GM 21207

REPORT ON GEOLOGICAL AND GEOCHEMICAL SURVEYS

Documents complémentaires

Additional Files





Licence



License

Cette première page a été ajoutée
au document et ne fait pas partie du
rapport tel que soumis par les auteurs.

Énergie et Ressources naturelles
Québec

REPORT ON THE MONT J. CARTIER AREA

GASPE, QUEBEC.

22-A-13

Ministère des Richesses Naturelles, Québec
23 NOV 1967
SERVICE DES GITES MINÉRAUX
No GM- 21207

PUBLIC

CONTENTS

	Page
RESUME (en francais)	1
ABSTRACT	1
INTRODUCTION	1
GENERAL GEOLOGY	2
Ordovician	3
Post-Ordovician-Devonian	4
Rock Relationships	5
GEOCHEMISTRY	8
ECONOMIC GEOLOGY	9
CONCLUSIONS & RECOMMENDATIONS	9
APPENDIX	A
Location & Access	A
Ownership	A
Field Methods	B
Acknowledgements	C

ATTACHED MAPS:

Geological Map	1":1320'
Geochemical Map	1":1320'
Area "A"	1":400'
Area "B"	1":400'
Area "C"	1":400'
Traverse Map	1":1320'

reduced to 2640' (see PAGE 6)

RESUME

Le montagne J. Cartier et ses environs au nord sont mis sous par une complexe granitique. Le contact entre ce granit et les roches sedimentaires est en dehors de la proprieté J. Cartier. Les mineralisations molybdenique dans le granit et les roches sedimentaires sont limitees sauf pour une zone delimite par des methodes geochemiques. Cette zone est pres d'une faille. Il est recommende de faire le geologie en detaille et d'appliquer des methodes geophysiques. Le reste de la proprieté ne justifie pas en plus de travail.

ABSTRACT

Mt. Jacques Cartier and its surroundings to the north are underlain by granitic rocks. The contact between the granite and the favourable sedimentary country rock lies outside the claim area. The molybdenite occurrences present in the granite are small and insignificant. One area outlined by soil geochemistry is anomalous in molybdenum and follow-up work is warranted. This should consist of detailed mapping and ground geophysics. All other claims have no merrit and should be allowed to lapse.

INTRODUCTION

The property on the Tabletop Mountain in Bolbuisson Township, Gaspe, Quebec, consists of three groups: the Silver-Hen Group, the Cyr Group and the Cartier Group. The first group is owned by Silver-Hen Mines Ltd., Toronto and is optioned to the Keevil Mining Group, while the latter two groups are holdings of the Keevil Mining Group.

These three groups of contiguous claims are treated as one unit. They all fall under the Canex-Keevil general Gaspe Operator's Agreement, 1965.

The topography of the Tabletop Mountain is rugged and access is difficult. A four-wheel drive road leaves Mt. St.Pierre and is used to service the fire tower on the Mt. J. Cartier. Elevation differences range up to 1500 feet. Eluvium is extensive but not deep except in the valleys. Talus is well developed on the mountain slopes. The higher ridges show frost heaved soils. Vegetation is stunted and very sparce. All these features are indicative of a semi-arctic environment.

Preliminary geological and geochemical surveys were carried out by the Keevil-Canex organizations in 1965 and 1966. The Keevil Mining Group flew an airborne magnetometer survey in 1966. These programmes, and the further development of Wexford Mines indicated that more extensive exploration was warranted.

Copper mineralization in this part of the Gaspe peninsula occur in hornfelses, in skarn zones associated with felsite porphyries and granitic intrusions. The objective of this summer program was to outline areas of geological interest (hornfelses, skarns) and to determine the degree and extention of the molybdenite mineralisation. In order to accomplish this objective a geological program was laid out to locate the contact between the Tabletop granite and the sedimentary host rock, and a geochemical program was planned to outline areas of molybdenite mineralization.

