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Report on
Leger Mines Limited
Clement Twp. (Timiskaming)
and
Macbeth Twp. (Sudbury)

by

Robert Thomson
Resident Geologist - Cobalt
Dec. 3, 1963

a. b. Baynes Map

T. 211.

Introduction

Leger Mines Ltd. (a private company, ^e had office- Field, Ont.)_A has a group of 98 unsurveyed and unpatented claims in the northwestern part of Clement township (in the district of Timiskaming) and MacBeth township (in the district of Sudbury). In November 1963, Mr. Lloyd Leger, vice president, invited the writer to visit the property and this was done on Nov. 28. The writer is indebted to Mr. Leger and Mr. A .S. Bayne, president, for showing the writer over ^f parts of the property and furnishing information, providing transportation and affording hospitality.

The purpose of the present report is largely to put on record information on the property; comments on the results obtained are also made.

According to A.S. Bayne presently known showings of economic interest are restricted to three claims -- T.51862, 51864, and 53551. These showings and their vicinities were ^{the} only ones visited._A

Access

Access is conveniently obtained by Road 805, which goes from Glen Afton (on the C.N.R.) to the property. Road 805 was in good condition at the time of the writer's visit, it is to be kept open throughout the winter. About one hour was required by car from River Valley to the property. On the property roads, suitable for car, had been made to the three principal showings.

Improvements

A comfortable building on Claim T.51909, on the shore of Manitou Lake, might serve for 5 or 6 men. Apparently this is the only building on the property.

Previous geological work in Clement twp. and vicinity

Barlow mapped what is now Clement township; this is

Barlow, A .E.

1897: Report on the Geology and Natural Resources of the Area included by the Nipissing and Temiscaming map-sheet; Geol. Sur. Canada, Vol.X.

apparently the only map of Clement twp. to date.

Moore, mapped and described parts of Afton and Scholes

Moore, E.S.

1936: Geology of the Afton - Scholes Area; Ontario Dept. Mines, Vol. XLV, pt.6, p.38-48.

townships, which lie directly north of Macbeth and Clement townships.

Grant turned out an uncoloured map of Vogt. twp. ^aAdjoining

Grant, J.A. . . .

1961: Vogt township geological map, Ontario Dept. Mines P.116.

and east of Clement twp.

Simony has mapped Phyllis twp. which lies directly north

Simony, P.S.

1960: Phyllis township geological map, Ontario Dept. Mines P.74

of Vogt.

Bruce mapped four townships which include the two directly

Bruce, E.L.

1933: Geology of the Townships of Janes, McNicsh, Pardo and

Dana: Ontario Dept. of Mines, Vol. XLI (1932), pt. IV,

south of Clement and McNish.

R.S. (?) Mowat (of Ottawa) was employed by Leger Mines in 1963 to carry out a geological survey, an magnetic survey and a geochemical survey of parts of the property. The reports and maps-- the results of these surveys-- were seen by the present writer but copies were not obtained.

Maps available

Maps of possible interest include Ontario Dept. Lands and Forests Map 31c (1949), scale one inch equals 4 miles.

Geological survey of Canada

Map 155A , one inch equals 8 miles .

Forest Resources Inventory Map:

Scale one inch equals one quarter mile. The aerial photos from which this map was compiled are available but have not been examined by the writer.

Natural Resources

It would appear that apart from minerals there are few natural resources in the vicinity.

Most of the timber appears to have been removed; the areas of soil appear too small to permit profitable farming. Summer resorts have been started between River Valley and Leger Mines taking advantage of the picturesque scenery; it is reported that Manitow Lake affords good fishing

Physical Conditions

Overburden.

In the places visited rock exposures were reasonably plentiful.

Topography

The most marked topographic feature noted was "Iron Mountain" a hill part of which is on claim T.53551. The north side of this hill rises precipitously a height estimated at 300 feet above the drift along the south side of Leger lake. Access to the top of the hill is most conveniently obtained from the east end.

West of the T.51864 precipitous cliffs of estimated height 50 feet rise from drift covered areas.

The relief appears to be sharper here-- that is more vertical cliffs--than usual.

Manitou Lake the largest is markedly elongate in a north-south direction.

Leger is the name applied recently by R.S. Mowat to the lake extending into the eastern part of T.53551.

Geological Conditions.

