

RP 261(A)

PRELIMINARY REPORT ON PARTS OF PALMAROLLE, POULARIES, DUPARQUET AND DESTOR TOWNSHIPS,
ABITIBI-WEST COUNTY

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 

PROVINCE OF QUEBEC, CANADA
DEPARTMENT OF MINES
MINERAL DEPOSITS BRANCH

PRELIMINARY REPORT
ON
PARTS OF PALMAROLLE, POULARIES,
DUPARQUET AND DESTOR TOWNSHIPS
ABITIBI-WEST COUNTY

BY

BURDETT LEE



QUEBEC
1951

PRELIMINARY REPORT ON PARTS OF PALMAROLLE,
POULARIES, DUPARQUET AND DESTOR TOWNSHIPS

by Burdett Lee

Introduction.

During the summer of 1950 the writer and assistants mapped the geology of an area of 70 square miles in Abitibi-West county, comprising the east half of ranges I and II, Palmarolle township, ranges I and II, Poularies township, the east half of ranges IX and X, Duparquet township and ranges VIII, IX and X, Destor township. Mapping was done on a scale of one inch equals 1,000 feet. The preliminary map (No. 856), which accompanies this report, has been reduced to a scale of one inch equals 2,000 feet.

Mapping was carried out by Buffam (1) during the season of 1925, and, in 1932, a re-examination of the area was made by Lang (2).

The area lies in an easily accessible part of Abitibi-West county, and is well supplied with roads. The Macamic road, connecting the town of Macamic with Rouyn-Noranda, crosses the center of the area in a general north-south direction. To the west of the Macamic road the area is traversed by range roads along its north and south boundaries as well as along its east-west center line. These are connected, along the west boundary of the sheet, by the Duparquet-LaSarre highway, and the central and north-boundary roads are connected in lot 53 by a north-south road which passes through Palmarolle. All roads mentioned here are gravelled and are passable in all weathers. The area enclosed by this road system, with the exception of the southern part of ranges X, Duparquet and Destor townships, the western part of range IX, Destor township and the eastern part of range I and II, Poularies township, from lot 9 east, is under cultivation.

To the east of the Macamic road there has been no colonization and therefore there is no organized system of roads. However, the area is well supplied with bush roads and trails, and all parts are readily accessible. The eastern and northeastern parts are most easily reached from the I - II range road in Prival and Poularies townships, and the southeastern part from the south shore of Lois lake or the Rouyn-Taschereau line of the Canadian National Railways.

Physiography

The area lies within the clay belt of northwestern Quebec, but in part only shows the characteristic relief of this region.

References are at the end of the report (p. 10).

Range X of both Duparquet and Destor townships, and ranges I and II of Palmarolle and Poularies townships, from the western boundary of the area as far east as lot 9 in Destor and Poularies townships, lie within the Abitibi plain. Here the terrain is extremely flat, with the exception of a few rocky hills which pierce the clay cover. North of the Duparquet-Palmarolle boundary these blunt hills are of grey granite. The most extensive isolated granite hill lies on the western outskirts of Palmarolle; other hills are considerably smaller, many being the size of roches moutonnées, perhaps 50 feet long by 10 to 30 feet wide. There is no standing water on this part of the area. The few rivers have cut steep-walled, flat-floored valleys, some approaching 40 feet below the general level of the plain. In an attempt to drain the broader valleys, which in places are covered by muskeg, the river channels have been deepened by dredging.

To the east of the plain, between lots 9 and 43 in Poularies township, the terrain consists of a group of large, closely-spaced granite hills. In ground plan the hills are roughly equidimensional, and are separated by draws, either swampy or floored with sand. The highest of the granite hills rises 520 feet above the general level of the plain. To the east of lot 43, ranges I and II, Poularies township, the terrain reverts to clay and sand plain.

