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PRELIMINARY REPORT ON DESMELOIZES TOWNSHIP, ABITIBI-WEST COUNTY

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PRELIMINARY REPORT

ON

DESMELOIZES TOWNSHIP

ABITIBI-WEST COUNTY, QUEBEC

BY

W. F. GILMAN

QUEBEC
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on

DESMELOIZES TOWNSHIP

ABITIBI-WEST COUNTY, QUEBEC

by

W.F. Gilman

INTRODUCTION

General Statement

Desmeloizes township is located in Abitibi-West county, between approximate latitudes 48°51' 53" and 49°00' 32" and longitudes 79°18' and 79°31' 04". It comprises an area of 100 square miles and lies along the Quebec-Ontario interprovincial boundary, its centre being about 50 miles north-northwest of the twin cities of Rouyn-Noranda.

The town of Normetal, the main centre of habitation within its limits, is connected by a railroad and an all-weather highway to the town of Dupuy, 12 miles to the south and itself a railway centre along the Quebec-Cochrane line of the Canadian National Railways. This rail line also crosses the southwest corner of the area and a good network of gravel roads makes almost all parts of the latter of easy access.

The township is included in the one mile to the inch geological map of the Desmeloizes area[x] published by the Geological Survey of Canada and it includes the area mapped by Tolman[xx] in 1941 at 400 feet to the inch for the Quebec Department of Mines. The east half of ranges IX and X which makes up the area covered by Tolman was not restudied by the author.

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[x] Mawdsley, J.B. - Desmeloizes Area, Abitibi District, Quebec; Geol. Surv. Can., Summary Report, pt. C. (1928).

[xx] Tolman, C. - Normetal Mine Area, Abitibi-West County. Que. Dept. Mines, G.R. 34 (1951).

The geological mapping on which this report is based was done on a scale of one inch to 1,000 feet and geological data were supplemented by geophysical information. The accompanying map is drawn at the scale of 2,000 feet to the inch but more detailed individual quarter-township maps at 1,000 feet to the inch are also available.

Topography and Drainage

The average elevation of the area is slightly over 900 feet above main sea level and the relief is slight except for two rounded hills of extensive rock exposure in the south central part of the area. A flat mantle of stratified clay covers most of the area through which a few glacial deposits and rock islands rise here and there.

Three main streams, La Reine, Calamity and Chaboiley rivers, and their tributaries drain the area generally southward to empty into Abitibi lake. As the ground rises gradually northward, its drainage is good except in flat muskeg plains.

GENERAL GEOLOGY

All consolidated rocks of the map-area are Precambrian in age and comprise various types of volcanic and sedimentary rocks covering close to three-quarters of its extent and more recent acidic to ultrabasic intrusives cropping out more abundantly in the western part. The volcanic and sedimentary formations can be grouped under three broad divisions.

The northeastern part of the area is underlain by an accumulation of flows of Keewatin-type volcanic rocks, predominantly andesite and dacite but containing increasing quantities of rhyolite and pyroclastic rocks towards the north and west. Thin bands of iron formation are also sparingly present in the pyroclastics.

To the southwest of the above mentioned Keewatin-type volcanics lies what appears to be a synclinal remnant of tightly folded, Temiscaming-type, clastic sedimentary formations which extend diagonally across the area. The rocks are largely greywacke and have been regionally metamorphosed. There is no evidence of an unconformity between the Keewatin-type and sedimentary rocks; on the contrary, the presence of thin interbeds of amphibolitized volcanic material in the sedimentary rocks near the contact suggests that the Temiskaning-type rocks could easily represent only a later phase of Keewatin activity.

The southeast quarter, the south part of the southwest quarter as well as other small areas in the township are underlain by a metamorphosed complex assemblage of sedimentary and volcanic rocks apparently forming roof pendants over more recent intrusive masses of quartz diorite and granite. Both the sedimentaries and volcanics have been transformed into hornblende schists and can be

distinguished from one another only with difficulty.

Sill-like masses of amphibolitized epidiorite of non-uniform size appear to inject the northeastern and southern groups of rocks but were not detected within the sedimentary syncline.

Diabase dykes of variable composition and thickness cut the three groups of rocks. Individual dykes are massive and have generally constant widths. The larger dykes trend in a northeasterly direction and appear to dip vertically. A group of dykes of smaller dimension generally strike due north. They may be offshoots from the larger dykes or may be younger.

