W.A. No. -07

NAME Geol Dpt

SUBJECT

MEG GROUP

QRF 39 -07

REPORT ON

F TH LAKE AND GEM LAKE GOLD PROP IES

RIM 1 - 12 AND MEG 1 - 8 MINERAL CLAIMS

92F/11W

The Faith and Gem Lake properties include some non-economic timber but are mostly rocky upland and crags in a region of extreme snowfall. Creeks are too small and steep to sustain fish. Gem Lake has no surface outlet. A few deer have been noted in the Fall. Logging roads have come within one-half mile of the present claim boundaries as were legitimately established and held since 1960. The Strathcona Park boundary was extended recently enclosing our Faith and Gem Lake claims. From these roads, if the deposit proved viable, a short adit, in the case of the "Rim", could be driven under a steep cliff and underground block mining would leave the surface within the park as it is now. Gold veins on the "Meg" property are further removed.

The writer has personally surveyed the area, mapping numerous small and previously unreported gold-silver veins. These were of tourist potential only at $35.00 gold but at the new prices this condition would obviously change. To date we have expended $46,866.00 directly on the property plus much more indirectly such as costs of finding it originally, etc. Cash in lieu of work had been accepted by the B.C.D.M. for claims in the area. Of current interest on the Rim Group is a very large geophysical anomaly resulting from work done years before this addition to the park was made. Limited drilling inferred a gold potential which would be ore at today's prices. Reserves could be large - a couple drill holes would tell. In the writer's opinion, this is one of the better gold prospects on Vancouver Island and one that could be investigated with negligible damage to the surface.

Drill sites as initially envisioned would be in a treed slide area north of and sloping down into Faith Lake. As the area of investigation is broad, the sites can be picked, as they were previously, so that no timber need be cut. The amount of water used by a small drill is negligible and the return water containing rock cuttings clears itself to regional background in a few hundred feet. Most of our drilling is done without cutting oil and, if care is exercised as usual to prevent minor oil leakages, the sites, as with others from previous work, will not be detectable. Work on the Gem claims would include mapping and prospecting for required information and assessment value.

James J. McDougall

Vancouver, B.C.
March 19, 1974

J. J. McDougall, P.Eng.

To accompany Report Exploration/Development Work on Claims dated March 19/74.

#4

REPORT

ON

GEM LAKE (MEG GROUP) COPPER PROSPECT

1961

INDEX

REPORT

on

GEM LAKE (MEG GROUP) COPPER PROSPECT

1961

GENERAL

During September and early October a 2-man crew using the Longyear and packsack machines did a little over 1000 feet of test and exploratory drilling along an outcrop area some 200 feet by 400 feet with vertical exposures of 4 to 500 feet. Tests were made at both extremities of the outcrop which consists of a mineralized pipe-like granitic and volcanic breccia overlain by similarly mineralized volcanics.

RESULTS

Except for the failure to intersect the source of the tons of high grade found on the talus slides below, core grade was as indicated by surface exposures. The 1000 feet of drilling cut 900 feet of visibly mineralized (chalcopyrite) material ranging between 0.08 and 4.83% copper. The best section (in Hole #6) was 30 feet at 1.6% including 5 feet of 4.83% and this helped average the bounding 60 feet out to 1.0% copper. The average magnetic iron content of the basic lava flows ranges between 5 and 15%.

A magnetometer survey (Map GL2/62) shows a magnetic high to continue 8 or 900 feet beyond the last outcrop heading towards a projected intersection of NS and EW faults (see Map GL1/61) and at the same time draping around the south and west sides of the quartz diorite stock-like intrusive. Unfortunately this direction coincides with slightly magnetic talus ridges originating at the main deposit. However in one locality well removed the anomaly cuts across another talus slide composed of non-magnetic

quartz diorite strengthening the theory that most of the magnetics are due to copper-magnetite rock in place.

Prospecting in the immediate vicinity of Gem Lake turned up some very high grade pods of chalcopyrite along the strongly developed EW fault or shear zones. Several of these assayed up to 1/2 oz. in gold. Although the zones are well developed structurally, mineralization is spotty.

CONCLUSIONS AND RECOMMENDATIONS

Although the copper and precious metal content of the sections drilled is disappointingly low, Gem Lake is still an attractive prospecting area in which, at a future date, a couple of long drill holes drilled from suitable set-ups well back on the hangingwall are warranted. One should be directed southerly to test the whole zone at depth, and the other southwesterly to test the granitic contact in the magnetic high area where the previously described fault intersections occur. There is a probability that some of the high grade copper sections, inaccessible on the vertical cliffs, plunge to the west at about a -50° angle and all drilling to date has passed under them. This second drill hole would also test this theory which adds yet a fourth control to the already complicated assemblage. Also some of the high grade float may have originated practically "in situ" but testing this theory with short holes is not practical.

A couple short packsack holes were planned this year to test the gold-bearing copper zones found west and south of Gem Lake but insufficient time was available. This should be done the next time a camp is set up at Gem Lake. Claims are all in good standing for a couple more years.

Vancouver, B. C.
December 21, 1961

James J. McDougall
Geologist

PROPERTY ~~HSC (Gem Lake) COPPER~~ 1961 DRILLING

SHEET NUMBER

DIAMOND DRILL RECORD

SECTION FROM ..... TO .....

LOCATION: LAT. ~~DRILLERS - SCHUSSLER & LANG~~
DEP.

ELEVATION OF COLLAR

DATUM

DIRECTION AT START: BEARING
DIP

STARTED NOTE:
COMPLETED Bearing of DDH's approx only due to magnetics.
ULTIMATE DEPTH

PROPOSED DEPTH

DEPTH FEET	FORMATION	FROM	TO	WIDTH OF SAMPLE			
	A B B R E V I A T I O N S						
V1	Fine-grained, dark, altered amygdaloidal basaltic to andesitic lava flows. Amygdules consist of either green olivine and/or epidote. Often contain appreciable magnetite as a fine-grained replacement or possible original constituent.						
V2	Similar to V1 in appearance but porphyritic instead of amygdaloidal. Probably represents a sill-like intrusive andeso-basalt porphyry. Not mineralized but altered with development of chlorite, etc.						
G1	Granodiorite ~~in~~ qtz diorite - medium-grained, minor brecciation - definitely an intrusive.						
G2	As G1 but lightly feldspathized - may represent near contact granitization - a good host rock for chalcopyrite mineralization						
B1	Angular breccia consisting of fragments of basaltic volcanics (V1) only, - usually highly altered with widespread development of chlorite which with magnetite and chalcopyrite constitutes the groundmass.						
B2	Angular breccia consisting of V1 and G1 fragments with minor aplite and possible quartzite particles. Believed to be partly intrusive in origin but localized by faulting. More than one period of complex brecciation indicated by inclusion of B2 in apparent V1.						
	(CP)-Chalcopyrite. (Mag)-Magnetite. (Moly)-Molybdenite. Other abbreviations as on 1961 Bonanza Copper Summary Report.						
	In general, ,core recovery and drilling conditions the best yet encountered - i.e. 99% Core Recovery & numerous full barrel pulls.						