From the beginning of the field season it was clear that the southeast corner of the property did not warrant the amount of work planned for. Emphasis was therefore shifted to the remainder of the property. However, results of the Cartier Group are included in this report for the purpose of general record. Moreover, it forms an integral part of the Tabletop area.

This report describes the results of this program. It commences with the general geology, the petrology and relationships between rock formations, followed by a discussion of the geochemistry and economic geology. The conclusions and recommendations are preceeding the appendix. The latter contains detailed information on access, ownership, field techniques and acknowledgements.

GENERAL GEOLOGY

The property is underlain by a granitic complex which intruded into argillaceous, silty and calcareous sediments of a probable ordovician age. Development of contact metamorphic zones in these sediments is common. The granitic complex is a part of the so-called Tabletop granite. The contact between the intrusives and the surrounding sedimentary rocks is outside the property. Metamorphic remnants of the country rock occur in the granite as roof pendants, xenoliths or assimilation zones (hybrid rock). These remnants are especially common in the central part of the property where they form an east-west zone connection the sediments at both sides of the Tabletop granite. Although there is some topographical evidence for faulting, no confirmation of (down) faulting could be obtained in the field.

The most characteristic feature of the Tabletop granite is its extreme compositional variability and the absence of any primary foliation. Its eastern contact dips moderately steeply to the east while its western contact is assumed to dip to the west. Characteristic for the altered country rock is the development of stubby amphibole often with mafic deficient or felsitic halos.

Ordovician

The country rock consisting of metasediments and metavolcanics is probably Ordovician in age. They are mainly argillites siltstones, limestones and volcano-dioritic flows. All these rocks have been altered and metamorphosed by the Tabletop granite into hornfelses, metasediments, metavolcanics and meta-diorites. They occur as remnants in the granites.

The hornfels is a very fine grained to aphanitic rock. It is dark brown on the weathered surface with locally a faint lamination. Freshly broken, it is black with brown tinge. The rock is hard, silicious and in places has numerous quartz stringers at various angles. The original composition of the hornfels was argillitic.

The meta-sediment is sometimes associated with the volcanic flows. It is a massive fine grained and granular rock. Dark grey to black, it consists of biotite and amphibole (40-50%) and feldspar. Quartz could not be identified due to grain size. In places porphyroblasts of dark green amphibole surrounded by narrow rims of felsic material occur in the sediments. The original rock was probably a greywacke.

The meta-volcanic flows are dark grey to grey green, fine grained and heteroblastic. They consist of mafics (40-50%), and phenocrysts of euhedral white feldspar (up to 4 mm) and porphyroblasts of stubby, dark green amphibole (up to 5 mm). The latter is surrounded by a halo deficient in mafics. Disseminated throughout is fine pyrite up to 1%. Associated with the flows are meta-diorites. These meta-diorites are medium to coarse grained, composed of euhedral white feldspar (plagioclase?) and amphibole-biotite. In places the mafics cluster together giving the rock a spotted texture. Indication of local alteration are the presence of red feldspar (K-feldspar? - pink granite) and an interstitial, brown translucent mineral. The latter could not be identified. Quartz is present in varying amounts but always less than 10%.

Post-Ordovician-Devonian

The Tabletop granite is presumably Devonian in age. In the Cartier area it intrudes into Ordovician sediments. Petrographically the granite has a complex composition. It consists of two phases, the grey granite and the pink granite. The composition of the grey granite is consistent. The pink granite, geographically the most dominant, is extremely variable over short distances.

The grey granite is a medium to coarse grained rock, grey in colour. The texture is granitic, equigranular, and it is composed of feldspar (70-80%), quartz (10-15%) and biotite-amphibole (10-15%). The mafics are finely distributed throughout and give the white feldspar a grey appearance.