The following notes are in part based on the reports and maps by Mowat which the writer glanced over briefly.

Mowat showed on his legend under Precambrian (as I recall) Archean rocks including Keewatin, Timiskaming, Algoma, and Proterozoic rocks--Mipissing diabase.

Archean

It did not appear to the present writer that the stratigraphic sequence, or the structure of the Archean rocks on the property had been determined nor does this appear to have been done by either Bruce or Moore for the close-by areas to the north and south.

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Mowat showed vertical or very steep dipping sediments--iron formation, quartzite, limy quartzite--and volcanic rocks--andesite--on Iron Mountain. It is not clear whether these belong to one group or to two--the Sudbury group and an older volcanic complex usually referred to as the Keewatin. Moore (1963) in his studies in the Afton-Scholes area assigned the rocks there to two categories--an older (Keewatin) including greenstone and iron formation and ^ayounger (Timiskaming) including conglomerate quartzite, arkose, greywacke and limestone. Bruce (1933) assigned but with a question mark. Pre-Huronian rocks in townships south of the Leger Mines property to the Sudbury series and to the Keewatin.

At the Leger property Mowat noted the presence of limestone on Iron Mountain and described it as having a gently dip--some 30 degrees. It was not clear whether he regarded the limestone as younger than the iron formation and quartzite on the mountain. The present writers examination of crystalline limestone exposed at the east end of Iron Mountain was cursory but the limestone appeared to be part of the quartzite, iron formation succession and not a younger rock.

The present writers observations on the Archean rocks on the property were restricted to a rapid traverse southerly along the trench on the east end of Iron Mountain plus a brief look at the quartzite exposed in the largely diabase area in the north part of the property; these observations were essentially to gain information on the rock types as named by Mowat.

Andesite

A.S. Bayne pointed out what Mowat had named andesite on the north side of Iron Mt. near the east end and at the hill bottom. This rock was (T-909) gray green and appeared to be largely made up of a fibrous mineral (thought to be amphibole) of about 1 mm. grain size. It was a metamorphic rock; the writer saw no feature that would give information on its origin. I asked A.S. B. if he had seen features distinctive of lavas as pillow structure--he had not.

Farther west along the bottom of Iron Mt. and near the old drill holes dark, fine grained rock is exposed. At the time of the visit I thought this might be andesite; on later examination I considered it fine grained Keweenaw intrusive.

Quartzite

On the north side of Iron Mt. near its base is a pale green-gray rock (T-910), which was thought to be quartzite in the field. On examination later no trace of clastic texture was made out--the rock is metamorphic. Only one kind of mineral in poorly defined grains to 5 mm. was made out.

At the T.51862 showing a white rock (5692) was designated quartzite; much of the rock in the vicinity was Keweenaw diabase. The quartzite weathers dull white; on fresh surface it is light gray with faint greenish tinge. Aggregates of white mica to 2 mm. occur sparsely. Grain boundaries were not made out under 10X lens. Feldspar appeared to be by far the most abundant mineral.

Limestone (crystalline)

At the trench on the east end of Iron Mt. and well up the mountain is white gray crystalline limestone (6693). The grain size is up to about 1 mm. No determination of altitude was possible. Similar limestone was seen in drill core from the holes on the North side of Iron Mt. Mowat used the designation limy quartzite but this rock type not seen by present writer.

At one place in the limestone near the top of the east end of Iron Mt. light green fine grained carbonate bands to 3/4 inch wide were seen traversing rather dark gray limestone in irregular manner. Pyrite in cubes to 1/10 inch occurs sporadically. Magnetite also occurs.

Iron formation (T-911)

Iron formation is exposed in the trench at the east end of Iron Mt. massive magnetite (grain size estimated at 0.05 mm.) is in bands greater than one inch wide in what appears to be quartzite; some quartzite shows light gray fibrous grains which may be diopside. This so called iron formation is very different from the usual cherty Keewatin iron formation.

Garnet rock

In the open cut near the bottom of Iron Mt. near its east end garnets (6694) occur abundantly at one place in what appears to be fine grained quartzite. The brownish garnets are up to about 4 mm. in size.

Algoman porphyry

This rock type was not visited by the writer. Mowat, on his map, shows it as areas surrounded by Keweenaw intrusive.

Bruce (1933) included feldspar porphyry in the Keweenaw.

