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)

- 11 — *Diabase, quartz diabase*

ARCHEAN (EARLY PRECAMBRIAN)

POST-OPÉMISCA

- 10 — *Hornblende granodiorite and allied rocks;* **10a** *may be pre-Opémisca*
- 9 — *Altered diorite, gabbro, hypersthene diorite, oligoclase anorthosite and bytownite anorthosite*
- 8 — *Pyroxenite and foliated gabbro; pyroxenite and serpentinized peridotite*

OPÉMISCA SERIES

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

PRE-OPÉMISCA

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

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

Prospect

Glacial striæ

Trail or portage

Township boundary, surveyed

Township boundary, unsurveyed

Stream (position approximate)

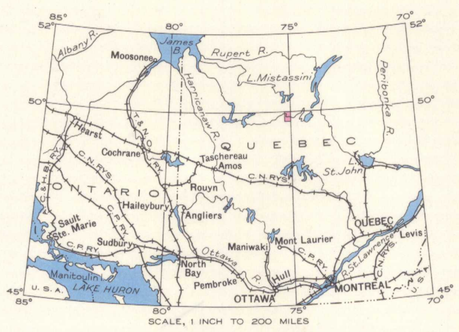
Rapids

Marsh

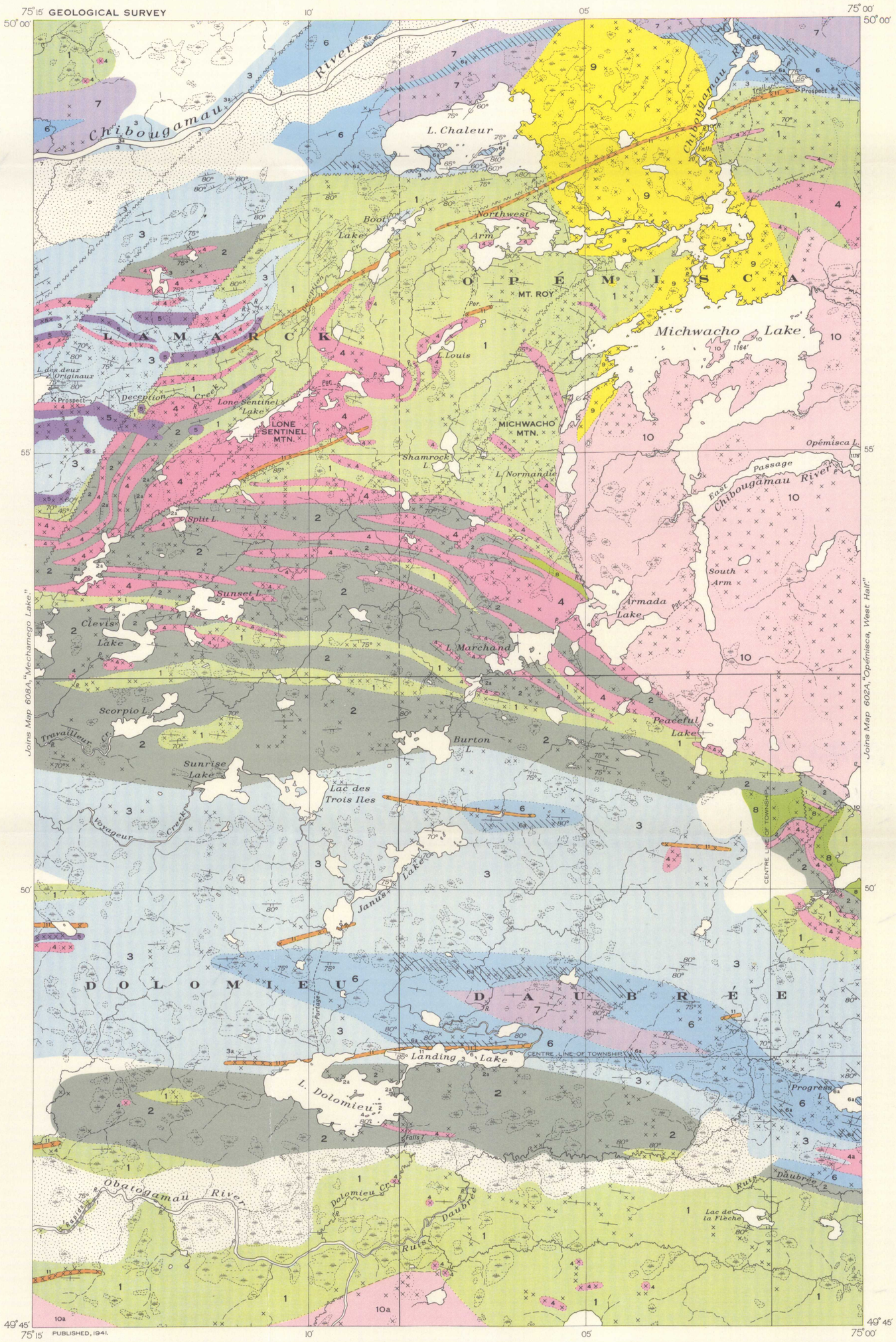
Height in feet above Mean sea-level 1164'

Geology by H. H. Beach, 1937.

