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MINERAL LOCATIONS, PORTLAND CANAL DISTRICT,
IN THE
SKEENA MINING DIVISION.

—BY—

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PROVINCIAL ASSAYER.

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PORTLAND CANAL DISTRICT.

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REPORT BY H. CARMICHAEL, PROVINCIAL ASSAYER.

Portland canal is the most northerly inlet on the coast of British Columbia, and forms the boundary between that province and Alaska. This International boundary, the position of which was definitely decided upon some few years ago, has now, in this portion of it at least, been laid out on the ground, and its position clearly marked by monuments or by a cutting through the forests where such occur. The settlement of this boundary has relieved claim owners of much uncertainty as to which country their claims lie in, and should stimulate development on both sides of the line. The canal, or fiord, communicates with the open sea at Dixon entrance, and from that point runs nearly due north a distance of 55 miles to its head. It possesses few and indifferent anchorages, since the shores on either side are precipitous mountains with, in places, peaks which rise almost perpendicularly to heights of 6,000 feet. About 35 miles from the head of the canal, on the east side, is Maple bay (marked Maple point on the chart), a small bay affording good shelter but with rather deep anchorage. The two rivers, the Bear and the Salmon, at the head of Portland canal, are separated by a high bare ridge of mountain that forms the International boundary line, trending off to the west. On the east side of the valley of Bear river a mountain range extends in an east and west direction, the highest peak of the range, mount Disraeli, being a snow-clad pinnacle 7,000 feet high. The valley of the river is about a mile wide, composed of gravel and sand dotted with cottonwood and alder trees. It extends easterly in a straight line, with a gradual rise, for ten miles, until an elevation of 400 feet is attained. From this point the river and creeks rise more rapidly, becoming mountain torrents. With very little work a good waggon road could be made up the valley for ten miles or more. A bridge over the river, near its mouth, is needed, as, without it, it is nearly impossible to cross the river at high water, and all means of communication are cut off.

Communication up Portland canal is maintained by the Union Steamship Company every ten days from Vancouver, and every week by a small steamer from Port Simpson. There is a very comfortable hotel at Stewart, at the head of the canal. Attention was first drawn to Portland canal when, on the 4th of May, 1898, a party of 64 persons from Seattle landed at the head to look for placer diggings at the source of the Nass river. Some 21 of the party went over the divide from Bear river and down the Nass river and struck "colours," but no pay placers. Some of the men still believe that if the "grub" had held out they would have found diggings worth staying with. Two or three of the party wintered on the Canal and staked in the spring of 1899 what is now the *Roosevelt* claim, on Bitter creek, while Stewart's claim, on American creek, was staked in 1902, and the principal claims on Glacier creek in 1905 and 1906.

The country round Glacier creek is the only part which so far has been visited and reported on. The locations there have been made on well-defined veins in a schist country, rock, carrying values in silver, gold and lead, with a little copper. Farther up Bear river the country rock is said to change, becoming more granitoid, the change being noted on the *Mother Lode* claim, two and a half miles above Glacier creek. There is still ample field for further prospecting, and the district is well worthy of attention.

On the west side of the Canal the country rock is granite, which continues from the mouth to its head and forms the range referred to as between the Salmon and Bear rivers.

On the east side a similar granite extends from the mouth nearly to Maple bay, where the country rock changes to a schist* intersected by dykes, which formation continues to a point about seven miles up Bear river valley, where granitoid rocks again appear.

MAPLE BAY CAMP.

The properties at Maple bay are being worked by the Brown Alaska Company, with head office in Seattle and a smelter at Hadley, Alaska. The general superintendent at Maple bay is Mr. Arthur A. Wakefield.

The group consists of fourteen claims, including fractions, and lies to **Outsiders Group**. the north-east of Maple bay. A quartz vein has been traced through seven claims running diagonally up the hillside at an angle of 30 to 40 degrees. The principal work has been done at the junction of the *Regina* and *Copper King* claims. At an elevation of 1,100 feet, and 6,000 back from the bay, a main tunnel has been run in 300 feet on a well-defined quartz vein, which follows the strike and dip of the schistose country rock, the dip being about 60 degrees to the east. The vein, while clearly defined, swells and contracts in places, varying from five to fourteen feet wide, and is well mineralised with copper pyrites, fairly well disseminated, the mass averaging 3% in copper.

