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PRELIMINARY REPORT ON THE GEOLOGY OF THE HENDERSON COPPER DEPOSIT

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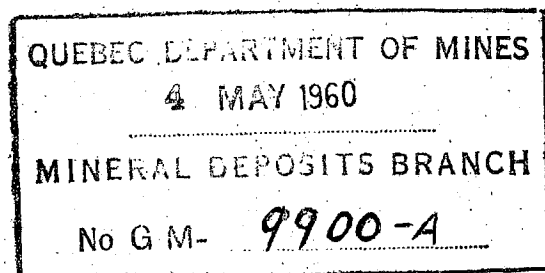
Énergie et Ressources
naturelles

Québec 

PRELIMINARY REPORT
on
THE GEOLOGY OF THE HENDERSON COPPER DEPOSIT
Chibougamau, Quebec.

by
N.B. Vollo

McGill University
Nov. 25th, 1958



GENERAL

The Henderson orebody is located beneath the waters of Chibougamau Lake, Roy Township, in the Chibougamau area of Quebec. Copper mineralization was discovered in the late winter of 1956 as the result of drilling two holes on an electromagnetic anomaly. Approximately 90,000 feet of diamond drilling during the winter of 1957 outlined a major copper-gold occurrence with some minor amounts of nickel and cobalt. Published figures on the company's reserves are 3,207,393 tons of 2.66% copper and .08 ounces of gold per ton. The average nickel content is in the order of .14% with cobalt at .10%.

REGIONAL GEOLOGY

The Henderson orebody is located within the Dore Lake complex of intrusive rocks. The complex is thought to be a layered sill like mass, now folded into an anticline, with its axis trending Southwesterly down Chibougamau Lake. The axial zone of the anticline is intruded by granite, which underlies much of the Southern part of the lake and Gouin Peninsula. The Northern limb of the anticline is best known, and the complex is exposed as a band from two to five miles

wide and twenty-five miles long along the North and Northwest shores of Chibougamau and Dore Lakes. The contact with the volcanics to the North is obscured by strike faulting, and is believed to be near vertical. Layering within the complex on Portage island dips steeply to the North.

The bulk of the complex is composed of Anorthosite, but this gives way near the top to a banded series of gabbros, magnetite rich rocks, and ultrabasics.

The Henderson zone is located on the North limb of the folded complex, entirely within the anorthosite member. It is controlled by a strong shear zone striking North - Northeast and dipping from 25° to 50° East. Most of the ore is located not within the shear, but in a fracture zone subsidiary to it.

MINE GEOLOGY

General

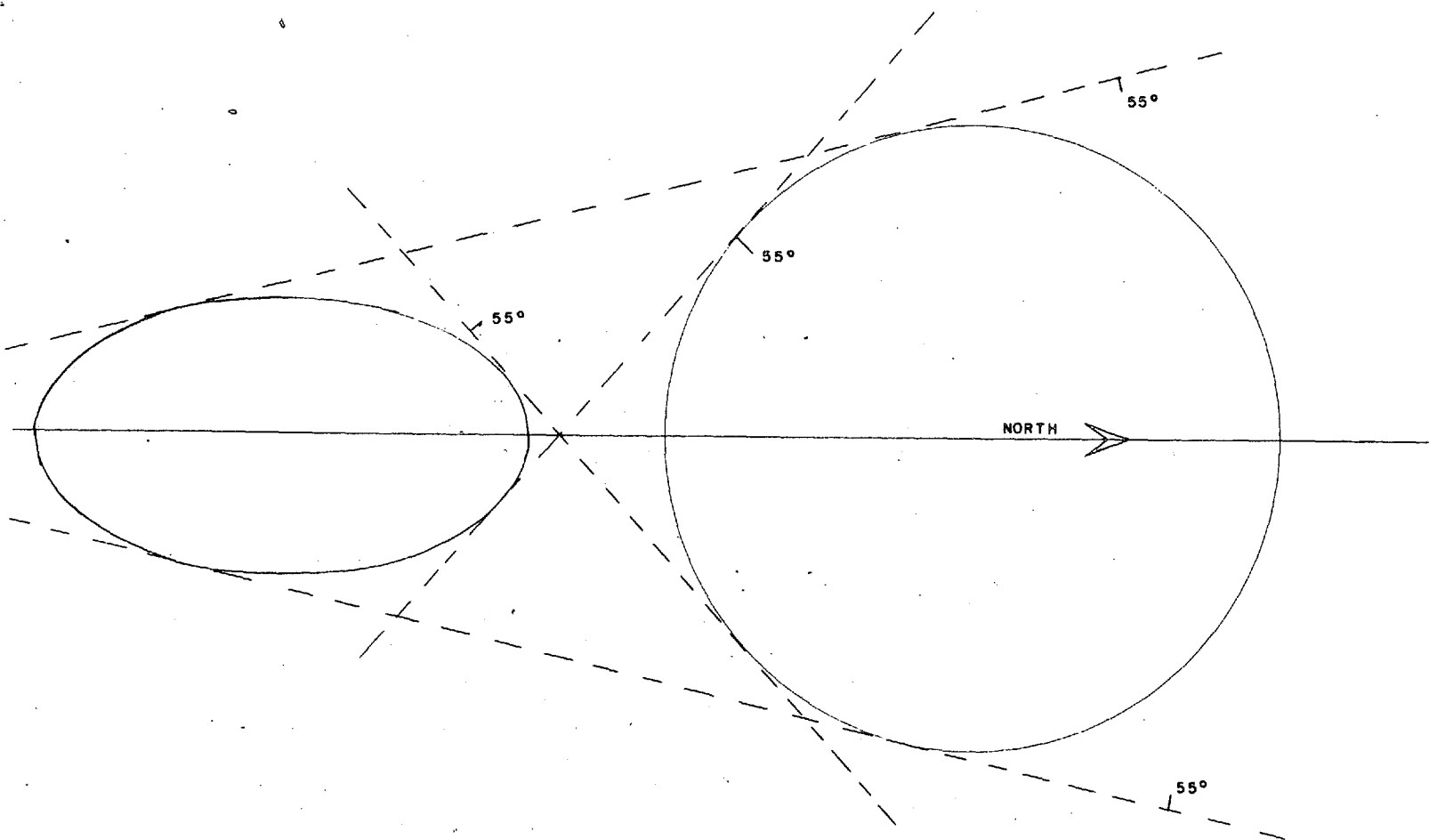
Two main ore zones have been outlined. They are both high temperature hydrothermal replacement bodies, but are markedly different in character, and will be discussed separately as the "A" and "B" zones. The "A" ore is contained within a fracture

system subsidiary to a strong shear zone; the shear zone contains the "B" ore.

Structure

The main shear zone strikes roughly N 15° E and dips about 45° to the East. Within the mine area, however, the dip flattens to about 30°, resulting in a large roll that plunges down the dip of the shear zone. The shear varies in width from 50 to 300 feet, with greatest widths occurring in the flat dipping section. The schistosity as measured in drill core dips from 50° to 60°, which is 20° to 30° steeper than the dip of the shear zone as a whole. Attempts to determine the strike of the schistosity by geometric means are handicapped by the fact that only one inclined hole passing through the shear zone is available. The geometric solution thus yields four possible strikes, and indirect methods must be used to determine the most likely strike.

