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ONTARIO
DIVISION OF MINES

HONOURABLE LEO BERNIER, *Minister of Natural Resources*

W. Q. MACNEE, *Deputy Minister of Natural Resources*

Executive Director, Division of Mines

E.G. Pye, Director, Geological Branch

**ANNUAL REPORT
OF
RESIDENT GEOLOGISTS' SECTION
GEOLOGICAL BRANCH
1971**

**Edited by
Shirley J. Gibson**

MISCELLANEOUS PAPER 50

1972

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Gibson, Shirley J. (editor)

1972: Annual report of Resident Geologists' Section, Geological Branch,
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PREFACE

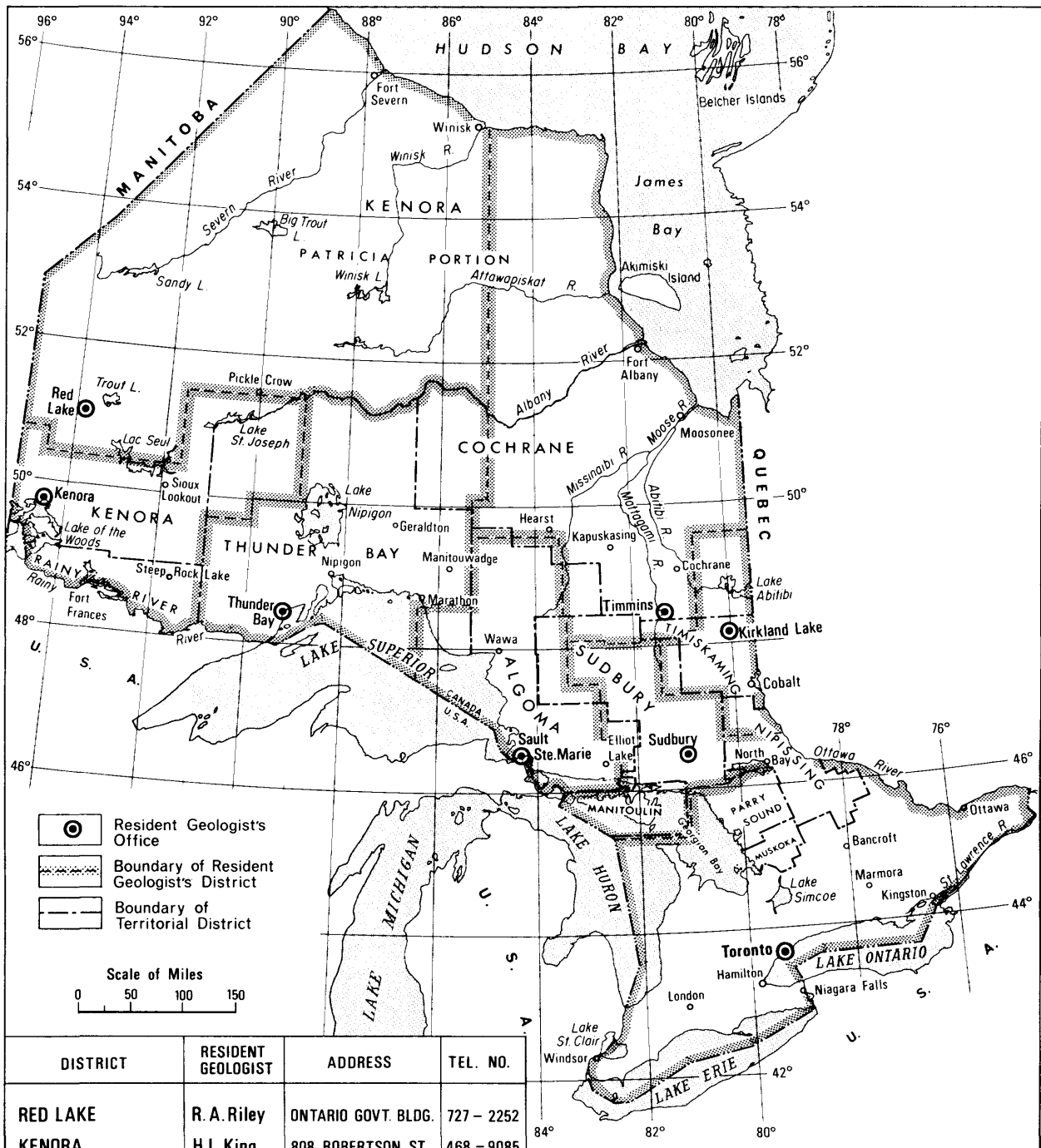
The 1971 Annual Report of the Resident Geologists' Section is an account of mining and exploration activities in Ontario during 1971.

Resident Geologists are located in eight mining centres: Kenora, Kirkland Lake, Red Lake, Sault Ste. Marie, Sudbury, Thunder Bay, Timmins, and Toronto. The accompanying map shows the area for which each office is responsible.

The Resident Geologist is primarily concerned with collecting and disseminating information on the geology and mineral resources of his district. He maintains a library of published and unpublished reports, maps, and other documents of geological and mining interest. He and his library are available for consultation at no charge.

In addition to summarizing recent mining and exploration activities in Ontario, this report lists new additions to the libraries received during 1971. These include work reports submitted for assessment credit, company prospectuses and reports from the files of the Ontario Securities Commission, reports of property visits by staff geologists, information donated by companies and individuals, and various news items.

G.R. Guillet,
Chief, Resident Geologists' Section



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**LOCATION OF
RESIDENT GEOLOGISTS' DISTRICTS**
GEOLOGICAL BRANCH
ONTARIO DEPARTMENT OF MINES
AND NORTHERN AFFAIRS

Revised to April, 1972

ODMNA 4715

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KENORA DISTRICT

By

H.L. King

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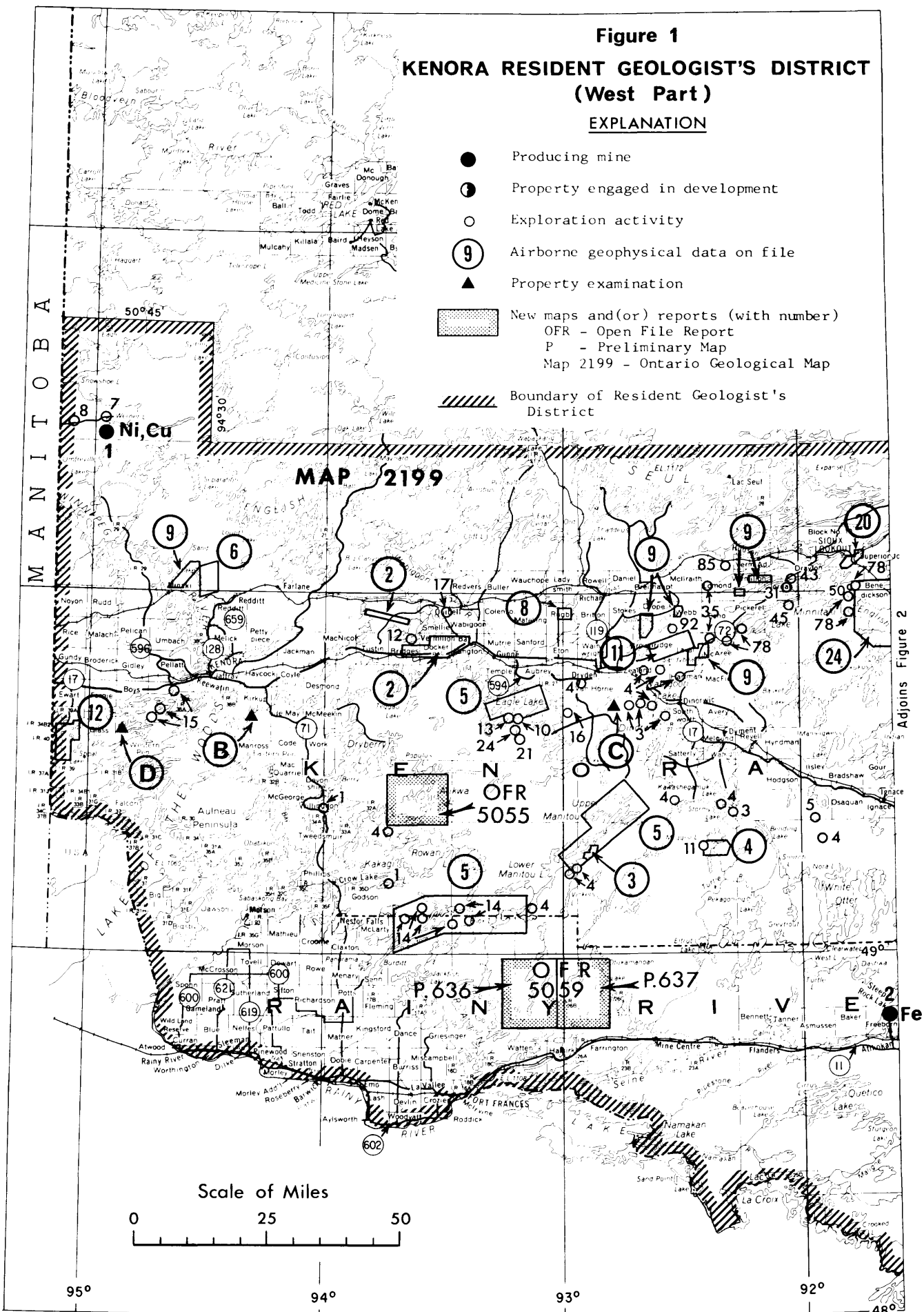
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Figure 1 KENORA RESIDENT GEOLOGIST'S DISTRICT (West Part)

EXPLANATION

- Producing mine
- ⊙ Property engaged in development
- Exploration activity
- ⑨ Airborne geophysical data on file
- ▲ Property examination
- ▨ New maps and/or reports (with number)
OFR - Open File Report
P - Preliminary Map
Map 2199 - Ontario Geological Map
- ▨ Boundary of Resident Geologist's District



Adjoins Figure 2

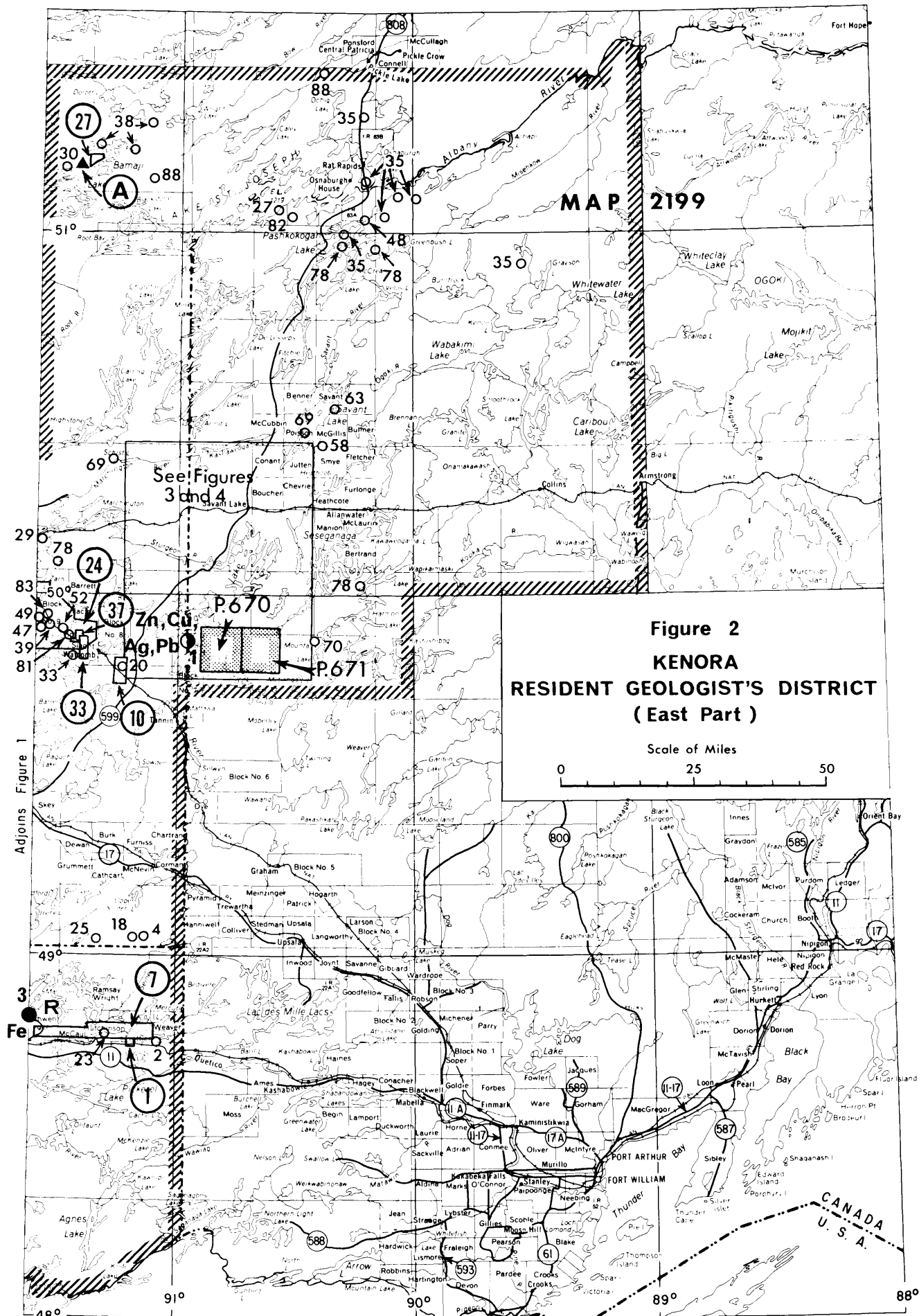


Figure 2
KENORA
RESIDENT GEOLOGIST'S DISTRICT
(East Part)

Scale of Miles
 0 25 50

Adjoins Figure 1

Fe P

INDEX TO FIGURES 1 AND 2



Producing Mines

1. Consolidated Canadian Faraday Ltd. Nickel, copper
2. Steep Rock Iron Mines Ltd. Iron
3. Caland Ore Company Ltd. Iron



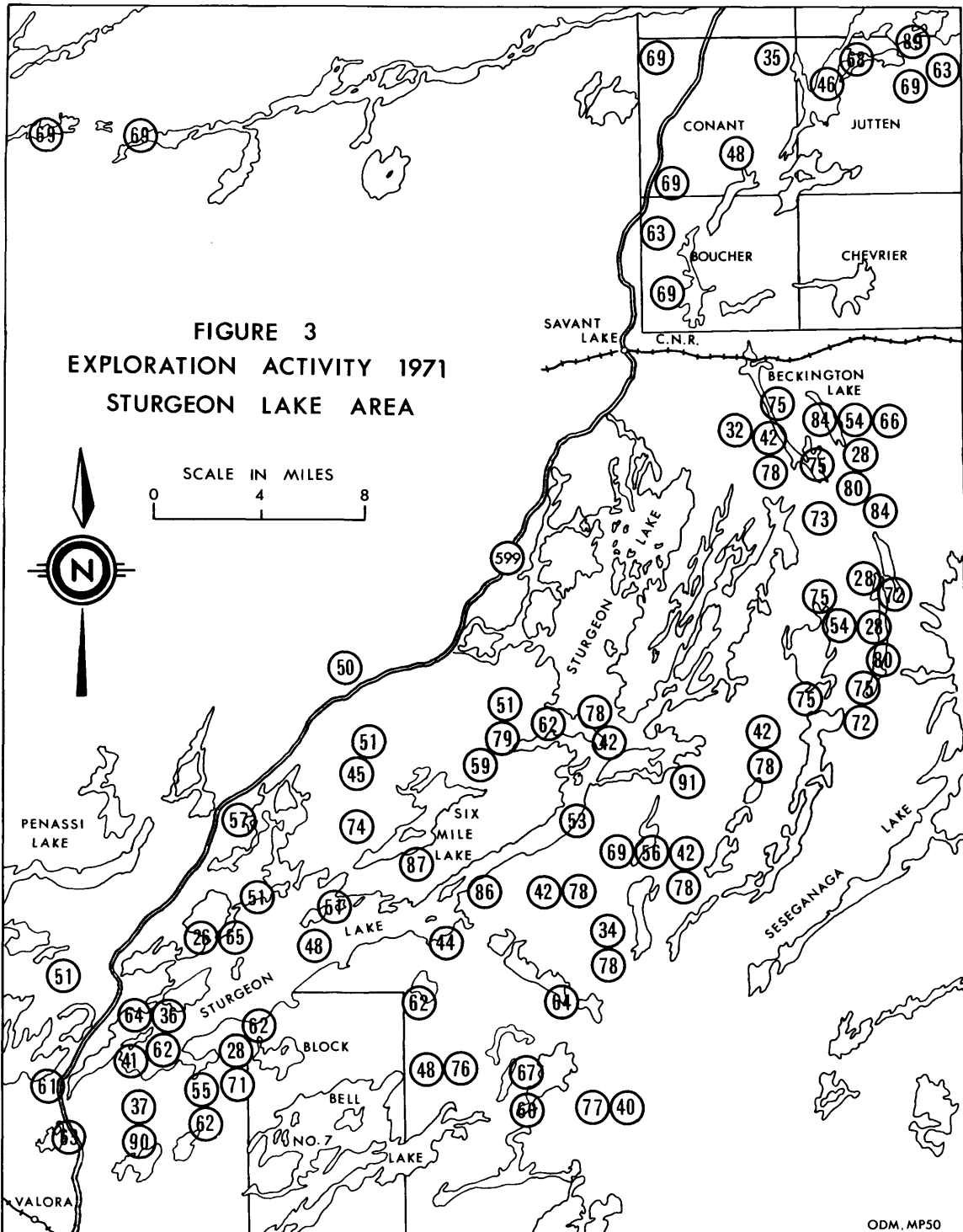
Properties Engaged in Development

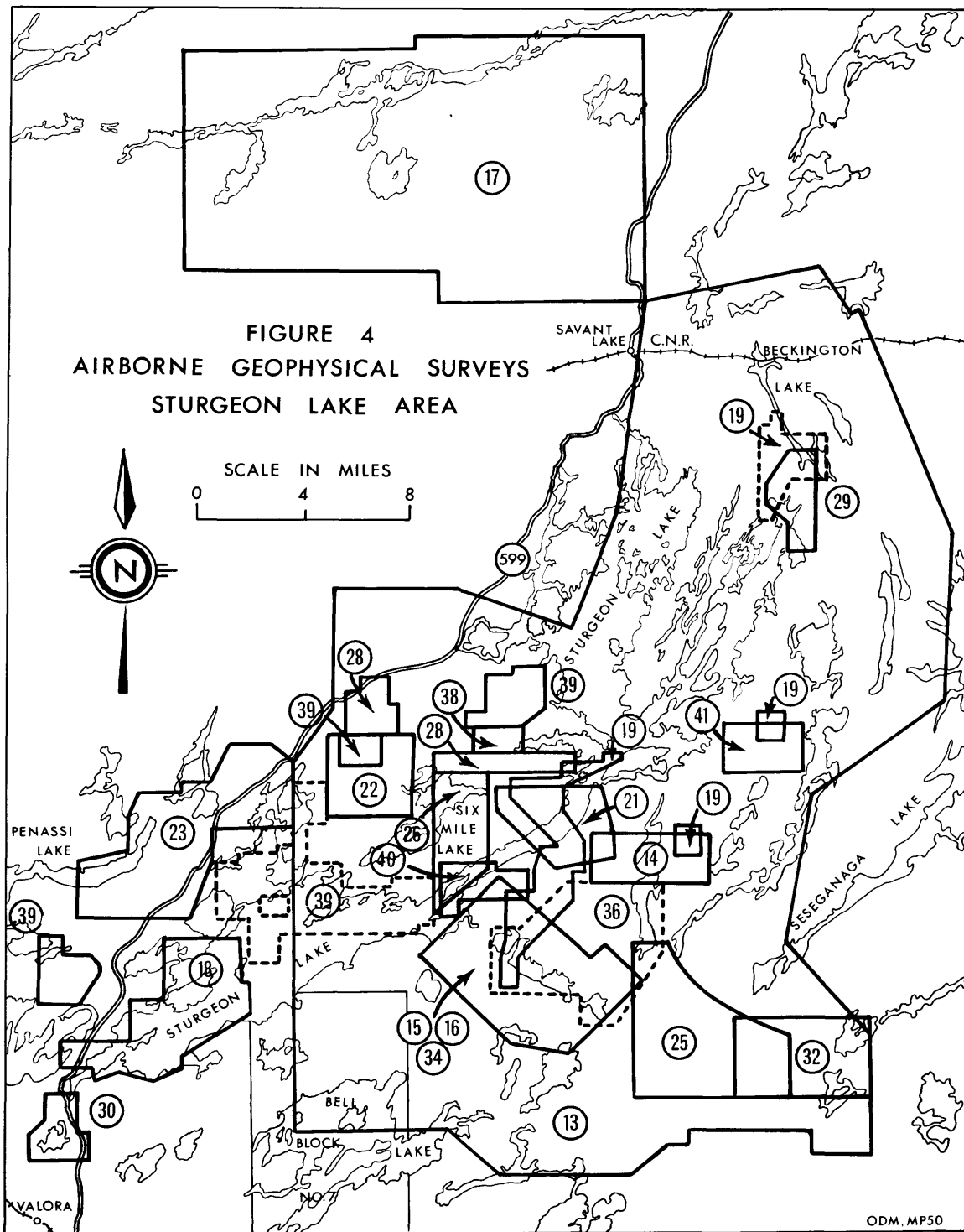
1. Mattabi Mines Ltd. Zinc, copper,
silver, lead



Property Examinations

- A. Bamaji Lake Gold-Uranium property
- B. Cameron property
- C. Mile Lake property
- D. Squaw Lake property





KENORA DISTRICT

By

H.L. King¹

INTRODUCTION

A marked decline in mineral exploration took place in most areas of the Kenora District except in the Sturgeon Lake area and the Kapkichi Lake-Pickle Lake areas. The highlight of the year, the discovery of another deposit of copper, zinc, and silver by Mattagami Lake Mines Ltd., assures continued interest in the Sturgeon Lake area. The discovery last year of copper-nickel mineralization by Union Miniere Exploration and Mining Corporation Limited near Kapkichi Lake has led to the staking of a large number of claims in that general area during 1971.

RESIDENT GEOLOGIST'S ACTIVITIES

Varied activities including work on new and previously initiated projects were undertaken at the Kenora office during 1971. Major activities included co-authorship of a paper presented at the Prospectors and Developers Association Annual Meeting in Toronto, continued mapping of the Keewatin-Kenora area, revision of part of the Atikokan-Lakehead Sheet, and work on a Lake of the Woods and Rainy River area guide book. A study regarding the mineral potential of part of northwestern Ontario for the Department of Transportation and Communications as an aid to planning of transportation systems was also undertaken.

Among regular duties, most significant were discussions and consultations with exploration personnel, examination of a number of prospects, and visits to mining operations and properties under development in the area. Some time was also spent with the four geological survey parties located in the Kenora District during the 1971 field season. Assistance was provided to the geological lecturers of the Data Retrieval and Education Section at the mineral exploration classes held in Dryden in February and Kenora in May.

Scientific meetings and conventions attended during the year included the annual meeting of the Prospectors and Developers Association in Toronto, the Geological Association of Canada Annual Meeting in Sudbury, and the Western Geological Conference in Winnipeg.

Mr. J.D. Werry who was recently appointed to permanent staff as a Resident Geologist's assistant, handled the assembling of the large amount of assessment data received during the year. He also assisted with other projects including geological mapping of the Keewatin-Kenora area.

¹Resident Geologist, Provincial Building, 808 Robertson Street, Kenora.
Manuscript accepted for publication January 24, 1972.

EXPLORATION AND MINING ACTIVITY

Staking

Kenora Mining Division

A significant drop in the number of claims staked in the Kenora Mining Division took place in 1971. Only 982 claims were recorded as compared to 4,904 during 1970.

Patricia Mining Division

Staking activity decreased notably in the Patricia Mining Division during the year. The Mining Recorder's office at Sioux Lookout, reported 5,841 claims recorded in 1971 compared with 11,659 claims in 1970. The most active area was in the vicinity of Central Patricia and Pickle Lake.

Quarry Permits

A total of 67 quarry permits were issued or renewed within the Kenora District during 1971. Two of these permits were issued for the removal of rock used as track ballast by the Canadian Pacific Railway and the Canadian National Railways. The rest (65) were issued for the removal of sand and gravel from deposits on Crown Lands.

Exploration

The main centres of interest in the District continue to be the Sturgeon Lake area and the Kapkichi Lake-Pickle Lake areas. The search for base metals accounted for virtually all of the exploration activity during 1971.

Exploration efforts continue to be successful in the Sturgeon Lake area where Mattagami Lake Mines Ltd. has outlined an extension of the copper-zinc-silver "boundary" deposit found in late 1970 by Falconbridge Nickel Mines Ltd. on NBU Mines Ltd. ground. Another copper-zinc-silver discovery in the same area was announced by Mattagami Lake Mines Ltd. in December 1971. Details of the new find are found elsewhere in the text.

A definite decrease in exploration activity from the high level attained during 1970 took place in the Kenora District this year. A marked drop in the number of claims recorded, in visits to the office by exploration personnel, and in work reported all indicate a definite cutback in exploration. There was, however, a significant increase in the amount of assessment work recorded in both the Kenora and Patricia Mining Divisions during the year (see Tables 1 and 2) but a considerable part of this work was done in 1970 and therefore does not reflect the current trend in exploration.

