

REPORT ON FLORENCE MINE.LOCATION:

This property is situated in the Ainsworth Mining District British Columbia, on the west side of Kootenay Lake, two miles north of the town of Ainsworth and 12 miles south of the town of Kaslo.

ACCESSABILITY:

The Canadian Pacific Railway runs a daily line of passenger steamers on the Lake which touch, or signal, at the mine wharf, and on request, supplies freight cars on barges at the loading dock. These cars are transferred to the C.P.R. at Kootenay Landing, 40 miles from the mine, if consigned to the U.S., or at Proctor, 12 miles distant, if sent to Trail Smelter.

ELEVATION AND CLIMATE:

The elevation of Kootenay Lake is 1780 feet; of the portal of No. 5 tunnel, 2270 feet; of the portal of No. 2 tunnel, 2499 feet; and of the highest workings on the property, 3260 feet. The lake never freezes and the thermometer seldom goes below zero. The snowfall does not exceed 18 inches at the lake and 4 feet at the highest point on the property. There are no weather conditions to interfere in any way with work during the entire year while for 7 months, the climate is delightful. The country produces all kinds of berries of the best varieties, vegetables of all kinds, and a superior quality of apples, pears, cherries, and prunes.

TOPOGRAPHY:

Kootenay Lake is bordered on both sides with heavy timbered mountains, which, on the Florence, rise to a height of 1500 feet above the water and have an average slope of approximately 25 degrees.

AREA OF PROPERTY:

The group of mines consists of the following claims:

Skylark,	James R.	U.T.K.
Laura M.	Twin	Mountain Cougar Fr.
Fergus.	Florence Silver	Fr. Hop.

In all a total of about 380 acres.

TITLE:

These claims are held under Government Crown Grant which corresponds to United States Government Patent.

GEOLOGY AND ORE OCCURRENCE:

The country rock of the ore bearing zone is a series of sedimentaries consisting of mica schist, hornblend schist, limestone, and quartzite. The schists and quartzites are highly metamorphosed sediments and the limestone is largely calcite showing the influence of the changes wrought by the upheaval which has tilted these beds to an angle of 50 degrees dipping west with a strike of N.10 deg. W. The granite batholith which was responsible for this tremendous change also fractured these various beds at nearly right angles to their present strike forming two main east and west fissures, about 850 feet apart, and other minor fissures, through which metal bearing solutions ascended and in

GEOLOGY & ORE OCCURRENCE:

which, ores of lead, zinc and silver were formed at points most favorable for the deposition of these metals. These points were where the fractures cross the limestones and the quartzites. At the crossings of the former, the north vein development shows that shoots were formed not only in the fracture itself, but large replacement ore bodies were made in the lime at the contacts of limestone and schist and in the center of the tilted bed of limestone where a strata of quartzite presented favorable conditions for such replacement. Where the fractures cross the quartzite 1200 feet west of the limestone, the ore in the north main fissure makes in the fracture itself while in the south main fissure it also makes along the contacts of the quartzite with the schist forming what appears from surface work to be a very strong and valuable vein of ore of superior grade. Aside from the four shoots above mentioned, a crosscut, in the limestone, from No. 2 Level encountered a blind fissure paralleling the main vein and about 70 feet south. At this place it is about 12 inches wide and carries no values. A similar crosscut from No. 5, 229 feet vertically below No. 2, cut the same fissure. Here it is five feet wide for a length of 300 feet and carries fine milling ore. These fractures have a strike of North 70 degrees W., and a dip of 45 deg. to the South.

DEVELOPMENT:

The main development has been centered on the north vein. On this vein No. 2 tunnel, located at an elevation of 2499 feet above sea level, was driven as a crosscut a distance of 400 feet, where the vein was encountered, thence it was extended as a drift a distance of 200 feet to the limestone ore shoot on this vein, then 420 feet through this shoot and a further distance of 1000 feet making a total of 2020 feet. Driving an additional 100 feet to 300 feet, should reach the downward extension of the quartzite shoot developed on the surface. This would give 1000 feet of backs on this shoot.

