GEOLOGICAL SURVEY OF CANADA
DEPARTMENT OF MINES AND TECHNICAL SURVEYS

PRELIMINARY SERIES

SHEET 53 B

LEGEND

PRECAMBRIAN

- 9 — Gabbro, diabase, and serpentinite dykes
- 8 — Medium- to coarse-grained massive pink leucocratic granite
- 7 — Massive to foliated, medium- to coarse-grained porphyritic granite, granodiorite, and quartz diorite
- 6 — Massive to slightly foliated granodiorite, quartz monzonite, and quartz diorite
- 5 — Gabbro, diorite, hornblendite, peridotite, pyroxenite, and serpentinite
- 4 — Banded gneiss, lit-par-lit gneiss; 4a, paragneiss
- 3 — Iron-formation
- 2 — Sedimentary rocks and derived schists
- 1 — Volcanic rocks, undifferentiated basic intrusions; minor intercalated sediments and derived schists

Sequence of units does not necessarily represent relative ages

- Drift-covered area, no outcrop
- Geological boundary (approximate or assumed)
- Bedding (inclined, vertical)
- Gneissosity (inclined, vertical, dip unknown)
- Lineament (from air photographs)
- Fault (approximate)
- Jointing (inclined, vertical)
- Glacial striae (direction of ice-movement known)
- Moraine or thick drift ridge
- Area of small moraines
- Drumlin, drift ridge
- Esker
- Mineral occurrence — xCu

MINERAL SYMBOLS

Asbestos.....asb	Gold ..... Au
Copper..... Cu	Silver..... Ag

Geology by C.A. Carruthers, 1960 - in part compiled from maps published by the Ontario Department of Mines

Cartography by the Geological Survey of Canada, 1961

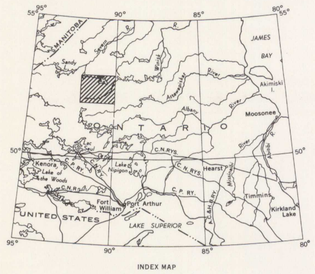
- Trail or portage — P
- Marsh
- Falls and rapids — R
- Height in feet above mean sea-level — 1200

Base-map prepared by the Surveys and Mapping Branch, 1950

Approximate magnetic declination, 1° 30' East

Air photographs covering this area may be obtained through the National Air Photographic Library, Topographical Survey, Ottawa

In response to public demand for earlier publication, Preliminary Series maps are issued in this simplified form and will be clearer to read if all or some of the map-units are hand-coloured



INDEX MAP

PUBLISHED, 1961
COPIES OF THIS MAP MAY BE OBTAINED FROM THE DIRECTOR, GEOLOGICAL SURVEY OF CANADA, OTTAWA

Adjoins Map 30-1960, "North Spirit Lake"

Adjoins Map 51-1960, "Lake St. Joseph"

PRINTED BY THE SURVEYS AND MAPPING BRANCH

MAP 18-1961

GEOLOGY

NORTH CARIBOU LAKE

ONTARIO

Scale: One Inch Four Miles = 1/253,440

4 2 0 8 12

DESCRIPTIVE NOTES

Easiest access is by float plane from Pickle Lake, about 40 miles from the southern boundary. Canoe routes from both Pickle Lake and Gat Lake have many rapids and portages and are rarely used. Within the area, water systems are adequate to provide good coverage by canoe-traversing parties.

The only settlement is on Weagamow Lake where 6 white persons and 250 Cree Indians maintain permanent homes and the Hudson's Bay Company operates a post. The outposts on Windigo and North Caribou Lakes are now closed.

The most prominent topographic feature in the area is a large modified moraine complex which extends, with only one break, from the southeast corner to the northwest corner of the map-area, as follows; 6 miles north of Windigo Lake it is approximately 200 feet high and has a flat and pitted surface; northwest of Windigo Lake it is much smaller; it is very prominent again east of Windigo and Upper Windigo Lakes; north and northwest of Horseshoe Lake it is absent; it is prominent in the vicinity of Menako and Spruce Lakes, and thence it extends northwest in a more modified form until it disappears to the south and west of Stirland Lake. Much of the rest of the area is drift covered, particularly the northeastern and the southwestern parts. To the northeast around Wachusk River and Lake, many drumlins, heavy drift, and swampy areas are present; in the southwest corner, drift and swamp predominate. Numerous drumlins and eskers throughout the area, together with glacial striae, indicate a direction of glacial advance varying from S25°W in the northeast to S80°W in the southwest. Drift features and striae around Windigo Lake seem to indicate the intersection of two glacial lobes.