In the Kenora Mining Division, the amount of assessment work recorded increased by 18 percent compared to 1970. In the Patricia Mining Division, the increase for 1971 was 22 percent compared to 1970. Much of the work filed

during 1971 was diamond drilling which followed the large amount of geophysical work conducted in the Sturgeon Lake area during 1970 and 1971. A summary of the types of assessment work recorded for 1970 and 1971 in the Kenora and Patricia Mining Districts is given in Tables 1 and 2 respectively.

Table 1 Assessment work recorded, 1970 and 1971

Kenora Mining Division		
	1970	1971
Type of work	Days	Days
Manual Labour	732	638
Geophysical	26,389	22,040
Geological	2,180	360
Diamond drilling	30,737	51,615
Power equipment	3,719	853
Totals	63,757	75,506

Table 2 Assessment work recorded, 1970 and 1971

Patricia Mining Division		
	1970	1971
Type of work	Days	Days
Manual Labour	49	750
Geophysical	303,747	304,756
Geological	13,013	7,709
Diamond drilling	82,843	174,470
Power equipment	871	1,123
Geochemical	281	440
Core samples		510
Totals	400,804	490,678

A list of individuals and companies known to be engaged in exploration in the district, and a brief summary of the type and location of the exploration

work is given in Table 3. The number preceding the name of the individual or company indicates the general areas on Figures 1, 2, 3, and 4 where work was carried out.

Mineral Production

Consolidated Canadian Faraday Limited

The only producing base metal mine in the district during 1971 was the Gordon Lake Mine owned and operated by Consolidated Canadian Faraday Limited. The mine is located 50 miles north of Kenora, at Werner Lake. Production from the mine during 1971 averaged 275 tons per day of nickel-copper ore. The estimated total production for the year is 100,500 tons. Most of the ore mined was produced from sublevel blast-hole stopes. No significant underground development work was undertaken during 1971.

Caland Ore Company Limited

Iron production from the Caland Ore Company Limited open-pit mine in Freeborn Township just north of Atikokan, amounted to 1,292,058 tons of crude ore. A total of 936,541 tons of pellets were produced from this ore and coarse products amounted to 607,591 tons.

Steep Rock Iron Mines Limited

Iron mining operations located in Freeborn and Schwenger Townships just north of Atikokan, produced an estimated 1,403,590 tons of pellets and 5,398 tons of direct shipping ore during 1971. The average grade of pellets is 62.65 percent Fe and the average pellet plant feed is 57.80 percent Fe.

Production in tons for 1971 is as follows:

Ore type	Open Pit	Underground	Total
Crude	1,099,218	7,807	1,107,025
Direct	1,133,761	37,765	1,171,526
Totals	2,232,979	45,572	2,278,551

Crude ore is described as 40-50 percent Fe; direct ore as +59.5 percent Fe.

Canadian National Railways

Quarrying and crushing operations in Watten Township, about 10 miles east of Fort Frances, were carried out from April 26 to August 11, and from December 2 to December 15, 1971. A total of 141,732 cubic yards of crushed rock for use as railway track ballast was produced during 1971.

Table 3

Exploration Activity in 1971

The following is a list of individuals and companies known to be engaged in exploration within the Kenora District in 1971, and the type of work undertaken in each case. The numbers correspond to the numbered areas on Figures 1,2,3, and 4,

Kenora Mining Division

Individual or Company	Type of Work
1. Amex Exploration, Inc.	Ground electromagnetic and magnetometer surveys in Willingdon Tp. and Brooks Lake area.
2. Ardel Explorations Ltd.	Diamond drilling in Weaver Tp.
3. Asarco Exploration Co. of Canada Ltd.	Diamond drilling in the Butler Lake and Kawashegamuk Lake areas.
4. Canadian Nickel Co. Ltd.	Ground geophysical work and diamond drilling in Crozier, Hartman, Van Horne and Zealand Tps. and Balmoral Lake, Boyer Lake, Butler Lake, Kawashegamuk Lake, Lower Manitou Lake, Napanee Lake, Rowan Lake and Richardson Lake areas.
5. Collins, Roland	Airborne magnetometer and electromagnetic surveys in the Balmoral Lake and Raleigh Lake areas.
6. Cone, Russel C.	Trenching and diamond drilling in the Grassy Lake area.
7. Consolidated Canadian Faraday Ltd.	Diamond drilling in the Werner Lake area.
8. Consolidated Manitoba Mines Ltd.	Ground electromagnetic and magnetometer surveys and diamond drilling in the Reynar Lake area.
9. Corrigan, Elmer	Diamond drilling in Bennett Tp.
10. Doak, Clifford	Trenching in the Buchan Bay area.
11. Duncan R. Derry Ltd.	Diamond drilling in the Wapageisi Lake area.
12. Falconbridge Nickel Mines Ltd.	Diamond drilling in Bridges Tp.
13. Finch, William D.	Ground magnetometer survey, stripping, and trenching in the Buchan Bay area.
14. Freeport Canadian Exploration Co.	Diamond drilling in the Bluffpoint Lake, Brooks Lake, Dash Lake, and Kaiarskons Lake areas.
15. Kerr Addison Mines Ltd.	Ground electromagnetic and magnetometer surveys and diamond drilling in the Clearwater Bay area.
16. Lynx-Canada Explorations Ltd.	Trenching, ground geophysical surveys and diamond drilling in the Contact Bay area.
17. MacLeod, James R.	Stripping and trenching in Smellie Tp.
18. MacMillan, John D.	Ground magnetometer survey in the Richardson Lake area.
19. McMillen, Stanley	Trenching in the Grassy Lake area.
20. New Calumet Mines Ltd.	Diamond drilling in the Valora and Unaka area.
21. Null, Kenneth E.	Stripping and trenching in the Buchan Bay area.
22. North Rock Explorations	Diamond drilling on copper property in Halkirk Tp.
23. Paulpic Gold Mines Ltd.	Metallurgical testing of samples from iron-base metal property in Hutchinson Tp.
24. Sukava, Aron	Trenching in the Buchan Bay area.
25. Univex Exploration Ltd.	Ground electromagnetic and magnetometer surveys and diamond drilling in the Norway Lake area.

Patricia Mining Division

26. Africana Mining Co. Ltd. (Panacan Resources)	Ground electromagnetic and magnetometer surveys in the S.W. pt. of Sturgeon Lake.
27. Algoma Steel Corporation Ltd.	Diamond drilling on Carling Island, Lake St. Joseph.
28. Amex Exploration Inc.	Ground electromagnetic surveys and geological mapping in the Beckington Lake, Seseganaga Lake and Squaw Lake areas. Diamond drilling in the S.W. pt. of Sturgeon Lake area.
29. Asarco Exploration Co. of Canada Ltd.	Ground electromagnetic and magnetometer surveys, geological mapping and diamond drilling in the Sharron Lake area.
30. Bell, Bruce S.	Induced polarization survey in the Fry Lake and Wesleyan Lake areas.
31. Black, Gordon	Ground electromagnetic and magnetometer surveys in Jordan Tp.
32. Blake, Fred	Ground electromagnetic and magnetometer surveys in the Beckington Lake area.
33. Boylen, F. A.	Trenching in the Press Lake area.

Individual or Company	Type of Work
34. Calmor Iron Bay Mines Ltd.	Air and ground geophysical surveys and diamond drilling in a joint project with Selco Exploration Co. Ltd. in the Quest Lake, Sixmile Lake and S. of Sturgeon Lake area.
35. Canadian Nickel Co. Ltd.	Ground geophysical surveys and diamond drilling in the Conant, Jutten, Lomond, and McAree Tps. and in the Caron Lake, Coucheemoskog Lake, Dawn Lake, Lowry Lake, Osnaburgh Lake and Pashkokogan Lake areas.
36. Chimo Gold Mines Ltd.	Ground electromagnetic and magnetometer surveys in the S.W. pt. of Sturgeon Lake area.
37. Ciglen, Gordon J.	Ground magnetometer survey in the S.W. pt. of Sturgeon Lake area.
38. Cochenour Willans Gold Mines Ltd.	Ground electromagnetic surveys and diamond drilling in the Drum Lake, Fry Lake, Kawashe Lake and Nabemkoseka Lake areas.
39. Congress Mining Corporation Ltd.	Ground electromagnetic and magnetometer surveys in the Smock Lake area.
40. Consolidated Canorama Explorations Ltd.	Geological and geochemical surveys in the S. of Sturgeon Lake area.
41. Consolidated Morrison Explorations Ltd.	Ground electromagnetic, magnetometer, induced polarization and resistivity surveys and diamond drilling in the S.W. pt. of Sturgeon Lake area.
42. Conwest Exploration Co. Ltd.	Air electromagnetic and magnetometer surveys in a joint project with Selco Exploration Co. Ltd. in the Beckington Lake, Fourbay Lake, Quest Lake, Sixmile Lake and Squaw Lake areas.
43. Courier Explorations Ltd.	Ground electromagnetic and magnetometer surveys and diamond drilling in Jordan Tp.
44. D'Aragon Mines Ltd.	Diamond drilling in the Sixmile Lake area.
45. Dome Exploration (Canada) Ltd.	Ground magnetometer and induced polarization surveys in the Kabik Lake and Pickerel Tp. area. Air and ground electromagnetic and magnetometer surveys in the Fourbay Lake and Sixmile Lake areas.
46. Donner, John	Ground electromagnetic and magnetometer surveys in Jutten Tp.
47. Dove Lake Mines Inc.	Ground electromagnetic and magnetometer surveys in the Smock Lake area.
48. Falconbridge Nickel Mines Ltd.	Ground electromagnetic and magnetometer surveys in Conant Tp. and Caron Lake area. Diamond drilling in the S. of Sturgeon Lake and Sixmile Lake areas.
49. Falcon Lake Mining Corporation Ltd.	Ground electromagnetic and magnetometer surveys in the Smock Lake area.
50. Giant Sturgeon Mining Corporation Ltd.	Diamond drilling in the Fourbay Lake area.
51. Granges Exploration (Canada) A.B.	Ground geophysical surveys in the Penassi Lake, Sixmile Lake, Fourbay Lake, and S.W. pt. of Sturgeon Lake areas.
52. Grant, John S.	Ground electromagnetic and magnetometer surveys in the Press Lake and Wyatt Lake areas.
53. Green Point Mines Ltd.	Ground electromagnetic, magnetometer and induced polarization surveys and diamond drilling in the Quest Lake and Sixmile Lake areas.
54. Heino, David A.	Ground electromagnetic surveys in the Beckington Lake and Squaw Lake areas.
55. Ideal Bay Explorations Ltd.	Ground electromagnetic, magnetometer, and geological surveys in the S.W. pt. of Sturgeon Lake area.
56. International Obaska Mines Ltd.	Diamond drilling in the Quest Lake area.
57. Labow, Larry	Diamond drilling in the Penassi Lake area.
58. Langis Silver and Cobalt Mining Co. Ltd.	Ground electromagnetic and magnetometer surveys in McGillis and Smye Tps.
59. Larchmont Mines Ltd.	Air electromagnetic and magnetometer surveys in the Fourbay Lake area.
60. Louvicourt Goldfields Corporation.	Diamond drilling in the S. of Sturgeon Lake area.
61. Madsen Red Lake Gold Mines Ltd.	Diamond drilling in the S.W. pt. of Sturgeon Lake area.
62. Mattagami Lake Mines Ltd.	Ground electromagnetic and magnetometer surveys in the Fourbay Lake area and diamond drilling in the Sixmile Lake and S.W. pt. of Sturgeon Lake areas.
63. Mid-North Engineering Services Ltd.	Ground electromagnetic and magnetometer surveys in Boucher, Jutten, McGillis, Savant, and Smye Tps. and in the Evans Lake area. Diamond drilling in the S.W. pt. of Sturgeon Lake area.
64. Milner George N.	Ground electromagnetic and magnetometer surveys in the Sixmile Lake and S.W. pt. of Sturgeon Lake area.

Individual or Company	Type of Work
65. McIntyre Porcupine Mines Ltd.	Diamond drilling in the S.W. pt. of Sturgeon Lake area.
66. Needolin, Victor A.	Ground electromagnetic survey in the Beckington Lake area.
67. Newconex Canadian Exploration Ltd.	Induced polarization and geological surveys in the S. of Sturgeon Lake area.
68. Nilsson, Eric Torsten	Ground electromagnetic and magnetometer surveys in Jutten Tp.
69. Noranda Exploration Co. Ltd.	Ground electromagnetic and magnetometer surveys and diamond drilling in Boucher and Conant Tps. Ground electromagnetic and magnetometer surveys in Jutten and Poisson Tps. and in the Kimmewin Lake and Marchington River areas. Diamond drilling in the Quest Lake area.
70. Norbaska Mines Ltd.	Ground electromagnetic and magnetometer surveys and diamond drilling in the Brightsand Lake and River areas.
71. Nordev Mines Ltd.	Diamond drilling in the S.W. pt. of Sturgeon Lake area.
72. Omar Explorations Inc.	Ground electromagnetic and magnetometer surveys in the Squaw Lake and Seseganaga Lake areas.
73. Phelps Dodge Corporation of Canada Ltd.	Ground magnetometer surveys in the Beckington Lake area.
74. Rio Tinto Canadian Exploration Ltd.	Ground electromagnetic and magnetometer surveys in the Sixmile Lake area.
75. Royex Mining Ltd.	Ground electromagnetic and magnetometer surveys in the Beckington Lake, Seseganaga Lake and Squaw Lake areas.
76. Santa Maria Mines Ltd.	Diamond drilling in the S. of Sturgeon Lake area.
77. Scope Resources Ltd.	Ground geophysical surveys and diamond drilling in a joint program with Texmont Mines Ltd. in the S. of Sturgeon Lake area.
78. Selco Exploration Co. Ltd.	Diamond drilling in Drayton, McAree, Kabik Lake and Pickerel Tps. and in the Pashkokogan Lake, Parnes Lake, Greenbush Lake, Caron Lake, Squaw Lake and Zarn Lake areas. Air magnetometer surveys and diamond drilling in conjunction with Calmor Iron Bay Mines Ltd. in the Quest Lake, Sixmile Lake and S. of Sturgeon Lake areas. Air electromagnetic and magnetometer surveys in a joint program with Conwest Exploration Co. Ltd. in the Beckington Lake, Fourbay Lake, Quest Lake, Sixmile Lake and Squaw Lake areas.
79. Silverside Mines Ltd.	Ground electromagnetic and magnetometer surveys in the Fourbay Lake area.
80. Slocan Ottawa Mines Ltd.	Diamond drilling in the Beckington Lake, Squaw Lake and Seseganaga Lake areas.
81. Smith, Olga E.	Ground electromagnetic and magnetometer surveys in the Press Lake area.
82. Steerola Explorations Ltd.	Diamond drilling in the Carling Island and Riach Lake areas.
83. Sturgeon King Mining Corporation Ltd.	Ground electromagnetic surveys in the Smock Lake area.
84. Sturgex Mines Ltd.	Diamond drilling in Fog Lake and Manion Tp. and in the Beckington Lake area.
85. Tetlock, Ian	Stripping and trenching in the Whipper Lake area.
86. Texmont Mines Ltd.	Air electromagnetic and magnetometer surveys in a joint program with Sturdy Mines Ltd. in the Sixmile Lake area.
87. Toronado Mines Ltd.	Ground electromagnetic and magnetometer surveys in the Sixmile Lake area.
88. Union Minière Explorations and Mining Corporation Ltd.	Ground magnetometer surveys in the Drum Lake area and diamond drilling in the Kapkichi Lake area.
89. United MacFie Mines Ltd.	Ground electromagnetic and magnetometer surveys in Jutten Tp.
90. Valora Explorations and Development Ltd.	Ground electromagnetic and magnetometer surveys and diamond drilling in the S.W. pt. of Sturgeon Lake area.
91. Western Quebec Mines Co. Ltd.	Air electromagnetic and magnetometer surveys in the Quest Lake and Squaw Lake areas.
92. Woirowicz, Mike	Trenching in Webb Tp.

Canadian Pacific Railway

A rock quarry at Hawk Lake, 20 miles east of Kenora, was operated by B.A.C.M. Limited during 1971. Quarrying and crushing operations employing 23 men started May 1 and ended October 27, 1971. Total production amounted to 340,000 cubic yards of crushed rock which is used for railway track ballast.

Properties Engaged in Development

Mattabi Mines Ltd.

Stripping of about 2 million cubic yards of overburden from the large zinc, copper, and silver deposit was completed during 1971 and a start has been made on the removal of rock and low-grade ore. Steady progress was made throughout the year with the construction of plant buildings. A 14-mile spur line extending northeast from the Canadian National Railways line was completed during the year. A hydro line to service the property was also completed in 1971. Planned production of 3,000 tons per day is slated for late in 1972.

North Rock Explorations Limited

An underground program is planned by North Rock Explorations Limited on a copper prospect located about 16 miles east of Fort Frances, in Halkirk Township.

Drilling during the past year has increased the estimates of drill-indicated ore to 1,020,458 tons averaging 1.17 percent copper or 420,493 tons grading 2.03 percent copper¹. Plans are to sink a three-compartment shaft to an initial 200 feet. Drifting on the 175-foot level would then be undertaken to explore the deposit.

SIGNIFICANT NEW INFORMATION

New Discoveries in the Sturgeon Lake Area

Drilling during the year continued to extend the copper-zinc-silver "boundary" deposit discovered by Falconbridge Nickel Mines Ltd. on NBU Mines Ltd. ground in late 1970. Drilling, along the Mattagami Lake Mines Ltd.-NBU Mines Ltd. boundary and subsequent drilling to the north on ground held by Mattagami Lake Mines Ltd., has outlined a significant copper-zinc-silver deposit. Ore reserve figures announced by Falconbridge Nickel Mines Ltd. on the NBU Mines Ltd. ground in October 1971, indicate 1,928,000 tons of 3.0 percent copper, 7.85 percent zinc, and 4.54 ounces of silver per ton which can be mined by open-pit methods. An additional 258,000 tons grading 1.39 percent

¹Northern Miner 1971, North Rock underground test at copper prospect (article); Northern Miner Press, p.45(973), September 23, 1971.

copper, 2.85 percent zinc, and 1.65 ounces silver per ton may be recoverable by underground methods. Tonnage figures on Mattagami Lake Mines Ltd. ground in June 1971, when drilling was suspended, were 837,083 tons of 8.86 percent zinc, 1.21 percent copper, 1.33 percent lead, 5.03 ounces silver and 0.016 ounces gold per ton.

Another intersection of importance was obtained from drilling a geophysical conductor to the southwest of the "boundary" deposit on NBU Mines Ltd. ground. A 42.5-foot intersection, the only one reported to date, analyzed 2.52 percent copper.

The discovery of what appears to be another significant copper-zinc-silver deposit in the same general area was announced by Mattagami Lake Mines Ltd. in December 1971. The new discovery is located about 4,000 feet north-northwest of the "boundary" deposit. A number of good intersections have been reported to date; the results are given in Table 4.

Table 4 Mattagami Lake Mines Limited, Drill Hole Assays

Hole No.	Core Length feet	Zinc percent	Copper percent	Lead percent	Silver ounces	Gold ounces
83	13.7	10.39	2.07	1.19	5.85	0.16
84	Values over uneconomic widths					
86	Values over uneconomic widths					
87	9.7	3.64	1.86	.36	3.09	.009
	11.2	4.21	.71	.59	2.60	.008
88	36.0	9.49	.84	1.11	4.23	.011
89	34.5	2.18	.36	.18	.79	.003
90	19.8	11.65	1.20	.87	3.78	.018
91	55.2	8.24	.54	.77	3.19	.007
92	14.3	7.00	.74	.53	1.76	.008
93	20.9	15.90	.74	.60	3.27	
	4.8	15.20	1.65	2.16	9.35	
94	29.3	4.07	.57	.51	2.07	
95	21.0	10.92	.64	.82	5.08	
96	19.7	11.60	.91	1.12	4.45	
97	42.1	6.64	1.17	.21	2.16	
98	29.7	10.76	1.40	1.02	4.35	
	1.2	7.40	4.16	.37	5.13	

New Maps and Literature

Publications pertaining to the Kenora District and issued during 1971 are listed in the following section. Figures 1 and 2 show the location of areas in the district for which new maps and reports have been issued by the Ontario Department of Mines and Northern Affairs.

Ayres, L.D., Lumbers, S.B., Milne, V.G., and Robeson, D.W.

- 1971: Ontario Geological Map, West Central Sheet; Ontario Dept. Mines and Northern Affairs, Map 2199, scale 1 inch to 16 miles. Compilation 1970.

Blackburn, C.E.

- 1971a: Otukamamoan Lake area (west part), District of Rainy River; Ontario Dept. Mines and Northern Affairs, Prelim. Map P.636, Geol. Ser., scale 1 inch to 1/2 mile. Geology 1970.

- 1971b: Otukamamoan Lake area (east part), Districts of Rainy River and Kenora; Ontario Dept. Mines and Northern Affairs, Prelim. Map P.637, Geol. Ser., scale 1 inch to 1/2 mile. Geology 1970.

- 1971c: Geology of the Otukamamoan Lake area, District of Rainy River; Ontario Dept. Mines and Northern Affairs, OFR5059, 80p. Accompanied by Prelim. Maps P.637 and P.638, Geol. Ser., scale 1 inch to 1/2 mile.

Davies, J.C.

- 1971: Geology of the Atikwa Lake area, District of Kenora; Ontario Dept. Mines and Northern Affairs, OFR5055, 89p. Accompanied by Prelim. Maps P.387, P.388, scale 1 inch to 1/4 mile.

Ferguson, Stewart A.

- 1971: Columbium (Niobium) Deposits of Ontario; Ontario Dept. Mines and Northern Affairs, MRC14, 58p. Accompanied by Prelim. Map P.452 (revised), scale 1 inch to 50 miles.

Ferguson, S.A., Groen, H.A., and Haynes, R.

- 1971: Gold Deposits of Ontario, Districts of Algoma, Cochrane, Kenora, Rainy River, and Thunder Bay; Ontario Dept. Mines and Northern Affairs, MRC13, pt.1, 315p.

Guillet, G.R. (editor)

- 1970: Annual Report of Resident Geologists' Section, Geological Branch, 1970; Ontario Dept. Mines and Northern Affairs, MP46, 175p.

Matten, E.E. (compiler)

- 1971: Annual statistical report on the mineral production of Ontario, 1969; Ontario Dept. Mines and Northern Affairs, Vol.2, 163p.

ODMNA

- 1971: Aeromagnetic Index of Ontario; Ontario Dept. Mines and Northern Affairs, Map 2229, scale 1 inch to 30 miles.

- Pye, E.G. (editor)
1971: Summary of field work, 1971, by the Geological Branch; Ontario Dept. Mines and Northern Affairs, MP49, 109p.
- Riddell, G.S. (compiler)
1971: Annual report on mining operations in Ontario, 1969; Ontario Dept. Mines and Northern Affairs, Vol.79, 146p.
- Riley, R.A., King, H.L., and Kustra, C.R.
1971: Mineral exploration targets in northwestern Ontario; Ontario Dept. Mines and Northern Affairs, MP47, 72p.
- Trowell, N.F.
1971a: Glitter Lake area (west part), District of Thunder Bay; Ontario Dept. Mines and Northern Affairs, Prelim. Map P.670, Geol. Ser., scale 1 inch to 1/4 mile. Geology 1970.

1971b: Glitter Lake area (east part), District of Thunder Bay; Ontario Dept. Mines and Northern Affairs, Prelim. Map P.671, Geol. Ser., scale 1 inch to 1/4 mile. Geology 1970.
- Vos, M.A.
1971: Asbestos in Ontario; Ontario Dept. Mines and Northern Affairs, IMR36, 69p. Accompanied by map.

New Roads

Construction continued during 1971 on the Manitou Road, which leads northward from Nickel Lake, 18 miles east of Fort Frances. About 20 miles have been completed to date.

Approximately four miles of construction was completed during 1971 on the Sand Lake Road, a timber access road which branches eastward from the Caribou Falls Road four miles north of the Whitedog Dam and Power House. The road is being constructed by the Timber Branch of the Department of Lands and Forests.

MAPPING PROJECTS OF THE GEOLOGICAL SURVEYS SECTION

Four mapping projects were carried out in the Kenora District by the Geological Branch during 1971. The Cedartree Lake area, 45 miles southeast of Kenora, was mapped by J.C. Davies and J. Morin. The Off Lake-Burditt Lake area, northwest of Fort Frances, was mapped under the direction of C.E. Blackburn. Mapping of McCubbin, Poisson, and McGillis Townships in the Savant Lake area, was carried out by W.D. Bond, and mapping of the Sturgeon Lake area, was continued by N.F. Trowell. The author supervised the continued mapping of the Keewatin-Kenora area.

Brief reports on the areas mapped during 1971 are given in "Summary of Field Work, 1971", by the Geological Branch, Miscellaneous Paper 49, edited by E.G. Pye.

NEW INFORMATION ADDED TO RESIDENT GEOLOGIST'S FILES

Assessment Work and Other Data Received in 1971

New information added to the files in 1971 consisted mainly of work submitted for assessment credits. Other data received includes copies of reports of work, company reports and prospectuses submitted to the Ontario Securities Commission, and reports on properties visited by the Resident Geologist. Details of the data added to the files are found in Tables 5 and 6.

