

Economic Geology

Surel Occurrence (20)

A traverse up the stream that enters Surel Lake on the south side about 1½ miles from the outlet encountered some narrow quartz veins mineralized with pyrite, sphalerite, molybdenite, and chalcopyrite. The veins are about 3 inches wide. An assay of a selected sample yielded: lead, trace; zinc, 9.92 per cent; copper, 0.08 per cent; gold 0.02 ounce, and silver 0.64 ounce a ton.

Gold Deposits

Gold is present in most of the mineral occurrences in the area and has been reported particularly from narrow quartz veins on Sibola and Huckleberry Mountains and from the veins on Chikamin Range. The main occurrences however are the wide quartz veins on the property of Deer Horn Mines Limited and the Smith-Nash group west of Sandifer Lake.

Deer Horn Mines Limited (17)

References: B.C. Minister of Mines, Ann. Repts.: 1944, pp. 175-177; 1945, pp. 71-72; 1952, p. 98; 1953, p. 94; 1954, pp. 95-96; 1955, pp. 25-27; Western Miner, vol. 26, No. 8, p. 94.

This property of twenty-eight claims and one fraction was held by the Harrison brothers of Wistaria until 1951 when it was taken over by Deer Horn Mines Limited. The property lies on the southeastern slope of Lindquist Peak, astride the contact between the main mass of Coast Intrusions and the metamorphosed Hazelton group rocks. A wide quartz vein outcrops in the batholithic rocks near the contact and dips gently northward towards the sedimentary and volcanic rocks of the Hazelton group. This quartz vein, though displaced by north-trending faults, may be followed westward across the property for about 2,600 feet. Metallic minerals in the vein are mainly pyrite, galena, sphalerite, chalcopyrite, and telluride minerals, hessite and altaite. Gold is rarely present in the free state and only as a residual mineral in cavities and veinlets; it is most commonly intimately associated with hessite and may be present as rare disseminations in other minerals such as pyrite (Warren, 1947).

Pioneer Gold Mines Limited developed these claims from 1944 to 1946. A good pack-trail was built from the head of Whitesail Lake to the property, and camps were established both at Whitesail Lake and at timber-line below

Whitesail Lake Map-Area

the showings. Some surface work and a total of 12,540 feet of diamond drilling explored the vein. The drilling indicated that the vein dipped gently north towards the Hazelton group rocks and that there is a slope distance of 150 feet in the granitic rocks before the contact is reached. Indications are that the vein breaks into stringers at the contact which dips south at about 55 degrees. Exploration of the contact zone by diamond drilling showed mineralization across vein widths of 2 to 4 feet.

Assay returns on samples taken along the vein varied considerably in gold and silver content. This is most probably due to the abundance or scarcity of hessite.

Because of the faulted nature of the vein it is broken into a number of individual sections. The following values for eight sections were taken from a 1946 company report.

Section	Length	Width	Gold	Silver
No.	Feet	Feet	Ounces	Ounces
1A	50	3.0	0.16	1.6
1B	25	4.3	0.217	1.6
2	One hole	2.2	0.02	0.4
3	150	7.5	0.228	3.62
4	270	7.8	0.295	5.6
5A	80	19.0	0.18	4.3
5B	270	10.7	0.294	8.2
6	128	6.0	0.19	7.27
7	90	17.3	0.06	1.8
8	90	10.0	0.21	9.15

Pioneer Gold Mines Limited dropped the option in 1946 and little further work was done until 1951 when the property was taken over by Deer Horn Mines Limited. In 1952 a small crew of men worked at the property all summer clearing out trenches, re-examining diamond drill core, and locating road grade from Lindquist Lake to the showings as well as generally re-checking values on the property. Further preparations for active development were carried out during 1953. It is reported (*Western Miner*, August 1953) that a "1,075-foot section of the exposed vein returned assays of 0.255 ounce gold and 6.3 ounces silver a ton over an average width of 9.5 feet. Diamond drilling on this structure indicated a developed length of 600 feet with an average width of 11.2 feet and grade of 0.283 ounce gold and 8.3 ounces silver a ton. Depth of this structure appears limited to 200

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feet where a junction with the contact zone occurs. This . . . zone has been developed to a limited extent by diamond drilling with results indicating a length of 725 feet, average width of 8.7 feet and a grade of 0.407 ounce gold and 12.24 ounces silver per ton."

