

REPORT OF  
EXAMINATION  
OF  
THE LOUGHBROUGH MINE  
ROY, E. C.

To  
Yair Yankee Girl Gold Mines Ltd.

By  
Charles C. Starr,  
October 10, 1939.

## THE LOUGHBOROUGH MINE

**INTRODUCTION:** Mr. C. M. Ladd, President and Managing Director, showed the writer over the property.

Neither the claims nor the workings had been surveyed; the claim map herewith is based largely on the descriptions given in the location notices; the maps of the workings are based on Brunton compass surveys by the author; elevations are by aneroid barometer.

Data obtained by the writer on a previous visit is incorporated in this report.

**LOCATION:** The property is situated on the east side of Loughborough Inlet about 130 miles, airline, northwest of Vancouver, B. C., in the Nanaimo Mining Division.

The camp is about  $1\frac{1}{2}$  miles north of Roy post office, and a little south of Gray Creek.

**TRANSPORTATION:** The property is well situated for cheap transportation. The Union Steamship Co. have a weekly service to Roy where they land passengers and light freight; they will deliver larger shipments direct to the float at the camp site.

A good tractor road leads from the float to the mine, a distance of  $1\frac{1}{2}$  miles. Good rates are obtainable for the shipment of ore by water to the Tacoma smelter.

**PROPERTY:** The property consists of twelve claims extending easterly from the shore-line as follows:- Gordon, McLeod, Loughborough, Sea View, Gold Drop, Mountain top, Leora, Stuart, Bill Willis, Carolina, Starr, and Bliss. All claims are held by location.

**CLIMATE:** The climate at the property is similar to that at Vancouver, though a little colder. There is generally very little snow, nor excessively cold weather, and conditions are quite favourable for winter work.

**TIMBER:** There is an abundant supply of good timber for mining purposes, conveniently located, as well as a considerable amount of larger timber.

**WATER:** Water is plentiful and conveniently located for domestic and other uses. A stream situated about 1200 feet south of the tunnels has a fall of 300 feet in a short distance and could be cheaply utilized as a source of power. The minimum flow of water has not been ascertained but it is roughly estimated that 100 H. P. may be obtained the year around.

**TOPOGRAPHY:** The topography is quite variable, with low to medium slopes interspersed with knolls and hills with small cliffs on their lower sides.

The main tunnels on the Loughborough claim start at the base of cliffs at an elevation of 420 feet, run diagonally with the slope, and can within a reasonable distance obtain a maximum depth below outcrops of nearly 350 feet. Just below the tunnels there is a swampy flat.

**EQUIPMENT:** The following equipment is installed at the portal of the Lower Tunnel in a well built log building:-

- 1 Gardner Denver two cylinder air-compressor delivering about 125 cu. ft. of air per minute.
- 1 Leland four-cylinder gasoline engine, 30 H.P. (English rating)
- 1 Gardner Denver D-79 drill
- 1 " " stoper
- 1 Blacksmith outfit for hand sharpening of steel
- 1 Mine car
- Drill steel, track, pipe, small tools etc.

There is also:-

- 1 Massey-Harris 50 H. P. Tractor, with trailer
- 1 Speed-boat, 17½ feet long, 65 H. P.
- 1 Row boat, 14 foot.

The camp, situated at the shore on the Gordon claim, consists of the following frame buildings:-

- 1 Bunkhouse about 16 x 24 ft.
- 1 Cookhouse " 16 x 24 ft.
- 1 Freight platform and float
- 1 Change room about 12 x 14 ft.
- 1 Office 16 x 20 ft.- 3 rooms
- 1 Cabin 10 x 12 ft.

The camp will accomodate about twelve men.

**DEVELOPMENT:** (See Maps) Some development has been done on six veins, as follows:-

Main Loughborough Vein	Elev.	Drift	X-cut	Rz	Shaft
Upper tunnel	460	90	28	30	70
Lower tunnel	420	150	115	15	-
Shaft level	400	37	12	12	-
		277	143	57	70

There are also approximately 2000 Sq. Ft. of stoping and, on the surface, several small open-cuts and strippings.

