

801227

FILE NUMBER 801227

5,

CARACAS MINING CO. LTD., (N.P.L.)
GEOLOGICAL REPORT
DODD LAKE Cu-Mo PROSPECTS
VANCOUVER MINING DIVISION

May, 1971 W. M. Sharp, P. Eng.

May 10, 1971

President & Directors,
Caraacs Mining Co. Ltd., (H.P.L.),
Vancouver, B.C.

Attention: Mr. Christian Pfeiffer

Gentlemen:

With this the undersigned transmits his
"GEOLOGICAL REPORT ON THE DOOD LAKE COPPER-MOLYBDENUM
PROSPECTS" Powell River Area, B.C., Vancouver Mining
Division - prepared in accordance with your preliminary
request and authorization and deriving from my April 16-
17, 1971 examination visit and files provided by you.

Yours truly,

W.M. Sharp
W. M. Sharp, M.A.Sc., P. Eng.

Encl.

GEOLOGICAL REPORT

on the

**DEAD LAKE COPPER-POLYBIMUM PROSPECTS
POWELL RIVER AREA, B.C.
Vancouver Mining Division**

for

CARACAS MINING CO., LTD., (N.P.L.)

by

**W. H. SHARP, B.A.Sc., P. ENG.
North Vancouver, B.C.**

May 8, 1971



INDEX

	PAGE
SUMMARY & CONCLUSIONS.....	1
RECOMMENDATIONS.....	4
ESTIMATED COSTS.....	3
INTRODUCTION.....	7
LOCATION & ACCESS.....	7
PROPERTY.....	9
HISTORY.....	9
GENERAL GEOLOGY.....	10
LOCAL GEOLOGY & MINERALIZATION.....	11
GEOCHEMICAL DATA.....	13
REFERENCES.....	15
CERTIFICATE.....	16

REPORT DRAWINGS

FIG. 1, INDEX MAP, DODD LAKE PROPERTIES..... with text	
FIG. 2, CLAIM MAP, DODD LAKE PROPERTIES..... with text	
Dwg. No. 1, PHOTOGEOLOGICAL DETAILS, DODD LAKE PROPERTIES...in pocket	
Dwg. No. 2, COMPOSITE GEOLOGY, DODD LAKE PROPERTIES.....in pocket	
REFERENCE SHEET OF FIG. 2 - BACON & CROWDER LTD. 'GEOLOGICAL MAP OF THE DODD LAKE PROPERTIES.....in pocket	

SUMMARY & CONCLUSIONS

The Dodd Lake property of Caracan Mining Co. Ltd. (N.P.L.) comprises four groups totalling 80 claims. These are situated ten miles northeast of Powell River, B.C. The property is readily accessible for 9-10 months of the year via a system of logging roads departing northward from Highway 101.

Little exploratory work has been accomplished on any of the Company's present claim groups. During 4 months of 1967 Falconbridge Nickel Mines Ltd. carried out essentially localized exploratory work on the neighbouring Bruce and Mary V groups. Caracan Mining Co. Ltd. optioned the Bruce 1-6 claims for a brief period in 1970; however, limited finances permitted only sufficient trenching for them to maintain the optioned and owned claims in good standing.

The general region including the Dodd Lake properties is underlain by diorites, granodiorites and related facies of the Coast intrusive complex. Trenching within the Bruce claims has revealed a 2000' strike-segment of a wide, steeply-dipping feldspar porphyry dyke. This, striking N.N.E.-W.W., most probably extends through Caracan's Doe and Coast groups. The dyke has been intensely fractured and, as evidenced by the Bruce showings, widely and intensely silicified, and substantially mineralized with chalcopyrite and subordinate molybdenite. Samples from three trenches approximately 700 ft. apart respectively returned Cu assays of: 1.9% across 15', 0.11% across 7', and 2.4% across 100' - all samples having been taken in 1970 by a reputable geological engineer, and visually confirmed by the writer during his recent examination.

Photogeologic interpretations by the writer indicate the presence of a broad, E-W trending zone of faulting and, possibly, dyke intrusion through, and to the north of the Doe, Coast, and Bruce claim groups. Significantly, one of these 'lines' corresponds

closely with the Bruce showings and the inferred projections of this zone; another traverses the Mike claim block. All, or any of these may represent 'controlling' fault-dyke situations similar to that relating to the existing Bruce Copper showings.

