

- LEGEND**
- PROTEROZOIC**
- 7 Gabbro, diabase
 - 8 Granophyre
- COBALT GROUP (5,6)**
- 6 LORRAIN FORMATION: fine-grained, varicoloured quartzite; minor white quartzite, jasper conglomerate, and argillite
 - 5 GOWGANDA FORMATION: greywacke conglomerate, conglomeratic greywacke, argillite, arkose and impure quartzite
- BRUCE GROUP (2,3,4)**
- 4 BRUCE LIMESTONE: grey laminated limestone; minor siltstone, chert
 - 3 BRUCE CONGLOMERATE: polymictic greywacke conglomerate; minor argillite, quartzite
 - 2 MISSISSAGI FORMATION: feldspathic quartzite; minor pebble conglomerate, argillite
- ARCHAIC**
- 1 Granite, granitic gneiss
- Drift-covered area.
- Geological boundary (approximate)
- Limit of geological mapping, 1959.
- Bedding (inclined, tops not indicated).
- Fault, shear zone.
- Glacial striae, (direction of ice movement unknown).
- Mineral prospect (copper). Cu X
- Mineral occurrence (copper). Cu X

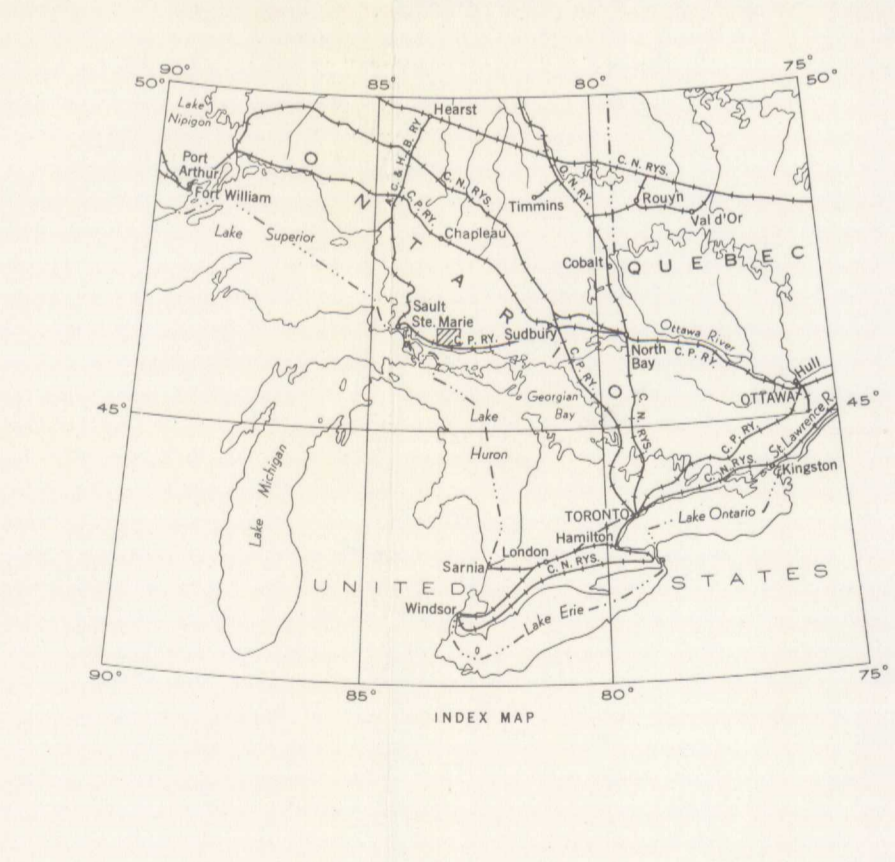
- Geology by M. J. Fréy, 1959
- Main highway.
- Other roads.
- Trail.
- Railway.
- Power transmission line.
- Post Office. P
- Township boundary.
- Indian Reserve boundary.
- Intermittent stream.
- Falls and rapids.
- Marsh.
- Sand or gravel.
- Height in feet above mean sea-level. 784

Cartography by the Geological Survey of Canada, 1960

Approximate magnetic declination, 05° 20' West

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-prints are hand-coloured



DESCRIPTIVE NOTES

The centre of the map-area lies about 30 miles west of Elliot Lake, Ontario, and some 12 miles north of Lake Huron. Iron Bridge is the principal community, although Blind River and Thessalon are only a few miles east and west of the area respectively. Only the northern half of the area was mapped in 1959. It is accessible from Highway 129 (Chapleau Road), Highway 546 (White River Road), and Highway 554. Parts of the area covered were mapped previously.

