CANADA

DEPARTMENT OF MINES AND RESOURCES

MINES AND GEOLOGY BRANCH

BUREAU OF GEOLOGY AND TOPOGRAPHY

GEOLOGICAL SURVEY

LEGEND

NOTE:-Uncoloured areas are drift covered and in them bedrock outcrops are not known. Coloured areas are in part drift covered, the locations of known areas of outcrop are indicated by crosses : x x :; small outcrop x.

PROTEROZOIC (LATE PRECAMBRIAN)

- 5 — *Quartz diabase*

ARCHEAN (EARLY PRECAMBRIAN)

- 4 — *Oligoclase granite (tonalite), syenite, diorite*
- 3 — *Anorthosite, gabbro*
- 2 — *Gabbro, quartz diorite, diabase, pyroxenite, amphibolite; (V) volcanic rocks present*
- 1 — *Andesite, trachyte, rhyolite, tuff, agglomerate; 1a, gabbro intrusives present*

Volcanic rocks partly silicified and locally crystallized so as to resemble diorite

Geological boundary (defined, approximate, assumed)

Bedding (vertical)

Fault (assumed)

Shear zone (inclined, vertical)

Portage

Fall and rapid

Marsh

Height in feet above Mean sea-level 989'

Geology by G. Shaw, 1937.

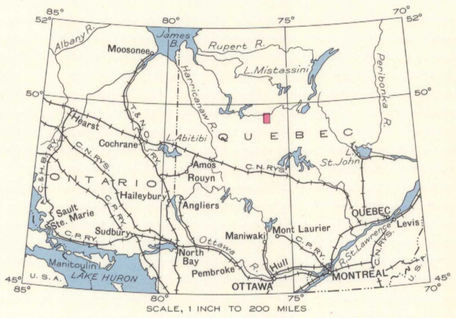
Base-map prepared by the Topographical Survey, 1938, from Federal Government map published in 1936. Cartography by the Drafting and Reproducing Division, 1939.

MINERAL OCCURRENCES

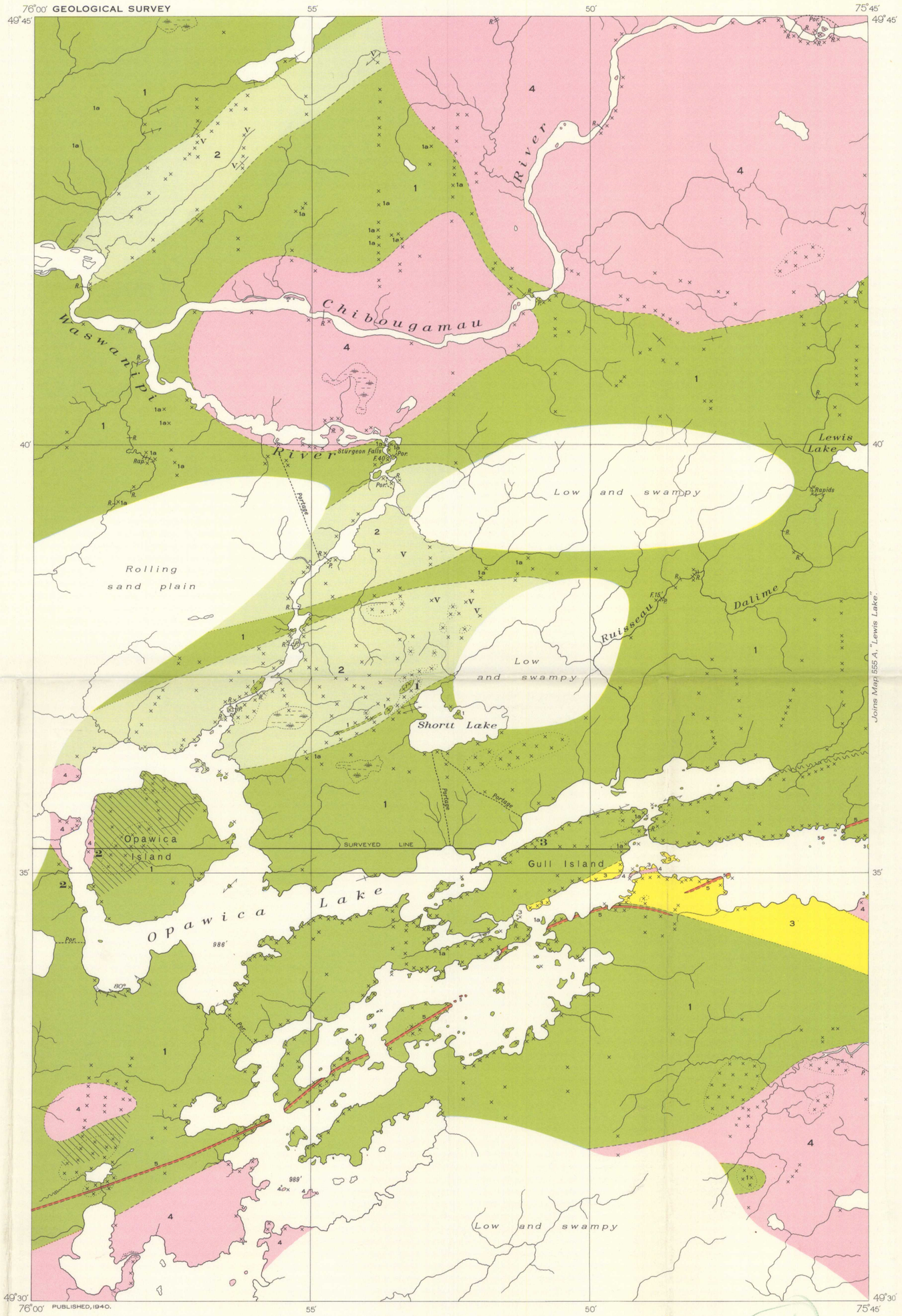
Gold-quartz vein 1

Gold-pyrite-carbonate replacement ... 2

Chalcopyrite 3



SCALE, 1 INCH TO 200 MILES



PUBLISHED, 1940.