A second tunnel, called the "Intermediate," has been run in an elevation of 75 feet above the first, and is in on the vein 100 feet.

Twenty feet still higher up a third, or "Upper" tunnel, has been run on the vein 40 feet. No stoping has been done, but the different levels have been connected preparatory to stoping, when the ore will be taken out by the lower or main tunnel.

On the surface, above the upper tunnel, the vein has been stripped and shows up strongly, crossing over a shoulder of the mountain. Two or three small diabase dykes were cross-cut in the tunnels, and also show up on the surface; these dykes cross the vein from wall to wall, but do not run into the country rock.

On a level with the upper tunnel, but some 550 feet to the north, in a small gulch, a cross-cut has been driven through the schist country rock, cutting the vein at 150 feet in. At this point the vein was found to be about three feet wide and not as heavily mineralised as in the main workings. From the inner end of this cross-cut tunnel a drift has been run to the north, on the vein, for 150 feet, while a drift to the south, towards the main workings, has been run for 220 feet. In this south drift, at 140 feet from the tunnel, the vein has been replaced by a diabase dyke, but towards the inner end of the drift the vein comes in again with a width of eight feet, throughout which width it is well mineralised with copper pyrites. The vein has been traced for a considerable distance, both above and below the main workings, and gives promise of carrying a large body of good ore.

Just below the main tunnel is the upper terminal of an aerial tramway which runs 6,000 feet to the ore bunkers at Maple bay, where there are good loading facilities. A 6-drill Rand compressor has been installed at the beach and a pipe line run to the mine.

A sample of the ore taken as it was being mined gave, upon assay, copper, 3.4 %; silver, 0.4 oz. per ton; and gold, 0.05 oz. per ton.

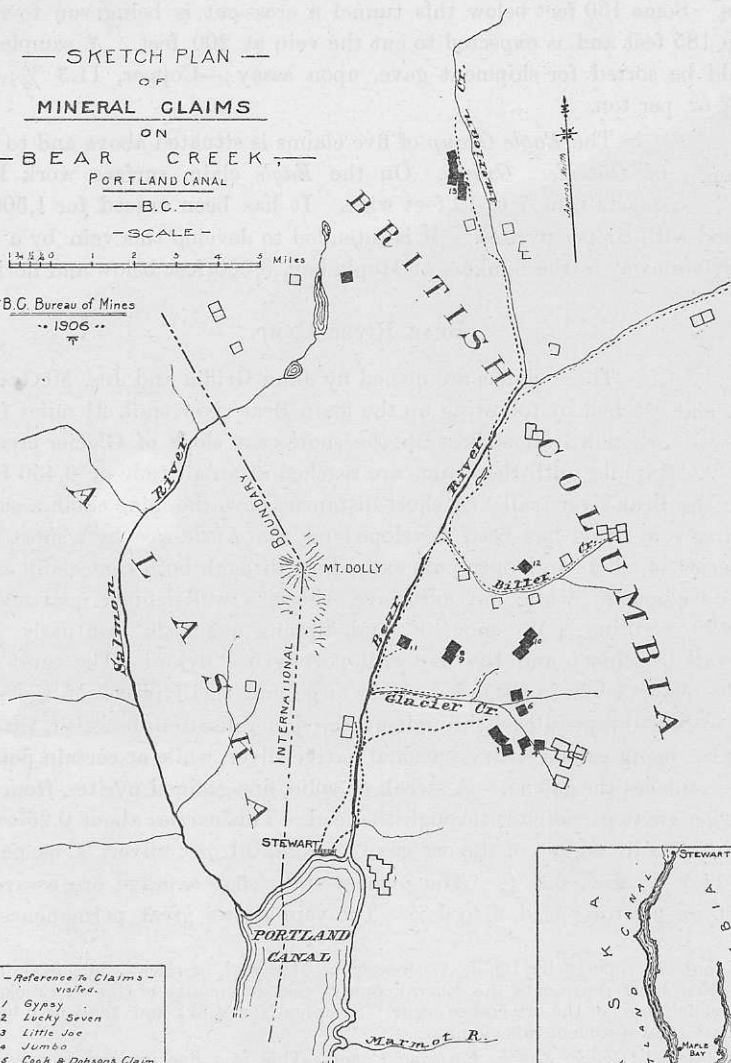
*The following is a report by Dr. J. A. Dresser, of Montreal, of a microscopic examination of this rock:—

