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Report on 103 B

McMILLIN MINING PROPERTY

MORESBY ISLAND

January 29, 1953. By: R.E. Legg

# REPORT

# ON

# McMILLIN MINING PROPERTY

Moresby Island,

British Columbia.

By

R. E. Legg,
Consulting Engineer.

Vancouver, B. C.
January 29, 1953.

# Report on the McMillin Mining Property

# on Moresby Island, B.C.

## Location

The McMillin mining property is situated at tidewater on Harriet Harbour. Moresby Island, which is one of the islands of the Queen Charlotte group. The following maps, which are attached, show clearly the position of the property:

(1) Map of the Queen Charlotte Islands (Harriet Harbour marked with a cross)

(2) Claims map showing the McMillin group of claims.

## Property & Titles

The property consists of 20 Crown Granted mineral claims and fractions, bearing the following names and numbers:

| | | |
|---|---|---|
| Copper Queen | Lot No. | 77 |
| Moresby Island | | 78 |
| Magnet | | 79 |
| Blue Belle | | 80 |
| Ajax | | 81 |
| Reco | | 82 |
| Modoc | | 83 |
| Ouray | | 84 |
| Emma | | 85A |
| Dingo | | 87 |
| Pine Log | | 88 |
| Sandwich Fr. | | 92 |
| Della | | 2597 |
| Paul | | 2598 |
| Diana | | 2599 |
| Eagle Tree | | 2600 |
| Dorothy M | | 2603 |
| Lizzie B | | 2604 |
| Cypress Queen | | 2607 |
| Mattie H. Fr. | | 2608 |

These claims are owned by Mr. Paul McMillin of Roche Harbour, State of Washingon. Title has been held in the McMillin family for close to forty years.

History

The claims were acquired by Mr. J.S. McMillin, father of Mr. Paul McMillin, during the years 1905-12. During that period there was considerable mining activity on Moresby Island. According to Paul McMillin his father spent a large sum in exploring his claims for copper ore. A dock was built as well as several houses along the waterfront. Surface stripping and a limited amount of underground tunnelling was carried out, and the various showings were connected to the shore by trails. No roads were built. Work was commenced on an aerial tram to connect what was considered the best looking showing of ore at elevation 750 feet with the loading dock, but this was never completed. World War I resulted in a cessation of mining activity in the area, and it has never been resumed.

Topography

The area adjacent to Harriet harbour is rough and mountainous. The ground covered by the McMillin claims rises from tidewater to an elevation of 1500 feet. All of the claims are covered by a dense growth of forest, and prospecting is difficult.

Geology

There is no geological map of the McMillin claims available. The general geology of Harriet Harbour, Huston Inlet, Ikeda Bay and Collision Bay is described by McConnell (Geological Survey of Canada, 1909) as follows:-

> "The principal sedimentary rocks seen consist of whitish and dark shales and feldspathic sandstones, probably of tuffaceous origin, filled in places with Triassic fossils. The tuffaceous beds are thinly bedded as a rule, and often pass into and alternate with thin beds and bands of greyish limestone. They are usually distrubed and faulted and are cut in all directions by numerous dykes. Massive, greyish limestones are widely distributed in small areas, mostly as inclusions in the later intrusive rocks. They were not seen with the tuffaceous rocks. They are of considerable economic importance, as many of the ore bodies have formed in or near them.

"The most widely distributed rocks consist of medium grained dark, basic intrusives, usually more or less porphyritic. The more granular varieties resemble diorite. They are massive. Numerous magnetite lenses have formed in them, often near small inclusions of lime. Greyish granular rocks, mostly granites outcrop (in various localities). They are younger than the dark intrusives and probably represent the period of the Coast Range batholith (Jurassic or early Cretaceous). Dark, greyish dykes are numerous. They cut all the formations and are also found traversing the ore bodies."

"Magnetite occurs in irregular-shaped areas, varying in size from small bunches to great masses, in long vein-like forms, and in grains disseminated through the altered rocks. It is usually associated with iron and copper sulphides, garnet, epidote, and other contact metamorphic minerals. Phrrhotite is common in most of the magnetite lenses and in the altered areas. Pyrite is less abundant. Chalcopyrite occurs in grains and bunches in practically all the lenses. Its distribution in the magnetite lenses is erratic. Garnet andepidote are present in some quantity in nearly all the mineral occurrences seen. They occur as individuals and in small aggregates."