DESCRIPTIVE NOTES

The canoe route to Opawica lake from Senneterre is by the Bell and Wedding rivers and Lakes Wedding, Puskitamika, Malouin and Lichen. A shorter though more hazardous route from Senneterre is by the Wetetnagami river.

The altered volcanic rocks (1) are part of a belt of greenstone extending from Bell river eastward for 100 miles to Surprise lake. In the area, although the rocks are greatly altered, several types can be recognized. The andesites are dark green, highly chloritic, commonly schistose and in places show poorly preserved pillow structure. They are rarely porphyritic or agglomeratic. They have been less resistant to erosion than the other volcanic rocks and are not well exposed. They occur chiefly in three bands whose limits are imperfectly known, and also as occasional lenses interbedded with trachyte. One of the bands is south of the large lake south of Opawica lake; another outcrops on the southern part of Gull island and the peninsulas to the east and west; and the third occurs between two gabbro masses north of Shortt lake. Pale green to grey trachyte is the most abundant volcanic rock and is either uniformly fine-grained or porphyritic with phenocrysts of altered feldspar. Both varieties form agglomerate in which the fragments are lighter in colour than the matrix. Agglomerate outcropping on the hills southeast of Shortt lake differs in that it contains fragments of chert, diorite and andesite and also a few rounded nodules of pyrite. Rhyolite is well exposed on the south shore of Opawica lake. There it is either fine-grained or is porphyritic holding phenocrysts of glassy quartz up to ¼ inch in diameter. The porphyritic type is believed to be intrusive but of the same age as the flows. Well banded tuffs occur on the north shore of Opawica lake near Opawica island.

The basic intrusives (2) include a variety of closely related types that are not separately mapped. These are (a) a coarse diabasic type of very variable grain-size and feldspar content with many feldspar-rich segregations, and occasional quartz grains, (b) a uniform, medium-grained light weathering gabbro and, (c) pyroxenite and amphibolite. In all types the feldspar, if present, is altered to epidote, sericite or kaolin and the original pyroxenes to a green pleochroic amphibole. The relative ages of the various types are not known but it is thought that (c) is younger than (b). The rock types of this group are very similar to those of the Opémisca Sheet (Map 401A) where they occur as sill-like intrusives. The hills north of Shortt lake and in the northwest corner of the map-area are underlain by gabbroic rocks.

Intrusive into the volcanic rocks is a triangular mass of altered anorthosite and related gabbro (3), only the western part of which outcrops in the map-area. The feldspar of the anorthositic rocks of the map-area has been completely altered to epidote, zoisite and sericite resulting in a light-weathering rock which is readily eroded. To the east of the map-area in the same mass fresh feldspar in the anorthosite has a composition of Ab20An80. The coarse gabbro phases of the anorthosite occur also as dykes cutting the adjacent volcanic rocks. The anorthosite apparently did not alter the volcanic rocks it intrudes. The anorthosite may be of the same age as the gabbroic rocks (2).

The granitic intrusives (4) are younger than the rocks of groups (1), (2), and (3), and consist of oligoclase granite (tonalite), syenite, and diorite, the latter occurring as a border phase of the stock at the junction of the Waswanipi and Chibougamau rivers. The oligoclase granite of this stock and of the mass northeast of it is a hornblende variety with feldspar phenocrysts. The southern batholith is a biotite rich variety and contains more quartz than the northern mass. It is not porphyritic, except for a border phase a few hundred feet wide which is characterized by "eyes" of blue opalescent quartz. The small stocks on Opawica island and on the mainland a few miles south of the island are hornblende syenite. The volcanic rocks in the vicinity of these stocks are cut by aplite dykes and have been silicified and otherwise altered to black brittle rocks containing occasional knots of epidote. The volcanic rocks in these areas of alteration, in places, have been completely recrystallized into a diorite-like rock of very variable grain.

The diabase dyke (5) varies in width from 100 to 200 feet. It is very coarse grained with pronounced ophitic texture. The margins are chilled against the older rocks. It is locally quartz-bearing.

The pre-granitic rocks are probably closely folded for the most part in a northeasterly direction. Accurate delineation of axes of folding necessitates more determinations of the attitude of beds in various parts of the area than is at present available.

Intense shearing of the rocks along the south shore of Opawica lake particularly on Gull island and the peninsula to the east indicates a possible fault along the lake. Such a fault would be difficult to prove because it is parallel to the strike of the volcanic rocks and no displacement can be observed. Drag folding indicates a movement of the south side eastward. Several small parallel faults trending approximately north 15 degrees east just west of Shortt lake displace the greenstone-gabbro contact in a series of steps consistently to the left. Faulting in this direction has also displaced quartz veins in easterly shears in the gabbro at this locality.

Gold has been found in volcanic rocks on and near Opawica island and in gabbro north of Shortt lake. None of the showings has proved to be of commercial value. Quartz veins have been noted at various places in the anorthosite and gabbros. They usually occupy easterly or northeasterly trending shears. Prospecting is hampered by large amounts of overburden.

MAP 556A

OPAWICA LAKE

ABITIBI TERRITORY

QUEBEC

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

Miles 1 0 1 2 3

Approximate magnetic declination, 18° West.