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**SHEBANDOWAN LAKE (WEST) AREA**

DISTRICT OF THUNDER BAY

Scale 1 inch to 1/2 mile

N.T.S. Reference 52 B/9  
U.D.M. - G.S.C. Aeromagnetic Map 1102G

**SHEBANDOWAN LAKE (WEST) AREA**

**Location:** The map-area is about 65 miles west of the Lakehead. The northern part is crossed by highway No. 11 and the Port Arthur - Port Francis line of the Canadian National Railway. Numerous lakes provide access by boat and conventional float-aircraft.

**Mineral Exploration:** Nineteenth Century exploration recorded the iron formations within the Metavolcanics but despite early optimism their extent is too small to be of interest. Early exploration also resulted in the discovery of gold in veins on Shebandowan Lake; and a 200-foot drift was driven, along a fault zone, just south of the Crayfish Creek Fault, in the southeast corner of Upper Shebandowan Lake. Gold values were low and development stopped in 1902.

The Geological Survey of Canada Map 338A shows several mineral locations which are reproduced on this map, and indicates that considerable prospecting was carried out prior to 1938. These showings include Cu, Mo, Pb, Co, Pt, Cr, Au, Ag, talc, barite and fluorite. Detailed descriptions of the early exploration of most of these showings are unavailable.

During the nineteen fifties and continuing into this decade exploration was again active, applying geophysical techniques which were unknown before. Several E.M. anomalies have been drilled, but iron formation or graphite schist have in most cases been encountered in the holes. Sulphides were discovered in some places in the metavolcanics and in the peridotites.

A number of properties have been mapped geologically and the information is filed in the Resident Geologist's office at Port Arthur.

**General Geology:** All the pre-Pleistocene rocks in the map-area are Precambrian.

The area is divided by a line determined by the Postans Fault and part of the Crayfish Creek Fault. The identical rock unit has been mapped on opposite sides of this dividing line and no age correlation is made across it.

North of the faults a well banded metasedimentary group of rocks with minor volcanic bands extends across the map-area. A muscovite granite in the east, and a biotite granite in the west, have intruded or replaced the north part of the sedimentary rocks. The contacts, particularly those of the muscovite granite, are gradational with lit-par-lit banding. Bands of muscovite granite pegmatite are also common.

The metasediments are of Couchiching type but H.S. Purdie (Jour. Geol. 1938) named them the Kashabowie Group, and this name is retained.

Bands of amphibolite occur within the Kashabowie Group, especially in the western part of the map-area. They vary from fine- to coarse-grained. At one location pillow structures are present. There is no evidence to suggest that these amphibolites are infolded Metavolcanics. At the southwest end of Kashabowie Lake a wedge of acid volcanic rock is present.

Graded beds are well exposed along the north shore of the long southern arm of Kashabowie Lake. They indicate tops south. In the adjoining area to the west, P.E. Giblin shows tops north, indicating isoclinal folding in this Group.

The Metavolcanics, which occur on the south side of the Postans Fault, are part of a belt which extends from the east border of the District of Thunder Bay to the Lakehead Cities. These rocks have formerly been called Keewatin but as they form an isolated belt this name is unjustified. They are of similar lithology to the Keewatin, but no age relationship is known. Within the map-area the Metavolcanics are predominantly basic; but north of Shebandowan Lake the acid volcanic rocks increase in amount. These rocks are mostly well sheared. Iron formation and bedded tuff form a small part of this Group.

Several small areas of quartzite and conglomerate outcrop within the Metavolcanics. Their relation to the Metavolcanics is not easily seen, but they are probably outliers of the material mapped farther east, as Windikokan by Tanton.

Coarse-grained amphibolite or metagabbro is common. Mapping has not distinguished between the coarse-grained flows, and related sills, which are of Metavolcanics age, and the later intrusive basic plutons.

At the east end of Upper Shebandowan Lake a large basic pluton (4c) is exposed. It includes altered gabbro, leucogabbro, anorthosite, and hornblende. Some exposures show banding with gradational contacts between the different members. This suggests a layered basic intrusion. Similar material is exposed all along Upper Shebandowan Lake; probably this distribution results from faulting and shearing. The gabbroic portion of this pluton resembles some of the gabbros the genetic relations among all the basic and ultrabasic rocks are not known. A sill of anorthosite makes a good marker band on the north side of Upper Shebandowan Lake.

In addition to the granite north of the Kashabowie Group, hornblende and biotite granites with syenitic margins occur farther south. Their emplacement is associated with the folding and dislocation of the surrounding Metavolcanics.