South Loughborough Vein - 1 10 x 12 ft. open cut, two small open cuts, about 100 Sq. Ft. of stripping, and 190 feet of trenching in which the vein was not found.

Stuart South Vein - One 20 foot open-cut followed by a 20 ft. incline now inaccessible on account of water. One 25 foot crosscut tunnel.

Stuart north vein - Several open-cuts and trenches aggregating about 50 feet, 10 feet of tunnel, and 10 feet of shaft.

Leora Vein - 10 feet of tunnel and several small strippings.

Mountain Top Vein - Stripping 3 x 10 Ft and a few pot-holes.

Total underground work - Drifts & crosscuts 465 feet.  
Shafts, inclines, & raise 155 "

51628/642.

PHONE: SEYMOUR 8915

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**J. R. WILLIAMS & SON**

PROVINCIAL ASSAYERS

BASEMENT, ARTS & CRAFTS BLDG.  
576 SEYMOUR STREET

VANCOUVER, B.C. Oct. 12.th. 1939.

LTS of Assays made on samples of ore submitted by:- Mr.C.C.Starr. M.E.

MARK	Gold ozs.p/t.	Value @ \$35.00	Silver ozs.p/t.	Value @ \$0.35	Total Value per 2000 lbs. of ore.
23	0.82	28.70	0.20	0.07	\$28.77.
24	0.01	0.35	trace	-----	\$0.35
25	0.17	5.95	0.24	0.09	\$6.04
26	0.34	11.90	0.70	0.24	\$12.14
27	0.22	7.70	0.20	0.07	\$7.77.
28	0.16	5.60	0.25	0.08	\$5.68.
29	0.73	25.55	3.20	1.12	\$26.67.
30	0.04	1.40	0.16	0.05	\$1.45.
31	0.01	0.35	trace	----	\$0.35.
32	0.03	1.05	0.20	0.07	\$1.12.
33	trace	---	trace	---	-----.
34	0.12	4.20	0.69	0.24	\$4.44.
35	0.09	3.15	0.32	0.11	\$3.26.
36	2.90	101.50	13.18	4.60	\$106.10.
37	0.28	9.80	0.12	0.04	\$9.84.

Assays made by





**GEOLOGY:** The country rock of the property is a coarse hornblende-diorite of Jurassic age, which underlies nearly all of the property. It has been intruded by very irregular dikes of a dark basic rock which is usually fine grained. This rock has the general appearance of a diorite and is probably a later intrusion from a segregation of the original hornblende-diorite magma.

There are also irregular intrusions of acidic differentiates of the normal hornblende-diorite, which are older than the dark diorite, which, in turn, is older than the vein. At one point a small dike of rock similar to the dark diorite cuts the vein. There are also occasional small pinkish dikes of aplite which appear to be of no especial importance.

**VEINS:** The veins usually occur along the contact of the hornblende-diorite and a dark diorite dike, but sometimes penetrate either rock, and some of the dike rock is sometimes silicified and mineralized. The veins occur in fractures or narrow shears having a general easterly-westerly strike and a steep dip to the southeast. Their filling consists of massive quartz, highly bleached and altered sheared rock which is sometimes mineralized. Walls show little gouge but quite definite partings. Pyrite is the only sulphide present in important quantities and appears to carry the gold and silver. Generally it occurs in elongated lenses or streaks in fair concentrations and tends to show a banded structure; traces of sphalerite and chalcopryite are occasionally present. This type of vein in granitic rock may be expected to swell and pinch to a considerable degree and indications are strong that it is especially true on the Loughborough property. It would logically follow that the ore will be found to occur in lense shaped bodies connected by very narrow veins or fractures.

Main Loughborough Vein: Two veins outcrop close together in a small cliff at the portal of the Upper Tunnel and are followed by it to their junction a short distance inside.