N.M.P.-FORM A

PROPERTY NEG COPPER

HOLE NUMBER

SHEET NUMBER #1 (PS)

SECTION FROM 1 TO

DIAMOND DRILL RECORD

LOCATION: LAT. DEP. 185 ft @ N20° 30' E from Stn #5 a permanent(?) transit station on rock bluff(see Map)

ELEVATION OF COLLAR

DATUM

DIRECTION AT START: BEARING DIP N22°E -25°

STARTED

COMPLETED September 15th, 1961

ULTIMATE DEPTH September, 1961

PROPOSED DEPTH 101 ft.

DEPTH FEET	FORMATION	FROM	TO	WIDTH OF SAMPLE	Average Iron	Au	Ag	Cu
0 - 6	Dk grey, sl porph & amy. Andeso-basalt (Vl) occ veinlets c.p., mag			6.0		Tr	Tr	C.
6 - 11	Ribbon-banded qtz dior dyke(?) sl diss c.p. moly and mag. Ctct @ 60°			5.0		Tr	Tr	C.
11 - 46	V f.g. dark Vl, sl diss c.p. (dyke 37-38) occ Cl brec. ptcle	11-21		10.0		0.01	Tr	C.
		21-31		10.0		Tr	Tr	C.
		31-41		10.0		Tr	Tr	C.
		41-46		5.0		Tr	Tr	C.
46 - 82	B2 zone - 60-70% of rock is Cl, sl diss c.p. also sl str c.p. mag	46-47		1.0		Tr	0.3	3.
		47-57		10.0		0.01	0.2	C.
		57-67		10.0		Tr	Tr	C.
		67-77		10.0		Tr	Tr	C.
		77-87		10.0		Tr	Tr	C.
82 - 101	V f.g. Vl feathery interlocking texture. only weakly mineralized - may be another sill	87-97		10.0		Tr	Tr	C.
		97-101		4.0		Tr	Tr	C.
	E N D as capacity of drill.							
	Sol Iron content - 0 - 101			101.0'	11.21%			
	Best section 57.0 ft @ 0.56% Cu (included 11.0' @ 1.23% Cu)							

N.M.P.-FORM A

Of necessity a deep dip hole

PROPERTY M.G. COPPER

HOLE NUMBER #2 (PS)

SHEET NUMBER 1

SECTION FROM ..... TO .....

DIAMOND DRILL RECORD

LOCATION: LAT. 212 ft @ N23° 30'E from Stn. 5
DEP. .....

ELEVATION OF COLLAR .....

DATUM .....

DIRECTION AT START: BEARING North
DIP -70°

STARTED .....

COMPLETED September, 1961

ULTIMATE DEPTH do

PROPOSED DEPTH 100 ft.

DEPTH FEET	FORMATION	FROM TO	WIDTH OF SAMPLE	Average Iron	Au	Ag	Cu
0 - 5	Brecciated, sl porph dark grey V1, cemented by magnetite and c.p.	0- 5	5.0'		Tr	0.1	1.
		5-10	5.0		0.02	0.1	1.
5 - 10	" " more porph, gradational to B2	10-13	3.0		Tr	0.1	0.
10 - 13	" " decreasing B2, less S2	13-23	10.0		Tr	Tr	0.
13 - 45	About 50% G1 in 1 ft sections	23-33	10.0		Tr	Tr	0.
	mixed with B1, some mag as cement, sl c.p.	33-43	10.0		Tr	Tr	0.
45 - 62	Decreasing G1, sl brecc V2(?) occ mag	43-53	10.0		Tr	Tr	0.
62 - 75	60% G1, frags in gray volc, sl mag	53-63	10.0		Tr	Tr	0.
75 - 80	B1, larger feld phenos in possibly	63-73	10.0		Tr	Tr	0.
	mixed V1 and V2 - c.p. in fractures	73-83	10.0		Tr	Tr	0.
80 - 85	Coarse gnd B2	83-93	10.0		Tr	Tr	0.
85 - 97.5	" " sl c.p. & mag in last few feet	93-97.5	4.5		Tr	Tr	0.
97.5 - 100	Not recovered						
	E O H - as beyond capacity of drill.						
	Best mineralized section 13 ft. @ 1.42% Cu						
	Average sol iron content		97.5 ft.	12.42%			

N.M.P.-FORM A

COLUMBIA

PROPERTY ~~MEG COPPER~~

HOLE NUMBER #3 (13)

SHEET NUMBER 1

DIAMOND DRILL RECORD

SECTION FROM ..... TO .....

LOCATION: LAT. ~~187 ft. @ N55° 30' from Stn. #5~~
DEP. .....

ELEVATION OF COLLAR .....

DATUM .....

DIRECTION AT START: BEARING ~~N6°W~~
DIP ~~-15°~~

STARTED September, 1961

COMPLETED do

ULTIMATE DEPTH 120 ft.

PROPOSED DEPTH .....

DEPTH FEET	FORMATION	FROM	TO	WIDTH OF SAMPLE	Average Iron	Au	Ag	C
0 - 23.5	V f.g., dark andesite or andeso-basalt dyke or sill, V1 but gradational(?) to V2 qtz amyg.							
23.5 - 48.5	" " Co3 bndg. @ 50° sm dl dyke @ 80°	1-40	40.0'			Tr	Tr	C
		40-80	40.0			Tr	Tr	C
48.5 - 71.5	" " decreasing amyg, greener	80-90	10.0			Tr	Tr	C
71.5 - 95	" " occ Gl, RW, sl cu st @ 80 ft. ~~poss (sl) fault~~	90-100	10.0			Tr	Tr	C
		100-110	10.0			Tr	Tr	C
	Beyond 90 ft, grain size decreasing becoming dense, siliceous. Sl c.p. assoc. with fractures.	110-120	10.0			Tr	Tr	C
95 - 110	F.g., "tough" andesite							
110 - 120	" " - sl diss c.p., increasingly amyg sl c.p. in amyg. Poss ctct with Gl @ 120'							
	E H D - as capacity of drill. Hole failed to penetrate through to breccia zone due to lack of power.							

