

30th, 1949.

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MEMO TO: Mr.

Emancipation Mine

Bogushalla Valley, BC

1949

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I am enclosing a copy of Dr. Cairnes report on the property that appeared in the Geological Survey Summary Report 1929 - Part "A", also a print of a composite plan that accompanied the report. The longitudinal section and historical data accompanying this memoranda was prepared by Thurber. All values given in Dr. Cairnes Report are at the old price of gold (\$20.67 per oz.). The values shown on the longitudinal section, unless where noted, are at \$35.00 per oz. You will note that a value of \$6.00 across a width of 50' on surface is indicated on the longitudinal section. This showing is 700' horizontally from the face of the adit, as indicated. The vein is traceable all the way down the hill to the adit, and it is the one which averages \$9.80 across 10' over a length stated by Thurber to be 500'. This particular adit was not extended far enough to come under the wide showing on surface, as the values at that time were not good enough to be considered as ore.

Thurber met the old Mine Captain who did the original work and mentioned that he remarked that it was always his opinion to extend the adit under the wide surface showing, but his principals were always insistent that he work on the narrow but high-grade showings. Thurber informs me that part of the property is on the Railroad, where a siding now exists, and that it is only a short haul from the property location to the Tacoma Smelter, who at this time are hungry for flux.

An interesting feature to me is the consistent low values that are reported to occur in the serpentine. The property is so located, and some parts of the veins being so easily accessible, that should the resampling of them substantiate former estimates, a fair amount of ore could be won without any great capital expenditure.

I believe that on the strength of the information at hand the property merits an examination.

Signed

JWB/LT.

J.W. Baker

September 30th, 1949.

92H

MEMO TO: Mr. Andre Dorfman

RE: EMANCIPATION MINE

Jack Thurber has brought to my attention the data on this property. Evidently Thurber was in contact with Dr. Cairnes while he was associated with the Geological Survey. He recalled Dr. Cairnes reference and remarks concerning this property, and while in British Columbia watched the property closely and when it came open staked it for himself.

Thurber remarked to me that Dr. Cairnes had made the statement that this property had, as he thought, the best possibilities of any prospect in the area of making a mine. His observations were to the effect that the property had never been operated or explored by individuals who were conversant with this type of work, and thought that the property handled in the proper manner had excellent possibilities of making a profitable operation.

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Signed
J.W. Baker

GEOLOGICAL SURVEY SUMMARY REPORT, 1929, PART A

EMANCIPATION MINE

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LOCATION AND OWNERSHIP. The Emancipation mine is situated on the northeastern slope of Coquihalla valley at an elevation of 2,650 feet or 1,200 feet above the Kettle Valley railway at Verona. The mine is operated by Dawson Gold mines, Limited, with head office at 922 Standard Bank Building, Vancouver, B.C. Messrs. W.E. Williams and J.T. Johnston are president and secretary respectively, and Mr. A.C. Ward is superintendent at the mine. The property includes thirteen surveyed mineral claims (See Figure 10), aggregating 530 acres of mineral lands, and embraces the Emancipation and Packard groups of six claims and one fraction, and seven claims, respectively. The workings are situated near the centre of the property and mostly on Emancipation claim between elevations of 2,400 and 2,800 feet.

HISTORICAL SUMMARY. Emancipation mine has had a checkered history in which periods of energetic exploration and development have been followed by others of inactivity and depression. Until the more recent discoveries in Coquihalla area this mine occupied a position of first importance among the properties situated near the western contact of Ladner Slate belt and interest in it has fluctuated in general with interest in a number of properties associated with this belt.

Originally owned by a partnership of three, M. Merrick, Wm. Thompson, and H. Beech, and worked largely under their direction from about 1951 to 1919 inclusive, it has since been operated by a number of companies including the Liberator Mining Company, Director Mining Company, and now by Dawson Gold mines, Limited, all of Vancouver. The present organization was created from that of the Director Mining Company by increase of capitalization, the property now being incorporated at \$2,000,000 comprising 2,000,000 shares at \$1 par value.

Records of production show that ore to the value of about \$40,000 has been shipped from this property. The chief productive period extended from May, 1916, to December, 1920, in which time some 95 tons having a net value of \$34,000 were shipped, mostly to Tacoma. Several hundred tons of ore averaging about \$15 to the ton were left on the dumps and partly for the purpose of recovering these values a small mill was erected on the property in 1920. This mill has a capacity of about 12 tons in two shifts and employs a Fairbanks Morse Engine burning petroleum.

