

PROGRESS

**REPORT**

ON

WESFROB EXPLORATION

Queen Charlotte

Islands, B.C.

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JULY and AUGUST, 1956

~~MINING DIVISION~~

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PROGRESS REPORT

by

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WESPROB EXPLORATION

July & August, 1956.

The months of July and August were spent in the Queen Charlotte Islands prospecting, as planned, with the 2 Super-Cub aircraft based on Skidegate Lake. My time was divided equally between this prospecting and the Tasu property.

About 20 days of suitable flying weather was experienced in July but this dwindled to about 10 in August. As this work has not yet been completed due to the unsettled weather preventing a search for the source of at least 4 localities containing mineralized float, only a summary of the work will be presented here.

1. Scintillometer Work

Despite a fair number of hours spent on low-level scintillometer flying of the most likely areas of the North and South Islands, no important radioactivity was detected. Except in several scattered instances, even the granitic rocks showed less than normal readings. Regional highs were noted around Forcher Island and Prince Rupert on the mainland.

As the coal-bearing series on the North, or Graham,

Island resembles, in age and stratigraphy, that of the chief uraniferous belt in the Colorado plateau, this should be investigated a little more closely before leaving the Charlottes. The deposit on Prince of Wales Island, Alaska, which is immediately north of Graham, shows signs of developing into a small precuder.

## 2. Air Reconnaissance.

Numerous gossans, quartz veins, and limonite stained areas were noted and recorded as were limestone and granitic zones. Our prospecting, on Moresby Island in particular, was based on this work as no geological map exists.

## 3. Ground Work.

Areas of interest were checked on the ground with special attention being paid West Coast localities, which, because of their poor accessibility, had received little if any notice in the past. Our aircraft performed well on lakes in these districts sometimes less than a 1/2 mile long. With the help of Albert Jones of Skidegate a large number of old showings were examined during the course of which several old Indian stories regarding rich mineral occurrences (copper nuggets, gold anchors, etc.) were investigated. Ground is being located around staked claims of interest for which we will probably acquire option to purchase.

In general, Graham Island contains only a small section geologically favorable for "Island Type" mineral deposits and after about a dozen examinations and traverses here no further work seemed advisable. Gold and silver

bearing quartz veins may be present but they were not in evidence.

On Moresby Island the most interesting localities center around the mountainous interior. Most mineral deposits are localized near, or in, "ever-present" limestone masses within a few miles of granitic contacts. Scattered copper mineralization can be found here in the granitic rock (generally a quartz diorite with gradations to granite or syenite) as well as in the greenstones and limestones, and after appears related to a remarkably persistent system of unmineralized basaltic and andesitic dykes. One such elongate granitic mass forms most of the west coast for a distance of at least 30 miles south of Tasu. The limestone, with the possible exception of the Skidegate Lake area, reaches its greatest development in the Lockport - Tasu vicinity.

Results on Moresby Island to date have been inconclusive. Although we have found at least 10 new chalcocopyrite discoveries, about half of these have been either small, irregular high-grade stringers in or near inclusions in the granitic rock, or low grade (.2 - .4% cu) disseminations in green amygdaloidal volcanics. The former will have to show high gold-silver values to be of further interest, and detailed ground prospecting will have to be done to find higher grade material than the latter. The remaining discoveries are of interesting float the source of which, in most cases, is on precipitous hillsides above steep-walled lakes. Suitable weather, of which there is a serious shortage of late, is a must before this hazardous ground can be checked.

With few exceptions, most old properties of interest in the Charlottes have been examined. One of these, the Contact group, situated between Tasu and Lockepert, was restaked not for the small lenses of chalcopyrite-bearing magnetite on which early work was done, but to cover a larger (?) undeveloped magnetite lense reported to occur some distance below the workings. This, or a similar magnetite showing near a steep slide below and west of the workings, was spotted from the air recently and should be investigated.

It is significant that, during our widespread coverage of the Charlottes, no new magnetite deposits have been discovered. However, as we now know more of the geology of the region, the search for them by airborne magnetometer at some later date can be narrowed down.

#### Tasu

During the time spent at Tasu, the Lower T-Bone Extension iron deposits were prospected and mapped with the help of Meade Hepler and regional prospecting was carried out. Extensions to the main copper-magnetite zone were discovered to the South of the old workings, C.M. & S. holdings were examined, required assessment work was carried out on the Tommy, and three additional claims were staked. Fill-in locations for the Paeksack drill holes were made on the iron and the copper deposits.

Tommy Mineral Claim.