N.M.P.-FORM A

BENGUELA

PROPERTY MEG COPPER

HOLE NUMBER #4 (LY)

SHEET NUMBER 1

SECTION FROM ..... TO .....

DIAMOND DRILL RECORD

LOCATION: LAT. 397 ft @ N22°W from Stn. #5
DEP. .....

ELEVATION OF COLLAR .....

DATUM .....

DIRECTION AT START: BEARING S28°E
DIP -46°

STARTED September, 1961

COMPLETED do

ULTIMATE DEPTH 286 ft.

PROPOSED DEPTH .....

DEPTH FEET	FORMATION	FROM	TO	WIDTH OF SAMPLE	Average Iron	Au	Ag	C
0 -- 24.5	Sl c.p., mag in Bl, occ qtzite? frag	0	40	40.0'		Tr	Tr	
24.5 - 43	Diss c.p. & mag in chloritic cement of less brecciated Bl	40	80	40.0		Tr	Tr	
		80	100	20.0		Tr	Tr	
43 - 67	" " but volc increasing amygd Bndg 50-75° to core irreg.	100	110	10.0		0.02	Tr	
67 - 71	As 0-24.5 - brecciation decreasing toward end of section(ruptured upper flows??)	110	160	50.0		Tr	Tr	
		160	210	50.0		Tr	Tr	
71 - 74	Less brecc Vl, sl diss c.p. pyrite. No aptitic or qtzite frags	210	260	50.0		Tr	Tr	
74 - 84	" " brecciation decreasing	260	286	26.0		Tr	Tr	
84 - 86	Brecciated Gl - ptcls to 2"							
86 - 96	Diss. c.p., mag, pyr, moly in "spotted" Vl							
96 - 111	Mixed Gl and Vl	Sol Iron content						
111 - 175	Dioritized or feldspathized tuff - tapioca texture, amyg in pt, sl diss c.p. mag.	0	260	260.0'	10.99%			
175 - 237	Sl diss c.p. in B2 -(mostly Gl frags) Bndg @ 35°							
237-260	Speckled, part brecciated Vl, sl cp. Bndg @ 40-50°							
260 - 276	Diss c.p. in Gl							
276 - 284	V sl c.p. in Vl							
284 - 286	Gl, otet @ 60°, sl diss c.p. Pyr.							
	E N D							

N.M.P.-FORM A

PROPERTY ~~MSC COPPER~~

HOLE NUMBER #5 (LY)

SHEET NUMBER 1

DIAMOND DRILL RECORD

SECTION FROM ..... TO .....

LOCATION: LAT. ~~464 ft. @ N31° 00E from Stn. #5~~
DEP. .....

ELEVATION OF COLLAR .....

DATUM .....

DIRECTION AT START: BEARING S10°W
DIP -51°

STARTED September, 1961

COMPLETED October, 1961

ULTIMATE DEPTH 140

PROPOSED DEPTH .....

DEPTH FEET	FORMATION	FROM	TO	WIDTH OF SAMPLE	Average Iron	Au	Ag	Cu
0 - 14	Occ. speck c.p. in black Vl - contact obscure	0	50	50.0'		Tr	Tr	
14 - 82	G2, zoned feldspar, sl diss c.p. pyr							
82 - 96.5	Vl sl diss c.p. pyr, bndg @ 60° sl Gl dykes but no breccia	50	100	50.0'		Tr	Tr	
96.5 - 112	Diss c.p. pyr in Gl, some well min. 6" sections.	100	140	40.0		Tr	Tr	
112 - 140	Banded amyg Vl, bndg. @ 65°, mag on fractures.							
	E O H D - as hole flattened and came out on sidehill.							
	Magnetite sections	110	140	30.0'	5.61%			
	NOTE: No breccia encountered.							

N.M.P.-FORM A

PROPERTY ~~MEC COPPER~~

HOLE NUMBER #6 (LY)

SHEET NUMBER 1

SECTION FROM 270 ft. TO

DIAMOND DRILL RECORD

LOCATION: LAT. DEP. Same as #5 - 404' @ N31°00E from do Stn. #5

ELEVATION OF COLLAR

DATUM

DIRECTION AT START: BEARING S10°W DIP -51°

STARTED October, 1961

COMPLETED October, 1961

ULTIMATE DEPTH 270 ft.

PROPOSED DEPTH

DEPTH FEET	FORMATION	FROM	TO	WIDTH OF SAMPLE	Average Iron	Au	Ag	Cu
0 - 13	Diss c.p. in V1, intg & bndg @ 60° to core	0	20	20.0'		Tr	Tr	0.35
13 - 80	G1 gradational to G2. Increasing diss c.p. and pyr	20	30	10.0		Tr	Tr	0.99
		30	40	10.0		Tr	Tr	0.36
80 - 83	Mixed G1 and V1, sl c.p.	40	50	10.0		Tr	Tr	0.33
83 - 92	S1 coarser V1, (dioritized?)	50	60	10.0		0.01	0.1	1.16
92 - 94	G1	60	70	10.0		0.02	Tr	0.53
94 - 146.5	V1 sl diss c.p., 4" massive very coarse grained crystalline chalcopyrite @ 132 ft. No breccia. Intg generally @ high angle to core - bndg. @ 70°	70	75	5.0		0.02	0.1	1.50
		75	80	5.0		0.04	0.2	4.83
		80	130	50.0		Tr	Tr	0.14
146.5 - 270	V1, last few but more 'dioritized' porphroblastic fold in part occ scattered veins pyrr, c/p, mag. Bndg @ 70-80° @ 245 ft only signs of brecciation encountered	130	180	50.0		Tr	Tr	0.27
		180	230	50.0		Tr	Tr	0.31
		230	270	40.0		Tr	Tr	0.10
	E N D							
	Magnetite content	90	140	50.0	11.21%			
		140	190	50.0	7.53%			
		190	240	50.0	8.86%			
		240	270	30.0	6.52%			
	Best 60 ft (20-80) @ 1.0% Cu includes 30 ft @ 1.6%.							
	LAST HOLE AT MEC, 1961.							

N.M.P.-FORM A

#5

PRELIMINARY REPORT
on
CEEK LAKE (MEG GROUP) COPPER PROSPECT
NANAIMO M. D., B. C.

by

James J. McDougall

I N D E X

PRELIMINARY REPORT

on

GEM LAKE (MEG GROUP) COPPER PROSPECT

NANAIMO M. D., B. C.

by

James J. McDougall

INTRODUCTION:

Widespread copper mineralization occurs in a structurally favorable zone near the botton of a deep cirque in the Forbidden Plateau mountains west of Courtenay on Vancouver Island. The nature and environment of the low grade mineralization in this untested but previously discovered property is such that an active exploration program including several diamond drill holes is warranted.