Keweenaw

Keweenaw intrusive is shown on Geol. Sur. Canada Map No. 155A as occupying a large area in Clements and adjoining townships. Possibly more detailed mapping would break it up into smaller areas. Moore (1936) regarded the Keweenaw in the Afton-Scholes area as the remnants of a wide spread sill. Apparently the shape in Clements twp. has not been definitely determined; Mowat used the term laccolith for one part.

Apparently the contacts of the diabase on the Leger property are too poorly exposed to allow the structure of the diabase to be determined. Near the open cut on T. ~~53551~~⁵¹⁸⁶⁴ it was not clear if the schist below the quartz vein was schisted diabase or another rock. On top of the hill say a hundred yards west of the open cut what seemed to be a bottom diabase contact dipping northerly at a roughly estimated 25° was seen from a distance. At the open cuts on T. 51262 quartzite occurs close to diabase but contacts were not seen. On claim T. 53551 diabase outcrops (as shown by Mowat) near (particularly west of) Leger Lake. The relationship of this diabase to the Archean rocks making up Iron Mt. is apparently not definitely determined. Mowat showed the contact at about line 1000 W. just at the foot of the mountain dipping southerly at a low angle that is below the Archean rocks. The present writer examined the vicinity late in the afternoon when visibility was poor; he was quite uncertain if the rock assigned by Mowat to the Keweenaw was really so. After examining the rock under better condition he concluded that the rock was indeed Keweenaw.

A suggestion that the Keweenaw intrusive dips under the Archean of Iron Mt. is afforded by the magnetometer survey. The strong magnetic anomalies stop abruptly at the base of the mountain-- a result that would be expected if the Archean rocks were cut off by the Keweenaw intrusive.

Mowat mapped different varieties of the Keweenaw intrusive; distinguished were diabase, diorite, pyroxenite. The present writer did not get samples of these varieties but collected a few samples for comparison with the Nipissing diabase near Cobalt. T.912 was taken from the open cut (on quartz vein) on T.51864, just above the sheared rock making up the hanging wall. White somewhat euhedral laths up to ca. 1 mm. occur in a dark matrix difficult to resolve. A few dark crystals up to 5 mm. with flashing cleavages occur.

T.913 was taken say 100 feet to the west. Feldspar (to ca. 5 mm.) is in part euhedral; it did not have glistening cleavages. Dark mineral, presumably augite was of about the same size or a little larger.

The above specimens were more altered than is usual for the Nipissing Diabase near Cobalt; possibly some alteration was effected by the quartz vein. On claim T.53551 a specimen collected from the collar of the most easterly Norand drill hole at the base of Iron Mt. showed the rock to be very fine grained green gray not distinctively Nipissing diabase.

The Nipissing diabase, near sill contacts, in the vicinity of Cobalt has an unaltered grayish cast which in general serves to distinguish it from older fine grained Keewatin lavas and intrusives. The rock exposed at the foot of Iron Mt. is distinctly greenish.

Notwithstanding this it is believed to be Keweenawan intrusive largely in view of the fact that all the Archean rocks seen on the property were highly Metamorphosed.

On line 1000W., at the foot of Iron Mt. and a few hundred feet easterly of the most W.ly Noranda drill hole a dark gray fine grained rock which Mowat assigned to the Keweenawan outcrops. T.914 is of this rock. White gray feldspar phenocrysts up to about 0.5 mm. are present.

Mowat showed on his map an irregularly curving linear area of Keweenawan intrusive on the top of Iron Mt. The area was in part delineated from magnetometer work. The present writer has not seen Keweenawan intrusives of this shape previously.

Apparently the possibility that this was an intrusive older than the Keweenawan was entertained by A.S. Payne.

Structure

Grenville front

One item in regard to the structure of the Leger property is the position of the Grenville front separating the Timiskaming Subprovince (to the northwest) from the Grenville Subprovince (to the southeast)

Grant ^{et} al. show the front at the northeast corner of

Grant, J.A., Pearson, W.J., Phemister, T.C. and Thomson, Jas.E.

1962: Broder, Drill Keelon, and Dryden Townships: Ontario
Dept. Mines, Geol. Rept. No.9.

Dryden township. Johnson shows the front close to the southeast

Johnson, W.G. Q.

