

RP 389(A)

Preliminary report on northeast quarter of Montbray township, electoral district of Rouyn-Noranda

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

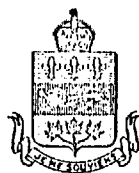
Québec 

PROVINCE OF QUEBEC, CANADA
DEPARTMENT OF MINES
HON. W. M. COTTINGHAM, MINISTER
MINERAL DEPOSITS BRANCH

PRELIMINARY REPORT
ON
NORTHEAST QUARTER OF MONTBRAY TOWNSHIP
ELECTORAL DISTRICT OF ROUYN-NORANDA

BY

WILLIAM A. HOGG



QUEBEC
1959

PRELIMINARY REPORT

ON

THE NORTHEAST QUARTER OF MONTBRAY TOWNSHIP

ELECTORAL DISTRICT OF ROUYN-NORANDA

BY

William A. Hogg

INTRODUCTION

The northeast quarter of Montbray township comprises a 25-square-mile area located 18 miles northwest of the cities of Rouyn-Noranda and 5 miles east of the Quebec-Ontario interprovincial boundary. It is bounded by latitudes $48^{\circ}21' 38''$ and $48^{\circ}25'$ and by longitudes $79^{\circ}20'$ and $79^{\circ}24' 15''$.

Kanasuta river, which flows northerly to northeasterly across the area to join Duparquet lake about 2 miles farther to the north, is the best means of access. The river is easily navigable and only one portage is necessary from the lake to the area.

The area was mapped during the summer of 1958 at the scale of 1,000 feet to the inch with the use of vertical air photographs at that scale. The geological data, details of outcrop pattern, and structure were compiled on individual photo overlays that were corrected for distortion and subsequently plotted on the base map. Ground controls were established with township range lines and lot posts where available.

TOPOGRAPHY

The map-area is mainly one of low relief with few hills reaching over 100 feet above the level of the surrounding ground. The section west of Kanasuta river has a more even surface than the rest and is partly covered by sand and clay deposits. The highest hills are in the southeastern part where the summits may reach between 300 and 400 feet. These represent the westward extension of the Bourniot Hills in Duprat township where their maximum elevation is 1,586 feet above sea level.

The area is drained mainly through Kanasuta river except for its northwestern part in which the streams flows northward to Magusi river.

GENERAL GEOLOGY

The geological features of the northeast quarter of Mont-bray township are somewhat similar to those of the adjacent map-areas to the east and south. All the rocks are Precambrian in age, and Keewatin-type, andesitic, dacitic, rhyolitic, and basaltic flows, breccias, and related rocks underlie most of the area. The volcanics form easterly- to northeasterly-trending belts that have been folded into an east-plunging anticlinal structure. Intrusive rocks of various composition and age have invaded the volcanic formations, and Late-Precambrian, northerly- to northeasterly-trending diabase dykes find their maximum development along the east border of the map-area.

Table of Formations

QUATERNARY	Recent and Pleistocene	Clay, silt, sand, gravel, boulders, loam
LATE-PRECAMBRIAN	Keweenaw-type intrusive rocks	Diabase
EARLY-PRECAMBRIAN	Post-Keewatin-type intrusive rocks	Syenite Porphyritic syenite Aplite Gabbro Diorite
	Keewatin-type volcanic rocks	Andesite, dacite rhyolite, basalt, agglomerate

Volcanic rocks

Volcanic flows underlie over 90 per cent of the area and include varieties from basic to acidic. They were classified in the field according to their order of importance as andesite, dacite, rhyolite, and basalt. A small area of agglomerate was also mapped in the southern quarter of lots 37 and 38, range VI.

Andesite

Andesite is the most abundant rock formation cropping out in the area and it forms a series of northeasterly- to easterly-trending belts, the largest of which extends across the central part of the area. The rock grades in places into dacite with an increase of silica.

The contacts between andesite and rhyolite are usually clearly defined but are not nearly so between andesite and basalt.

Massive, pillowed, and brecciated varieties of the rock are present in the area. The massive variety is generally soft, compact, and uniform and its colour and general appearance vary but little. Fresh specimens are green to dark green and the rock takes on weathering a rough red to rusty brown surface. In some localities, it has a peculiar brown and white spotted appearance.

The pillowed facies occurs at various places throughout the map-area but is more abundant and forms a well defined belt in the east of range IX, where pillows of the mattress, bun, and balloon type can be seen. Some pillows have concentric laminations parallel to their borders. These laminations are about three-eighths of an inch thick and are separated one from the other by a thin layer of quartz or of siliceous material.

Round and ellipsoidal quartz-epidote amygdules are also present in some andesitic flows. The epidote commonly forms radiating clusters.

A porphyritic variety of the rock is also found and andesitic flow breccias are relatively common. These may have ribbon-like flow structures or rounded or angular fragments commonly much lighter in colour than the enclosing matrix. They may be made up of chert or rhyolite.