One such indirect method is based on the assumption that the direction of movement on the shear is parallel to the plunge of the large roll formed by the flat dipping section. The trace of the schistosity on the plane of the shear zone should be normal to this line, and the strike should therefore be roughly North - South. The schistosity must then dip to the East, since a dip to the West would place the plane of schistosity perpendicular to the plane



D.D.H. T-89

D.D.H. T-147

PLAN
SECTION

80°

55°

GEOMETRICAL SOLUTION
FOR
STRIKE OF SCHISTOSITY

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Date:

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of the shear zone.

If this deduced easterly dip is used in conjunction with the geometrical solution, it is seen that the most likely strike for the schistosity is a few degrees West of North. This relationship between schistosity and shear zone indicates thrust movement with a small horizontal slip component. This is confirmed by the 75° to 80° pitch of the lineation on the schistosity planes.

The "A" zone is pictured as an asymmetrical dish shaped fracture zone, convex downwards, lying beneath and merging with the main shear or "B" zone. It differs from the "B" zone in showing very little shearing; it is instead a zone of fracturing, with intense brecciation at the footwall grading out into weak shattering in the hanging wall.

At lake bottom, the "A" zone strikes about N 70° E and dips from 50° to 70° South, with a strike length of about 1600 feet. The zone is curved in such a manner that at a depth varying from 400 to 700 feet it strikes very nearly parallel to the main shear, N 15° E, and dips 5° to 30° East. It merges with the shear zone along strike to the East, and probably down dip as well, but though weakly mineralized, is still open to the West. The strike curves to a more Southerly direction, however, and it is probable

that the two zones merge a few thousand feet to the South.

The magnitude of movement on the "A" zone is in the order of 100 feet as determined from the offset of a distinctive pyroxenite dike cut by it. Movement is hanging wall up, and is probably the same in sense as movement on the main shear. The pyroxenite dike is also displaced by the main shear zone, but the amount of displacement cannot be measured since the hanging wall portion of the dike has not been located. Movement is believed to be much greater than that on the "A" zone.

The "A" orebody is largely confined to the steeply dipping part of the "A" fracture zone, though small shoots do occur in the flat section. The change in dip is fairly sharp, and occurs along a line plunging 15° East. This line roughly forms the bottom of the orebody.

The "B" ore lies within and parallel to the main shear zone, roughly at its center, and is located near the line of intersection of the two zones. The two orebodies together thus have the shape of a skewed "T". The "B" ore pitches about 45° North, roughly paralleling the line of intersection of the "A" and main shear zones

Petrology

With the exception of a few dikes, Anorthosite is the only rock type within the mine area. It is fairly

uniform, but such slight variations in colour, texture and grain size as do exist have led to separation into several varieties. No variety is sufficiently continuous or distinctive to be correlated over more than two or three drill holes.

The bulk of the anorthosite is a coarse grained, creamy white type, with equigranular, "coalescent" texture. Porphyritic varieties have scattered phenocrysts of plagioclase up to 1" in diameter in a coalescent matrix. A type locally termed "tombstone" consists of coarse euhedral plagioclase with the crystal interstices filled by leucoxene and carbonate. All types contain at least 90% plagioclase.

In thin section, the plagioclase is seen to be highly saussuritized, and only in rare cases is it sufficiently fresh for its composition to be determined. The determinations made indicate a composition of about Ab 40 - An 60.

Pink to orange leucoxene is always present as an accessory in the anorthosite. In thin section this is seen to consist of a mixture of reddish brown rutile and fine opaque white leucoxene, often with some ilmenite. It appears that the original ilmenite first breaks down to true leucoxene and that it is in turn metamorphosed to coarse rutile. All stages in the process, from fresh ilmenite to coarse rutile can be seen.

Pyroxenite

A persistent pyroxenite dike crosses the mine area, and is offset by both the "A" and "B" zones. It strikes N 40° W, dips 70° Northeast and is up to 80 feet wide. What appears to be the same dike has been mapped on an island two miles to the Southeast and intersected in a drill hole on a neighboring property about three quarters of a mile to the Northwest. It shows excellent chilled margins with the Anorthosite and is pre-shear and pre-ore in age.

The dike is green, medium grained, massive. In thin section, where fresh, it is composed of about 85% euhedral titanite in a matrix of actinolite and green chlorite, with minor amounts of magnetite. In altered specimens, the titanite is altered to actinolite and antigorite, but the pyroxene outlines are retained. Fine grained opaque or high relief minerals become abundant and probably represents TiO_2 from the original titanite which has separated out in the alteration process.

Other Dikes

A number of narrow dikes were intersected which do not have sufficient continuity to be traced over more than two or three holes. They are variable in appearance, but in thin section all are seen to be composed almost entirely of green chlorite with less than five per cent rutile, titanite, zircon and opaques.

An unusual dike was intersected which in thin

section shows abundant phenocrysts of remarkably fresh, non metamict allanite in a matrix of chlorite. Similar allanite is often found within the "A" ore.

Wall Rock Alteration

Alteration of the anorthosite in the "A" and "B" zones differs considerably, and the two zones will be discussed separately.

"A" Zone Alteration

The "A" zone is characterized by green chlorite alteration of the anorthosite. Due to the lack of shearing, primary anorthosite texture, plagioclase cleavages and crystal outlines have been preserved to a remarkable extent. Orange to pink leucoxene persists in the altered zone even when the anorthosite is completely altered to chlorite.

The "A" zone is decidedly asymmetrical in cross section. Maximum alteration occurs within the ore at the footwall. Towards the hanging wall alteration gradually fades out but is commonly present to a distance of 50 to 200 feet from the hanging wall of the ore itself. At the footwall there is an abrupt transition, usually over a distance of 5 to 10 feet, from extreme chlorite alteration to fresh, unaltered anorthosite.

In thin section the chlorite alteration is seen to consist of completely sericitized plagioclase, with

seams of chlorite along the original plagioclase cleavage or twin planes. The proportion of chlorite to sericite increases from zero on the outer fringes to 100% chlorite within the ore zone itself. The composition of the chlorite also changes, becoming richer in iron towards the orebody.

Actinolite alteration is also a feature of the "A" zone. Masses of nearly pure actinolite are common near and within the orebody, but show no particular orientation or distribution other than a close proximity to strong chalcopyrite - pyrrhotite mineralization. The origin of these masses is uncertain, but contact relationships shown in core favour a hydrothermal rather than an intrusive origin. Microscopically, actinolite alteration consists of about 80% fine acicular actinolite, 20% combined interstitial quartz, chlorite and carbonate.

Within the ore zone apatite becomes common, forming from 5% to 30% of the gangue minerals. It is commonly found as euhedral crystals up to one half inch in length, often cracked and invaded by sulphides. Chlorite, carbonate, quartz and actinolite are other gangue minerals, with chlorite most abundant.

