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ADVANCE REPORT ON MATAMEC LAKE AREA, SAGUENAY COUNTY

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ADVANCE REPORT

ON

MATAMEC LAKE AREA

SAGUENAY COUNTY

Province of Quebec, Canada

DEPARTMENT OF LABOUR, MINES AND MARITIME FISHERIES

Honourable Edgar Rochette, Minister L.-A. Richard, Deputy-Minister

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BUREAU OF MINES

A.-O. Dufresne, Director

DIVISION OF GEOLOGICAL SURVEYS

I.W. Jones, Chief

ADVANCE REPORT ON MATAMEC LAKE AREA SAGUENAY COUNTY

by

E.W. Greig

QUEBEC

1940

P.R. No. 155

MATAMEC LAKE AREA

SAGUENAY COUNTY

by E.W. Greig

The Matamec Lake area, Saguenay county, was geologically mapped by the writer during the summer and autumn of 1940. This examination is a continuation eastward of investigations along the north shore of the Saint Lawrence, begun in 1937 by C. Faessler for the Quebec Bureau of Mines.

West to east, the map-area extends from near longitude 66°00'W., a few miles east of Moisie river, to longitude 65°35'W., midway between Pigou and Bouleau rivers. The southern boundary follows the Saint Lawrence shore near latitude 50°15'N. and the northern boundary is approximately sixteen miles north from the shore, just south of latitude 50°30'N. The whole area comprises about 320 square miles.

Inland from the Saint Lawrence, the land surface rises gently and more or less uniformly to an elevation of about 1,000 feet above sea-level in the northern part of the area. In this more elevated section, flat-topped ridges of the old Laurentian plateau surface are cut by deep V-shaped valleys, with here and there a monadnock standing above the general level. Glacial drift is practically absent, except for waterlain sands and gravels along parts of the main water courses. Ridges formed of glacial sand and gravel are found southeast of Claveau lake.

Acces to the area is by boat from Rimouski or Quebec to Seven Islands, and then by smaller boat along the Saint Lawrence shore. The interior can be reached by canoe or on foot, but except on Matamec river and Matamec lake, canoe travel is difficult. The streams draining the area are short and swift, with many rapids and chutes, and, since they derive their water from sources not far inland, their depth may vary a foot or more with a single day's rain.

The mapping was done on a scale of one inch equal to half a mile.

GENERAL GEOLOGY

The consolidated rocks in the area are all of Precambrian age. They include highly metamorphosed Grenville sediments and a series of later igneous rocks representing several distinct periods of intrusion.

Table of Formations

Pleistocene and Recent		Sands and gravel
Precambrian	Keweenawan (?)	Diabase
		Granite, granite gneiss, and related intrusives
		Gabbro, gabbroic anorthosite, anorthosite
		Coarse augen granite-gneiss
	Grenville	Quartzite, paragneiss, migmatite, hornblende gneiss

Grenville

Rocks of sedimentary origin, belonging to the Grenville series, are represented by impure quartzite, gneisses, and migmatites. Cut by later intrusive bodies of varying shape and dimension, they are widely distributed throughout the map-area. Well foliated quartz-biotite gneisses containing varying amounts of feldspar predominate in the band of Grenville that extends for a width of about two miles along the western side of the area. They also occur in the Grenville that lies north and south of Matamec lake, and they surround the body of intrusive rock lying between this lake and the Saint Lawrence shore. Migmatites predominate in the Grenville exposed at the mouth of Matamec river, and they occur also on the west side of Seal river. A belt, four miles or more wide, extending across the northern side of the map-area, contains medium grained hornblende-quartz or hornblende-feldspar gneisses. These rocks are being included tentatively with the Grenville, although it may later be necessary to place them in a separate group of meta-diorites. In some places, these hornblende gneisses grade into quartz-biotite types similar to those mentioned above.