Table of Formations

CENOZOIC	Recent and Pleistocene	Forest soil, clay, till, sand, gravel
PRECAMBRIAN	Intrusive Rocks	Diabase (Keewenawan-type) Peridotite Granite, migmatite, feldspar and quartz-feldspar porphyry, aplite, syenite Diorite Epidiorite
	Temiskaming-type Rocks	Impure biotite quartzite, greywacke, sub-greywacke, slate, argillite, graphitic schist, arkose, tuff, amphibolitized basic volcanics
	Metamorphosed Keewatin-type Rocks	Impure biotite quartzite, arkosic biotite quartzite, hornblende schist (greywacke), hornblende schist (pillowed basic volcanics) Recrystallized tuffs, recrystallized tuffaceous sedimentary rocks
	Keewatin-type Rocks	Iron formation, tuff, agglomerate, flow breccia, rhyolite, basic to intermediate volcanic rocks

Keewatin-type Rocks

Basic to Intermediate Lavas

A succession of basic to intermediate lava flows containing interbeds of pyroclastic rocks and rhyolites is well exposed especially in the northeastern part of the map-area. No distinction in the field was made between basalt and andesite.

Most flows are medium green to nearly black on weathered surfaces and of various shades of green on fresh surfaces; they are coarse to fine grained and the massive portions of many flows have been recrystallized and cannot be distinguished in texture from the epidiorite sills. The dacite, however, usually forms lighter green flows of fine to very fine grain. Pale green dacites commonly contain large quartz eyes which are not continuous along strike within individual flows.

Pillows are common in the top parts of almost all flows and tend to be larger in the more basic lavas where their length may reach one foot to 3 feet. In the more acidic varieties the pillows are smaller but less deformed and good structural determinations could be obtained from some of them. The rims of the individual pillows are thinner and more distinct in dacitic types. Vesicles, although very abundant in basic lavas, did not always assist in determining orientation. Amygdules are abundant in almost all flows, especially in some dacites and in carbonate-rich members of the basic flows.

Several basic flows with spherulitic tops were observed in the lava complex just north of the contact with the sedimentary syncline. Abundant clots of pale grey feldspar, oval to pseudo-hexagonal in shape and measuring one inch to two inches across, are disseminated in a dark green matrix near the tops of flows. Only one of these bands was of sufficient width to be shown on the map. The occurrence in discontinuous exposures indicates a fairly consistent width of approximately 100 feet. Its persistence along strike makes the band an excellent horizon marker.

Rhyolite

Rhyolite, together with pyroclastic rocks, occurs in thin bands interbedded with more basic volcanic flows and consists of a light grey, glassy, very fine-grained rock, having a white to cream weathered surface and containing in places ill-defined pillows of irregular outlines and averaging 6 inches in length. The rock is usually made up of ovoids of opaline quartz disseminated in an aphanitic matrix of light grey feldspar and sericite. The rhyolitic bands are commonly associated with abundant thin iron formations thus reflecting a period of quiescence in volcanic activity.

Pyroclastic Rocks

Tuffs, agglomerates, and flow breccias increase in thickness

to the northwest of the township. Tuffs, largely water-lain and from basic to acidic in composition, become more abundant where the volcanic sequence becomes of more acidic composition. They are thinly banded, glassy rocks ranging in colour from white to black.

The agglomerates consist of one inch to five inches spherical to subangular pods, usually highly vesicular and of acidic composition. They are imbedded in an aphanitic, foliated groundmass, of variable composition.

The flow breccias are made up of vesicular and amygdaloidal acidic bombs of spheroidal outline in a finer-grained, usually more basic matrix. These were not of sufficient quantity and extent to be mapped as separate units.

Iron Formation

Several thin beds of iron formation are interlayered with tuffs and flows in the extreme northern portion of the map-area. Layers from 1/32 of an inch to 1 inch of magnetite and quartz alternate with bands of finely divided quartz. They occur in groups as individual bands of variable widths and are continuous along the strike of the formation.

A highly metamorphosed massive variety of hematitic iron formation was also observed at a few places within the Keewatin-type altered rocks of the southern part of the area described below.

Metamorphosed Keewatin-type Rocks

The southern group of rocks is assumed to be of the same age as those of the northeastern group from which it is separated by a synclinal remnant of Temiskaming-type sedimentary rocks. Within this group, contact metamorphism of medium grade has recrystallized all rocks to schists or gneisses.

