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Simony P.S. 1960. Joan Township, District of Nipissing; Ontario Department of Mines, Preliminary Map P.0077, scale 1:15 840.

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ONTARIO
DEPARTMENT OF MINES

NOTES ON THE GEOLOGY OF Le ROCHE, CYNTHIA, BELFAST, JOAN AND
PHYLIS TOWNSHIPS, DISTRICT OF NIPISSING

by
P. S. SIMONY

INTRODUCTION

The area mapped covers about 180 square miles and lies about 15 miles west of Timagami on the Ontario Northland railway and highway No. 11. It comprises the townships of Phyllis, Joan, Cynthia, Belfast and Le Roche. The townships of Phyllis, Joan and Cynthia straddle Lake Timagami, whereas the townships of Le Roche and Belfast lie between Obabika Lake on the west and Lake Timagami on the east.

The area may be reached by air or water from the village of Timagami. Good portages connect smaller lakes in the area to Lake Timagami making all parts of the area readily accessible by canoe.

GENERAL GEOLOGY

All the consolidated rocks of the area are Precambrian in age. They are covered by a thin veneer of Pleistocene glacial and fluvio-glacial deposits, and by Recent lake, swamp and river deposits.

The Precambrian rocks are divisible into two groups: an older group of deformed and metamorphosed volcanic rocks cut by basic and acid intrusives, which by analogy to adjacent areas, is referred to the Archean. The Archean rocks are overlain unconformably by the Cobalt group, and diabase of Keeweenaw age cuts all rocks of the area.

Archean rocks are exposed only along the eastern side of the area and in one small inlier in southwestern Phyllis township. They consist of acid and basic volcanic rocks cut by dikes and sills of diorite. These rocks have been folded, faulted and metamorphosed, and intruded by Algonian granitic bodies.

Overlying the Archean rocks with profound unconformity are weakly metamorphosed, clastic sedimentary rocks belonging to the Gowganda and Lorrain formations of the Cobalt group. The lower, Gowganda formation underlies large parts of Phyllis, Joan and Cynthia townships and all of Belfast township. The overlying Lorrain formation is almost entirely restricted to the township of Le Roche.

The Gowganda formation consists mainly of greywacke and silty, well laminated argillite. In many places, where these two rock types are interbedded, they are brecciated. At different horizons in the formation, there are lenses of polymictic boulder and pebble conglomerate. Some of these lenses may be as much as 300 feet thick.

The Gowganda formation is conformably overlain by the Lorrain formation. Approximately the lower 200 feet of the Lorrain formation consists of grey white, greenish and pink quartzite interbedded with greywacke. The remainder consists of coarse, greyish white arkose. The top of the Lorrain formation was nowhere observed.

All rocks of the area are intruded by sills and dikes of diabase. The Nipissing type quartz diabase is the most common, all the large diabase bodies being of this rock type. The Nipissing diabase is granophyre in many localities and south of the west portion of Obabika Inlet, in northwestern Belfast, there is a body of granophyre (red rock) underlying an area of about 2 square miles.

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STRUCTURAL GEOLOGY

The two dominant structural features of the area are open, gently north plunging folds in the Cobalt sedimentary rocks, and two sets of fault striking N.E. and W. Where the Cobalt group is thin, the topography of the underlying Archean basement to some extent modifies the structures affecting the Cobalt rocks.

ECONOMIC GEOLOGY

The two metals of economic importance in the area are copper and iron. The only producing mine in the area is that being operated by Temagami Mining Company on a copper deposit on Timagami Island. The copper there occurs mainly in the form of chalcocite and some of the ores have high concentrations of this mineral. About 150 tons of ore are milled at the mine per day.

A band of Keewatin type iron formation extends into the area from the east at Ferrim lake. Exploratory drilling and sampling is in progress on this iron formation band.

The rock types with which mineralization has so far been found to be associated in the area, are the Keewatin acid and basic volcanic rocks, the pre-Algonian diorite, and the Nipissing diabase.