In the first four hundred feet eastward along the surface two or three small strippings show barren appearing quartz stringers which may or may not represent the vein. A small open-cut 200 feet east of the portal and on the approximate course of the vein, but apparently not on the vein proper, shows three small discontinuous quartz-pyrite stringers which are reported to assay three ounces gold.

At 800 feet easterly of the portal of the tunnel, and 320 feet higher, a small cut shows irregular quartz one to three feet wide lying in hornblende-diorite, striking N 75° E, and dipping 65° south, - about the same attitude as shown in the tunnel. Thirty feet east of this cut stripping shows one and a half to three feet of quartz which is the continuation of that in the cut. Both of these exposures consist essentially of white quartz with occasionally a few small grains of pyrite.

No samples were taken here as the vein appears to be barren. While this vein is likely the extension of the vein in the tunnel, surface openings are not continuous enough to prove it.

The Upper Tunnel starts on both veins, one being on each wall of the drift which is about seven feet wide. The right hand vein varies from six to eighteen inches in width and joins the left-hand vein about forty feet from the portal. The left-hand vein is the largest and richest, and averages about two feet in width; it was followed for fifty feet on the level to the eastward, and 35 feet further diagonally upward by a stope. At ten feet from the east face of the stope the vein is thrown three feet to the right by a steeply dipping fault, and at the face is cut off by a vertical fault beyond which the vein has not been found; presumably the throw is small and to the right.

The lower part of the east face of the stope is covered with broken rock and could not be examined. Good ore is still left over a considerable part of the back of the stope which is not far from the surface. Very little dark diorite shows on this level or in the stopes above, the veins lying between walls of hornblende-diorite.

The outer 50 feet of the Lower Tunnel, which is 40 feet lower than the Upper Tunnel, passes through talus material which extends to the first turn. Here the vein (the left-hand vein) is cut, about one and a half feet wide, and is apparently low grade. This vein was followed eastward for 80 feet to its intersection with a narrow vein coming in from the hangingwall side, and thence a further 35 feet to a point where the combined veins split up into stringers. Over this distance the vein varies from 6 inches to 4 feet in width, but averages narrow and is considerably narrower in the back of the drift than in the floor, and leaner also.

At the point where the vein splits into stringers, at 165 feet from the portal, the strongest shearing makes a sharp turn to the northeast and follows an aplite dike, but the most encouraging mineralization is along the left side of the right-hand drift; this is now being followed.

Throughout this tunnel the diorite dike is very much in evidence and is extremely erratic in shape, as indicated on the map. It is strong in parts of the stope between the two tunnels but pinches out at about the level of the upper one.

The fault showing at the east face of the stope from the Upper level does not show very definitely on the Lower Tunnel level, but probably is represented by the cross-fracturing at the face of the drift where a stringer of quartz is cut off.

On the surface westward of the Lower Tunnel the veins disappear under a swamp and have not been found on the higher ground a thousand feet away.

On account of water, the Shaft Level, driven eastward from the shaft for 37 feet at elevation 20 feet below the Lower Tunnel, is not easily accessible except near the two ends where the shaft and a raise give access.

Two parallel stringers, each a few inches wide, containing weak pyrite, show in the back of the drift at the shaft; these have a normal strike and dip  $60^{\circ}$  south. At this point the vein lies within dark diorite, but both walls of the shaft are hornblende-diorite. The stringers are said to join within a few feet to the eastward, and the vein is said to average about a foot wide to a point 20 feet east of the shaft, where the vein can again be examined. Here it is ten inches wide with dark diorite on both walls.

At 27 feet from the shaft a two foot vein (the right-hand vein of the Upper workings) joins, from the hanging-wall side, the vein followed from the shaft. The combined vein extends to the face of the drift where it is five feet wide of solid quartz banded with pyrite and of exceptionally fine appearance. Here the hanging-wall is hornblende-diorite and the foot-wall dark diorite.