An increasing amount of core is being acquired through donations and for assessment work credit. A list of core samples on file at Kenora is given in Table 7.

During the past year efforts have been made to plot assessment data received on transparent overlays which correspond to claim maps within the area. Data plotted in this manner permits a rapid review of exploration work performed within a particular area.

Airborne Geophysical Data 1971

All airborne geophysical data on file to date in the Kenora Resident Geologist's office is given in Table 8. The location and extent of the surveys are shown on Figures 1, 2, and 4.

PROPERTY EXAMINATIONS

Bamaji Lake Gold-Uranium Property (A)

Several showings of gold-uranium are located on the east end of North Bamaji Lake. Considerable trenching and diamond drilling was undertaken on the property in 1953 by R.J. McCombe of Sioux Lookout. In 1968, Kirkland Townsite Gold Mines Ltd. completed geological mapping and an airborne spectrometer survey of the area. The property is presently held by R. Knappett of Toronto.

The main showing is located along a shear zone which lies roughly parallel to a granite-metabasalt contact. Radioactivity and gold mineralization is generally confined to shearing within a narrow band of quartz-sericite-pyrite schist.

The main zone has been traced and opened up by extensive trenching and stripping along a strike length of at least 500 feet. The shear zone strikes about 90 degrees, dips steeply to the south, and averages about 6 feet in width. Within the quartz-sericite-pyrite schist are chlorite-carbonate zones up to 4 feet wide. Areas of strongest radioactivity are confined to these zones. Samples taken from trenches have yielded up to 0.52 ounces gold per ton and 0.24 percent U_3O_8 .

Table 5 Assessment Work Received in 1971

Abbreviations:

Air	- Airborne	Mag	- Magnetometer Survey
5 DDH (620')	- 5 diamond drill holes totalling 620'	Rad	- Radiometric Survey
EM	- Electromagnetic Survey	Geochem	- Geochemical Survey
IP	- Induced Polarization Survey	Res	- Resistivity Survey
Geol	- Geological Survey		

Location	Ownership	Commodity Found	Assessment Work	File No.
<u>Kenora Mining Division</u>				
Bennett Tp.	Corrigan, Elmer Devlin, Ontario	Copper	1971 - 1 DDH (101')	52C/16 SE
Bridges Tp.	Falconbridge Nickel Mines Ltd.		1970 - IP 1971 - 3 DDH (2346')	52F/13 SE
Brownridge Tp.	Asarco Exploration Co. of Canada Ltd.		1970 - Mag, EM, Geol 2 DDH (474')	52F/15 SE
Crozier Tp.	Canadian Nickel Co. Ltd.		1970 - Mag 1971 - 1 DDH (210')	52C/12 SE
Devlin Tp.	Canadian Nickel Co. Ltd.		1970 - Mag	52C/12 SE
Godson Tp.	Amex Exploration, Inc.		1970 - Mag, EM	52F/ 4 NE/NW
Halkirk Tp.	Kerr Addison Mines Ltd. Noranda Exploration Co. Ltd.	Copper	1970 - 1 DDH (170.5') 1967 - Mag, EM	52C/10 NW 52C/10 NW
Hartman Tp.	Canadian Nickel Co. Ltd.	Copper, zinc	1970 - 1 DDH (790') 1971 - 1 DDH (650')	52F/16 SW
Hutchinson Tp.	Kemins Exploration Ltd.		1970 - Mag, EM	52B/14 SW
Hyndman Tp.	Canadian Nickel Co. Ltd.		1970 - 1 DDH (137')	52F/ 9 SE
Laval Tp.	Canadian Nickel Co. Ltd.	Copper, zinc	1970 - 5 DDH (1174')	52F/15 SE
McQuarrie Tp.	Kerr Addison Mines Ltd.		1969 - EM	52E/ 9 SE 52E/ 8 NE
Smellie Tp.	MacLeod, J. R. Box 4, R.R. #1 Quibell, Ontario		1970 - Stripping and trenching 1971 - Stripping and trenching	52F/13 NE
Tustin Tp.	Falconbridge Nickel Mines Ltd.		1970 - IP	52F/13 SW
Van Horne Tp.	Canadian Nickel Co. Ltd.		1970 - 1 DDH (125') 1971 - 2 DDH (881')	52F/15 SW
Watten Tp.	Noranda Exploration Co. Ltd.		1969 - Mag, EM	52C/11 NE
Weaver Tp.	Morehouse, W. D. 396 Ambrose Street Thunder Bay, Ontario		1970 - Trenching	52B/14 SE
Willingdon Tp.	Amex Exploration, Inc.		1971 - Mag, EM	52E/ 8 NE
Zealand Tp.	Canadian Nickel Co. Ltd.	Copper	1970 - 2 DDH (610') 1971 - Mag, 2 DDH (1152')	52F/15 SE
Balmoral Lake	Canadian Nickel Co. Ltd.	Copper, zinc	1970 - 5 DDH (847') 1971 - 2 DDH (367')	52G/ 5 SW
Bending Lake	Canadian Nickel Co. Ltd.	Copper, zinc	1970 - 6 DDH (899')	52F/ 8 SE
Bluffpoint Lake	Freeport Canadian Exploration Co.	Copper, zinc	1971 - 5 DDH (1601')	52F/ 3 NW
Boyer Lake	Canadian Nickel Co. Ltd.	Copper	1970 - 4 DDH (338') 1971 - 1 DDH (325')	52F/ 7 NE
Brooks Lake	Amex Exploration, Inc. Freeport Canadian Exploration Co.	Copper, iron	1971 - Mag, EM 1971 - 6 DDH (2046.5')	52F/ 4 NE 52F/ 4 NE
Buchan Bay	Doek, Clifford 647 Valour Road Winnipeg 10, Manitoba Finch, William 1742 Maple St., Prince George, B.C. Null, Kenneth E. Box 59, Vermilion Bay, Ontario Sukava, Aron Vermilion Bay, Ontario	Copper	1971 - Trenching 1970 - Stripping and trenching 1971 - Stripping and trenching 1971 - Trenching	52F/11 NE 52F/11 NE 52F/11 NE 52F/11 NE

Location	Ownership	Commodity Found	Assessment Work	File No.
Butler Lake	Canadian Nickel Co. Ltd.	Copper, zinc	1970 - 1 DDH (550')	52F/10 NE
			1971 - 4 DDH (1607')	
	Steep Rock Iron Mines Ltd.		1970 - Mag	52F/10 NE
Clearwater Bay	Kerr Addison Mines Ltd.		1971 - EM	52E/10 NE
Contact Bay	Hanson, G. Eagle River, Ontario	Nickel, copper	1970 - Trenching	52F/10 NW
	Harrison, J. P. Eagle River, Ontario	Nickel, copper	1970 - Trenching	52F/10 NW
	Lynx-Canada Explorations Ltd.	Copper	1971 - 2 DDH (578')	52F/10 NW
	Steep Rock Iron Mines Ltd.		1970 - Mag	52F/10 NW
Dash Lake	Freeport Canadian Exploration Co.	Copper, zinc	1971 - 3 DDH (670')	52F/ 4 SE
Dogpaw Lake	Amex Exploration, Inc.		1970 - Mag, EM	52F/ 5 SW
	Goldray Mines Ltd.	Copper, zinc	1970 - 4 DDH (1482')	52F/ 5 SW
Eagle Rock Lake	Noranda Exploration Co. Ltd.	Copper	1970 - 3 DDH (1041')	52F/ 2 NE
Finlayson Lake	Canadian Addicks Mining Corp.	Copper	1969 - 12 DDH (1610')	52B/13 NE
Grassy Lake	Cone, Russell, C. Sr.	Copper	1971 - 1 DDH (44')	52C/10 NE
			Trenching	
	McMillen, Stanley 139 McKibbin Street Thunder Bay, Ontario		1971 - Trenching	52C/10 NE
Heronry Lake	Canadian Nickel Co. Ltd.	Copper	1969 - 2 DDH (1246')	52F/ 4 NW
Kaiarskons Lake	Canadian Nickel Co. Ltd.	Copper	1969 - 2 DDH (1121')	52F/ 3 SW
	Freeport Canadian Exploration Co.	Copper	1971 - 3 DDH (1024')	52F/ 3 SW
Kawshagamuk Lake	Canadian Nickel Co. Ltd.	Zinc	1970 - 1 DDH (166')	52F/ 8 NW
			1971 - Mag, 4 DDH (1741')	
Little Turtle Lake	Blondeau, Lorenzo McIndoe Falls, Vermont U.S.A. 05050	Copper	1970 - 4 DDH (1277')	52C/15 SE
	Northgate Explorations (Blondeau-Merryth Option)		1970 - Geol, Geochem	52C/15 SE
Lower Manitou Lake	Canadian Nickel Co. Ltd.	Copper	1971 - 2 DDH (758')	52F/ 7 SW
Mang Lake	Canadian Nickel Co. Ltd.	Copper, zinc	1969 - 3 DDH (1927')	52F/ 2 NW
Meggisi Lake	Canadian Nickel Co. Ltd.	Copper, zinc	1970 - 2 DDH (461')	52F/ 7 SE
Monument Bay	Kennco Explorations (Canada) Ltd.		1970 - Mag	52E/ 7 NW
	Phelps Dodge Corp. of Canada Ltd.	Copper	1970 - 1 DDH (306')	52E/ 7 NW
McNamara Lake	Canadian Nickel Co. Ltd.	Copper	1970 - 6 DDH (1032')	52G/ 5 SE
Napanee Lake	Canadian Nickel Co. Ltd.	Copper, zinc	1970 - 1 DDH (160')	52F/ 3 NE
			1971 - 1 DDH (308')	
Norway Lake	Univex Exploration Ltd.	Copper, zinc	1971 - 5 DDH (1707')	52G/ 3 SW
Paterson Lake	Brslorne Can-Fer Resources Ltd.	Uranium	1969 - Geol, Rad	52L/ 7 SE
			1970 - Mag, Geol, Rad, Trenching	
	Tudale Exploration Ltd.	Uranium	1970 - 7 DDH (1924')	52L/ 7 SE
Press Lake	Massval Mines Ltd.		1970 - Mag, EM	52G/14 SW
Raleigh Lake	Canadian Nickel Co. Ltd.	Copper, zinc	1970 - 2 DDH (395')	52G/ 5 NW
Reynar Lake	Consolidated Manitoba Mines Ltd.		1970 - Mag, EM	52L/ 6 NE
			1971 - Mag, EM	
Richardson Lake	Boland, C. L. 80 Poplar Avenue Kirkland Lake, Ontario	Nickel, copper, iron	1970 - 2 DDH (406')	52G/ 3 SE
	Canadian Nickel Co. Ltd.		1971 - Mag	52G/ 3 SE
Rowan Lake	Amex Exploration, Inc.		1970 - Mag, EM	52F/ 5 SE
	Canadian Nickel Co. Ltd.		1971 - 1 DDH (590')	52F/ 5 SE
Sabawi Lake and McCaul Tp.	Kemins Exploration Ltd.	Copper, zinc, iron	1970 - 3 DDH (1576')	52B/14 SW

Location	Ownership	Commodity Found	Assessment Work	File No.
Shoal Lake	Kerr Addison Mines Ltd.		1970 - EM	52E/10 SW
	Noranda Exploration Co. Ltd.		1970 - Mag, EM	52E/10 SW
	Phelps Dodge Corp. of Canada Ltd.	Copper, zinc, lead	1970 - 17 DDH (7458')	52E/10 SW
Turtlepond Lake	Abitibi Asbestos Co. Ltd. & Lynx Canada Explorations Ltd.		1970 - Mag, EM	52F/10 SE
	Univex Exploration & Development Corp. Ltd.		1970 - Mag	52F/10 SE
Valora and Unaka Area	New Calumet Mines Ltd.	Copper	1970 - Air Mag & EM 2 DDH (719') 1971 - 3 DDH (1133')	52G/14 SE/SW
	Scurry Rainbow Oil Ltd.		1970 - Mag, EM	52G/14 SE/SW
Vista Lake	Canadian Nickel Co. Ltd.	Copper	1969 - 4 DDH (2300')	52F/ 3 SE
Wapageisi Lake	Duncan R. Derry Ltd.		1970 - Air Mag & EM	52F/ 8 SW
			1971 - 2 DDH (157')	
<u>Patricia Mining Division</u>				
Boucher Tp.	Black, Maurice		1970 - EM	52J/ 7 SE
	Canadian Nickel Co. Ltd.	Copper	1969 - 3 DDH (704')	52J/ 7 SE
	Jorex Ltd.		1970 - Mag, EM	52J/ 7 SE
	Lee, Norman Box 6, Sioux Lookout, Ontario	Lead, zinc	1970 - Trenching	52J/ 7 SE
	Noranda Exploration Co. Ltd.	Copper	1971 - 1 DDH (300')	52J/ 7 SE
Conant Tp.	Canadian Nickel Co. Ltd.		1970 - 1 DDH (284') 1971 - 1 DDH (181')	52J/ 7 NE
			Noranda Exploration Co. Ltd.	1971 - 5 DDH (1900')
Drayton Tp.	Chimo Gold Mines Ltd.		1970 - Stripping and trenching	52J/ 4 SW
	Consolidated Manitoba Mines Ltd.	Copper, zinc	1970 - Mag, EM, Geol, Trenching	52J/ 4 SW 52K/ 1 SE
	Comwest Exploration Co. Ltd. & Selco Exploration Co. Ltd.		1970 - Air Mag & EM	52J/ 4 SW
	Courier Explorations Ltd.		1971 - 1 DDH (356')	52J/ 4 SW
	Imperial Oil Enterprises Ltd.		1970 - EM	52J/ 4 SW
	Selco Exploration Co. Ltd.		1971 - 4 DDH (1266')	52J/ 4 SW
	Echo Tp.	Canadian Nickel Co. Ltd.	Copper	1970 - 2 DDH (692')
Jordan Tp.	Black, Gordon 146 Dallaire Street Rouyn, Quebec		1971 - Mag, EM	52K/ 1 SE
	Courier Explorations Ltd.	Copper, zinc	1971 - 3 DDH (1153')	52K/ 1 SE
	Imperial Oil Enterprises Ltd.		1970 - EM	52K/ 1 SE
Jutten Tp.	Canadian Nickel Co. Ltd.		1968 - 1 DDH (125') 1971 - 1 DDH (162')	52J/ 8 NW
Lomond Tp.	Canadian Nickel Co. Ltd.	Copper	1971 - 2 DDH (402')	52K/ 1 SW
McAree Tp.	Canadian Nickel Co. Ltd.	Copper, zinc	1970 - 1 DDH (531') 1971 - Mag	52F/16 SW
			Selco Exploration Co. Ltd.	Copper, zinc
McGillis Tp.	Langis Silver and Cobalt Mining Co. Ltd.		1971 - Mag, EM	52J/ 8 NW
McIlraith Tp.	Canadian Nickel Co. Ltd.		1970 - 1 DDH (387')	52F/15 NE
Smye Tp.	Langis Silver and Cobalt Mining Co. Ltd.		1971 - Mag, EM	52J/ 8 SW
Webb Tp.	Canadian Nickel Co. Ltd.	Copper, zinc	1970 - 5 DDH (1838')	52F/16 NW
	Woitowicz, Mike R.R. #1, Dryden, Ontario	Zinc, copper	1970 - Trenching 1971 - Trenching	52F/15 NE
Armit Lake	Canex Aerial Exploration Ltd.	Copper	1970 - Mag, EM, Geol 2 DDH (349')	52J/ 7 NW

Location	Ownership	Commodity Found	Assessment Work	File No.
Beckington Lake	Amax Exploration, Inc.		1970 - Mag	52J/ 2 NE
	Black, Maurice		1970 - EM	52J/ 2 NE
	Canadian Nickel Co. Ltd.		1970 - 2 DDH (334')	52J/ 2 NE
	Canex Aerial Exploration Ltd.		1970 - Mag, EM	52J/ 2 NE
	Conwest Exploration Co. Ltd. & Selco Exploration Co. Ltd.		1971 - Air Mag & EM	52J/ 2 NE
	McRae Mining Corp. Ltd.		1970 - Air Mag & EM	52J/ 2 NE
	Phelps Dodge Corp. of Canada Ltd.		1971 - Mag	52J/ 2 NE
	Richan Explorations Ltd.		1970 - Mag, EM	52J/ 2 NE
	Royex Mining Ltd.		1970 - Mag, EM	52J/ 2 NE
	Selco Exploration Co. Ltd.	Copper, zinc	1970 - EM, 6 DDH (904.5')	52J/ 2 NE
	Slocan Ottawa Mines Ltd.		1970 - EM	52J/ 2 NE
	Sturgex Mines Ltd.	Copper	1970 - Mag, EM 1971 - 11 DDH (3803.8')	52J/ 2 NE
	Texore Mines Ltd.		1970 - EM	52J/ 2 NE
Brightsand Lake & River	Norbaska Mines Ltd.	Copper, nickel	1971 - Mag, EM 7 DDH (2306')	52G/16 SW
Carling Island (Lake St. Joseph)	Algoma Steel Corp. Ltd.	Iron	1970 - 7 DDH (694.8') 1971 - 2 DDH (811.5')	52O/ 2 SE
	Steerola Explorations Ltd.		1971 - 3 DDH (653')	52O/ 2 SE
Carling Lake	C.C. Huston & Associates		1970 - Mag, IP	52J/11 SW
Caron Lake	Canadian Nickel Co. Ltd.	Copper	1971 - 4 DDH (707')	52O/ 1 SE
	Selco Exploration Co. Ltd.	Copper	1970 - Mag, EM 1971 - 2 DDH (708')	52O/ 1 SE
Claw Lake	Canadian Nickel Co. Ltd.		1968 - 1 DDH (184')	52J/ 9 NE
Coucheemoskog Lake	Canadian Nickel Co. Ltd.	Copper	1971 - 1 DDH (188')	52O/ 8 SE
Dawn Lake	Canadian Nickel Co. Ltd.		1971 - 1 DDH (125')	52I/13 NE
Drum Lake	Cochenour Willans Gold Mines Ltd.	Copper, zinc, lead	1970 - Mag, EM 5 DDH (593') 1971 - 6 DDH (1000')	52O/ 3 NE
	C.C. Huston & Associates	Copper	1970 - Mag, EM 11 DDH (1153.5')	52O/ 3 NE
	Selco Exploration Co. Ltd.		1970 - Mag, EM, Geol, Geochem	52O/ 3 NE
	Cochenour Willans Gold Mines Ltd.		1970 - 2 DDH (135')	52O/ 2 NW
Endogoki Lake	Canadian Nickel Co. Ltd.		1967 - 1 DDH (348') 1968 - 5 DDH (2161')	52J/ 9 SW
Evans Lake	Canex Aerial Exploration Ltd.		1969 - Air Mag & EM 1970 - Mag, EM, Geol 1 DDH (184')	52J/ 7 SE
	Jorex Ltd.		1970 - Mag, EM	52J/ 7 SE
Fog Lake and Manion Tp.	Sturgex Mines Ltd.	Copper	1970 - Mag, EM 1971 - 13 DDH (4590.3')	52J/ 1 NW
Fourbay Lake	Chipman Lake Mines Ltd.		1970 - Mag, EM	52J/ 2 SW
	Cominco Ltd.		1970 - Mag, EM	52J/ 2 SW
	Conwest Exploration Co. Ltd. & Selco Exploration Co. Ltd.		1971 - Air Mag & EM	52J/ 2 SW
	Dome Exploration (Canada) Ltd.		1971 - Mag, EM, Air Mag	52J/ 2 SW
	Ganda Silver Mines Ltd.	Copper	1970 - Mag, EM, Stripping 2 DDH (598')	52J/ 2 SW
	Giant Sturgeon Mining Corp. Ltd.	Copper	1970 - Mag 1971 - 1 DDH (500')	52J/ 2 SW
	Larchmont Mines Ltd.		1971 - Air Mag & EM	52J/ 2 SW
	Mattagami Lake Mines Ltd.		1970 - Mag, EM 1971 - Mag, EM	52J/ 2 SW

Location	Ownership	Commodity Found	Assessment Work	File No.
Fourbay Lake	Matta-King Mining Corp. Ltd.	Copper	1970 - Mag, 2 DDH (225')	52J/ 2 SW
	Rio Tinto Canadian Exploration Ltd.		1970 - Mag, EM, Geol, Geochem	52J/ 2 SW
	Selco Exploration Co. Ltd.		1970 - EM	52J/ 2 SW
	Silverside Mines Ltd.		1970 - Air Mag & EM	52J/ 2 SW
	Spooner Mines and Oils Ltd.		1970 - Air Mag & EM	52J/ 2 SW
Fry Lake	Cochenour Willans Gold Mines Ltd.	Copper, zinc	1970 - Mag, EM 5 DDH (415') 1971 - 3 DDH (459')	520/ 3 NW
	Selco Exploration Co. Ltd. & Cochenour Willans Gold Mines Ltd.		1970 - Mag, EM, Geochem	520/ 3 NW
	Selco Exploration Co. Ltd.		1970 - Mag, EM	520/ 3 NW
Grebe Lake and McCubbin Tp.	Canadian Nickel Co. Ltd.		1968 - 1 DDH (325')	52J/ 7 NE
Greenbush Lake	Selco Exploration Co. Ltd.		1970 - Mag, EM 1971 - 1 DDH (402')	52J/16 NE
Houghton Lake	Canex Aerial Exploration Ltd.		1969 - Air Mag & EM 1970 - Mag, EM, Geol 3 DDH (524')	52J/ 7 SW
Johnston Bay (Lake St. Joseph)	Cochenour Willans Gold Mines Ltd.	Copper	1970 - 2 DDH (207')	520/ 3 SE
	Cominco Ltd.	Copper, zinc	1970 - 2 DDH (597')	520/ 3 SE
Kabi Lake and Pickerel Tp.	Canadian Nickel Co. Ltd.		1970 - 1 DDH (480')	52F/16 NE
Kapkichi Lake	Union Minière Explotation and Mining Corp. Ltd.	Copper	1971 - 1 DDH (382')	520/ 8 NW
Kawashe Lake	Cochenour Willans Gold Mines Ltd.	Copper, zinc	1970 - 1 DDH (153') 1971 - 4 DDH (473')	520/ 6 SE
Lowry Lake	Canadian Nickel Co. Ltd.	Copper	1971 - 3 DDH (440')	52P/ 4 SW
Marchington River	Canex Aerial Exploration Ltd.		1969 - Air Mag & EM	52J/ 6 SE
Meen Lake	C.C. Huston & Associates		1970 - EM	520/ 6 NW
Nabemakoseka Lake	Cochenour Willans Gold Mines Ltd.	Copper, zinc	1970 - 7 DDH (703')	520/ 6 SW
Osnaburgh Lake	Canadian Nickel Co. Ltd.	Copper	1971 - 3 DDH (820')	520/ 1 NE
	Imperial Oil Enterprises Ltd.		1970 - EM	52G/13 NW
Parnes Lake	Selco Exploration Co. Ltd.		1971 - 3 DDH (804')	52G/13 NW
	Canadian Nickel Co. Ltd.		1971 - 2 DDH (340')	52J/16 NW
Pashkokogan Lake	Selco Exploration Co. Ltd.	Copper	1970 - Mag, EM 1971 - 1 DDH (321')	52J/16 NW
	Ganda Silver Mines Ltd.		1970 - Mag, EM	52G/14 NE
Penassi Lake	Gauthier Mining Group Ltd.		1970 - Air Mag & EM	52G/14 NE
	Labow, Larry 54 Heathcote Avenue Willowdale 430, Ontario	Copper	1970 - 3 DDH (1000') 1971 - 4 DDH (2011')	52G/14 NE
	Scandia Mining & Exploration Ltd.		1970 - Mag, EM	52G/14 NE
	Spooner Mines and Oils Ltd.		1970 - Air Mag & EM	52G/14 NE
	Press Lake	Boyen, Fred A. 18 Edgehill Road Islington, Ontario		1971 - Trenching
Press Lake	Hanson Mines Ltd.		1970 - EM	52G/14 SW
	New Calumet Mines Ltd.		1970 - Air Mag & EM	52G/14 SW
	Noranda Exploration Co. Ltd.		1970 - Mag, EM	52G/14 SW
Quest Lake	Amex Exploration, Inc.		1970 - Geol	52G/15 NE
	Conwest Exploration Co. Ltd.	Copper, zinc	1971 - 5 DDH (573')	52G/15 NE
	Conwest Exploration Co. Ltd. & Selco Exploration Co. Ltd.		1971 - Air Mag & EM	52G/15 NE
	Green Point Mines Ltd.		1971 - Mag, EM	52G/15 NE

