

Victoria, B.C.

Jany 16th, 1907.

William Gardner Esq.,

Sec'y Tyea Copper Company,

RE ALASKA NORTH-WEST COPPER COMPANY'S PROPERTY, SIDNEY INLET, VAN. IS.

While I was in Seattle the other day I was approached by one of the Directors of this Company who asked me if the Tyea Copper Co. would care to secure an absolute control in the holdings of the Alaska North West Copper Co. including the Sidney Inlet property, also a group of 50 mineral claims in the Copper River District, south-western Alaska.

To this query I advised him to make a direct application to yourself.

The inside history of the formation and dealings by this Company is as follows:-

First, the Company was organized to take over the 50 mineral claim in the Copper River District and made contracts or rather entered into bonds or options for these claims and furnished the ~~cash~~ cash to do the representation work in 1906 and 1907. The locators of the claims were paid a certain amount of stock (quantity unknown to me) and in addition are to receive certain sums in cash in installments. The original agreement was made by the Company with Mr Thomas ^{Lynch} and associates who held the original locations. I visited this property during the summer of 1907 and made a report a copy of which I sent to the late Mr Clermont Livingston.

Later the Sidney Inlet property was bonded from Messrs Springett and Dewdney as I understand for \$50,000 in cash and \$25,000 in stock. The principal object of this deal being the desire of the Company to secure a producing property in order to furnish funds to thoroughly develop the Alaska properties and place them on a shipping basis by the time transportation facilities were provided.

As none of the members of the Alaska North-West Copper Company had had any previous experience in Copper Mining they soon found out that it cost considerably more to develop a copper mine than they had been led to believe, consequently when the panic struck the United

States the latter end of October last they were unable to sell stock as they had been doing previously, and as they had obligations to meet an arrangement was made with Mr Hutton, President of a Bank in Tennessee to secure ² \$70,000 in cash for which Mr Hutton was given a large block of stock as a bonus and I am informed the Company's note at one year without interest. This stock in addition to what Mr Hutton had previously purchased and some blocks of stock owned by his friends placed him in absolute control of the Company. I might add here that the promoters of the Company each donated a large block of stock from his holdings of promoters stock, also that I was given an option to present to the Tye Company on the same basis as that given to Mr Hutton, but it was just at the time of Mr Livingston's death and as 15 days was the longest period they would give me the option for it was useless to seriously consider it but I laid it before Mr Bryant at that time.

Owing to disappointments relative to the construction work no ore in quantity has yet been shipped, and the Director who approached me told me that at the present time the Company is hard up for funds, and the Directors are especially desirous of making an arrangement that will assure them the balance of the purchase price due Messrs Springett and Bowdney by May next.

They had expected to have this assured from profits derived from ore shipments which they expected would commence about the first of December.

On the first of the year they engaged a competent mining engineer to take charge of the property. This was something that should have been done long before, because considerable money has been wasted and the development of the mine has not been carried on in as systematic manner as it should have been.

During December Mr Robert Pringle a member of the Chicago Board of Trade invested \$5000 or rather I believe relieved the Tennesseemen by taking up \$5,000 of the \$20,000 they had loaned. He then made a proposition to the Company to take over the control at a valuation, the basis of which I am unacquainted with, but it is my impression that he estimated the total value of the Company's holdings at about \$150,000 and his proposition was to interest some Pittsburg capitalists, friends of his to ^{Sec}ure the control.

Mr Pringle's proposition was made to the Company on Wednesday the ninth of January, just before he left for the East, and it was on that night that Mr Buryee the Vice-President of the Company had the conversation with me referred to at the commencement of this communication. On my return to Seattle on Monday last he informed me that Mr Black was over at the Smelter relative to sampling the shipment recently made, and that the Directors had requested him, he being the treasurer of the Company to bring the matter before your attention as I had suggested that they should do.

