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BRITISH COLUMBIA BUREAU OF MINES.

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BULLETIN No. 1, 1910.

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Report on certain Mineral Claims in Atlin, Bella  
Coola, and Nanaimo Mining Divisions

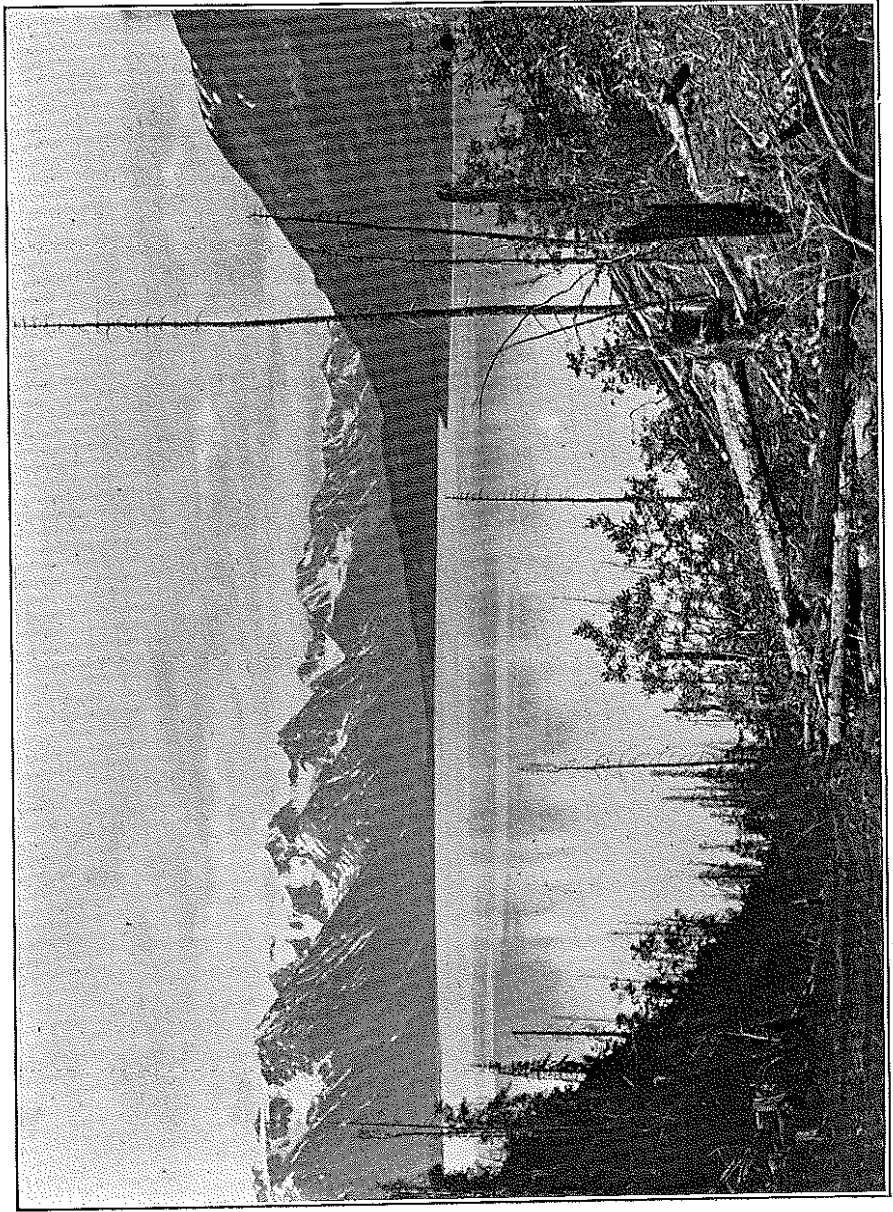
—BY—

HERBERT CARMICHAEL,  
Government Assayer.

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SOUTHERN END OF TAGISH LAKE.