Base-map compiled by the Topographical Survey, 1938, from aerial photographs taken by the Royal Canadian Air Force, 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.



SCALE, 1 INCH TO 200 MILES



PUBLISHED, 1941.

MAP 623A

MICHWACHO LAKE

ABITIBI TERRITORY

QUEBEC

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

Miles 1 0 1 2 3

Approximate magnetic declination, 19°30' West.

DESCRIPTIVE NOTES

Michwacho 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 lake, thence westward to Lac Presqu'ile and down Obatogamau river. A winter road runs from Roleau siding to Opémiska Mines, 6 miles east of the southeast border of the area. The Chibougamau-Waswanipi canoe route passes through the area by way of Michwacho lake and Chibougamau river. The interior of the area is reached either by the chain of lakes extending west from Northwest Passage of Michwacho lake or west from Southwest Arm to Armada and Marchand lakes.

The greater part of the area is flat but irregular low hills and ridges are common. Elevations range from 1100 to 1200 feet above sea-level over much of the area but exceed 1400 feet in the hills bordering Michwacho lake. Outcrops are numerous in the central part and along the eastern border of the area but the southwestern part is largely drift covered and outcrops are small and scattered. A thin mantle of till covers the greater part of the area. Northwest-trending ridges of boulders, gravel and clay, 10 to 15 feet high, are particularly noticeable in the lowland areas and are spaced at intervals of several hundred feet.

The oldest rocks recognized in the area (1) form a thick assemblage of andesitic and basaltic lavas (greenstone) and resemble rocks that, in other areas, have been classed as Keewatin. They are commonly pillowed and in many places are 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 and west of Dolomieu lake. 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. Other tabular and less regular bodies of relatively unaltered quartz diorite and quartz diabase (5) cut the pre-Opémisca rocks in the northwestern part of the area.

The Opémisca series (6) consists of greywacke, arkose and tuffaceous sediments locally intercalated with and overlain by a group of 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 relationship best shown in the Mechamego lake map-area to the west. In the lower part of the series boulder conglomerates form conspicuous and readily traceable beds; but the basal member of the series at most observed points is a thin porphyritic lava. The similarity of the boulders in the conglomerate to the hornblende granodiorite (10a) 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.

The sill-like bodies of pyroxenite, foliated gabbro and coarse gabbro that occur just south of the granodiorite mass at the eastern border of the area, are intruded by other tabular bodies of pyroxenite and of peridotite now altered to serpentine. The entire assemblage (8) bears a petrological resemblance to the diorite-anorthosite mass (9) and may be related to it.

The diorite-anorthosite mass (9) intrudes both the Opémisca series and pre-Opémisca rocks. It consists chiefly of diorite but varies considerably in composition depending apparently, on the character of the invaded formations. The northern half of the body, where it intrudes dominantly sedimentary rocks, is largely altered diorite but locally contains irregular masses of oligoclase anorthosite. Toward the south, where the mass intrudes volcanic rocks (1) and altered gabbro (4) the concentration of dark minerals increases, the feldspars become more calcic and irregular areas of hypersthene diorite, gabbro, and bytownite anorthosite are found.

The granitic mass (10) varies from hornblende granite in the central parts to hornblende granodiorite along its margins. It cuts the diorite-anorthosite rocks and these in turn cut the Opémisca series. The greenstones surrounding the granitic body are altered to amphibolites and form a ring of conspicuous hills. The southern granitic mass (10a) includes a somewhat more varied assemblage of rock types, ranging from mainly hornblende granodiorite to hornblende syenite.

The major structural feature of the area is a large east-west trending, westerly plunging anticline. The western nose of the granitic mass (10) occupies a part of the axial area of this fold. The anticline is bounded on the north and south by synclinal troughs of isoclinally folded Opémisca and pre-Opémisca sedimentary rocks. The principal faults trend northeasterly in conformity with those of the entire region. They dip steeply and the displacement along them tends to be greater along the more westerly faults, culminating in a zone of great displacement in the adjoining Mechamego lake map-area.

Prospecting has been carried on in the area at intervals since 1935 but only one property, situated 2½ miles north of the eastern end of Michwacho lake, has received any considerable attention. There, a replacement body of disseminated pyrrhotite and pyrite occurs in a shear zone at or near the contact of the Opémisca series with pre-Opémisca rocks. The deposit carries low values in gold. Elsewhere some sulphide mineralization has been observed in shear zones and along fractures subsidiary to the larger faults of the area, but only to a very minor extent along the main faults themselves. In the complexly folded region along the eastern part of the north side of Lone Sentinel lake irregular masses of chalcopyrite and pyrite occur in tourmaline-bearing quartz veins and all shear zones nearby carry much iron carbonate. Quartz veins occur in the highly sheared zone just east of the northern end of Lac des deux Orignaux and contain local concentrations of galena. Small pyrite-pyrrhotite, and, more rarely, chalcopyrite replacement bodies are found in shear zones at Marchand lake, and also just west of the southwest bays of Opémisca lake, but gold values found so far are low.

NOT TO BE TAKEN FROM LIBRARY
NE PAS SORTIR DE LA BIBLIOTHÈQUE

623A

This map has been produced from a scanned version of the original map
Reproduction par numérisation d'une carte sur papier