The writer visited the property briefly in early spring and late fall and the following preliminary description is based on limited examinations carried out at the time. A description of the main showing by H. C. Gunning is enclosed in photocopy form.

LOCATION, ACCESS AND HISTORY:

The Meg Group of 22 mineral claims has been located to cover widespread copper mineralization occurring near Gem Lake at the head of the central fork of the Oyster River. Map GL #1 is a copy of the 1-mile-to-the-inch topographic sheet - West Half.

Gem Lake is about 18 miles west of the City of Courtenay on the central east coast of Vancouver Island. Present

access is either by way of helicopter direct or by float plane to Circlet or Moak Lakes from where 2 miles of foot travel over a steep mountain ridge is necessary. Gem Lake is too small for Super-Cubs but could be used under favorable wind conditions and "toothbrush" loads if high trees at the Northern outlet were cut.

The nearest road is one servicing Comox Logging Company on Eric Creek, a branch of Cruickshank River about 3-1/2 miles to the southwest. A similar logging road which runs to a point 7 or 8 miles down the Oyster River is slated for a few mile southward extension in the near future. This latter is the only grade route possible to Gem Lake Valley. With the cooperation of logging companies a mining access road has been built to the top of Mt. Washington 7 miles to the northeast where Noranda Mines has a copper property under option.

The Oyster River marks approximately the northern boundary of a marked topographic feature known as the Forbidden Plateau. This range of lofty, flat-topped mountain peaks (it was named a "plateau" during a foggy day) extends north from Port Alberni being bounded on the west by Buttle Lake (Strathcona Park) and on the east by the Island Coastal Plain. Although on a somewhat subdued scale this little explored region possesses some of the most picturesque mountain scenery in B. C. and certainly the numerous, clear cut "amphitheatre-like" cirques are without a match for clarity anywhere in Western North America. Small glaciers leading into ice-choked lakes are common above the 5000 foot level. Mount Albert Edwards, immediately south of Gem Lake (and practically forming the footwall of one of our deposits) is the highest mountain

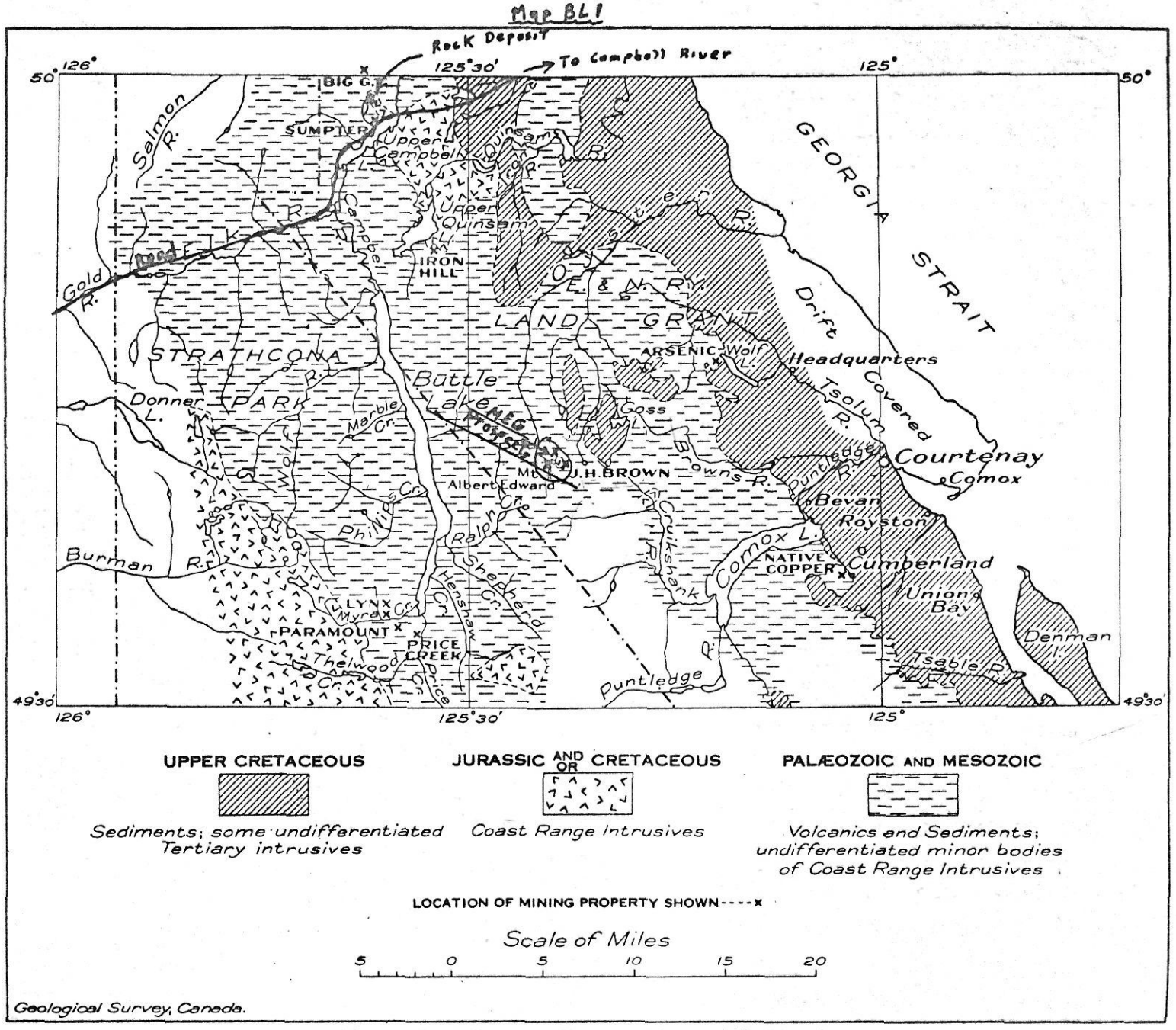


Figure 5. Buttle Lake area, Vancouver island, British Columbia.

(elevation 6868 ft.) of the plateau and one of the highest peaks on Vancouver Island.

The climate is similar to that prevailing at moderately high elevations elsewhere in the coast district although it is more agreeable in summer than most. Snowfall is heavy and increases rapidly above the 4000 foot level where it remains hampering travel well into June. During 1960 about 10 feet still covered Gem Lake (elevation 3400 ft.) late in April but was completely melted to the 4500 foot mark six weeks later. However that in slides under the unusually steep cliffs was not gone until July. The first lasting snowfall occurred late in November but is no heavier at the present date (mid-February) than then. The Oyster River Valley is presently snow free but the winter is not yet over.