Dacite

The rocks mapped as dacite are light green to grey and resemble the andesite except for their lighter colour and greater hardness. Those two characteristics were the only criteria found in the field which permitted to distinguish the two varieties.

Rhyolite

Rhyolite crops out in relative abundance in ranges IX and X and in the southeast quarter of the map-area. It also occurs as small lenses in various parts of the area.

The rhyolite is a hard and brittle rock breaking with a conchoidal fracture and having a white or greenish grey weathered surface. Its fresh surface is usually white to reddish white but may even be dark green. The porphyritic variety may weather to a reddish or pink colour thus commonly taking the appearance of a red granite. The fresh rock has, however, a dark green colour.

Both the massive and porphyritic varieties of rhyolite are abundant and the latter facies is characterized by phenocrysts of quartz and pink or white feldspar that may attain 1 to 3 millimeters in size. The largest single area underlain by the porphyritic rhyolite is in the northwest corner of the map-area. In places, the rock has a sheeting structure and is sufficiently massive and coarse grained to be considered

as intrusive.

Rhyolite flow breccias also crop out at various places in the area and the fragments, which are usually angular, have apparently a composition similar to that of the matrix in which they are set. Some have chilled borders.

Basalt

The rocks mapped as basalt crop out in the central part of range VIII and in the extreme southwest corner of the map-area. They are generally dark grey of greyish black and have a grey to greenish grey weathered surface. They are usually fine grained, brittle and commonly break with a conchoidal fracture, especially in the very fine-grained varieties. Pillows and flow structures are visible in the exposures of the southwest corner of the area. The rock of range VIII is more massive.

The basalt is almost everywhere intruded by swarms of dykes and apophyses of aplite and syenite. The intrusions, some of which are up to 18 inches wide, commonly lie along joint planes but have, in places, been injected into massive flows.

Several localities in the northeast part of the map-area, in range X, contain a rhyolite having the appearance of the rock mapped as basalt. The writer is of the opinion that it is a case of alteration of an original rhyolite since the rock can be seen to grade within short distances into a normal acidic lava.

The northern border facies of the subrounded area of basalt of range VIII contains, together with abundant normal and porphyritic syenite dykes and apophyses, an intrusive breccia the fragments of which range in size from one-quarter of an inch to 2 inches. Those fragments, which are made up of diorite and gabbro, lie in a basaltic or syenitic matrix.

It has been suggested (Dugas, 1955^{*}, Behr et al., 1958^{**}) that rocks mapped as basalt in the adjacent areas to the south and east

* Dugas, J. (1955); Descriptive Notes to Accompany the Geological Compilation of the Southeast Quarter of Montbray Township, Rouyn-Noranda County; Que. Dept. Mines.

** Behr, S.H., Dugas, J., and Emo, W.B. (1958); Preliminary Report on Part of Western Duprat Township, Electoral District of Rouyn-Noranda; Que. Dept. Mines, P.R. No. 368.

could be the result of a thermal metamorphic effect of the intrusive bodies on the adjacent volcanic rocks. The same phenomenon may be true in the present map-area.

Intrusive rocks

Diorite

Diorite represents the largest and most widespread intrusive rock of the area and occurs as elongated or rounded bodies of various extents and as numerous small dykes. The largest area of this rock is in the northeast quarter of range X where a massive variety crops out along the north boundary for a distance of 22 miles.

The general trend of the larger elongated bodies of diorite and of most of the smaller dykes is close to northeast and parallel to the general orientation of the intruded volcanic rocks. There are a few exceptions to that rule and a number of small dykes were seen that cut across the structure of the older formations. The dykes may vary in width from less than one foot to 100 feet, with the greatest number being between 15 and 35 feet wide.

Variations in texture, grain size, and mineral composition occur in the diorite from one locality to another, even within the limits of a single mass. Such changes are particularly notable in the larger masses whereas the smaller bodies and dykes have a generally more uniform texture and mineral composition. The colour of the fresh rock is normally dark grey and it may locally assume a greenish tint possibly due to the alteration of the feldspar into epidote. The weathered superficial zone may reach a depth of one-eighth to one-quarter of an inch and its surface is rough and dark green to rusty brown in colour. Some of the diorite making up the larger masses has a much lighter grey green colour on fresh surfaces and weathers to a white or light grey material.

It is commonly difficult to distinguish between the diorite and the adjacent andesitic rock where the two are in gradational contact and in some cases only the presence of pillows and flow structures indicates that the rock is a recrystallized andesite and not a diorite.

A suggestion of two ages for the diorite was found on lot 32 of range VIII, where a massive diorite is intruded by dykes of a fine-grained variety of the rock. The large mass cropping out on lot 55, range X, is injected by 2-to 3-inch-wide apophyses and dykes of syenite containing inclusions of diorite. The rock is also cut by more recent, northerly-trending diabase dykes in the north part of lot 59, range IX.

The diorite contains quartz in places; elsewhere, it is sheared and altered, and some epidote, calcite, and quartz veins may be present.