Minor accessory gangue minerals present are biotite, allanite, tourmaline and the ubiquitous ilmenite alteration products, leucoxene, rutile and sphene.

Biotite is found as inclusions in chalcopyrite. Allanite occurs as euhedral non metamict crystals, and has been most commonly observed in apatite rich sections.

"B" zone Alteration

The main shear, or "B" zone, is a zone of shearing and alteration up to 300 feet in width. A fairly consistent, symmetrical, sequence prevails across the zone; from hanging wall to center as follows:

Unaltered anorthosite

Lightly sheared, sericitized anorthosite - 25'

Moderately sheared, black, sericitized
and chloritized anorthosite ----- 50'

Highly sheared, sericite-chlorite-chloritoid
schist ----- 25'

Core of vein material; quartz, ankerite
and siderite ----- 0-20'

Widths given are representative only and may vary considerably for each zone. A similar sequence is found from the core to the footwall of the zone.

The lightly sheared anorthosite is pale yellowish white to very pale green with the anorthositic texture very well preserved, although little or no plagioclase or clinozoisite remains. The rock is composed almost entirely of sericite and calcite, with minor chlorite and clinozoisite. Interstitial grains of orange leucoxene are common.

The moderately sheared anorthosite becomes

dark grey to black in hand specimen, is strongly foliated, but the original anorthosite texture is clearly visible. In thin section it is seen to consist of about 80% sericite which has replaced the original plagioclase. Thin seams of colourless chlorite within the sericite apparently lie along cleavage or twin planes of the original plagioclase. About 10% fine zoisite, quartz and carbonate is present.

The highly sheared anorthosite is a sericite-chlorite - chloritoid schist, with the anorthosite texture completely destroyed. Drawn out streaks and "augen" of orange leucoxene persist, to some extent identifying the rock as original anorthosite. In thin section chloritoid is seen to be scattered with random orientation through a matrix of banded sericite and chlorite. Veinlets and metacrysts of siderite and ankerite are common. In the most intensely sheared and silicified sections, wispy bands of fine brown tourmaline appear.

Variable widths of coarse ankerite and grey quartz may be present at the center of the shear zone. "B" ore mineralisation, where present, is confined to this horizon.

Mineralization

As in other respects, the "A" and "B" zones differ in type of mineralization and metal content.

The "A" zone is characterized by chalcopyrite and pyrrhotite as the chief sulphides.

The metallic minerals present are pyrite, chalcopyrite, pyrrhotite, pentlandite, cobaltite, magnetite and sphalerite. Arsenopyrite was noted in one polished section, but is believed to be very rare.

The nickel and cobalt content of the "A" zone is present as the minerals pentlandite, linnaeite and cobaltite. Nearly all pyrrhotite contains pentlandite as very fine exsolved grains. Linnaeite also occurs within pyrrhotite as fine blebs and veinlets with "flame pattern" margins. Cobaltite occurs as fine grains corroded and replaced by pyrrhotite and chalcopyrite.

No linnaeite has been noted in the "B" zone, and the cobalt content is attributed chiefly to cobaltite. It occurs disseminated or as fine veinlets, and is in both cases very fine grained. The nickel content of the "B" zone is lower than in the "A", but is higher than one would expect from the very low pyrrhotite content. All pyrite shows strong anomalous anisotropism and this condition may be due to impurities of nickel and/or cobalt in the pyrite molecule.

Some of the chalcopyrite in the "B" zone is

included in pyrite as very fine round blebs and this may adversely affect copper recovery.

Magnetite is common in the massive sulphide sections of the "B" ore, fairly evenly disseminated through the pyrite in amounts up to 25%.

Paragenesis

The following paragenetic sequence has been tentatively established;

Sphalerite		-----
Chalcopyrite	---	-----
Pyrrhotite		-----
Pentlandite		-----
Linnaeite		-----
Magnetite	-----	
Cobaltite	-----	
Pyrite	-----	

Two stages of mineralization are indicated; an earlier pyrite - cobaltite - magnetite stage, with minor chalcopyrite, and a later chalcopyrite - pyrrhotite stage. Sphalerite was introduced at the end of stage two, and is found in the "A" zone only. Pentlandite and linnaeite are found only in pyrrhotite and have apparently exsolved from it.

Pyrite is corroded and replaced by cobaltite, and both are corroded by magnetite. Pyrite is not replaced by chalcopyrite and pyrrhotite, but is surrounded and veined by them. Cobaltite is strongly corroded and replaced by both chalcopyrite and pyrrhotite, often appearing as trains of fine grains preserving the outline of an original coarse grain.

Gold has not been noted megascopically and was seen in only one polished section, where it appeared in a segmented veinlet of sphalerite, chalcopyrite and pyrrhotite cutting pyrite. This indicates that some of the gold at least, is fairly late. Gold assays in general correlate fairly closely with pyrite content, and it is probable that part of the gold is contained in pyrite in a very finely divided state.

Geological History

The sequence of events was as follows, from oldest to youngest;

1. Formation of the Dore Lake Complex.
2. Intrusion of Pyroxenite and other dikes.
3. Thrust faulting - development of the main shear zone and incipient development of the "A" fracture zone.
4. Stage I hydrothermal alteration and mineralization.
5. Further fault movement - strong development of the "A" fracture zone.
6. Stage II hydrothermal alteration and mineralization.

Development of the main shear zone was followed or accompanied by strong hydrothermal alteration. The anorthosite within the shear was completely altered to sericite, calcite, chlorite, chloritoid and quartz and the central zone of the shear was replaced by coarse ankerite, quartz and siderite. This stage was closed by pyrite - chalcopyrite - cobaltite - magnetite mineralization of the quartz ankerite zones. The "A" fracture zone was weakly developed at this time, and poorly

mineralized.

A second period of movement followed, with perhaps slightly changed stress directions. The "A" fracture zone developed subsidiary to the main shear and probably absorbed most of the movement. Strong hydrothermal alteration again occurred, but was largely confined to the "A" zone. The anorthosite was altered to sericite, iron rich chlorite, actinolite and quartz. This stage ended with strong chalcopyrite - pyrrhotite mineralization of the "A" zone, weak mineralization of the "B" zone.

EXPLORATION

The search for further ore in the immediate mine area falls into five categories:

1. Extension of the "A" orebody.
2. Extension of the "B" orebody.
3. Recurrence of "A" type ore.
4. Recurrence of "B" type ore.
5. Exploration of other shears.

Extension of the "A" orebody

The "A" orebody has been fairly closely delimited by the drilling done to date, and no large additions of ore should be expected as extensions from it. The flatly dipping part of the "A" fracture zone, however, should be explored down dip to its probable junction with the main shear zone at depth.

The South - Southwesterly extension of the

"A" zone should be traced to its possible junction with the main shear about 5000 feet to the South. This could be done with a series of vertical holes progressing South, as shown on the accompanying sketch. Shoots of ore along this structure are quite possible but may be too deep to give good geophysical indications. Hinge movement may have occurred on the "A" zone, in which case it may die out before reaching the main shear.