1954: Geology of the Temiskaming-Grenville contact southeast of Lake Temagami, Northern Ontario Canada; Bull G.S.A., Vol 65, No.11

corner of Vogt township. The Leger property in Clements township is situated about 10 miles northwest of a line connecting the two positions mentioned. All the solid rocks seen by the writer on the property were highly metamorphic with the exception of Keweenaw intrusive. The Keweenaw intrusive appeared in hand specimen to be more altered than the Nipissing diabase near Cobalt.

Vein Structure at T.51864 open cut.

The open cut made to expose^s the quartz vein shows in downward succession (1) At top of cut massive Keweenaw intrusive, (2) over a thickness (as I recall 2-3 feet) chlorite schist (with little doubt) after the intrusive, (3) quartz vein, as I recall 4 to 5 feet thick, (4) light green schist (6695) with cobalt bloom, (5) gray-green schist (6696). Below (5) is not exposed. The quartz vein and the schist zones dipped about 25 deg. in direction Wly. or SWly. apparently. Whether the schist in (5) or (6) is after Keweenaw intrusive or another rock is not known. Zones (2), (4) and (5) make up what seems to be an important shear zone.

Economic Geology

History of property. It appears that the Leger property has been of interest to prospectors for a long time. L. Leger mentioned that about 1936 a Mr. Taylor had worked on gold-bearing

quartz veins either on what is now the Leger or (in Nipissing diabase) a short distance to the north. Leger said the three building on the point at the north end of Manitow^u Lake were used by Taylor in his prospecting and that he had died suddenly from a heart attack there.

About 1952 or 1953 Noranda Mines had carried out exploration on Iron Mt. Roy Martin was one of the Noranda men. The two drill holes (directed ~~steeply~~ south) on the north side of Iron Mt. were said to have been put down by Noranda. The position of these holes-- where no showing is exposed at surface--implies that some kind of a geophysical survey was made; probably it was an E.M. Survey and anomalies were present where the drill holes were put down. No logs or other information was available to Leger Mines but core, presumably from the holes, was present near the holes. Due to long exposure no markings could be made out on the boxes but Keweenaw intrusive (showing feldspar crystals) was present in considerable amount at both holes; quartzite, limestone, and massive sulfide (also disseminated) was also present. An important question was whether the drill holes started in Keweenaw intrusive and went into Archean rocks; as discussed under Keweenaw intrusives it seems probable that that is what happened. In view of Noranda withdrawing the inference that they did not get good results seems justified.

Apparently Mr. Leger's first interest was the quartz veins in T.51862 and T.51864. Some small shipments of quartz were made during 1962 or 1963 apparently to Kingston for silica. Later interest was transferred to the sulfides on Iron Mt.

R.S. Mowat and Associates were engaged to carry out a geological survey, a magnetometer survey and a geochemical survey of an

area in the vicinity of Iron Mt. This was completed shortly before the writer's visit. A number of anomalies were disclosed and the recommendation made that these be tested by 5000 feet of diamond drilling. At the time of the writer's visit consideration was being given to raising \$50,000 to do this drilling--it was hoped to raise this money by making the company a public one and selling stock to the public.

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The property of Leger Mines is a mere prospect.

Metals that have been considered to be of potential value on the property include gold, copper, lead and zinc; quartz was thought to be of potential value as an industrial mineral. That cobalt arsenides are present is shown by the cobalt bloom. In view of proximity to Sudbury and the presence of Keweenaw intrus the possibility of nickel deposits occurring might seem worthy of consideration but apparently none has been found to date.

Apparently the magnetite in the so-called iron formation has not been considered as of potential value

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Quartz veins with chalcopyrite and gold

Large, flat or gently dipping, quartz veins were pointed out to the writer at the T.51862 open cuts and the T.51864 open cut. Chalcopyrite and pyrite occur sporadically (in places plentifully) in the veins and A.S. Bayne reported that gold up to at least 3 ounces per ton had been found. The writer gathered that the chlcopyrite and gold occurred too sporadically

to be of economic interest. In places large cubes of pyrite were present. Carbonate also occurred within the quartz vein. The occurrence of cobalt bloom in light green schist making the footwall of the quartz vein at the T.51864 open cut is presumably due to cobalt arsenides in the schist--none were detected. The occurrence of the quartz veins in Keweenaw intrusive demonstrates that they are younger than the intrusive. Some evidence suggests that the veins are near the contacts of the intrusives but information is insufficient to prove that this is the rule.