Location	Ownership	Commodity Found	Assessment Work	File No.
Quest Lake	Halren Mines Ltd.		1970 - Mag, EM	52G/15 NE
	Jorex Ltd.		1970 - Air Mag & EM	52G/15 NE
	Kennco Explorations (Canada) Ltd.	Copper	1970 - Mag, EM 2 DDH (768')	52G/15 NE
	Kidd, Ross 81 Highbourne Road Toronto, Ontario		1969 - Air Mag & EM 1971 - 6 DDH (2007.6')	52G/15 NE
	Noranda Exploration Co. Ltd.	Copper, zinc	1970 - Mag, EM 1971 - 5 DDH (2072')	52G/15 NE
	Selco Exploration Co. Ltd. & Calmor Iron Bay Mines Ltd.	Copper	1971 - Air Mag 2 DDH (234')	52G/15 NE
	Western Quebec Mines Co. Ltd.		1971 - Air Mag & EM	52G/15 NE
Riach Lake	Algoma Steel Corp. Ltd.	Iron	1970 - 6 DDH (2465')	52O/ 1 SW
	Selco Exploration Co. Ltd.		1970 - Mag, EM	52O/ 1 SW
	Steerola Explorations Ltd.		1971 - 2 DDH (328')	52O/ 1 SW
St. Raphael Lake	Canadian Nickel Co. Ltd.	Copper	1968 - 1 DDH (226')	52J/11 NE
Seseganaga Lake	Amx Exploration, Inc.		1970 - Mag, EM	52J/ 1 SW
	Richan Explorations Ltd.		1970 - Mag, EM, Gravity	52J/ 1 SW
	Royex Mining Ltd.		1970 - Mag, EM	52J/ 1 SW
	Slocan Ottawa Mines Ltd.		1970 - EM	52J/ 1 SW
Sharron Lake	Asarco Exploration Co. of Canada Ltd.	Copper	1970 - EM, Geol 1971 - Mag, EM 2 DDH (393')	52J/ 4 NE
Sixmile Lake	Amx Exploration, Inc.		1970 - Mag, EM	52G/15 NW
	Bison Petroleum and Minerals Ltd.	Copper, zinc	1969 - Air Mag & EM Mag, EM 1970 - Mag, EM 6 DDH (2989')	52G/15 NW
	Canadex Mining Corp. Ltd.	Copper, zinc	1970 - 5 DDH (2914.5')	52G/15 NW
	Canadian Javelin Ltd.	Copper	1969 - Air Mag & EM 1970 - Mag, EM 2 DDH (402')	52G/15 NW
	Chipman Lake Mines Ltd.		1970 - Mag, EM	52G/15 NW
	Conwest Exploration Co. Ltd. & Selco Exploration Co. Ltd.		1971 - Air Mag & EM	52G/15 NW
	Sixmile Lake	D'Aragon Mines Ltd.		1970 - Mag, EM 1971 - 5 DDH (1984')
Dome Exploration (Canada) Ltd.			1971 - Air Mag, Mag, EM	52G/15 NW
Falconbridge Nickel Mines Ltd.			1970 - Mag, EM 2 DDH (1007') 1971 - 5 DDH (3213')	52G/15 NW
Green Point Mines Ltd.			1971 - Mag, EM	52G/15 NW
Kennco Explorations (Canada) Ltd.		Copper	1970 - Mag, EM 7 DDH (2786')	52G/15 NW
Kidd, Ross 81 Highbourne Road Toronto, Ontario			1969 - Air Mag & EM	52G/15 NW
Mattagami Lake Mines Ltd.		Zinc, copper, silver, lead	1970 - Mag, EM 9 DDH (5224') 1971 - 14 DDH (9867')	52G/15 NW
Norlex Mines Ltd.		Copper, zinc	1969 - Air Mag & EM Mag, EM 1970 - 6 DDH (2722.5')	52G/15 NW
Rio Tinto Canadian Exploration Ltd.		Copper	1970 - Mag, EM, Geol 2 DDH (906.2') 1971 - Mag, EM	52G/15 NW
Selco Exploration Co. Ltd. & Calmor Iron Bay Mines Ltd.		Copper, zinc	1971 - Air Mag 3 DDH (370.5')	52G/15 NW
Spooner Mines and Oils Ltd.			1970 - Air Mag & EM	52G/15 NW
Texmont Mines Ltd. & Sturdy Mines Ltd.			1970 - Mag, EM 1971 - Air Mag & EM	52G/15 NW

Location	Ownership	Commodity Found	Assessment Work	File No.
Sixmile Lake	Toronado Mines Ltd.		1970 - Mag, EM, Geol	52G/15 NW
	W. G. Wahl Ltd.	Fluorite, zinc	1970 - 2 DDH (1454')	52G/15 NW
Smock Lake	Falcon Lake Mining Corp. Ltd.		1971 - Mag, EM	52G/13 NE
	Goldray Mines Ltd.	Copper, zinc	1970 - 2 DDH (738')	52G/13 NE
	Noranda Exploration Co. Ltd.	Copper, zinc, iron	1969 - Mag, EM 1970 - Mag, EM 10 DDH (3886.3')	52G/13 NE
	Reets Explorations Ltd.		1970 - Mag, EM	52G/13 NE
	Sturgeon King Mining Corp. Ltd.		1970 - Mag 1971 - EM	52G/13 NE
Solitude Lake	Canadian Nickel Co. Ltd.	Copper	1968 - 1 DDH (173') 1969 - 3 DDH (778')	52J/10 SE
S.W. pt. of Sturgeon Lake	Africana Mining Co. Ltd.		1971 - Mag, EM	52G/14 SE
	Amex Exploration, Inc.	Copper	1970 - Mag, EM 1 DDH (710') 1971 - 3 DDH (1540')	52G/14 SE
S.W. pt. of Sturgeon Lake	Asarco Exploration Co. of Canada Ltd.		1970 - Mag, EM	52G/14 SE
	Carre, Joseph and Levesque, Roland Spanish, Ontario		1970 - Mag, EM	52G/14 SE
	Chimo Gold Mines Ltd.	Copper, zinc	1970 - Mag, EM, Geol 13 DDH (6479') 1971 - Mag, EM	52G/14 SE
	Chipman Lake Mines Ltd.		1970 - Mag, EM	52G/14 SE
	Consolidated Morrison Explorations Ltd.	Copper, zinc	1971 - 3 DDH (2101')	52G/14 SE
	Consolidated Negus Mines Ltd.		1970 - Mag, EM, Geochem	52G/14 SE
	George, P. T. 10 Parkles Drive Toronto 317, Ontario		1970 - EM	52G/14 SE
	Huntley, David A. Ste. 1000, 11 King St. West Toronto, Ontario		1970 - Stripping	52G/14 SE
	Ideal Bay Explorations Ltd.		1970 - EM	52G/14 SE
	Madsen Red Lake Gold Mines Ltd.	Copper, molybdenum	1970 - EM 1971 - 5 DDH (955')	52G/14 SE
	Mattagami Lake Mines Ltd.	Zinc, copper, silver, lead	1970 - Mag, EM 4 DDH (2340') 1971 - 5 DDH (2448')	52G/14 SE
	Matt Berry Mines Ltd.		1970 - Mag, EM, Geol	52G/14 SE
	McIntyre Porcupine Mines Ltd.	Copper	1971 - 4 DDH (2386')	52G/14 SE
	Mid-North Engineering Services Ltd.	Copper	1970 - Mag, EM, Geol Trenching 2 DDH (204.5') 1971 - 3 DDH (322')	52G/14 SE
	New Territorial Uranium Mines Ltd.		1970 - Mag, EM	52G/14 SE
Noranda Exploration Co. Ltd.	Copper, Molybdenum	1969 - Mag, EM 1970 - Mag, EM 7 DDH (3559.6')	52G/14 SE	
Prudent Mining Corp.		1970 - Mag, EM	52G/14 SE	
Scandia Mining and Exploration Ltd.		1970 - Mag, EM, IP	52G/14 SE	
Scurry Rainbow Oil Ltd.	Copper	1970 - Mag, EM Trenching 11 DDH (5037')	52G/14 SE	
Spooner Mines and Oils Ltd		1970 - Air Mag & EM	52G/14 SE	
Urban Quebec Mines Ltd.		1970 - Mag	52G/14 SE	
Valora Explorations and Developments Ltd.	Copper	1971 - Mag, EM 2 DDH (899')	52G/14 SE	

Location	Ownership	Commodity Found	Assessment Work	File No.
South of Sturgeon Lake	Algoma Steel Corp. Ltd.		1970 - Mag, Geol 1971 - 4 DDH (122')	52G/15 SW
	Amax Exploration, Inc.		1970 - Geol	52G/15 SE/SW
	Bison Petroleum and Minerals Ltd.		1969 - Air Mag & EM Mag, EM 1970 - Mag, EM	52G/15 SW
	Falconbridge Nickel Mines Ltd.	Zinc, copper, silver, lead	1970 - Mag, 5 DDH (3553') 1971 - 15 DDH (9297')	52G/15 SW
	Jorex Ltd.		1970 - Air Mag & EM	52G/15 SE
	Louvicourt Goldfields Corp.	Copper	1971 - 6 DDH (2521')	52G/15 SW
	Mattagami Lake Mines Ltd.	Copper	1970 - Mag, EM 5 DDH (3123')	52G/15 SW
	Newconex Canadian Exploration Ltd.	Copper	1970 - Mag, EM 4 DDH (1672')	52G/15 SW
	New Territorial Uranium Mines Ltd.		1970 - Mag, EM	52G/15 SW
	South of Sturgeon Lake	Noranda Exploration Co. Ltd.		1970 - Mag, EM
Santa Maria Mines Ltd.		Copper, zinc	1970 - EM 1971 - 4 DDH (1914')	52G/15 SW
Selco Exploration Co. Ltd. & Calmor Iron Bay Mines Ltd.			1971 - Air Mag	52G/15 SE
Squaw Lake	Amax Exploration, Inc.		1970 - Mag, EM	52J/ 2 SE
	Canex Aerial Exploration Ltd.		1970 - Mag, EM	52J/ 2 SE
	Conwest Exploration Co. Ltd. & Selco Exploration Co. Ltd.		1971 - Air Mag & EM	52J/ 2 SE
	Richan Explorations Ltd.		1970 - Mag, EM	52J/ 2 SE
	Royex Mining Ltd.		1970 - Mag, EM	52J/ 2 SE
	Selco Exploration Co. Ltd.	Copper	1970 - EM, 3 DDH (1137') 1971 - 2 DDH (732')	52J/ 2 SE
	Slocan Ottawa Mines Ltd.		1970 - EM	52J/ 2 SE
	Western Quebec Mines Co. Ltd.		1971 - Air Mag & EM	52J/ 2 SE
Wesleyan Lake	Cochenour Willans Gold Mines Ltd & Selco Exploration Co. Ltd.		1970 - EM	52O/ 4 NE
	Cochenour Willans Gold Mines Ltd.	Copper	1970 - EM, 1 DDH (101')	52O/ 4 NE
Whipper Lake	Tetlock, Ian Box 638, Red Lake, Ontario		1971 - Stripping and trenching	52K/ 1 SW
Wyatt Lake	Goldray Mines Ltd.	Copper, zinc	1970 - 6 DDH (2069')	52G/14 NW
	Noranda Exploration Co. Ltd.	Copper, zinc	1970 - Mag, EM 4 DDH (1440.3')	52G/14 NW
Zarn Lake	Selco Exploration Co. Ltd.		1971 - 1 DDH (263')	52J/ 4 SE

Table 6 Other Information Added to Files in 1971

Location	Ownership	Commodity Found	Data Filed	File No.
<u>Kenora Mining Division</u>				
Brownridge Tp.	Asarco Exploration Co. of Canada Ltd.	Copper	1970 - 2 DDH (474')	52F/15 SE
Fleming Tp.	Noranda Exploration Co. Ltd.		1967 - Mag, IP, Res	52C/13 NW
Hartman Tp.	Asarco Exploration Co. of Canada Ltd.		1970 - 1 DDH (160')	52F/16 SW
Laval Tp.	Asarco Exploration Co. of Canada Ltd.		1970 - 2 DDH (445')	52F/15 SE
MacFie Tp.	Asarco Exploration Co. of Canada Ltd.	Copper	1970 - 1 DDH (210')	52F/ 9 NW
MacQuarrie Tp.	Kerr Addison Mines Ltd.		1970 - 1 DDH (103')	52E/ 9 SE
Potts Tp.	Noranda Exploration Co. Ltd.		1967 - Mag, IP, Res	52C/13 NW
Senn Tp.	Noranda Exploration Co. Ltd.		1967 - Mag, IP, Res	52C/13 NW
Southworth Tp.	Asarco Exploration Co. of Canada Ltd.	Copper	1970 - 1 DDH (226')	52F/10 NE
Van Horne Tp.	Asarco Exploration Co. of Canada Ltd.		1970 - 1 DDH (250')	52F/15 SW
Weaver Tp.	Ardel Explorations Ltd.		1971 - Property report and prospectus	52B/14 SE
Butler Lake	Asarco Exploration Co. of Canada Ltd.		1970 - 2 DDH (512') 1971 - 3 DDH (758')	52F/10 NE
Clearwater Bay	Kerr Addison Mines Ltd.	Copper	1971 - 6 DDH (1916')	52E/10 NE
Crooked Pine Lake	Ardel Explorations Ltd.		1971 - Property report and prospectus	52B/14 SE
Echo Bay and Boys Tp.	Kerr Addison Mines Ltd.		1971 - 1 DDH (312')	52E/10 NW
Kawashegamuk Lake	Asarco Exploration Co. of Canada Ltd.	Copper	1970 - 3 DDH (162') 1971 - 1 DDH (252')	52F/ 8 NW
Shoal Lake	Kerr Addison Mines Ltd.	Copper, zinc molybdenum	1970 - 12 DDH (5019')	52E/10 SW
Turtlepond Lake	Asarco Exploration Co. of Canada Ltd.	Copper	1970 - 3 DDH (749')	52F/10 SE
<u>Patricia Mining Division</u>				
Boucher Tp.	Cam Mines Ltd.		1971 - Property report	52J/ 7 SE
Conant Tp.	Cam Mines Ltd.		1971 - Property report	52J/ 7 SE
Drayton Tp.	Courier Explorations Ltd.		1970 - Property report 1971 - Property report and 2 prospectuses	52J/ 4 SW
Echo Tp.	Asarco Exploration Co. of Canada Ltd.		1970 - 1 DDH (283')	52F/16 NW
Jordan Tp.	Asarco Exploration Co. of Canada Ltd.	Copper	1970 - 1 DDH (233')	52K/ 1 SE
	Courier Explorations Ltd.		1970 - Property report 1971 - Property report and 2 prospectuses	52K/ 1 SE
Jutten Tp.	United Macfie Mines Ltd.		1971 - Property report and amendment to prospectus	52J/ 8 NW
McAree Tp.	Asarco Exploration Co. of Canada Ltd.	Copper	1970 - 3 DDH (590')	52F/16 SW
McGillis Tp.	Amalgamated Rare Earth Mines Ltd.		1971 - Property report and prospectus	52J/ 8 NW
Smye Tp.	Amalgamated Rare Earth Mines Ltd.		1971 - Property report and prospectus	52J/ 8 SW

Location	Ownership	Commodity Found	Date Filed	File No.
Beckington	Royex Mining Ltd.		1971 - Property report, prospectus and summary	52J/ 2 NE
	Sturgex Mines Ltd.		1970 - Prospectus	52J/ 2 NE
Evans Lake	Cam Mines Ltd.		1971 - Property report	52J/ 7 SE
Fog Lake and Manion Tp.	Royex Mining Ltd.		1971 - Property report, prospectus and summary	52J/ 1 NW
	Sturgex Mines Ltd.		1970 - Prospectus	52J/ 1 NW
Fourbay Lake	Blackwater Mines Ltd.		1971 - Prospectus	52J/ 2 SW
	Silverside Mines Ltd.		1971 - Property report and prospectus	52J/ 2 SW
Kabik Lake and Pickereel Lake	Asarco Exploration Co. of Canada Ltd.		1970 - 4 DDH (575')	52F/16 NE
Penassi Lake	Ardel Explorations Ltd.		1971 - Prospectus	52G/14 NE
	Silvermaque Mining Ltd.		1971 - Property report and prospectus	52G/14 NE
	Win-Eldrich Mines Ltd.		1970 - Property report 1971 - Prospectus	52G/14 NE
Seseganaga Lake	Royex Mining Ltd.		1971 - Property report, prospectus and summary	52J/ 1 SW
Sixmile Lake	New Dimension Resources Ltd.		1971 - Prospectus	52G/15 NW
	Norlex Mines Ltd.		1971 - Property report	52G/15 NW
	Silvermaque Mining Ltd.		1971 - Property report and prospectus	52G/15 NW
Smock Lake	Congress Mining Corp. Ltd.		1971 - Property report and prospectus	52G/13 NE
S.W. pt. of Sturgeon Lake	Amalgamated Rare Earth Mines Ltd.		1971 - Prospectus	52G/14 SE
	Nordev Mines Ltd.		1971 - Property report	52G/14 SE
	Silvermaque Mining Ltd.		1971 - Property report and prospectus	52G/14 SE
	Stump Mines Ltd.		1971 - 2 Prospectuses	52G/14 SE
	Valora Explorations and Developments Ltd.		1970 - Property report 1971 - Prospectus	52G/14 SE
Squaw Lake	Royex Mining Ltd.		1971 - Property report, prospectus and summary	52J/ 2 SE
	Royex Mining Ltd. & Sturgex Mines Ltd.		1971 - Property report and summary	52J/ 2 SE

Table 8 Airborne Geophysical Data on File as of December 31, 1971

The numbers correspond to the various numbered areas on Figures 1, 2, and 4

No.	Company	Location	Contractor	Type	Equipment	Year	File No.
<u>Kenora Mining Division</u>							
1.	Addicks, Mentor C.	Crooked Pine Lake	Oja Ltd.	EM	Galvanic EM	1970	52B/14 SE
2.	Coulee Lead and Zinc Mines Ltd.	Bridges Tp.	Seigel Associates Ltd.	Rad	Threshold radiometric spec	1967	52F/13 SE
		Docker Tp.					52F/13 SE
		Langton Tp.					52F/14 SW/NW
		Daniels Lake					52F/13 NW
		West of Smellie Tp.					52F/13 NE
3.	Daering Explorers Corp. Ltd.	Lower Manitou Lake	Dominion Exploration Syndicate	Mag	Fluxgate mag	1967	52F/ 7 SW
4.	Derry, Michener and Booth	Wapageisi Lake	Questor Surveys Ltd.	Mag EM	Barringer AM101 proton mag Mark V Input	1970	52F/ 8 SW
5.	Freeport Canadian Exploration Co.	Bluffpoint Lake	Questor Surveys Ltd.	EM	Mark V Input	1970	52F/ 3 NW
		Boyer Lake					52F/ 7 NE
		Brooks Lake					52F/ 4 NE
		Buchan Bay					52F/11 NE
		Dash Lake					52F/ 4 SE
		Harper Lake					52F/ 7 NW
		Kaiarskons Lake					52F/ 3 SW
		Lower Manitou Lake					52F/ 7 SW
6.	Headvue Mines Ltd.	Sand Lake	Seigel Associates Ltd.	Rad	Threshold radiometric spec	1967	52L/ 2 SE
7.	Kemins Explorations Ltd.	Hutchinson Tp.	Canadian Aero Mineral Surveys Ltd.	Mag EM	Gulf Fluxgate mag Canadian Aero Mark IV	1969	52B/14 SW
		Schwenger Tp.					52B/13 SE
		Crooked Pine Lake					52B/14 SE
		Sabawi Lake and McCaul Tp.					52B/14 SW
8.	Koski, J.A.	Rugby Tp.	Oja Ltd.	Rad	Scintrex GIS-2 gamma ray spec	1969	52F/14 NE 52F/15 NW
9.	Morton Properties	Laval Tp.	Oja Ltd.	Rad	Scintrex GIS-2 gamma ray spec	1969	52F/15 SE 52F/16 SW
		McAree Tp.					52F/16 SW
		Sand Lake					52L/ 2 SE
10.	New Calumet Mines Ltd.	Valora and Unaka Area	Questor Surveys Ltd.	Mag EM	Barringer AM101 proton mag Mark V Input	1970	52G/14 SE/SW
11.	Penarroya Canada Ltd.	Brownridge Tp.	Canadian Aero Mineral Surveys Ltd.	Mag EM	Elliott electron-beam tube mag R10 Mullard	1965	52F/15 SE
		Laval Tp.					52F/15 SE 52F/16 SW
		Zesland Tp.					52F/15 NE/SE 52F/15 SW/NW
12.	Salem Exploration Ltd.	Snowshoe Bay	Dominion Exploration Syndicate	Mag	Fluxgate mag	1966	52E/11 SE
<u>Patricia Mining Division</u>							
13.	Amex Exploration Ltd.	Squaw Lake	McPhar Geophysics Ltd.	Mag	Varian V4937 proton mag	1969	52J/ 2 SE
14.	Arctic Yellowknife Mines Ltd.	Quest Lake	McPhar Geophysics Ltd.	Mag EM	Varian V4937 proton mag McPhar F400	1969	52G/15 NE

No.	Company	Location	Contractor	Type	Equipment	Year	File No.
15.	Bison Petroleum and Minerals Ltd.	Sixmile Lake	McPhar Geophysics Ltd.	Mag	Varian V4937 proton mag McPhar F400	1969	52G/15 NW
		S. of Sturgeon Lake		EM			52G/15 SW
16.	Canadian Javelin Ltd.	Sixmile Lake	McPhar Geophysics Ltd.	Mag	Varian V4937 proton mag McPhar F400	1969	52G/15 NW
17.	Canex Aerial Exploration Ltd.	Evans Lake	McPhar Geophysics Ltd.	Mag	Varian V4937 proton mag McPhar F400	1969	52J/ 7 SE
		Houghton Lake		EM			52J/ 7 SW
		Marchington River					52J/ 6 SE
18.	Chimo Gold Mines Ltd.	S.W. pt. of Sturgeon Lake	Questor Surveys Ltd.	EM	Mark V Input	1970	52G/14 SE
19.	Conwest Exploration Co. Ltd. & Selco Exploration Co. Ltd.	Beckington Lake	Questor Surveys Ltd.	Mag	Barringer AM101 proton mag Mark V Input	1971	52J/ 2 NE
		Fourbay Lake		EM			52J/ 2 SW
		Quest Lake					52G/15 NE
		Sixmile Lake					52G/15 NW
		Squaw Lake					52J/ 2 SE
20.	Conwest Exploration Co. Ltd. & Selco Exploration Co. Ltd.	Drayton Tp.	Questor Surveys Ltd.	Mag	Barringer AM101 proton mag Mark V Input	1970	52J/ 4 SW
21.	Consolidated Red Poplar Mines Ltd. & Green Point Mines Ltd.	Quest Lake	Seigel Associates Ltd.	Mag	Scintrex NFM-1 mag Scintrex HEM-701	1970	52G/15 NE
		Sixmile Lake		EM			52G/15 NW
22.	Dome Exploration (Canada) Ltd.	Fourbay Lake	Geoterrex Ltd.	Mag	Geometrics G-803 proton mag	1971	52J/ 2 SW
		Sixmile Lake					52G/15 NW
23.	Gauthier Mining Group Ltd.	Penassi Lake	Geoterrex Ltd.	Mag	Geometrics G-803 proton mag Inphase out-of-phase	1970	52G/14 NE
24.	Goldray Mines Ltd.	Flyingloon Lake	Interprovincial Helicopters Ltd.	EM	Scintrex HEM-701	1969	52G/13 SE
		Parnes Lake					52G/13 NW
		Smock Lake					52G/13 NE
		Wyatt Lake					52G/14 NW
25.	Jorex Ltd.	Quest Lake	Questor Surveys Ltd.	Mag	Barringer AM101 proton mag Mark V Input	1970	52G/15 NE
		S. of Sturgeon Lake		EM			52G/15 SE
26.	Kidd, Ross	Sixmile Lake	McPhar Geophysics Ltd.	Mag	Varian V4937 proton mag McPhar F-400	1969	52G/15 NW
27.	Kirkland Townsite Gold Mines Ltd.	Fry Lake	Ranworth Explorations Ltd.	Rad	Barringer gamma ray spec	1968	520/ 3 NW
28.	Larchmont Mines Ltd.	Fourbay Lake	Seigel Associates Ltd.	Mag	Scintrex MAP-2 mag Scintrex Rio Mullard	1971	52J/ 2 SW
29.	McRae Mining Corp. Ltd.	Beckington Lake	Seigel Associates Ltd.	Mag	Gulf Mark III Fluxgate mag Scintrex Rio Mullard	1970	52J/ 2 SE
30.	Mid-North Engineering Services	S.W. pt. of Sturgeon Lake	Interprovincial Helicopters Ltd.	EM	Scintrex	1969	52G/14 SE
31.	Morton Properties	Drope Tp.	Oja Ltd.	Rad	Scintrex GIS-2 gamma ray spec	1969	52F/15 NE
		Jordan Tp.					52K/ 1 SE
		Vermilion Tp.					52K/ 1 SE/SW
		Webb Tp.					52F/15 NE 52F/16 NW

No.	Company	Location	Contractor	Type	Equipment	Year	File No.
32.	N.A. Timmins Explorations (Ontario) Ltd.	Quest Lake	Aeromagnetic Surveys Ltd.	Mag EM	Aeromagnetic surveys dual frequency	1957	52G/15 NE
		S. of Sturgeon Lake					52G/15 SE
33.	New Calumet Mines Ltd.	Press Lake	Questor Surveys Ltd.	Mag EM	Barringer AM101 proton mag Barringer Mark V Input	1970	52G/14 SW
34.	Norlex Mines Ltd.	Sixmile Lake	McPhar Geophysics Ltd.	Mag EM	Varian V4937 proton mag McPhar F400	1969	52G/15 NW
35.	Penarroya Canada Ltd.	Webb Tp.	Canadian Aero Mineral Surveys Ltd.	Mag EM	Elliott electron- beam tube mag Rio Mullard	1965	52F/15 NE 52F/16 NW
36.	Selco Exploration Co. Ltd. & Calmor Iron Bay Mines Ltd.	Quest Lake	Questor Surveys Ltd.	Mag	Barringer AM101A proton mag	1971	52G/15 NE
		Sixmile Lake					52G/15 NW
		S. of Sturgeon Lake					52G/15 SW
37.	Silver Miller Mines Ltd. & New Davies Petroleum Ltd.	Wyatt Lake	Interprovincial Helicopters Ltd.	Mag EM	Scintrex NPM-1 mag Scintrex HEM-701	1969	52G/14 NW
38.	Silverside Mines Ltd.	Fourbay Lake	Seigel Associates Ltd.	Mag EM	Gulf Mark III Fluxgate mag Scintrex Rio Mullard	1970	52J/ 2 SW
39.	Spooner Mines and Oils Ltd.	Fourbay Lake	Seigel Associates Ltd.	Mag EM	Gulf Mark III Fluxgate mag Scintrex Rio Mullard	1970	52J/ 2 SW
		Penassi Lake					52G/14 NE
		Sixmile Lake					52G/15 NW
		S.W. pt. of Sturgeon Lake					52G/14 SE
40.	Texmont Mines Ltd. & Sturdy Mines Ltd.	Sixmile Lake	Questor Surveys Ltd.	Mag EM	Barringer AM101A proton mag Barringer Mark V Input	1971	52G/15 NW
41.	Western Quebec Mines Co. Ltd.	Quest Lake	Sparton Aero Ltd.	Mag EM	Mark III Fluxgate Mark III	1971	52G/15 NE
		Squaw Lake					52J/ 2 SE

and in one location molybdenite is also present.