Extension of the "B" orebody

Present information indicates that the "B" ore occurs as shoots within the main shear, pitching 45° to the North. The shoots now known are not adequately delimited at depth, and further ore may be found as extensions from them.

Very high gold values were intersected by two holes in the shear zone near surface. The gold occurred in vuggy quartz veins which contained coarse pyrite and chalcopyrite, and were somewhat oxidized. The occurrence has very little vertical extent and the high gold content is probably related to surface oxidation.

Recurrence of "A" type ore zones.

The repetition of "A" type structures, diverging from the main shear zone, is probable. At present, indications of two such repetitions have been obtained.

D.D.H. T-110 intersected 18 feet of chalcopyrite magnetite mineralization in a strong, highly chloritized

shear zone above the hanging wall of the main shear. This intersection may represent a zone diverging from the hanging wall of the main shear and should be followed up by further drilling. Alteration within this zone is similar to that in the "A" zone, with characteristic deep green, iron rich chlorite.

Drilling during the winter of 1958 disclosed a well mineralized zone within the main shear about 700 feet North of the "B" orebody. Part of this zone appears to diverge from the main shear in a northeasterly direction and is in line with a copper bearing zone drilled by Portage Island (Chibougamau) mines. Alteration in this area is again of two types, with the "B" type lying beneath the "A" type. This could be interpreted as an "A" type zone diverging to the East, but the most easterly hole, T-174, intersected only chlorite chloritoid alteration of the "B" type. It is possible that the main shear splits in the vicinity of D.D.H. T-169, that one branch continues across Portage Island to Hematite Bay, and that the other branch parallels the Southeast shore of the island and then cuts across the tip about 2000 feet East of and parallel to the first branch.

Further zones could occur in either wall of the main shear South of the present "A" and "B" orebodies. It is entirely possible that such zones may apex below

surface or that water and sediment depths are too great for geophysical methods to locate them. A suggested procedure is to drill a series of 1000' to 1500' vertical holes along a line parallel to the strike of the main shear. These should be collared 400' to 500' in the hanging wall and penetrate about 600' into the footwall. Approximately 15,000' of drilling in 10 holes would be required to explore the shear in this manner to the South boundary of the property, and an additional 5000' in five holes to the junction with the Bouzan - Eaton Bay system. Such a program could also locate shoots of ore within the main shear itself.

Recurrence of "B" ore.

The possibility of locating new shoots of "B" type ore within the main shear zone are good. Drilling during the winter of 1958, previously mentioned, located massive pyrite zones, with magnetite, chalcopyrite and appreciable cobalt values. The intervening strike length of about 700' between this and the "B" orebody should be thoroughly explored. Particular attention should be paid to cobalt in this area, since high cobalt values may be present in relatively weakly mineralized sections and could easily be overlooked.

Shoots of "B" type ore ^{May be present} within the shear zone to the South of the presently drilled area. These could be located by means of the program previously outlined.

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PORTAGE ISLAND (CHIBOUGAMAU) MINES LTD.

PORTAGE LAKE

C-57657
CL-1 (Port)

BASE LINE

C-74526
CL-1

CAMPBELL CHIBOUGAMAU MINES LTD
(HENDERSON MINE)
C-74526
CL-2

Boundary line for mining concession

CHIBOUGAMAU LAKE

LEGEND

D.D.H., INCLINED, VERTICAL

PROPOSED D.D.H.

HENDERSON SHEAR

"A" ZONE, KNOWN

" " ; INFERRED FROM E. 4.

"B" ZONE

"C" ZONE

"D" ZONE

17 000

T-160

T-161

CHIBOUGAMAU MINING & SMELTING CO.

HENDERSON MINE

PROPOSED EXPLORATION DRILLING

1" = 1000'

Exploration of other Shears.

The Henderson orebodies are closely related to a Northeast striking thrust fault, which dips at a moderate angle to the East. This fault is probably a continuation or a branch off the McKenzie Narrows fault which is one of a prominent system of Northeasterly faults in the area, such as the Tache Lake, Gwillim Lake and possibly the Dore Lake Fault.

These Northeasterly faults are roughly parallel to the Grenville front. They are of late Precambrian, post-Chibougamau age and have been related to the late Precambrian Grenville orogeny by Norman.

Exploration would then be most useful if concentrated along these late shear zones. At least one such shear, in addition to the Henderson Shear, crosses the property. It is roughly delineated by a Northeast striking airborne E.M. anomaly and is confirmed by D.D.H. intersections off Copper Point on Portage Island.

In this connection, it is readily seen that the Northwest striking pyroxenite dike could be a key to the structure of the area underlying the lake. Determined attempts to trace it across the lake with a magnetometer should be made.

ORE "INDICATORS".

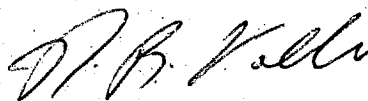
Considerable discussion has been centered on whether certain minerals or suites of minerals can be

used as guides to ore. From a study of the Henderson deposit certain inferences can be drawn which may not, however, be applicable to the district as a whole.

Two suites of alteration products are present, representing an older and a younger period of mineralization. The oldest is the sericite-chloritoid-ankerite-quartz associated with the "B" ore. This suite extends for distances up to 600 feet along strike and dip from the ore itself and therefore presents a large target for drilling. In a drilling program such as that outlined on page 18, intersection of such material would warrant additional holes stepped out on either side.

The second period of mineralization is characterized by iron rich chlorite, actinolite, apatite and quartz. Apatite and actinolite do not extend to any appreciable distance from the orebody and are probably of small value as indicators. Deep green chlorite does extend for some distance from the ore and could be used to distinguish possible copper bearing zones from the numerous alteration zones so common in the anorthosite.

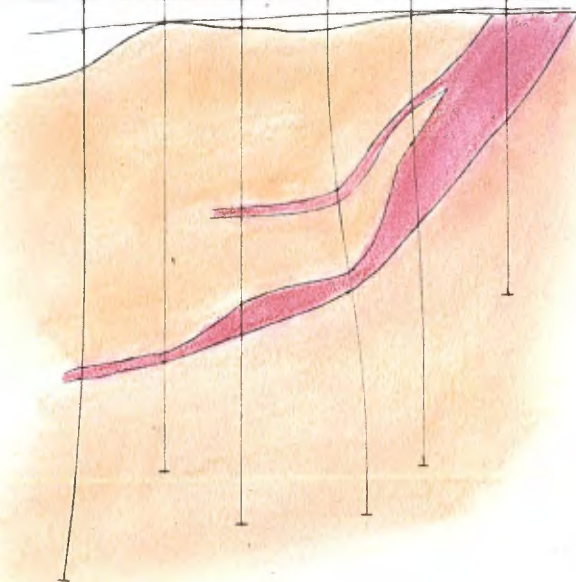
The composition of the chlorite also varies across the ore zones, but the change occurs too close to the ore to appreciably increase the size of the zone as a target for drilling.



N.B. Vollo
Nov. 26th, 1958

T-102 T-95 T-55 T-49 T-43 T-58

LAKE LEVEL



400'

725'

1000'

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Campbell Chibougamau M.
Canton - Roy.