"No. 4,218.—*Country Rock, Maple Bay, Portland Canal.*—This is a specimen of a dark gray rock which has uneven fracture and rather fine texture, is of medium hardness and effervesces with cold dilute hydrochloride acid. In the slides it is found to be a highly decomposed rock. The distinguishable minerals are feldspar, which is very turbid, and zoisite, the colourless hornblende which is without pleochroism. A part of the bisilicate constituents show rather brilliant polarisation colours and parallel extinction, and probably is bastite or some allied mineral species. The rock can scarcely be more definitely determined than as an extremely altered basic eruptive."

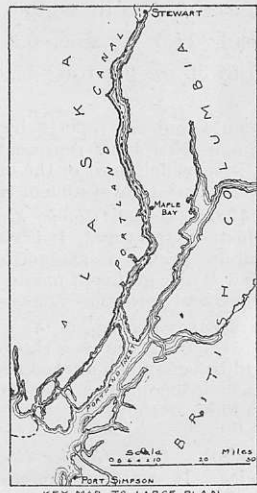
— SKETCH PLAN —
OF
MINERAL CLAIMS
ON
— BEAR CREEK —
PORTLAND CANAL

— B.C. —
— SCALE —
0 1 2 3 4 5 Miles

B.C. Bureau of Mines
.. 1906 ..



- Reference to Claims —
visited.
- 1 Gypsy
 - 2 Lucky Seven
 - 3 Little Joe
 - 4 Jumbo
 - 5 Cook & Dobson's Claim
 - 6 Silver King
 - 7 Evening Sun
 - 8 Lake View N°1
 - 9 " " N°2
 - 10 Silver Bow Group
 - 11 Mother Lode
 - 12 Roosevelt
 - 13 American Girl



KEY MAP TO LARGE PLAN

The *Blue Bell Group*, consisting of eight claims, is situated to the south-east of Maple bay, the principal work having been done on the *Blue Bell*. Some 4,500 feet back from the bay and at an altitude of 1,500 feet a tunnel has been run in 50 feet on a quartz vein from 18 inches to 5 feet wide, carrying copper pyrites. Some 150 feet below this tunnel a cross-cut is being run to strike the vein, that is now in 185 feet and is expected to cut the vein at 200 feet. A sample taken of the ore as it could be sorted for shipment gave, upon assay:—Copper, 11.3 %; silver, 5.2 oz., and gold, 0.02 oz. per ton.

The *Eagle Group* of five claims is situated above and to the north-east of *Outsiders Group*. On the *Eagle* claim surface work has exposed a quartz vein 7 to 12 feet wide. It has been traced for 1,500 feet, and is well mineralised with copper pyrites. It is intended to develop this vein by a tunnel and to ship the ore by tramway to the bunkers at Maple bay, 3,000 feet below and horizontally 3,000 feet distant.

BEAR RIVER CAMP.

These claims are owned by John Griffin and Jos. McGrath. They are reached by following up the main Bear river trail, $2\frac{1}{2}$ miles from the hotel, where a trail strikes up the south-east slope of Glacier creek, and rising rapidly until the claims are reached at an altitude of 2,450 feet and about $1\frac{1}{2}$ miles from the Bear river trail. A short distance above the mine cabin a small creek has exposed a quartz vein; this has been developed on the *Little Joe* by a short tunnel 20 feet long and a series of shots and open cuts extending through both that claim and the *Lucky Seven*. The development, while not extensive, shows a well-defined quartz vein averaging about 8 feet wide, striking N.W. and S.E. and dipping about 20° southerly into the hill. The hanging-wall is schist* and the foot-wall porphyritic dyke.† The vein shows marked brecciation, the quartz enclosing and cementing large and small pieces of the schist country rock. The vein is well mineralised throughout, the mineralisation, however, varying in places, the prevailing ore being galena with occasional native silver, while at certain points in the vein lead carbonate replaces the galena. A streak of solid, fine-grained pyrites, from 2 to 14 inches wide, occurs with great persistence through the lead. This carries about 0.25 oz. of gold per ton. An assay of a fair sample of the ore gave:—Gold, 0.1 oz.; silver, 32 oz. per ton; copper, trace; lead, 27.5 %; zinc, 6.3 %. The owners state that average ore assays:—Gold, \$4; silver, 25 to 30 oz. per ton; lead, 4 to 6 %. The vein shows great permanence, having been