Augen Granite-Gneiss

A small area extending northeastward from the Saint Lawrence shore between Matamec and Seal rivers is underlain by a coarse augen granite-gneiss. The orthoclase feldspar crystals which form the

'eyes' range up to one inch in length, and in some places the rock has much the appearance of a porphyritic granite. Minor amounts of biotite or amphibole, or of both these minerals, are also present. Two other, larger bodies of the same type of granite-gneiss are exposed from Seal river to the eastern boundary of the map-area, one in the east-central part of the map-area and the other along the Saint Lawrence shore. Within the hornblende gneisses referred to above and tentatively assigned to the Grenville there are zones that contain numerous bands, up to fifty feet and more in width, of augen granite-gneiss, commonly paralleling the foliation of the hornblende gneiss. Blocks of the augen gneiss are also found included in the younger granites.

Gabbroic Anorthosite

In the western half of the area, there are two large masses of gabbroic anorthosite. One of these masses extends westerly and northerly from the west side of Matamec lake; the other borders the east side of the lake and extends upstream from there along Matamec river for a distance of three to five miles. In the more westerly mass, gradation to true anorthosite is found.

Granite, Granite Gneiss, and Related Intrusives

Under this heading are grouped a number of associated intrusives, most of them fairly acidic in composition. The predominant type is a fine to medium grained pink granite, a large body of which outcrops in the southeastern part of the map-area. Northeast of Trout lake, another large body of similar rock is found, and there are a few smaller masses north of Matamec lake. Within the southeastern mass, fine grained granite-gneiss is very common, grading into the typical unfoliated granite. This gneissoid granite, in some places, includes bands of granitized Grenville sediments, and occasionally of relatively pure quartzite.

Small areas of intrusive biotite syenite, with associated granitic and dioritic facies, are found south of Matamec lake, and in the northern part of the map-area just east of Seal river.

Aplite and pegmatite dykes are common throughout most of the map-area. They are related to the granites and cut all of the older rocks.

Keweenawan (?) Diabase

Diabase dykes, up to twenty-five feet and more in width, are common. They cut all of the rock types so far mentioned. The diabase is usually very fine grained and the rock often has a basalt-like appearance, with conchoidal fracture.

STRUCTURE

Most of the rocks in the area show the effects of extreme deformation. In general, the strike of the foliation appears to have been controlled by local, rather than by regional, factors. Thus, foliation in the rocks surrounding the intrusive bodies of anorthosite and younger granite is, as a rule, parallel to the margins of these bodies. In the northern part of the area, however, where there is an almost entire absence of the younger intrusives, control of the foliation may well have been regional. There is a suggestion, also, that the form of the gabbroic anorthosite masses was controlled by pre-intrusion structures.

Younger faulting of indeterminate age is evident in many places throughout the area, and drainage patterns suggest that it is actually much more important than factual evidence shows.

