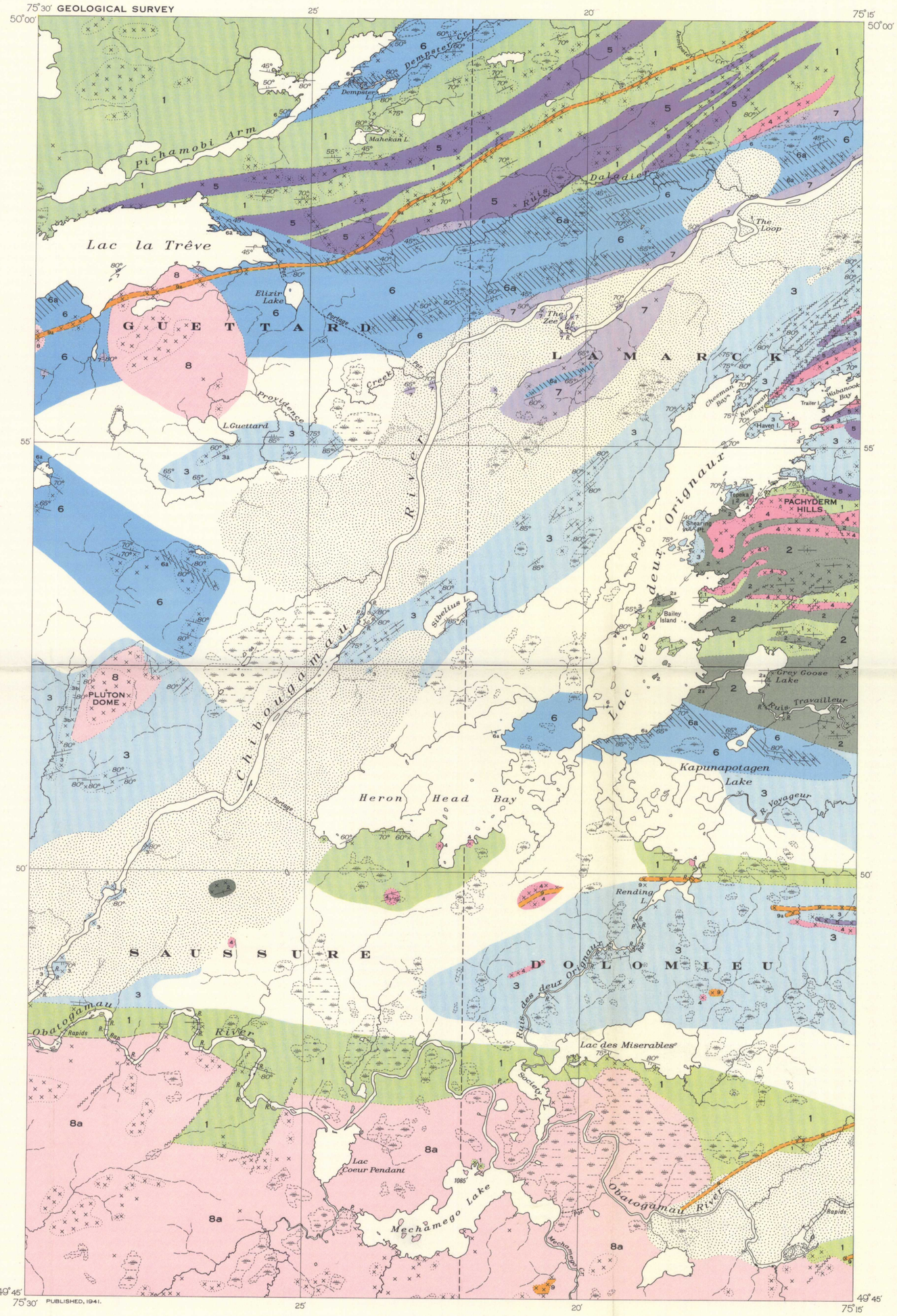
CANADA

DEPARTMENT OF MINES AND RESOURCES

MINES AND GEOLOGY BRANCH

BUREAU OF GEOLOGY AND TOPOGRAPHY

GEOLOGICAL SURVEY



LEGEND

NOTE: Uncoloured areas are drift covered areas in which the bedrock is unknown. Coloured areas are in part drift covered.

