

RP 414(A)

Preliminary report on the Georget lake area (east half), Saguenay electoral district

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DEPARTMENT OF MINES
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GEOLOGICAL SURVEYS BRANCH

PRELIMINARY REPORT
ON THE
GEORGET LAKE AREA (EAST HALF)
SAGUENAY ELECTORAL DISTRICT

BY

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QUEBEC
1960

PRELIMINARY REPORT

on the

GEORGET LAKE AREA (East Half)

Saguenay Electoral District

by

A.J. Sinclair

INTRODUCTION

The Georget Lake area (East Half) is located approximately 160 miles north-northwest of Sept-Iles in the Mount Wright - Mount Reed portion of Saguenay electoral district. It is bounded by latitudes 52°15' and 52°30', and by longitudes 68°00' and 68°15', and includes most of Boucault township and parts of Claudel, Surveyor, Roz, Gomez, and Sevestre townships. This area, comprising approximately 185 square miles, was mapped during the summer of 1959.

Access at present is by hydroplane from Sept-Iles. The southern portion of the area is about 25 miles north of the northernmost point on the Shelter Bay - Jeannine Lake road. No good water routes lead into the area, and canoe travel within the area itself is limited to the numerous large lakes and to the southern portion of the Thémines river.

The surface is relatively subdued with local relief normally in the order of 300 feet. The topography reflects the underlying rock type to a considerable degree, the more acid rocks tending to form the more prominent hills and ridges. The south-central part of the area, immediately south and west of Georget lake, is relatively hilly, whereas most of the remainder of the area has a rolling topography characterized by elongate, discontinuous mounds of glacial debris.

Most of the area drains through the south-flowing Thémines river to Manicouagan lake and river and so southward to the St. Lawrence. The extreme eastern portion of the area drains south-southeasterly into the Hart-Jaune river and thence into Manicouagan lake.

The area is sparsely forested with scrub spruce except for a "burn" in the central portion where no new growth has appeared. In the southern third of the area, stunted larch and balsam are more abundant than to the north. A few clumps of

birch grow along sheltered slopes, and alders are common along stream courses. Most hills are tree-covered but on many peaks only moss and shrubs occur. Caribou moss is ubiquitous.

GENERAL GEOLOGY

The Georget Lake area is so heavily covered by Pleistocene glacial deposits that outcrops are generally widely scattered. Ground moraines, eskers, kames and boulder erratics are common.

The consolidated rocks of the area are Precambrian in age. The northern half is underlain by a medium-grained, oligoclase-quartz-mica gneiss which has a slight compositional variation from outcrop to outcrop. Thin bands of distinctly different rock types such as feldspar-biotite-garnet schist, granite gneiss, and feldspar-muscovite schist are included in this major rock unit.

A very distinctive gneiss with numerous inclusions underlies the area immediately south of Georget lake. This is characterized by blue feldspar porphyroblasts up to one inch long which may comprise as much as 30 per cent of the rock.

The iron formation sequence is very limited in the area. However, members consisting primarily of quartzite and calc-silicate gneiss were observed at several isolated localities.

Gabbroic rocks are represented by two small intrusions which appear to be of the age of the late regional metamorphism.

TABLE OF FORMATIONS

Pleistocene and Recent	Glacial deposits: moraines, eskers, kames, erratics	
Precambrian	Gabbro Amphibolite	Gabbroic intrusions
	Iron Formation Sequence	Calc-silicate gneiss; Quartzite (10'); Orthoclase-quartz-biotite gneiss (8'); Calc-silicate gneiss (4'); Orthoclase-quartz-biotite gneiss.
	Gneisses and Schists	Plagioclase-quartz-potash feldspar gneiss with amphibolite inclusions
		Oligoclase-quartz-mica gneiss with rare schist and granitic gneiss and some amphibolitic bands.

Oligoclase-quartz-mica Gneiss

This rock outcrops sporadically in the northern half of the area. It is characteristically a dull grey, rusty weathering, medium-grained gneiss with a granoblastic texture. The composition varies somewhat but is normally within the following limits: 30-70 per cent oligoclase, 15-30 per cent quartz, 5-20 per cent biotite, 0-20 per cent muscovite, and 0-5 per cent garnet. Accessories include magnetite, sphene, apatite, tourmaline, and zircon. In the northwestern portion of the area the rock is pinkish and differs from the grey gneiss in having less biotite, more oligoclase, and a little microcline. Thin composition banding is normally present, usually, with an accompanying platy parallelism of the mica. This banding and the composition of the gneiss suggest its derivation from a fine-grained sedimentary rock.

Included in this general lithologic unit, but uncommon, are a number of distinct rock types such as feldspar-biotite-garnet schist, feldspar-muscovite schist, graphitic schist, and granitic gneiss. The relationship of these types to the oligoclase-quartz-mica gneiss is not known, but they are tentatively placed in the same group.