At the main showing, disseminated chalcopyrite and pyrite mineralization has been found over an area about 100 feet by 20 feet. Most of the sulphide at this location is concentrated along a zone of sheared, silicified quartz diorite but mineralization is also found along at least two sets of fractures in the area of shearing. Sampling of the main trench across a width of 16 feet by Noranda Exploration Co. Ltd. gave values of 0.44 percent copper and about 0.5 ounces of silver per ton.

Other small patches of disseminated chalcopyrite and pyrite occurring in a fractured, quartz-rich phase of the quartz diorite are scattered over a distance of about 2,500 feet to the west. On the westernmost point along the south shore of Squaw Lake, chalcopyrite, pyrite, and molybdenite occur associated with small quartz veining and also along several sets of fractures.

Since outcrop is not abundant the extent of the mineralization is not known. However, the distribution of the known occurrences and their nature suggests that the mineralization could be widespread.

KIRKLAND LAKE DISTRICT

By

H.L. Lovell

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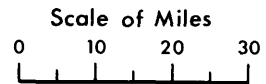
Figure 5
KIRKLAND LAKE
RESIDENT GEOLOGIST'S
DISTRICT

EXPLANATION

- Producing mine
- ▨ New maps and(or) reports (with number)
- P - Preliminary Map
- OFR - Open File Report
- GR - Geological Report
- Map 2198 - Ontario Geological Map
- ▨▨▨▨ Boundary of Resident Geologist's District

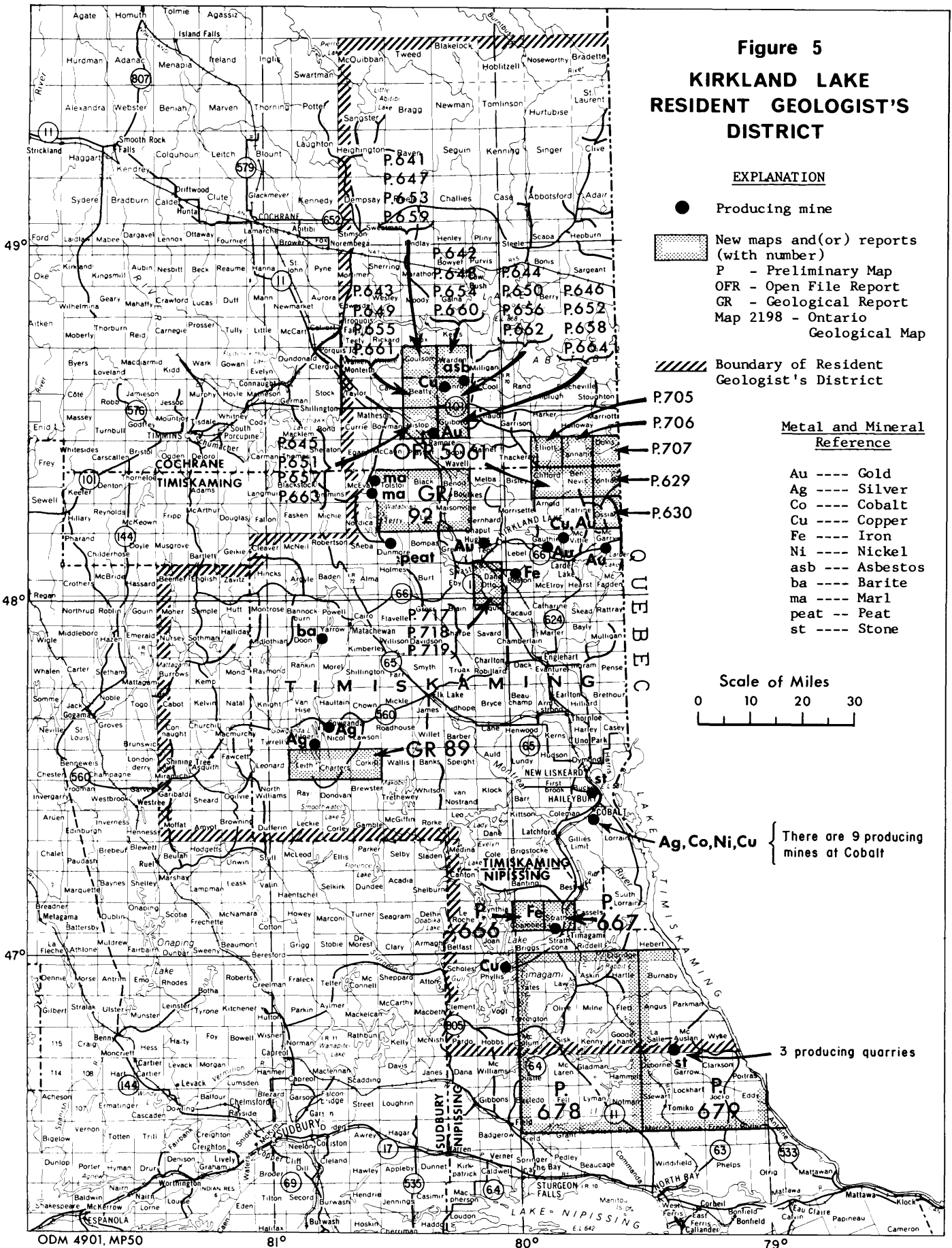
Metal and Mineral Reference

- Au ---- Gold
- Ag ---- Silver
- Co ---- Cobalt
- Cu ---- Copper
- Fe ---- Iron
- Ni ---- Nickel
- asb ---- Asbestos
- ba ---- Barite
- ma ---- Marl
- peat -- Peat
- st ---- Stone



Ag, Co, Ni, Cu } There are 9 producing mines at Cobalt

3 producing quarries



KIRKLAND LAKE DISTRICT

By

H.L. Lovell¹

INTRODUCTION

The offices of the Larder Lake Mining Division are located in Kirkland Lake. The staff of the Resident Geologist's office include a resident geologist, an assistant (made a permanent position this year), a part-time secretary, and, during their summer holidays, two local high school students. The persons employed in 1971 were the same as in 1970, thus maintaining a continuity of experience. In addition to the above, beginning in mid-November six geological technicians, hired by the Geological Survey of Canada from local job-seekers with the required experience, were based in Kirkland Lake. They are producing maps to aid exploration for base metal deposits near the gold mining communities of the Kirkland Lake area. Information for these maps is being made available from the files of the Resident Geologist's office.

Duties of the Kirkland Lake Resident Geologist's office include the following: gathering and filing mineral exploration and assessment work received from private companies and from various publications; improving the preservation of documents that record exploration, geological, and mining information on the Larder Lake Mining Division; discussions with numerous prospectors and geologists regarding exploration projects; visiting mines; examining properties; conducting university, government, and exploration geologists on tours in the Cobalt and Kirkland Lake areas; describing regional geology at mineral exploration classes; participation in geological field trips in the Temagami, North Bay, and Sudbury areas, in connection with the Geological Association of Canada's convention held at Sudbury; beginning the re-mapping of Gauthier Township, in which the Upper Canada and Upper Beaver Mines are situated; composing the Kirkland Lake Resident Geologist's Annual Report; working on the revision of the Timmins-Kirkland Lake geological compilation; completing the tourist guide book entitled "Geology and Scenery in and near the Lake Timiskaming Rift Valley"; completing the Lebel Township map and report; editorial corrections of the Eby-Otto-northern Marquis Township report; preparation of the Kirkland Lake field tour stops for the Cobalt-Kirkland Lake-Timmins tour of the International Geological Congress in 1972; guiding northeastern Ontario secondary school geography teachers on geological tours of the Kirkland Lake area; responding to requests by officials re land use; assisting the Ontario Department of Lands and Forests with local geological matters; providing geological guidance for rock geochemical studies of Northern College of Applied Arts and Technology.

Highways are continually being improved in the Cobalt-Kirkland Lake area, thus making the area more accessible to more people. In addition massive urbanization, the trend toward a 4-day work week, and the declining value of

¹Resident Geologist, 4 Government Road East, Kirkland Lake, Ontario. Manuscript accepted for publication February 1, 1972.

the US dollar in terms of important European currencies are expected to bring greatly increased numbers of tourists to northern Ontario, the most accessible large wilderness recreational hinterland of eastern North America. In this connection, the manuscript of the tourist and rockhound guide book "Geology and Scenery in and near the Lake Timiskaming Rift Valley" is awaiting editing for publication. Also, a guide book has been prepared for the 1972 International Geological Congress that provides an up-to-date geological history of the area having the finest combination of accessibility, bedrock exposure, stratigraphic record, and geological variety in the Canadian Shield - the Cobalt-Kirkland Lake-Timmins area. The Ontario government has expressed interest in preparing a feasibility study for a proposed Cobalt Restoration Project. The Cobalt project would be designed to popularize the unique mining history and methods of the world-renowned Cobalt high-grade silver area.

In the Larder Lake Mining Division, field mapping was done in 1971 in Elliott, Tannahill, and Dokis Townships (north of Larder Lake), Macmurchy and Tyrrell Townships (Shining Tree area), and the River Valley area (southwest of Temagami). In addition, Preliminary Maps P.641 to P.664 were released that illustrate the results of airborne geophysical surveys (magnetometer, very low frequency electromagnetometer, resistivity, and gamma-ray spectrometer) of the townships of Warden, Coulson, Beatty, Munro, Hislop, and Guibord. Also, preliminary geochemical work was begun on felsic stocks in the Larder Lake area.

MINING ACTIVITY

During 1971, reserves became almost completely exhausted at the Copperfields Mine near Temagami, and the operation is expected to be shut down early in 1972. For the period of more than a decade during which this small high-grade copper producer operated, it was an outstanding example of the compatibility of mining and recreational usage of Lake Temagami's prime cottage country. The Upper Canada gold mine at Kirkland Lake also has been shut down, and production at the nearby Upper Beaver Mine is scheduled to cease early in 1972.

In a move to bolster declining economies in the Ontario gold and silver mining areas of Red Lake, Geraldton, and Kirkland Lake-Cobalt-Gowganda, a program of subsidies for mineral exploration (see Table 9) was introduced by the Hon. Leo Bernier, Minister of the Ontario Department of Mines and Northern Affairs. The subsidies cover one-third of the cost of approved mineral exploration programs in three areas. Exploration in the Kirkland Lake-Larder Lake area by prospectors and companies have increased despite cutbacks elsewhere as a result of the current decreased demand for minerals in world markets. This may be the result of the Ontario government mineral exploration subsidies; the data compilation series maps and the surficial geological, soil and water geochemical, and geophysical programs financed by the Government of Canada; and general knowledge of the high-grade and low cost of production of mineral deposits characteristic of the Larder Lake Mining Division. The greater activity is partly indicated by the higher number of claims staked in 1971 in the Larder Lake Mining Division.

Table 9 Approved Mineral Exploration Programs to December 31, 1971

<u>Company</u>	<u>Township</u>	<u>Total Planned Expenditure*</u> <u>(including Ontario Government subsi</u>
Bradshaw, R.J.	Frecheville	\$ 5,510.00
Canadian Johns-Manville Co. Ltd.	Cabot	97,450.00
Canadian Johns-Manville Co. Ltd.	Munro, Warden, Rand, Bompas	78,509.00
Canex Aerial Expl. Ltd.	Sothman	25,700.00
Carlson, H.D.	Halliday	5,480.00
Chimo Gold Mines Ltd.	Maisonville	45,150.00
Hodden-Grey Mining & Expl. Ltd.	Gillies Limit	48,700.00
Hollinger Mines Ltd.	Guibord, Michaud	50,500.00
Kerr Addison Mines Ltd.	Clifford, Ben Nevis	46,100.00
Marshall Boston Iron Mines Ltd.	Boston	91,500.00
Noranda Exploration Co. Ltd.	Beatty, Benoit, Eby, Halliday, Marter	21,665.00
Patino Mining Corp.	Lamplugh, Frecheville, Stoughton, Marriott	108,000.00
Raylloyd Mines & Expl. Ltd.	Haultain	16,025.00
Salo, Arvo	Halliday	5,480.00
Selco Expl. Co. Ltd.	McElroy	8,495.00
Silver Shield Mines Ltd.	Coleman	112,500.00
Teckora Mines Ltd.	Teck	18,880.00
Vangulf Exploration Co.	Coleman	21,200.00
		<u>\$806,844.00</u>

*Planned expenditures do not constitute firm commitments, hence some amounts in this column will not be fully spent. The government subsidy covers receipts for one-third or less of each actual expenditure.

Cobalt Area

Agnico Mines Limited produced silver-cobalt ore from the following properties: Nipissing 407, Nipissing 96, Bailey, Penn-Canadian, and Trout Lake. However the Nipissing 407, Bailey, and Penn-Canadian operations were shut down during 1971. Exploration is being carried out underground at the Canadian Keeley property.

Modest amounts of silver-cobalt ore were produced by Chitaroni Minerals Limited and by R.C. McAllister from properties leased from Agnico Mines Limited, and by Patricia Silver Mines Limited.

During 1971, operations ceased at the Cobalt silver refinery of Kam-Kotia Mines Limited.

The Silverfields Mine of Teck Corporation Limited continued operations throughout 1971.

A small amount of limestone was produced from the Haileybury quarry.

Gowganda Area

Silver-cobalt was produced by Siscoe Metals of Ontario Limited from the Miller Lake O'Brien Mine and Castle No. 3 shaft area.

Elk Lake Area

Open-pit mining is planned for silver-cobalt ore discovered during 1971 by exploration on the property of Welsh Silver Mines Limited.

Kirkland Lake-Larder Lake Area

In 1971, the Adams iron mine of Jones and Laughlin Mining Company Limited was purchased by Dominion Foundries and Steel Company, and management of the mining operation came under Cliffs of Canada Limited. The daily production rate amounted to about 3,100 tons of pellets produced from 12,000 tons of ore.

Mining and milling by the 550 employees of the gold producer of Kerr Addison Mines Limited amounted to about 1,300 tons for each of the five workdays per week.

Upper Beaver Mines Limited produced copper-gold ore throughout 1971, but mining and milling are to cease early in 1972. Upper Canada Mines Limited ceased production late in 1971, after 33 years in operation and a production of approximately 1,396,966 ounces of gold and an additional quantity of byproduct silver. During mining and milling operations, the Upper Beaver Mine employed about 90 men and the Upper Canada Mine employed about 275 men.

Normal mining and milling continued at the Macassa Mine of Willroy Mines Limited, under the management of Upper Canada Mines Limited. Some of the production is from the Tegren property, which is tied on to the west boundary of the Macassa property, and some is from the Kirkland Minerals former gold mine to the east of Macassa.

Matheson Area

The Potter Mine (the former Munro Copper Mine) of Harrison Drilling and Exploration Company Limited resumed production during 1971.

Production from the open-pit asbestos mine of Hedman Mines Limited continued throughout 1971.

Normal mining and milling operations were continued at the Ross gold mine of Hollinger Mines Limited. No development was carried out on the new lower levels.

Table 10 Property Files (Assessment and Other Reports) Acquired in 1971

AEM airborne electromagnetometer survey	Geol geology	RA radiometric (radioactivity) survey
AM airborne magnetometer survey	HS hand sample(s)	rTr rock trenching
DH diamond drill hole(s)	IP induced polarization survey	SP self-potential survey
EM ground electromagnetometer survey	Mag ground magnetometer survey	sTr soil trenching and stripping
Gc geochemical survey		

Township	Location	Name of property file	Kind of data
Arnold	SE $\frac{1}{4}$, NE pt.	Van Dola, Harry	sTr, rTr sketches, Sept. 1971
Asquith	NE $\frac{1}{4}$, NE pt.	Winnabago Mines Ltd. also Churchill Tp.	prospectus Jan. 1971; rept. by W. Walker Jan. 1971
	NE $\frac{1}{4}$, NW pt.	Royal Mining Corp. also Churchill Tp.	prospectus Feb. 1971; claims location (1" = 40 ch) & rept. by W. Walker Jan. 1971
	NE $\frac{1}{4}$, NW pt.	Annett, Roy	rTr sketch, Aug. 1970
	NE $\frac{1}{4}$, NW pt.	Saville, Albert	rTr sketch, May-June 1971; rTr sketch July-Aug. 1971
	NW $\frac{1}{4}$, SE pt.	Bridge Hill Mines Ltd. "Shiningtree gold prop."	rept. by Michael Ogden, May 1971
Bannockburn	NW $\frac{1}{4}$, SW pt.	Suniloe, George	rTr sketches, June 1971 & Sept. 1971
	NW $\frac{1}{4}$, NW pt.	Watts, Harold A.	rTr sketch, Oct.-Nov. 1971
Benolt	Con. V, lot 10, S $\frac{1}{2}$, NE $\frac{1}{4}$	Bruno, Ernest	rTr sketch, June 1970
	Con. V, lot 5, S $\frac{1}{2}$	Lukasz, Michael	rTr sketch, Nov. & July 1970
Bernhardt	SW $\frac{1}{4}$, NE $\frac{1}{4}$ pt.	Scott, Leslie also Teck Tp.	rTr sketch, Apr.-Nov. 1970
	NE $\frac{1}{4}$, SW pt.	Bastarache, Gerald; Roberts, P.C.M. "Duncan R. Derry Ltd. option"	rTr sketch, June-July 1970
	SW $\frac{1}{4}$, NE pt.	Noranda Exploration Co. Ltd. "Bernhardt 1-70 property"	EM, Mag (1" = 400'), Oct. 1970; location (1" = 2640') & rept. by G. LaFleche, Mar. 1971
Best	S $\frac{1}{2}$, cent. pt.	Niemetz, Herbert	rTr sketches, Apr.-May 1971 (1" = 330')
Boston		Marshall Boston Iron Mines Ltd. "Marshall, Chas. & Ray claims"	
	SE $\frac{1}{4}$, NW pt.		sTr sketches, July 1970
	NW $\frac{1}{4}$, SE pt.		rTr sketch, Aug. 1970
	NW $\frac{1}{4}$, SE cor.		rTr sketch, Sept. 1970
	SE $\frac{1}{4}$, NW pt.		sTr, rTr sketches, May 1971
	NW $\frac{1}{4}$, SW pt.		rTr sketch, July 1971
	NW $\frac{1}{4}$, SW pt.		rTr sketch, Aug. 1971
	SW $\frac{1}{4}$, SW pt.	Stewart, W.T.	sTr sketches, June-Oct. 1970; rTr sketch, Aug.-Oct. 1970
	SW $\frac{1}{4}$, NE pt.	Radley, Mrs. Mary	sTr sketch, Aug. 1970
	NW $\frac{1}{4}$, SW pt.	Gill, George	sTr sketches, Sept.-Nov. 1970
	SW $\frac{1}{4}$, SE pt.	Gereghy, Gerald J.; Waddell, Lloyd A. (Kerr Addison Mines Ltd. "Hudson Bay Mining prop" - Smith Lake	DH KB-71-1, Feb. 1971; location (1" = 60'); EM (1" = 200'); survey plan (1" = 200') (2) Mag (1" = 200'), Jan. & Feb. 1971; XXN (1" = 100'), Feb. 1971; (2) Mag (1" = 200'), Jan. & Feb. 1971 & rept. by G.J. Gereghy, Feb. 1971
NE $\frac{1}{4}$, SE pt.	Amax Exploration Incorp. "Newman; Mageau; Amax; Inco; Allerston claims" also McElroy Tp.	DH KX-47-69, Oct. 1969	
Boston	SW $\frac{1}{4}$, SE pt.	Tarzwil, Jas. B.	rTr sketch, Aug. 1971
Bowman	Con. 11, lot 6, N $\frac{1}{2}$ SW $\frac{1}{4}$ & S $\frac{1}{2}$, NW $\frac{1}{4}$	Foster, Edwin	rTr sketch, May-Sept. 1970
	Con. 14, lot 7, N $\frac{1}{2}$ SE $\frac{1}{4}$	Foster, Edwin	rTr sketch, May-Sept. 1970 & June 1971
Briggs	NE $\frac{1}{4}$, NE pt.	Copperfields Mining Corp. Ltd.	DH D-3, D-3A, May-June 1971; locations (1" = 200'); DH D-2-31, July 1971; location (1" = 200'), July 1971 for "Iron Lake Group"
	SE $\frac{1}{4}$, SW pt.	Sturdy Mines Limited	Co's. brief rept. Sept. 8, 1970; DH 71-SB-1 to 71-SB-8, May-June 1971; locations (1" = 200'), July 1971
Brigstocke	NE $\frac{1}{4}$, NE pt.	Bohme, J.D.S.; Hamilton, T. "Tashota Nipigon Mines Ltd. opt." also Coleman Tp.	rTr sketches, July 1970; Mag (1" = 400'), June-July 1970 & rept by B. Wilson, Oct. 1970