* The following are reports by Dr. J. A. Dresser, of Montreal, of microscopic examinations of these rocks. Sample No. 4,202 represents the general country rock in vicinity of Glacier Creek—locally known as "schist"—in which most of the ore bodies occur. Samples Nos. 4,811 and 4,201 may be taken as representing the general dyke system of this vicinity:—

“No. 4,202.—*Schist, Glacier Creek, Portland Canal*.—This is a fine grained, iron gray rock having a distinct schistose structure. It is rusty along the joint planes. The microscopic section shows fine parallel lines of minute grains of magnetite in a very fine granular base of a dull gray colour. There are also present a few larger grains of pyrite and of feldspar. It seems to be a very fine-grained sediment, perhaps altered by proximity to some igneous intrusion. It might be called a ferruginous argillite.”

† “No. 4,881.—*Footwall of the Lucky Seven Claim, Bear River Camp, Portland Canal*.—This specimen is a fine-grained, dark green rock showing occasional small areas of a lighter shade. Under the microscope this is found to be a much altered rock, consisting of a ground mass of turbid secondary material, probably kaolin, in which the outlines of feldspar phenocrysts can be discerned. The feldspar is too much decomposed to admit of the exact species being determined. Is a much altered porphyritic rock, probably a porphyrite.”

“No. 4,201.—*Dyke, Glacier Creek, Bear River, Portland Canal*.—A dark gray rock with occasional lighter shades. It contains numerous small crystals of hornblende, which appear black to the naked eye. In the slide it shows a distinct porphyritic structure. The phenocrysts consist of hornblende and feldspar; the former ranges from straw colour to bronze. The feldspar phenocrysts, where suitably cut, give symmetrical extinction on the albite lamellae of 8 to 10 degrees, indicating that it has the composition of oligoclase. The ground mass is a finely crystalline aggregate of quartz and feldspar. The rock is a hornblende porphyrite.”



MAPLE BAY AND "OUTSIDERS" TRAMWAY PORTLAND CANAL.

clearly traced through the *Lucky Seven* and *Little Joe*, while extensions have been located at either end of these claims. Another small vein has been located on the claim, but no work has yet been done on it.

Gipsy Mineral Claim. This claim, owned by Beaton and Didsdale, adjoins the *Lucky Seven* and *Little Joe*, farther down the hill, but was not visited, as the shaft was reported partly filled with water. The owners state that they have sunk a shaft 40 feet on a quartz vein from 2 to 5 feet wide, in schist, mineralised with galena and pyrites, the values running \$30 to \$40 in gold, 20 oz. per ton in silver, and 20 % lead. The owners intend to sink farther in the spring.

Cook and Dobson's Claim. This claim is located at the headwaters of the south fork of Glacier creek, three miles from Bear river. An open cut into the hillside has cut a mineralised zone in the schist, in which stringers of quartz run into and impregnate the country rock. This may be a continuation of the *Little Joe* vein, or it may be a parallel vein, though it is not so strong nor well defined, and is not so well mineralised. The width of the mineralisation is uncertain, but may be taken as about 8 feet.

Jumbo. The *Jumbo* mineral claim, owned by Sam Gurley and R. B. Dodge, is situated at the headwaters of the south fork of Glacier creek, at an elevation of 2,190 feet, and is distant about $3\frac{1}{2}$ miles from Bear river. On the face of an overhanging bluff 100 feet high is a mineralised zone in the schist, which here has a strike east and west, with a dip of 22° into the hill. This zone is a quartz impregnation of the schist, there being quite as much schist as quartz. The entire mass is, however, more or less mineralised with lead carbonate and galena, and also carries iron pyrites. Little development has been done beyond a few shots put into the vein, and it is impossible at this stage to say the average values in the ore-body, as it is much decomposed, and it is probable that the greater part of the values have been leached out; but, judging from the results obtained on other claims, there is every reason to expect that it may prove a valuable ore-body. A selected sample of the ore taken for assay gave:—Lead, 69.2 %; zinc, 1.5 %; gold, 0.03 oz., and silver, 47.2 oz. to the ton.