"Practically all the mineral occurrences seen are replacement deposits, most of them situated at or near lime-porphyrite or granite porphyrite contacts. The typical irregular-shaped magnetite lenses grade into long, vein-like forms. These in some instances have magnetite as the principal vein filling, and in others chalcopyrite and the iron sulphides are the chief minerals present. The gangue consists of the country rock, usually, partially or wholly replaced by secondary minerals."

From the writer's brief examination of the various ore zones on the McMillan group of claims, it would seem that the form of mineralization outlined by McConnell applies in a general way to the ore zones on these claims with the exception of what is considered to be the most promising ore body - namely, a wide zone of altered rock carrying consistent and disseminated copper values, and showing no signs of magnetite. This ore body is called the Moresby.

ORE OCCURRENCES:

Moresby Ore Zone

This ore body occurs on the Moresby Island claim. It is a replacement type ore body in which disseminated copper values are found in an altered limestone formation. A plan of this ore body is attached. The writer first sampled

Cu 40 @ 25¢ 10.00
Au .03 @ $35 1.00
Ag .40 @ .75 .30
$11.30

this ore zone in 1929 and obtained an average of 2.0% copper. Further sampling was done by the writer in 1948, which gave an average of 2.02% copper, 0.03oz. gold and 0.4oz. silver. Surface samples on this zone invariably yield very low results as the copper values have been leached out. It is necessary to blast off two or three feet of the leached material before the evenly-disseminated copper ore begins to show. This explains why more samples were not taken. Mineralization has been exposed for a length of 250 feet with an indicated width of from 50 to 60 feet. The heavy overburden has made it impossible to find the boundaries of the zone. Assuming the zone carries down to a depth of 100 feet, then there are approximately 100,000 tons indicated for the length of 250 feet and average width of 50 feet.

Eagle Tree Ore Zone

This ore zone is located on the Eagle Tree claim at elevation 1050 feet. Surface trenching carried out many years ago exposed an ore length of 400 feet varying from 2 to 9 feet in width. This zone was in no shape for proper sampling when examined by the writer in 1948, but three channel samples taken in 1948 from three pits gave the following results:

| | Width | Copper | Gold | Silver |
|---|---|---|---|---|
| | 7.5 ft. | 3.0% | Nil | Nil |
| | 1.5 " | 6.1 | 0.24 oz. | 0.4 oz. |
| | 1.0 " | 8.8 | 0.28 oz. | 0.5 oz. |
| Average | 3.3 ft. | 4.0% | 0.06 oz. | 0.1 oz. |

According to an old report given to the writer by Mr. McMillin, four surface samples taken in 1920 by G.H. Stevenson, mining engineer, showed the following values:

| | Width | Copper | |
|---|---|---|---|
| | 1.5 ft. | 2.4% | |
| | 5.0 " | 2.6 | No gold or silver |
| | 9.25 " | 3.9 | assays given |
| | 3.0 " | 3.5 | |
| Average | 4.7 " | 3.36% | |

Assuming this ore body would extend to a depth of 100 feet, there is an indicated tonnage of 13,000 tons.

Copper Queen Ore Zone

This is a magnetite replacement ore body carrying copper values, and it is to this ore body that an aerial tramway was started from the beach many years ago. There is little information available to indicate the length of the ore zone, which is exposed on both sides of a small creek. Some 2000 tons of ore have been broken from the surface and are lying along the creek bottom. It is estimated that this tonnage would average from 2.0% to 3.0% copper. Many large pieces of massive chalcopyrite were noted on the dump, some of which would weigh close to 100 pounds. Three samples taken from three ore exposures assayed as follows:

| | Width | Copper | |
|---|---|---|---|
| | 3 ft | 4.6% | |
| | 7 " | 3.1 | No gold and silver assays made. |
| | 4 " | 1.5 | |
| Average | 4.7 ft | 3.0% | |