Impure Biotite Quartzite

This rock consists of biotite flakes disseminated in a matrix of granular quartz. It occurs as beds within a roof pendant in the east part of the La Reine batholith. Sericite-biotite quartzites are abundantly interbedded in the sedimentary rocks along the northeast flank of the intrusive masses.

Arkosic Biotite Quartzite

Distinct beds of biotite quartzite occurring in the extreme southern portion of the map-area contain metacrysts of pink feldspar. Euhedral pink garnet is also a common constituent. Fibrous masses of sericite wrap around garnet crystals and lenses of granular quartz along small shears.

Hornblende Schist (Greywacke)

Schistose bands of fibrous hornblende alternate in layers with microgranular aggregates of light grey feldspar and quartz, commonly with metacrysts of garnet. The thin layers of microgranular quartz and the presence of garnet make it possible to differentiate between the hornblende schist of volcanic origin and the sedimentary variety.

Hornblende Schist (Pillow Lava)

The hornblende schist of volcanic origin is composed of hornblende chlorite, epidote in mats and of light grey feldspar. Pillows are abundant and can be recognized especially along vertical joints.

Recrystallized Tuffs and Tuffaceous Sedimentaries

Relict bedding can be clearly recognized in apparently water-lain tuffaceous sedimentaries which greatly exceed tuff in quantity. Microgneisses of granular and glassy quartz intermingled with feldspar and interlayered with mats of hornblende and chlorite indicate the sedimentary nature of tuffaceous rocks. Vitreous cherty bands ranging from white to black are interlayered with fibrous hornblende within the tuffs and reflect the original composition of the material.

Temiskaming-type Sedimentary Rocks

A central belt of sedimentary rocks is exposed across a width of about 10,000 feet from the northwest corner of the map-area to the east part of range IV. It is composed of Temiskaming basin-type sedimentary rocks which include impure quartzite, greywacke, subgreywacke, slate, argillite, arkose and tuff. These various facies may be first grouped into 10- to 20-foot bands made up predominantly of one particular rock-type. Each of these bands can in turn be subdivided into layers averaging one foot in width, the majority of which contain a greater abundance of that same particular rock-type and in which the different facies of the rock occur as beds one-quarter of an inch to one inch thick. Thus, for example, one may find a 10-foot band of predominantly quartzitic rock containing 7 one-foot layers of dominantly quartzitic material, two layers of mainly greywacke and one layer of mostly argillaceous material.

Graphite schist is also locally present in bands ranging from 1 foot to 300 feet in width and very thin layers of amphibolitized basic volcanic rocks are found within the sedimentary rocks near their contact with the adjacent volcanic series.

Biotite Quartzite, Greywacke, Subgreywacke

The more quartzose of the sedimentary rocks, such as biotite quartzite, greywacke and subgreywacke, exceed in quantity the

the argillites and slates. Quartzites are also subordinate in volume to quartz-rich greywackes. The latter consist of finely-granular aggregates of quartz and angular grey feldspar in a grey matrix of minute mineral fragments of diverse origin. The less siliceous greywackes contain angular feldspar grains as their most abundant mineral, along with subordinate heavy minerals and fine, dark grey aggregates of clayey material. Arkose occurs in thin bands in which angular feldspar grains are abundant.

Argillite, Slate, Graphite Schist

Argillite layers are numerous within the greywacke beds and are composed of minute black aggregates of clay-like composition with some clastic grains. There is no sharp distinction between the two rock-types and the divisions made are largely arbitrary. Black, aphanitic rocks with good cleavage parallel to foliation and breaking in smooth planes along joints were classed as slate. Black rocks with slippery feel and shiny slickensided foliation planes which did not break along joints were termed graphite schist.

Interbedded Volcanic Rocks

The volcanic bands of basic composition and recrystallized to amphibolite are numerous in the Temiskaming-type sedimentary rocks.