GM-9900

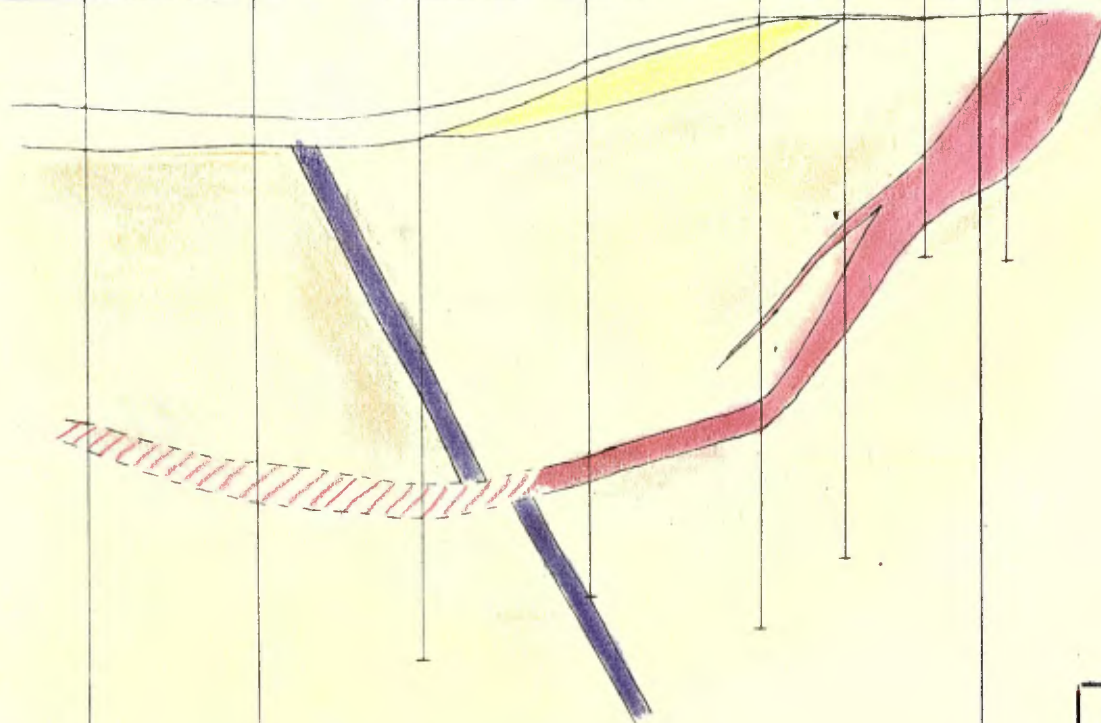
HENDERSON MINE
GEOLOGICAL SECTION
7 00E
LOOKING WEST
1" = 200'

- "A" OREBODY
- "B" OREBODY
- "A" ZONE
- SHEAR ZONE
- PYROXENITE DIKE
- ANORTHOSITE

BASE LINE

T-158 T-128 T-104 T-99 T-78 T-32 T-72 T-87

LAKE LEVEL



400'

725'

1000'

Ministère des Richesses Naturelles, Québec
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Date:

No GM: 9900-A

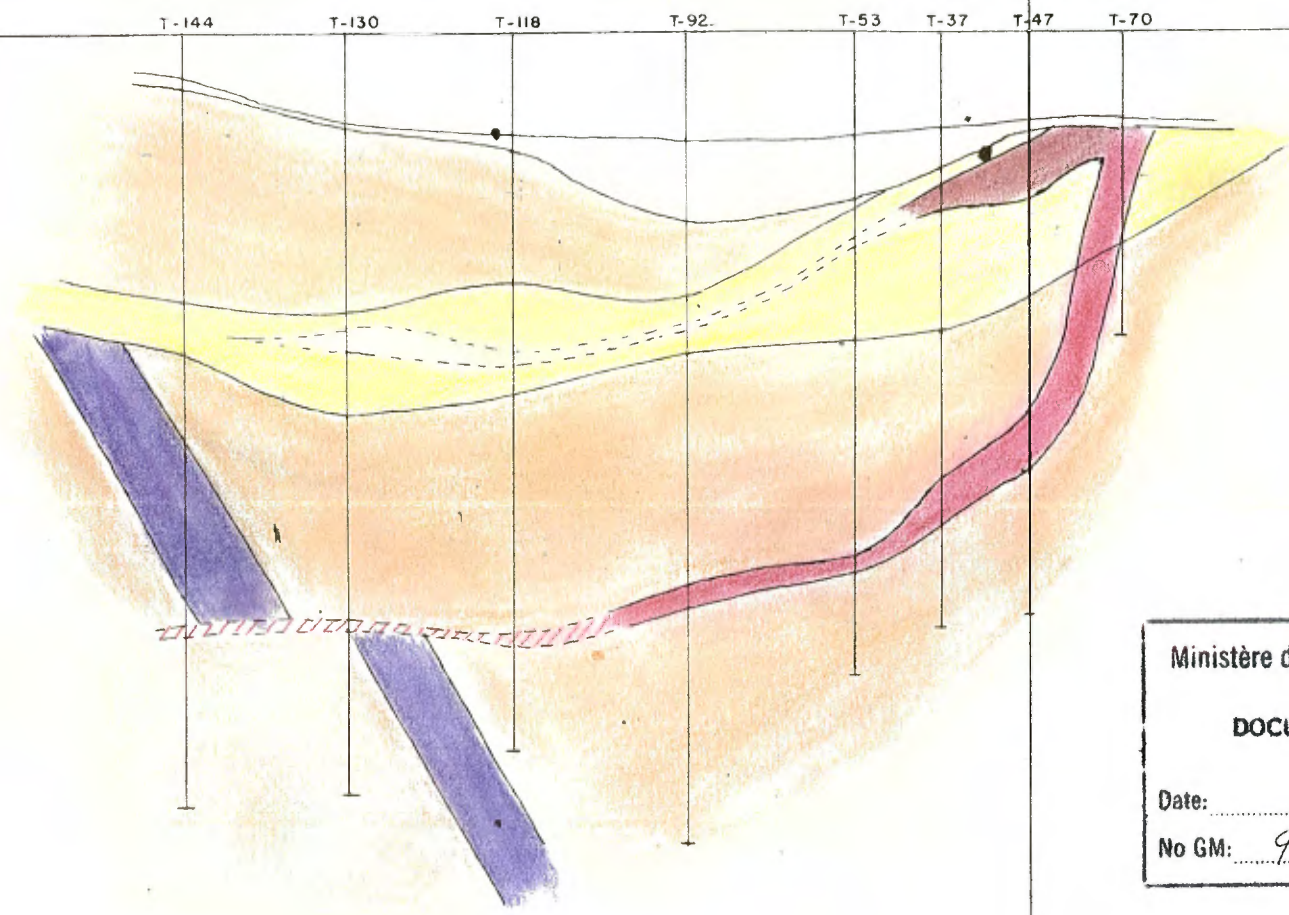
Campbell Chibougamau M. L.
Canton Roy

- "A" OREBODY
- "B" OREBODY
- "A" ZONE
- SHEAR ZONE
- PYROXENITE DIKE
- ANORTHOSITE

BASE LINE

GM-9900

HENDERSON MINE
GEOLOGICAL SECTION
11 00E
LOOKING WEST
1" = 200'