Except for scattered scrub timber vegetation is generally lacking above the 3500 foot level (see Photo #1). Light timber is available at Gem Lake and it's quality increases rapidly down river.

The Gem Lake prospects were first discovered late in April while carrying out helicopter reconnaissance prospecting in geologically favorable, deeply dissected sections of the Forbidden Plateau. South of Gem Lake copper-stained cliffs visible only from low altitude were examined at their base and this led to the initial staking of the 12 Meg claims. Ten more were added late in the fall forming the maximum sized group now allowable under B. C. Law and 2 extra. Several weeks after this Alex Smith and the writer attempted to scale the top of the steep cliff in question but soon abandoned

this dangerous practice. However at the time an old rope was found dangling on the slope and a later check revealed that the ground in question was in all probability that examined and described by Gunning in 1930(1). Since Gunning's report (a copy included here) no important or even recognizable work has been done on the property. Claims have been staked on and off in the general vicinity since but all have now lapsed. Smith made a second examination of the property in June. Late in November Gerry Davis and Al Pembroke were engaged to carry out required assessment work and a 40 foot rock cut was put in on a weakly mineralized outcrop easily (and safely) accessible on the west shore of Gem Lake. At the same time 2 heliport levellings were made on the steep talus slopes below and south of the cliff showings in anticipation of future work. Prospecting has been limited to one trip on which float around Gem Lake was examined. The frozen condition of the hillsides late in the fall make work along the steep 45° slopes extremely hazardous without proper climbing equipment.

The Meg claims are located several miles within the E. & N. Land Grant and a royalty, approximately as outlined in the 1925 Summary enclosed but open to negotiation, is payable to the railway company.

GENERAL GEOLOGY:

The general geology of the area is relatively simple if subdivisions of the extensive flat-lying volcanic masses is not attempted. Such has fortunately been done by Gunning and a copy of his regional map is enclosed (BL #1).

(1) G.S.C. Summary Report, 1930 pt. A.

The most pronounced geological feature of the Forbidden Plateau is the preponderance of massive, flat to gently dipping andesitic to basaltic flows. This group, of probably Triassic Age, is at least 5000 feet thick. Minor sedimentary bands occur near its top. Crystalline limestones, argillites and quartzites occur with an underlying formation containing considerable volcanic rock as well. These older volcanics of Permian or Post-Permian Age are distinguishable from the overlying ones as they lack the myriad of amygdaloids so well developed in the younger massive flows. Gunning's description of this area was made before he introduced the name "Karmutsen" to similar volcanics farther north. The writer would not hesitate, at least on field evidence, to include most of the Plateau rocks in the Karmutsen. The underlying older rock, particularly the quartzite member although not exposed may be of importance in solving geology of the Gem Lake section.

The Karmutsen volcanics are intruded by small granodiorite stocks and dykes, many of which, as clearly exposed by the steep prevailing slopes, failed to reach the present surface.

Cretaceous sediments occur to the east but are of no present interest.

Structure is simple in this section of the map area and consists mainly of broad, gentle open-folding in which the limb at Gem Lake dips to the northwest at angles not exceeding 25°. Several through-going east-west cross-faults are recognizable and are of possible interest. Some of these appear to be in turn offset a few hundred feet along

North-South creeks tributary to the Oyster River. Suchmay be the case south of Gem Lake.

DESCRIPTION OF PROPERTY:

Gunning's description of the cliff showing is enclosed in photocopy form and only a few more notes need be added. Several features are best described by reference to Photo #1 and Map GL 1.

The breccia mineralization is restricted to the intrusive which would appear to be bounded by two east-west faults as shown on Map GL 1. The southernmost fault may be a branch of the other.

Our work on the main deposit included a partial examination on top of the cliff 400 feet above its base. Here local veinlets and gobs of chalcopyrite occur in a less brecciated volcanic rock cut by granodiorite dykes. The central 2/3rds of the cliff could not be reached.

The lower 50 feet of the cliff was examined in early May by the writer and later when snow-free by Alex Smith. As described by Gunning the mineralization covers a width of about 200 feet and would appear to increase in intensity, if coloration is a guide, toward the steep east-west fault marking the approximate south boundary. Mineralization also appears to increase with depth. As stated the overall copper grade is low but a good possibility exists of a higher grade band paralleling the fault in question but in an inaccessible section 20 or 30 feet north of it.

The visible minerals such as chalcopyrite, pyrrhotite, pyrite and magnetite are confined largely to the cementing

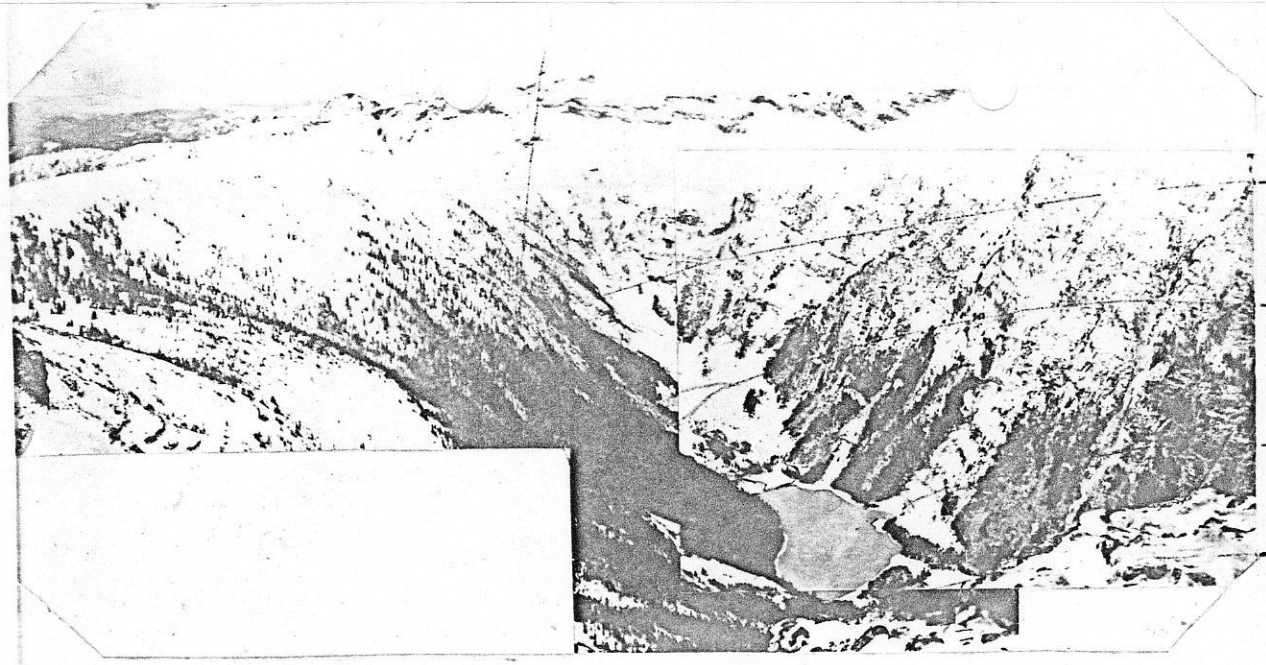


Photo #1 - Looking South at Meg Lake and Vicinity.