This claim, turned over to the company by Albert Jones along with the Taa'u Group, is situated on the west side of a peninsula about 1500 feet southeast of Gowing Island. The showing which the claim was meant to cover occurs on a steep 80 ft. bluff about 400 feet above the water and consists of a narrow but exceptionally high grade vein containing massive chalcopyrite and other common sulphides. The deposit is related to a narrow skarn band which can be traced northward to the C.M. & S. showings near the tip of the peninsula. The vein is irregular in size, varying from 2 to 7 feet in width along an exposed length of about 20 feet. It is lost under overburden to the north and pinches out, temporarily at least, to the south. It is doubtful if this main showing is included within the Tommy boundaries as staked. Air photo plotting puts the north boundary about 200 feet south of the 50 foot adit immediately below the showing. Five surrounding claims since staked by C.M. & S. probably control this showing.

A low grade zinc deposit, for which we are awaiting assay returns, probably occurs within the Tommy near its eastern boundary. A zone of disseminated sphalerite mineralization about 200 ft. by 50 ft. was discovered here and sampled.

C.M. & S. Showings (formerly the AJAX)

A considerable amount of work involving about a dozen cuts was performed by C.M. & S. during 1953 and 1954 on a number of related deposits occurring on claims north of the

Tommy. A series of highly pyritic and slightly cupriferous magnetite lenses occur within a 1000 foot square area of skarn intermixed with marble, volcanics, and quartz diorite. Although the magnetite is widespread, it is erratic in nature as is usually the case in near-contact skarn zones and is highly pyritic. My assays, representing some of the best material, returned: iron 49.7%, copper 0.55%, sulfur 11.8%. The irregular lenses, although only partially exposed, probably do not exceed 200 feet in length and 30 feet in width. Associated sphalerite was noted in several instances.

Of possible importance is a flanking (?) band of quartz diorite containing disseminated chalcopyrite. Although C.M. & S. has only one cut in this material, which occurs in a largely overburdened area to the immediate east of the magnetite, we have noticed similar material exposed in 100 ft. square outcrops on steep cliffs a short distance downhill. In addition rounded and innocent looking granitic boulders several hundred feet to the south, when split open were seen to consist of similarly mineralized material. My assay across about 15 feet of the C.M. & S. cut in this "porphyry copper" band, showed 0.01 oz. gold, trace of silver, and 0.85% Cu.

As these C.M. & S. showings could contain several hundred thousand tons or more of low grade cupriferous magnetite, they should be kept in mind should Tasu develop, in which case the porphyry copper, although possibly limited in size, could stand to be investigated more thoroughly. As transit stations were noted, it is quite probable that C.M. & S.



(who has recorded 8 years of assessment work on the claims) has a good geological and assay map which could probably be obtained should they put the claims open to deal.

Iron Showings

As less than 1/2 of the proposed drilling has been carried out to date, the picture of copper and iron ore structure and reserves is far from complete. However enough work has been done to reasonably expect drilling by November to have outlined about 2-1/2 million tons of 'more or less' open-pit ore. Results can be broken down as follows:

1. Lower T-Bone Extension.

Only one hole, #1, was put down on these poorly exposed deposits as it seemed advisable to delay work in this easily accessible area until later in the year when weather conditions would make work more difficult on the upper showings. Map T5 (enclosed) shows the deposits of interest and was constructed without the benefit of surface stripping which could be easily and advantageously done if a bulldozer was available. Only a zone is outlined, as was the case when mapping the Lower T-Bone, and included barren material must be expected as light but extensive overburden covers at least 90% of the map area. However, the results of #1 drill hole, erratic but discernible dip needle readings, and better exposures uphill along strike as shown on Glessers' 100 scale map indicate the dimensional order shown. At least 1/2 million tons of open pit iron ore should be present, and future drilling could prove ore reserves several times this.



As is the case with the Lower T-Bone, coarse magnetic separation will be required to bring the grade of this material above the 60% mark.

Locations for a number of preliminary Packsack drill holes have been made on these deposits. At present a number of 60 foot holes being put down on the 'Ridge' deposit are expected to outline about 100,000 tons of easily mineable material enclosed in a large but low grade skarn zone.

#### Lower T-Bone.

All 10 drill holes put down on the Lower T-Bone cut magnetite and proved the dip to be westerly but at a flatter angle than had previously been indicated. A large amount of erratically occurring dyke rock was encountered. Treating the ore as a zone averaging 41% iron and having an average indicated width of about 90 feet, about 750,000 tons has been outlined to open pit depth. This material could be readily concentrated to one averaging over 60% iron. (Published 1955 results at Quinzan Lake, B.C. show an average 38.4% millhead, a 20 mile truck haul is encountered. The only other producing iron mine in B.C., at Texada Island, showed a 40 - 43% product after considerable waste removal.)

A program of packsack drilling has been outlined to confirm the continuity of the orebody. The vertical extent of the deposit has not been determined but further work along this line can be done when the large drill is brought back down the hill. The immediate downhill extension has not been investigated. The overlying thickness of greenstone is such

that underground mining would be needed to recover any deeper material outlined.