- "A" OREBODY
- "B" OREBODY
- "A" ZONE
- SHEAR ZONE
- PYROXENITE DIKE
- ANORTHOSITE

Ministère des Richesses Naturelles, Québec
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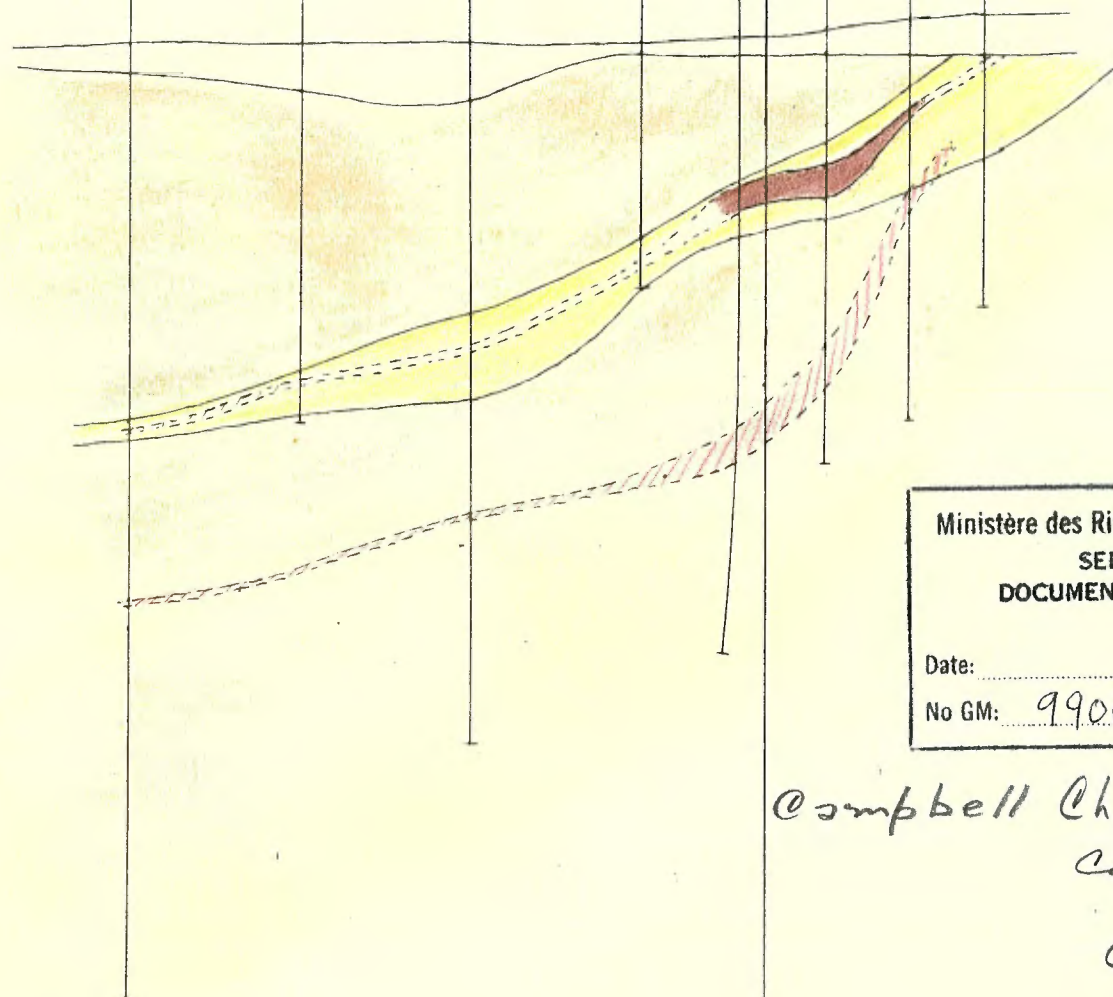
Campbell Chibougamau M 1000'
 Canton Roy
 GM-9900

HENDERSON MINE
 GEOLOGICAL SECTION
 15 00E
 LOOKING WEST
 1" = 200'

BASE LINE

T-136 T-143 T-120 T-98 T-108 T-85 T-59 T-74

LAKE LEVEL



400'

725'

1000'

Ministère des Richesses Naturelles, Québec
SERVICE DE LA
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Date:

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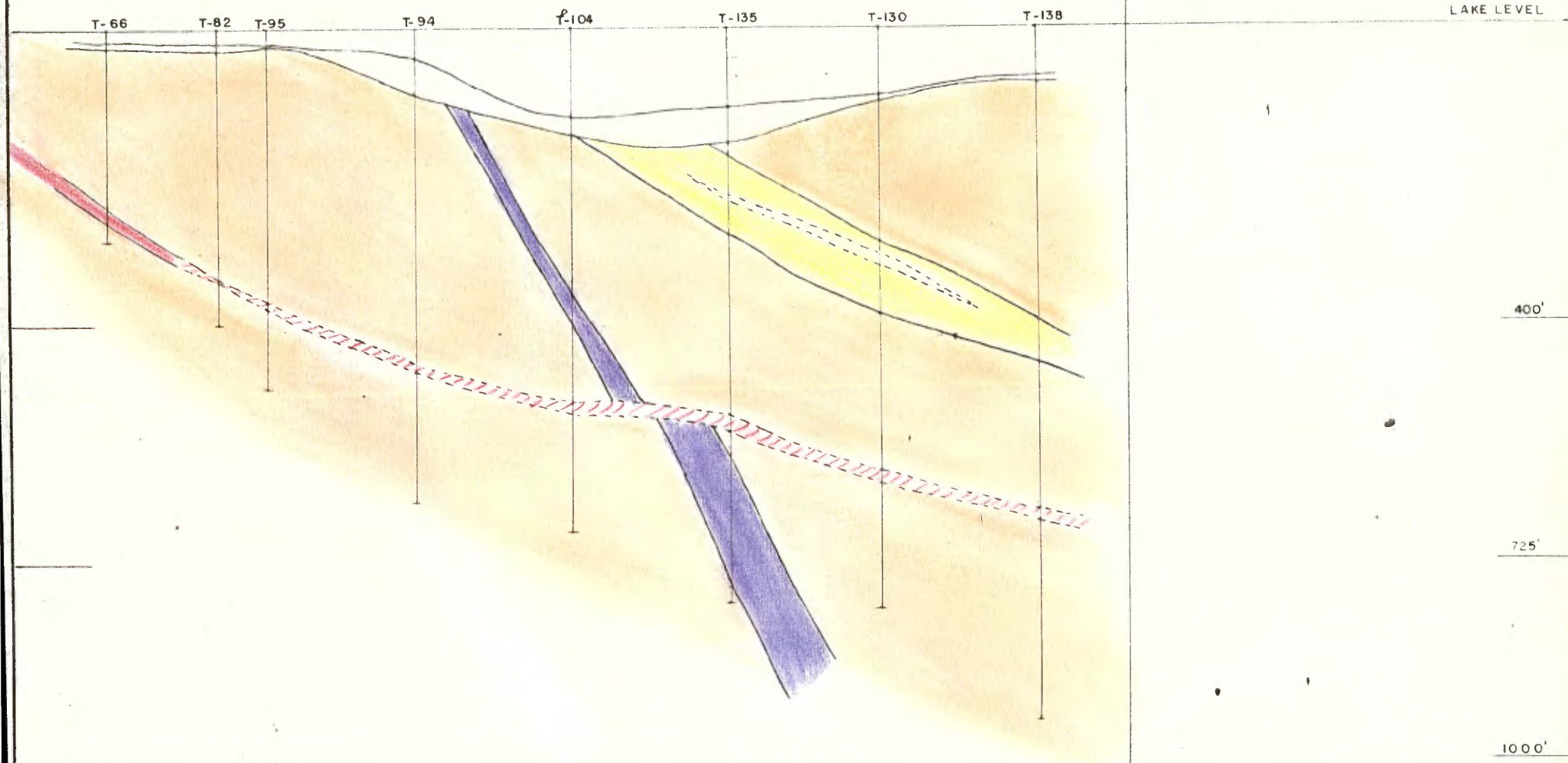
Campbell Chibougamau M.L.
Canton Roy