No. 5 tunnel, also a crosscut, is driven 229 feet below No. 2, making a distance between the two tunnels, on the dip of the vein, 360 feet and from No. 5 to the surface 520 feet. No. 5 cuts the vein 1220 feet from the portal, thence it is driven along the vein a distance of 500 feet to the ore shoot, then 420 feet through the shoot a further distance of 50 feet, making a total of 2190 feet. Intermediate levels Nos. 3 and 4 were driven in the shoot. Crosscuts south from Tunnels 2 and 5 cut the blind vein above mentioned.

At the intersection of the north fracture with the quartzite, 1200 feet west of the limestone, an open cut was run on ore and below this 60 feet, a tunnel 250 feet long was driven and the ore stoped out to the bottom of the open cut. This is the ore that should be encountered in the extension of No. 2 tunnel 1000 feet lower on the dip of the vein.

At the intersection of the south vein with these same quartzites, tunnel No. 1 has been driven 120 feet below the surface. From this tunnel several lenses of ore have been extracted by leasers. The vein is six to eight feet wide and the pay streak is about 2 feet wide.

DEVELOPMENT:

No. 2 tunnel was driven 212 feet below No. 1, it is driven entirely in barren ground but near the end, an upraise cut the ore. As the shoots on the Florence all rake west at about 45 degrees, it is evident that when the tunnel is extended some 30 feet, it will cut the shoot on its rake.

Where the south fissure crosses the lime, enough work has been done to demonstrate the existence of the shoot similar to the one on the north vein. The above constitutes the development to date. It has served to open up one shoot to a depth of 520 feet to locate three additional shoots and to uncover a blind vein of major importance.

ORE:

The ore consists of galena, zinc blend, and silver in a gangue of pyrite, quartz, calcite, altered limestone and schist. The proportion of lead to zinc is two of lead to one of zinc with $\frac{1}{3}$ of an ounce of silver to the percent of lead in the limestone shoots and $\frac{1}{2}$ ounce of silver to the percent of lead in the quartzite ores. The mill feed covering a period of 450 days ran lead 10%, zinc 5%, silver $3\frac{1}{3}$ ozs., and this report these values are taken as a basis for estimating the net worth of ore reserves and of probable and possible ore.

ORE RESERVES:

Check this over

LIMESTONE CONTACT NORTH VEIN: The ore remaining in this shoot above No. 5 tunnel can best be estimated by calculating the original contents of this block and deducting the tonnage mined. At three places on each side of the main fracture in this shoot there are replacement bodies of ore, one at each contact of the lime with the schist and one where a bed of quartzite lies in the centre of the limestone. These replacements are from 10 to 30 feet in width and from 50 feet to 100 feet in length extending the entire depth of the shoot. The shoot in the main fracture has an average width of 8 feet and an average length of 420 feet, with a developed depth of 520 feet.

With these proven figures as a basis the
 block contained.....239,000 tons.
 There has been mined and milled.....83,000 tons.

Ore remaining in this block.....156,000 tons.

✓ The strength of the shoot and the fact that a cross the lake the Bluebell was mined to a depth of 400 feet below the water level justifies an estimate of positive ore below No. 5 tunnel to a depth of 100 feet, or 58,000 tons.

The shoot on the blind vein is 300 feet long and 5 feet wide and it is safe to figure positive ore on this to a depth of 100 feet giving 15,000 tons.

<u>TOTAL POSITIVE ORE:</u>	Above 5,	156,000 tons.
	Below 5,	58,000 tons.
	Blind vein,	<u>15,000 tons.</u>
	TOTAL.	229,000 tons.