Acid and intermediate dikes and sills are widespread in the Metavolcanics, but are rare within the Kashabowie Group. They are usually parallel to the schistosity. The most common varieties are trachyte porphyry, syenite and a well sheared quartz-feldspar porphyry.

Diabase dikes are found cutting the Metavolcanics, Early Basic Intrusive Rocks, and Granitic Rocks.

**Structure:** The Postans Fault runs from the East margin of the map-area through the south limb of Kashabowie Lake until it terminates at the Crayfish Creek Fault. The Postans Fault and the Crayfish Creek Fault separate the map-area into two units as described under General Geology.

The Postans Fault is seen as a depression in the field. It is further indicated by the abrupt termination, at the depression, of bands in the Metavolcanics; and by the presence, north of the depression, of the south-facing Kashabowie Group. The movement along this fault is unknown.

The Crayfish Creek Fault probably extends right across Upper Shebandowan Lake and to South West Bay. It displaces the Postans Fault about one mile in a right hand sense. This horizontal displacement is consistent along the fault.

The depression, which is occupied by the west part of Upper Shebandowan Lake, may result from erosion along a fault or shear zone. If this is a fault, it probably predates the Crayfish Creek Fault, and is displaced by it.

The southeast corner of the map-area is separated by the Tinto Lake Fault. Its displacement is unknown but must be substantial. The regional schistosity dips steeply and strikes about N.70°E; but this is locally disturbed, particularly on the north and east sides of Greenwater Lake, where an intrusive granite has forced the Metavolcanics aside. A strong almost vertical lineation, resulting from the preferred orientation of hornblende in amphibolite, is developed on the east side of Greenwater Lake.

The quartzites and conglomerates of Windikokan type east of Harnden Lake may lie along a synclinal axis, but top determinations and other significant features are few in this area and no detailed structure can be deduced.

As stated above, determinations in the Kashabowie Group show tops south. This is opposite to Giblin's information farther west and indicates isoclinal folding in these metasediments.

**Economic Geology:** Most of the mineralization is within the Metavolcanics and the basic and ultrabasic rocks which intrude them. It appears to predate the granites and the major faults. Neither the granites nor the metasediments have been found to contain appreciable mineralization.

Chalcopyrite occurs within the fractures in the basic differentiated pluton. The best showing of this type is on property No. 10 which includes the islands in western Shebandowan Lake. This rock is probably a sheared and faulted extension of the main pluton which is located east of Upper Shebandowan Lake.

Chalcopyrite associated with pyrite occurs in a chlorite schist zone (No. 15), which is also on Upper Shebandowan Lake. The chalcopyrite is concentrated in parts of a wider pyritized zone suggesting that the two minerals were not emplaced together.

On property No. 17 one mile south of Kashabowie village, copper occurs with lead, gold, and silver in two zones of sheared basic volcanic rocks which strike northeast. Some of these mineralized pods are silicified. In 1956, diamond-drilling in the west zone indicated approximately 200,000 tons with an average grade of 1.25 percent copper (O.D.M., Metal Resources Circular, No. 2, 1957, pp. 45,46).

From property No. 15, copper, zinc, gold, and silver are reported from diamond-drill cores.

At Southwest Bay, Lower Shebandowan Lake, a nickel-copper-platinum property (No. 9) has mineralized zones of massive and disseminated pyrite, chalcopyrite, pyrrhotite and polydymite in sheared peridotite.