Reco Ore Zone

The Reco Ore zone outcrops along the side of a small creek crossing the Reco claim about a quarter of a mile from the beach. The zone has been exposed for a length of 200 feet. Sampling of surface outcrops is of little value as the copper content is leached out. A limited amount of blasting has been done to expose fresh ore, and two samples taken by the writer gave the following results:

| Width | Copper | Gold | Silver |
|---|---|---|---|
| 3.5 ft. (not full width) | 1.5% | 0.04 oz. | 0.10 oz. |
| 3.0 ft. | 3.4% | 0.08 oz. | 0.10 oz. |

On the opposite side of the creek there was a good looking 10-foot width of ore, which had been blasted into across a width of 6.5 feet. A sample taken across this 6.5-foot width assayed 4.45% copper, 0.10 oz. gold and 0.10 oz. silver.

Modoc Ore Zone

This is another copper bearing magnetite replacement ore body occurring on the Modoc claim. The writer was unable to locate this claim in 1948. All the old trails have long since been obliterated by a dense growth of underbrush.

Magnet Ore Body

On the Magnet claim there is an outcrop of magnetite which is reported by the Geological Survey of Canada to contain possibly 175,000 tons. As the full length of this deposit is not known, it is possible that this indicated tonnage could be exceeded. The average width of the magnetite is 25 feet. Mr. McMillin gave the writer the analyses of ten samples from this deposit, reported to be representative, and these are as follows:

| No. | Iron | Silica | Phosphorus | Sulphur |
|---|---|---|---|---|
| 1 | 70.04 | 2.36% | 0.010% | Trace |
| 2 | 69.80 | 1.75 | 0.055 | " |
| 3 | 64.71 | 6.10 | 0.010 | " |
| 4 | 69.15 | 2.28 | 0.009 | " |
| 5 | 69.37 | 2.52 | 0.018 | " |
| 6 | 69.80 | 2.65 | 0.011 | " |
| 7 | 67.14 | 4.50 | 0.009 | " |
| 8 | 69.48 | 2.88 | 0.010 | " |
| 9 | 70.36 | 2.36 | 0.006 | " |
| 10 | 70.36 | 1.47 | 0.009 | " |
| Average | 69.0 % | 2.88% | 0.015% | Trace |

These samples indicate that this is a high iron deposit. Although it is not a large deposit, it could be extracted a low cost per ton and at a low capital expenditure using the same facilities put in for the extraction of the copper ore bodies. It is understood that some sulphides are found along the footwall contact of this deposit, and therefore great care would have to be taken in mining so as to ensure that no such impurities are included in the product shipped.

Area in General

Aside from the merits of the McMillin claims, it is considered that there is a surrounding area roughly eight miles long by six miles wide which offers distinct possibilities. The attached small map shows approximate locations of known ore bodies, and it can safely be assumed that many others exist. To date the only appreciable production has come from the Lily claim of the Ikeda property, which was acquired several years ago by Ventures Ltd. but which was never worked by them. The tonnage shipped from 1907 to 1920 from an ore zone on the Lily claim of the same type as the magnetite replacement ore bodies on the McMillin claims was 9765 tons averaging 8.9% copper, .196 oz. gold and 3.5 oz. silver. This tonnage represents sorted ore. There is reported to be 5000 tons of reject ore on the surface dumps and 7000 to 8000 tons of low grade ore in the mine. At today's metal prices the gross value per ton for the ore shipped from Ikeda is $63.06. The gross value of the 9765 tons would be $615,000. Assuming the 12,000 tons remaining on the dump and in the mine to average 2.0% copper and 0.03 oz. gold, the gross value of same today is $156,000. Thus the total gross value of the known Ikeda ore at today's prices is $771,000.

The Ikeda mine was owned and operated by Japs intermittently from 1907 to 1920. The bulk of the production was made during the years 1907 and 1908. In the latter year 6000 tons were shipped. Copper was worth 13¢. During World War I approximately 3000 tons were shipped to the Granby smelter at Anyox under the

impetus of high copper prices. The operation was handicapped because freight and smelting charges were deducted from each ton of ore shipped. Today the situation would be very different. The ore would be concentrated by the flotation process to produce a concentrate assaying 25% copper.