According to Mr Buryee's proposition the promoters propose to again donate a portion of their holdings so that they can turn over two million shares of stock which will represent the control of the stock issued and out of five million shares still leaving one million one hundred thousand shares in the Treasury, which of course could be dealt with according to the pleasure of the parties holding the control of the stock already issued, and could be either left in the Treasury indefinitely or acquired by the holders of the control at a price fixed at a shareholder's meeting, when the stock could be allotted to the shareholder's in proportion to their holdings, and of course the holders of the control would have the majority of this ~~eleven hundred thousand~~ eleven hundred thousand (1100,000) shares allotted. He further stated that the money paid for the control would be used first to pay off the indebtedness due to Springett and Dewdney, second to make a sufficient appropriation to guarantee enough funds for all development work on the property and third to purchase a block of stock which I believe he stated to be 200,000 shares to make up the two million shares.

The foregoing statement of the history and conditions of this Company's operations I have gleaned from various conversations held from time to time with all the parties interested, except Mr Hutton, Mr Hendricks and Mr Black, and I believe the statements I have made here are substantially correct.

Yours very truly,

John M. Brewer

ASSAY CERTIFICATE

... FROM ...

The Tye Copper Company, Limited

SMELTING WORKS

*Indian Chief group
Brewer's Samples*

LADYSMITH, B. C.

*June 21 1907
Label 20*

| DATE | No. | DESCRIPTION OF SAMPLE | COPPER PER CENT. WET | Ozs. PER 2,000 Lbs. | | SiO ₂ 2 | Fe 3 | Cal 26 |
|----------------|-------------|-------------------------------|----------------------------|---------------------|------------|-----------------------|--------------|--------------|
| | | | | SILVER | GOLD | | | |
| <i>June 20</i> | <i>7485</i> | <i># 1. ?</i> | <i>6.08</i> | <i>2.54</i> | <i>.02</i> | | | |
| <i>"</i> | <i>7486</i> | <i># 2 .</i> | <i>2.82</i> | <i>5.16</i> | <i>.04</i> | | | |
| <i>"</i> | <i>7487</i> | <i># 3 .</i> | <i>9.15</i> | <i>8.88</i> | <i>.05</i> | | | |
| <i>"</i> | <i>7488</i> | <i># 1 . ?</i> | <i>3.07</i> | <i>3.12</i> | <i>.04</i> | | | |
| <i>"</i> | <i>7489</i> | <i>Average of above four.</i> | | | | <i>16.45</i> | <i>38.25</i> | <i>10.80</i> |

CHARGES \$

Henry C. Allison

PROVINCIAL ASSAYER.

P.O.Box 701.

Victoria B.C,

June 18th 1907

Clermont Livingston Esqr,

My dear Sir:-

I have recently made an examination of the Indian Chief group of mineral claims situated in the mountains adjacent to Sidney Inlet on the west coast of Vancouver Is. and distant about 150 miles from Victoria by water.

This group of claims consists of the following:- The Tinnicanun, Scotlet, Leschi, Victor and Victor fraction all Crown granted, also the Firefly, Prince, Prince NO.3 Prince NO.2, Dewdrop Fraction, Brutis NO.2, and Mephistophles Fraction held under right of location. The last two named claims extend from the mineral zone to the beach, and it is across these that the proposed aerial tram-way will be constructed, while the wharf and bunkers will be built on the beach within the boundaries of the Mephistophles Fraction claim.

All the work so far performed has been done on the Scotlet, Tinnicanun, and Victor claims.

The summit of the mountain is located on the Victor Fraction claim and trends in a general northwesterly and southeasterly course.

GEOLOGY

The geological formation of the mountainous

(2)

section in the neighborhood of the mineral locations above referred to, apparently comprises the following series of rocks from the beach to the summit:-

1st. Granite to an elevation on the trail of about 300 feet; a next to this there is green stone, or to be more exact diorite or diabase which in my opinion is of more recent origin than the granite and really represents intrusive masses and dikes between the granite on one side, and garnetite on the other; the garnetite occurs on the northerly side of the green stone, but on the southerly side of the summit of the mountain. A portion of this summit at least is lime stone fully crystalline, and metamorphosed. Whether the garnetite is a resultant of the contact between the lime stone and green stone, or whether it is an altered felsite is a question to be solved, at any rate there would appear to be no doubt but that this garnetite has had a greater influence over the formation of the ore body, than has either the green stone or granite. In fact the most extensive ore bodies are in close association with the lime stone and garnetite rather than with the green stone or granite.