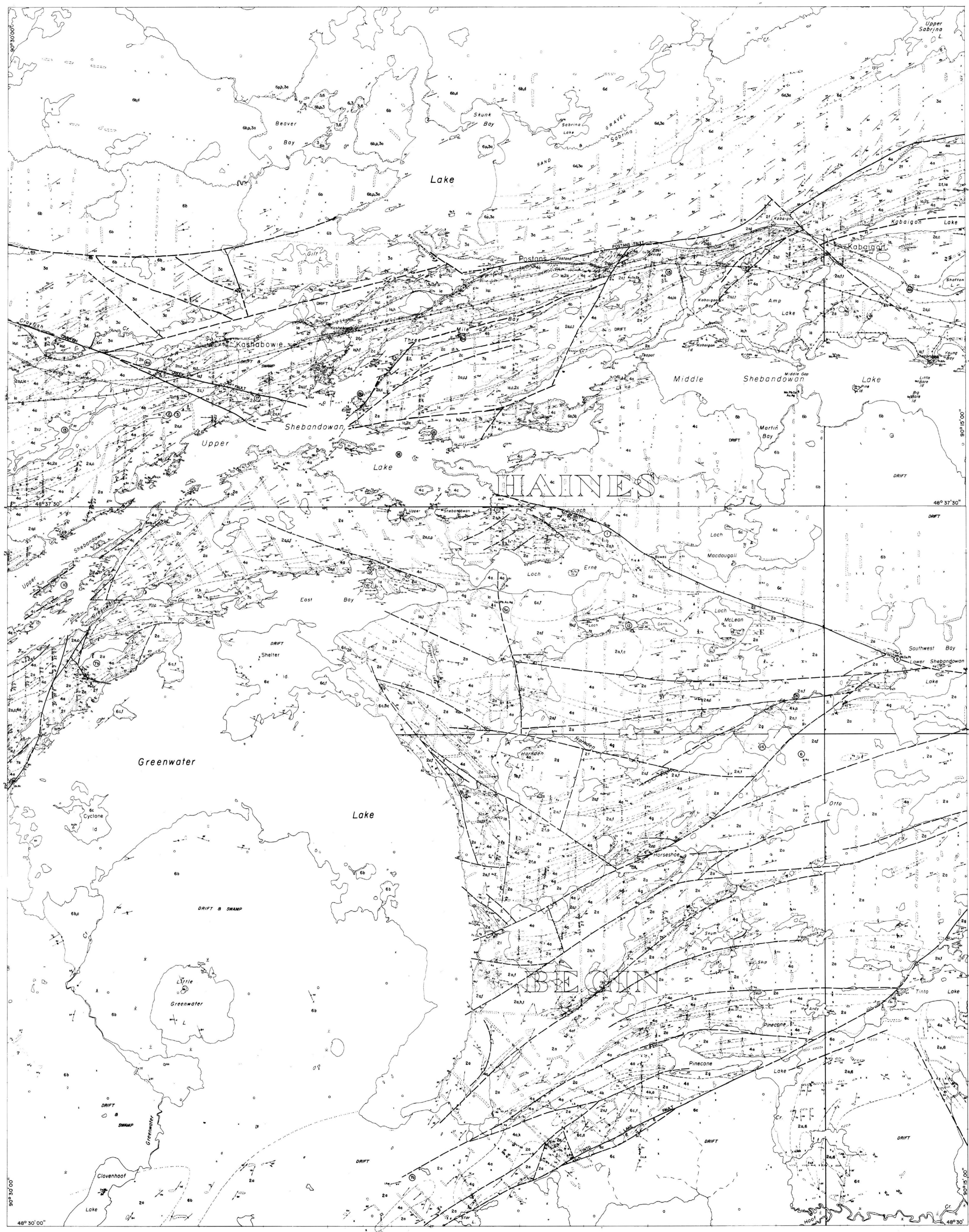
Peridotite sills or dikes are common in the south part of the map-area. Records show several of these have been drilled, but information on others is unavailable.

Low gold values in quartz veins at Shebandowan Lake are mentioned in reports but little further is known of these.

The iron formation bands are too small to be of interest under present day marketing conditions.

Pleistocene gravels from the area are used for road construction.

\* The term "group" has been used to replace "series", in conformation with "The Code of Stratigraphic Nomenclature".



**LEGEND**

**CENOZOIC\***

**RECENT**

Swamp and stream deposits.

**PLEISTOCENE**

Sand, gravel and boulder clay.

**GREAT UNCONFORMITY**

**PRECAMBRIAN\*\***

**LATE BASIC INTRUSIVE ROCKS**

8 Diabase (dikes).

**INTRUSIVE CONTACT**

**ACID AND INTERMEDIATE MINOR INTRUSIVE ROCKS\*\*\***

7a Trachyandesite, trachyte porphyry; syenite.  
7b Quartz porphyry and quartz-feldspar porphyry.

**GRANITIC PLUTONIC ROCKS**

6a Leucogranite.  
6b Biotite granite.  
6bf Porphyritic biotite granite.  
6c Hornblende granite.  
6cf Porphyritic hornblende granite.  
6d Muscovite granite.  
6p Muscovite granite pegmatite.

**SYENITIC PLUTONIC ROCKS**

5b Biotite syenite.  
5bf Porphyritic biotite syenite.  
5c Hornblende syenite.  
5cf Porphyritic hornblende syenite.

