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DISTRICTS OF NIPISSING, STURBURY AND TIMISKAMING

Scale 1 inch to 1 mile  
N.T.S. References: 41 971, 41 978, 41 979  
C.S.C. Aeromagnetic Maps: 1503G, 1504G, 1505G

- LEGEND**
- BOUNDARIES**  
 DISTRICTS OF NIPISSING, STURBURY AND TIMISKAMING  
 DISTRICT OF STURBURY  
 DISTRICT OF NIPISSING  
 DISTRICT OF TIMISKAMING
- PHYSICAL FEATURES**  
 Stream, lake, and swamp deposits  
 Pleistocene  
 Glacial, glaciofluvial, and glaciolacustrine deposits  
 UNCONFORMITY
- PRECAMBRIAN PROTOMETAMORPHIC**  
 LATE DIABASE INTRUSIONS  
 15a Olivine diabase
- INTRUSIVE CONTACT**
- GABBROIC INTRUSIONS**  
 14a Undifferentiated  
 14b Pyroxene gabbro, diabase  
 14c Hornblende gabbro, metagabbro  
 14d Epidote amphibolite
- INTRUSIVE CONTACT**
- NEOARCHAIC SUPERGROUP**  
**COAL GROUP**  
 13 Bar River Formation  
 13a Undifferentiated  
 13b Sandstone
- 12** Gordon Lake Formations  
 12a Undifferentiated  
 12b Sandstone  
 12c Argillite, siltstone  
 12d Chert, chert breccia
- 11** Lorrain Formation  
 11a Green and grey micaceous pebbly sandstone  
 11b Sandstone  
 11c White sandstone  
 11d Argillite, siltstone  
 11e Argillaceous sandstone, greywacke  
 11f Conglomerate
- 10** Gogoada Formation  
 10a Undifferentiated  
 10b Pebbly sandstone - polytictic paragonomite, greywacke or siltstone matrix  
 10c Polytictic paragonomite, greywacke or siltstone  
 10d Sandstone, feldspathic sandstone, greywacke  
 10e Argillite, siltstone  
 10f Laminated argillite
- 9** SEVERN LAKE GROUP  
 9a Undifferentiated  
 9b Sandstone  
 9c Argillite, siltstone
- 8** Espanola Formation  
 8a Limestone, siltstone
- 7** Bruce Formation  
 7a Undifferentiated  
 7b Polytictic conglomerate  
 7c Sandstone
- 6** HOUCH LAKE GROUP  
 6a Undifferentiated  
 6b Sandstone  
 6c Argillite, siltstone  
 6d Polytictic conglomerate
- UNCONFORMITY**
- ARCHAIC**  
 EARLY MAFIC INTRUSIONS  
 5 Gabbro, metagabbro, diabase
- INTRUSIVE CONTACT**
- 4** GRANITIC ROCKS  
 4a Undifferentiated  
 4b Quartz monzonite, granodiorite  
 4c Polytictic quartz monzonite, granodiorite
- 3** ONIQUA, MICHAMITE  
 3a Undifferentiated  
 3b Quartz-feldspar gneiss, migmatite  
 3c Mafic migmatite, gneiss
- 2** FELSIC METAVOLCANICS AND METASANDSTONES  
 2a Rhyolite, intermediate metavolcanics  
 2b Feldspar, quartz, and quartzite  
 2c Sandstone, argillite, conglomerate  
 2d Felicit schist
- 1** MAFIC METAVOLCANICS  
 1a Undifferentiated  
 1b Basalt, andesite  
 1c Amphibolite, amphibolite schist  
 1d Diabase
- 1F** IF Iron formation

a. The rocks of these units are subdivided lithologically and the order does not imply age relationship within the groups.  
 b. Nipissing-type.  
 c. Not present on the Lady Evelyn Lake Sheet.  
 d. Tinkling-type.