South Loughborough Vein: This vein outcrops 250 feet south-east of the tunnels and is exposed for 60 feet at 765 feet elevation by a large open-cut, stripping, and a small cut. The east cut, about 6 x 12 x 10 feet in size, shows two strands of quartz separated by dark diorite and lying between hornblende-diorite walls. The hanging-wall strand appears to pinch out to the eastward, and the dark diorite pinches out to the westward, as stripping immediately west of the cut shows that the two branches of quartz have come together forming a body of quartz nearly eight feet wide. Two feet on the hanging-wall side shows a fair amount of fine pyrite irregularly distributed in the quartz. The small cut at the west end of the showing shows a one to two foot quartz vein with somewhat scanty fine pyrite, and a fissure accompanied by narrow quartz turning sharply to the northward.

Extensive trenching across the apparent course of the vein to the westward has failed to uncover it, and a single trench on the course of the northerly trending fissure shows nothing. A trench 40 feet east of the big open-cut does not expose the vein, but is inconclusive. The strike of the vein is  $N 75^{\circ} E$ , and the dip  $65^{\circ}$  south, - about parallel to the Main Loughborough vein.

Stuart South Vein: This vein does not outcrop except at one small spot at the head of the incline shaft, and, as the incline is full of water, there is very little that can be seen and both the strike and dip are somewhat in doubt. The strike appears to be east and west, or possibly slightly northeast, and the dip about  $30^{\circ}$  southward. It is said that the incline is about 20 feet long and shows a three and a half foot vein containing good values in gold. Ore on the dump shows comparatively coarse pyrite in quartz, which assays well. The wall rocks are the usual two kinds of diorite. A 27 foot tunnel has been driven to cut the vein at a depth of 25 feet



but has not yet encountered it. If the dip and strike are as supposed the vein should be found in a very few feet advance, but if the vein should have a more northeast strike, as is possible, the tunnel would have to be turned northwest in order to cut the vein. Reports of the underwater showing and the values in the samples taken indicate that this vein is worthy of further development.

Stuart North Vein: At three or four hundred feet northeast of the incline there are several old workings, including a 10 foot tunnel and a 12 foot winze, on extremely irregular quartz associated with dark diorite. The quartz varies from four feet or nothing in width and is so buncy and erratic that it is difficult to gauge its real strike and dip. It is generally barren appearing and was not sampled.

Leora Vein: Near the west end of the Leora claim there is a small vein, 6 to 12 inches wide, which strikes northeast and dips steeply to the southeast. Near the shore it is cut by a ten foot tunnel and several hundred feet easterly and higher it has been opened by two pot holes. There is no indication that it contains any important values and it was not sampled.

*Mountain Top*  
Sea View Vein: This vein is opened by a limited amount of stripping and several small pot holes. It strikes about N 35° E and dips steeply south. It is in hornblende-diorite and associated with a diorite dike. As far as visible it is irregular and consists largely of silicified diorite with a small amount of quartz and a very little pyrite. This vein has been presumed to be the continuation of the main Loughborough vein, but from its position and strike this seems extremely doubtful. Its appearance is not very attractive.

Bliss Vein: A vein from two to six inches wide outcrops on a cliff and shows honeycombed quartz from which sulphides have been leached. It strikes about north and south and lies in hornblende-diorite.

**SAMPLING:** (See also Maps) Thirty samples were taken in the course of this examination and a previous visit and assayed for gold and silver; they are shown on the maps herewith.

Main Loughborough Vein: In the upper Loughborough tunnel only three samples were taken, - in the east face of the stope near the top. They average 0.82 Oz. gold and 3.3 Oz. silver over a width of 1.8 feet. It was impossible to take other samples along the east face of the stope on account of several feet of broken rock. The top of the stope was not sampled, although most of it is probably ore, as it is close to the surface.

In the Lower Tunnel eight samples were taken.

The average of three taken across the floor of the drift



(omitting No. 170) is 0.65 Oz. gold and 3.2 Oz. Silver across 1.8 feet. The average of three taken across the roof of the drift is 0.08 Oz. gold and 0.2 Oz. silver across 2.1 feet. Streaks of good ore which show in the floor east of the shaft do not extend up to the roof of the drift. The unsampled parts of the vein on this level show little pyrite in the quartz and may safely be considered below commercial grade.