Upper T-Bone.

Only 6 drill holes, or about 1/2 of the drilling required to evaluate the easily mineable potential of the Upper T-Bone, have been completed.

A marked change of dip appears evident varying from one steeply west or vertical near DDH's #12 & 13, to one of less than 65° easterly near DDH #16. This change could also be due to a steep northwesterly plunging orebody - a condition which only future drilling from a second line of drillholes into the hill from below the outcrop can confirm.

Drill holes #12 and 13 gave better results than those anticipated from surface exposures. They showed the orebody to be at least 350 feet deep and showed a 100 foot copper section assaying between 0.30 and 1.8% with the best 80 feet returning slightly over 1%. Hole 13 encountered a total of about 240 feet of high grade magnetite the bulk of which was in one practically continuous section.

The shallower holes (#14 & 16) on the more southerly portion of this deposit gave results comparable to those which would be expected after examining the surface outcrops but the steeper holes (15 & 17) appear to have paralleled the lower contacts and did not intersect as much magnetite as had been anticipated.

By projecting surface outcrops vertically near the north end, and having them converge sharply on the south

end of this partially tested section, about 750,000 tons of good grade (55 - 60%) magnetite is so far indicated to depth of drilling. The copper content should average about 0.6 or 0.7% with sections of yet unknown size averaging slightly over 1%.

The Upper T-Bone is still open for drilling along strike at both ends although the better surface showings occur in the drilled area. If the body is in the form of a plunging orshoot, surface exposures may not be too indicative and the unimpressive continuations, especially to the north, may contain important ore at depth.

#### Southern Tunnel Showings

Surface mapping of this "anchor shaped" deposit shows an ore potential of about 6000 tons/vertical ft. Drilling has been designed to block out this copper-rich magnetite deposit by means of spaced 50 ft. parallel holes. The fourth such hole is now being completed.

The geological picture is complicated in this area. To the south of the upper tunnel, and at about the same elevation, a distinct contact (possibly a fault) between underlying granular volcanics (possibly fine grained granitic rock) and banded magnetite is well exposed. Dip is to the west at 35°, and strike is northerly, approximately parallel or a few degrees east of the long axis of the orebody. However, elsewhere with the exception of the massive limestone capping (?) several hundred feet to the west, all dykes, magnetite bands, volcanic rock, and limestone remnants

are vertical or dip steeply to the east. Indications are that this low angle contact marks, at least in the southern portion, a structural bottoming of the deposit and would explain the failure of the lower tunnel to encounter the ore zone as it should have if the magnetite above continued steeply downward.

The outline of unreplaced limestone lenses, rimmed usually by bands of porphyritic volcanic or dyke rock, is highly suggestive of sharp or isoclinal folding. However the erratic distribution of limestone still prevents a clear picture, and, with the limited information available to date, structural control is not yet evident.

A rectangular oreblock approximately 200 feet long and 100 feet wide is now being tested by drilling. Assuming it to bottom by projecting the contact already described, (see sections etc.) about 200,000 tons of ideal open pit material has been outlined to date to a maximum 200 foot depth. This could easily be concentrated to at least 150,000 tons of 62% Fe and 1.5%+ Cu. No copper assays are yet available. The remaining drilling is expected to encounter similar material, possibly at greater depth to the north. Of this, at least 100,000 tons should be open pit ore.

Several drill holes are required to check the area between the porphyry band, in which the present holes (and those of the Upper T-Bone) are collared, and the massive limestone to the west as a number of geological features indicate that 'hidden' ore could be present.

Our prospecting along the lower limestone contact to the south on the Warwick uncovered several narrow bands of chalcopyrite bearing magnetite, the furthest being about 300 feet from the end of the Tunnel showing. The largest of these is about 200 feet long and shows a maximum width of 12 feet. It dips steeply, conforming to the unconformable limestone - volcanic contact in general, but, in one locality exposed by a creek cut, it clearly replaces a westerly dipping limestone horizon. Several pack-sack drill holes are required to see if this body shows signs of widening at depth or if the replacement of the limestone is more than a local effect.

With the finding of the key Tassoo and Warwick claim posts, it now appears evident that about  $2/3$  of the tunnel orebody and at least  $1/2$  of the Upper T-Bone, as well as most remaining magnetite, is on ground staked for or by Albert Jones.

#### Summary and Conclusions

Although most drill holes to date have been exploratory in nature, they have indicated a probable 2 million tons of magnetite ore. More than  $1/2$  of this carries copper in commercial quantities. If present drilling success is continued, at least  $1-1/2$  million tons of copper bearing material and 1 million tons of copper free magnetite will be outlined with more certainty by November. Deeper holes and underground work will be required to increase and block out the

copper reserves. Less than 1/2 of the mapped magnetite has yet been tested, and sizeable bodies as yet unmapped remain to be explored at a later date.

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