Evening Sun. The *Evening Sun* mineral claim, owned by Rush and Baggs, is reached by a zig-zag trail up the north side of the middle fork of Glacier creek, and 400 feet higher than the cabin, which is about three miles from Bear river and 1,950 feet above sea level. A vein outcrops on the hillside, in schist country rock, on which a tunnel has been driven 36 feet. The vein dips vertically, strikes N. and S., and is from 3 to 4 feet wide, with well-defined walls. The vein-matter is largely calcite, fairly well mineralised with galena and a little iron pyrites. A sample of the ore gave, upon assay:—Gold, 0.04 oz. per ton; silver, 62.2 oz. per ton; lead, 27.3 %; with a considerable quantity of antimony.

Silver King Claim. The *Silver King* mineral claim, owned by A. Nelson, is directly above Rush and Baggs' cabin, the highest workings being at about 500 feet greater elevation. Several open cuts have been made which show a quartz impregnation of the schist dipping vertically, and outcropping up and down the hill. This carries some blend with a little pyrites and galena. A selected sample of the mineral gave, upon assay:—Gold, 0.02 oz.; silver, 43 oz.; zinc, 19 % per ton.

Lake View Group. *Lake View Nos. 1 and 2* mineral claims are owned by Messrs. Bebeau and McKay. To reach these claims the main trail up the south side of Glacier creek is followed for $1\frac{1}{2}$ miles, then Bebeau and McKay's trail turns off to the left and follows up a small creek a distance of about three-quarters of a mile. The trail rises rapidly at first, but towards the top flattens out considerably. At an altitude of 2,200 feet above Bear river a quartz vein outcrops in a small creek. This has been prospected by

trenches and open cuts for a distance of 200 feet. These cuts and trenches have been sunk to the vein through two feet of peaty mould and two feet of broken schist. The work has not been sufficient to determine with certainty the nature of the country rock or how the vein occurs, but it appears to be a quartz vein in schist, cutting diagonally across the country rock, and having an average width of about 4 feet. The lead is well mineralised, and carries a considerable quantity of high grade ore in banded formation, the mineralisation being fine-grained galena and pyrites. An assay of the best ore gave the following result:—Gold, 0.08 oz. per ton; silver, 44.00 oz. per ton; lead, 16%; zinc, 13.5%.

The *Mother Lode* mineral claim, owned by Jas. McKay, is on a small creek flowing into Bear river from the east, five and a half miles from the north of Bear river. At a quarter of a mile up the side of the hill from Bear river, and 300 feet above it, is a quartz impregnation in a granitoid rock* with a strong quartz vein some eight inches wide and a number of stringers parallel to it, in all about four feet wide. This shows considerable mineralisation, with iron pyrites and a little jamesonite in places. The vein outcrops across the hill N. 10° W., and dips 60° to the east. Assays of ore gave: gold, 0.05 oz. per ton; silver, 4.2 oz. per ton.

The *American Girl Group*, owned by G. Stewart, is situated on American creek, some 15 or 20 miles from salt water, following up Bear river. This claim was not visited owing to high water in American creek making the crossing dangerous. According to general report, there is on these claims a very considerable showing of galena or jamesonite, carrying, in places, high values in silver.

In addition to the claims already mentioned, there are, in the district, a large number of claims which it was impossible, under the circumstances, to visit, on the most of which comparatively little development work has been done. The owners of a number of these claims supplied the writer with samples of ore from their respective claims, which samples were assayed at the Government Laboratory, Victoria, and the results are given as follows, in order to indicate further the class of ore so far encountered in the district, without assuming responsibility except for the assays:—

The *Black Knight* mineral claim is situated on the east side of Portland canal, comparatively near the water. The sample received appeared to be nearly solid galena and zinblende, with little gangue matter, and contained: lead, 43.0%; zinc, 28.0%; silver, 16.4 oz. to the ton.

The *Silver Bow* claim, owned by G. Starke and M. K. Rodgers, is situated about three miles up Glacier creek from its junction with Bear river, and at an altitude of over 3000 feet. The sample assayed consisted of mixed sulphides of lead, antimony and zinc, containing: lead, 17.1%; zinc, 8.0%; antimony, about 20%; silver, 8.2 oz. to ton; gold 0.04 oz. to ton.