**INTRUSIVE CONTACT**

**EARLY BASIC INTRUSIVE ROCKS**

4a Gabbro.  
4af Porphyritic gabbro.  
4b Anorthositic gabbro.  
4c Differentiated basic Pluton; gabbro, anorthosite, hornblende.  
4d Diorite.  
4e Lamprophyre.  
4g Peridotite.  
4k Quartz amphibolite.

**INTRUSIVE CONTACT**

**KASHABOWIE GROUP\*\*\***

3a Metasediments, well banded biotite-feldspar-quartz schist.  
3b Medium- and coarse-grained amphibolite.  
3c Acid volcanic rocks.  
3d Basic volcanic rocks, pillow lava.

**FAULT CONTACT**

**METAVOLCANICS\*\*\*\***

**BASIC METAVOLCANICS**

2a Amphibolite and amphibolite schist.  
2b Chlorite schist.  
2f Porphyritic basic flows.  
2h Agglomerate.  
2p Pillow lava.  
2r Tuff, stratified tuff and basic sedimentary rocks.  
2s Quartzites and conglomerates (Windikokan type).

**I.F.**

I.F. Iron formation.

**ACID METAVOLCANICS**

1a Rhyolite, a  
1c Sericite schist.  
1e Biotite schist.  
1f Porphyritic rhyolite.  
1r Tuff.  
1p Pillow lava.

\* Unconsolidated deposits: Outcrop area not indicated.  
\*\* Bedrock Geology. Outcrop area generalized; indicates portion which was examined.  
\*\*\* The range of age of rocks in this group is extensive, and the limits are not known.  
\*\*\*\* The relative age of these groups is unknown.

**SYMBOLS**

	Muskeg or swamp.		Direction (arrow) in which inclined beds face as indicated by gradation in grain size.
	Bridge.		Direction (arrow) in which overturned beds face as indicated by gradation in grain size.
	Railway.		Direction in which lava flows face as indicated by shape of pillows.
	Electric power transmission line.		Strike and dip of schistosity.
	Motor road.		Strike of vertical schistosity.
	Wagon road.		Strike of schistosity, dip unknown.
	Trail, portage, winter road.		Strike and dip of gneissosity.
	Glacial striae.		Strike of vertical gneissosity.
	Small rock outcrop.		Strike of vertical gneissosity, approximate.
	Boundary of rock outcrop.		Lineation (plunge known, plunge unknown).
	Geological boundary, defined.		Strike and dip; direction of top unknown.
	Geological boundary, approximate.		Strike and vertical dip; direction of top unknown.
	Geological boundary, assumed.		Location of mining property.
	Fault, defined.		Building.
	Fault, indicated or assumed.		Mineral occurrence indicated on G.S.C. Map 338A.
	Location of mining property.		
	Building.		
	Mineral occurrence indicated on G.S.C. Map 338A.		

**MINERAL OCCURRENCE REFERENCE**

Ag	..... Silver	q	..... Quartz
Au	..... Gold	Pb	..... Lead
Co	..... Cobalt	Pt	..... Platinum
Cu	..... Copper	py	..... Pyrite
Fl	..... Fluorite	tal	..... Talc
Mo	..... Molybdenum	Zn	..... Zinc
Ni	..... Nickel		

**LIST OF PROPERTIES**

1.	Alator Property - Consolidated Callinan Flin-Flon Mines Ltd.	Cu, Ni
2.	C. E. Anderson claims	Cu
3.	F. E. Anderson claims	py
4.	Frank Anderson claims (a and b)	py
5.	Anderson Mines Ltd. (a and b)	Au, Ag, Cu, Pb
6.	Avenue Syndicate	Graphite schist
7.	Dominion Gulf Company (a and b)	Iron formation
8.	J. B. Harkness claims (a and b)	Cu
9.	International Nickel Company of Canada Ltd.	Ni, Cu, Pt, Co
10.	Jellicoe Mines (1939) Ltd.	Au
11.	Lower Shebandowan mine	py
12.	Loch Ernie Group, Goldale Ltd.	py
13.	Monteco Copper Corporation	py
14.	Otto Lake anomaly	Graphite schist
15.	R. Smith property	Cu, Zn, Au, Ag
16.	Upper Shebandowan Mines Ltd.	Cu
17.	Vanguard Explorations Ltd.	Cu, Zn, Au, Ag
18.	Whalen showing	Cu

**SOURCES OF INFORMATION**

Geology by J. M. Hodgkinson and assistants, 1962 and 1963.  
Basemap derived from maps of the Forest Resources Inventory, Ontario Department of Lands and Forests.  
Surveyed claims and mining locations not shown.  
Issued 1964.