The reason these details of the Ikeda operation are given is to show what might be expected from other magnetite deposits in the area which have surface showings equally as good as those on the Ikeda property. Prospecting in this area reached its peak in 1908. The various claim owners were attempting to find ore of shipping grade in the magnetite deposits, and the general tenor of such ore is below shipping grade. The lack of direct shipping ore no doubt discouraged prospectors and investors, and since World War I there has been no attention given to this area, other than the occasional visit of some engineer, who would have the same experience as the writer, namely great difficulty in even finding the showings described in the old reports due to the old trails having long since disappeared, having been covered in by the dense undergrowth.

Other Possibilities

To illustrate that other possibilities exist it is interesting to point out that between Harriet Harbour and Ikeda Bay, at a point roughly three quarters of a mile from Harriet Harbour there are a number of outcrops of nearly pure magnetite. The writer has never seen these outcrops, but it is interesting to quote Young and Uglow of the Geological Survey of Canada, who state that if this group of exposures should prove to belong to one body of ore, it is possible that several hundred thousand tons might be present. From the information available in old reports numerous other examples of ore possibilites can be given.

FACILITIES

Transportation

One of the best features of the property is that of transportation. Ocean going vessels can readily be accomodated in Harriet Harbour. The "Princess Charlotte"

which used to be one of the largest ships of the C.P.R. coastal fleet has entered the harbour with no difficulty. The existence of this well protected harbour within a mile or so of the ore bodies guarantees that there would be low freight costs on moving copper concentrates to the Tacoma smelter. It is also vital to the handling of iron ore.

Power

The logical source of power would be diesel engines. Diesel oil could be delivered by coastal tanker. There are no sources of water power on Moresby Island.

Water

Ample supply of water for milling and domestic use is available.

Climate

The climate of Moresby Island is mild as it is in the path of the warm Japan air currents. Rainfall is high, averaging 85 inches per year at Harriet Harbour. South east gales sweep the coast during the winter months.

Timber

A huge supply of timber is available on the Crown granted mineral claims, chiefly hemlock, spruce and cedar.

Labour Supply

Moresby Island has a very small population and all of these live at the northern end of the island. It is doubtful if there are any white men living within fifty miles of Harriet Harbour, except at a small whaling station south of Moresby Island. All employees would have to be brought in and housing facilities provided.

Value of 2% Copper Ore at Harriet Harbour

| | | |
|---|---|---|
| Mill recoveries assumed - | Copper | 90% |
| | Gold | 90% |
| | Silver | 80% |

100 tons of ore averaging 2.0% copper, 0.03 oz. gold and 0.4 oz. silver would produce: 7.5 tons of concentrates assaying 24.0% copper, 0.36 oz. gold and 4.8 oz. silver.

Value per ton of concentrates (shipped to Tacoma smelter)

| | |
|---|---|
| Copper | 24.0% |
| Less | 1.3 |
| | 22.7% |

22.7% = 454 lbs. per ton.

| | |
|---|---|
| 454 lbs. Cu @ 30¢ (foreign price 34.7¢ at this date) less 2.75¢ = 27.25¢ - | $123.71 |
| .36 oz. gold less .03 oz. = .33 oz. @ $31.82 - | 10.50 |
| 4.8 oz. silver less 1.0 oz. = 3.8 x 95% x 85¢ - | 3.06 |
| | $137.27 |

| | | |
|---|---|---|
| Less treatment charge - | $12.50 | |
| " freight to Tacoma - | 9.00 | |
| " sundry charges - | 2.00 | 23.50 |
| Value per ton of concentrate - | | $113.77 |
| Value of 7.5 tons of concentrate - | | 833.27 |
| " " 100 " " ore - | | 833.27 |
| Value per ton of ore - | | 8.33 |
| Less mining & milling costs based on 300 tons per day and on open pit mining - | | 5.00 |
| Profit per ton of ore - | | $ 3.33 |

Value of 3% Copper Ore at Harriet Harbour

Using the same method of calculations, the value of one ton of ore averaing 3% copper, 0.04 oz. gold and 0.4 oz. silver is - $12.47

Value per ton of 55% iron ore

While the value of 55% iron ore may be around $7.00 per long ton f.o.b. ships hold today, it is difficult to estimate what it might be worth in a year or so.