## ATLIN MINING DIVISION.

### Northern Partnership Group.

This property is better known by its old name of the "Engineers Group"; the claims now included in the group are Engineer No. 1, Northern Partnership No. 1, Northern Partnership No. 2, Northern Partnership No. 3, Haddon, Big Engineer Fraction, Little Engineer Fraction, Plato, and Mickey. The owners are the Northern Partnership Syndicate, with head office at Atlin, B. C. The mines are situated on the east side of Taku Arm of Tagish Lake, ten miles farther up the lake than Golden Gate, in Atlin District. This property, then known as the "Engineers Group," was reported on by the Provincial Mineralogist in 1904; since then it has changed hands, having been purchased by the present owners in 1907. The country rock on this group of claims is slate, cut by igneous dykes and traversed by numerous quartz veins, some mere stringers and others up to 30 feet wide. A very considerable amount of surface prospecting and development of these veins has been done, consisting of numerous open cuts and shots put in at different points; in all cases this work has shown up clearly defined quartz veins, traversing the slate formation, cutting through both the country rock and the dykes before referred to. The general strike of the country rock is N. 65° W., with a dip of 35 degrees to the north-east; the majority of the dykes seem to have a strike 15 degrees farther north, but to have a much greater dip, being 80 degrees to the south-west. These dykes are clearly marked, as owing to their harder nature they have been left standing, while the softer slate rock has been eroded away. The main quartz veins seem to have a general strike of about N. 10° W., and a dip of 70 degrees to the east, but there are numerous cross-veins whose dip and strike vary considerably. The actual mining done by the present owners has been confined to the smaller quartz veins from 6 inches to 2 feet wide; the ore from these veins yielding high values in free gold and tellurides. According to the statement of the owners, 800 lbs. of the selected ore yielded 240 oz. of gold, and from the appearance of this ore, which is in places crusted with free gold, there does not seem any reason to doubt the statement.

The larger veins are being opened up by shots and crosscuts and are said to give values from \$20 to \$100 per ton, but as yet none of this ore has been run through the mill, and until such test has been made it is impossible to form any safe idea of their value. The quartz looks good; the veins are clearly defined and have been traced for considerable distances; they can be easily worked, so there is a fair prospect that they will yield good, if not high, returns.

From the shore of the lake the ground rises abruptly to a bench some 500 feet above the lake; this bench goes back some distance, when the mountains rise to snow-capped peaks 4,500 feet high. At 300 feet above the lake a quartz vein has been worked by two open cuts, one a little below the other and having a total length of 170 feet; in these cuts the vein is clearly defined and has an average width of about 2 feet 6 inches, the quartz carrying a considerable amount of calcite and showing free gold in both the quartz and the calcite, with specks of tellurides through the former. The

ore is generally straight quartz with calcite, but in places it is a slate breccia which has yielded high values from the thin intersecting seams. The ore from these open cuts is being carefully sacked and hauled to the stamp-mill on the shore of the lake and forms the base of the present ore-supply.

A short distance to the north-west a small cross-vein, running towards the vein just mentioned, is being worked by an open cut, and similar ore has been taken out. About 1,000 feet south of the large open cuts and at 100 feet lower altitude is what is locally known as the "South Vein." This is a brecciated quartz vein 6 feet wide with well-defined walls, but as yet no work has been done on it. A small cross-vein runs from this vein to the lake, and from the lake-shore a tunnel is being started which will follow the strike of the vein, which at this point is some 18 inches wide and carries a very large proportion of calcite with free gold crusted in the solid calcite. Work was commenced on this vein as it showed high values, was close to the stamp-mill, and easy to work.

