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PROGRESS REPORT on the LEXINGTON COPPER PROPERTY GREENWOOD, BRITISH COLUMBIA for

LEXINGTON MINES LTD. (N.P.L.)

by: R.W. Phendler, B.Sc., P.Eng.

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PROGRESS REPORT

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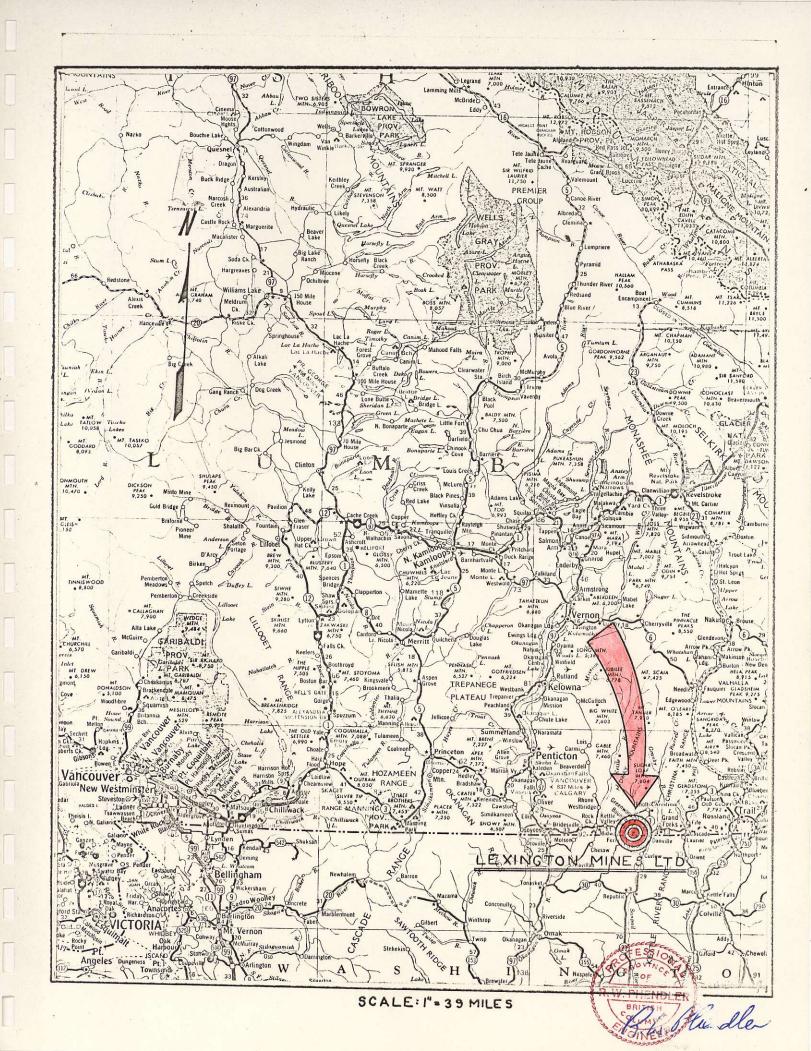
LEXINGTON COPPER PROPERTY
GREENWOOD, BRITISH COLUMBIA

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# LIST OF ILLUSTRATIONS

Fig. 1- Location Map - 1" = 39 miles

Fig. 2- Claim Location Map - 1" = 1000\*

Fig. 3- Surface Plan - City of Paris Area - 1" = 100"

Frontispiece

In envelope at back of report

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## SUMMARY AND CONCLUSIONS

The property of Lexington Mines Ltd. consists of approximately 4500 acres in the Greenwood area of British Columbia, situated south of the southern Trans-Provincial Highway and close to the Canadian-U.S.A. border.

The claims are underlain by mixed volcanic and sedimentary rocks of the Anarchist group of late Paleozoic age; these rocks
are intruded by diorite and ultrabasic plugs. Where exploration has
been conducted to date, copper mineralization has been found to be
general, as demonstrated by outcrops and assay results from more than
10,000 feet of trenching and 18,000 feet of diamond drilling. Years
ago, mineralized outcrops were responsible for underground exploratory
work on the Mabel, Lexington and City of Paris properties.

In the past few years the principal exploration activity has taken place in the extreme southeastern corner of the claim group where a band of dacite, 600 feet thick, is sandwiched between two sill-like bodies of serpentinized ultrabasic rocks. The dacite body is fractured throughout, sericitized and contains widespread disseminated pyrite and chalcopyrite.

An induced polarization survey conducted in 1968 revealed the presence of three zones of high chargeability, two of which are situated within this dacite body. These have been designated as "A", "B" and "C".