It would be reasonable to assume that the Magnet ore would be worth $6.00 per long ton.

Possible Ore in Sight

| | | | | |
|---|---|---|---|---|
| Moresby Island ore zone | 100,000 | tons | @ 8.33 | - $833,000 |
| Eagle Tree ore zone | 13,000 | " | @12.47 | - 162,110 |
| Copper Queen ore zone | 5,000 | " | @12.47 | - 62,350 |
| Reco ore zone | 8,000 | " | @12.47 | - 99,760 |
| Modoc ore zone | 3,000 | " | @12.47 | - 37,410 |
| | 129,000 | tons | | $1,194,630 |
| Magnet iron ore body | 175,000 short tons | | | |
| equals | 156,000 long tons | | @6.00 | - 936,000 |
| | Total net value - | | | $2,130,630 |

Conclusion & Recommendations

At today's prices for copper and iron ore, the net value of the possible ore in sight on the McMillin claims is in excess of two million dollars. However, what is evident to any experienced engineer, who has been over the claims, is that this is a virgin area and that it would be reasonable to expect that new discoveries as well as extensions of the present showings would be found by a well directed exploration campaign consisting of diamond drilling and surface exploration with a dip needle. The extent of the mineralization leads one to the conclusion that the McMillin property and surrounding area could develop into a mining camp from which numerous copper ore bodies could provide the feed for a 300 - 400 ton mill.

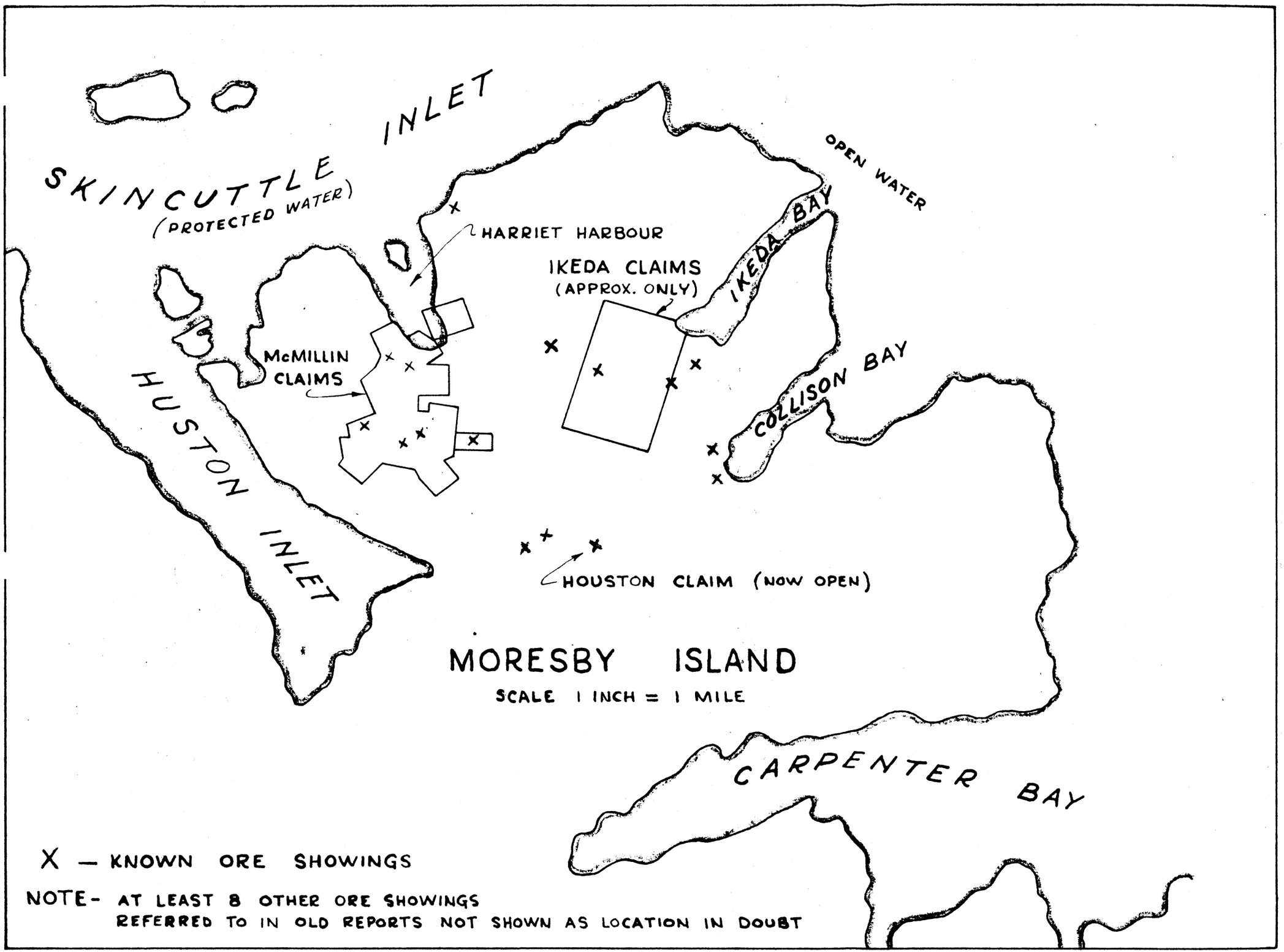
The first step would be to set up a camp and conduct a diamond drilling campaign on the Moresby and Reco ore zones using a small x-ray drill which would have to be back packed to the drilling sites. If these initial results were successful, then road making equipment should be placed on the property to buildirough roads to the various copper showings as well as to the Magnet ore body. The showings