The pink granite underlying 75% of the property is an extremely variable rock. Changes in colour, grain size and mineral composition occur over distances of one hundred feet or less without any local trend. The colour ranges from deep pink to pink-grey; grain size varies from fine to medium grained to medium coarse grained and porphyritic. Compositional changes can be expressed in percentage of minerals present, either mafics over quartz or, within the mafic itself, biotite over amphibole. The main constituents of the granite are feldspar (40-80%) mainly K-feldspar and minor plagioclase, quartz (5-35%) and biotite-amphibole (1-40%). Accessories are magnetite or hematite. In general the amount of mafics varies inversely with the amount of quartz and with grain size. The mafics decrease with increasing distance from the contact with the country rock. White feldspar is locally present sometimes as Rapikivi textures.

There are two major varieties and one sub-variety. The major varieties are the mafic deficient and the mafic abundant ones. The sub-variety falls under the mafic abundant one.

The mafic deficient granite - This is a medium and deep pink coloured variety consisting of red feldspar and quartz and less than 2% biotite-amphibole. Quartz and feldspar occur as graphic intergrowths.

The mafic abundant granite has two types, the pink granite in sensu strictu and the pink-grey granite.

The pink granite in sensu stricto - In general medium grained with 50-60% pink feldspar, mainly K-feldspar and some plagioclase, 15-25% quartz and 10-15% biotite-amphibole. In places the texture is porphyritic.

The pink-grey granite - The main characteristic for this granite is its "bleached" appearance, grey-pink. It has 50-60% feldspar, 10-20% quartz and 10-35% biotite-amphibole. Grain size varies more than in the other varieties.

To unravel the petrology of the Tabletop granite more detailed work has to be done on mineral ratios and grainsize.

The hybrid rock is a transitional phase from granite to a meta-country rock. It is a fine to medium grained granular rock, grey in colour, composed of biotite-amphibole (20-40%) and feldspar and (minor) quartz (60-80%). As in the metavolcanics, stubby amphibole is quite often surrounded by a halo deficient in mafics. Porphyroblasts of pink feldspar occur in varying amounts indicating the transitional stage of this rock. The hybrid could either have been formed by contamination of the pink granite or by granitisation of the metavolcanics.

A pegmatitic variety of the granite occurs 4000-feet northwest from the bend to the south on the Cartier road, just north of a small lake. Crystals up to one inch were observed. The rock appears to be mafic deficient.

A diabase dyke is exposed in the grey granite about 4000-feet northeast of the fire tower on the J. Cartier Mountain. The dyke is dark grey green, aphanitic and locally porphyritic in euhedral feldspar. It carries up to 1% pyrite.