Range IX, and the southern part of range X, Duparquet township, and ranges VIII and IX, Destor township, are taken up with large, steep-walled rock ridges elongated in the direction of strike of the volcanic rocks forming them. Like similar ridges in Roquemaure township, the Duparquet and Destor strike-ridges are separated by wide, sand-floored valleys. Ridge profiles show steep northerly and westerly facing slopes and much gentler southern slopes. The southern slopes are further modified by the occurrence of tails of sand and gravel. In the area west of the Macamic road the ridges culminate in the so-called Destor hills, which extend two miles towards the west. These hills rise 420 to 560 feet above the Abitibi plain to the north. In contrast to the irregularly arranged granite hills to the north, these strike-ridges show a definite alignment in a direction N.75°W.

East of the Macamic road the strike-ridges are lower. However, they rise beyond the eastern boundary of the map to culminate in the Abijevis hills, which reach elevations up to 700 feet above the general level of the Abitibi plain.

Between the granite hills to the north and the ridges of volcanic rocks to the south lies an extensive area of sand. In range X and the northern part of range IX, Destor township, the sand is pierced by numerous widely spaced rocky hills. This wide sandy area represents the westward extension of the Lois lake trough, and is underlain by an extensive zone of intense shearing.

The western part of Lois lake extends from the east boundary of the map to lot 48, range X, Destor township. The maximum depth is 4 feet. Lois lake is drained by Lois river, which flows north. In early September this river had an average depth of somewhat less than 1 foot.

General Geology:

The consolidated rocks are all of Precambrian age, and consist of a series of acid and intermediate lavas, pyroclastic rocks, and a number of both acid

and basic intrusive bodies. A number of narrow, discontinuous bands of tuff and iron formation occur within the coarser pyroclastic beds.

The area represents the north limits of a syncline, the axis lying to the south. The strikes of the folded series are remarkably consistent throughout the area, being, with a few local exceptions, N.70°E. to N.75°E. Dips are steep south or vertical; rarely steep north. Tops, determined by pillows and grain gradation, face southerly.

Following the folding, the volcanic series has been intruded by large quantities of granite, smaller quantities of diorite and gabbro, and by dykes of quartz porphyry, feldspar porphyry and diabase.

A single mass of peridotite occurs within the granite of the northern part of the area. The visible contacts between granite and peridotite are fault contacts and, as a result, the age of the peridotite was not determined.

A major shear zone of considerable intensity crosses the area in a direction S.70°W. to S.75°W., from Lois lake to the southeast corner of range IX, Duparquet township. For most of its length the shear zone is mantled with sand, and thus its width is unknown. However, highly sheared and schisted rock occurs in outcrops 1,500 feet apart across the zone, thus giving it a width of at least 1,500 feet.

Numerous faults, striking N.25°E. to N.30°E., cut the volcanic rocks. For the most part they occur in rocks south of the shear zone mentioned above. Where such cross faults occur north of the shear zone, they apparently die out before the granite contact is reached.

A portion of the volcanic rock adjacent to the granite, and lying between lots 42 and 49, range IX, Duparquet township, is notably granitized.

The following table lists the geologic sequence as interpreted within the area:

Table of Formations

Recent and Pleistocene	forest soils gravels, sands varved clays tills		
Great unconformity			
Post Algomian	diabase quartz porphyry; feldspar porphyry		
Algomian (?)	<table border="0" style="width: 100%;"> <tr> <td style="width: 70%;">diorite granite gabbro ("older" diorite)</td> <td style="width: 30%; border-left: 1px solid black; padding-left: 5px;">peridotite position unknown</td> </tr> </table>	diorite granite gabbro ("older" diorite)	peridotite position unknown
diorite granite gabbro ("older" diorite)	peridotite position unknown		
Keewatin-type	andesite; pillowed, massive pyroclastic rocks, tuff, agglomerate rhyolite, trachyte andesite; massive		

Keewatin-like Rock Types:

Andesite:

Andesite, both massive and pillowed, is the predominant extrusive rock of the area. It occurs at two separate horizons: one, against portions of the granite mass of the northern part of the area; the second involving all that part of the area lying southeast of a line passing through Lois and Lavocie lakes.

