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THE DUCKLING CREEK PROPERTIES

Tyee Lake Resources Ltd.

J.R. Woodcock
North Vancouver, B.C.

August 1970

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S U M M A R Y

Tyee Lake Resources Ltd. has acquired, by staking, three groups of claims in the Duckling Creek area of the Omineca Mining Division. The Duck Group of claims covers and surrounds ground originally covered by the Dorel claims of Kennco Explorations, (Western) Ltd. The Rondah Group of claims lies to the northeast of the Duck Group and straddles the eastern contact of the Hogem Batholith. The Duke Group of claims lies to the east of the Duck Group and also straddles the contact of the Batholith.

These claims are north of Old Hogem, 100 miles northeast of Smithers and four miles west of the Usluka Lake access road. They are at latitude 56°54'N, longitude 125°19'W.

Tyee Lake's Properties in this area lie to the east of Duckling Creek; the Lorraine Property (now being drilled by Granby Mining Company Ltd.) lies to the northwest of Duckling Creek. Both properties lie in the eastern part of the Hogem Batholith -- a large intrusion with a core of granodiorite - granite and marginal areas of syenodiorite. Both mineral properties are associated with complex syenite intrusives. Widespread copper mineralization is scattered along the eastern part of the Batholith, especially in the vicinity of the syenite centres. In places, this copper mineralization is concentrated enough to form exploration targets, some of which warrant investigation for ore bodies.

Exploration work in British Columbia in the past ten years has shown that disseminated copper deposits associated with quartz-deficient syenite and diorite stocks can be large and economic. The syenite copper deposits differ from the conventional porphyry copper deposits in the type of alteration and the type of mineralization. Mineralization of syenite copper deposits is somewhat erratic and consists mainly of chalcopyrite often with relatively minor pyrite. Because of the scarcity of pyrite, the total sulphide content of ore zones can be relatively low compared to that of pyritic zones which may occur in the same area. Thus one must, when exploring induced polarization anomalies for such deposits, be aware that the moderate and low anomalies may be of greater potential than the best anomalies. Structural controls such as intrusive contacts, seem to be more pronounced in the syenite copper deposits than in the conventional porphyry copper deposits.

On the properties held by Tyee Lake Resources Ltd., three exploration targets must be investigated. A detailed silt sampling survey of the entire claim area is recommended to help delimit targets of interest, to help classify the targets according to merit, and to explore for additional targets.

- A. The Rondah claims cover an attractive exploration target. Good grade copper-bearing float occurs in a bank composed of a mixture of moraine and other debris. The float lies in the vicinity of the eastern contact of the Hogem Batholith -- a favourable loci for copper concentration. A small amount of soil sampling done in the vicinity of a copper-anomalous creek, has indicated a

good copper-in-soil anomaly. This anomaly, although of small areal extent, has not been delimited upslope. The anomaly is largely downslope from the copper-bearing float; the best geochemical values are in the vicinity of the float.

The mineralized float should be quite close to its source -- probably the contact zone of the Batholith. It is unlikely that the float has moved over 1000 feet from its source.

Induced polarization will be needed to pick out a specific target for drilling. The basalts along the eastern margin of the Hogem Batholith in this general vicinity are pyritized. Therefore, induced polarization anomalies are inevitable. Any strong anomaly will almost certainly indicate sulphides, as graphite is not expected in this geological setting. With the aid of the geology, the soil geochemistry, and the magnetometer work, one should be able to select the best spots in the induced polarization anomaly to be explored by diamond drilling.

- B. The Duck target occurs in the central part of the Duck Group. In this area, a creek containing anomalous copper values has its source in a small basin that contains considerable overburden and is separated from another basin to the east by a prominent ridge. Soil sampling in the western basin has indicated a widespread copper anomaly which extends to the ends of the survey lines and thus has not been delimited. The geochemical anomaly extends upslope to the intervening ridge and the highest soil geochemical values occur near this prominent ridge. Rock samples from outcrops and from felsenmeer along the ridge show that the rock contains less than 0.1% copper.

One must note that, although the geochemical values on the lower slopes of this basin are not as anomalous as those of the upper slopes near the ridge, the overburden is fairly deep and nothing is known about the grade of the underlying rock. Geological mapping done thus far around the boundaries of the basin has indicated a fairly complex mixture of syenites, syenodiorites, and metamorphosed roof pendants.

The writer recommends that some more geological mapping be done in this basin, and that magnetometer lines be run to try to get some indication of the underlying structure prior to making any decision for drilling. The second basin (to the east of the ridge) is largely filled with overburden and talus. This second basin needs some investigation, especially if the stream geochemical results are highly anomalous.

- C. To the east of the Duck Group lies the Duke Group. The batholith contact extends in a southeasterly direction across the Duke claims. Should the stream geochemistry indicate favourable results, this would be a good target area for exploration. Possible exploration would include geological mapping, soil geochemistry, induced polarization and magnetometer surveys.

Budget estimates for the above exploration programs are:

Phase I -- Technical work including helicopter costs	\$ 29,400
Phase II -- Allowance for 3000 feet of diamond drilling, including helicopter costs	\$ 60,200

THE DUCKLING CREEK PROPERTIES -- TYEE LAKE RESOURCES LTD.

INTRODUCTION

The Duckling Creek area near Old Hogen in the Omineca Mining Division was selected by Mr. Hiroshi Ogata, Tyee Lake Resources Ltd. for exploration, from his studies of available geological reports.

In June 1970, Tyee Lake Resources Ltd. acquired, through staking, 52 mineral claims. These claims, called the Duck Group, adjoin the Dorothy-Elizabeth Group of claims belonging to Kennco Explorations, (Western) Ltd., and include and surround a group originally covered by the Dorel Group of Kennco.

In June 1970, the writer was commissioned to summarize the available information on geology, geochemistry, geophysics, and exploration history. That summary report recommended a field examination when snow conditions permitted, followed by some geological mapping and some geochemistry to determine if geophysics and possibly diamond drilling were warranted. The information for this preliminary report consisted largely of assessment work reports filed in Victoria (Assessment Reports 378, 384, 430 and 532).