GEOLOGY AND MINERALIZATION. The geology and mineralization of Emancipation mine have been discussed at some length in a number of earlier reports. Briefly it may be stated that interest on this property has been chiefly centred on a zone or belt of rocks, some 50 feet wide, which includes an abundance of vein quartz. At the principal workings (Figure 13) two distinct veins are recognized, known respectively as the "Boulder" and "Dyke" vein. The Boulder vein occupies the foot-wall section of the zone; follows very nearly along the contact between slaty members of Ladner Slate belt, and

EMANCIPATION MINE (Cont'd)

more or less greenish volcanic and tuffaceous rocks of Cache Creek series; has an average and fairly persistent width of about 10 feet; and carries low values in gold. The Dyke vein, on the other hand, forms the hanging-wall of the zone; lies within rocks of the Cache Creek series; is comparatively narrow and less regular than the other vein; but carries better average values than the Boulder vein, and, locally, has provided a small tonnage of rich gold ore. Between these veins are other irregular veinlets and small lenses of quartz, including one of more prominence than the others, known as the "Flat" vein or lens, which dips in an opposite direction and at a lower angle than the others. Its intersection with the Dyke vein is coincident with the most important shoot of ore developed on this vein. Both Dyke and Boulder veins have about the same strike of north 15 degrees west and both dip southwest at angles which in the case of the Boulder vein are about 55 degrees, and, on the whole, a few degrees steeper than the Dyke vein. The Flat vein, where it is best exposed in underground working, strikes north 55 degrees west and dips 45 degrees northeast.

Above the main workings, the surface work has indicated the continuity of the Boulder vein over a vertical range of at least 200 feet, but in this direction and at about this elevation above the main or No. 2 adit (Figure 13) other large outcroppings of vein quartz have been discovered whose relations to the Boulder and Dyke veins are not entirely clear, though some attempts have been made to correlate them. The structure is, however, obscured partly by faulting and partly by original irregularities of quartz deposition.

In the main workings the Dyke vein is cut off below No. 2 Level by a fault coincident with the northeasterly contact of the serpentine body of the serpentine belt. This fault was investigated a number of years ago when driving No. 4 adit (Figure 13) and its relation to the serpentine contact has since been confirmed by development work on No. 3 level. The Boulder vein, too, loses its identity below No. 3 adit where its continuity and character have not been established.

RECENT DEVELOPMENTS: Recent developments have been partly directed towards exploring the continuity of the Dyke vein on and below No. 2 adit; partly toward determining the character of the Boulder vein on No. 2 level, and partly towards investigating the serpentine contact.

Work on the Dyke vein has been largely restricted to the vicinity of No. 2 level which has been projected to a total length of over 600 feet. In this distance the vein is continuous for over 300 feet from the portal and has an average width of about 1 foot. Beyond this point, however, it frays out into a series of tight stringers leading off into the roof rocks. The vein filling up to this point is mainly quartz associated with more or less crushed wall-rock. Some calcite is present and is conspicuous in the richer parts of the vein. A few nodules of slightly pink albite are associated with the other gangue minerals. The quartz is mostly turbid and streaked with inclusions of wall-rock and concentrations of sulphides. In general the hanging-wall is well defined and has furnished an excellent guide in drifting and stoping operations. The values are chiefly concentrated in shoots, one of which, encountered at 90 feet from the portal and extending along the level for 50 feet, has been largely stoped out above the level and has provided most of the ore hitherto shipped from this mine. Some underhand stoping has also been on this shoot and, recently, connections established by a raise from No. 3 level. Another but less important shoot was picked up 220 feet from the portal, continues for 65 feet along the level, and has been stoped on above (Figure 13).

The principal ore minerals are pyrrhotite, arsenopyrite, pyrite, and chalcopyrite in about this order of abundance. Other minerals include free gold, enargite, and a grey, probably silver-bearing mineral of doubtful identity. In the richer parts of the shoots free gold was quite conspicuous and afforded spectacular specimens as well as providing high grade ore. The gold carries silver values in the ratio of about 1 ounce silver to 6 ounces gold. Microscopic studies indicate that pyrite and, probably, pyrrhotite were early minerals; that gold and arsenopyrite succeeded them and were deposited contemporaneously; that all of the ore minerals replace quartz, but that the associated calcite was probably formed subsequent to the iron sulphides. Chalcopyrite is a later mineral than pyrite or pyrrhotite and may have

EMANCIPATION MINE (CONT'D)

been deposited about the same time as the gold and arsenopyrite.