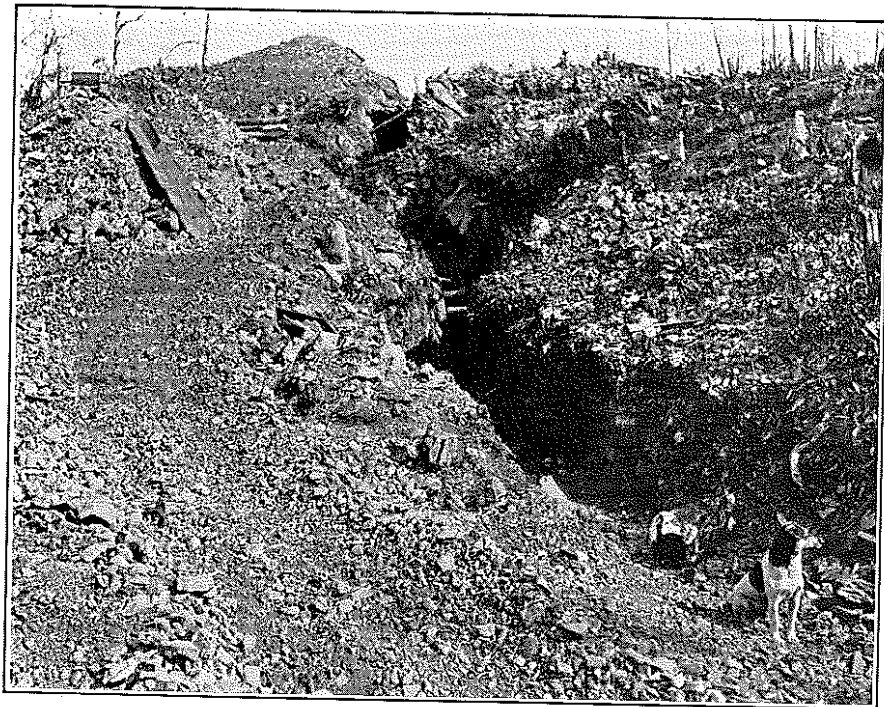
On the Big Fraction claim, 2,000 feet north of the large open cuts and 500 feet above the lake, what may be called the main vein has been uncovered by a few shots. This is a quartz vein with a north and south strike and including an amount of slate breccia; the width of this vein is still undetermined, but may be taken as at least 30 feet, while it has been prospected by an open cut 1,000 feet farther north and traced still farther through several claims. It is proposed to run a few tons of this ore through the mill to ascertain its value, which is at present unknown.

About 100 feet back of the shore-line and 100 feet above the lake is a quartz vein of undetermined width, but probably 8 to 10 feet wide; to crosscut this vein the former owners ran a tunnel in 150 feet and did some 150 feet of drifting. They did not get in far enough to cut the ledge seen above, but cut a number of small stringers which they drifted on, in one place cutting through about 10 feet of quartz-slate breccia which may have contained values. The present owners intend pushing the tunnel till the vein is reached.

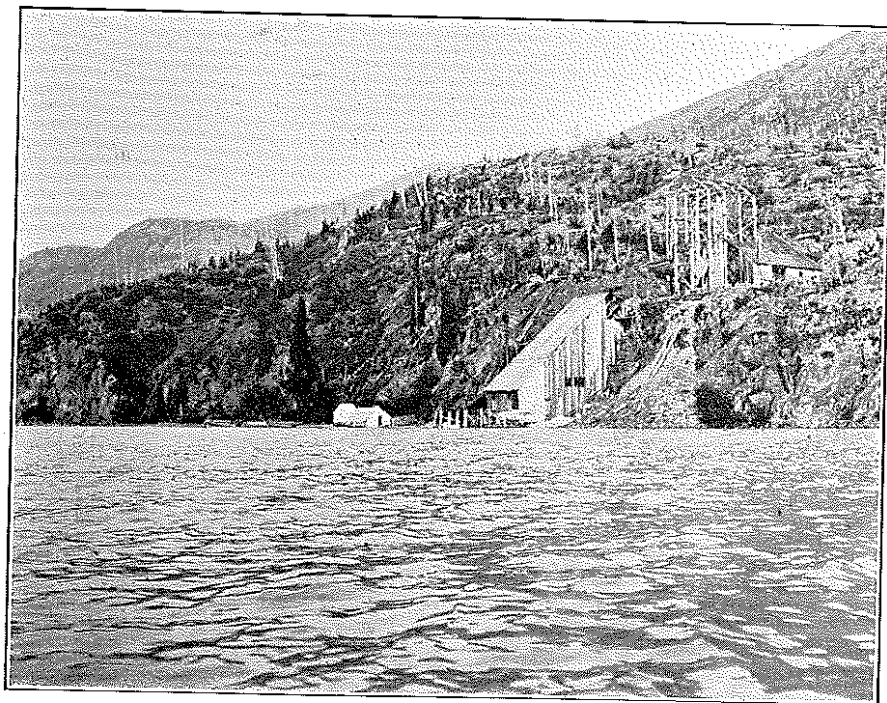
A short distance to the south, where this vein outcrops on the lake-shore, the former owners sunk a shaft said to be down 70 feet, but now full of water, and no data was obtainable from it. Close to this shaft on the lake-shore a two-stamp mill was set up in March of this year and commenced running in June on the rich ore from the open cuts, yielding, as stated, 240 oz. of gold from 800 lbs. of ore treated; lower grade quartz was being run through on August 5th, and said to be yielding \$100 per ton.