The older andesite, that is, the andesite which occurs in contact with the granite is massive and has a fine-grained texture. In places there is considerable secondary albite, giving the rock the appearance of a porphyry.

The younger mass of andesitic lava has, as its northern boundary, the major shear zone of the area. The northern boundary thus involves the south shore of Lois lake and, to the west, a relatively straight line trending S.72°W., passing out of the area in the southeast corner of range IX, Duparquet township. South and east of this line the exposed rock is almost entirely andesite, mostly pillowed flows.

The pillows range from 8 inches to 8 feet in length and 3 to 4 feet in width. Rims are well vesiculated and quartz amygdules are numerous. Within the pillowed flows there occur massive flows which are in general narrow and discontinuous. The andesites weather brown or dark green. Fresh, glacially polished surfaces are dark greyish green to dark green. Rock types other than andesite are represented by minor bosses of diorite, several diabase dykes and a single small boss of gabbro.

Trachyte:

Trachyte occurs as 3 elongated bodies, with a general east-west trend, in the eastern part of range IX, Duparquet township. The trachyte is light grey on a fresh surface and weathers darker grey or brownish. The rock is very fine grained and massive. The largest of the 3 masses is considerably granitized for 500 to 750 feet from its contact with the granite.

Rhyolite:

Rhyolite flows extend from the southwest corner of the map in range IX, Duparquet township, north to a point one third up the west boundary of lot 32, range I, Palmarolle township. The flows trend N.72°E. into the area, where they abut against the irregular outline of the granite mass. A narrow belt of rhyolite, rarely exceeding 1,500 feet in width, extends along the southern boundary of the granite, trending N.70°E., to die out at the north end of lot 31, range X, Destor township. The rhyolite weathers light grey to almost white. It is very fine grained, with local glassy and porphyritic phases.

The rhyolite locally contains fragments of rhyolite and tuff which give it the appearance of an agglomerate. In the southwest corner of the area the rhyolite is highly sheared, carbonatized and pyritized. Here the rhyolite encloses several prominent quartz veins, notably in the south-central part of lot 34, and the south ends of lots 35 and 36, range IX, Duparquet township. In the southeastern part of range IX, Duparquet township, it is difficult to separate rhyolite, which contains numerous fragments, from the pyroclastic rocks (tuff and agglomerate).

Pyroclastic Rocks: (Tuff and Agglomerate)

Narrow bands of silicified tuff occur within the wider zone of coarser pyroclastic rock which trends N.72°E. across the central part of the area. In part the tuff is sufficiently fine grained to resemble chert; for the most part, however, the surface is rough, somewhat like a fine grey sandstone. The most striking bands occur between coarser pyroclastic rocks and trachyte in the south-central parts of lots 50 to 53, range IX, Duparquet township. Here considerable iron-formation occurs with the tuff.

A band of agglomerate of variable width, trending N.72°E., crosses the area from the south end of lot 46, range IX, Duparquet township, to the east end of ranges I and II, Poularies township. To the north, the agglomerate is in contact with rhyolite; to the south the contact is obscured, lying in the major shear zone of the area. The fragments, which constitute the agglomerate, vary greatly in size, from lapillae 1/8 inch in diameter to blocks 18 inches in size. The coarser type occurs in the lower horizons, in the northwestern part of the agglomerate band, with the finer types in the southeastern part of the band.

The outstanding type of coarse agglomerate is formed of whitish-weathering trachytic and andesitic fragments in a very fine grained tuffaceous matrix. On a weathered surface the tuff is whitish-grey in colour and finely pitted. In some specimens the fresh surface is glassy and quite green in colour. The tuffaceous matrix is very similar to andesite.

Most of the agglomerate is made up of fragments about 2 to $2\frac{1}{2}$ mm. in diameter. This finer agglomerate is involved in the major shear zone of the area, in which it is highly schisted, carbonatized and mineralized with fine pyrite and some chalcopyrite. In the central parts of lots 2 and 3, range IX, Destor township, the agglomerate is represented by a sericite schist, highly carbonatized, which weathers to a rich chocolate brown.