In my opinion which is based to a considerable extent on other ore bodies found under almost similar geological surroundings, as well as on a hurried geological survey in the immediate vicinity of the group of claims

(3)

under discussion, the ore bodies will be found to maintain continuity to considerable depth rather than to a shallow depth and lying in a granite basin. In other words I believe the green stone masses and dikes are intrusions through the granite, and that these intrusions caused the metamorphism of the lime stone which I believe to be the oldest of the ^{ee} rock formations probably createous but possibly carboniferous, too much altered however to properly classify because of the absence of fossils .

CHARACTER OF ORE BODIES

The main ore body occurs on the southern side of the summit of the mountain, an outcrops at an elevation of about 1000 feet above sea level. The general line of strike from easterly to westerly, and extends across portions of the dip is towards the north, and almost vertical the Scotlet, and Tinnicanun mineral claims. Its out crop is found in a bold bluff with the ore itself usually occurring between the contact of the garnetite and lime stone, but sometimes closely associated with green stone dike. In fact in some places dikes of this material having a width of several feet have cross cut the minerali- zone, in one place notably near the Big Cut the dike is 26 feet wide with ore occurring on both sides, and the contacts between the dike rock and the garnetite, ^{are} very clearly defined with almost vertical dips, and the line of strike of the dike nearly at right angles to that of the ore body. —

(4)

Ore bodies have also been found on the northern side of the summit of the mountain with lime stone forming the southern boundary, and the ore dipping to the south at an angle of about 45 degrees. There is a marked difference though between the occurrences of ore on the north side of the mountain and those on the south side, the most noticeable being the absence of the garnetite another being the fact that the copper ore occurs either in a magnetite gangue, or else filling gashes in the green stone which being very compact and hard warrants the opinion that these lenses of ore will be found to possess quite inconsiderable extent ^{and} notwithstanding that the ore itself is of high grade in copper values, I do not consider the occurrences on the north side of the mountain of sufficient importance to warrant any outlay for further work. Some years back about 80 tons were mined from this side of the mountain, and the appearance of the workings to-day from which this ore was mined suggest that but very little more remains.

There is a possibility that at some point nearer to the lime stone and at the contact between that rock with either green stone or other igneous rock a body or bodies of ore may be discovered.

DEVELOPMENT WORK.

On the southerly side of the mountain the most easterly workings are situated about 300 feet easterly from

the westerly line of the Scotlet claim. In order to designate the workings more clearly I will follow the system in vogue on the property, and describe each working by the designation given by the foreman.

It might be well to mention here that the total distance along the line of strike between the most easterly workings and most westerly is 1,000 feet, and ^{The} ~~the~~ *Elevations of the workings are* altitude from 1350 to about 1600 feet above sea level, the former being the altitude of the lowest workings and the latter that of the Big Cut near the apex of the outcrop.

Sunday Opencut. This is the designation given to the most easterly workings which consist of stripping in two places, one about 12 feet ~~long~~, another commencing 50 feet westerly and consisting of continuous stripping for 50 feet in length. Near the westerly end of this stripping an open cut has been made to crosscut the ore body. At the time of my visit, this open cut had only penetrated into the ore body a few feet. A continuous body of ore is exposed throughout the length of the 50 foot of stripping. The apex of the outcrop is 50 feet above the floor of the opencut, and apparently the ore body is of quite considerable extent in width.

Bluff Adit. This is located about 200 feet westerly from the Sunday workings. The adit has been driven a distance of about 30 feet to crosscut the ore body. The entire

length shows material of a mixed character partially ore in garnetite gangue, and partially dike material. Apparently the face of the bluff in which this adit has been driven is the remains of a partially eroded dike of green stone which has thrust the ore body somewhat towards the north because in the face of the adit and close to the floor more solid ore of higher grade is exposed than at any other point.

This bluff adit is quite near to the westerly line of the Scotlet claim.