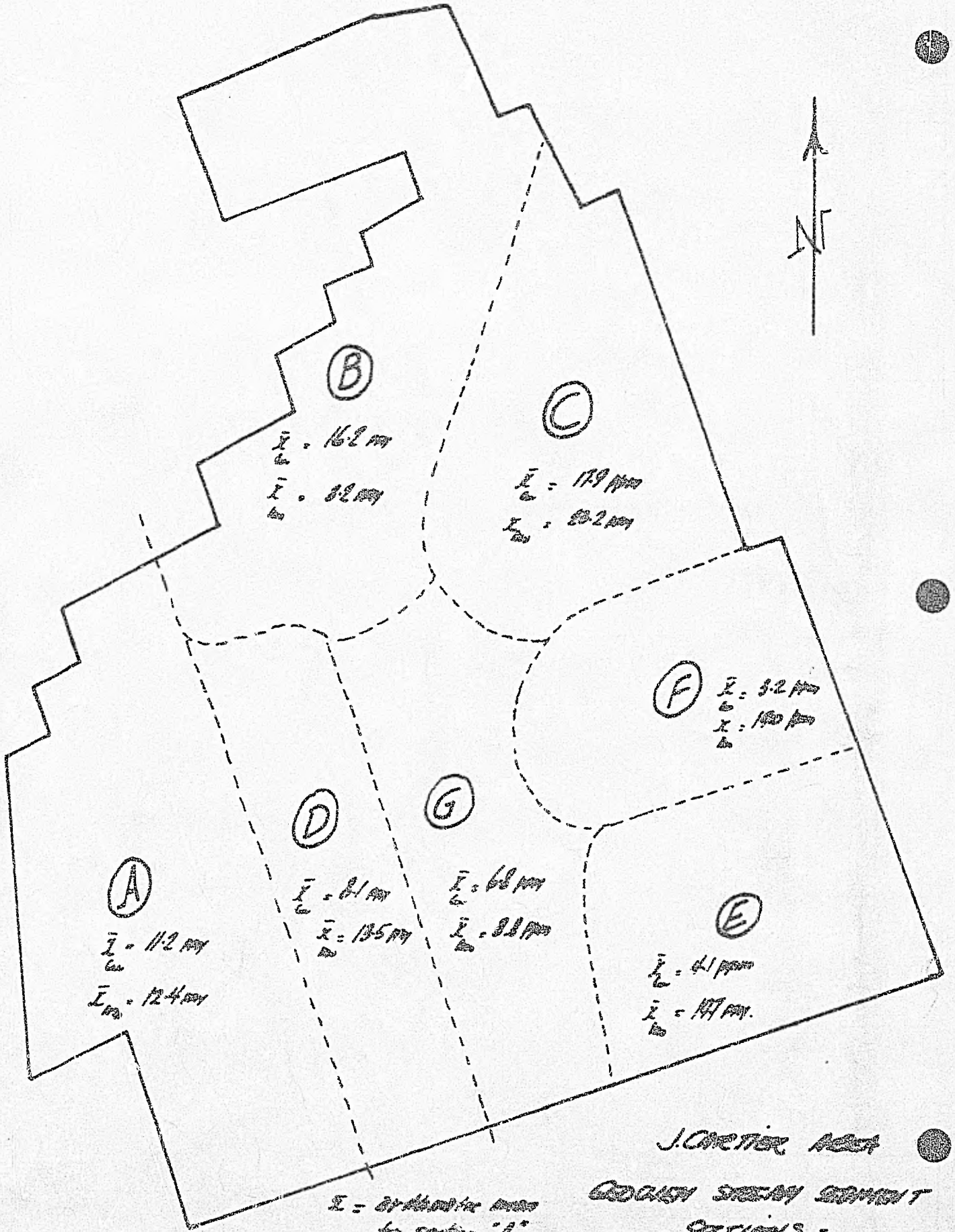
Quartz veins and aplitic dykes were observed in all rocks. Sizes and widths were, however, not extensive enough to map these structures.

Rock Relationships

The inter-relationships of the metamorphic units is not known. Field evidence indicates close association of the meta-volcanics and meta-diorites suggesting the diorite to have been a coarser phas of the flows and not a more basic phase of the granitic complex. East of the property the flows are overlying hornfelses, but on Mount Auclair hornfelses are overlying the meta-diorites. It seems more likely that the volcanic flows are intercalations within the sedimentary sequence and not the other way around.

The pink granite is the youngest rock except for the pegmatites and other dykes. Pink feldspathic and granitic dykes, veinlets and "granitisations" occur in every other rock. Geographically the "true" granitic varieties (the pink granite in sensu stricto and the mafic deficient granite) seem to occur predominantly in the valleys while the transition types, and others seem to prevail near the contacts with the country rock and on the hills. This supports the presumption that the granitic complex is just barely being exposed by erosion.

The grey granite predates the pink granite and is probably related to it. It shows slight pink feldspathization. Its relationship with the sediments is not known due to the absence of contacts.