Post Keewatin-type Intrusive Rocks:

Gabbro:

A single elongated mass of gabbro invades massive and pillowed andesite in the northern parts of lots 4 and 5, range VIII, Destor township. The gabbro stock is 150 to 200 feet wide and 1,300 feet long. The long axis trends N.20°W. A distinct chilled edge occurs on the east, north, and west contacts. Within a few feet of the contact the gabbro is coarse grained, with ferromagnesian minerals and feldspars reaching a maximum size of $\frac{1}{4}$ inch. Quartz occurs in the form of bluish eyes, scattered throughout the gabbro. The gabbro is rather greenish on a fresh surface; it weathers to a rich chocolate brown.

Peridotite:

Peridotite occurs within the grey granite of two large hills on lots 37 to 40, range II, Poularies township. The rock occurs as two distinct narrow masses, both trending N.40°W. The peridotite is closely jointed and weathers readily. Because of the close jointing and ease of weathering the surface has a distinct mammillary appearance. The weathered surface, which is whitish, is very soft, and scores easily under the hammer. A fresh surface is black, and the rock appears to be either quite without texture or rather coarse grained. Serpentine is common along the joint surfaces, and considerable asbestos also appears. The weathered surface shows, when viewed correctly with respect to the sun, numerous shiny, silky streaks. These ribbons of fiber are usually parallel, occupying one particular joint set. The ribbons average about $\frac{1}{5}$ inch in width. Selected areas run up to 3 per cent asbestos; however, the over-all content is probably far less than 1 per cent. The asbestos is cross fiber and brittle, usually white, but often honey-coloured.

The relationship between the peridotite and the enclosing granite is obscure. Both the northeast and the southwest boundaries are fault trenches, and the northwest and southeast ends are open. To the southwest, the sequence is peridotite, fault trench, diabase dyke and grey granite. At the contact with the granite the diabase displays a distinct chilled edge. This lack of contacts, other than fault contacts, leaves no chance for determination of the position of the peridotite in the intrusive sequence. There is a distinct difference, megascopically, between the peridotite and the diabase. The diabase is medium to fine grained and has a distinct salt and pepper appearance, with easily recognizable plagioclase and ferromagnesian minerals.

Granite:

About half of the map-area is underlain by granite which is part of an extensive batholith occupying most of the southern three-quarters of Palmarolle

and Poularies townships. The contact between the granite and the invaded rocks is rarely sharp; rather, it is represented by a somewhat diffuse zone of variable width. Within this zone the older rocks are cut by numerous tongues and apophyses of granite. Further, the lava near the granite mass is granitized to a greater or less extent. It is possible to find gradations from undoubted lava through lava which has become coarse grained and quartz-bearing, through granite which shows a greenish andesite-like colour, into undoubted granite.

The granite varies in colour from a grey hornblende granite at the edge of the batholith to a pink to reddish hornblende granite within the batholith. All gradations occur, and there is no evidence that the mass is composite. Grain size also varies considerably, and this variation is not related to position with respect to the boundary of the batholith. In the grey granite most of the feldspar is a whitish to pale grey plagioclase. In the pink variety, grey feldspar is present in smaller amounts, and orthoclase predominates. Finely-divided epidote occurs both as a coating and as distinct fine grains. The epidote gives the rock a decided greenish yellow cast, which is most evident on glacially polished surfaces.

Diorite:

Numerous small bosses and dykes of diorite cut all the major rock types of the area. None are of great size; the largest measures, lying in the north ends of lots 40 to 43, range I, Poularies township, 3,200 feet by 500 feet. The diorite has a granitic texture and varies from medium to coarse grained. The feldspar in all cases is a grey plagioclase. The ferromagnesian minerals are largely altered to chlorite. From place to place the diorite contains considerable glassy quartz, occurring either as grains interlocked with the other constituents, or as rounded eyes.