Plagioclase-quartz-potash Feldspar Gneiss

This is the second most abundant rock type in the area. It outcrops spottily in the southern portion. The rock weathers to a mottled, dull grey-white. The mottling is an effect of the numerous, large (commonly one inch long) porphyroblasts of blue-grey potash feldspar. Plagioclase, potash feldspar and quartz are normally in the ratio 3:1:1. The mafic content is about 10 per cent but increases, probably as a result of contamination, where inclusions are abundant. Hornblende, biotite, and diopside may all be present in a single specimen. They invariably occur as small clots surrounded by a thin layer of small, euhedral, red garnets. The potash feldspar porphyroblasts are embedded in a fine- to medium-grained granoblastic matrix. An igneous origin for at least part of this rock is suggested by the numerous amphibolitic inclusions of varying size and shape. Adjacent inclusions may show widely different degrees of assimilation. The gneissic character of the formation is due to elongation of small mafic clots, elongation of inclusions, and, in some places, to slight but definite compositional banding. The age relationship of this rock to the oligoclase-quartz-mica gneiss is doubtful. The plagioclase-quartz-potash feldspar gneiss is tentatively considered to intrude the oligoclase-quartz-mica gneiss rather than to underlie it, on the evidence of increase in grain size in the oligoclase-quartz-mica gneiss as the approximate contact is approached.

Iron Formation Sequence

Basal members of the Mount Reed - Mount

Wright iron formation sequence were observed in several isolated outcrops throughout the area. The most interesting occurrence is on the peninsula on the south shore of Chaleur lake where the apparently conformable sequence, from bottom to top, is orthoclase-quartz-biotite gneiss, calc-silicate gneiss (4 feet), orthoclase-quartz biotite gneiss (8 feet), quartzite (10 feet), and calc-silicate gneiss.

The calc-silicate gneiss consists of one-foot bands of coarsely crystalline actinolite-diopside rock separated by 3-inch, discontinuous bands of calcite. The relative amounts of actinolite and diopside vary considerably and the dark green or light green appearance of the rock depends on whether actinolite or diopside, respectively, predominates.

The quartzite is hard, brittle, white to grey, and dull grey weathering. It contains about 5 per cent hematite as disseminated blebs. Thin colour-banding probably represents original bedding.

Silicate-carbonate ironstone is found in two outcrops north of Pack lake. This consists of thin, alternating layers of quartz with about 5 per cent magnetite and of calcite with a green fibrous amphibole.

Gabbro

Two small gabbroic intrusions outcrop within the area. One is a relatively flat-lying sill between 25 and 50 feet thick on the west-central shore of Split lake. The second is a somewhat larger body of unknown form, outcropping on the east shore of Pinnacle lake. Both consist primarily of clinopyroxene and plagioclase with, locally, small amounts of biotite and garnet. Pyrrhotite is a minor accessory. The degree of metamorphism in the Pinnacle Lake body is variable.

Amphibolite

Although amphibolite is not common in the area it occurs in two or three field associations. A biotite-garnet amphibolite is found as rare bands up to a foot thick within the oligoclase-quartz-mica gneiss. More noteworthy are the angular inclusions of widely varying size, shape and degree of assimilation within the plagioclase-quartz-potash feldspar gneiss. The amphibolite of the inclusions is composed of plagioclase, hornblende, biotite, diopside, and garnet.

An isolated outcrop of amphibolite, not definitely assignable to either of the above categories, is located just south of West Split lake. This is apparently associated with the plagioclase-quartz-potash feldspar gneiss and may be a large inclusion.

GLACIAL GEOLOGY

The Georget Lake area is blanketed by a variety of glacial deposits. Ground moraines and erratics are the most common features but eskers, kames and outwash deposits are present.

Two sinuous eskers, each about 3 miles long, although intermittent, are located in the northern portion of the area. Each has an essentially southward trend.

Kames are abundant in an irregular criss-cross pattern between the southern ends of Portage and Pinnacle lakes.

The Thémines River valley is underlain by bedded sand and gravel deposits and was undoubtedly the site of a glacial meltwater channel.

STRUCTURAL GEOLOGY

The strikes and dips of the foliation in the area show considerable variation. However, an interpretation of the existing fold pattern is impossible due to the scarcity of outcrop and of horizon markers.

Joints are abundant but have not been resolved into any definite pattern. The most common single orientation is approximately northeast, the dip being vertical.

Lineations are marked in several places as mineral elongations and small fold axes in directions at right angles or almost so.

ECONOMIC GEOLOGY

The Mount Reed - Mount Wright region is noted principally for its numerous low-grade, sedimentary, iron deposits. Economic varieties of the iron formation sequence were not observed in the Georget Lake area by the writer, although a thin band of quartz-hematite rock has been reported to occur on the west boundary, 4 miles south of the northwestern corner*. Several magnetic anomalies were noted in the vicinity of Pack lake (see accompanying map), although no causes were suggested by the exposures in the vicinity.

Sulphides, except for the minor accessory pyrrhotite in the gabbroic intrusions, are generally lacking in the rocks examined.

* Personal Communication, N. Firth, C.C. Houston and Associates.

Sand and gravel deposits are quite abundant, especially in the southern half of the Thémines River valley. Two prominent eskers near the headwaters of Thémines river consist of poorly-sorted gravel. Fine sand forms the kames between the south ends of Portage and Pinnacle lakes.