The plant consists of two heavy stamps and a double-discharge battery running over two amalgamated plates; a vanner is being set up to save the concentrates, which at the present time are largely going into the lake. Power is furnished by a small engine and boiler, but when a larger plant is installed ample water-power is to be had from a stream near the mill.

The property contains a number of small quartz veins carrying high values in free gold, which give good returns under the present primitive method of working. There are larger veins, which, with a well-equipped plant and economical methods, would probably yield a large tonnage of lower grade quartz which would pay for treatment; these veins should first, however, be prospected and carefully sampled.



OPEN CUT, NORTHERN PARTNERSHIP GROUP.



GENERAL VIEW, NORTHERN PARTNERSHIP CLAIMS.

## BELLA COOLA MINING DIVISION.

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Burke Channel is an inlet of the sea running eighty miles north-easterly into the mainland coast; at the head of this inlet is Bella Coola, in the centre of the district of that name. The mouth of Burke Channel is on the main waterway between southern British Columbia and Alaska, and is 300 miles north of Vancouver. Many of the steamships call at the mouth of the inlet on their way north and south, the stopping points being either Bella Bella or Nannu, where accommodation can be had, and Bella Coola reached by either launch or sailing-boat. A direct service is, however, maintained by the Boscowitz Steamship Co., the company running a steamer every two weeks from Victoria and Vancouver direct to Bella Coola. A good trail runs from Bella Coola into the interior plateau.

The original country rock of the district seems to be a quartz porphyry which has been largely changed to a gneiss, flow structure being plainly seen.

These claims were formerly owned by the North Coast  
**Sure Copper** Copper Company, of Spokane; the title of this company has,  
**Mountain** however, been allowed to lapse and all claims have run out.  
**Group.** The principal work has been done on the Olga claim, half a  
 mile north of the Nectlessouay River. Some 850 feet  
 above the river on the west bank there was a slight fissured movement in  
 the hornblende-diorite country rock; this fissure showed a little iron and  
 copper stain, and on this a tunnel was run 74 feet into the mountain, but  
 no mineral of value was found, work being entirely in country rock. About  
 300 feet below the upper tunnel another tunnel was run in 120 feet to tap  
 the showing above, but this tunnel is run in country rock all the way, with  
 no ore showing.

Time did not permit a visit to what is believed to be one of the best  
 claims at present known in the district, and the following information was  
 obtained from one of the owners:—

This group of claims is situated ten miles up on the  
**Bella Coola** left bank of the Sallumt River, a tributary of the Bella  
**Chief Group** Coola, joining the latter river twelve miles from salt-water.  
 Here two tunnels—one 75 feet and the other 25 feet  
 long—have been run into the hillside on a granite and limestone contact  
 which shows a brecciated copper ore said to give the following values: Gold,  
 .25 oz.; silver, 5 oz.; copper, 9 per cent. The tunnels have been started on  
 the same level but run in a north-easterly and south-easterly direction. The  
 manager is O. T. Kellog, of Bella Coola.

Several new locations have been made this summer at elevations of  
 about 3,000 feet; no work has yet been done on these claims.

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## NANAIMO MINING DIVISION.