The 1967 geochemical survey of the Bruce group disclosed a copper anomaly over the area of the showings. The fact that this anomaly remains 'open' to the west strongly suggests that the zone of mineralization will continue into the Doe group; the presence of the above-noted through-going 'linear' enhances this possibility.

Geochemical investigations of ground to the north of the Mike group disclosed a strong copper anomaly directly north, and obviously continuing southward into the Mike group. Reports of coincident sulphide mineralization provide sufficient reason for recommending comprehensive geochemical-geophysical exploration of the Mike group - and particularly over the area traversed by the photo-indicated fault zone.

Diamond drilling done during 1967 on the Bruce showings accomplished little in regard to testing the actually delineated and projected intervals of the zone, or of its depth potential. In addition none of the holes drilled tested the full cross-section of the indicated zone. However, the drilling was sufficient to disclose the occurrence of a widespread, low-grade (0.1 - 0.2%) zone of copper mineralization.

The adjacent Bruce quartz-chalcopyrite zone, presently exposed over a 1200' strike-length appears to represent a relatively minor, but well mineralized element of a much wider belt of highly fractured and altered intrusives. Road-cut and trench exposures, occurring up to 300' north and 1500' south of the main showings, suggest that fracturing occurs over a gross width of 2000 feet or more. Across this general section at least three younger phases of the main intrusive have been more-or-less intensely fractured and

altered - the latter involving conspicuous amounts of silica, sericite, and pyrite. The available evidence suggests a general section in which the main showings comprise a quartz-rich central band (localized by the porphyry dyke) within a broad, N.E.-trending assemblage of strongly fractured sericitized and pyritized granitic rocks - with at least minor amounts of chalcopyrite and molybdenite occurring throughout the section.

No known body of commercial ore within Carasas claims & offset of program is to stand out and possibilities -
The investigation of the extensions of this zone into the
Doe and Goat groups, with a potential strike-length of 2 1/2 miles,
constitutes the most immediate exploration objective.

W.M. Sharp
W. M. Sharp, P. Eng.

W.M.S.

RECOMMENDATIONS

PHASE I

- A. Carry out reconnaissance soil-sampling over the Bee, Goat, and Hike groups. This should be done at 400-foot intervals on N-S or N.E.W.-S.E.E. lines spaced 800 ft. apart. All samples should be laboratory tested for total p.p.m. Cu and Mo.
- B. Soil sample for geochem.-mercury; this should be done at 800-foot intervals on alternate (1600' sep.) lines of the above grid.
- C. On the basis of results accruing from A carry out detailed soil sampling on the same grids, but at 200-foot intervals on "lines" 400' apart; test for total Cu and Mo.
- D. Map reported outcrops.
- E. Carry out induced polarization surveys over geochemically and geologically-indicated areas within each of the Bee, Goat, and Hike groups.
- F. Evaluate results A-E, inclusive.
- G. Carry out denser strip and trench exploration of selected target areas (F).

PHASE II

Diamond drilling - contingent on PHASE I results.

W.M. Sharp
W. M. Sharp, P. Eng.

ESTIMATED COSTS

PHASE I

Base Group:

Grid Preparation, 14 mi. @ \$150. per mi.....	\$2,100.
Reconnaissance soil sampling, Cu & Mo,	
Collection, 200 @ \$1.50 per sample.....	\$ 300.
Analyses, 200 @ \$2.25 per sample.....	\$ 450.
Hg. soil sampling,	
Collection, 50 @ \$2.00.....	\$ 100.
Analyses, 50 @ \$2.00.....	\$ 100.
Detailed soil sampling, Cu & Mo,	
Collection, 200 @ \$1.50 per sample.....	\$ 300.
Analyses, 200 @ \$2.25 per sample.....	\$ 450.
I.P. Survey, estim. 14 mi. @ \$350. per mi.....	\$7,700.
Soil stripping & trenching, 3 days @ \$250.....	\$1,250.
Geological mapping & evaluation.....	\$ 750.
	<u>\$13,500.</u>

Cont. Group:

Grid Preparation, 13 mi. @ \$150. per mi.....	\$2,250.
Reconnaissance soil sampling,	
Collection, 200 @ \$1.50.....	\$ 300.
Analyses, 200 @ \$2.25.....	\$ 450.
Hg. soil sampling,	
Collection, 50 @ \$2.00.....	\$ 100.
Analyses, 50 @ \$2.00.....	\$ 100.
Detailed soil sampling,	
Collection, 200 @ \$1.50.....	\$ 300.
Analyses, 200 @ \$2.25.....	\$ 450.
I.P. Surveys, estim. 13 mi. @ \$350. per mi.....	\$6,250.
Soil stripping & trenching, 3 days @ \$250.....	\$1,250.
Geological mapping & evaluation.....	\$ 750.
	<u>\$14,200.</u>

W.M.S.