The map-area lies in the Huronian belt of Ontario, and with the exception of the extreme northwest corner, the northern part is entirely underlain by Huronian sedimentary rocks and younger intrusions. Strata of the Gowganda formation and basic igneous rocks predominate. The basement rocks (1) occur only in the northwest corner of the area and consist, as in the Echo Lake area to the northwest, of pink to grey, medium-grained granite and granitic gneiss, with inclusions of amphibolite. These latter are too small to map separately. The Bruce group (2, 3, 4) occur only in the southern part of the mapped area, around Matinenda Lake and again northeast from Parkinson. The Mississagi formation (2) is composed essentially of well-bedded, white-weathering, medium-grained to gritty, grey feldspathic quartzite. This chert and quartz-pebble beds and lenses are common. In places, lenticular greenish beds, more argillaceous in composition, are interbedded with the quartzite. The quartzite and associated beds in this area probably represent the upper Mississagi of other investigators.^{1, 2} The thickness exposed in this area is estimated to be between 1,500 and 2,000 feet. The Bruce conglomerate (3) is widely exposed west and north of Matinenda Lake. It consists of various pebbles and cobbles, chiefly grey gneissic granite, set in a matrix of dark grey quartzose greywacke. Near Matinenda Lake a few quartzite beds were observed. North of Parkinson, a well-bedded argillite member occurs near the top. Near Matinenda Lake the conglomerate is apparently about 1,000 feet thick.

The Bruce limestone (4) is an assemblage of fine-grained, grey beds, commonly intercalated with brownish silty laminae, where the latter are numerous, weathering produces a characteristic corrugated surface. The formation exhibits small-scale slump structures in places. In one section, where the limestone is thin-bedded, the limestone horizon is represented mainly by thin-bedded chert. Elsewhere, siltstone interbeds were observed. The formation is less than 100 feet thick.

The Cobalt group overlies the Bruce strata with no discernible angular discordance. Around Matinenda Lake, a few feet of quartzite and greywacke intervenes between the Bruce limestone and the Cobalt group, and may represent the Serpent quartzite of other areas, which otherwise appears to be missing. The Gowganda formation is a bedded assemblage of polymictic greywacke conglomerate of varying character, interbedded with arkose, fine-grained impure pink quartzite, and laminated argillite. The arkose, much of which is also conglomeratic, appears to be most abundant in the middle part of the formation. On the cliff just south of Beasie Lake on Highway 129, varved argillite containing scattered pink granite pebbles is well exposed. At a few localities, sedimentary breccia has formed; it consists mainly of argillaceous fragments in quartzite. The Gowganda formation between White River Road and Matinenda Lake represents a thickness of at least 5,000 feet.

The Lorrain formation (6) consists mainly of an irregular assemblage of fine-grained pink, grey, green, and purplish impure quartzite and minor argillite. The lower boundary of the formation is arbitrary. White quartzite and jasper conglomerate of the middle Lorrain³ were observed only in a small area north of Little White River, in Township 175.

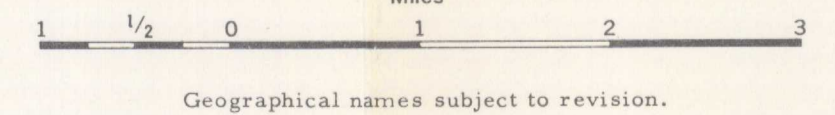
The various types of basic intrusive rocks (7, 8) are intergradational and some generalization is required in their separation. The larger intrusions appear to be sub-concordant sheets, but in addition there are numerous small steeply-inclined dykes of similar composition, some of which intersect the larger bodies. The gabbro-dabase (7) is fresh-looking, medium- to coarse-grained, massive, feldspar-pyroxene (amphibole) rock, whereas the granophyre (8) is a mottled, irregular, mainly coarse-grained assemblage of pinkish feldspar and elongate dark minerals. Quartz can be recognized locally. Near the west end of Wakwekobi Lake, and more particularly just east of the Mississagi River at the outlet of Tunnel Lake, are areas of breccia consisting of numerous pieces of argillite and greywacke in gabbro and granophyre.

The sedimentary formations are very gently folded. Two large complementary structures dominate this part of the map-area, namely a westerly plunging anticline about Matinenda Lake, and, to the northwest, the gentle north-dipping limb of a broad basin structure extending beyond the map-area. Outcropping of the Bruce strata northeast from Parkinson suggests a domal structure extending from there westward to Little White River. Numerous quartz veins, bearing various amounts of chalcocite, bornite, specularite, and carbonate, are scattered over the area, especially in the northeast corner. The veins generally strike about east-west and are nearly vertical. The majority are essentially barren, and most of the remainder have been previously prospected. The only current development work is in progress in Township 168, at the property of Andover Mining and Exploration Company Ltd., where chalcocite-bearing veins are being investigated.

¹ Abraham, E.M.: Prelim. Map, Twps. 149 and 150; Ont. Dept. Mines, 1958.
² Collins, W.H.: North Shore of Lake Huron; Geol. Surv., Canada, Mem. 143, 1925.
³ Emmons, R.C.: Wakomata Lake, Algoma District, Ontario; Geol. Surv., Canada, Sum. Rept. 1926, pt. C, 1927.
⁴ Fréy, M.J.: Echo Lake, District of Algoma, Ontario; Geol. Surv., Canada, Map 23-1959.
⁵ McDowell, J.P.: Sedimentary Petrology of the Mississagi Quartzite in the Blind River Area; Ont. Dept. of Mines, Geol. Circ. No. 6, 1957.

MAP 3-1960
GEOLOGY
WAKWEKOBI LAKE
ALGOMA DISTRICT
ONTARIO

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



Geographical names subject to revision.

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MAP 3-1960
WAKWEKOBI LAKE
ONTARIO
SHEET 41