Paris area has now that encouraging concentrations

of chalcopyrite occur near the upper and lower margins of the decite in this area.

been traced from near surface down a plunge of 20 degrees for a length of 1300°. Intersections encountered so far by eleven diamond drill holes average 0.74% copper, .073 oz. of gold per ton and 0.121 oz. of silver per ton, cutting through an indicated average vertical extent of 63.0 feet. Drilling has attempted to delimit this zone. The apparent horizontal extent is of the order of 180 feet.

Along the lower margin, a zone of mineralization has

Insufficient diamond drilling has been completed to test copper mineralization found along the upper dacite margin.or on other interesting parts of the "A" anomalous area. Correspondingly, the other two high chargeability areas, "B" and "C", have received only cursory attention to date.

Studies are being made relative to the economics of mining such mineralized zones in this part of British Columbia, either by open pit or by trackless underground methods, or by some combination of the two. Technology in trackless mining is advancing rapidly and attractive operating costs can be achieved by the use of relatively new types of underground machinery now available.

It should be noted that Greenwood, which is situated

3 miles from the property is served by the Trans-Provincial Highway,

the Canadian Pacific Railway and the West Kootenay Light & Power Company;

Greenwood, with Grand Forks and other neighbouring villages, can provide
an ample supply of ordinary labour.

Vancouver, 320 miles by road from the property, affords complete exploration and other mining services.

## RECOMMENDATIONS

The diamond drill program should be continued to explore the lower dacite-serpentine copper mineralized zone situated in the "A" anomalous area. In conjunction with this, exploratory drilling should be carried out on the northwest part of the "A" and on the "B" geophysical anomalies. The host rock is favourable and the proximity of the anomalies to the dacite-serpentine contact is interesting.

Geological mapping should be extended to cover all of the company's claim group. More detailed soil sampling is warranted in the centre of the property, with particular reference to the Lex claim group, where anomalous conditions are indicated by previous work. Any encouraging results should be further investigated by an induced polarization survey, followed by diamond drilling where favourable results are obtained.

It is recommended that the sum of \$139,650 be provided in order to complete the above program.

#### ESTIMATED COST - EXPLORATION PROGRAM

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AND DESCRIPTION OF THE PERSON AND	A STATE OF THE REAL PROPERTY.	Management (Management Court of the

Geological mapping	\$5,000	
Soil sampling	5,000	
Induced polarization survey	8,000	
Follow-up diamond drilling	24,000	\$42,000

# Administration and Overhead (2 months)

Geology, Engineering consulting fees & supervision Sampling and assaying	4,000 2,500		
Vehicle operation & maintenance Vancouver Office	1,000 6,000	13,500	\$55,500
Plus 5% contingencies			2,775

ESTIMATED	COST	100	PHASE	I	\$58,275

## PHASE II

"A" Detail diamond drilling		
4000° @ \$8/ft.	32,000	
"B" Exploration diamond	•	
drilling - 4000 @ \$8/ft.	32,000	64,000
	collection of the contraction	
inem () bondward inc cottowal	tha)	
-	4000' @ \$8/ft. "B" Exploration diamond drilling - 4000' @ \$8/ft.	4000 @ \$8/ft. 32,000 "B" Exploration diamond

Geology, Engineering consulting			
fees & supervision	4,000		
Sampling and assaying	2,500		
Vehicle operation & maintenance	1,000		
Vancouver Office	6,000	13,500	\$77.500

Plus 5% contingencies 3.875
ESTIMATED COST - PHASE II \$81,375

TOTAL ESTIMATED COST - PHASE I AND PHASE II \$139,650

Respectfully submitted,

BACON & CROWHURST LID.

R.W. Phendier B.Sc., P.Eng.

Pladler, P. Kng

## INTRODUCTION

Up to July 27th, 1970, thirty-three drill holes, totalling 18,442, have been drilled. Since the beginning of 1970 the program has been under the direction of Bacon & Crowhurst Ltd., and R.W. Fhendler, P.Eng., of that firm visited the property on February 14th, April 9-10th, May 6-7th and June 10th.

A comprehensive report on the property was written by Bacon & Crowhurst Ltd. on March 23rd, 1970, and the present report summarizes the earlier report and gives results of work to date.

#### LOCATION AND ACCESS

The property is located close to the U.S. border near Greenwood in south central British Columbia. Greenwood, on the southern Trans-Provincial Highway (Route 3) is seven miles northwest of the property and about 320 road miles east of Vancouver.

Access to the Lexington property is by a good gravel road which starts from the highway two miles south of Greenwood. This road provides easy access to all parts of the claim groups.