Phase I

Grid Preparation, 6 mi. @ \$150. per mi.....	\$1,200.
Reconnaissance soil sampling,	
Collection, 110 @ \$1.50.....	\$ 165.
Analyses, 110 @ \$2.25.....	\$ 250.
Hg. soil sampling,	
Collection, 25 @ \$2.00.....	\$ 50.
Analyses, 25 @ \$2.00.....	\$ 50.
Detailed soil sampling,	
Collection, 120 @ \$1.50.....	\$ 180.
Analyses, 120 @ \$2.25.....	\$ 250.
I.P. Surveys, section, 6 mi. @ \$550. per mi.....	\$3,300.
Zonear stripping & trenching, 4 days @ \$250.....	\$1,000.
Geological mapping & evaluation.....	\$ 300.
	<u>\$ 6,930.</u>
Sub-total	\$34,630.
Provision for administration & supervision.....	\$ 2,500.
Provision for contingencies.....	\$ 3,000.
	<u>\$60,130.</u>
TOTAL, PHASE I	

PHASE II

Proposed expenditure contingent on PHASE I results.

W. M. Sharp
W. M. Sharp, F. Eng.

INTRODUCTION

The writer, accompanied by Mr. C. Pfleiffer, travelled to Yewell River on April 16, 1971 and devoted all of the following day to an examination of the Company's Dodd Lake property.

The April 17th field work comprised a general reconnaissance examination of showings within the Company's Dog, Goat, and Mike claim groups. As the mineral potential of both the Goat and Mike claims partly depends upon probable strike-extension of the 'Bruce' zone of copper-molybdenum mineralization, the series of trench exposures within this group were examined with particular interest.

The Toro group, being relatively unexplored and rather remotely situated with respect to the more obvious exploration target area, was not visited.

The current report is based largely on the general property file provided by Mr. Pfleiffer - the principal reference being the June, 1970 report by Bacon & Creekurst Ltd. However, the writer admits that his own conclusions have been substantially influenced by his own field observations and photogeological interpretations.

LOCATION AND ACCESS

The general location of the property is shown on Fig. 1. The composite property situated about 70 miles northwest of Vancouver and 10 miles northeast of Yewell River.

The various claim groups generally cover a flattish-to-moderately steeply sloping area of the Coast Range between elevations

of 300-2500 feet. The property lies within the Powell Provincial Forest; excellent local access conditions accrue from an extensive system of old and new logging roads in the area.

