

GM 36739-A

GEOLOGICAL REPORT

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Énergie et Ressources
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Québec 

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TO WHOM IT MAY CONCERN

Ministère de l'Énergie et des Ressources

Gouvernement du Québec

DOCUMENT 101-1010

DATE:

This is to certify:

No. Q.M.:

36739-A

THAT I, the undersigned Theodore Koulomzine, residing at 218 Ninth Street, Val d'Or, Que., and having my place of business at 1263 Seventh Street, Val d'Or, am a consulting engineer, geologist and geophysicist.

THAT I graduated from Paris University (Sorbonne) in 1928, with a degree of Licencié ès Sciences, and from Strasbourg University in 1929, with a degree of Ingénieur E.N.S.P.

THAT I am a member of the Corporation of Professional Engineers of the Province of Quebec, duly licensed to practice the engineering profession in this province.

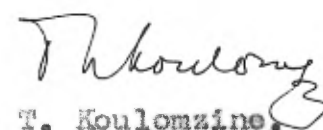
THAT I have no direct or indirect interest, either present or expectant, in the mining claims forming the property of Quebec Moly Mining Corp. in Preissac Township, nor in any properties of that company, nor in any other properties in the district, nor in the shares or securities of Quebec Moly Mining Corp.

THAT I am familiar with other molybdenite deposits in the vicinity, in particular the deposit located on the adjoining property of Anglo American Molybdenite Mining Corporation which I have examined both on surface and underground.

THAT the "Report on the property of Quebec Moly Mining Corp." attached herewith and dated November 15th, 1961, is based on the study of all government geological maps and reports as well as other publications dealing with the economic geology of the district and on a personal examination of the property and of the rock outcrops located thereon.

THAT I have visited the property and performed the examination of the ground on October 24th and November 2nd, 1961.

Dated at Val d'Or, P.Q.,
this 15th day of November 1961.


T. Koulomzine.

L. SC. & ING. E.N.S.P.
PARIS & STRASBOURG UNIVERSITIES
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Report on the property of
QUEBEC MOLY MINING CORP.,
Preissac Twp., Abitibi-East Co., P.Q.,
by T. Koulomzine, L.Sc., P. Eng.

November 15, 1961.

INTRODUCTION

The mineral property studied in this report consists of 61 mining claims located in the south central portion of Preissac township. The southern limit of the group follows the boundary between Preissac and Cadillac townships. On the northwest, the claims adjoin the holdings of the Anglo American Molybdenite Mining Corporation, a property on which extensive diamond drilling has indicated over 2 million tons of molybdenite-bismuth ore and where underground development is presently in progress.

To the extent of about 90% of its area the Quebec Moly claim group is covered by the waters of Lac Preissac (Kewagama Lake). The balance of the ground consists of 3 lots on the mainland and of two large and a number of small islands spread over a large section in the center of the property.

In their present stage the claims held by the Quebec Moly Mining form an undeveloped molybdenite prospect. Apparently no surface trenching and definitely no diamond drilling has ever been done on the property. However, from the geological point of view the ground has considerable value as it straddles the same geological contact in the vicinity of which the Anglo American deposit was discovered. Interesting geological information has been provided by a ground magnetometer survey performed over the ice in the early months of 1961.

The aim of this report is to describe the geology of the ground and recommend a comprehensive diamond drilling program in order to explore the mineral potential of the property.

PROPERTY, LOCATION AND ACCESS

The claims held by the company are enumerated in detail on the list attached to this report. They are contiguous and form a compact block extending for $3\frac{1}{2}$ miles from east to west and for $1\frac{1}{4}$ to $1\text{-}3\frac{1}{4}$ miles north-south.

The Quebec Moly claim group is easy of access as it is located approximately 5 miles north of the town of Cadillac, which is on the Senneterre-Moranda branch of the Canadian National Railway and is connected by paved highways to Montreal, Ottawa and Toronto, respectively distant 370, 330 and 460 miles. The adjoining Anglo American Molybdenite Mining Corporation is accessible from Cadillac by a good gravel highway; from there on the various islands and the mainland holdings of Quebec Moly Mining Corp. can be reached by boat.

Major power lines of the Quebec Hydro and Northern Quebec Power Co. Ltd. pass just north of the town of Cadillac while a medium-voltage line extends from Cadillac to the Preissac Molybdenite Mines Ltd. (former Indian Molybdenum property) passing only 2 miles to the west of the Quebec Moly holdings.

TOPOGRAPHY AND GENERAL GEOLOGY

The topography of the ground is flat, the islands not exceeding the height of 50 feet above the lake level. The mainland portion of the property occupying lots 29, 30 and 31 of range I, Preissac township, is also flat and low. The Kewagama Lake is apparently shallow, with probably only little silt and overburden covering the rock formations as evidenced by the fact that at least 15 small reefs protruding to the surface of the lake are scattered all over the claim group. The area of the property is covered by map No. 32D/8 of the National Topographic Series, still in preparation but presently available in the form of an "Advanced Print" on a scale of 1:50,000. Stereoscopic coverage air photographs can be purchased through the National Air Photographic Library, Ottawa.