From No. 2 Level five crosscuts into the foot-wall rocks have reached the parallel Boulder vein which in turn has been drifted on for varying distances (See Figure 13). These drifts are interesting in showing the character of this vein at greater and greater depths beneath the surface. Towards the portal and in the first couple of crosscuts the vein is composed of nearly solid, milky-white quartz carrying a very sparse dissemination of sulphide particles, including pyrite, arsenopyrite, and chalcopyrite. Farther from the portal vein matter contains more and more abundant inclusions of the wall-rocks, partly replaced by the quartz, until at the face of No. 2 level these inclusions about equal the proportion of silica. Coincident with the appearance of inclusions is an apparent more or less proportional increase in sulphide materials which, though never concentrated to the extent of those encountered in the richer parts of the Dyke vein, become appreciably more abundant towards the face of the adit. The values are also stated to improve in this direction, a feature which, from the common association of gold with sulphides, might be expected.

Other work at the mine has included some investigation of the serpentine contact, work that appeared desirable in view of recent discoveries on other properties, notably Aurum mine. The investigation was conducted chiefly on No. 3 adit which, commencing at a convenient point below No. 2 level, was first run as a crosscut towards the Dyke vein and then carried as a drift along a strong, talcose shear zone which follows the periphery of the serpentine body and dips northeasterly at an average angle of 55 degrees. From this drift Nos. 2 and 3 crosscuts (Figure 13) were run into the foot-wall for distances of 50 and 30 feet respectively, encountering strongly sheared and partly altered serpentine and at the face of No. 3 crosscut what appears to be a diorite dyke. The geological associations of the talcose shear zone drifted on in this level are almost identical with those encountered at Aurum mine. In both properties the same contact of the main serpentine body is being explored; in both a heavy talcose shear follows the serpentine wall and dips, in general, northeasterly; in the workings on both properties the slickensided surface of the sheared talcose rock is commonly smeared with sulphides, chiefly a nickeliferous pyrrhotite; at both properties traces of gold may be found on assay of samples taken almost anywhere in the talc seam. Free gold has also been noted and occurs mostly as minute, polished films on the slickensided surfaces of the talc. Whereas, however, at Aurum mine local concentrations of values have provided ore-shoots, no such comparatively rich bodies have been found in Emancipation workings. Careful sampling by the management every 2 feet along the course of the drift has indicated an average value of between 50 cents and \$1 in gold, to the ton. Values rarely exceeded \$1 and then not by much and yet, on the other hand, samples showing no trace of gold were even rarer. The principal associated sulphide is nickeliferous pyrrhotite, but in places, as near the face of No. 3 drift, chalcopyrite is present instead. A specimen of talcose rock carrying this chalcopyrite was found to contain no nickel and no visible pyrrhotite. Other sulphides include pyrite, arsenopyrite, and millerite. Residual magnetite and Chromite from the serpentine are also present. Calcite is locally a conspicuous gangue mineral.

FUTURE POSSIBILITIES. The future of Emancipation mine is dependent partly on the economic extraction of the gold content of the quartz veins on the property and partly on the possibilities of the talcose shear which follows the serpentine contact.

The quartz veins have been, in the past, the chief consideration on this property and probably will so continue to be in the future. Sampling by the management would appear to indicate that the part of the Dyke vein remaining above No. 2 level averages about \$12 a ton in gold and that below this level the chances of extracting a small tonnage of higher grade ore on the downward continuation of the ore-shoots are promising. The Boulder vein, on the other hand, is admittedly low grade. At the best it probably will not average more than \$5 to \$6 a ton. This vein might be mined and milled as a whole, or only those portions carrying the better values sopped out. The vein could, for example, be crosscut from near the portal of No. 3 adit beyond the "probable" fault (Figure 13) and drifted on northwesterly to where it should be intersected by the so-called "Flat" vein referred to before. That this intersection might provide a

EMANCIPATION MINE (Cont'd)

concentration of values is suggested by the fact that at the intersection of the Flat and Dyke veins an important body of ore was discovered.