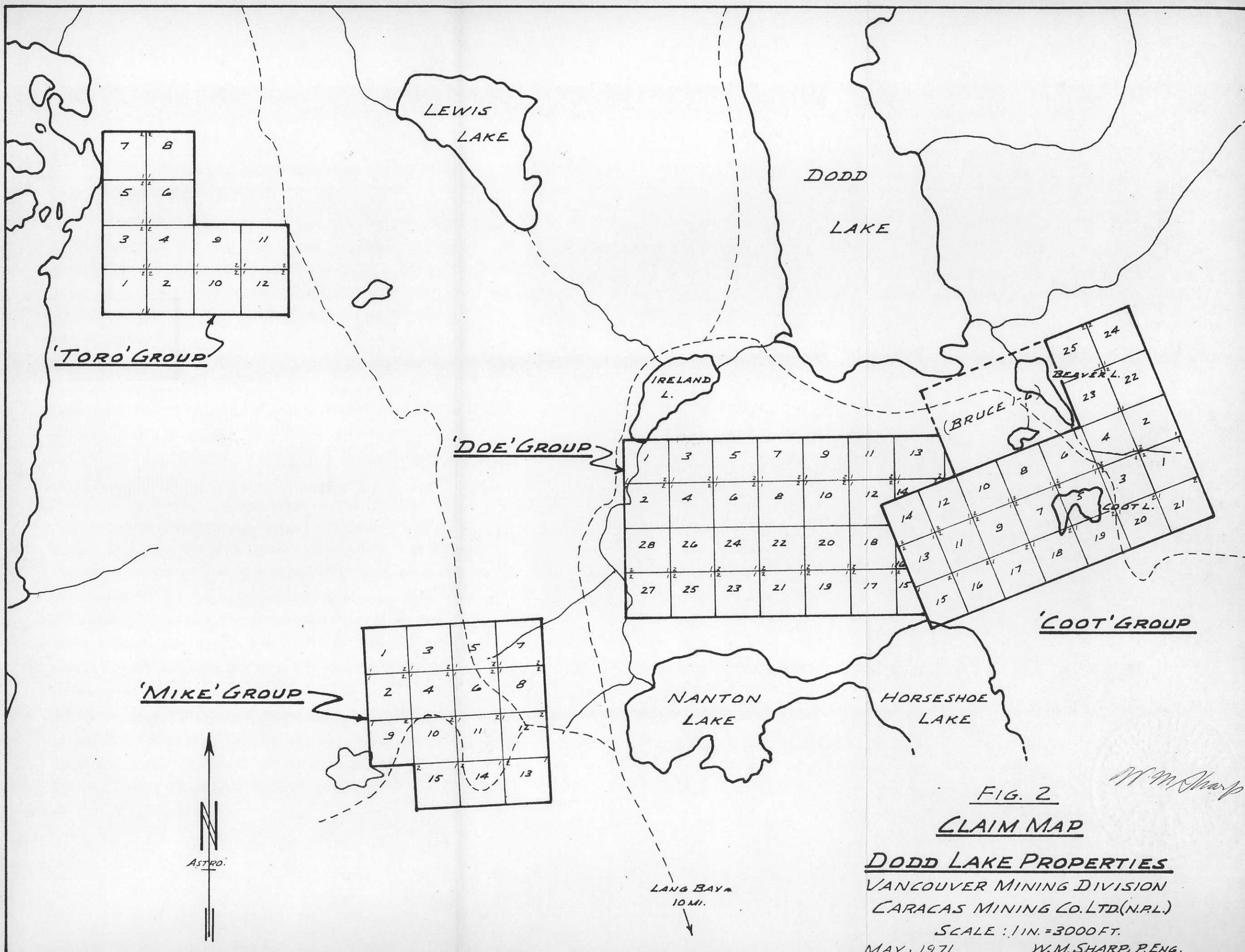
From Highway 101, near Long Bay and 13 miles southeast Powell River, the Dodd Lake area is reached by 14 miles of well maintained gravel roads. Most of these access roads may be travelled by ordinary motor cars and trucks for at least 9-10 months of the year.

PROPERTY

The Company's Dodd Lake properties comprise 69 recorded mineral claims within four groups, as shown in Figure 2. The Doe and Goat groups are contiguous, and contain probable strike-extensions of the 'Bruce' mineralization. The Toro and Mike groups are separate claim blocks - respectively lying at about 1/2 mile southwest, and 2 1/2 miles northwest of the west boundary of the Doe group. Being more remote from the known mineral showings, present appraisals of their mineral potential are essentially based on photo-structural and pre-existing geochemical evidence.

Specific details of the claims presently held by Gencor Mining Co. Ltd. (N.P.L.) are given in the following schedule:

Claim Group	Reg. No.'s.	Last Adm. Issued	Description Assess. Work	Last Adm. Date
Goat # 1-23	16504-16610	23 Nov./70	Trenching Nov./70	4 Dec./71
Toro # 1-12	16611-16622	23 Nov./70	Trenching Nov./70	4 Dec./71
Doe # 1-29	16623-16650	23 Nov./70	Trenching Nov./70	4 Dec./71
Mike # 1-12) (#13-13)	16651-16662 16849-16851	23 Nov./70 23 Nov./70	Trenching Nov./70 Trenching Nov./70	4 Dec./71 12 Jan./72



All claims are in the Vancouver Mining Division; locally they situate within T.F.L. 39.

In the writer's judgement, the various claim blocks, and particularly the Doe and Goat groups, comprise geologically-sound exploration targets - this assessment being based on the probabilities of actual strike-extensions of the Bruce zone and on possibilities that similar zones will be discovered within other areas of the property.