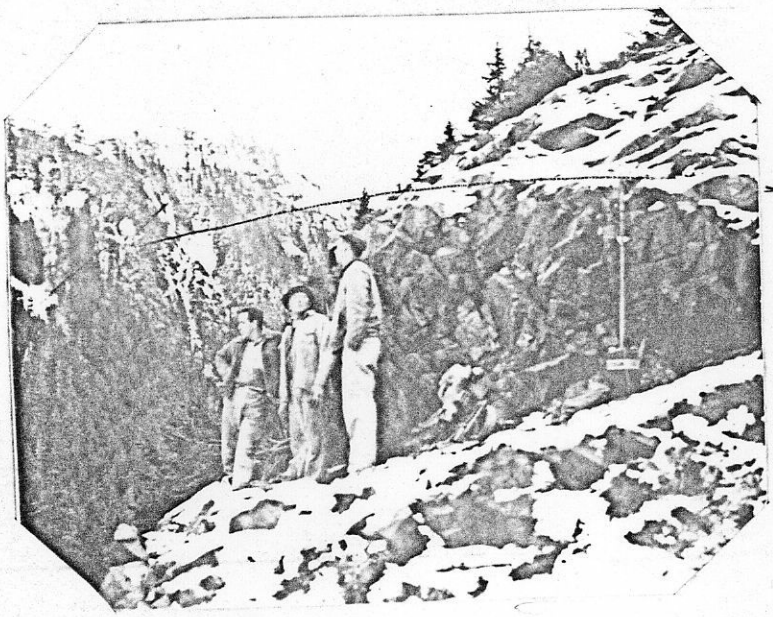
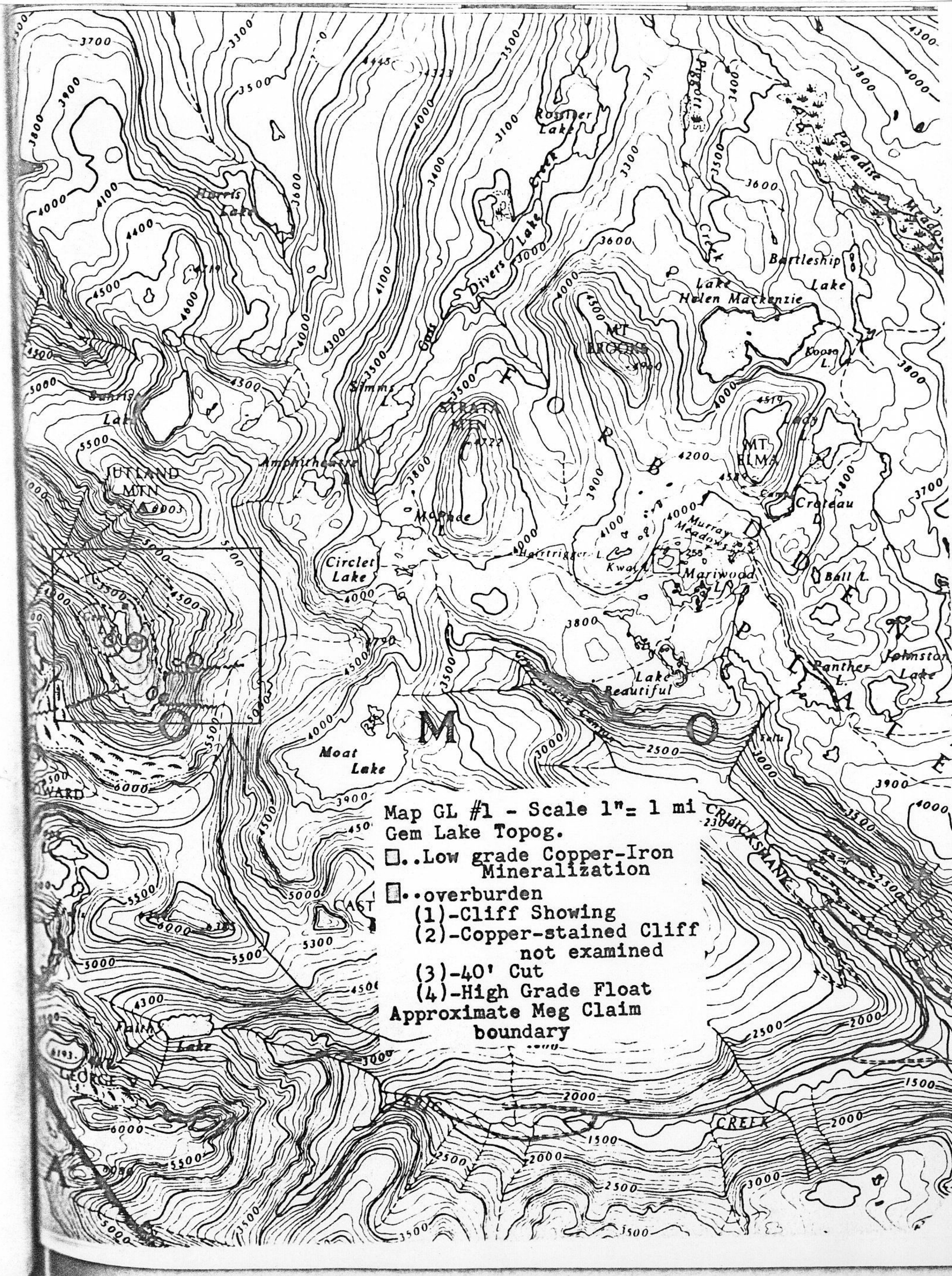


Photo #2 - Looking Southerly at Cut in Mineralized Basaltic Volcanics. Chalcopyrite occurs along numerous joints. Note Cobra Drill.