### VALDES ISLAND.

The name Valdes has for many years been applied to what was supposed to be one island, lying between Vancouver Island and the Mainland, opposite the mouth of Bute Inlet, and separated from Vancouver Island by Seymour Narrows. This island was first charted by Captain George Vancouver in 1792, but subsequent, in fact recent, explorations and surveys have shown that instead of being only one island, it was really a group of three or four islands, separated in a most remarkable manner by narrow salt-water passages, through which the spring tides rush with great violence. The name "Valdes Island," however, still is applied to the group, which is distant some 140 miles from Vancouver City, with which point, and also with Vancouver Island ports, frequent steamboat communication is maintained. This group of islands has for many years yielded an immense quantity of beautiful fir and cedar timber, and is traversed in many directions by old logging roads.

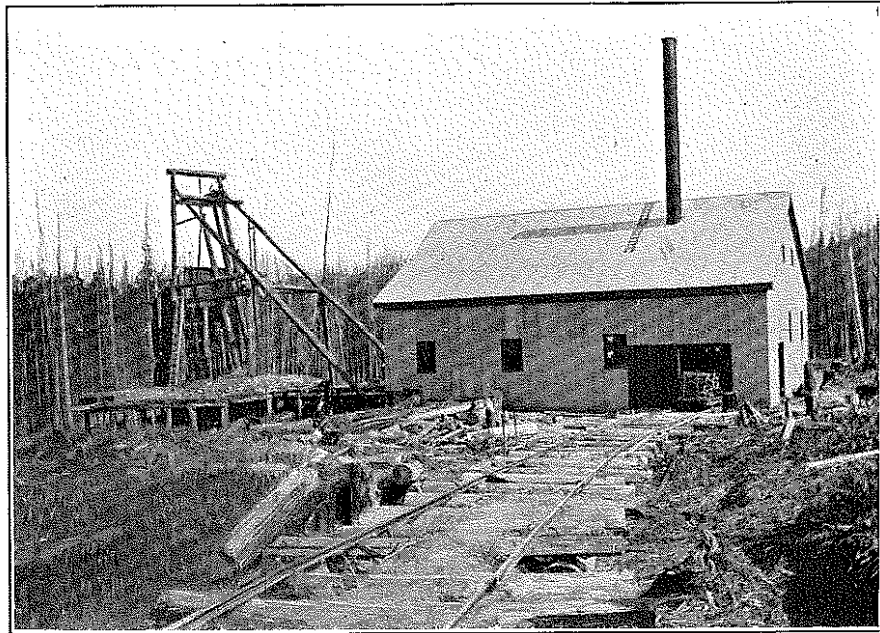
From Open Bay, on the east coast of the most southerly island of the Valdes Group, a belt of limestone extends in a north-westerly direction towards Granite Bay, on the north-west coast; associated with which, and at certain points penetrating it, is a dark igneous rock having in places a porphyritic structure, while on either side of the limestone the country rock is granite. Along the belt referred to a series of ore outcroppings have been found and claims located.

These properties have been consolidated as two groups, **Great Granite Mines.** the Lucky Jim and Great Granite, owned by the Great Granite Development Syndicate, Limited, of Vancouver; Crown grants are being applied for. These properties were examined for the Department of Mines in 1908, and since then the most of the development work has been done on the Lucky Jim; this claim is situated close to the Hastings Sawmill Company's railroad track, about two miles and three-quarters from deep water at Granite Bay.