#### PROPERTY AND OWNERSHIP

Lexington Mines Ltd. holds 27 Crown granted claims and mineral leases and seventy-three adjacent mineral claims covering about 4500 acres.

The claim group is irregular in shape and measures about 6000° by four miles, the long dimension bearing to the northwest.

#### HISTORY

The claim group is in the famous old Phoenix-Greenwood mining camp where the first discoveries were made in 1890. During the subsequent thirty years, about 22 million tons of 1.0%-1.5% copper ore was extracted although complete records are not available. Most of this ore came from the Phoenix property and the remainder from small scattered occurrences in the district. The Lone Star Mine, located south of the International Border in a similar geological setting to the Lexington property, was the largest of these small properties and produced 40,000 tons of ore grading 2.00% Cu.

The old Phoenix property was re-activated in 1958 and is presently a low-grade (0.80% Cu) open pit producer.

In the past production on the Lexington claims was confined to the old Mabel Mine, which produced a little over 100 tons averaging 0.12 oz. Au and 0.34 oz. Ag and the City of Paris mine which produced 2100 tons averaging 3.12% Cu, 0.40 oz. Au and 2.1 oz. Ag.

In 1962 King Midas Mines Ltd. carried out geophysical and geochemical work, stripping, diamond drilling and some tunnelling on the old Mabel Mine but results were apparently discouraging.

In 1967 Lexington Mines Ltd. acquired the claims covering gradually the Mabel, Lexington and City of Paris mines and increased their holdings to the present dimensions by staking additional ground. During 1968 extensive exploration work was carried out (geochemical, geological, geophysical) and results warranted additional investigation. Diamond drilling commenced on April 3rd, 1969, and continued until July 27th, 1970, when work was temporarily halted to fully assess findings to date.

In February 1970, H.H. Shear, P.Eng., who had been closely associated with the drilling program up to that time indicated in a report ("Report on the 1969 Work Program for Lexington Mines Ltd.") that 768,000 tons of 0.80% Cu was outlined by diamond drilling on the property. At that time 22 drill holes had been completed and five had cut "ore grade" sections which were located over a strike length of 600°.

Since that time eleven additional holes have been drilled, in the City of Paris area.

all of them on the "A" zone. Of these, six intersected the "A" mineralization comparable to that found pieulously in the aforementioned zone to increase indicated tonnage to 1,472,200 tons averaging 0.74% Cu, five holes.

0.073 oz. Au and 0.121 oz. Ag.

IN 1971, an INDUCED POLARIZATION SURVEY

WAS UNDERTRIED IN THE MORTHWESTERN PART OF THE PROPERTY.

The area in which the Lexington Mines property is located is underlain by mixed sedimentary and volcanic rocks of late Paleozoic age intruded by ultrabasic rocks and diorite of Cretaceous age. The sedimentary rocks are primarily argillites and quartzites whereas the volcanic rocks are andesites and dacites. All have a general northwesterly trend.

The diorite is a fine-grained gray rock that forms irregular dykes and plugs. The Mabel Mine, about which little is known, is located in this rock type.

The serpentine intrusives are sill-like bodies that enclose a thick band of dacite in the southeast part of the claim group. These formations strike northwest and dip at about 25° to the northeast. The enclosed dacite is medium-grained, pale gray-green in colour and forms the host rock for most mineral occurrences in the Lexington claim group. It is well sericitized and locally sheared.

The dacite, where explored by diamond drilling, is mineralized with disseminated pyrite and chalcopyrite. The band of dacite is about 600° thick and has been traced on surface for 6800°.

The better concentrations of copper mineralization appear to be confined to the upper and lower dacite-serpentine contacts. They are reported to be associated with shear zones although none have been positively identified. The old City of Paris mine explored and developed small pods of chalcopyrite mineralization associated with the upper contact of the dacite and serpentine.

Late augite porphyry dykes intrude the dacite and appear to be spatially related to copper-bearing zones in the district. They are termed pulaskite dykes.