Underground development began late in 1954 and continued till November 1955 when operations were suspended. During that period the Company reports it completed 1,822 feet of drifting, 113 feet of raising, 3,075 feet of underground drilling, and 2,997 feet of surface diamond drilling.

The property includes, besides the gold-silver deposit, a scheelite-bearing metamorphic zone that will be described later under a separate heading. (See map in pocket, Figure 6.)

Lam and Old Timer Groups (16)

Reference: B.C. Minister of Mines, Ann. Rept. 1945, p. 72.

The Lam group of four mineral claims to the southwest, and the Old Timer group of six claims to the west of Deer Horn Mines are also on Lindquist Peak. The showings on these groups were not seen, but little work has been done on them. The Lam group is underlain by a dioritic phase of the Coast Intrusions, whose contact with the Hazelton group cuts across the Old Timer group.

Surel Lake Group (21)

Reference: B.C. Minister of Mines, Ann. Rept. 1945, pp. 72, 73.

The Surel Lake group of claims was staked by J. J. Hepson in 1945 near the falls on Surel Creek. It is also near the contact of the Coast Intrusions with Hazelton group rocks. The showings were not seen, but it is reported that the vein is 1 foot to 2 feet wide, that it is exposed for 50 feet, and that it carries some gold.

Core (10) and Shirley Groups

Reference: B.C. Minister of Mines, Ann. Rept. 1945, p. 70.

The Core group of twelve claims, staked in 1944 by Fred Paulig and Orald Harrison of Wistaria, covers a gabbro outcrop on the south slope of Core Mountain, and the Shirley group of eight claims lies between the Core group and the entrance to Little Whitesail Lake. The Consolidated Mining

Tungsten Deposits

Tungsten has been noted in a number of localities close to the Hazelton group-batholith contact but most of the deposits are small, only one being worthy of mention.

Deer Horn Mines Limited (17)

This property, described under gold deposits, also includes a tungsten deposit of considerable size. During exploration of the gold deposit, scheelite, though not common, was noted in the core but the main deposit is separate from the gold occurrence and lies 800 to 1,000 feet west of the most westerly pit exposing the gold-bearing quartz vein. The scheelite occurrence extends northwesterly for at least a claim's length.

The part of the property on which the scheelite deposit occurs lies astride the contact between the main mass of the Coast Intrusions on the southwest, which there consist of granite, quartz diorite and diorite, and metamorphosed tuff, greywacke, shale, slate, and flows of the Hazelton group. The shale and slate contain andalusite, epidote, chlorite, and zoisite, and silicification is widespread in the volcanic rocks. Minor amounts of skarn are present, but none was noted near the scheelite occurrence. There, epidote, chlorite, and quartz, and some andalusite in the shale and slate are characteristic.

At the scheelite deposit the strike of the contact of the granitic rocks turns sharply from northwest to north for a short distance forming an embayment of the Hazelton group rocks. The general effect of contact metamorphism of the sediments in this embayment is more marked than elsewhere in the vicinity. The volcanic rocks particularly appear to have been minutely fractured and cut by a stockwork of quartz stringers that carry scheelite. The stringers vary in width from a fraction of an inch to 4 inches but are commonly 1 inch to 2 inches wide. About 500 feet east of the main showing volcanic rocks are cut by numerous stringers of quartz containing small amounts of scheelite, commonly along their borders. Two veins up to 2 feet wide, which also cut the volcanic rocks at this point, contain no scheelite. Assays of samples proved the average scheelite content of this occurrence to be much lower than that of the main deposit. In addition to the scheelite and quartz a few grains of pyrite and chalcopyrite were noted in the country rock and quartz stringers. These outcrops are above timberline and at most points are covered by talus that contains sufficient scheelite to give a spectacular appearance under ultraviolet light at night.