Gabbro

A rather small area mapped as gabbro in the north central part of range VIII between a diorite and a basalt is definitely more

basic than the adjacent diorite. The rock is generally massive and contains in places stringers of milky quartz. It is also here and there partly serpentinized along shear planes.

Associated with the gabbro is what is believed to be an intrusion breccia in which the fragments are cemented together by coarsely granular quartz. Apophyses and dykes of porphyritic syenite up to 1 foot across are also present in the gabbro and in the adjacent basalt.

Syenite, porphyritic syenite, and aplite

There are no large masses of acidic intrusive rocks within the limits of the map-area. Syenite, porphyritic syenite, and aplite occur as apophyses and dykes that have invaded all of the older rocks. These intrusions may represent satellitic facies of larger bodies of granitic material present at depth.

Diabase

A series of diabase dykes trending northerly crops out in the eastern third of the map-area. One of those dykes extends from the southeast corner northward for a distance of over 2 miles and its possible extension has been mapped in ranges IX and X. The other dykes are generally much smaller. The dips of the dykes are usually vertical or nearly so and their width varies between 20 and 80 feet. Both the fresh and weathered surfaces of the rock show a characteristic ophitic texture.

In the northern part of lot 59, range VIII, a diabase dyke was observed to cut across an older diorite dyke and a rhyolitic flow. The diabase has generally chilled border zones and the size of its grains increases towards the centre of the dykes.

The persistent northerly strike of the diabase dykes may be taken as suggesting that they occupy tension fractures cutting across the major folded structures.

Recent and Pleistocene

Large portions of low ground in the area are covered by lacustrine clays, silt, and sand. No large deposits of gravel were found but there is a fairly large area of fine sand covered with grey pines in range VIII, between Kanasuta river and Fabie lake.

Short boulder trains indicating the site of former glacial streams were seen in the area but they cannot be traced for any great distance. Many outcrops have been rounded by the ice sheets thus producing some roches moutonnées, and small superficial deposits of ground moraine occur in some of the valleys.

The glacial striae trend in an almost consistent southerly direction.

STRUCTURAL GEOLOGY

Folds

The volcanic rocks of the area have been folded into easterly- to northeasterly-trending folds and, although information concerning the major structure is scanty for large tracts of the area, a reasonable number of observations suggest the presence of an anticlinal fold structure plunging eastward across the eastern limit of Montbray township, in range VIII. The axial trace of the fold seems to swing southwestward into Montbray and lack of information prevents its being traced farther to the southwest. The axial plane of the anticline appears to dip towards the north and the formations are relatively steeply inclined on the south side with dips averaging about 50°. Along the northern flank of the fold, the dips are more gentle.

A few small, cross-folded, fluxion structures were seen by the writer at four places in the dacites of the eastern part of range VIII. Those structures, which are clearly outlined by bands of deformed rock containing lenticular growths of crystals, appear to be younger than the main period of deformation. They are made up of tight folds plunging steeply to the south or southeast and their axial planes are at approximately right angle to the main folded structure of the area.

Faults

The northwestward extension of the Smoky Creek fault, which is a prominent feature in the area to the southeast, extends for at least 2½ miles into the present area.

Most of the faults identified in the area have a northerly to northwesterly orientation. A right hand apparent displacement is suggested for most of them but the evidence supporting that statement is scanty.

Several relatively strong shear zones were identified throughout the area. Those zones, which vary in width between 20 and 50 feet, trend in a general northerly to northeasterly direction. Some are accompanied by intrusions of diorite; others, by the introduction of sulphides.

ECONOMIC GEOLOGY

There have been yet no producing mines within the limits of the map-area nor has it been the scene of a great deal of exploration work. Disseminated pyrite is fairly common and, in a few places, more than the usual disseminations of it have been found. The weathered rock surfaces are commonly stained to a rusty brown or black colour on account of the alteration of the pyrite. The main occurrences of iron sulphides are indicated by the symbol P on the accompanying map.

Lots 32 and 33, range X

The Mining Corporation of Canada Ltd. drilled, in 1956, 3

exploration diamond drill holes totalling 995 feet on lots 32 and 33 of range X. No economic minerals were found in the drilling.

Lot 41, range VI

Scattered specks of chalcopyrite occur along narrow quartz- and calcite-filled fractures in dacite, on lot 41 of range VI, about 1,400 feet south and 200 feet west of the northeast corner of the lot. In 1955, Roche Long Lac Gold Mines Ltd. put down 6 shallow diamond drill holes totalling 372 feet on the occurrence. The drilling failed to reveal the presence of concentrations of valuable minerals at the depths reached.

Lot 32, range VIII

A shear zone at least 200 feet wide and extending south-westward for several thousand feet can be seen along the western limit of the map-area, in lot 32 of range VIII. The zone strikes S.50°W. and dips at 70° to the south thus paralleling the local fold structure. It lies in volcanics and is bordered by diorite dykes. The rock is heavily stained black to rusty brown by the weathering of pyrite which is disseminated throughout. Numerous old prospect pits and trenches were seen on the zone.

M-X-46