PROTEROZOIC (LATE PRECAMBRIAN)

- 9 — *Diabase, quartz diabase;* **9a**, *olivine gabbro*

POST-OPÉMISCA

- 8 — *Hornblende granodiorite and allied rocks;* **8a** *may be pre-Opémisca*

OPÉMISCA SERIES

- 7 — *Mainly tuff and porphyritic andesite*
- 6, 6a — *Greywacke and arkose; mica schist and phyllite; minor amounts of* **7**; **6a**, *conglomerate*

PRE-OPÉMISCA

- 5 — *Quartz diorite, quartz diabase, diabase*
- 4 — *Altered gabbro and diorite*
- 3 — *Feldspar-rich tuff or sediments; greywacke, grit, chert-pebble conglomerate and bedded chert; minor amounts of* **2**; **3a**, *black carbonaceous slate;* **3b**, *paragneiss*
- 2 — *Altered siliceous lava; tuff, breccia, agglomerate and ribbon chert; keratophyre dykes; minor amounts of* **3**; **2a**, *chlorite and hornblende schist; phyllite*
- 1 — *Altered andesite and basalt (greenstone); minor bodies of* **4** *and* **5**

ARCHEAN (EARLY PRECAMBRIAN)

Sand covered area

Area of rock outcrop and small rock outcrop

Bedding (inclined, vertical, overturned) l°–90°

Bedding (direction of dip known, upper side of bed unknown)

Fault, shear zone

Glacial striæ

Portage

Township boundary (surveyed)

Township boundary (unsurveyed)

Stream (position approximate)

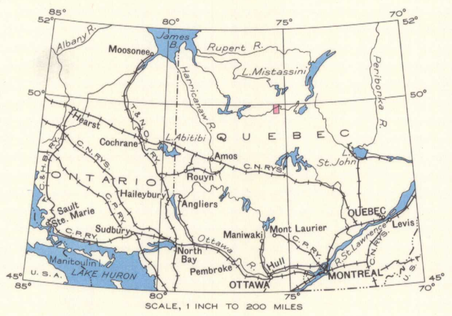
Rapids

Marsh

Height in feet above Mean sea-level 1085'

Geology by H. H. Beach, 1938.

Base-map compiled by the Topographical Survey, 1938, from aerial photographs taken by the Royal Canadian Air Force during July, August and September, 1934, and from information supplied by the Quebec Department of Lands and Forests. Cartography by the Drafting and Reproducing Division, 1940.



MAP 608A

MECHAMEGO LAKE

ABITIBI TERRITORY

QUEBEC

Scale, 1/63,360 or 1 Inch to 1 Mile

Miles 1 0 1 2 3

Approximate magnetic declination, 19° West

DESCRIPTIVE NOTES

Mechamego Lake area is reached most easily by airplane either from bases at Senneterre and Oskelaneo on the Quebec-Cochrane branch of the Canadian National Railways, or from Lake St. John. The best canoe route to the area follows the Oskelaneo-Chibougamau-Lake Mistassini route to Obatogamau river, thence westward to Lac Presqu'ile and down Obatogamau river. The Chibougamau-Waswanipi canoe route passes through the area by way of Chibougamau river.

The area is remarkably flat in a belt a mile or more wide on either side of Chibougamau river. West and southeast of the river the ground rises gently and is irregularly rolling. Only in the area east of Lac des deux Orignaux and in the granitic areas along the western and southern borders do elevations rise more than 75 feet above the surrounding country. Outcrops are plentiful around the borders of the map-area but are few and scattered in the central lowlands and lacking over large areas. A thin mantle of till covers the greater part of the area. Northwest-trending ridges of unsorted boulders, gravel and clay, 10 to 15 feet high, occur at intervals of several hundred feet. They are particularly noticeable in the lowland areas south of the southern part of Lac des deux Orignaux and along the western border of Lac la Trêve.

The oldest rocks recognized in the area (1) resemble those that in other areas have been classed as Keewatin. They form a thick assemblage of andesitic and basaltic lavas (greenstones), commonly pillowed and in many places altered to hornblende and chlorite schists and amphibolites. Toward the top they include increasing amounts of more siliceous volcanic rocks (2) and are overlain with apparent conformity by a thick series (3) of altered, feldspar-rich tuffaceous sedimentary rocks and greywackes, locally altered to phyllites and sericite schists; bedded cherts, breccias, agglomerates and conglomerates. Rusty weathering, black, carbonaceous slates (3a) are found in the series along Chibougamau river just north of its junction with Obatogamau river, south of Lake Guettard and along the northeast shore of Lac des deux Orignaux. Here and there pyrite nodules are thickly scattered through the slates. They probably formed at about the time the sediments were deposited, and contain little or no gold.