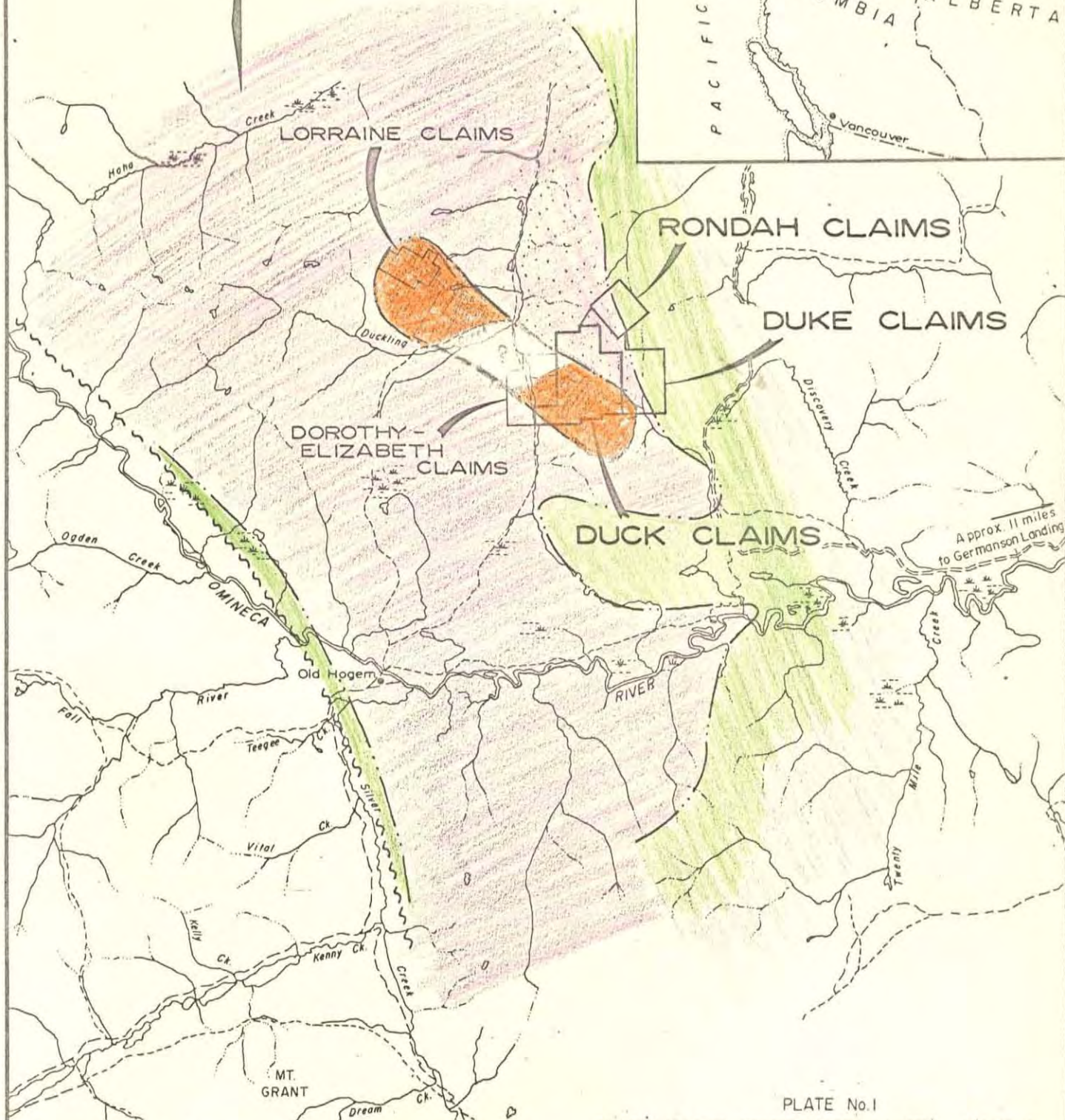
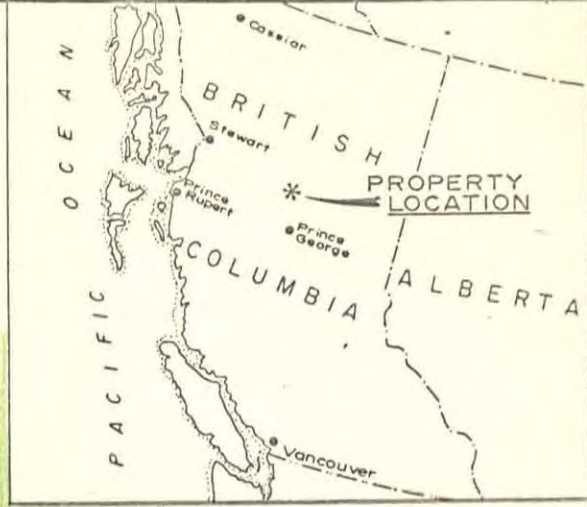
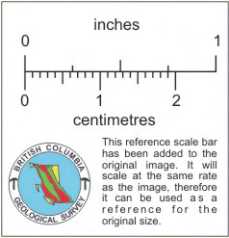
In June 1970, Charles A. R. Lammle, geologist for Tyee Lake Resources Ltd., camped on the Duck Property to do geological mapping and some geochemistry. At this time he discovered some interesting copper-bearing float northeast of the Duck Group of claims. He staked the Rondah Group of claims to cover float and to include another lapsed Kennco claim group originally called the Rhonda claims.

In August 1970 the writer was commissioned by Tyee Lake Resources Ltd. to visit the property to examine the geology, rock types, mineralization, and the overburden conditions in the vicinity of the geochemically anomalous areas and to prepare an engineering appraisal of the claim groups. He was accompanied on this trip by Mr. Lammle.