HISTORY

In March, 1967 Falconbridge Nickel Mines Ltd. acquired an option on the neighbouring 'Bruce' and 'Mary V' claim groups - the latter adjoining the N.D. group on the north. During the first 3 months these claims were geologically mapped, soil-sampled, and otherwise investigated via magnetometer, self-potential, and V.L.P.-E.M. surveys. Some trenching was accomplished in connection with the above program and, during the final month of the option, some ^{localized} ^{trenching and} ^(detail this) diamond drilling was done within a westerly segment of the Bruce zone, and on a geochemical anomaly within the Mary V group.

During November, 1970 Caracas Mining Co. Ltd. carried out bulldozer trenching on each of its four claim groups - this adding some additional geological information and, at the same time, fulfilling annual assessment requirements.

GENERAL GEOLOGY

Fig. No. 1 (map pocket) supplements the following text.

Bedrock within the general Dodd L.-Garrison L. region, as contained within the north half of Map 927/15W, is almost totally concealed by glacial-alluvial deposits. The few exposures present suggest that the general region is underlain by granodiorite, quartz diorite, and diorite facies of the Coast intrusive complex. Additional local geological evidence suggests that the primary intrusion has been closely (?) followed by a complex of more acidic granitic rocks - tentatively identified as monzonite, and/or aplite, and feldspar porphyry. On the basis of current photogeological evidence, it appears that intrusions of the younger rocks might be localized by major faults or general zones of fracturing and faulting. In any case subsequent silice-sericitic-pyrite alteration processes appear to have been localized by such zones.

From his own stereo-inspections of air photos the writer notes the occurrence of frequent approximately E-W^{N.E.}, N.E.-, and S.W.-trending linear within the general map area. For the most part, these appear to represent faults and, less frequently, dykes. The most prominent zone of linear scales at over one mile in width, and traverses the south end of Dodd Lake and most of the Dog, Goat, and Bruce groups. Significantly, one of the approximately six linear comprising this zone shows close local correspondence with known and projected intervals of the 'Bruce' mineralized zone. Also, another such feature appears to diverge from the principal zone and strike southwesterly through a central part of the 'Mike block'. Should this prove to be an actual fault and/or dyke, it could also be economically significant.

Farther east, linear of the main (fault-dyke?) zone converge, with intersections of some strands, to comprise what might be a second general structural focus for Cu-Hg mineralization. In any

case, this and similar 'out-lying' photo-indicated structures, such as the westerly projections of the several 'liners' comprising the main zone, should be explored by at least reconnaissance geological and geochemical surveys.

LOCAL GEOLOGY & MINERALIZATION

Exploration by Palaeobridge during 1967 was restricted to the Bruce and Mary V groups - these comprising the extent of their option. Further, their principal effort was directed towards exploration of the Bruce Cu-Ni zone - particularly within the westerly interval containing the trench exposures.

From a geological viewpoint, the writer considers that a description of the Bruce showings and a summary of the 1967 exploration results are decidedly relevant to the Company's current objectives - namely, the exploration of indicated extensions of this zone into Carnac's Dog and Coot groups, and the search for similar deposits which may occur within any part of the property.

Within the Bruce trenches the mineralized zone strike N70°E - S70°W, with apparently near-vertical dips. Good copper values occur within an intensely fractured, silicified, and altered feldspar porphyry dyke and to, a lesser extent within the flanking granodiorites, quartz monzonites, etc. In detail, chalcopyrite, pyrite, and occasional occurrences of molybdenite occur within a mass of large and small quartz veins and silicified host rocks. Most of the mineralization occurs within the quartz veins; however, an appreciable part of it occurs as disseminations in the host rocks - particularly where these are highly altered. Pronounced alteration of the host rocks derives from substantial additions of f.gr. silica, sericite, and pyrite. Similar alteration effects have been observed at distances of 400' - 600' north of the projected zone, and at 800' - 1600' S.E.E. of the main trench showings.

To date, no systematic exploration for extensions of the above zone into the Doe and Goat groups has been attempted. However, the current pattern of photo-indicated structures suggests that these extensions, and also other probable zones, do exist within the Goat group's ground.

Direct evidence that basically similar conditions of alteration and mineralization occur at considerable distances outward of the Bruce zone are provided by showings at map-locations 'A', 'B', and 'C'. Within each of these areas, the granitic rocks are more-or-less fractured and altered; with this, relatively abundant pyrite usually contains detectable amounts of copper and/or molybdenum sulphides. Also, the fact that an extensive geochemical anomaly within the westerly Bruce claims is 'open' to the west makes it highly probable that the zone will extend into the Doe group at least - in accordance with the current photogeologic interpretations.