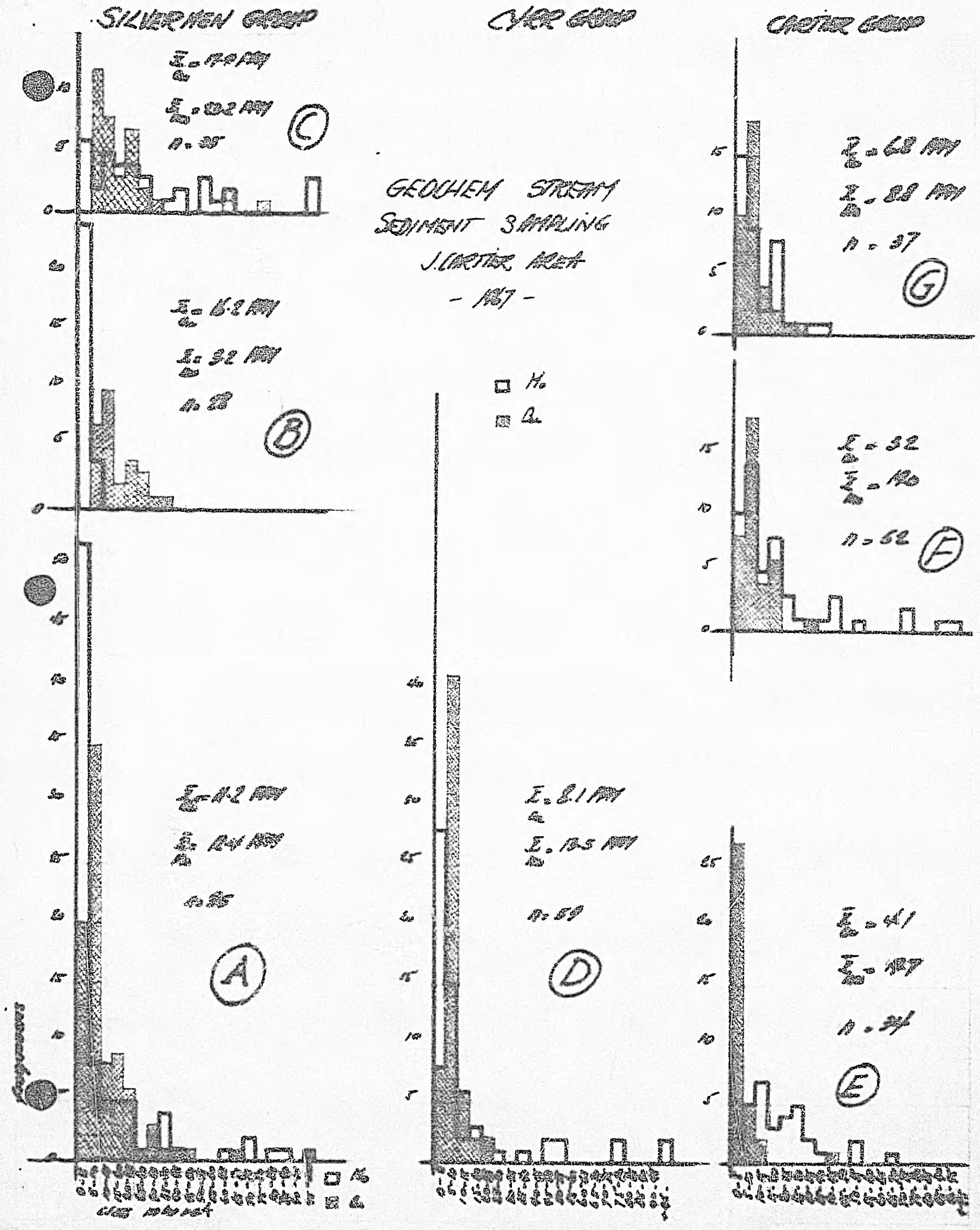


J. Carter Acct

Ecology Survey Exhibit

- Sections -

1" = 185' reduced to 1:640'


SILVERTON GROUP
CYPRESS GROUP
CRATER GROUP
GEOCHEM STREAM
SEDIMENT SAMPLING
S. ARCTIC AREA
- 1987 -
H.
L.
A
B
C
D
E
F
G

GEOCHEMISTRY

A geochemical stream sediment survey was carried out to locate areas of mineralization. Samples were taken at 500-foot intervals along streams and assayed for total copper and total molybdenum by Technical Service Laboratories in their field laboratory in Ste.Anne des Monts. Any follow-up work would consist of detail soil sampling and geological prospecting.

