

The field work was done in conjunction with that in the adjoining Bruce Mines map-area¹ to the east. Most of the map-area is covered by overburden and water.

The map-area is underlain by Precambrian sedimentary and intrusive rocks, and by Palaeozoic sedimentary rocks. The Precambrian terrain, which includes practically all the exposed bedrock, is made up of Huronian strata of the Cobalt Group and younger basic intrusions. Pre-Lorrain Huronian strata are not exposed. The subdivisions of the Lorrain Formation (1a-1c) were previously recognized in the neighbouring Bruce Mines map-area¹. The formation appears to be considerably thicker than previously estimated elsewhere². Not including the two lowest units, which are not exposed in the map-area, the Lorrain Formation is approximately 8,300 feet thick just north of St. Joseph Channel, provided the beds continue undisturbed and uninterrupted across the farm belt. Of this thickness, all but about 1,050 feet consist of the white quartzite member (1c). Adding the thickness of the two lowest units, which are exposed in Bruce Mines map-area immediately to the east, the formation totals about 12,000 feet. The overlying formation (2) has no visible contacts in this map-area, and is well-exposed only on the hill about 1/2 mile north of the village of Bar River. Some 1,200 feet of this formation there consists dominantly of thin-bedded red, grey, and buff-coloured siltstone, intercalated with chert beds a few inches thick. The diabasic intrusions (3) and related granophyre (4) are part of a swarm of dykes and other intrusions mostly exposed in the adjoining area. The Palaeozoic rocks marginal to the Precambrian rocks southeast, northeast, and northwest of Bar River are poorly exposed, and on the part of St. Joseph Island included in the map-area are believed to be almost entirely concealed by overburden. The exposures near Bar River (one of which was previously described by Collins²) appear to mark the position of the Palaeozoic shoreline, as indicated by the presence of a weakly cemented, beach-type basal conglomerate. Almost all of the cobbles and pebbles of the conglomerate at all three places consist of white quartzite similar to the underlying strata.

The Huronian strata are moderately inclined. South of the Canadian Pacific Railway they form a broad regular arch facing west, which is the extension of a large westerly plunging anticline stretching across the southern part of the adjoining map-area. North of the railway the north limb of this structure is faulted and warped, but it passes, in the northeast corner, into southwesterly dipping beds that are part of a regional southeasterly trending homocline. Most of the faults appear to be south- or southwest-dipping thrusts.

No mineral showings of economic importance were seen in the map-area.

¹ Frarey, M. J.: Bruce Mines, District of Algoma, Ontario; Geol. Surv., Canada, Map 32-1962 (1962).
² Collins, W. H.: The North Shore of Lake Huron; Geol. Surv., Canada, Mem. 143 (1925).

LEGEND

PROTEROZOIC PALAEOZOIC

5 Limestone, siltstone; 5a, conglomerate

3 4 4. Granophyre, granophyric diabase
3. Diabase, gabbro, minor granophyre

HURONIAN

COBALT GROUP (1-2)

2 Variegated siltstone, interbedded chert, subordinate quartzite

1 **LORRAIN FORMATION:** undifferentiated; 1a, mainly red, purple, pink, and buff-coloured, crossbedded quartzite; some white quartzite and pebble conglomerate; 1b, white quartzite with prominent jasper-rich pebble conglomerate interbeds; 1c, dominantly white quartzite, numerous pebbly interbeds

Drift-covered area

Rock outcrop, area of rock outcrop

Geological boundary (approximate or assumed)

Bedding, inclined

Schistosity, cleavage (vertical)

Fault, shear zone (approximate, assumed)

Geology by M. J. Frarey, 1961

Main road

Other roads

Trail

Railway

Township boundary

International boundary

Power transmission line

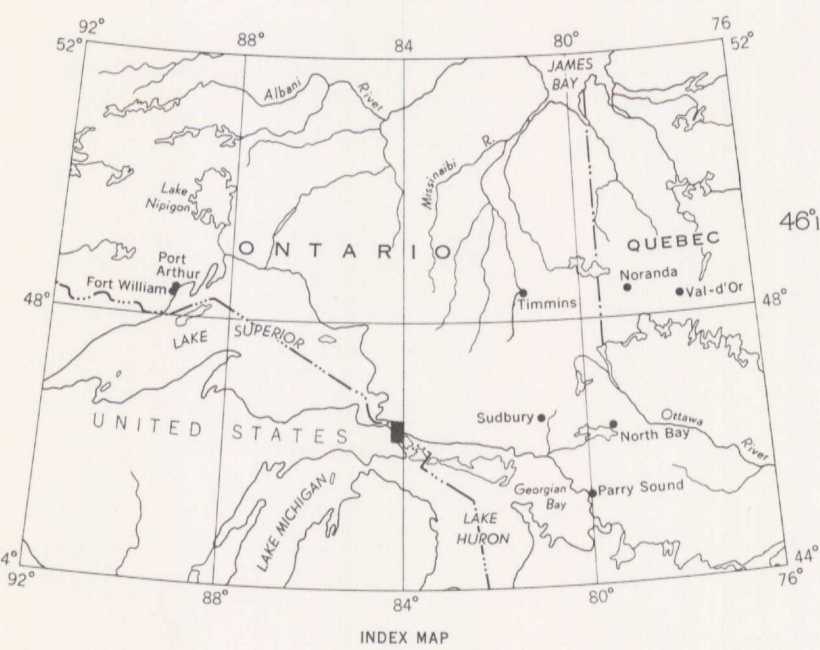
Lighthouse

Intermittent stream

Marsh

Cartography by the Geological Survey of Canada, 1962

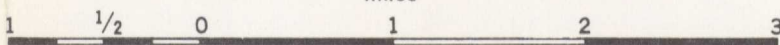
Approximate magnetic declination, 04° 28' West, increasing 0.3' annually.



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MAP 33-1962
GEOLOGY
LAKE GEORGE
ONTARIO

Scale: One Inch to One Mile = $\frac{1}{63,360}$
Miles



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