* The following is a report by Dr. J. A. Dresser, of Montreal, of a microscopic examination of these rocks:—

"No. 4,205.—*Country Rock, Mother Lode Claim, above Glacier Creek.*—This specimen is a pinkish gray granolithic rock of medium texture. The only minerals distinguishable in the hand specimen are feldspar, which seems to make up the body of the rock, and black specks of some bisilicate mineral. In the thin section it is found to consist of feldspar, quartz and hornblende, and with which a small amount of biotite is intergrown and accessory amounts of sphene. The feldspar consists of orthoclase and of finely striated plagioclase, evidently of the oligoclase-andesine type. The rock is a hornblende-biotite-granite.

"No. 4,208.—*Agglomerate, Mother Lode Claim, above Glacier Creek, Portland Canal.*—This is a gray, finely mottled rock, containing what appear in the hand specimen to be a few pebbles of granite, of $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter. The thin section is taken wholly from what seems to be the matrix of the rock. This consists of a finely crystalline ground mass, evidently of quartz and feldspar, which contains phenocrysts of feldspar. The feldspar is found to have a composition of oligoclase, or some variety near the acid end of the plagioclase series. A few specks of pyrite are also present. The rock is a quartzless porphyrite."

(This rock occurs some distance above the *Mother Lode* claim, at an elevation of about 4,000 feet, and there forms an important member of the general country rock formation.)

The *Roosevelt* M. C. is on Bitter creek, a tributary of Bear river, about 14 miles from Portland canal, and is owned by F. Rainey, of Stewart, B. C. The sample received assayed: lead, 24.7%; copper, 1.5%; silver, 20.0 oz. to ton; gold, 0.02 oz. to ton.

The *Franklin No. 1* mineral claim, also owned by F. Rainey, is located on the west side of Bear river. The samples received assayed: copper, 6.2%; nickel, none; silver, 2.2 oz., and gold, 0.02 oz. to ton.

KEMANO RIVER.

The Kemano river flows into Gardner canal on the north-east side, 30 miles from the mouth of the canal. It is a stream of considerable size and is navigable for canoes a distance of 20 miles, but is so swift flowing as to require "poling" or "lining" all the way. At the mouth of the river there is a good harbour, with anchorage in not too deep water. The mountains, which rise abruptly to a height of 4,000 or 5,000 feet, seem to be entirely granitic and show very marked glaciation to a height of 2,000 feet or more. At eight miles from the mouth of the river, Pintledanne creek flows in from the north. From this creek there is a good trail, with an easy grade, to Tatsa lake, which in turn flows into Ootsa lake. The height of the pass is said to be 4,000 feet and the distance from Gardner canal to Tatsa lake, 20 miles. This pass seems to afford an easy route to the Ootsa lake country.

The *Pintledanne Group* of mineral claims was staked in the spring of 1906 by Messrs. Dakin & Pocklington, of Victoria. The claims are reached from the north side of Gardner canal by following up the Kemano river to the mouth of Pintledanne creek, a tributary flowing in from the north. There is an old Indian trail following up this creek and over the summit to Tatsa lake, in the Interior. This follows the north bank of the creek up for a distance of about 2½ miles, when it crosses the creek to the south side and rapidly ascends the mountain, reaching, at an altitude of a little over 2,000 feet, the claims in question.

Pintledanne creek runs through high granitic mountains, which rise on either side to an altitude of 4,000 feet. On the mountain on the left side of the creek, two miles from its junction with the Kemano river, is a large and well-defined quartz vein. This is easily seen where the vein crosses the gulches which run down the mountain side. The vein has an approximate width of 100 feet and crosses diagonally in a north-westerly direction over the range, a distance of several thousand feet. On this vein the *Pintledanne Group* of claims has been staked. The vein was examined where it crossed the two gulches at an altitude of 2,000 feet above the Kemano river, and at a distance from it of about two miles. The vein is well and strongly defined, with a frozen contact with granite on the lower side and diabase on the upper side. The diabase dyke is of a later date than either the vein or the granite. The vein-matter is rather sparsely mineralised with copper pyrites, bornite and molybdenite unevenly disseminated through the mass, and it is doubtful, with the present showing on the property, whether it would pay to work. The ore, however, appears to be well suited for concentration, there is ample water power to operate a mill and the transportation problem could also be easily solved. Careful prospecting might disclose pay chutes in the vein which would materially help the property.

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