themselves warrant the expenditure of $50,000 for this initial work. Staking additional ground should receive immediate attention, as it would be unwise to prove up ore and then have other parties stake the adjoining ground.

R. E. Legg

R. E. Legg,
Consulting Mining Engineer

January 29, 1953.


SKINCUTTLE INLET
(PROTECTED WATER)
OPEN WATER
HARRIET HARBOUR
IKEDA CLAIMS
(APPROX. ONLY)
IKEDA BAY
McMILLIN CLAIMS
HUSTON INLET
COLLISON BAY
HOUSTON CLAIM (NOW OPEN)
MORESBY ISLAND
SCALE 1 INCH = 1 MILE
CARPENTER BAY
X — KNOWN ORE SHOWINGS
NOTE- AT LEAST 8 OTHER ORE SHOWINGS
REFERRED TO IN OLD REPORTS NOT SHOWN AS LOCATION IN DOUBT

Canada
DEPARTMENT OF
Mines and Technical Surveys
SURVEYS AND MAPPING BRANCH
(Prince Rupert-Stewart 103 N.E.)

NATIONAL TOPOGRAPHIC SERIES

SECOND EDITION

SHEET 103 S.E.

(Ocean Falls-Owen Lake 93 S.W.)

# QUEEN CHARLOTTE IS. - BELLA BELLA

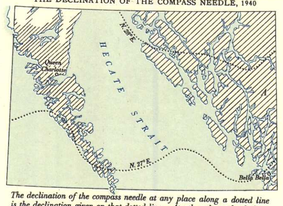
BRITISH COLUMBIA

Scale 8 miles to 1 inch or 1:506,880

Miles 8 6 4 2 0 8 16 24 32 Miles

*NOTE: Grid squares may be drawn on this map by joining the corresponding divisions shown along the outer border. The even numbers of the squares are given along the outer border.*

THE DECLINATION OF THE COMPASS NEEDLE, 1940



*The declination of the compass needle at any place along a dotted line is the declination given on that dotted line. At other places the declination is between those given on the neighbouring dotted lines; thus at the place marked A, the declination is between N. 27°E. and N. 28° E. The declination of the compass needle is decreasing 3 minutes annually.*

Aerial photography

REFERENCE

Road
Town or village
Settlement ... with post office
Glacier
Lighthouse or Lighted Beacon
Mine
Height in feet ... 9040

ALTITUDE TINTS

Feet 0 1000 2000 3000 4000 6000 8000 Above 8000

Datum is mean sea level

inches 0 1 2
centimetres 0 1 2 3 4 5

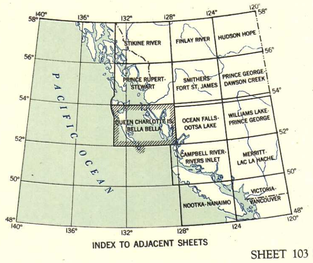
This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.