Intrusive Rocks

Epidiorite (meta-diabase)

Sills of amphibolitized basic rock or probable original gabbroic composition intrude in near concordant relations the Keewatin-type complex of lavas and sediments. They are more abundant in the northeast quarter of the area. Their outline is clear, as they were not as metamorphosed as the enclosing rocks. In the volcanic complex to the north, the massive parts of the flows are commonly indistinguishable from basic sills and it is quite possible that many of these have not been detected. The largest identified sill is, however, located in the northern group of basic lavas and extends diagonally across the northeast quarter of the township. It is characterized by fine-grained borders, a coarsely amphibolitized central part and slight transgressive relations to adjacent lava and tuff bands. A large inclusion of pillowed amygdaloidal lava was seen in the sill but this was within, and oriented parallel to, a broad shear zone. It might therefore result from structural adjustments.

The epidiorite has been completely recrystallized and it is now made up of hornblende laths and albite with subordinate epidote, chlorite, zoisite, carbonate and magnetite. Since it is not found in the zone of Temiskaming-type sediments, it may be, at least in part, older than them.

Diorite

The age of the large diorite masses in the south-eastern part of the township is pre-granite and post-folding. The intrusive has assimilated great quantities of basic volcanic and sedimentary rocks so that a typical diorite fabric is lacking. The diorite is usually dark green to black, coarse grained, with subhedral hornblende and intervening ovoid grey feldspar. Numerous xenoliths of amphibolite of diverse size and granularity occur in the matrix and the colour of the intrusive itself is influenced by the amount and nature of the more or less digested material it contains.

Granite, Migmatite, Acidic Dykes

Coarse-grained, white to pink biotite granite occurs over much of the southwestern part of the map-area. The rock locally contains large subhedral phenocrysts of pink or white feldspar. For a considerable distance from its limits, the granite contains hornblende and in places appears like a syenite with a low quartz content.

On each side of the large roof pendant cropping out in the south central part of the area the magma has permeated the intruded sedimentary and volcanic rocks to form migmatites and near the eastern margin of the roof pendant, assimilation of intruded material has transformed the normal granite into a low quartz, hornblende-bearing, coarse-grained rock.

Light grey granite dykes with feldspar phenocrysts are present in the country rock adjacent to the main granite mass. Small quartz-feldspar dykes occur near the northern boundary of the township. Sugary pink aplite and some pink syenite dykes are very common within the above-mentioned roof pendant.

Peridotite

A 12-foot sill of green-black, serpentine peridotite is exposed in range VI in the central part of the township. On the weathered surface, the sill is chalky grey.

A large northwest-trending peridotite body can also be followed on aeromagnetic maps from La Reine into Desmeloizes townships. This body has been drilled at several places in La Reine township.

Thin lamprophyre dykes occur at a few places in the granite; they trend in a northeasterly direction.

Diabase

The youngest rocks in the area are diabase dykes which were intruded after the folding of the enclosing rocks. There are two main sets of dykes, one trending northeasterly, the other north-south. Some dykes contain quartz or olivine.

A large dyke with a coarse-grained dioritic centre and accessory quartz is exposed across the southeast quarter of the township, south of, and parallel to, a northeast-trending olivine diabase dyke. The quartz diabase must be older as it is locally displaced by faults which do not affect the olivine diabase dyke. It averages 400 feet wide and for 100 feet on both margins it displays a medium-grained diabasic texture.

A coarse olivine diabase dyke, highly magnetic and 800 feet wide outcrops at a few places in the area. Near its contacts, the rock is fine grained and dense. The rock weathers readily and fresh specimens or continuous exposures are rare. From geophysical evidence it is postulated that this dyke may dip steeply to the north.

A dyke 300 feet wide of normal diabase, that is, without quartz or olivine, with uniform fabric, crosses the northwest quarter of the township.

Some very large segregations of red feldspar rock with minor accessory minerals occur here and there in the largest diabase dykes. The olivine diabase cropping out in lot 40 of range V contains such large segregations.

Thin aplite dykes of buff to pink colour with microgranular texture occur within the diabase and are transgressive to diabase contacts. They are at places cut off by the basic facies of the rock.

A north-south-trending diabase dyke with minor accessory quartz, known as the Abana (Normetal) dyke and averaging 150 feet in width cuts across the entire east half of the township. Other north-south dykes exposed within the map-area are narrower.

Thin northeast-trending olivine diabase dykes generally parallel courses of the larger dykes. The variations in diabasic texture are dependent upon thickness. The dykes present a medium-grained fabric grading to aphanitic near the boundaries.

STRUCTURAL GEOLOGY

The general trend of foliation and bedding of the volcanic and sedimentary rocks of the area is N.65°W. and the dips are predominantly steep to the northeast. The foliation is generally parallel to the bedding.