Porphyry dykes:

Within the granite a number of dykes of quartz-feldspar porphyry are found. This material also is found in apophyses cutting the volcanic rocks at the boundary of the granite batholith.

A dyke of feldspar porphyry with an average width of 400 feet extends 6,000 feet in a northwesterly direction from the south-central part of lot 23, range X, Destor township, into the north-central part of lot 17.

A feldspar porphyry which is distinguished by a greenish matrix and milky feldspar phenocrysts is found in Poularies township cutting the agglomerate in the north ends of lots 44 to 46, range I; and in the north-central part of lot 55, range II.

Diabase Dykes:

A dyke of diabase 200 to 250 feet wide extends from the west-central part of lot 17, range X, Destor township, into the northwest corner of lot 15. The dyke trends N.40°W. across a large hill of granite. The edges are chilled, whereas the central part of the dyke has an ophitic texture. A smaller easterly trending

diabase dyke was observed cutting the andesite 4 miles south of Lefève lake. Numerous smaller dykes occur throughout the area, but are too narrow to be shown on the map.

Pleistocene and Recent Deposits:

The flat-lying parts of the area, which extend westward from lots 9, Destor and Poularies townships, are underlain by varved clays. The upper portion of the clay has developed into a grey forest soil, in places mixed with more or less peaty material. In places the clays are overlain by sands and gravels. The draws between the various granite hills and strike-ridges are floored with mantles of sand and gravel, which material also occurs as well-defined tails in the lee of nearly every rock hill of the area.

A single kettle occurs on the west side of the Macamic road at the south end of lots 12 and 13, range IX, Destor township. It is 300 feet by 500 feet and has no visible outlet.

Beach terraces occur at various levels on the flanks of the Destor hills and elsewhere. Two terraces are visible from the Macamic road in the north-central part of lot 12, range X, Destor township. The boulders are mainly of grey granite, diorite, and granite gneiss.

Structure:

Folding:

The extrusive rocks form part of the north limb of a syncline, with axis to the south of the area. The flows, with few exceptions, strike N.70°E. to N.75°E. Dips for the most part are steep south, frequently vertical, rarely steep north. Variations in strike from the regional trend occur in numerous minor drag folds associated with the major shear of the area. Strikes of the axial planes of the drag folds lie between N.28°E. and N.35°E.

Faulting:

A major zone of intense shearing crosses the east and central parts of the area in a direction N.65°E. to N.70°E. At the east border of the map the shear zone underlies Lois lake. Outcrops of pyroclastic rock on the three small islands and on either side of the outlet of the lake in lot 55, range I, Poularies township, are highly sheared. The rock of the islands is a sericite-rich schist. The shear zone underlies a belt of low ground and sand plain. The few outcrops of pyroclastic rock and andesite which occur within this belt all show evidence of intense shearing, the pyroclastic rock being represented by sericite schist, the andesite by chlorite-rich schist. The two most widely separated outcrops which lie across the strike of the shear zone are 1,500 feet apart. Since both of these outcrops are sheared, the width of the shear zone is safely assumed to be in excess of 1,500 feet.

Subsidiary shears parallel to the above shear zone cut the pyroclastic rock and rhyolite of the central parts of lots 51 and 52, and the rhyolite of lots 32 to 37, range IX, Duparquet township.

Younger faults of small displacement trending N.25°E. cut the andesite of the south-central part of the area. These are particularly prominent in the Destor hills, of range VIII, Destor township, to the west of the Macamic road, where the western flanks of the hills are fault scarps, all more or less parallel to one another. Flows of massive andesite are truncated in several places by these younger faults, but the displaced parts were not found in every case. Dips are all steep and in one case, on lots 55 and 56, range VIII, Destor township, the fault zone was subsequently occupied by a diabase dyke. To the east of the Macamic road, in the neighbourhood of Lavoie lake, the displacements are to the left. Farther to the east they are to the right. Only the larger faults have been shown on the preliminary map.

The mass of peridotite previously discussed is bounded on the northeast and southwest, along its length, by faults which trend N.45°W. to N.50°W. No clue was found to aid in determining the relative age of those faults.