The general geology of the ground appears on several published government geological maps and is described in government reports of which the most important are:

1) G.W.H. Norman: "La Motte Map-Area", Geological Survey Paper 44-9, and the attached Preliminary Map 44-9A, "La Motte (West Half)", $\frac{1}{8}$ mile to the inch.

2) K.R. Dawson: "Structural Features of the Preissac-LaCorne Batholith, Abitibi County, Quebec", Geological Survey of Canada, Paper 53-4, with 2 maps attached, drawn at a scale of 2 miles to the inch.

Of further interest are the following publications:

a) G.W.H. Norman: "Indian Molybdenum Deposit", paper appearing in "Structural Geology of Canadian Ore Deposits", volume published by the Canadian Institute of Mining & Metallurgy, Montreal, 1948.

b) R.B. Rowe: "Pegmatitic Beryllium and Lithium Deposits, Preissac-LaCorne Region, Abitibi County, Quebec", Geological Survey of Canada, Paper 53-3.

c) "Preliminary Aeromagnetic Map, La Motte", 23G, Geological Survey of Canada, Paper 51-2.

GENERAL GEOLOGY

First of all, it must be emphasized that rock outcrops within the limits of the Quebec Moly holdings occupy less than 1% of the area. In the absence of diamond drilling any geological study of the ground is automatically limited to generalizations gathered from the area as a whole and to the interpretation of the results of the ground magnetometer survey. On the basis of the facts known, a variety of working hypotheses on the ways to explore the property can be formed. In the present state of our knowledge, these hypotheses would have comparable value. For the purpose of this report, I have condensed to its essentials the geological information available and have formulated a program of exploration that would have the maximum chances of success, no matter which of the working hypotheses is chosen.

The general geology of the area is dominated by the presence of a cluster of granitic batholiths along the edges of which molybdenite, lithium and beryllium deposits have been discovered. The entire batholithic complex spreads over 36 miles in an east-west and over a maximum of 15 miles in a north-south direction. This batholithic complex is formed by acid granites which in early Precambrian times, presumably during the Algonian orogenic period, intruded the greenstones and sediments as well as the pro-granite peridotite sills of the very early Precambrian formations.

The batholithic complex appears to be divided into three main masses. The Preissac batholith proper, which concerns us in particular, is 10 miles long and up to 4 miles wide.

At a much later date, during the Huronian-Grenville orogeny, the area has been subjected to the intrusion of diabase dykes having a remarkable linear persistency. These are more specifically known as Keweenawan diabase dykes.

For the purpose of the study of the Quebec Moly holdings it is essential to know:

1) That within the immediate area of the property the granites of the batholith apparently intrude only old peridotites rather than volcanics or sediments.

2) That the intrusive rocks of the batholith are highly differentiated, with at least three types of rocks to be distinguished, i.e.:

a) biotite granites and granodiorites grouped together by G.W.H. Norman under Nos. 7 and 7b;

b) muscovite and biotite granites of the main core of the Preissac batholith (No. 8 on Norman's map), and

c) muscovite rich, slightly pegmatitic granites containing considerable quartz. These appear only as dykes, sills and contact masses and are differentiates of the granite.

3) That molybdenite mineralization favours the muscovite rich pegmatitic granites, although it also occurs in veins cutting biotite granites.

4) That from the magnetic point of view all the granites of the region are nonmagnetic and appear as "magnetic lows", while peridotites of the pre-batholith rocks are strongly and irregularly magnetic.

5) That, generally speaking, a nonmagnetic area should not be automatically interpreted as underlain by granite, because numerous sedimentary and volcanic rocks of the district are also nonmagnetic. On the other hand, magnetic areas exclude the possibility of encountering Preissac-type granites under them.

The careful examination of the outcrops appearing on the islands and mainland generally confirmed the data presented on Norman's map (Geological Survey Map No. 44-9A). I wish to report, however, that the granites marked 7b on the large island contain both biotite and some muscovite, and in hand specimens seem to be practically identical to the biotite granites underlying pegmatites at the Anglo American mine. It must be assumed, therefore, that the classification of the granitic rocks of the large island into the 7b-group has been done by Norman on the basis of microscopic identification.

ECONOMIC GEOLOGY

As already mentioned above, the molybdenite-bismuthinite mineralization is known at the neighbouring Anglo American property to occur mainly in a pegmatitic muscovite bearing granitic mass which lies partly on the contact between the muscovite-biotite granite and the overlying mantle of peridotite, and partly intrudes the peridotites. The Anglo American deposits are, therefore, on the roof of the freissac batholith, near its southern contact.

On the Preissac Molybdenite ground, formerly Indian Molybdenum, the ore mineralization is concentrated in a steeply dipping muscovite granite zone occurring at the contact of two granitic masses.