Both the volcanic and sedimentary rocks are intruded by gabbro and diorite (4) that are now highly altered. Outcrops of these intrusives occur in elongated bands and their contacts tend to conform with the structures of the invaded rocks. It seems likely that they were intruded as sills and have been folded with the enclosing rocks. They now dip at steep to vertical angles. More irregular bodies of relatively unaltered quartz diorite and quartz diabase (5) cut the volcanic and sedimentary rocks (1, 2 and 3) in the northern and east central parts of the area.

The Opémisca series (6) consists of greywacke, arkose and tuffaceous sediments intercalated with and overlain by pale-green andesitic rocks (7) that contain conspicuous crystals of pyroxene and, in places, abundant feldspar phenocrysts. The series overlies the pre-Opémisca rocks with marked angular unconformity, a relation best shown about one-half mile east of the east end of Lac la Trêve. In the lower part of the series boulder conglomerates (6a) form conspicuous and readily traceable beds. The basal member at most observed points, is, however, a thin porphyritic lava. The similarity of the boulders in the conglomerate to the hornblende granodiorite (8a) that forms an extensive mass along the southern border of the area might be taken to indicate that the granodiorite is of pre-Opémisca age. This granitic mass comprises several rock types; it is predominantly hornblende granodiorite but grades locally into albite granite and syenite. Pegmatite dykes and small quartz veins occur within the mass and extend from it into the adjacent volcanic rocks. No mineralization was observed either in the pegmatite or the quartz veins. The two small granitic bodies (8) that occur along the western border of the area more nearly resemble the granitic mass in the east central part of the adjoining Michwacho Lake area than they do the southern granitic mass of this area. The more northerly body cuts the Opémisca series but the relation of the southern body to this series is not known. Where the southern body has intruded pre-Opémisca sedimentary rocks it has transformed them into gneisses (3b) in a narrow peripheral band. Diabase and locally quartz diabase dykes (9) have been traced for short distances in the southern half of the area. An olivine gabbro dyke (9a) having a fairly constant width of 100 to 150 feet forms a series of elongated hills near the northern border of the area.

The major structural feature of the area is a large, east-west trending, westerly plunging anticline, bounded on the north and south by synclinal troughs of isoclinally folded pre-Opémisca and Opémisca rocks. The principal faults of the area trend northeasterly in conformity with those of the entire region. They dip steeply and the horizontal displacement along them tends to increase towards the west from a few tens of feet, along faults in the central part of the adjoining Michwacho Lake area, to displacements of over a mile along a zone roughly co-linear with the southwest-flowing Chibougamau river in the central part of Mechamego Lake area. At no place was this critical zone exposed, as a sand plain extends along both sides of the river in this region. Farther east many of the faults are observable. They are generally parallel and dip vertically or nearly so. Locally, as in the area extending from north of Lac des deux Orignaux to Sibelius lake, the rocks have been intensely sheared and crushed across wide areas. Several faults have disrupted the northern boundary of the southern granitic mass.

Limited prospecting has been carried on in the area at intervals since 1935 but so far, has failed to result in any important discoveries. Small, irregular replacement bodies of pyrite, and more rarely chalcopyrite, were observed in the belt of highly sheared and altered sedimentary rocks (6) along the south shore of the northeast end of Pichamobi Arm, and again in the same belt on Dempster creek west of Dempster lake. Sulphide mineralization in quartz veins was noted at low water in a carbonated shear zone on the south shore of the bay just west of Tepeka island. Elsewhere in the vicinity of Pachyderm hills small amounts of sulphide minerals were observed in shear zones and along fractures subsidiary to the larger faults, but only to a minor extent along the main faults themselves. Near the top of the hills 2 miles due east of Rending lake, a replacement body of pyrite and pyrrhotite nearly 100 feet long occurs in pre-Opémisca sedimentary rocks where they have been intruded by olivine diabase (9) and quartz diabase (5). Similar but smaller bodies of pyrrhotite and pyrite were seen at the contact of quartz diabase and diabase intrusions (5) into pre-Opémisca sedimentary rocks (3) in areas to the north and south of Wabanook bay. Only traces of gold have been found in the deposits.