CLAIMS AND OWNERSHIP

Each claim group consists of contiguous claims as follows:

<u>Claim Names</u>	<u>Staking Dates</u>	<u>Recording Dates</u>
Duck 1 to 52 inclusive,	June 2 to 3, 1970	June 9, 1970
Rondah 1 to 16 inclusive,	June 14 to 15, 1970	July 22, 1970
Duke 1 to 24 inclusive,	August 8, 1970	August 17, 1970
Duke Fractions 25 to 29 inclusive,	August 8, 1970	August 17, 1970

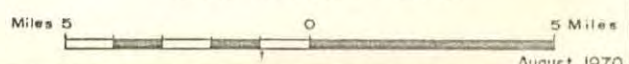


LEGEND

- Syenite Complex
- Granodiorite; Syenodiorite
- Nicola - Takla

PLATE No.1
TYEE LAKE RESOURCES, LTD. (N.P.L.)
DUCKLING CREEK AREA
OMINECA M.D.
GENERAL GEOLOGY

Data largely from J.E. Armstrong, G.S.C. Memoir 252
SCALE APPROX. 1" = 4 Miles



August, 1970

These groups adjoin so as to form one large block of 95 claims (see Plate II). The 52 Duck claims were staked by agent, Amex Exploration Services Ltd. of Kamloops and the 16 Rondah claims were staked by Mr. Lammle. The Duke Group of claims and the Rondah Fractions were also staked by Amex Exploration Services Ltd.

During the writer's visit to the property he checked one claim post on the Rondah Group and one claim post on the Duck Group. He has not checked all the claims but believes them to be as represented by the stakers.

LOCATION AND ACCESS

The Duck Group of claims is at latitude 56°54'N, longitude 125°19'W, mostly between elevations 5000 feet and 6500 feet. It is four miles west of the Uslika Lake access road, 25 miles northwest of Germansen Landing, and 100 miles northeast of Smithers.

Access is via helicopter from Smithers or from Fort St. James, or via the Uslika Lake access road from Fort St. James -- a distance of 170 miles. Germansen Lake, 20 miles southeast of the Duck Group, is suitable for float planes.

The surveyed route of the proposed extension of Pacific Great Eastern Railway along the eastern shore of Takla Lake is within 35 air miles of the properties.

EXPLORATION HISTORY

The copper mineralization in the Duckling Creek area was long known by the native Indians who, during the First World War, took prospectors to the showings. The original prospect (with very conspicuous mineralization) is on the Lorraine Property, six miles northwest of the Duck mineral claims. Claims on this showing were held by Cominco between 1943 and 1947. In 1947, Northwestern Explorations Ltd. (now Kennco Explorations, (Western) Ltd.) acquired the ground and carried on exploration, mainly surface sampling.

In 1948 Northwestern Explorations Ltd. staked the Dorothy-Elizabeth Group to cover copper-bearing float. This property was explored in 1949 by mapping, trenching, and some diamond drilling. In 1951 a bio-geochemical survey (using tree samples) was conducted over 14 of the mineral claims. In the early 1960's the exploration work by Kennco was again renewed in the area. Some additional work, including induced polarization, was done on the Dorothy-Elizabeth Group. Additional claim groups, including the Dorel and Rhonda Groups, were staked on the basis of stream geochemistry.

In the 1970 season, exploration activity for the region has probably reached an all time high. Tyee Lake Resources Ltd. has acquired three claim groups adjoining the Dorothy-Elizabeth Group and are conducting an exploration program. Granby Mining Company Ltd. have optioned

the Lorraine Property from Kennco and are investigating the ore reserve. In addition, Union Miniere Exploration & Mining Corporation Ltd. are carrying out an extensive reconnaissance stream geochemistry program in the area and have staked large blocks of ground to the north of the Lorraine Property and to the north of Tyee Lake's claim groups. Much of this exploration activity is directed toward discovery of economic "syenite copper deposits".

GENERAL INFORMATION ON SYENITE COPPER DEPOSITS

Prior to the early 1960's and the successful exploration of Stikine Copper Company at Galore Creek, porphyry copper exploration in North America was directed towards quartz-rich intrusive stocks. The quartz-deficient stocks, composed of syenite and diorite, were not regarded favourably as a host for large tonnages of disseminated copper. However this attitude has changed somewhat in the last decade in British Columbia and considerable exploration work has been done by major companies on the "syenite copper" deposits such as Stikine Copper (Kennco Explorations, (Western) Ltd.). Ingerbelle (Newmont Mining Corporation of Canada Ltd.) and Cariboo-Bell (Mastodon-Highland Bell Mines Ltd.).

The syenite copper deposit differs somewhat from the conventional type of porphyry copper. The type of alteration and the type of mineralization, as well as the type of intrusive are specifically characteristic in a syenite copper deposit. Sericite is not a common alteration product; however lime silicate minerals, especially epidote, are common. A pink alteration, both pervasive and in veinlets, of the feldspars is also very characteristic. Mineralization is somewhat erratic and consists of chalcopyrite, occasionally minor bornite with relatively minor pyrite. Pyrite can occur in separate or overlapping zones of mineralization but does not appear to have the specific spatial relationship (e.g. halos) to the copper mineralization as is found in the better known "porphyry" type copper deposits. Molybdenite values are generally absent, but credits in gold generally are present. Structural control (e.g. the contacts of the intrusive) is more pronounced in the syenite copper deposits than in the porphyry copper deposits.

The lack of pyrite in the syenite coppers is particularly significant in the application of geochemistry and geophysics in exploration. Because of the scarcity of pyrite, the total sulphide content of ore grade material can be so low that the mineralization is merely on the limit of detectability by induced polarization. However abundant magnetite is present both in the mineralized zone and in the syenite and syenodiorite host rocks and this can give spurious induced polarization anomalies.

REGIONAL GEOLOGY

The Duckling Creek area is largely within the Hogem Batholith. This Batholith, according to J. E. Armstrong (Memoir 252), is differentiated into a granodiorite-granite core with syenodiorite or more basic rock forming a border zone from a fraction of a mile to several

miles wide. In many places the various types grade imperceptibly into one another. In the Duckling Creek area, salmon-coloured syenites are a prominent rock type within the Batholith and are probably genetically related to the copper mineralization.

The eastern contact of the Hogem Batholith, in the Duckling Creek area, intrudes basic volcanic rocks of the Takla Group -- a formation of Upper Triassic - Lower Jurassic age. Alteration of the basic volcanic rocks along the contact consists of hornfelsing and pyritization, with local epidote and/or pink feldspar colouration both as veining and as pervasive replacement.