Map GL #1 - Scale 1" = 1 mi
Gem Lake Topog.
..Low grade Copper-Iron Mineralization
..overburden
(1)-Cliff Showing
(2)-Copper-stained Cliff not examined
(3)-40' Cut
(4)-High Grade Float
Approximate Meg Claim boundary
Harris Lake
Roumier Lake
Divers Lake
Gem Lake
Sunrise Lake
Simms L.
Amphitheatre
Jutland Mtn
Strata Mtn
Mt Brooks
Battleship Lake
Lake Helen Mackenzie
Kooso L.
Lady L.
Mt Elma
Croteau L.
Murray Meadows
Hairtrigger L.
Kwai L.
Mariwood L.
Ball L.
Circlet Lake
Lake Beautiful
Panther L.
Johnston Lake
Moat Lake
Paradise Meadows
Cruickshank
Faith Lake
George V
Creek
Forbidden Plateau

G.S.C. Sum. Rep't 1930... H.C. Gunning

MINERALIZATION ON AND NEAR MOUNT ALBERT EDWARD

Mount Albert Edward, at the headwaters of Cruickshank, Oyster, and Ralph rivers, is over 6,800 feet high and is easily ascended by trail from the Forbidden plateau to the north. It is composed entirely of volcanic rocks including pillow lava, andesite, dacite, and breccia cut by a variety of diabase and other basic dykes, all intruded by two or three small bodies and many associated dykes of granodiorite. The volcanics are poorly bedded, their strike varying from north 60 degrees east to north 80 degrees east and their dip from 10 degrees to 20 degrees north. A pronounced system of jointing trends northeast.

On the lower northern slopes of the mountain, near Circle lake, a number of "veins" or replacement zones, varying in width from a few inches to 20 feet, have been found in the volcanic rocks. J. H. Brown of Cumberland has traced one such vein from an elevation of 4,300 feet just south of Circle lake, up the steep mountain side for at least 400 feet vertically. It strikes northwest and dips steeply southwest. This "vein" varies in width up to a maximum of 20 feet, but in its thicker parts is but sparsely mineralized with pyrite. At the lower showing there is a width of 4 feet containing much pyrrhotite, a little chalcopyrite, and some quartz. On a shoulder at 4,800 feet elevation, pyrite and chalcopyrite are sparingly developed in two undeveloped showings of quartz. No development has been done on any of these showings.

Mr. Brown's principal holdings are in a deep and precipitous valley that lies immediately north of Albert Edward peak and drains west into Oyster river. To reach the showing from the east or north one must cross a summit 5,100 feet or more above sea-level. On the north side of the valley, at about 4,000 feet elevation, andesitic flows and breccias and associated feldspar porphyries are cut by numerous aplite and granodiorite dykes and by a small, stock-like intrusion of granodiorite that contains many fragments of the volcanic rocks. The volcanics and the granodiorite are extensively jointed and fractured and mineralized with irregular, tiny seams and lenses of pyrite and chalcopyrite with occasional quartz, magnetite, and molybdenite. The mineralization appears to be entirely confined to tiny seams or cracks and was not found to replace the country rock to any appreciable extent. The most encouraging showing is a bluff, some 300 feet long and about the same height, which is extensively coloured with iron and copper stains. As the wall is vertical or overhanging it cannot be examined without ropes or ladders, but there is a large collection of blocks and fragments of the mineralized material at the base. The writer examined much of this material carefully and, although there is much chalcopyrite and pyrite present, yet there is so much absolutely barren rock between the mineralized cracks or seams that it seemed very doubtful if any large quantity of the rock would contain a commercial proportion of copper. Thus it seemed that unless gold or silver were present in appreciable amount the deposit would be of very doubtful value. Consequently, a sample, weighing over 2 pounds, of about as well-mineralized material as could be found and certainly containing much more pyrite and chalcopyrite than the average, was taken. On assaying it was found to carry per ton of 2,000 pounds: gold, 0·3 ounce; silver, 0·49 ounce; and copper, 4·07 per cent. Judging by this, high gold or silver values may not be expected. However, it must be admitted that in deposits of this sort extensive, large-scale sampling of unweathered surfaces is generally necessary before any reliable average values can be obtained.

"groundmass". Talus below the cliff contains material probably more representative of the upper cliff and in it chalcopyrite can be found almost anywhere. Flakes of molybdenite are occasionally present.

Our views differ to or at least enlarge upon those presented by Gunning in that we suggest a possible intrusive origin for the breccia which contains an abundance of quartz-diorite blocks. Such would be similar to that with which the Highland Valley copper deposits near Ashcroft are associated. Thin section study by the writer suggests also the possibility of introduction of foreign material during emplacement of the breccia. The breccia particles in large part are composed of blocks of white to gray granular rock mixed with obvious volcanic country rock. The cementing material is identifiable only as a highly altered chloritic material andesitic in composition but now replaced largely by chalcopyrite plus iron sulphides and magnetite. Besides those of obvious quartz-diorite composition many of the light-colored blocks consist of fine-grained quartz and chlorite with two ages of each clearly visible. Up to 3% apatite is present. Feldspar is totally lacking in shape and form. The writer can see no obvious connection between this latter material and country rock volcanics as suggested by Gunning nor to the intrusive granodiorite. On the other hand quartzite is a distinct possibility. Such rock occurs below the Karmutsen in a Permian or Post-Permian sequence and could well have originated there. Close examination however might locate it in the Gem Lake Valley believed by the writer to have been excavated very

near if not beyond the poorly defined base of the Karmutsen.

The importance of a mineralized intrusive breccia or even a ruptured quartzite bed at depth is obvious from a possible tonnage standpoint as continuity is almost certain to exist. Grade can change.

The second and most widespread type of deposit is that occurring around Gem Lake itself. A rusty weathering poorly outlined volcanic rock assumed to underlie an area of at least 2,000,000 square feet crops out on both sides of the lake reaching elevations of at least 500 feet above it. The rock is definitely an andesite composed of feldspar (AN33) and chlorite with only a trace of quartz. The chlorite and an unusually high content of disseminated metallics tend to darken the rock considerably leading to its erroneous field classification as a basalt. Some of this rock is light in color and composed of up to 70% feldspar (AN32). Recognizable mafics are notably absent in both the light and dark rock and the widespread development of chlorite attests to the degree of metamorphism undergone. The rock is highly fractured and practically every joint has a coating of chalcopyrite, pyrrhotite and pyrite - such giving an exaggerated picture of its true metallic content. This fact was brought home by sampling of a 40 foot cut in country rock put in for assessment purposes. The best 10 foot section of this deposit (chosen only because of ease of access) returned copper values of 0.36% and gold-silver values of $2.30 per ton. Nevertheless interest remains in this type of deposit until we are reasonably certain that concentrations of metallics

do not exist. Possible tonnages might well be computed in the hundreds of millions. The writer has grown to respect this type of rock as the only "within-range" answer as a source for many of our metallic mineral deposits.