The copper values do not vary very much. They ranged between 2 and 110 ppm with a general background of 40 ppm. The overall average (mean) is 9 ppm. The highest individual copper samples come from streams draining the area east of Wexford Mines. There is a gradual increase in the average (mean) sample value to the east-central section of the property coinciding with the highest average (mean) value in molybdenum. Molybdenum does show a much stronger variation. The range for molybdenum is from 1 to 175 ppm with a general average (mean) of 14.ppm. Background for molybdenum is about 10-15 ppm.

From a regional point of view bedrock might be considered relatively homogeneous. Variations in geochem values would therefore reflect variations in metal contents of the granite, and this indicates an increase in average (mean) copper and molybdenum values in a north-easterly direction (Area "A").

On a Local basis the survey outlined three areas of moderate interest:

Area "A"

This area is situated about 2 miles north of the fire tower. It covers the foot of a north-south running ridge. Bedrock consists of unaltered pink granite with local xenoliths of meta-volcanics. An east-west striking south dipping fault occurs in the south half of the area. Soil sampling confirmed the presence of a small, moderately strong Mo anomaly. Prospecting indicated the presence of traces of molybdenite in brown oxidized,pink granite.

Area "B"

This area is to the northwest of the J. Cartier Mountain. It is underlain by pink granite. Although stream sediment sampling showed values up to 189 ppm Mo, soil sampling failed to indicate the presence of anomalous Mo values.

Area "C"

This area is situated just south of area "B". As in "B" it is underlain by pink granite and xenoliths of meta-volcanics. The highest stream sediment sample is 84 ppm Mo. A weak north-west striking soil anomaly exists in part coinciding with the creek. Mapping revealed the presence of traces of molybdenite in a pink granite. None of these showings warrants more work.

ECONOMIC GEOLOGY

Scattered but very small and very low grade occurrences of molybdenite are present on the property. These occurrences are found in the granites, hornfelses and meta-diorites either on joint planes or as disseminations associated with fine fractures. Where molybdenite is present in the granites, the granite oxidizes characteristically limonite-brown. Alteration of the granite itself, however, is not conspicuous.

It is easy to confuse specular hematite in the granite for molybdenite.

CONCLUSIONS AND RECOMMENDATIONS

The area is underlain by a granitic complex containing remnants of metamorphic rocks. Fault structures appear to transect this complex but are very difficult to locate or prove on the ground.

The favourable host rock for copper, a hornfels, is present only locally and not extensive. Molybdenite mineralization is found in several places but only in trace amounts.

A geochemical stream sediment program for copper and molybdenum outlined three areas anomalous in molybdenum. Two were discarded by follow-up work, the third one, Area "A", warrants more work because:

1. Soil sampling confirmed the presence of a moderately strong Mo anomaly.
2. Prospecting indicated the presence of trace amounts of Molybdenite.
3. Mapping located a 20-foot wide fault zone.
4. Rock slides have covered 85% of the bedrock.

The follow-up work should consist of mapping, check soil sampling and geophysical tracing of the east-west fault.

CANEX AERIAL EXPLORATION LTD.

PKG/of

Paul K. Geisterfer

Toronto,
November 6, 1967.

APPENDIX

Location and Access:

The J. Cartier Property is located in the south central section of Boibuisson Township, Gaspe, Quebec. Access can be attained by means of a gravel and bush road from Mont St.Pierre on the coast. A four-wheel drive vehicle is required in travelling this road. Access to the west side can be attained by means of the gravel road to Wexford Mines. Again a four-wheel drive vehicle is required for travelling this road.