Township	Location	Name of property file	Kind of data
Bryce	Con. IV, lot 11	Briscoe, Edward A.	DH sketches, Oct.-Nov. 1970
Burrows	SW $\frac{1}{4}$, NE pt.	Canex Aerial Exploration Ltd. "Sirola, D. opt."	Mag (1" = 200'), Feb. 1971 & rept. by J.B. Boniwell, Mar. 1971
Cairo	SW $\frac{1}{4}$, NE pt.	Welsh, George S. King, Henry	rTr sketch, Nov. 1970 rTr sketch, Mar.-Apr. 1971
	SW $\frac{1}{4}$, SW pt.	Sunisioe, Geo. (see also North Expo; Rosmer)	sTr, rTr sketches, July 1971
Cassels	SW $\frac{1}{4}$, NW pt.	Lake Beaverhouse Mines Limited also Strathy Tp. SE pt.	(4) EM (1" = 400') & rept. by J.G. Williams, Jan. 1971
Catharine	SW $\frac{1}{4}$	Moncrieff Uranium Mines Ltd. "French, J.N. claims"	DH MC-2 to MC-5, Aug.-Sept. 1970; locations (1" = 400'); AEM (1" = 1320') & repts. by D. Watson, April 1970; claims group location (1" = $\frac{1}{4}$ ml.)
Chambers	SE $\frac{1}{4}$, SE pt.	Blake, Frederick	rTr sketch (1" = 200'), Aug. 1971
Charters	SE $\frac{1}{4}$, SW pt.	Shartner, Gus.	rTr sketch (1" = $\frac{1}{4}$ ml.), Oct. 1970; rTr sketch (1" = 200'), July-Aug. 1971; rTr sketch (1" = 200'), Aug. 1971
Chown	SW $\frac{1}{4}$, SW pt.	Gowganda Silver Mines Ltd. also Haultain, Lawson, Milner, Nicol & Van Hise Tps.	prospectus, Aug. 1971; rept. by S.S. Szetus, Mar. 1969
Churchill	SE $\frac{1}{4}$, SE pt.	Winnebago Mines Ltd.	see for Asquith Tp.
	SE $\frac{1}{4}$, SW pt.	Royal Mining Corporation	see for Asquith Tp.
	SE $\frac{1}{4}$, SE pt.	McBride, William W.	rTr sketches, June-Aug. 1971
Clifford	SE $\frac{1}{4}$, SE pt.	Hunter, A.M.	rTr sketch, Aug.-Sept. 1971
Coleman	Con. IV, lot 5	Silverfields Mining Corporation Ltd.	surf plan (1" = 40'), Sept. 1963; long. (1" = 40'), Dec. 1967; reference
	Con. IV, lot 19, W pt.	Guardian Mines Ltd. "Sutherland, H.H. claims"	(2) Mag, EM, geol (1" = 200'), July 1970 & rept. by H.H. Sutherland, July 1970
		Bohme, J.D.S.; Hamilton "Tashota Nipigon Mines Ltd. opt." also Brigstocke Tp. Silver Shields Mines, Inc. "Cobalt area properties"	see for Brigstocke Co. prospectus, Apr. 1971; rept. by J.E. Armstrong, May 1971
	Con. 11 $\frac{1}{2}$ lot 27, N $\frac{1}{2}$, NE $\frac{1}{4}$	Arseneault, Albert	DH 1, July 1971; location
	Con. 11, lot 19, N $\frac{1}{2}$, NE $\frac{1}{4}$	Campbell, John	rTr, sTr sketches, (1" = 400'), May-June 1971
	Con. 11 $\frac{1}{2}$ lot 19, S $\frac{1}{2}$, SE $\frac{1}{4}$, SW $\frac{1}{4}$	" "	rTr, sTr sketches, (1" = 200'), May-July 1971
	Con. VI, lot 20, N $\frac{1}{2}$	Gore, John A.	rTr sketch, Sept.-Nov. 1971
Connaught	NE $\frac{1}{4}$, SW pt.	Coniston Copper Mines Limited	DH 70-1, 70-3 to 70-6, Aug.-Nov. 1970; locations (1" = 200')
	NE $\frac{1}{4}$, SW pt.	Active Mines Ltd.	prospectus, Aug. 1971; rept. by H.G. Harper, July 1971 property location (1" = 1320'), July 1971
	NE $\frac{1}{4}$, SW pt.	Coniston Copper Mines Limited	DH 70-2, Sept. 1970; location (1" = 200')
	NE $\frac{1}{4}$, S $\frac{1}{2}$	Amalgamated Rare Earth Mines Limited	prospectus, Sept. 1971; rept. by H. G. Harper, Aug. 1971
Cynthia	SE $\frac{1}{4}$, NE pt.	Copperfields Mining Corp. Ltd. "Ko-Ko-Ko Lake group"	DH D2-41, D2-46, D2-47, June 1971; locations (1" = 30'), July 1971
Eby	Con. V, lot 2, S $\frac{1}{2}$, NE $\frac{1}{4}$	Gudrie, Thomas	rTr sketch, June-Nov. 1970
Fawcett	SE $\frac{1}{4}$	Ramsay, Raymond (Raylloyd Mining & Explorations Ltd.)	DH 8, R-71-1, Oct. 1971
	SE $\frac{1}{4}$	Raylloyd Mines & Explorations Ltd.)	prospectus, Aug. 1971; prop. rept. by J.B. Boniwell, July 1971
Flavelle	Con. V, lot 10, N $\frac{1}{2}$, SW $\frac{1}{4}$	Welsh, George S.	sTr sketch, May-Oct. 1970; rTr sketches, Apr.-Aug. 1971; sTr sketch, Aug. 1971
Flett	SE $\frac{1}{4}$, NW pt.	Nichol, W.H.	DH 1 & location (1" = 20 ch), Mar. 1971
Gauthier	NE $\frac{1}{4}$	Upper Canada Mines Limited "McIntosh, G.; Carre, J.; Potter, G.S.; Bestarache, G.; Seal, N.K. claims" also McVittie Tp.	AEM (1" = 1320') & rept. by W.G. Wledwilt, Sept. 1964; corr. Dec. 1970
Gillies Limit	BI 10	Craig, McConnell	EM (1" = 100') & rept. by T.D. Brown, May 1969
	BI 17	Home, K.P.	sTr sketch, July-Oct. 1970; rTr sketch, May 1971; sTr sketches, July & Sept. 1971
	BI 14, SE $\frac{1}{4}$	Ryerson Mining & Development Ltd. (see also Fleming; Realm Mining; Fairfax)	claim plan (1" = 300'), Jan. 1971

Township	Location	Name of property file	Kind of data
Gillies limit	Bl 24, 34, 35	Murgor Explorations Limited	brief rept. by G.C. Watts, Sept. 1970; rept. by J.P. Thoday, May 1969
	Bl 59, SW $\frac{1}{4}$, NW pt. &	Coppleville Mining Corporation Ltd. "Laperriere,	DH 1 to 5, Mar. 1971
	Bl 60, NE $\frac{1}{4}$, SE $\frac{1}{4}$	A.; Brown, Theodore; Clarke, M.G. claims"	
	Bl 58, Bl 67, NW $\frac{1}{4}$, &	Lobo Mines & Explorations Ltd.	EM, Mag (1" = 200'), Apr. 1971 & rept. by D. Burton, Apr. 1971; prospectus, June 1971
	Bl 68, NE $\frac{1}{4}$		
	Bl 83, SW $\frac{1}{4}$, SW pt., Bl	Mid-North Engineering Services Ltd. "Nickel Rim	DH NR-71-1 to NR-71-4, June-Aug. 1971; locations
	84, NE $\frac{1}{4}$, SE pt. & Bl 91,	Mines Ltd. - Whitney Lake property"	(1" = 200' & 1" = 1320'); DH NR-71-6 to NR-71-9, Sept. 1971; locations (1" = 200' & 1" = 1320')
	SE $\frac{1}{4}$, NW pt. & NW $\frac{1}{4}$, SW pt.		
	Bl 3, Bl 9, N $\frac{1}{2}$	Keewi Mining Group Ltd. & Silverfields Mining Corp. Ltd.	geol. rept. by H.A. Moore, Apr. 1971; Gc (1" = 200') Sept. 1971
Bl 4, N pt.	Nielsen, Julius	rTr sketch, June-July 1970	
Bl 2, SW $\frac{1}{4}$, Bl 8, NW $\frac{1}{4}$	Hodden-Grey Mining & Exploration Ltd.	prospectus, Oct. 1971; rept. by R.J. Bradshaw, Sept. 1971	
Gulbord	Con. 1V, lot 5, N $\frac{1}{2}$ N $\frac{1}{2}$, NW $\frac{1}{4}$	Hollinger Gold Mines Ltd.	DH GU2-1-71, Mar.-Apr. 1971; DH GU2-2-71, Apr. 1971; location (1" = 400')
Halliday	NE $\frac{1}{4}$, SE pt.	Canadian Arrow Mines Ltd.	DH 71-1 to 71-6; assays results; locations (1" = 50' & 1" = 200'); EM (1" = 50' & 1" = 200'), Jan. 1971 & rept. by F.J. Alexander, Mar. 1971; rTr sketch (1" = 30'), July 1971
	NW $\frac{1}{4}$, SW pt.	Tallman Mines Ltd. also Sothman Tp.	corr., May 1971; DH 68HA2, HA-1, Mar. 1968
	NE $\frac{1}{4}$, SE pt.	Rousseau, Alfred also Midlothian Tp.	rTr sketch (1" = 200'), Oct. 1970 to May-June 1971
Hlncks	SE pt	Sunlsoe, George	rTr sketch, Nov.-Dec. 1970 & Apr. 1971
Hurtubise	NE $\frac{1}{4}$, SE pt.	Canadian Superior Exploration Ltd.	DH 1 & 2, Mar.-Apr. 1971; plan & section (1" = 50'), May 1971; rept. by J.D. Murphy, Sept. 1970
Ingram	Con. VI, lot 11, S $\frac{1}{2}$, SW $\frac{1}{4}$	Marshall, Foster & James also Mulligan Tp.	DH 5, Sept. 1971; location
Ketrine	SE $\frac{1}{4}$, SE pt.	Ribar, Steve	rTr sketch, May-Sept. 1970
Knight	SW $\frac{1}{4}$, NE pt.	Wahbic Explorations Limited	corr., Jan. & Feb. 1971
Law	SE $\frac{1}{4}$, SW pt.	Malth, Herbert A.	rTr sketch, June & Sept. 1971
Lebel	central pt.	Martin, Thos.	DH 1, Nov. 1970; location; rTr sketch, July-Nov. 1970; rTr sketch, Aug.-Nov. 1971
	NW $\frac{1}{4}$, SE pt.	Gudrie, Thos.	sTr, rTr sketches, June-Nov. 1970; rTr sketches, Apr.-June 1970; sTr sketch, July 1971; sTr, rTr sketches, June-July 1971
	SE $\frac{1}{4}$, NE pt.		
	NW $\frac{1}{4}$, SW pt.	Allard, Conrad	sTr, rTr sketches, June & Sept. 1971
	SE $\frac{1}{4}$, SE pt.	Sullivan, Thomas	rTr sketches, Aug.-Sept. 1971
	SE $\frac{1}{4}$, SE pt.	Shartner, Gustave	DH 1, Sept.-Oct. 1970; locations (1" = 20' & 1" = 400'); rTr sketches, Aug-Sept. 1971 (1" = 40' & 1" = 400'), Nov. 1971
Leonard	NW $\frac{1}{4}$, SE pt.	Decker, Albert	sTr, rTr sketches, Dec. 1970 & Jan.-Apr. 1971
	SW $\frac{1}{4}$, NE pt.	Sullivan, Martin J.	DH URX 71-1 to URX 71-6, June-July 1971; locations (1" = 200')
Lorrain	Con. 11, lot 4, S $\frac{1}{2}$, NW $\frac{1}{4}$	Thomson, R.	DH A-1 to A-3, Oct. 1970; location (1" = $\frac{1}{2}$ ml.)
	Con. 11, lot 5 N $\frac{1}{2}$, SW $\frac{1}{4}$	Chukuni Gold Mines Ltd.	DH C-1 to C-3, Sept.-Oct. 1970; locations (1" = 40')
	Con. XII, lot 1, & lot 2, W $\frac{1}{2}$	Silverside Mines Ltd.	rept. by H.J. Bergmann, Apr. 1971; prospectus, June 1971
Marriott	SE $\frac{1}{4}$, SW pt.	Marriott Mines Ltd.	brief rept., Mar. 1928
Marter	Con. 1, lot 2, N $\frac{1}{2}$, SW $\frac{1}{4}$	Arrowsmith, W.C.	DH 1 to 3, Oct. 1970; locations
	Con. 111, lot 1, S $\frac{1}{2}$, NE $\frac{1}{4}$	Lessard, Leonard	rTr sketch, June-Sept. 1970
Mickle	NE $\frac{1}{4}$, W pt.	Cameron, J.A.	sTr, rTr sketches, Sept.-Oct. 1969 to May-July 1970; rTr sketch, May 1971
Midlothian	centre	Stump Mines Ltd. "Lloyd Lake property"	geol. rept. by J. Kirkwood, Dec. 1970; prospectus, Jan. 1971; geol; drilling recommendation repts. by R.W. Hutchinson, June & July 1971; IP & resistivity repts. by Robt. A. Bell & Philip G. Hallof, May 1971
	NW $\frac{1}{4}$, SE pt.	Denison Mines Ltd.	assays, May 1971; DH 1 & 2; locations & geol (1" = 200'); location map (1" = $\frac{1}{2}$ ml.)

Township	Location	Name of property file	Kind of data	
Midlothian	NW $\frac{1}{4}$, SW pt.	Rousseau, Alfred also Halliday Tp.	rTr sketch, Oct.-Nov. 1970, June 1971	
	NW $\frac{1}{4}$, SW pt.	Lerche, John	rTr sketch, May 1971	
	SW $\frac{1}{4}$, NE pt.	Hagen, John D.	DH A-121; A-126; A-131, June-Aug. 1971; locations (1" = 200'); XN's (1" = 100'), Sept. 1971	
Milner	IN 2W	Mannridge Mines Limited (Siscoe Metals)	DH 70-48, 70-60, July-Oct. 1970; locations (1" = 400'), Oct. 1970; level plans (1" = 20') (5), Nov. 1969	
	NE $\frac{1}{4}$, SE pt.	Sutherland, Don	DH 6, May & July 1971; DH 7, July 1971; locations	
	SE $\frac{1}{4}$, SE pt.	Decker, Albert	sTr, rTr sketch, Oct. 1971	
Miramichi	NE $\frac{1}{4}$, SE pt.	Courler Explorations Ltd. "Oiga Lake property"	prospectus, May 1971; rept. by T. Gledhill, Apr. 1971	
Moher	NE $\frac{1}{4}$, SE pt.	Eclipse Metals Ltd. also Semple Tp.	prospectus, June 1971; property plan (1" = 400') & rept. by H.G. Harper, May 1971	
Mulligan	SW $\frac{1}{4}$, NW pt.	Taylor, Thomas Charles	DH 1 to 3, May-July 1971; locations	
McAustan	SE $\frac{1}{4}$, NE pt.	Haberer, Joseph	rTr sketches, July-Aug. 1970	
		Iron City Mines Ltd. also Parkman Tp.	Re (scintillometer) (1" = 200') & rept. by E.G. Hamilton, Nov. 1970	
	SW $\frac{1}{4}$, SW pt.	Mote, Gary M.	sTr, rTr (6) sketches, May-July 1971	
McCann	Con. V, lot 8, N $\frac{1}{2}$, NE $\frac{1}{4}$	Taylor, Benjamin	DH 3 to 5, May-June, Sept. 1971; locations	
McCool	Con. V, lot 8, N $\frac{1}{2}$, NE $\frac{1}{4}$ & NW $\frac{1}{4}$	Northwest Canasak Nickel Mines Ltd.	prospectus, Mar. 1965	
	Con. VI, lot 8, S $\frac{1}{2}$, SE $\frac{1}{4}$ & SW $\frac{1}{4}$			
	Con. VI, lot 9, S $\frac{1}{2}$, SE $\frac{1}{4}$			
McElroy	NW $\frac{1}{4}$, NW pt.	Chorzepa, Emil	rTr, sTr sketches, June-Oct. 1970; sTr sketch, May-July 1971	
	NE $\frac{1}{4}$, NW pt.	Yost, C.A. (see Utah Larder Gold Mines Ltd.)	rTr sketch, May 1970	
	SW $\frac{1}{4}$, NE pt.	Amax Exploration Incorp. "Newman, R.; Mageau, A.; Amax; Inco; Alterston, R. claims" also Boston Tp. E. bdry.	DH N-1 to N-3, Sept. 1968 (on Newman claims); locations (1" = 40')	
	NW $\frac{1}{4}$, SW pt.		DH KX-48-69, Oct. 1969; locations	
	NE $\frac{1}{4}$, NW pt.	Friedland, Karl U.	rTr sketch, Sept.-Nov. 1970	
	NW $\frac{1}{4}$, SW pt.	Newman, Roy	DH 1, June 1971; location (1" = 300')	
	NE $\frac{1}{4}$, SE pt.	Brunet, C.W.	rTr sketch, July-Aug. 1970; rTr sketch, Apr. 1971	
MacMurphy	NE $\frac{1}{4}$, SE pt.	Brunet, C.W.	rTr sketch, July-Aug. 1970; rTr sketch, Apr. 1971	
	McVittie	NE $\frac{1}{4}$, SW pt.	Bustraen, Michel	DH 1, 3 & 4, June 1970; rTr sketch, May 1971; rTr sketch, July 1971
		NE $\frac{1}{4}$, NE pt.	Smith, Lyman	sTr sketch, Aug.-Oct. 1970; sTr sketches, Sept.-Nov. 1970 & June 1971; sTr sketch, Sept.-Oct. 1971
		NW $\frac{1}{4}$, SW pt.	Hennis, Thomas Charles	sTr sketch, July-Oct. 1970
	NW $\frac{1}{4}$	Upper Canada Mines Limited	see for Gauthier Tp.	
	SW $\frac{1}{4}$, SE pt.	Bustraen, Remi	rTr sketch, June 1971	
	Newman	NW $\frac{1}{4}$	Bracemac Mines Ltd. also Tomlinson Tp.	prospectus, Dec. 1966
SW $\frac{1}{4}$		Summit Explorations & Holdings Ltd.	prospectus, (no date)	
Nicol	NW $\frac{1}{4}$, NW pt.	Big Four, The "McDougald, R. claims"	sTr sketch, Apr.-May 1971; sTr, rTr sketches, July-Aug. 1971	
North Williams	SW $\frac{1}{4}$, SE pt.	Metron Exploration Ltd.	DH 1 & 2, June 1971; geol (1" = 200'), Oct. 1970	
Otto	Con. IV lot 12 &			
	Con. V, lot 12, N $\frac{1}{2}$, SW $\frac{1}{4}$	Gudrie, Thomas	rTr sketches, June-Nov. 1970	
Pecaud	Con. V, lot 3, N $\frac{1}{2}$, S $\frac{1}{2}$	Bargneal, A.	rTr sketch, Aug.-Oct. 1970	
	Con. III, S $\frac{1}{2}$, NW $\frac{1}{4}$, Con. II, S $\frac{1}{2}$, NE $\frac{1}{4}$			
	Con. VI, lot 4, S $\frac{1}{2}$, NW $\frac{1}{4}$	Sullivan, Martin	sTr, rTr sketches, Sept. 1971	
Parkman	Central	Iron City Mines Ltd. also McAustan Tp.	DH 70-1, Nov. 1970 & June 1971; DH 71-1 to 71-5, Oct.-Nov. 1971; locations (1" = 200')	
Powell	SE $\frac{1}{4}$, NW pt.	Richland Resources Ltd.	IP, Mag (1" = 400'), July 1970 & rept. by Jan Klein, Sept. 1970	
	SE $\frac{1}{4}$, NW pt.	Welsh, George Stanley	DH 2, Nov. 1970; IP, Mag (1" = 800'), July 1970; rTr	
Riddell	SW pt.	Schubert, Irwin (Metron Exploration Ltd.) also Strathcona Tp.	EM (1" = 200') & rept. by J.G. Williams, Oct. 1970; claims location (1" = 20 ch); rTr sketch, Apr. & July 1971	

Township	Location	Name of property file	Kind of data
Saint Laurent	SE½, NW pt.	Asarco Exploration Co. (Canada) "Gray, R.S. prop." & "Patten River Project"	DH PD-1, PX-1, PE-1, June-July 1970; geol (1" = 400'), Apr. 1970; geol (1" = 400'), Apr. 1970 & rept. by Uldis Aboilins, Mar. 1971
Sempile	SE½	Probe Mines Limited	prospectus, Feb. 1971
	NW¼, SW pt.	Eclipse Metals Ltd. also Moher Tp.	see for Moher Tp.
	SE½, SW pt.	Canex Aerial Exploration Ltd.	DH 119-5, Apr. 1971; location
Skead	Con. 11-IV, lots 5-8	Cominco Ltd. "Anthony group"	EM (2) (1" = 400'), Apr. 1970 & rept. by J.A. Woodard, May 1970
	Con. 111, lot 3, N½, SW¼	Hudson Bay Mines Limited, The	Meg (1" = 200') & rept. by G.J. Gerehty, Aug.-Sept. 1970
	Con. VI, lot 5	Kozdas, Anton	rTr sketch, May 1971
	Con. V, lot 5	Jack, William Joseph	rTr sketch, July-Sept. 1970
	Con. V, lot 5, S½, SW¼	Jack, Arnold H.	sTr sketch, July-Oct. 1970
Sothman	NE½, NE pt.	Talisman Mines Ltd. also Halliday Tp.	see for Halliday Tp.
	NW¼, SE pt.	Canex Aerial Exploration Ltd. "Stroia, D. claims"	DH 119-6, Mar. 1971; location (1" = 200');
	NE½, SW pt.		DH 119-7, Apr. 1971; location (1" = 400')
	SW¼, NE pt.		DH 119-8, Apr. 1971; location (1" = 200'); DH 119-9, June 1971; DH 119-1, 119-3, May-July 1970; locations; vert XN's (1" = 100'), Sept. 1970; Gr (1" = 200'), Apr. 1970; (2) EM (2) Meg (2) geol (1" = 200'), Mar. & Sept. 1970 & rept. by J.G. Burns, & F.H. Faulkner, Sept. 1970; DH 119-2A, 119-4, May-July 1970; DH 119-10, 119-11, June 1971; locations (1" = 200')
SE½, NW¼	Decker, Albert (see also Miami & Hanson)	DH 3 & 4, Oct. 1970 & locations	
South Lorrain	2S 7E	Price, James H.	DH 5, Sept.-Oct. 1970; location
	NE½, NE pt.	Oslund, Martin	claims survey (1" = 300'), Dec. 1970
Spelght	NW¼, SE pt. & NE½, SW pt.	Castlebar Silver & Cobalt Mines Ltd.	rTr sketches (1" = 200'), Aug.-Sept. 1970; geol. (1" = 100'); location (1" = 2 ml.) & rept. by B.H. Wilson, Oct. 1970; Meg (1" = 100') & rept. by B.H. Wilson, Oct. 1970; DH C-71X-1 to C-71X-3, Aug. 1971; locations (1" = 200')
	SW¼, SW pt.	Stanwick, Steve	DH SK-1, Aug.-Sept. 1970; location (1" = 50')
Strathcona	SE½, SE pt.	Schubert, I. (Metron Exploration Ltd.)	see for Riddell Tp.
		Graber, Karl (Vinnie Mines Ltd.; Copperfields Mining Corporation Ltd. also Briggs, Joan, Phyllis & Yates tps.	(2) geol. (Interpreted from Meg (1" = 200'), Nov 1969 & May 1970; EM, Meg (1" = 100') & rept. by R.J. Graham, Nov. 1970; DH V-1 to V-3, Oct.-Nov. 1970; locations
	SE½, SE pt.	Johnston, Harold O.	rTr sketch, May-Nov. 1970
Strathy	NW¼, NE pt.	Armstrong, James E.	rTr sketch, July-Aug. 1970
	NE½, SW pt.	Gordon, Peter	locations (1" = 20 ml., 1" = ½ ml.); EM, Meg Interpretation (1" = 200') & rept. by E. Reeves & F.L. Jagodits, Apr. 1971
	SE½, NE pt. SW¼, NE pt.	Lake Beaverhouse Mines Ltd. also Cassels Tp. Ajax Minerals Limited	see for Cassels Tp. DH FGD#1 & FGD#2, Oct. 1971; locations (1" = 400', 1" = 100'), Oct. 1971 & rept. by J.A. Kelly, Oct. 1971; geol. (1" = ½ ml.), Oct. 1971
Teck	SE½, NE pt.	Duffy, Dennis	rTr sketches, May-Oct. 1970; rTr sketch, May-Oct. 1971
	NW¼, NW pt.	Scott, Leslie also Bernhardt Tp.	see for Bernhardt Tp.
	NW¼, NW pt.	Hurd, Don F.	rTr sketch, Apr.-Nov. 1970
	SW¼, SW & SE pts.	Deloye, Ernest C.	rTr sketches, July-Aug. 1971; rTr sketches, Sept. 1971; rTr sketches, Sept.-Oct. 1971
	SE½, SE pt. NW¼	Gray, James J. Teckora Mines Limited	DH 3 to 6, Sept.-Oct. 1971; locations prospectus, Oct. 1971; EM, Meg profiles, Aug. 1971 & repts. by Doug. Burton, Aug. 1971

Township	Location	Name of property file	Kind of data
Tomlinson	SW $\frac{1}{4}$	Bracemac Mines Ltd.	see for Newman Tp.
Tudhope	Con. VI, lot 11, S $\frac{1}{2}$, SW $\frac{1}{4}$	Silver Jackpot Mines Ltd. (Big Jackpot Mines; United States Silver Mines Ltd.; Hurd, D.)	DH 62-1 & 62-2
	Con. V, lot 12, S $\frac{1}{2}$, SW $\frac{1}{4}$	Welsh, George S. (pt. of Ethel Copper)	rTr sketch, 1970
	Con. III, lot 7, S $\frac{1}{2}$, NW $\frac{1}{4}$	Venne, Edgar	rTr sketch, Sept.-Oct. 1970 & Feb.-Mar. 1971 (1" = 20 ch)
Tyrrrell	SE $\frac{1}{4}$, NW pt.	Timiskaming Nickel Ltd. also Knight, Natal, Raymond, MacMurchy and Kelvin tps.	rTr sketch, May 1970
	SW $\frac{1}{4}$, SW pt.	Cleroux, Danny F.	rTr sketch, July-Sept. 1971; DH 1, Sept. 1971
	SW $\frac{1}{4}$, NE pt.	Bruno, Henry	sTr sketch, Nov. 1970, May-July 1971
Voat	SE $\frac{1}{4}$, SW pt.	Gunnex Limited "Tomblin Project" (Saville opt.)	rTr sketch, Aug. 1969-Nov. 1970 (1" = 100'); rept. by H.S. Wilson, June 1971; DH 1 to 5, May 1971; locations (1" = 40', 1" = 200'); assays results, May 1971; Cu showing (1" = 40'), Oct. 1970; surf. plan (1" = 200'); Gc (1" = 200')(2), EM (1" = 200')(3), Sept. & Nov. 1970 & repts. by W.F. Dix & H.S. Wilson, Dec. 1970
Warden	Con. I, lots 10 & 11, S $\frac{1}{2}$ & lot 12	Canadian Johns-Manville Co. Ltd. "Potter claims"	Mag, EM, geol. (1" = 100') & rept. by F.J. Eveleigh, Dec. 1970
Whitson	E $\frac{1}{2}$	Argentium Silver Mines Ltd. (Union Miniere Exploration & Mining) (see also White Reserve formerly NI-Ag-Co Mines Ltd. also Banks, Speight and Van Nostrand tps.)	rTr sketch, Oct. 1970 & Feb. 1971; rTr sketch, Feb.-Oct. 1971
Wilkie	Con. I, lots 4 & 5, N $\frac{1}{2}$	Field Explorations Limited	prospectus 1966
Wyse	NW $\frac{1}{4}$	Haberer, Joseph	rTr sketch, Apr. 1971
Zavitz	NE $\frac{1}{4}$, SE pt.	Carlson, H.D. "Roch-Dal"	rTr & assay plan, Aug.-Oct. 1970; assay results, Oct.-Nov. 1970; sampling & location plan (1" = 50'), Sept.-Nov. 1970 & rept. by H.D. Carlson, Jan. 1971
	NE $\frac{1}{4}$, SE pt.	Leverf, Ray	sTr sketch, June 1971

Temagami Area

During 1971 an expansion program was begun for the Sherman iron mine of Dominion Foundries and Steel Company Limited.