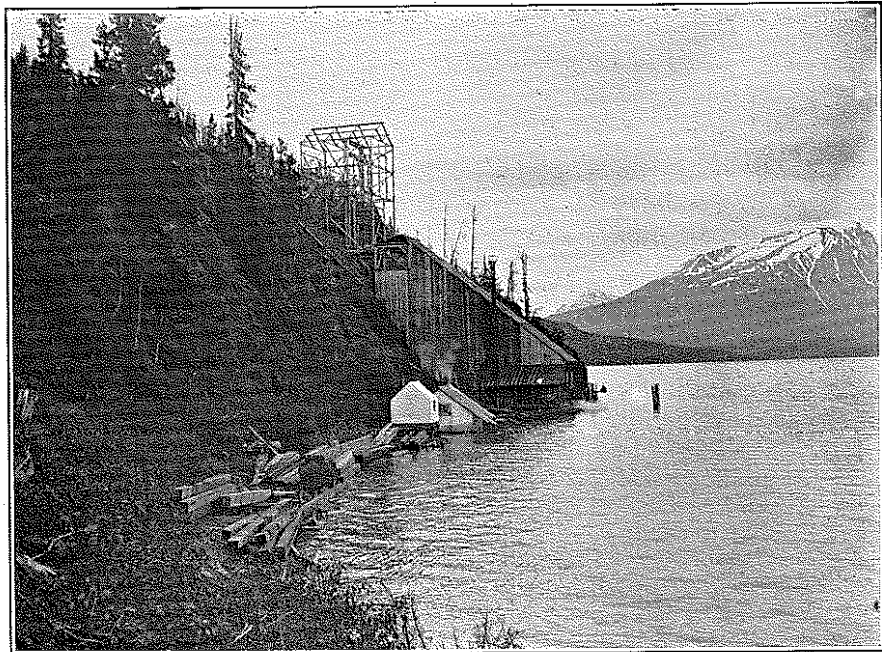
On the Lucky Jim the shaft has been continued to a depth of 110 feet, which follows the vein at an angle of 80 degrees. At the time the property was visited a change was being made from hand-drilling to machine work, and an eight-drill Rand compressor and hoist were being installed. While this was being done the shaft had been allowed to become half filled with water and it could not be examined.

The management stated that there was good ore for the entire depth of the shaft and that 184 tons taken from about 75 feet down gave \$22 in gold, 8 per cent. copper, and 3½ oz. of silver per ton, and at the bottom of the shaft the ore was even of a higher grade; an examination of the ore on the dump would seem to confirm the above statement.

The ore-zone runs in a south-easterly direction, and about 300 feet south-east of the shaft a prospect tunnel has been run in 150 feet and has cut across the ore-body diagonally; while this has not developed up any large ore-body, yet the ore is amply proved to extend in this direction and to be of the same nature and quality as that obtained from the shaft. The tunnel is 55 feet below the collar of the shaft.



SHAFT AND COMPRESSOR HOUSE, LUCKY JIM MINE.



STAMP MILL, NORTHERN PARTNERSHIP GROUP.



To the north the country rock is a great granite batholith, while to the south it is a crystalline limestone extending for miles. The ore in these claims seems to have been formed along diabase dykes of considerable size, but the ore-bearing solutions appear to have come up at a later date during a second period of movement along old fracture planes. The gangue matter is a crystalline limestone in which the ore occurs as bands and masses and has an appearance which can only be described as exhibiting a flow structure under heat; there is very little evidence of calcite or quartz, the main ore-body being in solid crystalline limestone, the latter enclosing large fragments of the original diabase dyke.

In an open cut in the Lucky Jim a cross-dyke of still later date is seen; the latter cuts the ore-body and also the larger diabase dyke. The smaller dyke is more porphyritic in character and the appearance of telluride in quartz may be associated with the latter dyke.

Two parallel zones of mineralisation occur 300 feet to the north and 300 feet to the south of the Lucky Jim shaft. It is intended to crosscut these zones when the shaft has been sunk to a depth of 200 feet.

The main ore-zone has been prospected for a distance of 1,500 feet by open cuts and shots and gives indications of ore at all points, the general outlook for the property being encouraging.

The equipment consists of a small boiler and hoist, a large boiler and eight-drill Rand compressor and pumps, the whole being installed in a very workmanlike and substantial manner.

Since the above was written information has been received that the shaft has been pumped out and the new compressor plant started up; east and west drifts have been started in the shaft from the 100-foot level, the east drift being in 25 feet and the west 15 feet, showing up good ore, with a copper and gold telluride mineralisation.