Before the present program was initiated in 1969 the hangingwall limit of the dacite was thought to be the best locus for copper mineralization but the recent drilling has shown that the footwall is also favourable.

of Paris workings, eleven have intersected an apparently continuous mineralized zone as follows:

D.H.	Seaston	Core Intersection	Z Cu	02. Au	02. Ag
1	20+00N	64.0	0.61	0.015	0.15
28	整.有	30.0	0.30	0.003	0.03
29	9.8	10.0	0.42	0.003	0.04
11	18+00N	53.0	0.46	0.050	0.27
13	**	64.0	1.08	0.090	0.14
32	6-8	39.0*	0.40	0.004	0.04
4	16+00N	80.0	1.16	0.250	0.09
21	14+00N	118.0*	0.52	0.060	0.09
33	春春	28.0*	1.08	0.018	0.14
25	12+00N	30.0	0.36	0.016	0.09
26	10+00N	56.0	0.99	0.076	0.16
Average	(weighted by	P SASS			
	section)	63.01	0.74	0.073	-0.121

These holes representa

of mineralization

The pipe-like zone, which lies on the footwall of the dacite band, strikes northwesterly, dips to the northeast and plunges experient dimensions are length to the southeast at 20°. Its length is 1300 feet, width is 180° and average thickness 63.0°. This indicates 1,474,200 tons of mineralized material averaging 0.74% copper, 0.073 oz. Am and 0.121 oz. Ag.

D.D.H. 27, at the southeast and of the mineral zone, projected intersected about 200° of a through-going pulaskite dyke in the area necessarily the mineral zone projects. This does not close off the mineral zone in this direction. At the northwest end the mineral zone projects to surface, but is not visible due to the presence of overburden.

## GEOPHYSICAL SURVEYS

tractors, conducted an induced polarization survey over part of the southeactern sector of the property Line spacing was 400° and electrode spacing and station intervals were 200°. Results of the survey indicated that about 70% of the area covered is underlain by rocks exhibiting chargeabilities in excess of 6.0 milliseconds and ranging up to 26.0 milliseconds.

Areas with chargeabilities in excess of 10.0 milliseconds (considered to be relatively high) are shown on the accompanying claim location map (Fig. 2). They are designated Zones A, B and C.

A previously conducted magnetometer survey shows that much of the property exhibits intensities in the 1000-2000 gamma range.

These zones of high magnetic intensities are presumed to be underlain by serpentine.

The area underlain by diorite is characterized by low IP chargeability and high resistivity.

The three major zones of high chargeability are dis-

Zone A This zone has a length of 3000° and is flanked on the north and south by magnetic features which correspond to bodies of serpentine. This zone coincides closely with an area underlain by dacite that is known to contain disseminated chalcopyrite. The two branches at the south end of the zone correspond with the upper and lower contacts of the dacite band. Concentrations of mineralization are known to exist on these contacts.

Zone B This zone is underlain by dacite and serpentine on the south and diorite on the north. Chargeabilities in excess of 20 milliseconds are noted and most of the zone lies within areas of low resistivity. One hole (D.D.H. 3) has been drilled on this zone and returned low copper values. Additional exploratory work is warranted here.

Zone C This zone trends southwesterly and lies northeast of the hangingwall serpentine band. It is not delineated on its north side and appears to be underlain by andesite, quartzite and argillite. This anomaly may be attributable to the argillite.

Large magnetic anomalies have been outlined on the claims to the northwest (Lex group) and to the northeast (Lincoln group). The areas in which the anomalies are located have not been geologically mapped or covered by an induced polarization survey.

## GEOCHEMICAL SURVEY

A geochemical survey conducted by Lexington Mines Ltd.

in 1968 disclosed the presence of a significant copper soil anomaly

was

over the mineralized dacite where the present drilling program is being

carried out. This anomaly was confirmed by further work in 1969.

Some copper soil anomalies were found on the Lex group where values were in the 60-90 ppm range. (Background is considered to be around 30-40 ppm copper.)

Random high readings were found in the northwest portion of the Lexington group. Samples were taken on lines spaced 800° apart.

Additional sampling is required here.

#### CERTIFICATION

I, Roy William Phendler, of the City of Vancouver in the Province of British Columbia, HEREBY CERTIFY AS FOLLOWS:

- 1. That I am a registered Professional Engineer in the Province of British Columbia, No. 4421.
- 2. That I am a graduate of McGill University, Montreal, Quebec. with a Bachelor of Science degree in geology.
- 3. That I have practiced my profession as geologist continuously for the past seventeen years in Quebec, Ontario, Saskatchewan and British Columbia in Canada; in some of the western U.S.A.; Mexico; and Feru and Colombia in South America.
- 4. That I have no interest directly or indirectly in the mineral claims of Lexington Mines Ltd., nor do I expect to receive any.
- 5. That the information contained herein was compiled during examination of the ground on February 14th, April 9-10th, May 6-7th and June 10th, 1970.

R.h. Pleadler, P. Ing

R. W. ESsteller, B.Sc., P. Eng.

R.W. PHENDLER

Vancouver, Canada.

August 28th, 1970.

