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Part D -- Special Report
by
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Highland Valley. Highland Valley is a broad valley extending north-west and south-east between the headwaters of Witches Brook flowing south-eastward to Guichon Creek, and those of Pukaist Creek flowing north-westerly and westerly into the Thompson River at a point 5 miles north from Spences Bridge. The divide between these creeks is at an elevation of approximately 4,000 feet. There are copper properties on both sides of this valley but only those comprising a group north-eastward from the valley were examined; these consist of the Transvaal, Highland, and Keystone properties.

Access is by a mountain road that leaves the Ashcroft-Merritt Highway at a point twenty miles south-easterly from Ashcroft; this branch road is approximately 7 miles long and climbs 1,800 feet in the distance from the road to the properties.

These properties are on the broad, gently sloping upper slopes of a round-topped summit known as Forge Mountain; and at their elevation of 5,000 feet to 6,000 feet are in openly wooded uplands; however, a very short distance down the hillsides from the properties, the slopes are densely wooded with timber suitable for mining purposes. This timber extends down the mountain slopes to the lower limit of abundant rainfall, and then the typical dry-belt growth prevails.

Geologically, the Transvaal and Highland properties are similar. The prevailing rock is granitic, ranging in composition from granite to quartz-diorite.

Although these are considered copper properties, copper minerals are not abundant. In order of abundance they consist of malachite, azurite, chalcopyrite and copper pitch. These form minor constituents in veins of a very unique type, veins that range in composition from 95 to 10 percent of sooty tourmaline, variety schorlite.

These veins range in width from a knife edge to 3 feet, although a width of approximately 10 inches is commonest; they are discontinuous, the general length of any uniform vein-width ranging from 10 feet to 20 feet. The common direction ranges from north 20 degrees east to north 20 degrees west, and the dips are nearly vertical; however, some of the exposures show veins striking in other directions. The texture of the veins indicates that the north-south ones occupy a jointing direction in the

granite along which considerable shearing and related fracturing of the granite and vein-quartz of an earlier generation has occurred, and that veins in other directions occupy conjugate joints along which there has been little movement.

Texturally the veins contain a central mass of either massive and sooty tourmaline, or of tourmaline, highly brecciated vein-quartz, and copper carbonates, bordered by brecciated and partly replaced fragments of wall-rock. Narrowing stringers of tourmaline commonly extend from the main vein for a distance of 1 foot and form a reticulate network of veinlets around angular fragments of granite. More siliceous phases of the veins consist of abundant broken angular fragments of vein-quartz, in part replaced by tourmaline, and of fine-grained magnetite and hematite isolating angular islands of dense tourmaline and quartz; or in addition, the copper carbonates, malachite and azurite may occur as crosscutting veinlets and masses. Chalcopyrite in abundance was seen in only one place, namely in a large open-cut north-west from the Highland shaft where a tourmaline vein containing abundant fragmented quartz showed cross-cutting veinlets of magnetite and chalcopyrite that constituted approximately 1 percent of vein matter.

The erratic and discontinuous distribution of the tourmaline veins, combined with an equally erratic and sparse distribution of copper minerals militate against the copper potentialities of this group of properties.

As far as is known none of these properties has shipped any ore.

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Transvaal. The Transvaal property consists of six Crown-granted claims, the Transvaal, Pretoria, Mafeking, Imperial, Chamberlain, Ladysmith and Pretoria Fraction, staked in 1899 and owned by J. Hosking of Cobalt, Ontario, and George Novak of Ashcroft.

The workings lie between elevations of 6,000 feet and 6,200 feet between the north and south summits of Forge Mountain. They consist of two shafts, now thoroughly caved, sunk between the years 1901 and 1906, an adit, now open, commenced in 1905 and worked in until 1932; and of several open-cuts.

The only complete description of the property, found in the Annual Report of the Minister of Mines for 1907, page 135, indicates that: "It is reported to have been sunk 200 feet with, at the 100-foot level, a drift to the west of 160 feet in length, and another to the east of 180 feet, and from the latter a 40-foot crosscut was driven. At the 200-foot level a drift was made to the east for about 75 feet".

Approximately 900 feet in a direction north 60 degrees east from the shaft and at an elevation of 6,000 feet a sinuous adit with two main branch workings has been driven in a general direction of south 30 degrees east for approximately 350 feet. The details of the adit in plan are as follows:

From the portal:-

South 10 degrees east for 97 feet;
south 25 degrees east for 39 feet;
south 10 degrees west for 36 feet;
south 43 degrees west for 63 feet, a short branch here north 71 degrees east for 31 feet;
south 68 degrees east for 30 feet, and a working south 10 degrees east for 21 feet;
south 63 degrees east for 13 feet and No. 1 crosscut north-east from here;
south 43 degrees east for 28 feet and No. 2 crosscut south-west from here;
south 40 degrees east for 19 feet and south 19 degrees east for 35 feet to the face.