From a large scale tectonic picture, the Hogem Batholith lies within the Quesnel Trough (Campbell, R. B. and Tipper, H. W., 1970). The Quesnel Trough is underlain by a thick sequence of mainly Upper Triassic and Lower Jurassic volcanic - clastic and sedimentary rocks. This sequence is bounded on the east by highly deformed Proterozoic and Paleozoic rocks of the "Omineca Geanticline" and on the west by the Upper Paleozoic Cache Creek Group of the "Pinchi Geanticline". This long, narrow, northwesterly-trending trough, with abundant Mesozoic volcanic rocks, is a noted copper-rich region that includes the Princeton, Brenda, and Highland Valley mines on the south and the Cariboo-Bell deposit in the central part, and extends an unknown distance northwesterly to include the Hogem Batholith.

LOCAL GEOLOGY

Host Rocks

The rock units used on the geological map (Plate III) are based on field examination only. Thin sections of selected specimens have been ordered so that the rock types and the alteration can be studied.

The Duckling Creek copper prospects occur within the eastern part of the Hogem Batholith and the properties belonging to Tye Lake Resources Ltd. straddle the eastern contact. Locally, this contact trends south-southeast across the central portion of the Rondah Group and across the Duke Group. The batholithic rocks lie to the southwest of the contact; the Takla Group volcanic rocks lie to the northeast. On a regional scale, the strike of the contact in this area is fairly uniform; however local irregularities are expected.

The Takla Group volcanic rocks in the vicinity of the Rondah claims are chiefly basalts which, in places, contain abundant augite phenocrysts. At the batholith contact the volcanics have been hornfelsed, reconstituted and pyritized, and consist of massive, black, aphanitic to medium-grained, moderately magnetic, basic hornfels. The pyritized contact, as indicated by the limonite staining, extends for several miles to the north and the south of the Rondah claims. In places, the hornfels have also been altered with the formation of epidote and pink feldspar colouration. On the Rondah claim group this alteration is associated with chalcopyrite - pyrite mineralization.

Irregular inclusions of a dark, fine-grained, magnetic, somewhat micaceous hybrid rock occur within the Batholith, especially in the area mapped as syenite. These are probably inclusions and roof pendants of the Takla Group volcanic rocks. These metamorphosed rocks weather readily and accordingly have either subdued or barely noticeable outcrop in contrast to the more resistant syenites and syenodiorites.

Salmon-coloured syenite of a variety of textures constitutes one of the main rock units on both the Lorraine (Kennco) and the Duck (Tye Lake Resources Ltd.) properties. Syenodiorite is the prevalent rock type near the eastern contact of the Batholith. It underlies most of the Duke Group, part of the Duck Group, part of the Rondah Group, and extends northerly an unknown distance. Although the basalts are quite magnetic, the syenodiorites and the syenites are highly magnetic, containing up to 5% magnetite. These quartz-deficient intrusive rocks are also characterized by abundant, large sphene crystals and apatite.

Large persistent dikes of a pegmatitic syenite porphyry occur in the region. A northwesterly-striking one was mapped by Mr. Lammle on the Duck claims and a northerly-striking one occurs on the Dorothy-Elizabeth claims.

Alteration and Mineralization

Traces of disseminated chalcopyrite mineralization are common throughout much of the area of syenite and also part of the syenodiorite. This is especially common in the area of geological complexity (syenites, syenodiorites, metamorphosed pendants) in the central part of the Duck Group, and is probably the source of the soil geochemical anomaly. The mineralization found on the Duck Group thus far is somewhat scattered and erratic in grade with assays up to only 0.1% copper.

The situation found on the Rondah Group of claims appears to be quite different. The batholithic contact runs north-northwesterly across the Rondah Group; contact zones are considered favourable for syenite copper deposits. Of great significance in this area is the copper-bearing float, reported by Mr. Lammle and examined by the writer.

The copper-bearing float is mostly in basaltic rock which is cut by pinkish alteration veinlets and contains considerable magnetite. This alteration is similar to that found in many other syenite copper prospects.

Pyrite and copper mineralization in fractures in basaltic rocks were also noted in outcrops downstream from the mineralized float.

Two unusual pieces of float were noted -- one high grade piece containing mainly pyrite and chalcopyrite, and one piece consisting of fine-grained magnetite. The piece of magnetite float is significant in that, if associated with the mineralization, it indicates that a magnetometer will be a very useful tool in selecting the best parts of any expected induced polarization anomaly.

The writer, in one traverse across some banks, noted about ten pieces of float in which estimated copper values are between 0.5% and 1.0% copper. A sample from the unusually rich piece of sulphide float assayed 4.96% copper and 0.05 ozs gold. The assays quoted here do not necessarily represent the average grade that one might expect for mineralization in place; they are merely quoted to indicate the character of the float and to show that further exploration work is warranted.

The good mineralized float occurs at the outlet or lip of an old cirque, in a mixture of moraine and other debris.

GEOCHEMISTRY

Most of the geochemical information for the Duckling Creek Properties of Tye Lake Resources Ltd. is from the Assessment Work Reports -- No. 336, No. 378, and No. 532. Soil samples taken in 1961 on seven claims of the Dorothy-Elizabeth Group, and on four claims of the old Dorel Group, and soil samples taken in 1963 over a limited area of the old Rhonda Group were analyzed for copper and molybdenum. Anomalous copper values (>150 ppm, with many >300 ppm) were widespread, especially over the grid on the old Dorel Group. Molybdenum values were generally in background range or only slightly anomalous.

Regarding the geochemistry of soils, one must appreciate that a geochemical anomaly is merely an exploration target; the magnitude of the anomaly is no direct indication of the underlying grade of the source rock. Several factors have a greater effect on the magnitude of the anomaly than does the grade of the rock. These include, (a) the pyrite content which, on weathering, yields acid to mobilize the copper and move it upward into the soils thus enhancing the anomaly; (b) the overburden depth -- copper does not migrate far upward into overlying overburden; (c) the mechanical concentration of the softer copper-bearing minerals. In areas of abundant talus or loose rock, the copper-bearing minerals, which are softer than the rock minerals, are concentrated in the soil as the rock disintegrates. When this soil is taken to a geochemical laboratory, it is sifted, and only the -80 mesh portion is analyzed. Thus the copper-rich portions are concentrated for a second time. It is thus possible to get a soil copper value that is higher than that contained in the source rock.