The average of the samples taken in the Shaft Level, omitting #528 taken in the raise, is 0.32 Oz. gold.

A sample of the Upper Tunnel dump gave exactly the same assay; the quantity of ore on this dump was not measured, but a conservative estimate would be 300 tons of a gross value of \$3,216, or a total for both dumps of 700 tons of a gross value of \$7,504. These figures are of necessity approximate only. A grab sample of ore recently added to the lower dump assayed 0.09 Oz. gold, but may possibly be too low.

A shipment of nearly fifty tons of sorted ore from above the Upper Tunnel and from the Shaft Level is sacked and awaiting shipment. It is anticipated by the management that the gross value of this ore is about \$40 per ton.

Former shipments to the Tacoma Smelter from the drifts and stope amount to 113 tons averaging 0.877 Oz. gold and 3.52 Oz. silver per ton, or \$32.20 gross.

A specimen of quartz and pyrite-replaced dark diorite from above the Upper Tunnel, now practically mined out, assayed 2.90 Oz. gold and 13.18 Oz. silver.

South Loughborough Vein: Seven samples were taken on this vein across widths varying from one to seven feet; they average 0.05 Oz. gold and 0.3 Oz. silver.

Stuart Vein: One chip sample was taken from ore on the dump at the Stuart incline, since the ore in place could not be sampled on account of water; this assayed \$24.97. A large sack of ore taken from the bottom of the incline some time since by the management assayed \$28.23.

Bliss Vein: A sample of the 6 inch vein on this claim, showing oxidised, honeycomb quartz, assayed 0.28 Oz. gold and 0.12 Oz. silver.

COMMENTS AND RESUME: At present there is in the mine no important amount of ore that can be said to be "in sight"; what ore is now visible is around the margins of the stope and below the Lower Tunnel. There seems to be no good reason to estimate the amount which, at best, would be little more than a guess.

It seems probable that all the veins on the property will be rather more than usually variable in width

and value but that the stronger fissures should prove to be reasonably persistent laterally and in depth, with lenses of ore at intervals. Shears and veins show a fairly persistent trend a little north of east and, in the case of the main Loughborough, a general lining-up of various quartz exposures.

It is evident that the ore-shoot which has been developed and partly stoped has pinched out laterally, but it seems to be going strong in depth, so far as opened.

It should not be difficult to pick up the faulted vein-fissure beyond the east face of the Lower Tunnel by a short crosscut (probably to the south), and there would seem to be very fair chances of picking up another ore-shoot by following it eastward when found. However, it must be admitted that the vein apparently terminating as it does, near the east end of the Lower Tunnel, by splitting into stringers is a feature usually associated with the final ending of a vein.

The showing on the South Loughborough vein is not particularly encouraging. As now exposed on the surface the values are low and, while the vein is large and appears strong, trenches to the westward indicate that it quickly pinches out in that direction; to the eastward there is little indication of what its extent may be.

No detailed estimate of operating costs has been made. The ground drills, breaks, and stands well and level development should be done for about \$15 per foot under prospect conditions. As for general mining and milling operations conditions are entirely favorable for low costs.

**CONCLUSION:** There are three points at which farther development seems justified, as follows:-

1. Sink the Loughborough shaft a further hundred feet and drift east and west on the vein.
2. Continue the Lower Tunnel drift east, crosscutting to pick up the vein-fissure and then drift on it.
3. Explore the Stuart vein by stripping and open-cuts, as a preliminary to underground work.

The Loughborough mine is still in the prospect stage, and considerable development is required to prove whether or not it will be a paying proposition.

I consider that the chances that it will prove up warrant further development under an option agreement calling for little or no payments until (say) six months of development has been done. I do not consider that the present status of the property is sufficiently attractive to justify the payment of any considerable amount of cash for control of the Company.

Respectfully submitted,

*Chas. C. Starr*