Mining of copper ore by the Copperfields Mining Corporation Limited is expected to cease during 1972.

Small amounts of ornamental stone were quarried in McAuslan and LaSalle Townships, about 30 miles southeast in a direct line from Temagami, by crews working for Canadian Northland Stone Limited, Ontario Natural Products, G. Boughner, and M.K. Mote.

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- 1971: Descriptive notes for multi-sensor helicopter-borne geophysical survey of Warden, Coulson, Beatty, Munro, Hislop, Guibord Townships for the Ontario Department of Mines and Northern Affairs, 7p.

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- 1971: Strathy Township, District of Nipissing; Ontario Dept. Mines and Northern Affairs, Prelim. Map P.667, Geol. Ser., scale 1 inch to 1/4 mile. Geology 1970.

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- 1971: Macmurchy and Tyrrell Townships, Districts of Sudbury and Timiskaming; p.68-72 in Summary of field work, 1971, by the Geological Branch, edited by E.G. Pye, Ontario Dept. Mines and Northern Affairs, MP49, 109p.

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Ferguson, S.A., Groen, H.A., and Haynes, R.

- 1971: Gold deposits of Ontario, Part 1, Districts of Algoma, Cochrane, Kenora, Rainy River, and Thunder Bay; Ontario Dept. Mines and Northern Affairs, MRC13, 315p.

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- 1970: Isotopic age map of Canada; Map 1256, scale 1:5,000,000. Compilation 1969.

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CONCEPTS USEFUL FOR MINERAL EXPLORATION IN THE KIRKLAND LAKE AREA

Base and Precious Metals Exploration

The following description is a model of the general environment of mines in the Kirkland Lake area. The model is based on information derived during many years of gold mining, but correlations are possible with base metal mines which, it is now being realized, have very similar characteristics.

The complete model, comprising all essential parts of a single volcanic pile, is exemplified by contiguous properties controlled by Upper Canada Mines Limited. These properties are centred in Gauthier Township about 10 miles east of Kirkland Lake. The ore at the Upper Canada Mine is in volcanic rocks (feeders) consisting of phases of syenitic rocks, and in nearby related trachytic flows, tuffs, and breccias (Tully 1963, p.66). Some stopes of the Upper Canada Mine are in trachytic tuff containing no quartz veins ("structure") whatsoever (Bragg 1967, p.90), which therefore constitutes a type of "syngenetic" gold ore. Most of the Upper Canada gold ore, however, is in the quartz veins and hematite-stained pyrite-bearing wall-rock of "breaks" (mineralized fault zones), as was most of the gold in the mines at Kirkland Lake. Tully (1963, p.79,80) suggested that the gold-bearing quartz veins might have originated from silica liberated from feldspars during sericitization in alteration zones.

The gold mines at Kirkland Lake are geologically one single mine 3 miles long and 1-1/2 miles deep. The longest stoping length of ore is at the 3,000-foot level, where 6,400 feet of ore were shared by three operating companies: Teck-Hughes, Lake Shore, and Wright-Hargreaves. The high-grade ore is in or near the Kirkland Lake "main break" and similar faults and fractures. Probably the gold is genetically related to the syenitic and trachytic rocks and related "porphyries". The centre of the Kirkland Lake gold mines (at Teck-Hughes) is an elongate syenitic volcano neck plunging about 45 degrees to the southwest.

The gold ore at Kirkland Lake consists of quartz veins, silicified zones, sulphides, tellurides, and syenite and trachyte which are the host rocks for 85 percent of the ore. The highest grade of ore is in the quartz veins which are in faults, brecciated areas, and other zones formerly under tension. Chlorite in wall-rock of the Macassa Mine gold ore has been dated at about 1,700 m.y., about the same as the Otto syenitic stock, which was dated at 1,730±50 m.y. (Purdy and York 1968, p.702). The Otto Stock is only about 4 miles from the Kirkland Lake ore zone. The possibility exists that contact metamorphism associated with this Proterozoic intrusive event might have been responsible for concentrating gold originally disseminated through the Archean syenite into the high-grade gold-bearing quartz veins for which Kirkland Lake ore is renowned.

Most of the Archean terrane within a range of 30 miles of Kirkland Lake has been mapped by government geologists. The volcano centres in the area can be located from these maps. Many of the volcanoes are approximately in their original upright orientation with regards to the earth's surface. Apparently the volcano necks were supported by felsic stock in the former

magma chambers, whereas original dips of the layered formations surrounding most of the volcano necks have been steepened during isoclinal folding (Figure 6). Far from the large stocks and batholiths, as for example in the Ben Nevis area northeast of Kirkland Lake, the layered formations surrounding some of the volcano necks retain their original gentle dips (L. Jensen, personal communication). It is in these layered formations that the largest sulphide mineral and magnetite deposits had their origin in former restricted lagoonal environments now identifiable by graphitic lenses (possibly representing Archean life) and nodular, disseminated, and massive pyrite and lenticular pyrrhotite which are mainly in the contact zones between some strata (Figure 7). Characteristically, stringers of pyrite, pyrrhotite, quartz, or calcite-sphalerite-galena-chalcopyrite cut the restricted lagoonal strata. In the massive sulphide mineral zones, the grain size tends to be fine, except where affected by later thermal metamorphism. The amount of pyrite is greater than pyrrhotite as a rule, and if base metals are present, zinc is in the greatest quantity, and silver is widespread.

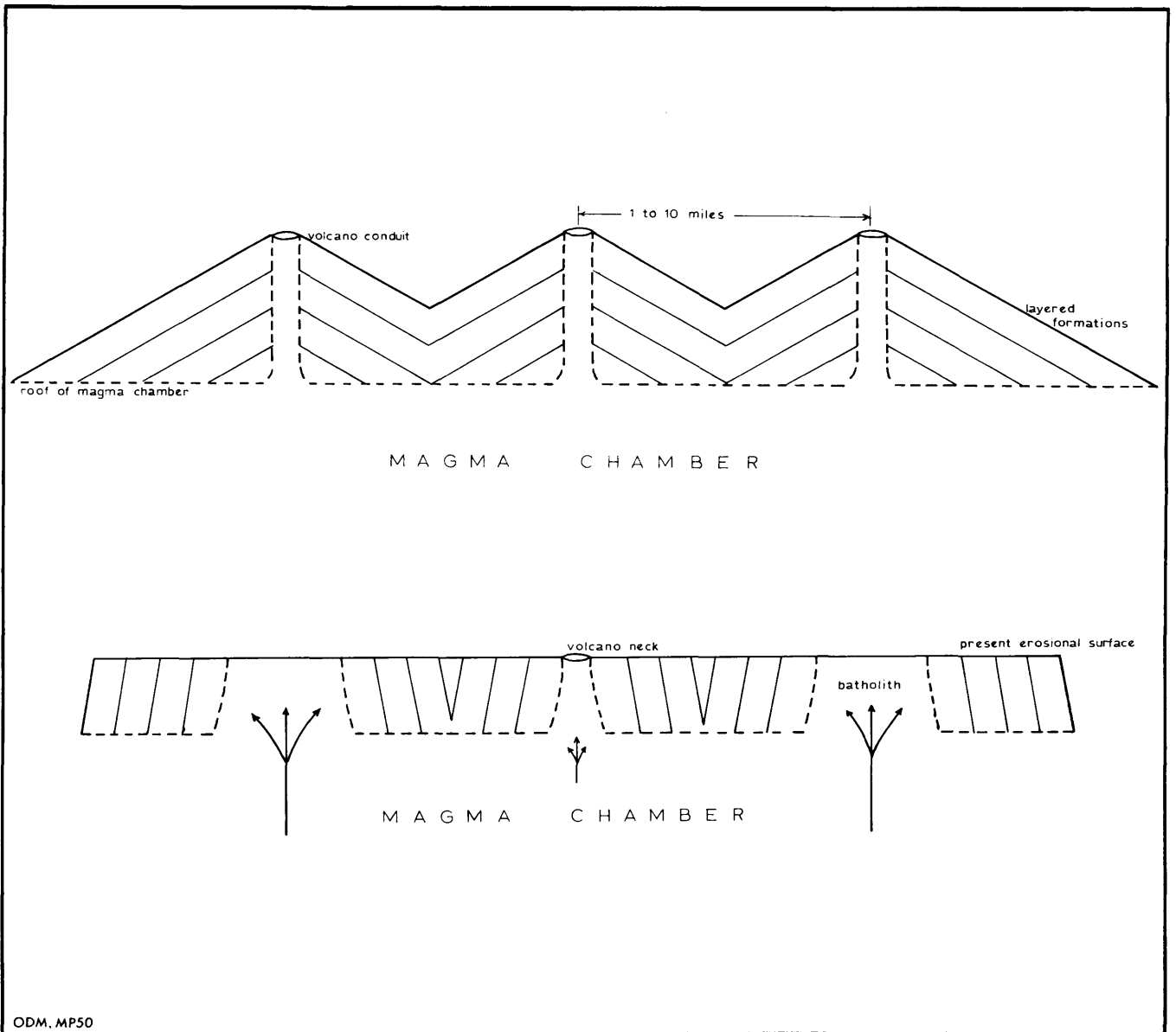
The sulphide mineral zones within about 2 miles of a volcano centre, in strata laid down under water, seem to have been localized originally mostly by chemical precipitation from seawater, probably in restricted lagoonal environments as described by K.H. Darke (oral communication 1969, Timmins Geological Discussion Group). These deposits are a type of iron formation, and many are large. They contain mostly only traces, but, in places, there are high-grade concentrations of base metals.

Close to the volcano centre, in hot spring deposits on the flanks of a volcano, copper is a more prevalent constituent of metal deposits, and gold might be recovered as a byproduct. Green and brown carbonate rocks containing dolomite, ankerite, quartz, and mica (some coloured green by chromium) form deposits in many of the former hot spring environments, as do graphitic chert and magnetite. Commonly, the hot spring deposits are connected by alteration pipes to feeder systems of the volcano.

The volcano neck itself, comparable to those of the Young-Davidson (at Matachewan), Upper Canada, Kirkland Lake, and Larder Lake village (Raven River) mines, typically is porphyritic, and otherwise similar to some of its related extrusions. The volcano neck also tends to have coarser grained sulphide minerals. Pyrrhotite is normally in greater quantity than pyrite, and gold may be present in greater value than copper.

Telescoping occurs between the three main types of metallic ore deposits; the hydrothermal and partially magmatically segregated deposits, the hot spring deposits, and the deposits that were localized in restricted lagoonal environments. A restricted lagoonal environment may conceivably have developed in the vent area of a dormant volcano, thus combining characteristics of even the end members of the three types of metal deposits.

Texas Gulf Sulphur's Kidd Creek orebody at Timmins, for example, has a central mafic intrusion that might represent a volcano neck that acted as a feeder for the overlying younger mafic volcanics. The size of the orebody, however, is of the order of the large iron formations more typical of the restricted lagoonal environment; the zone of graphite and pyrite at the centre of the orebody also is typical of deposits of restricted lagoonal environments.



ODM, MP50

Figure 6 — Steepening of dips of layered formations that flank volcanoes, by enlargement of the magma chamber outward from the original volcano conduits (schematic vertical sections)

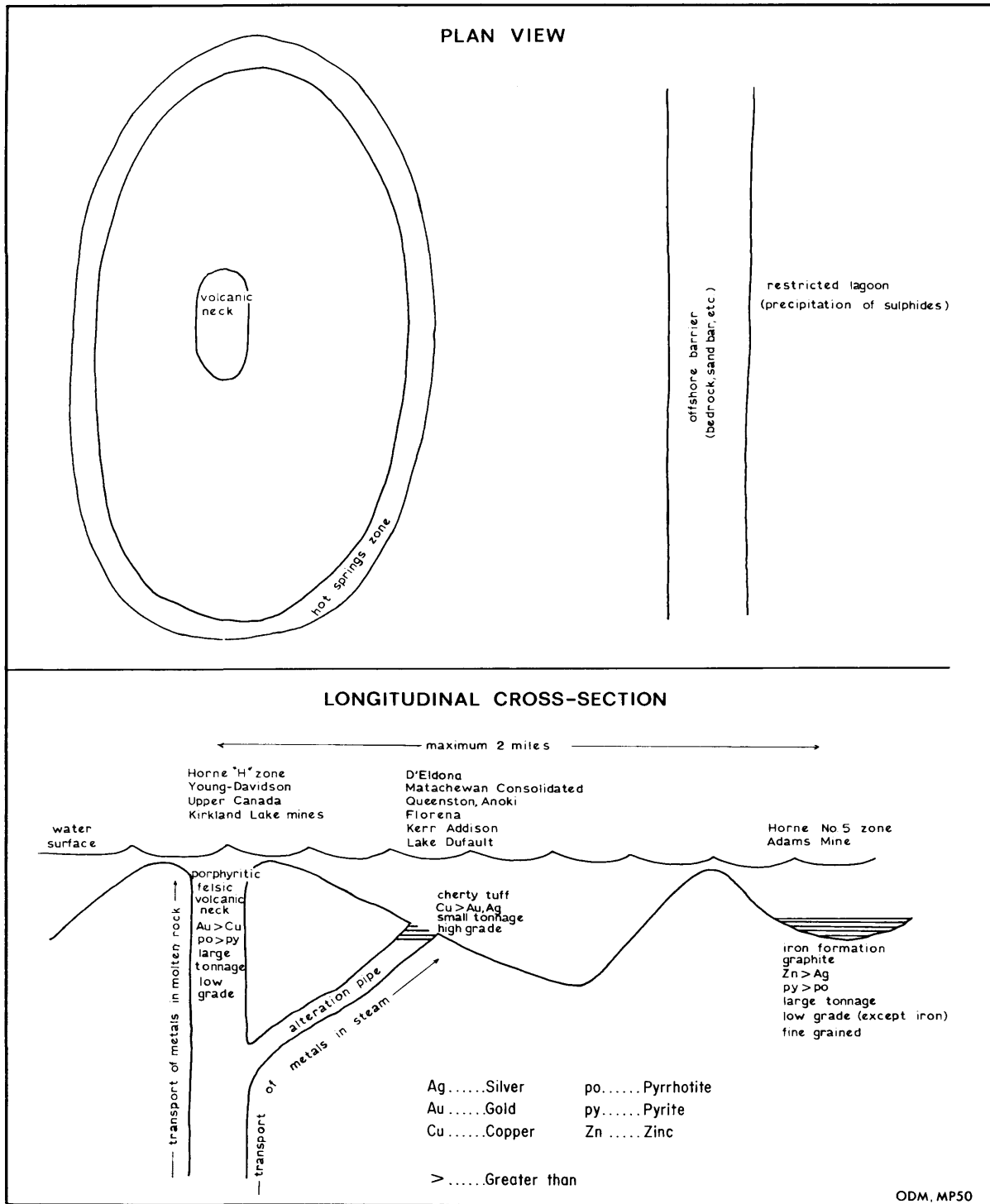


Figure 7 — Diagrammatic sections showing metal distribution in typical Archean submarine volcanic environments

Further, the green chrome mica of the Kidd Creek ore zone is typical of hot spring deposits that generally lie between a volcano neck and the spatially related restricted lagoon. The Horne Mine at Noranda also has characteristics similar to both volcano neck and hot spring deposits, as well as the Horne No. 5 zone's large tonnage and other aspects of a restricted lagoonal environment.

Various combinations of the three types of base metal deposits and the effects of contact and thermal metamorphism may be responsible for the presence of seemingly contradictory characteristics that generate arguments regarding the syngenetic or epigenetic origin of a particular ore deposit. Also, there has been ample time for later events to effect the ore deposits in Archean rocks. Examples of these are the concentration of syngenetic gold disseminated throughout phases of the syenite at Kirkland Lake into the high-grade gold-bearing quartz veins (perhaps as a result of remobilization by younger intrusions as suggested above, such as the Otto Township Proterozoic alkalic stock), and intrusion of Mesozoic kimberlite into the Upper Canada volcanic pile of Archean syenitic rocks that are intruded by dikes of lamprophyre genetically related to the syenite. Confusion arose in the latter example because the Mesozoic kimberlite dikes bear a resemblance to the Archean lamprophyre dikes. The kimberlite was recognized only after pyrope garnets were found in a soil dispersion train downcurrent from the Upper Canada Mine, and traced to their source (Lee 1968).

Diamond Exploration

The discovery of the first well-substantiated authentic kimberlite in Canada, that in the Upper Canada gold mine, indicated the most precise location yet known for searching for the source of the glacially transported diamonds that have been found in the United States (Smith 1960). The kimberlite is in the northwest-striking Lake Timiskaming Rift Valley (Lovell and Caine 1970), in which two dikes of probable kimberlite were discovered 25 years ago, about 25 miles farther to the northwest (Satterly 1948, p.13). Discovery of most of Ontario's kimberlite intrusions in a small area of the province is not surprising, considering that pipes and dikes in lines, clusters, or parallel swarms are almost invariably characteristic of kimberlite occurrences (Mannard 1968). As in the Upper Canada Mine, one of the two kimberlite occurrences approximately along strike to the northwest intrudes syenite. Many lamprophyre intrusions are located on maps of the Kirkland Lake area, both on surface and underground. The lamprophyre dikes underground should be checked for the possibility of their being kimberlite, before other old gold mines are shut down, thereby eliminating access to the possible kimberlites. Kimberlite recovered in a 157-foot drill intersection (stopped in kimberlite) in the Upper Canada Mine, for example, has never been opened up by mine development because its host rock does not constitute gold ore, and now the mine is in the process of being shut down.

Some characteristics of world diamond deposits (Mousseau Tremblay, personal communication) that should be useful in the diamond search in Ontario are summarized below as to types, environment, form, petrography, geochemistry, and geophysics.

Types and Ages:

Diamond-bearing kimberlite pipes and dikes are of Precambrian, Paleozoic, and Mesozoic ages; diamond-bearing fossil placers in flat-lying South American conglomerates are of Huronian age; West African Precambrian fossil stream and terrace gravel placers are about 2,700 m.y. old and otherwise similar to "Keewatin-type" rocks in Canada.

Environment:

Kimberlites exist in clusters near rifting in a stable area on the flanks of a dome typically composed of Precambrian Shield granitic rocks intruded by numerous diabase dikes. Kimberlites belong to the epeirogenic part of a cycle, i.e. kimberlite is exploded through stable crust after an orogenic period, at a time when so much volcanic rock had been extruded that the crust was thinned enough for the kimberlite to burst through. Vertical movements predominate, e.g. grabens (rifts).

Trap rock (the Karroo of Africa, the Deccan of India, or the Nipissing Diabase of the Sudbury-Cobalt area) probably are extrusions of the earth's mantle, but are not from the same magma as is kimberlite. Diabase, however, may represent early stages of a cycle that culminated in kimberlite intrusion; certainly many kimberlite pipes are close to rifts and diabase dikes, at flexures between granitic domes and adjacent geosynclines. Carbonatites, lamprophyres, and Monteregeian-type alkaline rocks are associated with kimberlites, but ultramafic rocks other than kimberlite are not. Beds with iron formation pebbles are favourable for sampling for diamonds; yellow "pekings" and "bantams" are limonite associates of diamonds.

Form:

Kimberlite dikes are vertical, and they narrow to seams at depth. "Pipes" are enlargements of kimberlite where two deep-seated fractures cross one another. Near surface, some pipes are as much as a mile away from a fault, because kimberlite magma is under pressure so great that, on arriving near surface, it can punch its way upwards without having to make its way along shallow fractures. The original explosion crater rarely remains, because in most places erosion has left only the neck.

Chemistry and Petrography:

The chemical composition of the original ultramafic magma was mainly olivine (much of it altered to serpentine during and after consolidation). Also present are bronzite and chrome diopside, pyrope, kyanite, magnesium-bearing (low specific gravity) limonite, and propellants (carbon dioxide and steam). Much of the mica, phlogopite and biotite, was formed on the way up the volcanic neck by autometasomatism. Around the explosion crater are serpentine-rich bedded tuffs (the pressure was too great for serpentine lavas to form). Closer to the crater were coarser ejected materials ("yellow ground"), containing pink iddingsite or boehlingite surface alteration around the serpentinized olivine. The probable differentiation sequence is from kimberlite to carbonatite. Carbonatite explosion pipes are found in the same area and geological environment as kimberlite pipes, and

many form outcrops, whereas kimberlite rarely does. Thus the carbonatites are useful in determining areas where kimberlite might be expected.

Kimberlite has porphyritic texture, with large grains of olivine and serpentine pseudomorphs after olivine. Lamprophyritic kimberlite is similar in appearance to lamprophyre. After the serpentinization process, zeolites, MgO, CaO, and FeO are uncombined, because not enough CO₂ is present to form calcite. This explains the presence of the type of "clay" between the serpentinized olivine grains, which causes kimberlite to disintegrate after a few months of exposure to weathering.

The pyrope in kimberlite is high-grade metamorphic MgCr garnet having a refractive index of 1.74 to 1.76, and most pyrope grains are broken. Pitch black ilmenite (except where coated with leucoxene) is high in MgO, Cb₂O₅, and Pb, and unusually light weight (because the ilmenite contains as much as 16 percent MgO). Accessory minerals include also strontium-bearing barite; CaSr apatite; green chrome diopside; enstatite, hypersthene, and augite; chrome mica (fuchsite); chromite; brown phlogopite or biotite; green siliceous veins that are similar to chalcedony or opal or green chlorite; green quartz; zircons; spinel, and chrome carbonate. The pyrope, olivine, diopside, ilmenite, and chrome spinel all have high magnesium content.

Xenoliths in the kimberlite consist of kimberlite itself, wall-rock, eclogite (almandine-pyrope and omphacite pyroxene), or pyroxenite through which the kimberlite came up from the mantle.

Geophysics:

Induced potential surveys might be useful, but resistivity is the best geophysical method for exploration, because the cylindrical contact breccia around the kimberlite is filled with saline water, causing high conductivity. Magnetic surveys are useful only where the kimberlite is in the Precambrian Shield overlain by a very thick (1,000 feet) cover of sedimentary rocks, i.e. enough to mask the magnetism of the underlying rocks so that the low magnetism of the kimberlite shows up as being anomalously high.

Geochemistry:

Concentration of heavy minerals by high-density liquid separation is better than by panning. Panning and gravitation leave a circle of heavy minerals at the centre, along with any diamonds. Under "silcrete" cement is a concentrate of any possible diamonds and the heavy minerals of kimberlite, such as ilmenite. A short distance downslope from the pipe, the heavy minerals are largest. The best method is to pan up streams (and eskers) to find pyrope garnets and the black, light-weight ilmenite. Placer deposits in the Congo have chalcedony, jasper, flint, and staurolite or diopside associated with any possible diamonds.