- GEOLOGICAL AND MINING SYMBOLS**
- Glacial strata  
 Esker  
 Small bedrock outcrop  
 Area of bedrock outcrop  
 Bedding, horizontal  
 Bedding, top unknown  
 Bedding, top (arrow) from  
 Bedding, top (arrow) from  
 Onstosity, (horizontal, inclined, vertical)  
 Foliation, (horizontal, inclined, vertical)  
 Lamination with plunge  
 Geological boundary, observed  
 Geological boundary, position interpreted  
 Geological boundary, deduced from aerophysics  
 Fault, (observed, assumed)  
 Lineament  
 Drag folds with plunge  
 Anticline, syncline, with plunge  
 Vein, vein network. Width  
 Shaft  
 MA Magnetic attraction  
 RA Radioactivity

**MARGINAL NOTES**  
 Location: The Lady Evelyn Lake area, located between Sturbury and Gogoada, is bounded by 47°30'N and 80°30'W and 47°25'N and 80°30'W, an area of about 850 square miles. Points in the north and east are accessible by gravel road from Lady Evelyn on Highway 115 and by private lumber roads. Access to the interior is possible by float-equipped aircraft.

**Mineral Exploration:** Exploration has been carried out for silver, gold, and base metals, mainly in the northern part of the area. During 1968, a large group of claims along the Lady Evelyn River in Klock and Barr Townships was being explored for copper, zinc, and precious metal.

**General Geology:** The area is underlain by Precambrian rocks which are overlain by unconsolidated Quaternary deposits of sand, gravel, and clay of glacial and glaciofluvial origin.

**Precambrian rocks** include metapelites and granite of Archaean age. Huronian metasediments of Proterozoic age, and mafic intrusions of Proterozoic age. Metasediments include sandstone, siltstone, argillite, and conglomerate, with lenses of low formation, occur in the southeast where they are intruded by granitic rocks of quartz monzonite-granodiorite composition.

The Huronian metasediments are divisible into four lithostratigraphic units which are correlated with the Gogoada, Lorrain, Gordon Lake, and Bar River Formations.

The Gogoada Formation, 3,000 to 5,000 feet thick, is divisible into a lower sequence of pebbly sandstone, polytictic paragonomite, sandstone, and argillite, and an upper sequence of laminated argillite, siltstone, and conglomerate. The basal member of the Gogoada is a thick unit of coarse-grained, green micaceous sandstone which contains scattered quartz pebbles and lenses of quartz pebbly conglomerate. The succeeding member consists of feldspathic, bentonitic, and white micaceous sandstone which commonly contain kaolinite. The upper member comprises a few hundred feet of thin-bedded, fine-grained, hematitic orthoquartzite.

Rocks of the Gordon Lake Formation conformably overlie the Lorrain and include approximately 1,000 feet of interbedded fine-grained sandstone, green argillite, chert, and chert breccia.

The Bar River Formation, the uppermost sedimentary unit, is at least 1,000 feet thick, and consists of fine- to medium-grained pink and white orthoquartzite.

The Huronian metasediments are dominantly clastic, and display features such as cross-bedding, graded bedding, ripple marks, laminated bedding, and slump structures indicative of deposition under shallow water conditions, probably in a shallow epicontinental sea. The Huronian metasediments are possibly of glacial or marine glacial origin. Cross-bedding is common throughout the Huronian metasediments. The Huronian metasediments are overlain by the Nipissing Diabase which is dated at 2,150 million years (Patrikian, N.W. et al. 1969) and late olivine diabase dikes dated at 1,200 million years (Van Schum, R. 1965). The older rocks of the Nipissing Diabase intrusions, which consist of pyroxene and hornblende gabbro with minor amounts of nickel, cobalt, gold, and silver occur in quartz-carbonate veins associated with the diabase, and as disseminations in the silver-bearing, sulphide mineralization, mainly pyrite, chalcocyanite, galena, and sphalerite, is most common in metasedimentary rocks which contain appreciable amounts of carbonaceous material.