GM-9900

- "A" OREBODY
- "B" OREBODY
- "A" ZONE
- SHEAR ZONE
- PYROXENITE DIKE
- ANORTHOSITE

BASE LINE

HENDERSON MINE
GEOLOGICAL SECTION
19 00 E
LOOKING WEST
1" = 200'



Campbell Chibougamau M.L.
Canton Roy

GM-9900

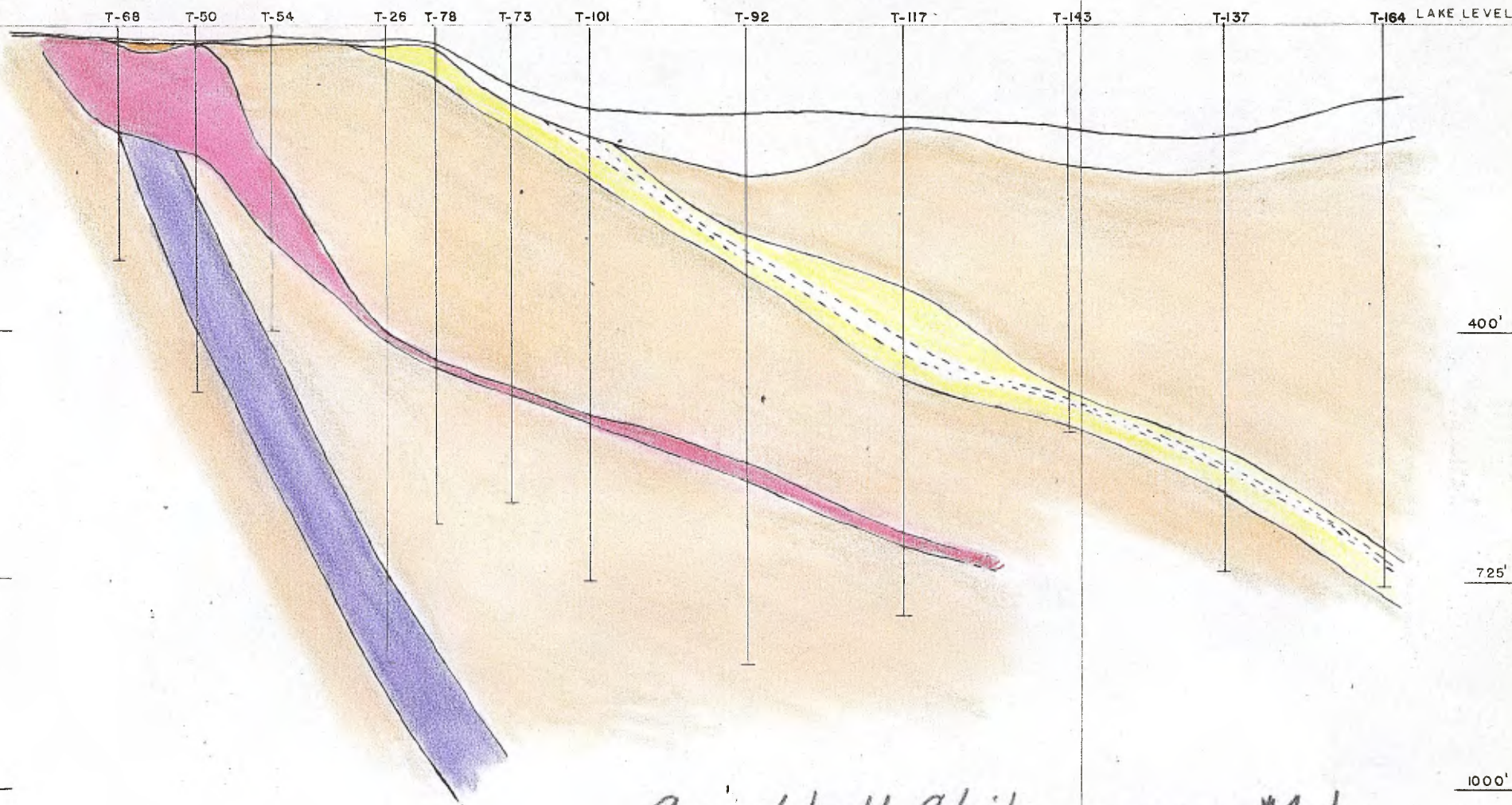
- "A" OREBODY
- "B" OREBODY
- "A" ZONE
- SHEAR ZONE
- PYROXENITE DIKE
- ANORTHOSITE

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Date:

No GM: 9900-A

HENDERSON MINE
GEOLOGICAL SECTION
S-28
LOOKING N17°E
1" = 200'