The soil geochemical anomaly outlined in Assessment Report 378 on the old Dorel claims extends to the ends of most of the lines and so has not been delimited. The easternmost line, which is highest on the slope and almost at the rocky ridge, contains the highest geochemical values. Examination of the outcrops on the ridge and of the rock in the felsenmeer on the upper slopes shows minor, erratically scattered, chalcopyrite, with grade less than 0.1% copper. At these sites (on the ridge) the writer took rock samples (two from outcrop and one from felsenmeer) and also immediately adjoining soil samples. The results, as follows, demonstrate the mechanical concentration of copper, as described above:

Copper in	<u>ROCK</u>	<u>SOIL</u>
	265 ppm	350 ppm
	400	1000
	690	1620

Thus, although the field sampling has demonstrated that the anomalous copper values on the upper slopes of the basin are contributed by non-economic concentration of copper in the rock, the possibility of higher grade material underneath the deeper overburden of the anomalous lower slopes is not precluded.

Soil samples were also taken over a small grid on part of the old Rhonda Group in 1963 (Assessment Report 532) and these were analyzed for copper, molybdenum, and zinc. Anomalous copper values (up to 900 ppm) were obtained on the upper part of this grid. Slightly anomalous molybdenum and zinc values were also coincident with the anomalous copper values. One must note that the copper anomaly, as reported in Assessment Report No. 532, is highest upslope to the south and is also still open upslope. This is in the area of copper-bearing float.

Only a limited amount of geochemical work has been done by Tye Lake Resources Ltd. Rock chip samples taken in various places on the Duck Group indicate that the copper content is extremely erratic around the anomalous basin, varying from 10 to 1200 ppm copper. The results also indicate that the rock geochemistry will probably not be useful in indicating a trend toward richer zones.

A limited number of silt samples were taken by Tye Lake Resources Ltd. and these analyzed up to 1160 ppm copper. However there is insufficient stream sampling data at present to permit any interpretation.

GEOPHYSICS

Induced Polarization

Induced polarization work was done in 1963 (Assessment Report 513) on the Dorothy-Elizabeth Group of claims and some of the anomalies were drilled.

Three lines of induced polarization, using electrode spacing of 200 feet, were run in 1962 across the grid area of the old Dorel Group (Assessment Report 430). Each of these lines crossed very short anomalous zones which were not sufficiently attractive for exploration.

However, one must be aware that in syenite copper areas the pyrite mineralization does not necessarily have any geometric relationship to the copper mineralization; often the copper mineralization consists solely of chalcopyrite with no other sulphides. Because of the scarcity of pyrite, the total sulphide content of ore grade material can be so low that mineralization is merely on the limit of detectability by induced polarization techniques.

Another factor which can influence the interpretation of induced polarization results, is disseminated magnetite which can cause spurious small induced polarization anomalies.

The rocks mapped on the Tye Lake Resources Ltd. Duckling Creek Properties are exclusively of igneous origin -- those of the Batholith being intrusive syenodiorites and syenites, and those outside of the

contact being extrusive flows of basalts. At present no sedimentary rocks have been noted. Therefore one can conclude, with almost certainty, that any strong induced polarization anomaly found in this area will be indicative of sulphides. The possibility of any graphite contributing to a strong anomaly is extremely remote. If strong induced polarization anomalies are found in areas of overburden then one will have to drill to determine what portions are caused by pyrite and what portions are contributed by chalcopyrite.

Magnetic Surveys

Many of the rock types in this property are magnetic. The basalts are noticeably magnetic; but the syenites, the syenodiorites, and the copper-bearing altered rock are highly, but erratically, magnetic.

No magnetometer surveys have yet been run on the Tye Lake Properties. However, such surveys are planned as they should help sort out the anticipated induced polarization anomalies.

CONCLUSIONS AND RECOMMENDATIONS

The Duckling Creek area is in the eastern part of the Hogem Batholith -- a major batholithic body composed, in the central parts, of granite and granodiorite, and in the marginal areas, of syenodiorite. Widespread copper mineralization is associated with syenite complexes that intrude the syenodiorite.

The best deposit known so far is the well-exposed one on the Lorraine Property. It is within the Batholith and is associated with a complex mixture of syenitic rocks. On the Dorothy-Elizabeth Group, copper mineralization occurs in small amounts in an area underlain by syenodiorites, syenites, and metamorphosed roof pendants. On the Duck mineral claims, syenites of various textures, syenodiorites, and roof pendants form a complex centre. Scattered, low tenor copper mineralization occurs, generally in the vicinity of the contact between the syenite complex and the syenodiorite. The Rondah Group of claims straddles the eastern contact of the Hogem Batholith and good copper-bearing float has been noted near this contact.

On the claims held by Tye Lake Resources Ltd., three exploration targets merit consideration. Each will be discussed separately in the following paragraphs. In order to help delimit the zones of interest, to help compare the merits of the various targets and to search for additional targets, detailed silt sampling should be done of all creeks draining the claims.

A. The copper-bearing float on the Rondah claims is in the vicinity of the intrusive contact and has an associated soil geochemical anomaly. This is a good exploration target. The float likely came from the buried contact of the Batholith. Although the contact in this area is buried by moraine and other debris, its location is fairly accurately indicated by the geological mapping. In choosing the tools to explore this zone one should note the following facts:

1. The small amount of soil geochemistry done to date is on slopes below the copper-bearing float. Results in the upper part of the grid are highly anomalous with values up to 900 ppm copper.

Soil geochemistry will be useful in outlining the train of copper-bearing boulders in the areas of relatively shallow overburden such as that in the vicinity of the float, although it may not be too useful in the areas of deeper moraine as one goes upslope into the cirque area. However the resulting pattern should be very useful in sorting out the geophysical anomalies and selecting the best drill targets.

2. Induced polarization will be the most useful tool in detecting the sulphides under the deeper overburden. It will undoubtedly give some fairly good anomalies because of the known pyrite mineralization in the basalts adjacent to the contact. However the chalcopyrite observed in some of the float should be sufficient enough to also yield an induced polarization anomaly and it is hoped that a combination of techniques may aid in selecting the best anomaly for drilling. Any strong induced polarization anomaly will almost certainly be caused by sulphides (pyrite and chalcopyrite); graphite is not expected in this geological setting.