NO.3 Adit. This adit has been driven at a point along the line of strike about 300 feet westerly from the bluff adit. After driving through about 30 feet of barren material, solid ore is exposed and is continuous for 10 feet or to the face as it was at the time of my examination on the 10th of June. This adit has been driven the first 30 feet through dike material, the dike being the one referred to as cross-cutting the ore body and having a width of 26 feet. The last 10 feet of the adit has the dike for one wall (on the westerly side) but solid ore shows the entire width of the face of the adit, and was taken out for the entire width of the adit for the length of 10 feet.

Apparently the ore exposed in this adit is a continuation in depth of the ore body opened in the

Big Cut at an elevation of about 100 feet above the level of the adit.

NO.2 Adit. This has been driven a short distance westerly from the NO.3, and on ~~the~~ practically the same level, but in the dike itself and consequently no ore is exposed showing any considerable extent, although at a distance of 65 feet from the portal a short crosscut has been driven to the west showing streaks of good ore. An upraise has been started from this adit, and I was informed by the management that it had been proposed to continue this upraise to connect with the floor of the Big Cut about 100 feet above the floor of this adit, but this proposed work had been abandoned when the ore was exposed in the NO.3 adit because all the indications pointed to that being as I have stated, a continuation of the ore body from the Big Cut.

West open cut. At a point about 100 feet ^{west} from the NO.3 adit and about 20 feet above the level of that an open cut has been made exposing ^{at} the face of about 5 feet square ^{of ore} considerable portion of which is a good grade of chalco-pyrite.

Big Cut. At an altitude of about 100 feet higher than the NO.3 adit and almost immediately over the NO.2 adit an open cut has been made in which a body of ore is exposed 100 feet in length, 35 feet in width and 28 feet in height. This cut has been driven back to the lime stone which forms

the hanging wall of the ore body at this point.

General Summary. From the exposures in the workings just described it is at the present time impossible to measure up "ore in sight" except in the Big Cut. Outside of that point the workings have not as yet been carried far enough to show the width of the ore body, neither has any drifting been done to demonstrate whether the ore is one continuous body between the extreme easterly and westerly workings except where the dike mentioned, crosscuts it, or whether along the line of strike there are a series of detached ore bodies with lenticular structure. Neither have any upraises been made to show that the ore is continuous from the levels of the various workings to the apices of the various outcroppings.

Probable "Ore in sight". At a rough estimate and taking for granted that the ore body exposed in the NO.3 adit is the same as that exposed in the Big Cut, I should estimate that there is a probable tonnage of ore aggregating about 20,000 tons all of which can be mined at a minimum cost.

As well defined outcroppings have been found down the mountain about 100 feet lower altitude than the lowest workings, it is quite possible in fact I am inclined to think probable, that these outcroppings will be found to connect with the ore body already open in other places.

Yours very truly,

John M. Brewer

COPY

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REPORT
ON
INDIAN CHIEF MINE

Sidney Inlet,
Vancouver Island,
B. C.

Jan. 5th, 1929.

By: *Ray D. Hearon*
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418 Pemberton Building,
Victoria,
B.C.

SUMMARY & CONCLUSIONS

A geological reconnaissance of the Indian Chief Mine exposes a small roof pendant of sedimentary volcanics with interbedded limestone lying on a basement of batholithic granodiorite. The area of sedimentary rocks is roughly elliptical in plan, - 3000' x 1500'. In vertical section it is a tapered cone with a vertical axis of 750'.

The volume of this cone limits the ore bearing formation.

It is found that an upper horizon of limestone, partly eroded, highly silicified, and about 100 feet in thickness, is ore bearing. The remainder of the sedimentary rocks is composed of silicious volcanics which do not carry ore.

The limestone band contains five distinct shear zones, of varying intensity, caused by normal step faulting of the underlying granodiorite.

The ore injections from the granodiorite have penetrated the limestone on its footwall contact with the volcanics. The penetration being confined to small areas in the neighbourhood of the shearing.

In the case of one shear zone the intensity of injection was such as to form an ore body carrying copper, chiefly as bornite, in sufficient quantity to make it economically interesting.

This body has been partly worked out, the grade of ore mined being 1.7% copper, providing that records in existence stating 20% of the ore was sorted out and discarded as waste running say 0.6% copper are correct.