In any case developments have reached a point where the quartz veins can be readily mined and where a large tonnage of such material as indicated above is available. Depending upon the average values of the quartz bodies the tonnage milled should not only be sufficient to pay mining and treatment costs, but also permit considerable contemporaneous exploratory work and should, in the end, afford reasonable expectations of profit. Sufficient work has been done both underground and at the surface to provide opportunities for careful sampling of the vein quartz and determination therefrom as to what the mill capacity should be - bearing in mind that the tonnage from the Dyke vein above, and probably also below, No. 2 level, is limited to a few thousand tons at most and that consequently the Boulder vein or other large, low-grade bodies of quartz must be expected to furnish most of the future tonnage.

Exploratory work would include further work on the quartz veins to determine their continuity and character at depth and their possibilities at intersections of crossing veins or other points where concentration of values might be expected. It might also include further work on the serpentine contact. Developments on No. 3 and No. 4 levels, insofar as this contact is concerned, have afforded little in the way of clues to more important mineralization. On the other hand the presence of consistent traces of gold along this contact on No. 3 level does suggest that somewhere, possibly nearby, conditions favourable for concentration of values may occur. By analogy with discoveries at Aurum mine it would appear that these conditions might involve either rolls in the serpentine wall or the presence of auriferous quartz veins alongside the contact. A closer inspection of the serpentine contact at the surface may reveal such conditions and afford some guide to further explorations.

Historical Data on Emancipation Group

Coquihalla Gold Belt Area.
British-Columbia.

1st Work-1915;

On Instructor claim; bed of sil.limestone, lenses of quartz containing arsenopyrite, low values.

On Emancipation Group: 200' N-W. of initial post, 1400' above tracks, 50' zone of quartz. Strike N-W. dip 40 deg. S-W. Here quartz 12" wide. V. Gold. Sample across 38" ran 3.1 oz. gold, 1.3 oz. silver Grab from dump 1.9 oz gold. Traced vein 500' higher and 700' Horiz. up mountain. All cuts on footwall side. Gives, at present price of gold \$5.25 per ton.

2nd Work:- 1916

Three tons shipped to San Francisco, returned \$1,500

3rd Work-1921:

Large body of high grade milling ore above old workings.

4th Work-1922:

Under lease and bond to Liberator. Milled for three months. 12 tons mined. Small vein on serpentine contact. Stopping width 2' to 3'.

5th Work-1926;

Operated by Director Mining Company. Developed high grade vein on hanging wall. Flat seam. Property reported on by Dr. Cairnes. Samples returns, at old prices, \$12.00 across 1.0', and \$5000 to \$6.00 across large vein (10'.) Between 1916 -1920 95 tons shipped returned \$35,000. Much \$15.00 ore left on dump.

6th Work-1933:

Dawson Cons. Mines Ltd., Drifted 30' below No.2 adit. Much ore mined on narrow vein. Vein 18" wide. No. 4 adit driven 570', 11' wide at face. Assayed .40 oz. across 8.0', grab assayed 2.12 oz. Inactive since that date. 25 ton mill sold to Silver Giant recently.

Conclusion;

- 1) Previous development did not take into consideration post mineral faulting.
- 2) Work done along serpentine-andesite contact, instead of into andesite.
- 3) Property should be thoroughly sampled,
- 4) Limited amount of diamond drilling should be done from No.2 and No. 3 adits.
- 5) No.2 and No. 4 adits should be extended.
- 6) Veins on south side of fault should be traced on surface.

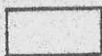


#6.00/50' on surface 700' horizontally
from face of this Adit

LONGITUDINAL SECTION

LOOKING EAST ALONG SECTION 'A-B'

EMANCIPATION GROUP

SCALE 1" = 75'

-  QUARTZ VEIN
-  ANDESITE
-  SERPENTINE

Traced 700'

Dr. Cairnes, \$9.80 across 10'

*3.1 oz Au.
80"*

stope

Fault?

Fault

Grab = 2.12 oz Au.

Min. Qtz Lenses

\$0.50 to \$1.00 at \$20.67 gold.

*40'
5.0'*

INFORMATION FROM DEPT. OF MINE'S REPORTS