3. The magnetometer should be very useful in selecting the best target. Although both the batholithic rocks and the basalts contain magnetite, the syenites and the mineralized rock have the greatest, if somewhat erratic, magnetite content. The fact that a piece of float consisting of massive magnetite was seen in the vicinity of the copper-bearing float, and the fact that some of this copper-bearing float was unusually high in magnetite indicates that the magnetometer may be the most useful tool in sorting out the induced polarization anomalies.

Thus it is apparent that, by the use of four different tools (geological mapping, induced polarization, geochemistry, and magnetometer) it should be possible to sort out the expected induced polarization anomalies and select the better ones for drill testing.

B. The soil geochemical anomaly on the Duck No. 1 to No. 4 mineral claims constitutes a separate problem. The content of copper in the rock on the ridge to the east, although sufficient to yield the anomalous geochemical values, is of very low tenor.

However this does not preclude the possibility of better grade rock occurring under the lower, more deeply buried slopes of the anomalous basin. The geology is quite complex.

The writer recommends that additional geological mapping (possibly on the scale 1" = 400 feet) should be done in this basin and that magnetometer be run along east-west lines to help outline contacts, etc.

Since the best anomalous values and the best mineralization found thus far on this Duck Anomaly occur on the eastern side of the grid near the crest of the ridge, it would be wise to investigate the basin to the east of this ridge, especially if the stream geochemistry is favourable.

C. The Batholith contact extends southeasterly across the Duke mineral claims and is probably situated on the slopes east of Access Creek. This slope is drained by small gullies which will be sampled during the stream geochemistry work. If anomalous copper values are obtained, then the area should be surveyed by soil geochemistry, induced polarization and magnetometer.

B U D G E T

In estimating a budget, one must note that helicopter costs for the program will be a major expense and that overburden conditions are unknown and therefore a large drill will be needed.


PHASE I - TECHNICAL WORK

A.	Rondah claims		
	10 miles of surveying.		
	Line cutting	\$ 1,500	
	Soil samples	1,000	
	Soil analyses	1,000	
	Induced Polarization	3,500	
	Magnetometer	1,000	
	Geological mapping	500	
	Camp costs	1,000	
	Helicopter costs	<u>2,500</u>	\$12,000
B.	Stream Geochemistry:		
	Wages	\$ 1,200	
	Analyses	400	
	Food and camp	500	
	Helicopter	<u>500</u>	\$ 2,600
C.	Duck Group:		
	Geological mapping	\$ 500	
	Magnetometer work & lines	1,000	
	Helicopter	<u>500</u>	\$ 2,000
D.	Duke Group - Access Creek:		
	Contingency for soil and geophysical surveys		\$ 5,000
E.	Engineering, supervision, etc.		\$ 4,000
F.	Contingencies @ 15%		<u>\$ 3,800</u>
	Total Phase I		\$29,400

PHASE II - DIAMOND DRILLING

Allow for 3000 feet mainly on Rondah target plus possible move to new camp on Duke or Duck Targets

A.	Camp construction	\$ 1,500.
B.	Mobilization and demobilization from Vancouver to Uslika Lake access road	\$ 1,600
C.	3000 feet in eight holes include overburden, camp operation, wages for moving between holes - \$12 per foot	\$36,000.
D.	Helicopter Costs:	
	(a) Mobilization of 10 tons equipment from road to camp, move to 2nd camp, demobilization	\$ 4,000
	(b) Moves between holes	\$ 6,000
	(c) Supply trips - \$500 per week	\$ 4,000
E.	Contingency (15%)	<u>\$ 7,100</u>
	Total Phase II -----	\$60,200


J. R. Woodcock

J. R. Woodcock

August 17, 1970

REFERENCES

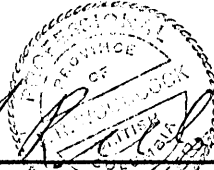
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-

CERTIFICATE

I, J. Richard Woodcock, with business address and residence in North Vancouver, British Columbia, DO HEREBY CERTIFY THAT:

1. I am a consulting geological engineer.
2. I am a graduate of the University of British Columbia with B.A.Sc. (1951) and of California Institute of Technology with M.A.Sc. (1953).
3. I am a registered Professional Engineer in the province of British Columbia.
4. I have practiced my profession since 1951 in both geological and managerial capacities with Canadian and American mining companies until 1969 when I established my own consulting practice.
5. I personally examined the Duckling Creek Properties for Tye Lake Resources Ltd. (N.P.L.) and have studied the available technical data.
6. I have confidence in the professional proficiency of Mr. C. A. R. Lammle, geological engineer for Tye Lake Resources Ltd., who has been quoted in this report.
7. I have no interest, direct or indirect, in the properties or securities of the above Company, nor do I expect to acquire any such interest.
8. I have requested that any quotes from this report must preserve integrity of context.