The present investigation was undertaken to prove (1) If any extension of the partly worked out ore body extended to the south east over a block of only partially explored ground. (2) Whether there was an extension of the ore body under the No. 3 level in ground which had not been explored at all. (3) The chances elsewhere in the sedimentaries for other and separate ore bodies.

After instituting somewhat extensive repairs on the property, which had been idle since 1923, in order to put it into shape for both habitation and work, a programme of investigation by diamond drill was decided upon as the most logical way in which to obtain the desired information.

It is my opinion that the diamond drilling has afforded the following conclusions. (1) There is a small unworked portion of the original orebody in place, of grade running 2% Copper, and amounting to 34,350 short tons. There is further "Possible" ore of 7,200 tons, of which the grade is somewhat doubtful.

(2) There is no likelihood of any further extension of the ore body either in dip or rake, - beyond the small amount calculated in reserves given, - below the No. 3 level. The granodiorite lies at about 100' below the No. 3 level, and, in the neighbourhood of the ore body, and paralleling it to the north, rises abruptly on a fault plane to a height of 50' above the No. 3 level, whence it proceeds north at an average elevation of 40' below the No. 2 level, and again rises by another fault plane about 100' to emerge on the northern face of the mountain spur at the level of what are called the "old north workings".

The dip and rake of the orebody are in such a direction that it is cut off in both directions by the faulted granodiorites, - and at only a few feet below the No. 3 level.

The orebody itself is classed as a contact replacement in limestone. The point of magmatic injection is the contact plane of limestone and volcanic rocks where this in turn is cut by the shearing due to faulting.

The area of ore deposition is badly broken, highly altered, and is accompanied by the formation of many secondary minerals as, garnet (and radite), epidote, calcite, actinolite, magnetite and quartz.

These secondary minerals largely disappear as the neighbourhood of the shearing and consequent alteration is left. The amount in which they are present forms a rough guide to the area in which ore may possibly be found.

While the main orebody undoubtedly occupies the sheared limestone-volcanics contact area, stringers of ore are found penetrating the formation in slip-planes, jointing and bedding planes to some distance from the main zone. These stringers are evidences of fading and are not leads which, if followed, might lead to further ore bodies.

Investigation of the other shear zones shows no important indications. The one to the extreme south has had work done on it previously. Ore was mined but was obviously of too low a grade to pay its way. Possibly about 4000 tons of material averaging less than 1% copper remains.

The Bonthron Fault shear zone has been worked out.

The shear zone at the granite contact near the north end of the Green Tunnel has prospective possibilities for the development of a small orebody, but the indications at the level and on surface, with the limited backs between, negative the findings of any tonnage which would make operation worthwhile.

The shear at surface at the north workings is unimportant and worked out.

The idea propounded that the property might be worked economically on a small scale by using water power has been investigated and the storage facilities for continuous operation could only be erected at a very large expense which is entirely unjustified.

Detail of possible returns from operation will be found in section headed "Operating Costs". A summary is as follows:-

Net returns from 34,350 tons @ 4.43 - \$ 152,170

Total cost of production on a basis
of milling 250 tons per day.

| | | |
|-----------------------|------------------|----------------|
| Capital Expenditure - | \$100,000 | |
| Costs of Operation | | |
| @ 3.54 per ton | - <u>121,599</u> | <u>221,599</u> |

Net Loss \$ 69,427.

Operating on a smaller basis than 250 tons per day would not prove successful. The capital expenditure involved to put the property in shape would not be very much less, costs of operation would be higher, and even at 150 tons per day continuous operation by water power is not possible without very large expenditures. It should be borne in mind when figuring on above costs that they are developed for perfect operation. In practice, delays due to breakdowns, relining mills, crusher repairs, tram repairs, etc., would tend to increase the cost per ton.

Under the circumstances it is not possible for me to recommend that any further expenditures be made for the account of the Indian Chief Mine.

The report herewith presented is fully detailed for the purpose of putting on permanent record information concerning a somewhat isolated property.

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R E P O R T
O N
I N D I A N C H I E F M I N E

Sidney Inlet,
Vancouver Island,
B. C.

Jan. 5th, 1929.

By: *Ray D. Hearn*
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418 Pemberton Building,
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PROPERTY FILE

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