On the Quebec Moly property there are no known showings of molybdenite. This can be easily explained by the extreme paucity of outcrops. However, it may be of some interest to mention here that I have noted the presence of several quartz stringers in the granite of the large island. These stringers are dipping southwest, towards the contact. No molybdenite was seen in these stringers.

A careful study of the ground magnetometer map prepared by G. R. Dumont leads me to interpret the results as follows:

An almost straight line extending from the middle of the north boundary of claim 178649, Cl. 5, to the intersection of the shore of the lake with the surveyed line, between ranges I and II, represents the main southern contact of the Preissac batholith which occupies, therefore, about 200 acres of the property.

The ground southwest of this magnetically indicated contact line contains several zones of low magnetic readings. These areas can be interpreted as underlain either by granite or by other nonmagnetic rocks. Due to the uncertainty of this magnetic interpretation and the fact that at least some of the granitic masses indicated could be of the non-productive, biotite variety, it seems that the main exploration should be concentrated on the main contact, while the other nonmagnetic zones could be tested only by isolated drill holes.

RECOMMENDATIONS

The search for the extension or the reoccurrence of the Anglo American ore zone within the limits of the Quebec Moly Mining Corp. holdings is the most logical and the most promising exploration step. In order to implement this search a program of drilling should be undertaken from the ice of the Kewagama Lake, along the magnetically indicated contact. It seems that the best way would be to drill holes at 50° to 60° from southwest to northeast. The first exploration holes should be spotted at 1,000 or 500-foot intervals. Two of the holes could be started from a cluster of 4 small islands located at the boundary of claims 178649, Cl. 1 and 178648, Cl. 5. Others will have to be drilled from the ice.

The preliminary exploration of the almost 1-mile long contact will require from 5 to 8 drill holes which should be extended to a depth of 1,000 feet.

Magnetically negative anomalies in the northwestern section of the property and immediately to the north of the U-shaped peridotite island would warrant at least one 500-ft. exploratory hole each. Their main purpose would be to investigate the nature of the rocks underlying the anomalies.

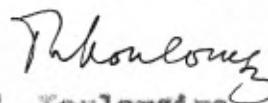
The peridotite-granite contact of the largest island would merit two short holes starting from the peridotite peninsula and directed towards the northeast.

The recommended drilling, which represents a minimum exploration program, would require between 10,000 and 15,000 feet. Naturally the discovery of any molybdenite in the

drilling will necessitate considerable additional work. The boring of 10,000 to 15,000 feet will require the expenditure of \$30,000 to \$55,000. Such an expenditure is well warranted to investigate the mineral potential of a geologically well-located property, adjoining the holdings of a mine of the size of Anglo American. The discovery of a molybdenum deposit on the Quebec Moly ground, would handsomely repay the exploration outlays.

Respectfully submitted,

Val d'Or, P. Q.,
November 15, 1961.


T. Koulomzine.

List of mining claims held by Quebec Moly Mining Corp.
in Preissac Twp., Abitibi-East Co., N-W. Quebec.
As of November 15, 1961.

<u>Dev.</u> <u>License</u>	<u>Claims</u>	<u>Location</u>	<u>Area</u>	<u>Expiry Date</u>
173097)	173097, Cl. 1	Water	40	20/III/62
)	" Cl. 2	"	40	"
)	" Cl. 3	"	40	"
)	" Cl. 4	Lot 29, R.I.	84	"
174232	174232, Cl. 1-5	Water	200	20/III/62
174233	174233, Cl. 1-5	Water & Islands	200	"
174234	174234, Cl. 1-5	" "	200	"
174235	174235, Cl. 1-5	Water	200	"
174236	174236, Cl. 1-5	Water & Islands	200	"
174237)	174237, Cl. 1	Lot 30, R.I.)	78	20/III/62
)	174237, Cl. 2	Lot 31, R.I.)	78	"
174238	174238, Cl. 1-5	Water & Islands	200	"
178645	178645, Cl. 1-5	Water	200	22/XI/61
178646	178646, Cl. 1-5	Water & Islands	200	"
178647	178647, Cl. 1-5	" "	200	"
178648	178648, Cl. 1-5	" "	200	"
178649	178649, Cl. 1-5	" "	200	"

Total number
of claims.....61

Total
Acreage...2560

All these claims are held under Development Licenses which grant mineral rights to all minerals. They are registered on the books of the Quebec Department of Natural Resources in the name of J. R. Kentish. The mineral rights are renewable from year to year on payment of a \$10 fee per Development License, a rental of 25¢ per acre and the performance of assessment work at a rate of 25 days per each 40 acres. The granting of renewals is automatic and statutory providing assessment work has been performed, the renewal application filed not later than 10 days after the expiry date and the above conditions fulfilled. By paying penalties renewals can also be obtained without performance of assessment work.

J. Houlouez