Exploration techniques employed during the 1967 program gave little indication of an easterly extension of the zone beyond the trenched exposures. However, the present consensus of opinion is that none of the geophysical methods used proved to be effective as regards the disclosure of other than already obvious targets. No induced polarization surveying was carried out on either the Bruce group or Mary V group. In view of the evident relationships between massive and disseminated sulphides, it appears that the I.P. method would have been particularly applicable.

The more significant sampling results deriving from the 1970 examination of the Bruce showings are listed as follows:

Sample No.	Width, ft.	Gr. %	As. oz./ton	Mo. %
17331	15	1.00	0.16	0.001
17332	50	2.40	0.001
17333	50	1.40	0.17	0.001

Of the several holes drilled during the 1967 option none were positioned so as to provide adequate cross-sectional intersect-
ions of the 'main trench' mineralization, or of its strike extensions.

D.H. No. 1, collared closely south of the steeply dipping mineralized quartz stringers and drilled 30° θ minus 90° , averaged about 0.10% Cu over its total length.

D.H. No. 2, drilled south θ minus 60° for 230° from the D.H. No. 1 set-up, averaged 0.14% Cu over its total length.

D.H. No. 3, collared 200' south of the collar of D.H. No. 1 and drilled 302° θ minus 90° , averaged about 0.13% Cu over its total length.

Six other drill holes put down were even less suitably positioned; hence, most of the strike-length of the known mineralization, or of its inferred projections, remains untested.

To date no bodies of commercial ore have been delineated. The object of the proposed upplation program is the search for such bodies as may exist within the Caribou's Gold properties.

GEOCHEMICAL DATA

During 1967 soil sampling surveys were carried out over the then-optioned Bruce and Mary V groups. The survey of the Bruce group reportedly disclosed copper anomalies covering the general area of quartz veining which extends some hundreds of feet north of the principal showings, and continued into the adjoining Coat block. Reportedly, the higher values within the anomalous area (plus-150 p.p.m. Cu) tend to form linear zones. The anomalies, based on a background of 30 p.p.m. Cu, were seen to occur on the hill tops rather than in the drainage de-pressions, and to cover a considerable area on the western end of the Bruce claims.

The Mary V survey disclosed a very strong copper anomaly over the southern boundary of this block; hence, it is probable that similar surveys on the adjoining Mike group will reveal significant

southward extensions of the existing anomaly. Current photo-structural interpretations, provide additional incentive for extending soil-sample surveys over the mine claims area.

The writer's field observations suggested a tendency for bedrock within lower areas of the property ^{tends} to be covered by several feet of compressed clay-drift; whereas basal layers of drift within the more elevated areas tend to be thinner and more heterogeneous in respect of the relative proportions of dense clay and gravel present. These variations in the character of the basal overburden layers would logically affect the upward migration of copper-bearing groundwaters from bedrock to surface soil-horizons. Consequently, overburden characteristics should be considered in future field work, and in the subsequent office interpretations. It will also be important, during future programs, to select geochemical methods which will allow for large variations in the permeability of the local overburden at various parts of the property.

Respectfully submitted,

W.M. Sharp
W. M. Sharp, B.A.Sc., F. Eng.

W.M.S.

REFERENCES

1. Thondler, R.W., B.Sc., P. Eng., Beaon & Groulxer Ltd. + "Report on the Dodd Lake Properties for Caramic Mining Co. Ltd. (H.P.L.), June 9th, 1970".
2. Bowles, W. E. and Webb, J.S. + "Geochemistry in Mineral Exploration" Harper & Row, 1962.

CERTIFICATE

I, William H. Sharp, with business and residential addresses in North Vancouver, British Columbia, do hereby certify that:

1. I am a graduate of the University of British Columbia with an A.A.Sc. (1950) degree in Geological Engineering.
2. I am a registered Professional Engineer in the Province of British Columbia, Reg. No. 2164.
3. I have practiced my profession for 20 years, including 7 years as a geological consultant.
4. I have personally examined the Bodie Lake properties of Garson Mining Co. Ltd. (H.P.L.), during April 17, 1971.
5. I have no direct or indirect interest in the properties of Garson Mining Co. Ltd. (H.P.L.), nor do I expect to acquire any such interest.

W.M. Sharp
W. H. Sharp, P. Eng.

WMS

North Vancouver, B.C.
May 8, 1971