*Price 25 cents*

FIRST EDITION 1941
REVISED AUG. 1947

*Copies may be obtained from the Map Distribution Office, Department of Mines and Technical Surveys, Ottawa.*

*Compiled, drawn and printed at the Surveys and Mapping Branch, 1947.*
*Reprinted with minor corrections 1950.*


INDEX TO ADJACENT SHEETS

SHEET 103 S.E.

## SAMPLING RESULTS

| Nº | WIDTH | Cu. | Au. | Ag. |
|---|---|---|---|---|
| 1 | 10' | 2.1% | .04 OZ. | .55 OZ. |
| 2 | 4' | 1.2 | .03 | .40 |
| 3 | 6' | 1.65 | .03 | .10 |
| 4 | 12.5' | 2.25 | .02 | .20 |
| 5 | 10' | 2.20 | .06 | .60 |

THIS AREA PROSPECTED. NO CHANCE OF FINDING BEDROCK BY HAND METHODS EXCEPT AT GREAT EXPENSE

OVERBURDEN

N 40° W

600

620

640

660

680

700

720

740

760

HEAVY OVERBURDEN

OUTCROP OF BARREN CRYSTALLINE LIME

SLIDE OF OVERBURDEN

SAMPLE Nº 3

Fault ?

LIMESTONE COMPLETELY LEACHED. PITS 4' TO 6' DEEP

BARREN CRYSTALLINE LIMESTONE

NO SIGN COPPER MINERALIZATION

THIS SECTION NOT BLASTED OUT. LOOKS POOR

LEACHED ORE

SAMPLE Nº 4?

BARREN CRYSTALLINE LIMESTONE

SAMPLE Nº 5

SAMPLE Nº 2

HIGHLY ALTERED LIMESTONE

STRIPPING – SOME BLASTING DONE BUT STILL IN LEACHED ORE

SAMPLE Nº 1

LEACHED ORE

END OF STRIPPING IN HIGHLY ALTERED LIMESTONE

SHALLOW TRENCH

LEACHED ORE

SOME NICE ORE EXPOSED BY BLASTING.

ALTERED LIMESTONE EXPOSED MAY SHOW SOME MINERAL AT DEPTH.

ALTERED SEDIMENTS NOT LIMESTONE

LEACHED ORE 12' WIDE

PIT 5' DEEP IN LEACHED ORE NOT SAMPLED

BARREN CRYSTALLINE LIMESTONE 60' WIDE

SHALLOW TRENCH NO BEDROCK EXPOSED

LOOKS LIKE ALTERED LIMESTONE

PIT 5' DEEP IN HIGHLY ALTERED LIMESTONE

PIT 5' DEEP IN LEACHED ORE NOT SAMPLED

ALTERED SEDIMENTS EXPOSED IN TRENCH NOT LIMESTONE

SHOWS SIGNS OF MINERALIZATION

OUTCROP OF MAGNETILE SMALL AND IRREGULAR

HEAVY OVERBURDEN

ALTERED LIMESTONE NO SIGN MINERALIZATION

LIMESTONE – NOT HIGHLY ALTERED

BASE LINE

inches 0 1 2

0 1 2 3 4 5 centimetres

BRITISH COLUMBIA GEOLOGICAL SURVEY

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

LEGEND

- ALTERED LIMESTONE
- ORE (IN LIMESTONE)
- GRANODIORITE

# GEOLOGICAL AND TOPOGRAPHICAL MAP MORESBY ISLAND CLAIM

McMILLIN COPPER PROPERTY

MORESBY ISLAND, Q.C.I. B.C.

SCALE: 1 IN. = 25 FEET SEPT. 15, 1948

SAMPLING AND MAPPING BY R.E. LEGG.