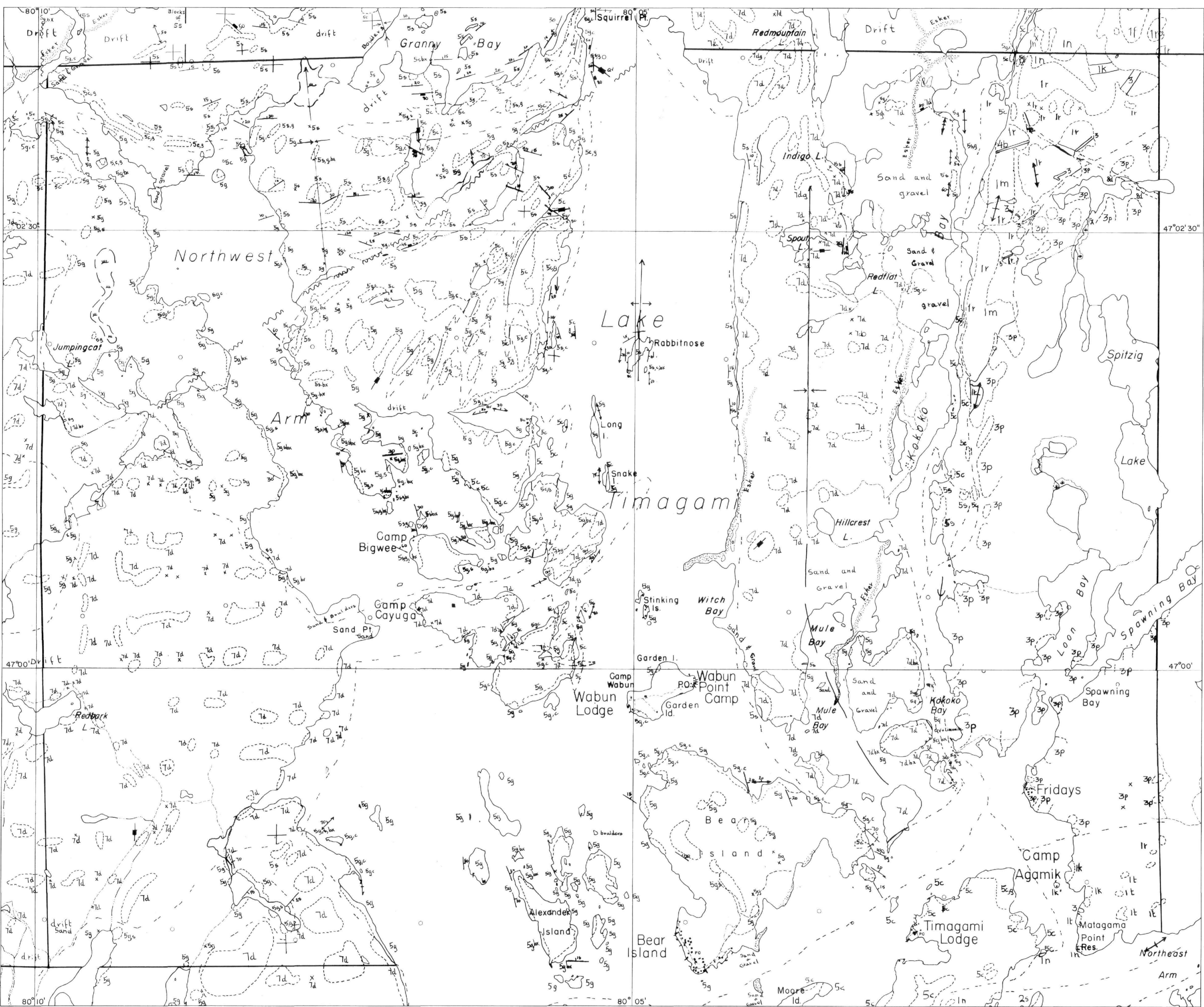
Associated with the Nipissing diabase, are a number of large quartz veins; copper, cobalt, nickel, gold and silver mineralization has been found in them and they warrant further prospecting. Where the cover of Cobalt sediments over the Archean basement is thin, geophysical methods have proven useful in the search for mineral deposits. At the northwest end of Skunk Lake along the west boundary of Phyllis township a small iron deposit has been discovered by magnetometer work. The iron deposit appears to be associated with a pre-Algonian altered gabbro, covered by Gowganda conglomerate and Nipissing diabase.

October, 1960.

Le ROCHE, CYNTHIA, BELFAST, JOAN AND PHYLIS TOWNSHIPS
DISTRICT OF NIPISSING

LEGEND

PRECAMBRIAN		
KEEWENAWAN	8	Olivine diabase (8d).
		Intrusive Contact
	7	Nipissing diabase (7d); granophyre ("red rock") (7g).
		Intrusive Contact
HURONIAN		
Cobalt Group		
Lorrain Formation	6	Quartzite (6q); arkose (6r).
Gowganda Formation	5	Slate, argillite (5s); greywacke (5g); quartzite (5q); conglomerate (5c).
		Unconformity
ALGONIAN		
	4	Soft greenstone (dikes) (4g); amphibolite (dikes) (4a).
	3	Granite (3g); fine-grained siliceous albite granite (3c); porphyritic granite (3p).
		Intrusive Contact
PRE-ALGONIAN		
	2	Massive diorite (2m); schistose diorite (2s).
		Intrusive Contact
KEEWATIN		
Acid Volcanics	1	Rhyolite (1k); rhyolite breccia (1kb); agglomerate (1a).
Basic and Intermediate Volcanics		
	1	Pillow lava (1p); basalt (1b); andesite (1n); dioritic greenstone (coarse flow or intrusive) (1d); amygdaloidal flow (1q); tuff (1t); proclastics (1r); recrystallized greenstone (1r); coarse amphibolite (1m); schist (1s).
	Fe	Iron formation.



PRELIMINARY MAP P.77
JOAN TOWNSHIP
DISTRICT OF NIPISSING

SCALE 1 INCH TO 1/4 MILE

GEOLOGY BY P.S. SIMONY, 1960

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