Respectfully submitted,


J. R. Woodcock

J. R. Woodcock, P. Eng.

North Vancouver, Canada

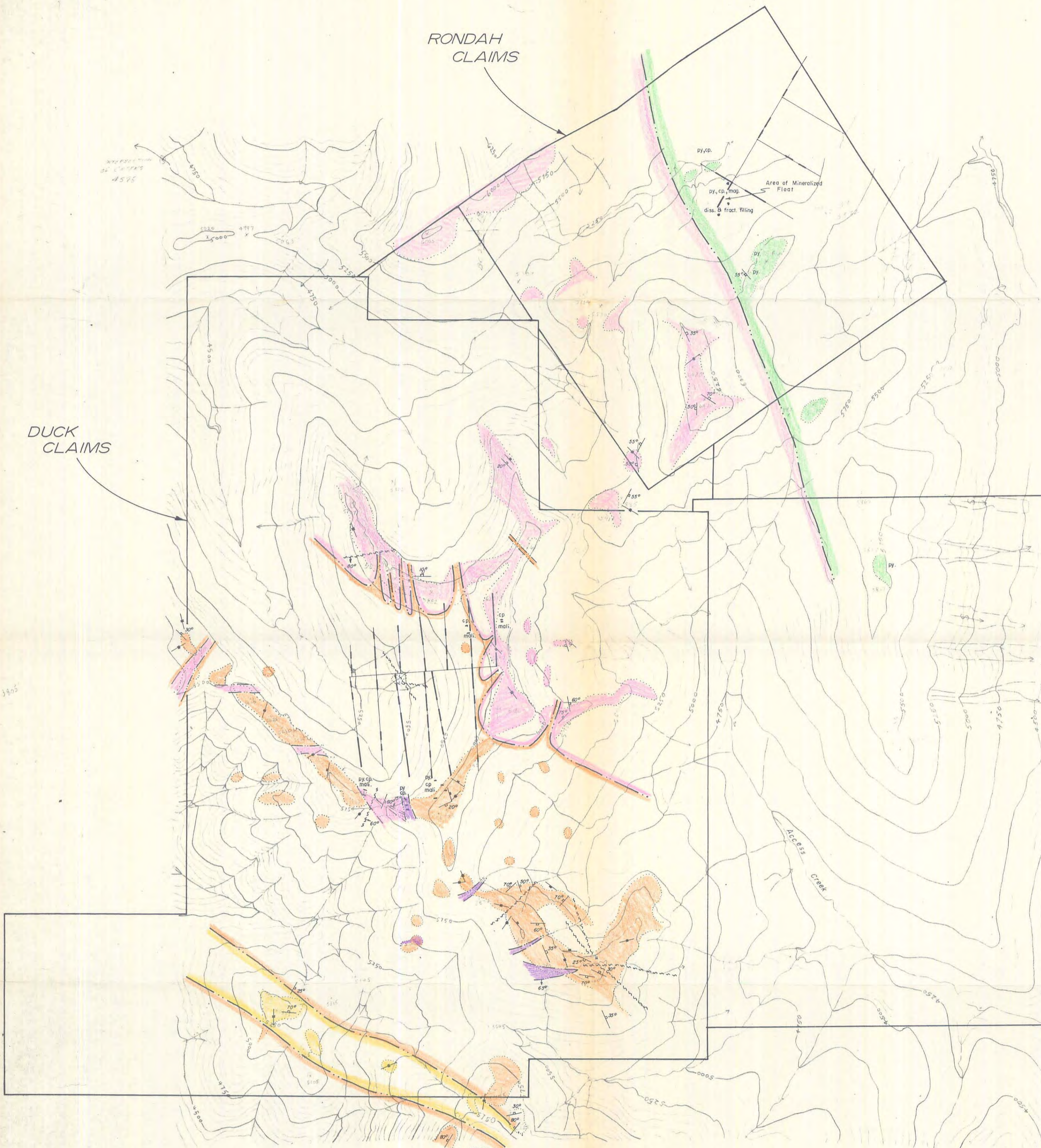
RONDAH
CLAIMS




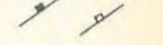

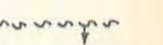

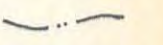



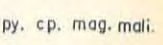
DUCK
CLAIMS

DUKE
CLAIMS

OLD SLIDES



LEGEND

- | | | | |
|---|---|---|---|
|  | Pegmatitic Syenite Porphyry |  | Jointing, Steep, Inclined |
|  | Syenite, Porphyritic Syenite, Syenite Porphyry, Trachyte. |  | Faulting (showing dip) |
|  | Hybrid Micaceous Rocks, Volcanic Origin? |  | Lithological Contact |
|  | Diorite, Syenodiorite, Quartz Diorite |  | > 200 ppm Copper
< 200 ppm Copper |
|  | Basalt, Volcanic Rocks, Hornfelsed Equivalents. |  | py. cp. mag. mali. Pyrite, Chalcocopyrite, Magnetite, Malichite |

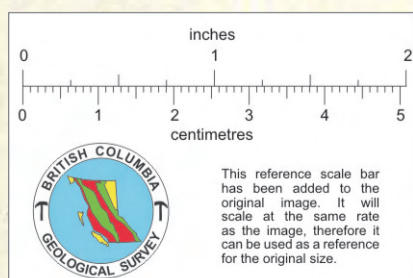


PLATE No. 3
TYEE LAKE RESOURCES LTD. (N.P.L.)
DUCK, RONDAH, DUKE GROUPS
GEOLOGY
DUCKLING CREEK AREA
OMINECA M.D.

SCALE
FEET 1000 0 1000 2000 3000 FEET.

Field Mapping and Compilations by C.A.R. LAMMLE, P. Eng. July, 1970
Field Examinations by J.R. WOODCOCK, P. Eng. August, 1970

RONDAH
CLAIMS



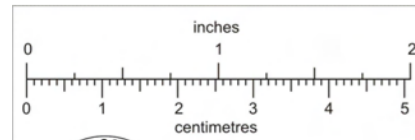
DUCK
CLAIMS

DUKE
CLAIMS

OLD SLIDES

LEGEND

- Claim Post
- ▣ Witness Post
- Witness Post Cairn
- Witnessed Location



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.

PLATE No. 2

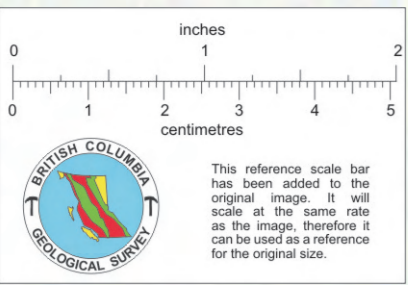
TYEE LAKE RESOURCES LTD. (N.P.L.)
DUCK, RONDAH, DUKE GROUPS

CLAIMS MAP

DUCKLING CREEK AREA
OMINECA M.D.