Volcanic rocks (1) are mainly fine- to medium-grained, dark grey to green andesites and basalts with minor acidic, amphibolitic, and intercalated sedimentary phases. Many of the flows exhibit well-defined pillows such as those east of McGruer Lake. Elsewhere the pillows may be highly sheared and poorly preserved, as in the southeast arm of Horseshoe Lake. Sedimentary rocks (2) include conglomerate, arkose, impure quartzite, greywacke, and shale, and their metamorphosed equivalents. Banded iron-formation (3) is commonly intercalated with the volcanic rocks and to a minor extent with the sediments. It is composed of quartzose and magnetite bands, the former containing some iron silicates. Most bands of iron-formation were noted in outcrops and extrapolated under drift from anomalies on the aeromagnetic maps. The band north of Wapanisk Lake is entirely under drift and was interpreted solely from magnetic data. Free use of aeromagnetic data was made in compiling this map[2].

Basic to ultrabasic bodies (5) occur both concordant and discordant to the volcanic rocks. The concordant bodies are believed to be altered basic flows or intrusive sills and were outlined east of Agutua Arm, north of Eyapamikama Lake, on Kari Lake, and north of Dawes Falls. The discordant bodies have a circular or elliptical form; best examples are found west of Eyapamikama and northwest of Agutua Arm.

In many places the volcanic and sedimentary rocks were seen to grade into well-banded gneisses (4) and paragneisses (4a). This feature is particularly well developed southwest of Libert Lake. The gneisses of unit 4 are gradational with one another as well as with units 6, 7, and 8, so that boundaries are extremely difficult to delineate.

Unit 6—mainly massive to finely foliated, medium-grained quartz diorite, quartz monzonite, and granodiorite—locally contains abundant basic inclusions and large blocks of banded gneiss (4). These inclusions are particularly numerous around North Caribou Lake and seem to represent foundered, partly assimilated blocks of volcanic and sedimentary rocks. Porphyritic granite (7) occurs only along the southern border of the area. It is commonly massive and in places appears to grade into the leucocratic granite (8). In other places it is well banded and seems to be a phase of the banded gneiss (4). The massive pink leucocratic granite (8) appears to be the youngest granitic rock in the area as it contains blocks of units 4 and 6. Most of unit 8 has a low mafic content with grain size varying from fine to medium to coarse. Late crosscutting pegmatite and aplite dykes may be related to this unit.

Minor gabbro and diabase dykes (9) cut all rock types. The most significant occurrence is that occupying the fault zone striking about N30°W, just east of Donnelly Lake.

The structure of the area is dominated by a large circular mass of granitoid rocks, 50 miles in diameter, ringed by volcanic and sedimentary rocks. The granitoid rocks are mainly quartz diorites and granodiorites containing many remnants of volcanic and sedimentary rocks. The ring of volcanic and sedimentary rocks has been breached by the granitoid rocks in several places—notably to the west just north of Windigo Lake, and to a lesser extent at Sasiginaga Lake. Just southwest of Libert Lake the rock is paragneiss (4a) and banded gneiss (4) and has been faulted with a lateral displacement of several miles.

The North Caribou Lake volcanic-sedimentary sequence was outlined as a synclinal structure by Satterly [1], and present work bears out this deduction. The jointing is mainly in northeasterly and northwesterly directions, with some very pronounced linears (possibly faults) having similar trends. Direct evidence of faulting is scarce but in a few cases mylonite and slickensides were noted, particularly in the long fault in which the gabbro dyke (9) occurs.

Prior to and during 1959, considerable staking was done in the area. Gold occurrences have been indicated north of Libert Lake, at Horseshoe Lake, Upper Windigo Lake, and east of Agutua Arm. Copper has been noted east of Agutua Arm, at Forester Lake, and at Upper Windigo Lake. Silver was reported from east of Agutua Arm. A few narrow, brittle asbestos stringers were found associated with the ultrabasic rocks around Agutua Arm and with the serpentinite dyke west of Libert Lake. Although much staking and some drilling and trenching has been carried out, no economic prospects have yet been outlined.

[1] Satterly, J.: Geology of the Windigo - North Caribou Lakes Area; Ont. Dept. Mines, vol.48, pt.9 (1939).
[2] Roads to Resources, Aeromagnetic Maps (1960), Nos. 896G-899G, 906G-909G, 916G-919G, 926G, 929G; Ont. Dept. Mines and Geol. Surv., Canada.

MAP 18-1961
NORTH CARIBOU LAKE
ONTARIO
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