Copper, lead, zinc mineralization

The copper, lead zinc mineralization regarded presently as being of economic interest occurs at Iron Mt. The writer was shown small amounts of chalcopyrite, zinc blende and galena in the Archean rocks in the trench and open cut (on T.53551) on the east side of Iron Mt. but did not see any concentration approaching ore grade. Pyrite and pyrrhotite, in places making up nearly all the rock, are also exposed in the trench; the writer gathered that nickel nor gold was not associated with the sulfides.

A.S. Bayne decided a suitable method to prospect for concentrations of copper-lead-zinc minerals on Iron Mt. was a magnetometer survey and a geochemical survey. I understand that well marked anomalies were found in both surveys and that these coincided.

Presumably the magnetic anomalies were due to magnetite and/or pyrrhotite. The eastern part of Iron Mt.(and possibly most of it)

had only shallow overburden; possibly this would permit direct determinations of copper-lead-zinc mineral in bed rock and would minimize the effect of the glacial soils.

I understood that the anomalies were to be investigated by 5000 feet of diamond drilling.

In the writer's opinion examination of the surface over the area covered by the anomalies might give information on the significance of the anomalies more cheaply than diamond drilling.



October 2, 1964.



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Dr. K.D. Card,
Provincial Geologist,
Box 1030,
Sudbury, Ontario.

Dear Sir:

This is to inform you that we have placed on
record to Mining Claim S-119545, 80 days work. Details
are on the enclosed drilling log.

/sl
encl.

Yours truly,

K.M. Hallock,
Mining Recorder.

ONT. DEPT. MINES

JUN 26 1967

RESIDENT GEOLOGIST
COBALT, ONTARIO

*Recd from
J.P. Dm...*

ASSESSMENT WORK



ONTARIO
DEPARTMENT OF MINES

SUDBURY MINING DIVISION
SUDBURY, ONTARIO

October 14/64.

Dr. K.D. Card,
Provincial Geologist,
Box 1030,
SUDBURY, Ont.

Dear Sir:

Enclosed herewith are the Diamond Drill logs and
sketch for work recorded on Mining Claim T-51911 in the
name of Leger Mines.

Yours truly,

K.M. Hallock
K.M. Hallock,
Mining Recorder.

/sl
encl.

ASSESSMENT WORK

ONT. DEPT. MINES

*Rec'd from
J.F. Smooren. 2*

JUN 26 1967

RESIDENT GEOLOGIST
COBALT, ONTARIO

Clement Twp.

TS/CL

TS/CL - 133 - tracing, base from
Forest Resources Inventory, geology
largely from Barlow 1899-31

A list of references given
in R.T. C-1963, Dec. 3 report on
Leger Mines Ltd.

Thomson, Jas. E.

1960: Uranium and Thorium
Deposits at the Base of the
Huronian System in the
District of Sudbury;
Ontario Dept. Mines,
Geol. Rept. No. 1.

CLEMENT TWP.

TS/CL

TS/CL - 133 - Tracing, base from Forest Resources Inventory,
Geology largely from Barlow 1899-31

A list of references given in R.T. C-1963, Dec. 3 report on
Leger Mines Ltd.

Thomson, Jas E.

1960 - Uranium and Thorium Deposits are the base of the Huronian
system in the District of Sudbury, Ontario Dept of Mines
Geol, Report No. 1

Mr. Thomson:

Enclosed folder found in
our files belongs to
your SW corner.

J. F. Monahan

ONT. DEPT. MINES

MAR 26 1967

RESIDENT GEOLOGIST
COBALT, ONTARIO

T.51862
OPEN CUTS

TAYLOR
CAMPS

LEGER MINE
CAMP

MANITOU
LAKE

cliff
T.51864
OPEN CUT

ROAD 803

N
↑

LEGER
LAKE

OLD CAMP

NORANDA? HOLE

NORANDA? HOLE

1000W line

cliff

IRON

massive sulfides
ZnS
magnetite

JOSSAN
ANSEEM 2755

garner crystals

T.53551
OPEN CUT

stream alteration

VERY
ROUGH
SKETCH

on IRON MT.

Leger

Scholes

Turtleshell L.

Manitou Lake
Clement Twp.
1963

Macbeth Twp.