Folding

All rock units have been tightly folded into a series of local anticlines and synclines, largely overturned, which are part of major folds. Pillows in the northern volcanic group outline the trace of the axial plane of several small structures which are part of an anticline, the axis of which could not be determined.

Minor folds can be recognized in the sedimentary synclinal remnant but minor structures did not provide any determination of axial attitudes. The main syncline however, from evidence of graded bedding, is overturned.

A succession of minor anticlines and synclines is present in the contorted roof pendant of the south central part of the area where the general trend may have been rotated toward the north by the intruding action of adjacent and underlying granite. It is probable that the pendant is part of a major anticline but definite evidence of this could not be obtained.

Faulting

A shear zone 700 feet wide lies on the site of the Normetal mine. It is found on both sides of the Abana dyke in range X. The shear zone is parallel to the strike of the enclosing rock formations and has transformed the original rock into sericite and chlorite schists.

A fault in the central part of the township which roughly parallels the strike of the formations is postulated on the basis of outcrop patterns in diabase and from geophysical information. The fault can be traced through the southeast quarter but disappears within sedimentary beds to the northwest. Two older parallel breaks at an acute angle to the general strike are inferred from outcrop patterns of a quartz diabase dyke on lots 53 to 55, ranges IV and V.

An east-west shear zone was located in volcanic rocks from lots 31 to 41, range VIII. Displacement of 200 feet along this zone is inferred from exposures of bedrock along the eastern segment of the shear.

A north-south fault along the Abana dyke in lot 44, range X, displaces the Normetal orebody by about 150 feet.

ECONOMIC GEOLOGY

Exploration work in the area started around the year 1925. Two main ore deposits have since been found: one, on the property of Normetal Mining Corp. Ltd., is producing copper and zinc and the other, on the Duvan Copper Co. Ltd. ground, is a copper deposit.

Sulphide mineralization is common in the map-area as disseminations, in veins or in lens-like bodies. The most promising areas are along the borders of the diabase dykes and in graphitic zones within the sedimentary complex.

Description of Principal Mining Properties

Normetal Mining Corporation Ltd.

Ref.: Que. Dept. Mines. G.R. No. 34, pp. 19-29; G.R. No. 20, Vol. III, pp. 439-441.

C.I.M., Structural Geology of Canadian Ore Deposits, pp. 683-692.

The Desmeloizes Township property of Normetal Mining Corporation Ltd. consists of the north half of lots 41, 42, 46, 47 in range IX, the south half of lots 38 to 45 and the north half of lots 37, 38, 44 and 45 in range X.

This mine produced since 1937 a little more than 6,000,000 tons of ore grading about 2.7 per cent copper and 6.7 per cent zinc. The ore occurs in an elongated tabular body the length of which varies at depth between 500 and 1,200 feet and the width between 2 and 80 feet. The orebody lies on both sides of the Abana diabase dyke along which it shows a left-hand displacement in the upper levels of the mine. The ore of the west side of the dyke has provided most of the production to date. The sulphide zone is remarkably continuous to the deepest level which is 6,200 feet below surface. The copper rich zones are mostly confined to the hanging wall and zinc-bearing rocks to the footwall.

The orebody is located along a strong northwest shear parallel to the strike of the formations. It is dipping steeply to the north. The host formation is an acidic fragmental rock. Both walls consist of sheared tuffs transformed into chlorite and sericite schists. On the footwall a diorite sill parallels the ore zone a few feet away from it. Irregular bodies of intrusive rhyolite are also present. Silicification is prominent in the footwall. The sulphides consist of about 70 per cent pyrite, with sphalerite, chalcopyrite and a little pyrrhotite and galena.

Reserves were estimated at the end of 1959 to 1,598,700 tons grading 3.59 per cent copper and 5.05 per cent zinc. Another 1,084,600 tons grading 0.32 per cent copper and 13.28 per cent zinc and 6,500,000 tons of pyrite have not been included in the reserves.

Duvan Copper Co. Ltd.

Ref.: Que. Bur. Mines, Min. Op. 1928, p.111; Ann. Rept. Pt. A, 1929, p.136.

Que. Dept. Mines, P.R. No. 374, p.11; No. 390, p.33.