The net value of this ore on a basis of 80% extraction for the lead and silver and 70% for the zinc is \$7.16 per ton as follows:

Lead 10% - 80% extraction 160 lbs. less 10% Smelter deduction - - - - -	144 lbs. net.
Zinc 5% - 70% extraction 70 lbs. less 30% smelter deduction - - - - -	49 lbs. net
Silver 3.3%-80% extraction 2.64 ozs. less 5% smelter deduction - - - - -	2.5 oz.net

144 lbs. Lead at 9.50 - - - - -	\$13.68
49 lbs. Zinc at 2½ cents net - -	1.22
2.5 oz. Silver at 65¢ - - - - -	1.62
	<u>\$16.52</u>

Less Freight - - - - -	\$1.00
Smelter Charges.....	1.10
Duty.....	2.16
Freight on Lead to N.Y	1.00
Mining and Milling.....	4.10
	<u>9.36</u>

Profit per ton - - - - - \$ 7.16

229,000 tons positive ore at 7.16 - - - - - \$ 1,640,640.00

PROBABLE ORE:

Depth of seeds?

It is very certain that all of the shoots on this property will go down through the sedimentaries. What their vertical depth is, cannot be determined. The Bluebell mined 400 feet below the lake level and although water from the lake drowned them out, as their shoot is at the edge of the lake, they are now putting in pumps of large capacity to recover the stopes showing that the ore still persisted to that depth.

I will, however, estimate as probable ore, only that part of the limestone shoots that lay above lake level, although the Florence property can be mined to any depth without trouble from water from this source.

The limestone shoot on the north fraction should produce from the positive ore line to the water level.....203,000 tons
 The blind shoot for the same depth should produce..... 52,500 "
 Quartzite shoot on North vein will probably be cut by No. 2 tunnel and produce..... 60,000 tons
 The limestone shoot on the South vein can be figured under this heading to produce..... 60,000 tons
 The Quartzite shoot on South vein is the best showing I saw on the quartzites contacts. The upraise mentioned under development shows the ore at this place to be 3½ feet wide, about 18 inches of which is shipping. It is far better defined and wider at this depth than in the tunnel above and appears to be a regular shoot rather than a lense. This together with a strong surface shoing along the contact, at this point of the quartzite with the hornblend-schist indicates a large and persistent body of ore carrying values much in excess of the average so far milled. There is no question but that an appreciable tonnage can be made immediately available by driving No. 2 tunnel to cut the shoot. I will, however, estimate only a modest tonnage as probable ore as it is difficult to draw the lines here, as in fact it is in the case of the three shoots developed only on the surface, as between probable and possible ore-- 60,000 tons

TOTAL - - - - -	435,500 tons
Net value of positive ore.....	\$1,640,640.00
" " " probable ore.....	<u>3,118,161.00</u>

We now come to the question of possible ore. This cannot be reduced to definite figures. There is a large possible tonnage of ore in the areas classed as probable and there is a possible tonnage larger than the positive and probable combined below these areas.

EQUIPMENT.

POWER PLANT:

A hydroelectric plant of 350 H.P. capacity is installed on Woodbury Creek, a mile from the mine. Water for power is brought 3600 feet through an 18 inch pipe line and is delivered under a 430 foot head to a four foot Pelton wheel. This wheel is controlled by a Lombard Governor direct connected.

The belt driven generator is 250 K.W., 600 R.P.M. 2300 V. 3-phase, 60 cycle. and the exciter is 12 K.V.A. 1600 R.P.M. 125 V. The copper transmission line from the plant to the mill is $1\frac{1}{4}$ miles long. After the construction of this plant it was found that Woodbury Creek did not supply sufficient water to operate the plant continuously and a contract was entered into with the City of Nelson, British Columbia, to supply all power required at \$22.00 per H.P. per annum. The contract provided that the City should build the power line from Nelson to Proctor a distance of 20 miles. This has been done. The mining company is to complete the line from Proctor to the mine, a distance of 12 miles. The estimated cost of the construction is \$20,000.00. The company deposited with the City of Nelson \$20,000.00 as advance charges for power, so that until this is absorbed, there will be no power cost.

COMPRESSORS:

An Ingersol-Rand two-stage 1250 cubic foot compressor is installed at the same point on Woodbury Creek. It is direct connected to a six-foot Pelton Wheel driven by water under a 220 foot head. This water is brought 3000 feet through a 20 inch pipe line. Air from compressor to mine is transmitted through a 6-inch pipe line. When the power line from Nelson is completed this machine will be moved to the mine and driven by electric power. At the mine there is an additional 350 cubic foot capacity compressor for emergency service.