Whitesail Lake Map-Area

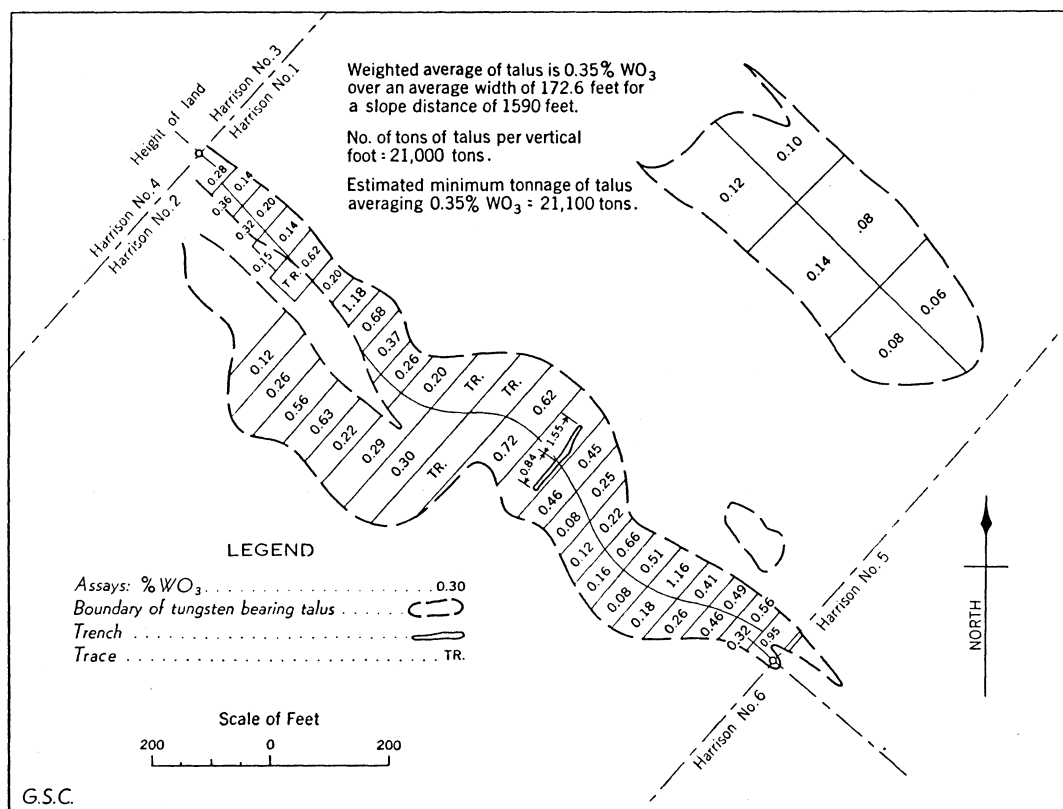


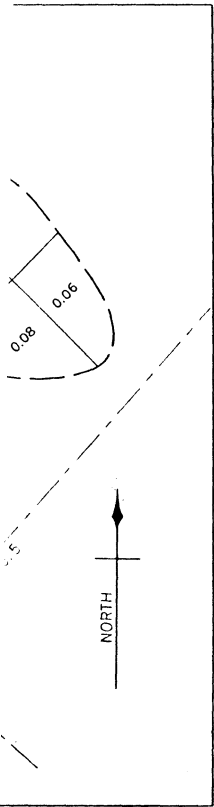
Figure 5. Plan and assays of the scheelite-bearing talus, Deer Horn mine, B.C. (From plans of the Deer Horn Mines, Ltd.)

Although scheelite is present in all the rocks it occurs most commonly in quartz stringers where they are plentiful. In diorite the scheelite is in small grains whereas in volcanic rocks it may occur as crystals up to 1½ inches long. Little development work has been done so that the full extent and mode of occurrence is not known.

The main showing lies under a large talus deposit along the boundary between the Harrison No. 1 and No. 2 claims. In 1952 Deer Horn Mines Limited, under the direction of Jack Ross, outlined the scheelite-bearing area of this talus and systematically sampled it (see Figure 5). An open-cut had been made at one point where bedrock outcropped within the area of talus. This trench is 130 feet long and both ends are in scheelite-bearing talus. The known area of scheelite-bearing talus has a slope length of 1,590 feet and an average width of 172.6 feet. For each 1-foot average depth this area

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is estimated to contain 21,100 tons of tungsten-bearing talus. The scheelite-bearing talus area, for the purpose of estimating grade and tonnage, was divided into 48 rectangular sections 50 feet wide but of varying lengths. The weighted average assay of grab samples from these 48 rectangular areas gave 0.34 per cent WO_3 . Bedrock samples taken from the trench gave 0.84 per cent over 60 feet at the west end and 1.55 per cent over 70 feet at the east end. As scheelite-bearing talus occurs for 800 feet slope distance above the trench the size of the source body of the scheelite-bearing blocks in this vicinity may be considerable. No diamond drilling or additional trenching has been done so that at present the size and tungsten content are unknown. The chance to prove a substantial body of tungsten ore at this locality, however, appears promising.



(Deer Horn Mines, Ltd.)

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