Economic Geology:

Most of the prospecting and exploration in the area has been done in range IX, Duparquet township, and in ranges IX and X, Destor township, to the east of the Macamic road. The work has been done along both the main shear zone and the two subsidiary shears mentioned as lying to the west of the main zone.

Mineralization within the shear zones consists chiefly of carbonatization and pyritization. The pyrite for the most part is very fine, though locally cubic pyrite up to $\frac{1}{2}$ inch edge is found. Chalcopyrite mineralization also occurs. Samples have been reported to assay as high as 7 per cent copper. However, these deposits, as outlined to date, are too small to be economically important.

DESCRIPTION OF MINING PROPERTIES

Lyndhurst Mining Company Limited:

Lyndhurst Mining Company Limited holds a large block of ground to the east of the Macamic road, straddling the major shear zone. The property is largely drift covered. The part in Destor township comprises 83 claims in ranges IX and X, which extend from the Macamic road 29,000 feet to the east. The remaining northeasterly portion lies in range I of Poularies township and comprises the south halves of lots 36 to 46. The property comprises four groups of claims which are progressively staggered to the northeast, thus straddling the major shear zone. The property is largely drift covered.

Eleven short diamond drill holes have been put down on the property on C.6510, claims 3 and 4. Four holes have also been put down just east of the Macamic road. All 15 holes intersect tuff and agglomerate. Mineralized outcrops have been trenched in Destor township in the central part of C.6509, claim 3, and in the northern part of lots 35 and 36, range X, just south of a wagon road which crosses the claims.

The outcrop on C.6509, claim 3, has been trenched along its eastern boundary. The trench cuts a knotted pyroclastic rock which appears to have an

andesitic matrix. A great deal of pyrite occurs in the form of fine cubes. The mineralized zones are very craggy, and the surface of the outcrop is very dark brown and oily looking, due to weathering of the pyrite. Quartz occurs in the form of replacement of certain fragments of the pyroclastic rock and also as large or knotted masses which are elongated parallel to the strike. A series of fine quartz stringers which strike N.38°E., parallel to the strike of flow cleavage, was observed. Elsewhere on the outcrop the matrix is a talc-chlorite schist.

The outcrop on lots 35 and 36 has been explored by deep trenches and diamond drill holes. The southern part is underlain by pyroclastic rock which strikes N.75°E. and contains a few narrow quartz stringers. The northern third is underlain by an agglomerate consisting of fragments of tuff and glassy rhyolite in a fine matrix rich in chlorite. The matrix is knotted and schisted, and contains fine cubic pyrite and massive chalcopyrite. There are numerous quartz stringers, one set being parallel to the formation and the other cutting across it in a direction N.28°E. to N.35°E., and dipping 65° to 75° northwest. The important mineralization occurs in the andesitic matrix and is reported to be 5 per cent copper in this outcrop.

North of the wagon road, in C.6510, claim 3, there is a large area of low, flat, scattered outcrops. The rock is schistose but recognizably an andesitic agglomerate. The mineralization is fine pyrite and massive chalcopyrite in small amounts. Quartz stringers here trend N.70°E., parallel to the strike and also cut across it in a direction N.35°E. Mineralization in the pyroclastic rock is relatively slight and is confined to fine pyrite.

Richard Copper Corporation Limited:

This group of claims lies to the west of the Macamic road in ranges IX and X, Destor township. A large outcrop occurs C.7437, claims 1 and 2, straddles the contact between rhyolite to the north and andesite to the south. This outcrop has been trenched, and on claim 2 there is a shallow shaft. Mineralization consists of fine pyrite disseminated through a schisted rhyolite. The rhyolite is also carbonatized, and locally weathers to a rich chocolate brown.

REFERENCES

1. Buffan, B.S.W., Geol. Surv. Can., Summ. Rept. 1925, Pt. "C".
2. Lang, A.H., Geol. Surv. Can., Summ. Rept. 1932, Pt. "D".