The property of Duvan Copper Company Ltd. includes lots 22 to 29, range II, and the southern half of the same lots in range III. It is underlain by the northwestern part of a large metamorphosed roof pendant of schisted greywacke, biotite quartzite, recrystallized tuff and interbedded volcanic rocks. Exploration work done on the property since 1953 has outlined a well mineralized zone 120 feet long and containing lenses of chalcopyrite and bornite associated with pyrite, pyrrhotite and magnetite in fractured tuff.

This zone, which strikes N.30°W., can be followed to the northwest and southeast from the main showing in lot 26, range II, for a distance of a few thousand feet but the mineralization is much more scattered.

The ore lenses have been explored by a 3-compartment shaft sunk to a depth of 1,000 feet on lot 26 of range II and by underground work on 8 levels. Estimated reserves were reported to be 113,100 tons averaging 2.5 per cent copper. A comprehensive program of diamond drilling was also carried out between 1956 and 1960 along the strike of the orebodies, with little additional tonnage outlined. In 1960, 1,159.6 tons of ore grading 11.99 per cent copper and 2.94 ounces of silver per ton was shipped to the Noranda smelter.

Bornite Copper Corporation Ltd.

Ref.: Que. Bur. Mines, P.R. No. 150, p.19.

This company presently holds the mining rights on lot 36, range I.

Trenching and diamond drilling has been done on a large outcrop of hornblende schist near the south boundary of the township, on lot 36. A trench in metamorphosed sedimentary rocks, near their contact with epidotized and amphibolitized volcanics, disclosed massive pyrite mineralization with some chalcopyrite. Eleven holes for a total of 4,602 feet were drilled in the vicinity of the showing and cut some scattered, sparse mineralization of copper and zinc. The property was also drilled previously, but the results of that drilling are not available.

Jacmar Exploration Ltd.

Ref.: Que. Bur. Mines, Summ. Rept. 1928, Pt. C, p.81 (Abbey M.L.);
Min. Oper. 1928, p.108 (Abbey M.L.).
Que. Dept. Mines, G.R. 34, pp. 30-31.

The property of this company consists of the north half of lots 36 to 43, range X. It was formerly held by Abbey Mines Ltd. and Central Mining Corp. About 10,000 feet of diamond drilling was done on it in 1927-28 by Abbey Mines Ltd.

In 1960, Jacmar Expl. Ltd. drilled a total of 4,097 feet in 13 holes. Mineralized sections were intersected which carried low tenors in copper, zinc and silver.

Other Mineralized Occurrences

Range V, lots 27 to 46

Ref.: Que. Dept. Mines, P.R. No. 390, p.32.

A resistivity anomaly was discovered in 1955 over an old trench in the south part of lot 39. At that place, sedimentary rocks and graphitic schists contain sulphides in veins and lens-like segregations with copper, lead and zinc. Three holes totalling 1575 feet were drilled on the property in 1956 by Bouzan Mines Ltd.

Range VI, lots 25 to 31

Ref.: Que. Bur. Mines, Min. Oper., 1928, p.109 (La Reine M.L.).

Exploration work particularly in the south part of lots 26 and 27 of the above ground yielded interesting values in copper and zinc. In 1955, Cyprus Exploration,Ltd., drilled 3 holes following air and ground electromagnetic surveys. In 1956, Lencourt Gold Mines,Ltd., drilled 7 holes totalling 2,397 feet.

Impure quartzose sedimentary rocks and graphitic schists of a northwesterly strike are highly contorted and faulted adjacent to, and east of, the La Reine granite batholith. Numerous granite porphyry dykes inject the sedimentary rocks and contain disseminated pyrite with sphalerite, chalcopyrite and galena. Considerable trenching and diamond drilling has not disclosed the presence of any orebodies on the property.

Range VIII, lots 1 to 6

Ref.: Que. Bur. Mines, Summ. Rept. 1928, Pt. C, p.71.

The showing of lot 1, range VIII, consists of copper and zinc mineralization in pyrite lenses within impure quartzose sedimentary rocks and interbedded tuffs and along an east-west shear. Sphalerite and chalcopyrite are sparingly present with pyrite disseminated throughout the rock.

Range IX, lot 28

Chalcopyrite, sphalerite, and pyrite are disseminated in a well trenched basic tuff band along the contact of a thin north-south trending diabase dyke just south of the centre of the lot.

Many other companies have done exploration work in the area, the results of which were not conclusive.