MINE EQUIPMENT:

No. 5, the main haulage tunnel, is equipped with 20 pound rails from the head of the aerial tram to the face, a distance of 3290 feet. The ore is hauled in a train of eight $1\frac{1}{2}$ ton cars drawn by a 40 H.P. electric storage battery locomotive.

No. 2 tunnel, 2020 feet long, is equipped with 12 pound rails from the upraise between the two tunnels to the face, - a distance of 1200 feet. Cars, drills, steel, tools, etc. are on hand ready for resumption of work at any time.

AERIAL TRAM:

An aerial tram, 1800 feet long, connects the mine with the mill. This has a capacity of 450 tons per 24 hours.

MILL BUILDING & EQUIPMENT:

The mill building is substantially constructed on concrete foundations and is of ample size to house all the machinery now installed. It is built on the slope of the mountain allowing the use of gravity, as far as possible, in passing ore from one step of the mill to another.

The mill equipment consists of all the necessary coarse and fine ore bins and bins for concentrates, a 9 X 12 Blake Type crusher, trommel screens, sorting belt, set of 16" X 42" rolls, 8 four-compartment jibs, set of 14" X 36" rolls, one 5' X 10' pebble mill, five Richard-Janney Hydraulic classifiers, four rougher and ten slime tables (Diester-Overstrom), one 6' X 30' Dorr Thickener, one Mechanical Agitator, and three Callow Type Flotation Machines - 6 cells each. In addition, all the transmission machinery and belting to immediately resume operations. The plant is run with four motors of 75, 40, 30 and 15 H.P. respectively.

The mill now has a capacity of 75 tons per 24 hours which can be increased to 150 tons by the addition of a 4 X 5 ball mill, another Dorr Thickener, three more flotation machines, six slime tables, and the necessary motors to drive these. The crusher, rolls, and jugs will easily take care of 150 tons.

CAMP BUILDINGS AND EQUIPMENT:

UPPER CAMP NO. 2 TUNNEL: Comfortable houses for 7 families.

INTERMEDIATE CAMP No. 5 TUNNEL: Bunk house of 40 rooms to house 80 men, completely equipped; cook house for 100 men, with range, cooking utensils, etc. etc. Comfortable house for mine superintendent.

LOWER CAMP AT MILL: Combined cook and bunk house for 20 men, equipped; 6 cottages for families; manager's cottage (large living room, 2 bed rooms, bath room and kitchen).

All of the camp buildings and the mill buildings are electrically lighted.

CONCLUSIONS:

The mine has sufficient ore reserves in the limestone shoot north vein to mill 54,000 tons per annum, for a period of three years. To handle this, mill must operate continuously with a daily capacity of 150 tons. To accomplish this, the power line from Nelson must be completed and the necessary additional machinery specified under "Mill Buildings & Equipment" installed.

This will cost - - - - -	\$40,000.00
Necessary working capital - - - - -	<u>10,000.00</u>

TOTAL MONEY NEEDED TO OPERATE FULL CAPACITY; \$ 50,000.00

Based on the estimated profit of \$7.16 per ton the daily profit would be.....	\$ 1,074.00
YEARLY PROFIT - - - - -	386,640.00

FUTURE DEVELOPMENT:

Development of the quartzite shoot on the north vein will be through No. 2 tunnel. 1200 feet of this is already completed. Development of limestone shoots on north vein will be accomplished by sinking a winze and crosscutting to the main fracture and to the blind fracture at regular intervals.

Development of limestone shoot on South vein will be prosecuted by driving a crosscut 850 feet from No. 5 tunnel to intercept this shoot at a depth of 650 feet and quartzite shoot on the fracture will be opened up to a depth of 1360 feet by a drift from the limestone shoot. \$100,000. for this work expended over a period of three years will not only prove tonnage tabulated under the heading of "Probable Ore", but will also open up much ground in the zone designated as "Carrying possible ore"

Jan. 15, 1925.

(Signed) "D.W.Shanks".