. This estimate of nearly 9,000 tons for each 10 feet of depth is conservative.

The souther nsection cannot yet be assessed, although there is much material that is of ample mining grade. The adit crosses an average width of 12 feet that assays 0.80 percent tungsten trioxide.

No estimates are made as to possible depth. Even a shallow depth in the northern section would be productive of very large tonnages. The geology of this section is quite uniform, although it is to be expected that the northern margin of the zone will plunge southward, perhaps steeply.

Diamond-drilling on the northern section is slated to commence immediately, on the Jersey road, to give a depth below outcrops of between 75 and 100 feet. This will prove continuity and will give reasonably reliable values. From the same stations drilling can also prove depth to about 150 feet, or about the lowest level that an adit can be located, above the bed of Lime Creek, to develop the northern section.

Drifting from the existing adit on the southern section, with 50 feet of backs, is contemplated. An adit collared at the first diamond-drill hole is also contemplated to crosscut the northern section, with backs of from 50 to 65 feet.

There is no doubt whatever that this will become a producing mine. It simply remains to determine the size and type of operation.

Test work on the ore is going forward at the University, and that, as well as the advice given on the ground by the Departmental engineers, has been and will continue to be valuable.

Development work has to date been slow, and it is to be hoped that the work will be pushed aggressively. At present there is difficulty in getting men and materials. This property should immediately receive full recognition, in order that there should be no possible handicaps in getting it developed.