The details of No. 1 crosscut are, from the main drift:-

North 30 degrees east for 21 feet;
north 67 degrees east for 35 feet, a short working south 63 degrees east for 34 feet;
north 67 degrees east for 17 feet, a working north 42 degrees east for 32 feet, north 13 degrees west for 5 feet and north 80 degrees west for 12 feet to the west.

The details of No. 2 crosscut south-west are, from the drift:-

South 32 degrees west for 21 feet;
south 67 degrees west for 21 feet, a working south 14 degrees east for 27 feet;
south 73 degrees west for 16 feet, a short working north 27 degrees west for 22 feet;
south 60 degrees west for 19 feet to the face.

Portions of a tourmaline vein ranging from 2 feet of massive tourmaline to a few inches of vein matter and considerable brecciated wall-rock, occur from a point 250 feet in from the portal, to the face. At only a few places was any copper carbonate seen. A picked sample across a lens of malachite and azurite 2 feet thick by 3 feet long, the only lens of such dimensions seen on the property, assayed: Gold and silver, nil; copper, 20.95 percent. Another sample taken nearby, across 2 feet of vein matter consisting of sooty tourmaline, hematite and some granite fragments, assayed: Gold and silver, nil; copper, 4.6 percent. A sample taken 20 feet from the face across a 4-foot shatter-zone

containing fragments of wall-rock laced by tourmaline veinlets, assayed: Nil in gold and silver; copper, 0.3 percent.

A second zone of discontinuous tourmaline veins occurs in the north-south section of the No. 1 crosscut north-east. Here sections of veins ranging from 10 feet to 5 feet in length and from 8 inches to 2 inches in width cut the granite; a sample taken across 8 inches of vein matter assayed: Gold and silver, nil; copper, 0.25 percent.

The rock formation in this adit is granite containing conspicuous pink feldspar; however, a feldspar porphyry dyke, averaging 20 feet in width and striking north 10 degrees east is exposed in the north-south section of No. 1 crosscut north-east and in the face of the main drift.

Numerous open-cuts are scattered over the hillside between the adit and the shaft and for 300 feet northward from it. These cuts expose discontinuous veins of tourmaline, carrying varying amounts of quartz fragments, magnetite and hematite; malachite and azurite, though occasionally occurring, are not abundant. Inasmuch as these veins tend to follow the jointing in the granite, they vary considerably in attitude. The most conspicuous surface exposure is in a large pit 130 feet eastwards from the shaft, where a vein of tourmaline, 3 feet in width and 10 feet long, siliceous in appearance because of the numerous watery quartz fragments, carries irregular stringers and masses of malachite and azurite in conspicuous but not abundant quantities.

Highland. The Highland group consists of six claims, the Highland No. 2, Glenora, Standard, Virginia, Nickel Plate and Glenora Fraction, staked in 1891 and at one time owned by the Bank of Montreal, Rossland.

The workings at an elevation of 6,000 feet are from one-quarter to three-quarters of a mile southwards from those of the Transvaal. They include a shaft sunk between the years 1905 and 1907, an adit, 2,000 feet north-easterly from the shaft, driven in 1902, and several open-cuts. The shaft and all but the entrance to the adit were caved at the time of the writer's examination.

An examination of the open-cuts extending northwards from the adit for approximately 2,000 feet indicates that the nature, size, distribution and copper content of the veins are similar to the Transvaal veins. An excerpt from the Annual Report of the Minister of Mines for 1907, page 136, describes the adit and indicates the similarity in mineralization:-

"Near the centre of the group there is a tunnel which has been driven in 115 feet, from which two cross-cuts have been driven to the left for a distance of 15 feet. At this point the showing consists of a black trap-rock (sooty tourmaline vein-matter--present author), similar to that noted in the Transvaal, with small quantities of copper pyrites scattered through it".

It may be remarked that the rock at the Highland tends to be more dioritic in composition than that at the Transvaal.

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Keystone. The Keystone group consists of six claims, the Douglas Pine, Waverly, Snowden, St. Boniface, Keystone Fraction and Mafeking Fraction adjoining the Transvaal group on the north-east, the workings being located about one mile north-east from the Transvaal adit and at an elevation of approximately 5,600 feet. These have been owned by George Novak of Ashcroft.

The small amount of work consists of two short adits, one caved, on the south-west side of a canyon-like dry draw in the granite; the heavily-timbered adjacent hillside sloping steeply towards the top of the north peak of Forge Mountain.

The open adit has been driven north 62 degrees west for 25 feet through highly sheared granite that contains seams and coatings of malachite.

Two open-cuts, one 60 feet south-west and the other 80 feet eastward from the open adit are across similarly-sheared granite, coated with malachite. No tourmaline veins were seen. The average strike of the shearing in the workings is north 50 degrees east and the dip 45 degrees north-westerly.

Except for a capping of amygdaloidal basalt on the bluffs, some 100 feet higher in elevation, the rock is granite.

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