The group consists of seven claims, viz.: Granite, Little  
**Great Gold** Copper, Great Gold, Boulder, and Little Silver, owned by  
**Group.** the Great Gold Development Syndicate, with head office in  
the Winch Building, Vancouver. The principal work has  
been done on the Great Gold claim, on which a large prospect hole 8 feet by  
10 feet has been sunk to a depth of 8 feet. There is a good showing of ore  
in this hole on a granite and limestone contact, the mineralisation on the  
surface being mostly pyrrhotite, but giving place to copper-pyrites in the  
bottom, the gangue matter being a dark, fine-grained rock having a consider-  
able amount of lime in its composition. Very little quartz was seen here,  
limestone being noted to the north and granite to the south.

A general shipment of ore from this prospect hole is said to have run  
6 per cent. copper, \$1 to \$2 in gold, and 3 to 5 oz. of silver per ton. This  
appears to be a fair average of the ore.

This property is situated near the Hastings Sawmill  
**White Swan** Company's railroad track, some four miles from Granite  
**Group.** Bay, at a slightly higher elevation than the Lucky Jim  
claim. The group consists of the White Swan, Sunrise,  
and Mystic Cave, and is owned by the Canadian-American Exploration  
Company, Limited, of Vancouver.

A number of prospect holes and open cuts have been made, principally  
in a diabase rock near a limestone contact. This surface work shows a slight

mineralisation, consisting largely of pyrrhotite with pyrites, a little chalcopyrite and arsenical iron, the latter, however, not yielding the high gold values associated elsewhere with this mineral. A large shaft, 11 feet by 8½ feet, has been sunk vertically 50 feet in diabase rock; from the bottom of the shaft a drift has been run N. 50° W., and another drift also starts from the shaft running S. 50° E. for 30 feet, then turning sharply to S. 45° W. and continuing for 50 feet farther. Work at the end of this drift has been discontinued, but is being pushed from the turn in a direction S. 50° E.

The drifting has been done with the object of cutting the lime diabase contact, where it is hoped ore may be found. All the underground work is in a rather tight diabase rock, very sparsely mineralised with pyrrhotite and a little copper-pyrites, but at no point has commercial ore yet been struck. The mineralisation is of a different character to that found in the Great Granite Mines, the gangue matter being quartz instead of limestone; the contact and strike of the mineral zone is also more obscure.

The equipment consists of a small steam-hoist.

#### LASQUETI ISLAND.

This is a small, rocky island some fifteen miles long, situated towards the southern end of Texada Island, in Nanaimo Mining Division, and easily reached from either Nanaimo or Vancouver.

This group of claims is situate on Section 21, on the north shore of Lasqueti Island, a short distance west of West Point, and is owned by the Lasqueti Mining Company, of Vancouver; Mr. Percy Williams, engineer. The general country rock around Tucker Bay and West Point, on the north shore, is diabase, fissured in places and cut by occasional dykes of the same rock. A fissured zone occurs on the St. Joseph claim, running directly into the island, with a north and south strike and dipping 70 degrees to the north; the fissure, which is about 6 feet wide, is filled with crushed diabasic rock, showing much slickensiding and movement, but is very tight; this rock appears quite similar to the country rock, and may have been derived from it or from a later dyke which had been subsequently crushed up.

A tunnel was started about 30 feet above high water, the bank at this point rising abruptly, and has been run in 93 feet approximately on the strike of the fissured zone. At 16 feet from the mouth a crosscut has been run to the left for 20 feet; this has cut through the zone referred to and is in the solid country rock.

Higher up the bank, and 38 feet vertically above the tunnel, an inclined shaft has been sunk to a depth of 100 feet, at an angle of 70 degrees; this follows the fissure for 80 feet, when the latter dips at a slightly greater angle. It is proposed to make a station at the 100-foot level and run a crosscut west through the fissured zone.

The ore occurs in small seams and stringers in the fissure, and consists of marcasite and chalcopyrite. The mineralisation throughout is very sparse, the fissure apparently having been too tightly filled with rock at the time the mineralised solutions attempted to penetrate it to allow of the formation of any considerable body of ore.

VICTORIA, B. C.:

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1910.