Part of the Koko Lake formation is exposed around Ferris Lake in Cynthia Township. Trenching and diamond drilling by Dominion Gulf Company in 1968 has indicated the magnetic-susceptibility iron ore is 300 to 1,000 feet thick and grades 25 to 40 percent iron over widths of 300 feet (Dominion Gulf Company, 1968). The magnetic-susceptibility iron ore is located in Cynthia Township, Koko Lake, Ontario Department of Mines Assessment File, Resident Geologist's Office, Kirkland Lake.

**References:**  
 Patrikian, N.W., Hurley, P.M., Card, K.D., and Knight, C.J. 1969. Correlation of radiometric ages of Nipissing dike and Huronian metasediments with Proterozoic orogenic events in Ontario. Canadian Jour. Earth Sci., Vol. 6, p.489-497.  
 Van Schum, R. 1965. The geochronology of the Blind River Bruce Mines area, Ontario, Canada. Jour. Earth Sci., Vol. 7, p.755-780.

**METAL AND MINERAL OCCURRENCES**

|     |               |    |             |
|-----|---------------|----|-------------|
| Ag  | Silver        | Mi | Nickel      |
| As  | Arsenic       | Pb | Lead        |
| Cu  | Copper        | Py | Pyrite      |
| Co  | Cobalt        | Qz | Quartz vein |
| Ch  | Chalcocyanite | Sp | Sphalerite  |
| Cy  | Cyanite       | St | Staurolite  |
| Er  | Erythrite     | Tr | Triphane    |
| Gal | Galena        | Zn | Zinc        |
| Gr  | Graphite      |    |             |
| Il  | Ilmenite      |    |             |
| Mo  | Molybdenum    |    |             |
| Ni  | Nickel        |    |             |

**LIST OF MINERAL OCCURRENCES**

| No. | Name  | Township     | Metal  |
|-----|---|--------------|--------|
| 1.  | Argentic Silver Mines Ltd. (White Reserve Mine) | Van Nostrand | Ag, Co |
| 2.  | Argentic Silver Mines Ltd. (White Reserve Mine) | Whitson      | Ag, Co |
| 3.  | Argentic Silver Mines Ltd. (White Reserve Mine) | Speight      | Ag, Cu |
| 4.  | Armstrong, W.S. (Estate)                        | Speight      | Ag, Co |
| 5.  | Coppersand Lake                                 | Cynthia      | Ag, Co |
| 6.  | Koko Lake                                       | Cynthia      | Ag, Co |
| 7.  | Lady Evelyn Lake                                | Pa           | Ag, Co |
| 8.  | Lady Evelyn River                               | Barr         | Ag, Zn |
| 9.  | Moore, Willie                                   | Speight      | Ag, Co |
| 10. | New Delhi Mines Ltd.                            | Delhi        | Ag, Pb |
| 11. | Seagrave Lake                                   | Delhi        | Ag, Pb |
| 12. | Walton, Harold A.                               | Auld         | Ag     |
| 13. | Walsh, Beatrice M. (Triangle Mine)              | Auld         | Ag     |

**SOURCES OF INFORMATION**  
 Geology of Speight (Map P.573), Auld (Map P.579), Whitson (Map P.580), and Van Nostrand (Map P.584) Townships by W.H. Melville, 1969.  
 Geology of Seagrave (Map P.570) and part of Clay Townships by H.D. Mays, 1969.  
 Ontario Dep. Mines Map 356, Anta-Nipissing Lake area, 1926.  
 Ontario Dep. Mines Map 194, 1921, Township of Delhi, 1926.  
 Ontario Dep. Mines Map 2057, Northwestern Timagami area, 1946.  
 Ontario Dep. Mines Map 301, Maple Mountain Sheet, 1965.  
 Geol. Surv. Canada Map 179A, Onaping, 1917.  
 Maps and plans of mining companies.  
 Geol. Surv. Canada, Aeromagnetic maps 1503G, Obabika Lake, and 1504G, Lady Evelyn Lake and Forest.  
 Base map derived from maps of Forest Resources Inventory, Ontario Department of Mines and Forests.  
 Magnetic declination approximately 89°30'W, 1969.  
 Issued 1970.