Field Mapping and Compilations by C.A.R. LAMMLE, P.Eng. July, 1970

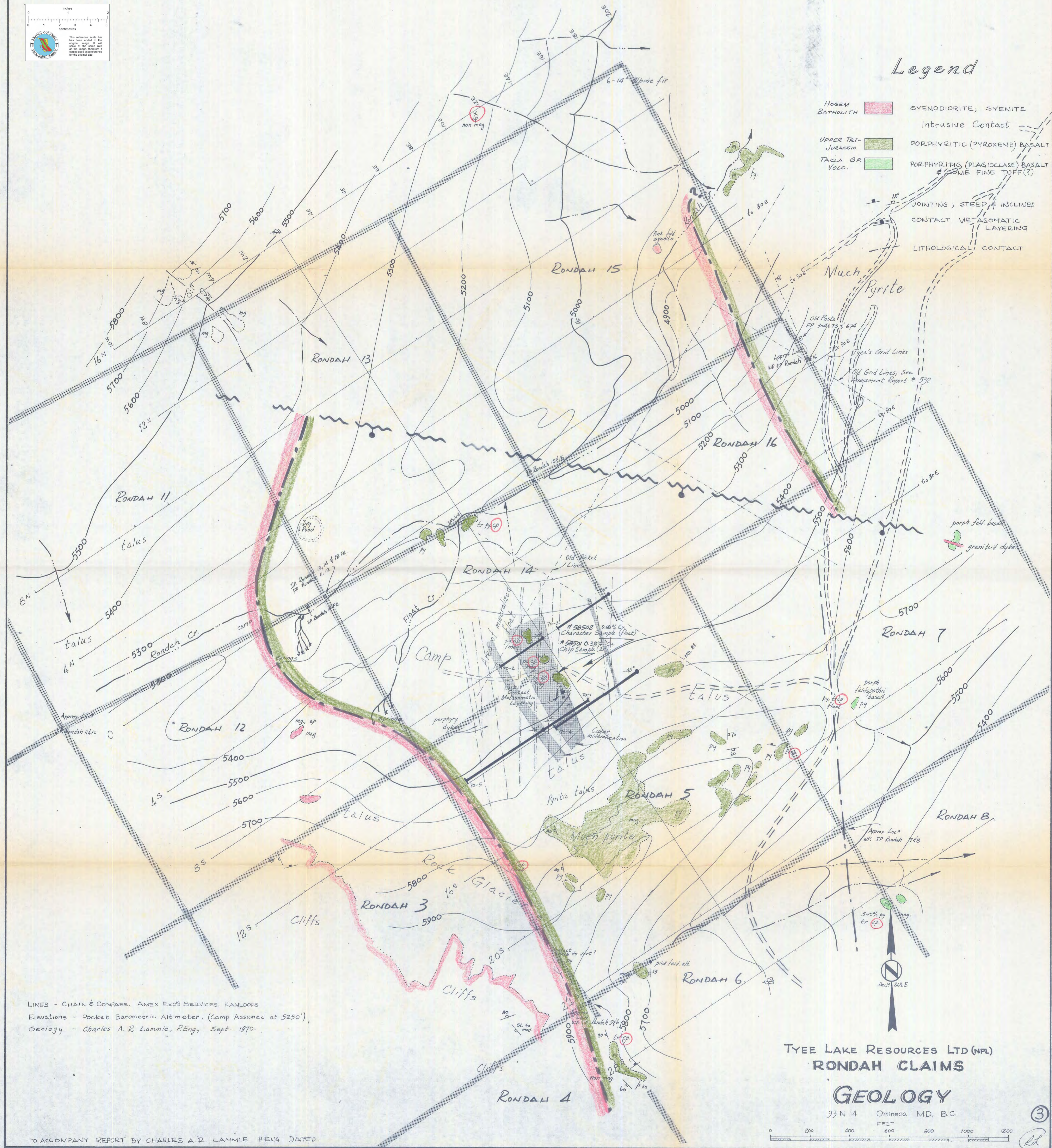


The reference scale bar has been added to the original map. It will be used as the single reference scale to be used as a reference for the original map.

Legend

- HOGEM BATHOLITH SYENODIORITE; SYENITE
- UPPER TRI-JURASSIC PORPHYRITIC (PYROXENE) BASALT
- TAKLA GP. VOLC. PORPHYRITIC (PLAGIOCLASE) BASALT & SOME FINE TUFF(?)

- JOINTING, STEEP & INCLINED
- CONTACT METASOMATIC LAYERING
- LITHOLOGICAL CONTACT

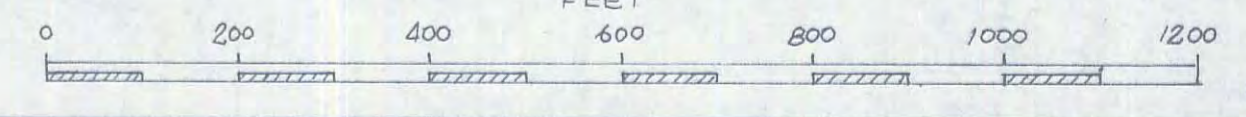


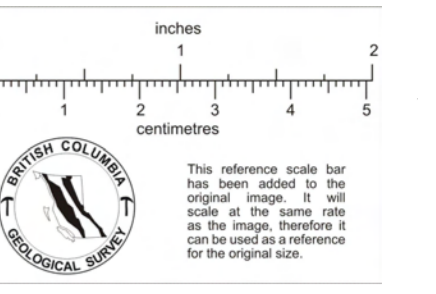
LINES - CHAIN & COMPASS, AMEX EXPD SERVICES, KAMLOOPS
 Elevations - Pocket Barometric Altimeter, (Camp Assumed at 5250')
 Geology - Charles A. R. Lammle, P.Eng., Sept. 1970.

TYEE LAKE RESOURCES LTD (NPL)
 RONDACH CLAIMS

GEOLOGY

93N 14 Omineca, M.D., B.C.





LINES - CHAIN & COMPASS, AMEX EXPD SERVICES, KAMLOOPS
 MAGNETICS - GORDON ULRICH, BASE UBC '70
 SUPERVISION - CHARLES A.R. LAMMLE, PENG.
 INSTRUMENT - MOPHAR M 700 VERT. FIELD FLUXGATE
 Sensitivity ... 20 γ /scale div. for readings < 1000 γ
 ... 50 γ /scale div. for readings > 1000 γ
 Corrected for diurnal variation
 CONTOUR INTERVAL - 500 GAMMA

TO ACCOMPANY REPORT BY CHARLES A.R. LAMMLE DATED

TYEE LAKE RESOURCES LTD (NPL)
RONDAN CLAIMS
GROUND MAGNETICS

93 N 14 Omineca, MD, B.C.