Ownership:

The J. Cartier Property consists of three groups of claims:

	Development Lic.	Claims	Expiry Date
The Cartier Group (49 Claims)	228585,	1 - 5	Nov. 29, 1967
	228586,	1 - 5	Nov. 30, 1967
	228587,	1 - 5	Nov. 30, 1967
	228588,	1 - 5	Dec. 1, 1967
	230202,	1 - 5	Dec. 1, 1967
	230203,	1 - 5	Dec. 2, 1967
	230208,	1 - 5	Nov. 29, 1967
	230209,	1 - 5	Nov. 30, 1967
	230210,	1 - 5	Dec. 3, 1967
	230226A,	2 - 5	Nov. 28, 1967
The Cyr Group (25 Claims)	228897,	1 - 5	Dec. 1, 1967
	228898,	1 - 5	Dec. 2, 1967
	228899,	1 - 5	Dec. 2, 1967
	230110,	1 - 5	Nov. 30, 1967
	230211,	1 - 5	Dec. 1, 1967
The Silver-Hen Group (70 + 13 = 73 Claims)	250363,	1 - 5	May 8, 1968
	250364,	1 - 5	May 9, 1968
	250365,	1 - 5	May 10, 1968
	250366,	1 - 5	May 11, 1968
	250367,	1 - 5	May 12, 1968
	250368,	1 - 5	May 13, 1968
	250369,	1 - 5	May 10, 1968
	250370,	1 - 5	May 11, 1968
	250371,	1 - 5	May 12, 1968
	250372,	1 - 5	May 13, 1968
	250373,	1 - 5	May 14, 1968
	250374,	1 - 5	May 15, 1968

	Development Lic.	Claims	Expiry Date
Silver-Men Group (contd.)	250379,	4 - 5	May 5, 1969
	250380,	1 - 5	May 7, 1969
	252971,	1 - 5	May 14, 1969
	252972,	1 - 5	May 15, 1968
	253232,	1 - 5	Mar.18, 1969
	253233,	1 - 5	Mar.17, 1968
	)	224194-1,	
	253234A)	230220-5,	Nov.12, 1967
	)	253234-1,	

Title holder to the Cartier and Cyr Groups is the Keevil Mining Group, Toronto. The Silver-Men Group is owned by the Silver-Men Mining Company, Toronto. This property is optioned to the Keevil Mining Group. All three groups fall under the Canex-Keevil Agreement dated 1965.

Field Methods:

Geology: In order to outline the most favourable areas on the property, the program started with nine widely spaced reconnaissance traverses.

The second phase of the program consisted of geological traverses at 2000-foot intervals and these were followed-up by detail mapping jobs at 500-foot intervals. Contacts were traced where possible.

Geochemistry: Samples were taken at 500-foot intervals along creeks and rivulets. Care was taken to have these samples obtained from the active stream channel. However, creeks are not everywhere present as shown on maps. Moreover, creeks disappear in talus or in swamps and sometimes they do not contain enough fines for a sample. All samples were assayed for total copper and total molybdenum at Technical Service Laboratories' laboratory in Ste.Anne des Monts. Check samples were forwarded to Canex's laboratories in Vancouver.

Soil samples were taken at 100-foot intervals along lines spaced at 200-300 feet. Special care was taken to sample the "B" horison wherever possible.

Over 330 stream sediment samples and over 390 soil samples were obtained during this summer.

ACKNOWLEDGEMENT

The geological field program was carried out effectively under the leadership of Arthur Troup, geologist, who was assisted by Arnold Hodsian, Tim Thomas, Murray Sumner, Serge Lavoie, Peter Apps, David Otterman and Bill Livingstone. It was a pleasure to experience their mutual co-operation.

The geochemical field program was done under the guidance of John Hayman, field manager, who was assisted by B. Neilsen, J. Talbot, G. Cousins, E. Tounissen, R. Wank, V. Ericson, S. Rai and R. Richards. Their long hours of hard work made it possible to evaluate the area according to plan.