ASSAYS AND RESERVES:

Insufficient work has been done to even hazard a guess as to possible reserves. Suffice it is to say that the property will not be turned down for lack of reserves.

Grade, except for that shown by our 40 foot cut, is uncertain as such cannot be accurately determined unless bulk sampling of an unweathered surface is undertaken. Local, entirely unrepresentative sampling in the cliff area has given copper values ranging from 0.3% to 3.0%. Gold values to date unfortunately do not reach the relatively high figure of 0.3 ounces quoted by Gunning from talus slope sampling and would appear to be in the 50¢/ton range. The writer would estimate the overall grade expected across presently exposed widths to be no greater than 1% and probably only half of this. A small but possibly widespread magnetic iron content of about 10% to 15% is indicated.

Sampling of float from as yet concealed nearby deposits indicate grades of several percent copper and much of the float around the shores of Gem Lake will assay 1%.

CONCLUSIONS AND RECOMMENDATIONS:

The Meg Lake prospect exists in an environment geologically suited to the development of extremely large tonnages of low-grade copper. It is considered a geological

bet in which concentrations obviously required can only be determined present with the aid of several diamond drill holes directed to probe structurally favorable sections of the intrusives at depth below the cliff and under the extensive talus slope. The widespread and continuous nature of the copper mineralization coupled with the structural possibilities and the relative nearness to the coast (not entirely convincing when viewed from Gem Lake!!) make it an attractive prospect on which to concentrate a moderate exploration program.

It is recommended that a geological survey be made of the crater-like Gem Lake Valley. Photographic Surveys, possessing their own coverage, could produce a 400 scale map (for about $300.) which would save us considerable time.

Two diamond drill holes should be directed downward and across the cliff showing from a set-up either at its southern or northern base depending entirely on safety conditions at the time. The holes, which will probably be put in by our Longyear Drill run to its limit of 300-400 feet, should be carefully analyzed for changes in grade and rock type. Coupled with the geological survey should be some magnetometer work designed to pick up possible anomalies caused by concentrations of the minor magnetite related to the copper mineralization. Such may be detected with a more sensitive Proton-type air mag which we contemplate purchasing. We should also investigate the possibilities of IP working satisfactorily on this type of mineralization. Certainly SP and EM methods or wide scale soil sampling do not appear attractive. Photographic

Surveys are bringing in an IP unit and we should try to learn as much as possible about this apparatus even if it does not find us a mine. Our Toronto Department should be asked for comment on this.

Fortunately Vancouver Island is almost entirely covered by mile-to-the-inch topog maps and much detail is available through excellent photography carried out for the logging companies. Thus if Photographic Surveys can supply us with a 400 scale map of the 2 square mile area for a reasonable cost ($300.) considerable surveying might be eliminated and more concentration given prospecting and locating future drillsites.

We have several leads regarding mineralization in the vicinity and these should be looked into. Claim lines should be better marked than the writer was able to do at the time of staking.

A workable crew should consist of five or six men including two drillers and a cook-handyman. Radio communication is important especially if the helicopter whose presence much of the program is based on is not always available. One of our Super-Cubs could be left as "standby" on "near but far away" Circlet or Moak Lakes.

During average years it would be useless to start such a program before June but with the light snow conditions prevailing at the present date (mid-February) early May might be a possibility.

Vancouver, B. C.
February 15th, 1961.

Jas. J. McDougall,
Geologist

Esquimalt & Nanaimo Railway Company's Land.

The fact that practically one-third of Vancouver island is comprised within the boundaries of the land-grant to the Esquimalt & Nanaimo Railway Company in consideration of the building of that line from Esquimalt to Wellington, paralleling the east coast of Vancouver island, has been frequently referred to in former reports as acting as a strong influence against prospecting within its boundaries, for the reason that all base minerals such as copper, zinc, and lead occurring on the land-grant are owned by the railway company, while the precious metals only belong to the Crown.

As the regulations with regard to minerals occurring on the grant may have been misunderstood, it is deemed only fair to the company that the following regulations which are in force to-day with regard to minerals found on the company's lands should be made public in this report, as well as the fact that the entire land grant is open to prospectors subject though to the following regulations:—

"Regulations.

"Mineral lands, which include all lands supposed to contain minerals other than or in addition to coal and coal-oil. These lands will be leased or dealt with under option. Locators of mineral claims on the unsold portions of the land grant may, on payment of $50 per claim, obtain an option for one year to purchase the surface rights and timber at the price of $5 per acre for the surface and $1 per 1,000 for all timber in excess of 8,000 feet B.M. per acre. Minerals to be worked on royalty as specified in regulation below. The company does not, however, bind itself to grant options on, or sell, either the surface or timber of any land which it may decide is required for its own use or otherwise. Holders of options who intend to purchase must survey the land and file their field-notes at the company's land office at Victoria within the period of their option.

"Mineral lands will be leased at an annual rental or sold. The following royalties being reserved on the ores mined upon the property:—

"(*a.*) Upon iron ore (and this is to be understood as material containing over 40 per cent. metallic iron and manganese), 1 cent per unit of iron plus manganese on total contents; that is to say, should the ore contain 50 per cent. iron and manganese the royalty per ton would be 50 cents. A minimum royalty of 25 cents per ton.

"(*b.*) One-tenth of 1 cent per pound upon the lead contents of lead ore.

"(*c.*) One-twentieth of 1 cent per pound upon the zinc contents for the first forty units; one-tenth of 1 cent per pound upon the zinc contents in excess of forty units.

"(*d.*) One-tenth of 1 cent per pound upon copper contents up to and including 2 per cent. of copper contents; upon the first 1 per cent. in excess of 2 per cent. of copper contents, fifteen one-hundredths of 1 cent per pound; upon the first 1 per cent. in excess of 3 per cent. of copper contents, one-fifth of 1 cent per pound of copper contents; upon the first 1 per cent. in excess of 4 per cent. of copper contents, one-quarter of 1 cent per pound of copper contents; upon any copper contents exceeding 5 per cent. copper contents, three-tenths of 1 cent per pound upon such excess.

"(*e.*) A royalty of 2 per cent. of the gross value of ores or concentrates not otherwise specified."

The Mining Divisions on Vancouver island, portions of which are embraced within the boundaries of the land-grant, are as follows: Victoria, Alberni, and Nanaimo.