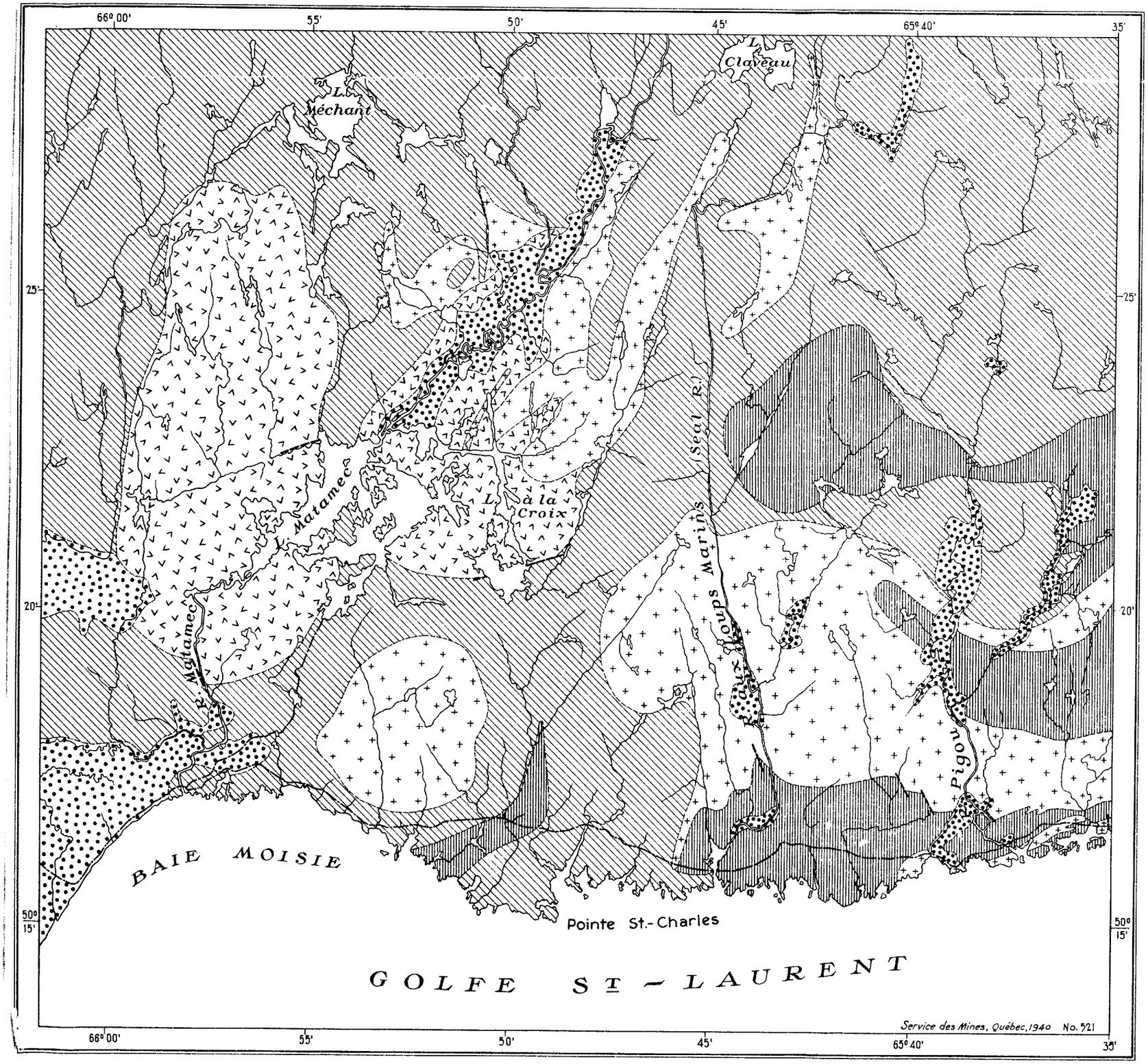
ECONOMIC GEOLOGY

The investigation has not indicated the presence of any metallic deposits of economic importance in the map-area. No magnetite concentrations were found in the gabbroic anorthosite masses; indeed, even grains of the mineral of macroscopic size are rare in hand specimens.

A few specks of molybdenite were noted in minute quartz veinlets in augen granite-gneiss to the west of Pigou river.

Potash feldspar pegmatites are abundant along the Saint Lawrence shore, at Point St. Charles, but they do not seem to be of a type suitable for commercial production of feldspar although prospecting may cover some useable types. No rare minerals were seen in the pegmatites.

Large bodies of fairly pure anorthosite are present in the western gabbroic anorthosite mass. No chemical analyses of the anorthosite have been made, but if it is of the Morin type, the alumina content of the feldspar may be too low to make the rock of use as a source of alumina for glass manufacture. Another suggested use for fairly pure anorthosite is as an abrasive.



PLEISTOCENE AND RECENT
PLÉISTOCÈNE ET RÉCENT

Sand and gravel
Sable et gravier

PRECAMBRIAN
PRÉCAMBRIEN

Keweenawan (?): diabase (not indicated on map)
Keweenawien (?): diabase (non indiqué sur la carte)

Granite, granite gneiss and related intrusives
Granite, gneiss granitique et roches intrusives connexes

Gabbro, gabbroic anorthosite, anorthosite
Gabbro, anorthosite gabbroïque, anorthosite

Augen granite gneiss
Gneiss granitique oeillé

Grenville: quartzite, paragneiss, migmatites, hornblende gneiss
Grenville: quartzite, paragneiss, migmatites, gneiss à hornblende

Fault, approximate
Faille, position approximative

Telegraph Line
Ligne télégraphique

Scale - *Echelle*
0 2 4 6
Miles - *Milles*

RÉGION DU LAC MATAMEC
COMTÉ DE SAGUENAY

MATAMEC LAKE AREA
SAGUENAY COUNTY