Campbell Chibougamau M.L.
Canton Roy

GM-9900

- "A" OREBODY
- "B" OREBODY
- "A" ZONE
- SHEAR ZONE
- PYROXENITE DIKE
- ANORTHOSITE

Ministère des Richesses Naturelles, Québec
SERVICE DE LA
DOCUMENTATION TECHNIQUE

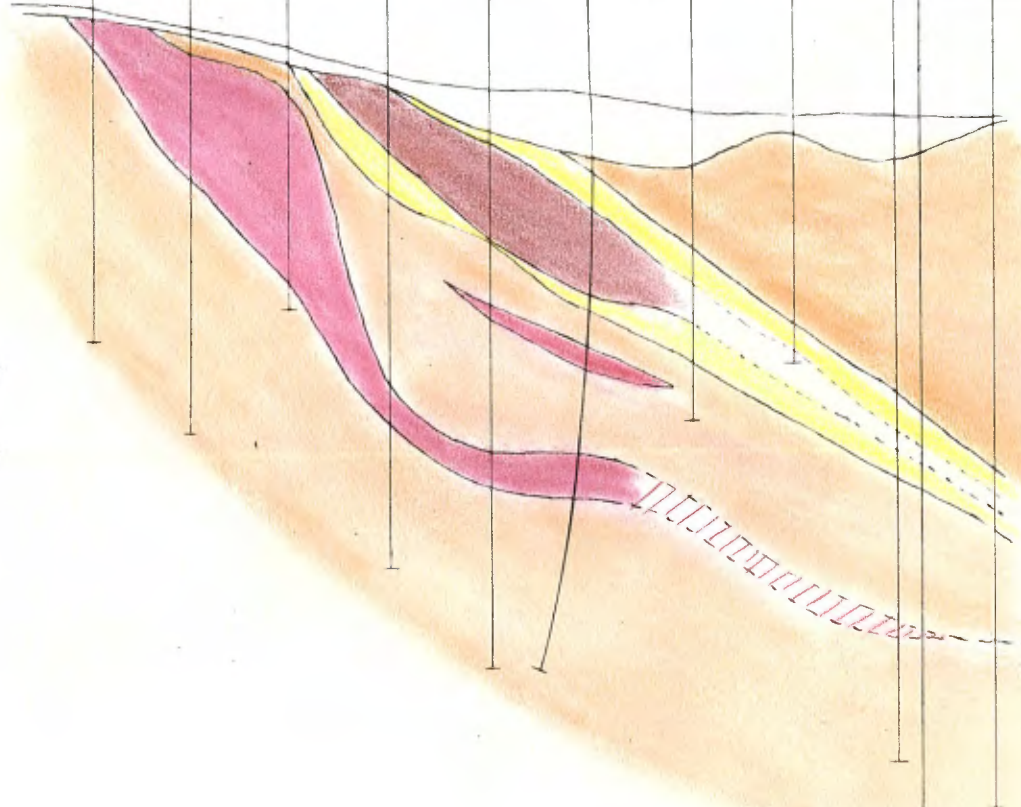
Date:

No GM: 9900-A

" HENDERSON MINE
GEOLOGICAL SECTION
S-24
LOOKING N 17° E
1" = 200'

T-90 T-67 T-56 T-47 T-63 T-39 T-67 T-98 T-152 T-122

LAKE LEVEL



400'

725'

1000'

Campbell Chibougamau M.L.
Canton Roy
GM-9900

- "A" OREBODY
- "B" OREBODY
- "A" ZONE
- SHEAR ZONE
- PYROXENITE DIKE
- ANORTHOSITE

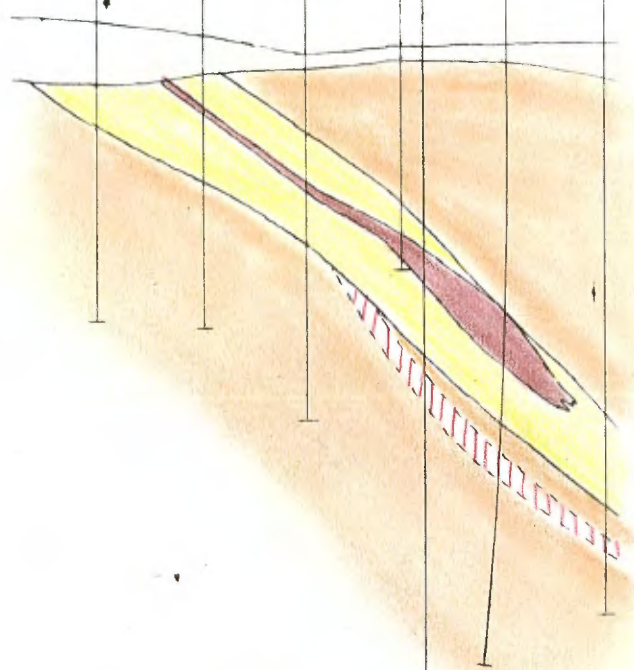
Ministère des Richesses Naturelles, Québec
SERVICE DE LA
DOCUMENTATION TECHNIQUE

Date:
No GM: 9900-A

HENDERSON MINE
GEOLOGICAL SECTION
S-20
LOOKING N17°E
1" = 200'

T-91 T-74 T-84 T-156 T-123 T-134

LAKE LEVEL



400'

725'

1000'

Campbell Chibougamau M.L.
Canton Roy
GM-9900

- "A" OREBODY
- "B" OREBODY
- "A" ZONE
- SHEAR ZONE
- PYROXENITE DIKE
- ANORTHOSITE

Ministère des Richesses Naturelles, Québec
SERVICE DE LA
DOCUMENTATION TECHNIQUE

Date:

No GM: 9900-A

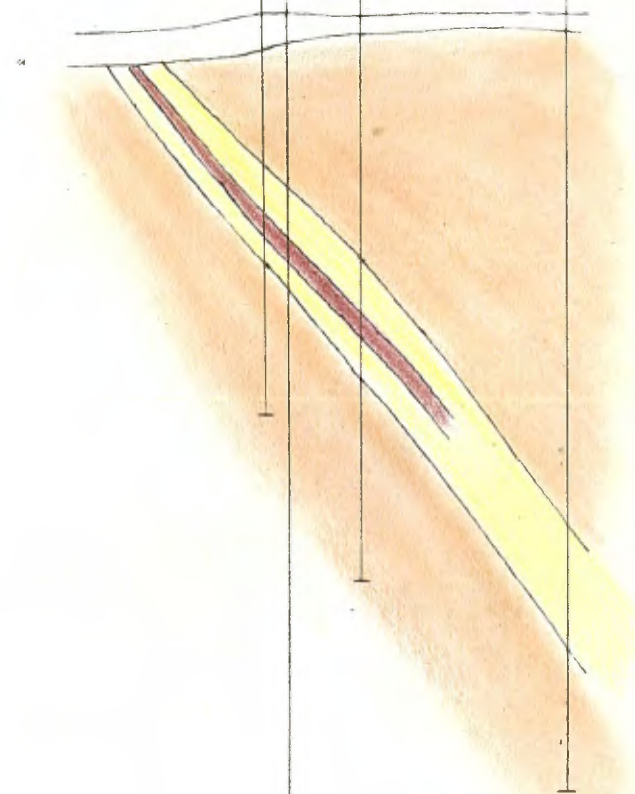
HENDERSON MINE -
GEOLOGICAL SECTION
S-16
LOOKING N17°E
1" = 200'

T-145

T-115

T-126

LAKE LEVEL



400'

725'

1000'

Campbell Chibougamau M.L.

Canton Roy

GM-9900

- "A" OREBODY
- "B" OREBODY
- "A" ZONE
- SHEAR ZONE
- PYROXENITE DIKE
- ANORTHOSITE

Ministère des Richesses Naturelles, Québec
 SERVICE DE LA
 DOCUMENTATION TECHNIQUE

Date:

No GM: 9900-A

HENDERSON MINE
 GEOLOGICAL SECTION
 S-12
 LOOKING N 17°E
 1" = 200'