According to findings by H.A. Lee (personal communication), the fastest, best, and least expensive method of determining the various "heavy" minerals (including pyrope garnets and diamonds) is to concentrate clasts from the topographically high areas of eskers (Figure 8). The upstream (river mouth)

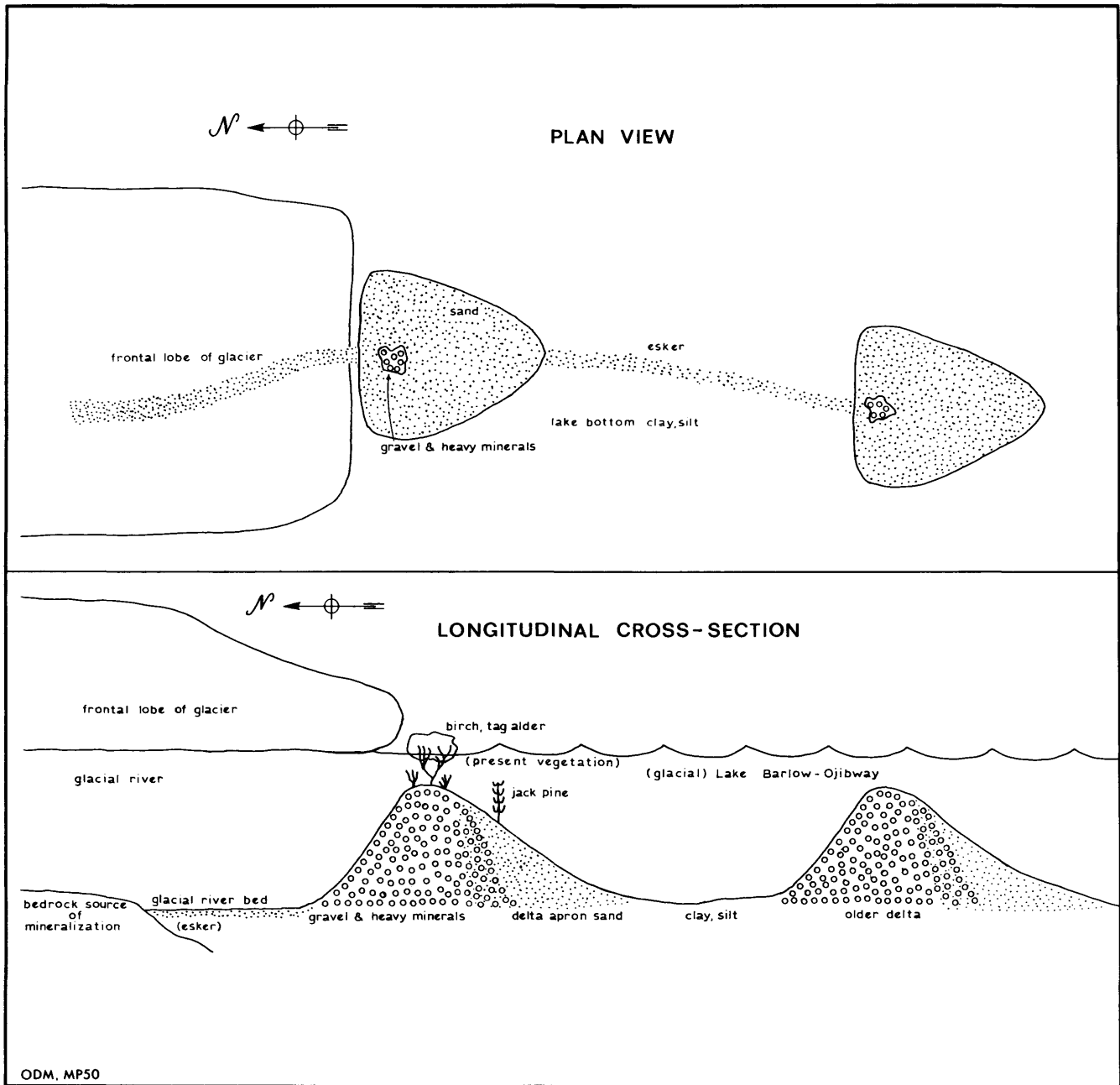


Figure 8 - Diagrammatic sections showing favourable areas for heavy mineral deposition in an esker-delta complex

edges of Pleistocene deltas form the topographic highs, and here the gravel tends to be coarsest and the heavy minerals most concentrated. These favourable areas for "heavy mineral tracing" (comparable to boulder tracing) are readily identifiable by several means. As well as being high elevations, they have readily available water and, therefore, have a growth of tag alders and birches, whereas farther out on the apron of each delta, jackpines predominate. These features can be detected on air photographs at the scale 1 inch to 1/4 mile. Sampling to a depth of 4 feet is adequate; sampling soil from excavations by backhoe to depths of 15 to 20 feet provides negligible additional information useful in the search for diamonds. The average transport distance of heavy mineral clasts in the Munro Esker from their source rock in the Kirkland Lake area is less than 2 miles (Lee 1965, p.7), so the position of peak abundance in esker sediments is normally about 2 miles downstream from the source. The above system of working directly on the areas most informative for purposes of diamond exploration was devised, but not applied extensively in the Kirkland Lake area. Instead, most sampling was done using the random locations of claim posts as sampling locations.

The kimberlite bedrock of the Kirkland Lake area also warrants much additional investigation. To determine whether or not kimberlite is diamondiferous, a minimum of 500 to 1,000 tons must be treated (Tremblay 1965). The average concentration of diamonds in the famous pipes at Kimberley, South Africa, is 1 part in 30,000,000 (Satterly 1971, p.2). By contrast, only about 5 tons of the Upper Canada kimberlite have been examined, all but a few hundred pounds of it by the Department of Energy, Mines and Resources in Ottawa.

Furthermore, the projected intersection of the known kimberlite dikes of the Upper Canada Mine is below the greatest recorded depth of overburden in Ontario, 738 feet (Hobson and Lee 1967). This overburden is at the intersection of a fault of the Lake Timiskaming Rift Valley and a fault of the north-striking Mattagami (Onaping) system. Deeply eroded intersections of faults such as this are typical loci for kimberlite pipes in Africa. Presumably this locality southwest of the Upper Canada Mine also warrants further exploration for diamonds.

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RED LAKE DISTRICT

By

R.A. Riley

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Figure 9
RED LAKE RESIDENT
GEOLOGIST'S DISTRICT
(Southwest Part)

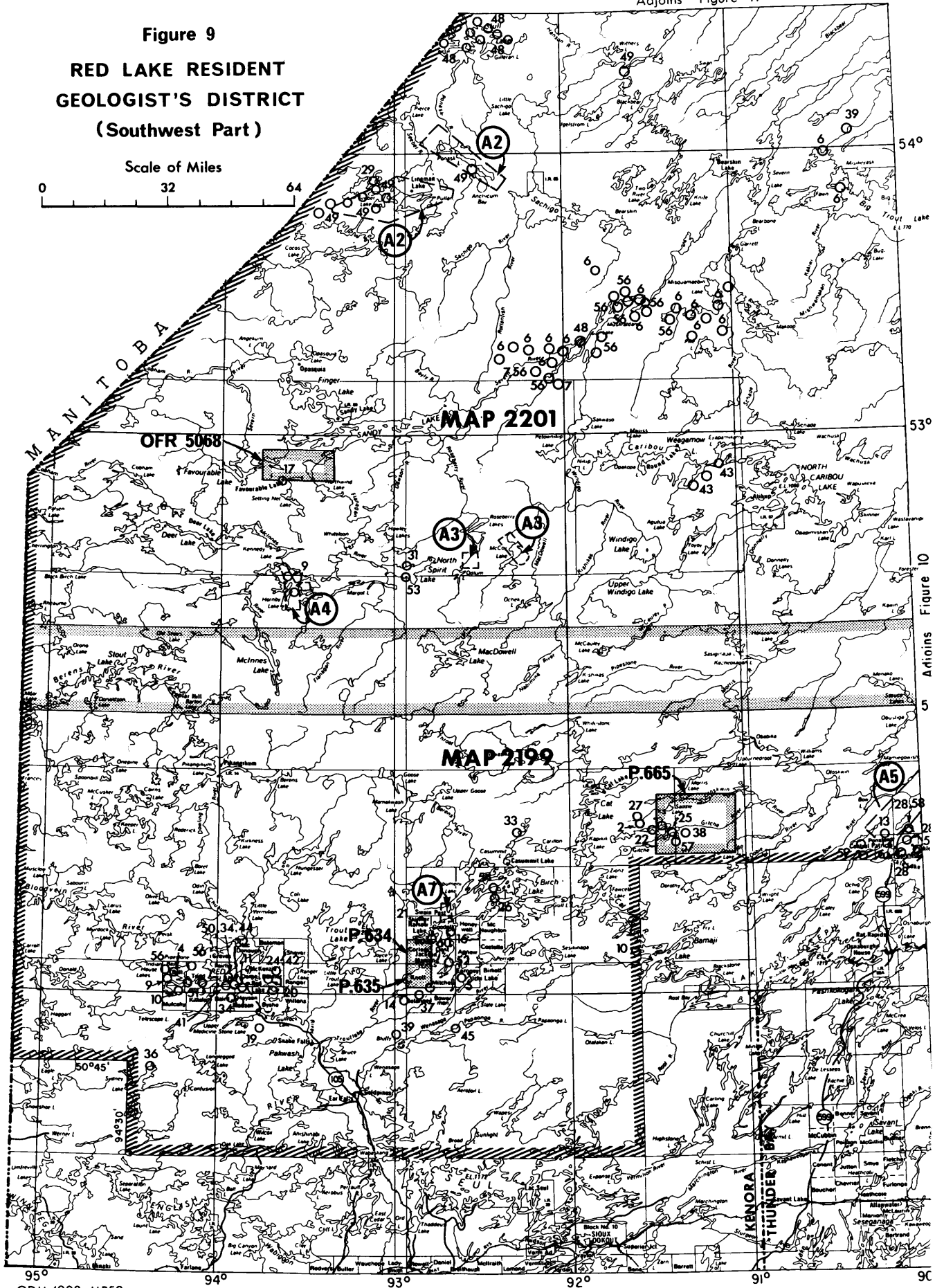
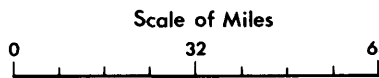
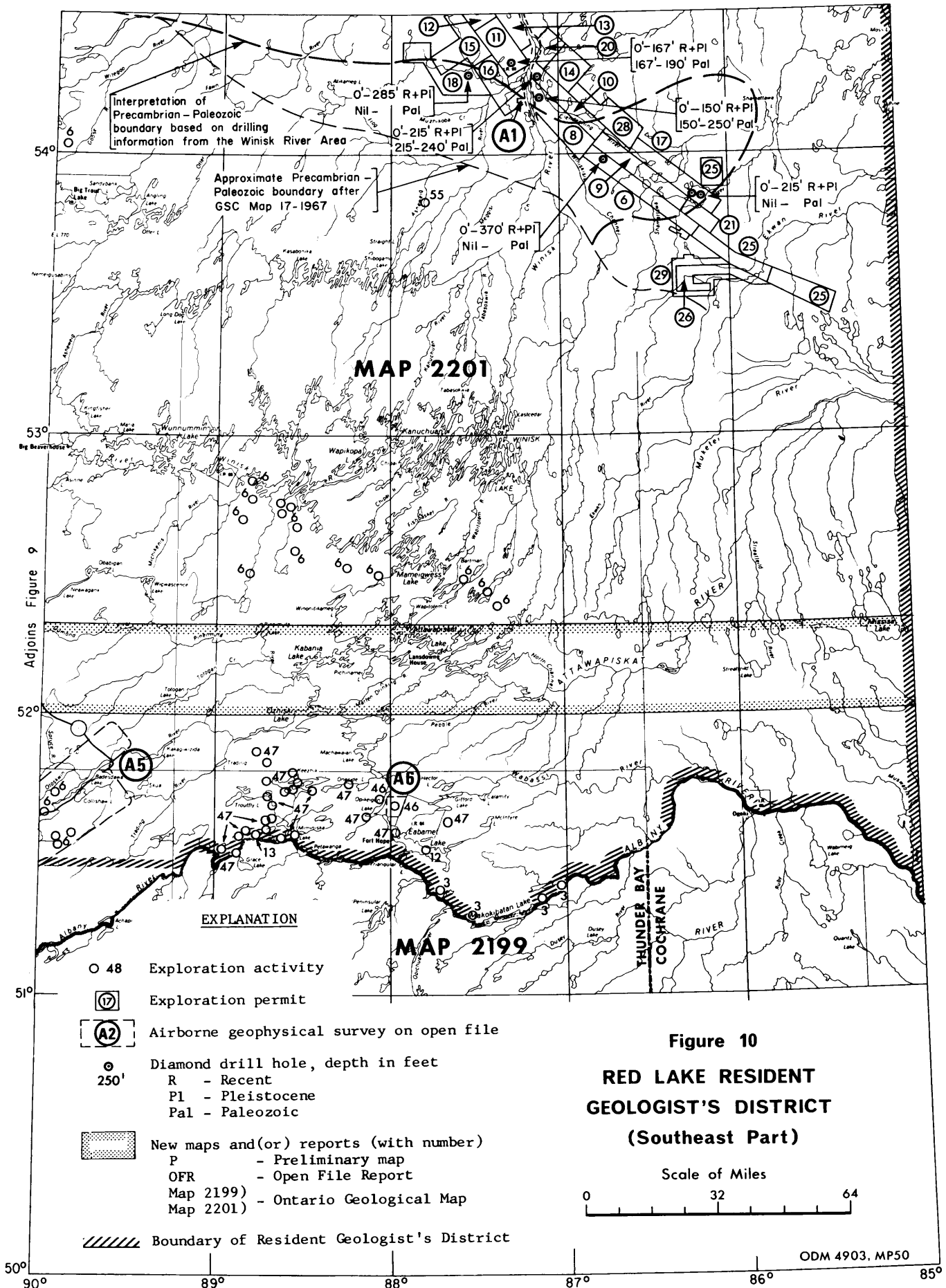


Figure 10



Adjoins Figure 9

- EXPLANATION**
- 48 Exploration activity
 - ⊙ Exploration permit
 - ⊙ (A2) Airborne geophysical survey on open file
 - ⊙ Diamond drill hole, depth in feet
 250' R - Recent
 Pl - Pleistocene
 Pal - Paleozoic
 - ▨ New maps and/or reports (with number)
 P - Preliminary map
 OFR - Open File Report
 Map 2199) - Ontario Geological Map
 Map 2201) - Ontario Geological Map
 - ▨▨▨▨ Boundary of Resident Geologist's District

Figure 10
RED LAKE RESIDENT
GEOLOGIST'S DISTRICT
(Southeast Part)

Scale of Miles
 0 32 64

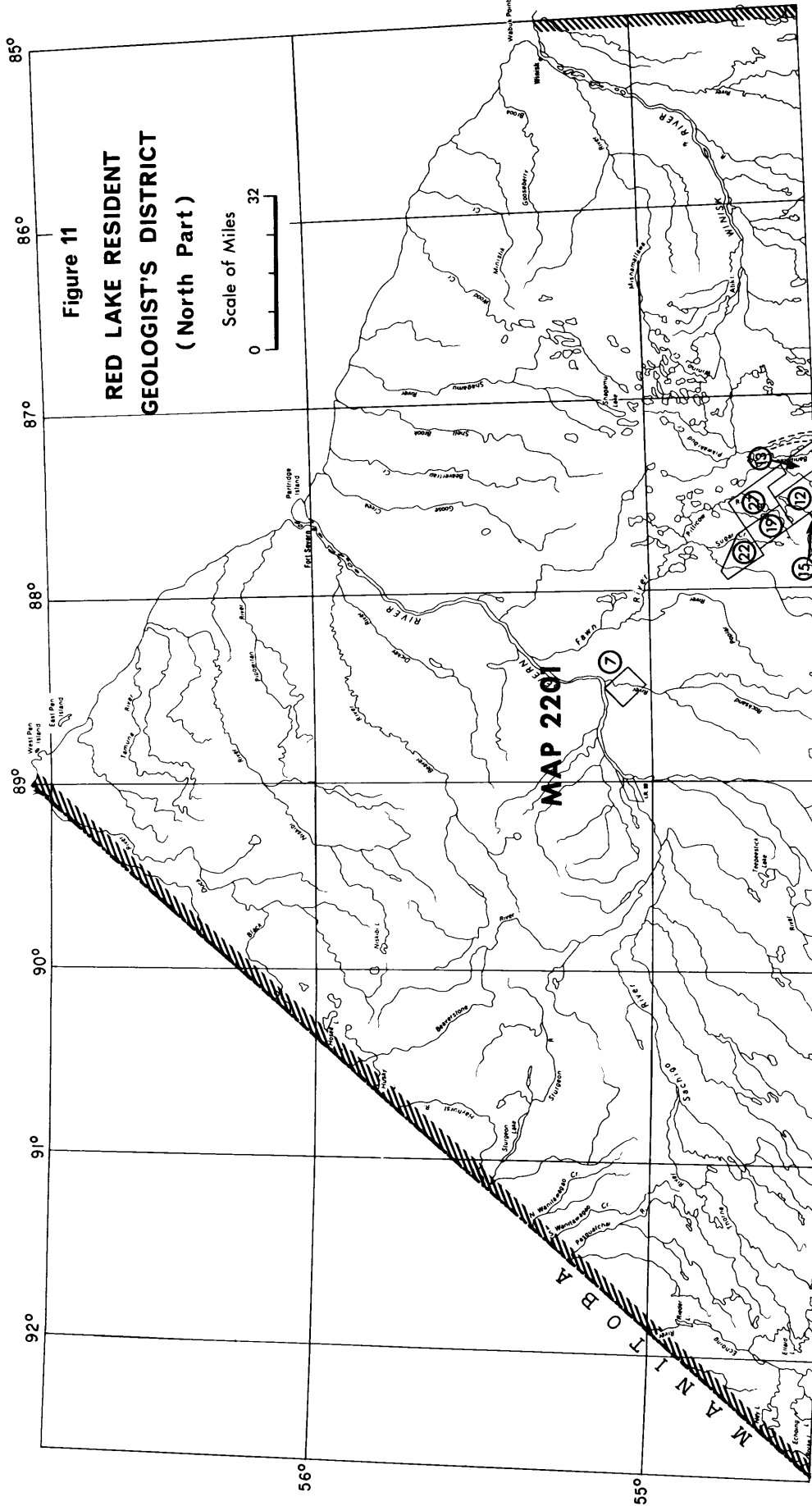


Figure 11
RED LAKE RESIDENT
GEOLOGIST'S DISTRICT
(North Part)

Scale of Miles
0 32

ODM 4904, MP50

Adjoins Figure 9 & 10

EXPLANATION

- 48 Exploration activity
- ⊕ Exploration permit
- ⊕ (A2) Airborne geophysical survey on open file
- ⊙ Diamond drill hole, depth in feet
- R - Recent
- Pl - Pleistocene
- Pal - Paleozoic

- ▨ New maps and (or) reports (with number)
- P - Preliminary map
- OFR - Open File Report
- Map 2199 - Ontario Geological Map
- Map 2201 - Ontario Geological Map
- ▨ Boundary of Resident Geologist's District

RED LAKE DISTRICT

By

R.A. Riley¹

RESIDENT GEOLOGIST'S ACTIVITIES

Field work consumed a large part of the Red Lake Resident Geologist's time during 1971. The major field undertaking consisted of detailed mapping of Todd and Fairlie Townships in the Red Lake area at a scale of 1 inch to 1,000 feet (Riley 1971). In addition, detailed mapping was begun in Byshe and Willans Townships and some areas of Ball Township were re-examined. Approximately 15,000 feet of bore hole logging was carried out in the Winisk River area on Exploratory Licences granted to several major exploration companies in late 1970 (Riley 1970; Riley *et al.* 1971). In addition, several thousand feet of drill core were examined in the Red Lake area in conjunction with geological mapping and in assistance of local prospectors. Visits were made to the North Spirit Lake property of Spirit Lake Mines Limited where investigation of a chalcopyrite deposit in quartz diorite is underway; to the Rexdale property of Copper-Lode Mines Limited in order to examine some newly exposed mineralization; to the Kapkichi Lake property of Union Miniere Exploration and Mining Corporation Limited where an impressive copper-nickel discovery is undergoing detailed diamond drilling; and to South Bay Mines Limited where the newly developed ore zones and the associated wall-rocks were examined underground.

Consultation on various aspects of geology and mineral exploration in northwestern Ontario proved to be the most actively solicited service provided by the writer. This service and routine office matters absorbed much of the time allocated to office duties. Work was continued on a detailed preliminary geological map of Ball Township and the production of detailed preliminary geological maps of Todd and Fairlie Townships was initiated; recompilation of geological data in Balmer Township was also begun. As part of a long range study of mineral deposits in the Red Lake metavolcanic-metasedimentary belt, preliminary cataloging and indexing of described mineral deposits in this area was undertaken. Cataloging of approximately 1,150 drill core specimens submitted for assessment credit from several areas of the Red Lake Resident Geologist's District was completed during November. It is expected that these specimens will form the basis for an extensive core library of the Red Lake District.

In March, the writer, in conjunction with Mr. H.L. King and Mr. C.R. Kustra, Resident Geologists in Kenora and Thunder Bay respectively, presented a paper to the 39th Annual Convention of the Prospectors and Developers Association in Toronto. This paper was subsequently enlarged and published by the Ontario Department of Mines and Northern Affairs (Riley *et al.* 1971).

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Manuscript accepted for publication February 29, 1972.

The writer also attended the Canadian Institute of Mining and Metallurgy Annual General Meeting in Quebec City in April and the Eighth Annual Western Inter-University Geological Conference in Winnipeg in October.

In October, Mr. Sean Daly, a graduate in geology from the University of British Columbia, joined the Department as Geological Technician in the Red Lake office.

OTHER GEOLOGICAL BRANCH ACTIVITY

The Geological Surveys Section of the Department had more field parties active in the area of the Red Lake Resident Geologist's District during 1971 than in any other previous year. L.D. Ayres carried out detailed mapping in the Northwind Lake area east of Favourable Lake. K.G. Fenwick completed a three-year detailed mapping program in the Lang Lake-Gitchie River area. A.P. Pryslak commenced a two-year mapping program in the Skinner-Goodall Townships area of the Birch-Uchi Lakes metavolcanic-metasedimentary belt. W.J. Wolfe investigated felsic intrusive stocks in the Red Lake and Setting Net Lake areas as part of a geochemical study of these bodies in various parts of Ontario. J. Wood began long range study of the North Spirit Lake metavolcanic-metasedimentary belt with detailed mapping in the vicinity of North Spirit Lake. In addition, P.C. Thurston, R.P. Sage, and G.M. Siragusa acted as co-leaders on Operation Winisk Lake, a helicopter-supported geological reconnaissance operation covering about 24,500 square miles in the Big Trout Lake-Winisk Lake-Wunnummin Lake areas. Reference to brief summary reports covering the above field programs can be found in the 'Publications - 1971' section of this report.

The Data Retrieval and Education Section conducted mineral exploration classes at several isolated settlements in the northern and northeastern parts of the Red Lake District in 1971. During February and March, these classes were conducted by Mr. Albert Hanson at Pikangikum, Poplar Hill, Deer Lake, Sandy Lake, and North Spirit Lake and by Mr. David Watson at Fort Hope, Lansdowne House, and Webequi.

MINING ACTIVITY

During 1971, four district mines maintained continuous production; production commenced at a fifth property; and three mining companies curtailed production operations. The principal developments at the various mines during the year are briefly outlined below.

Campbell Red Lake Mines Limited

Production at Campbell Red Lake Mines Limited during 1971 showed a significant increase over 1970 with 303,045 tons milled, compared to 262,027 tons in 1970, from which 196,237 ounces were recovered in contrast to a recovery of 178,974 ounces in 1970. Exploration was carried out on several of the upper levels of the mine and was primarily confined to the extension of known veins and ore zones. Shaft sinking to a depth of 4,325 feet was

completed during the first week of November with installation of a loading pocket underway early in the new year.

Cochenour Willans Gold Mines Limited

(Including Annco Mines Limited and Wilmar Mines Limited)

Production figures for Cochenour Willans Gold Mines Limited and the adjoining properties of Annco Mines Limited and Wilmar Mines Limited, both controlled by Cochenour and mined through the Cochenour shaft, are given below:

<u>Property</u>	<u>Tons milled</u>	<u>Au/oz.</u>	<u>Ag/oz.</u>
Cochenour	14,719	3,378.103	243.52
Annco	8,411	2,742.473	135.61
Wilmar	<u>44,581</u>	<u>12,008.275</u>	<u>20,766.17</u>
Total	67,711	18,128.851	21,145.30

1971 saw the closing of the Annco (1965-1971), Wilmar (1967-1971), and Cochenour (1939-1971) mining operations, the former two officially suspending operations as of September 30, the latter as of December 31. Although the demise of any mine is a depressing situation, to witness it is particularly more poignant in respect to Cochenour. For 32 years this mining company carried out a difficult yet generally successful struggle against the high cost of production due to the small and sporadic nature of its orebodies and, in later years, against the problem of rising costs versus a fixed price for its product. A fitting epitaph for such a valiant effort appeared in the form of some statistics in an editorial in an issue of The Northern Miner and they are herein repeated in an expanded format.

Income

Stock sales	\$ 3,046,085
Production	<u>45,008,386</u>
	\$48,054,471

Disbursements

Wages, salaries, pensions, etc.	\$19,573,000	40.8%
Supplies, materials & services	7,947,006	16.5%
Dividends	6,201,000	12.9%
Taxes	2,608,000	5.4%
Investment in Subsidies (Annco & Wilmar)	2,382,994	5.0%
Machinery & Equipment	1,982,895	4.1%
Electrical Power	1,697,000	3.5%
Contract Diamond Drilling	1,559,000	3.3%
Townsite	1,482,300	3.1%
Outside Exploration	1,194,000	2.5%
Mine Shafts	640,000	1.3%
Mine Buildings	517,078	1.1%
Mining claims, licenses	<u>246,426</u>	<u>0.5%</u>
	<u>\$48,030,699</u>	<u>100.0%</u>

These figures certainly underline the substantial contribution made by Cochenour Willans Gold Mines Limited to the local, provincial, and federal economy during the life of the mine. Further, they indicate that the effect of the "small" mining company on the economy is substantial and that all three levels of government must take cognizance of this fact and legislate accordingly.

Dickenson Mines Limited

(Including Robin Red Lake Mines Limited)

Dickenson Mines Limited milled 122,347 tons during 1971 from which production of 61,225.938 ounces of gold was recovered. Due to a severe shortage of underground miners, the milling rate for 1971 showed a downward trend to 407 tons/day from 459 tons/day in 1970. Underground exploration, as well as defining new veins along the hanging-wall and footwall of known ore zones, traced the downdip extension of the "South C" orebody to the 23rd level. A drive on Dickenson's 23rd level toward the southwest part of the property was undertaken during the year and underground exploration of this area will continue during 1972.

Production from the Robin Red Lake Mines Limited property totalled 21,006.367 ounces from 26,289 tons milled. Milling is presently carried out in the Dickenson mill at a rate of about 100 tons/day. During 1971, pre-production stope preparation on the Robin property was finalized, an internal ore-pass driven between the 17th and 20th levels, and minor extensions to known ore zones outlined. Exploration drifting into the Robin property was also carried out from Dickenson's 24th, 26th, and 30th levels.

During the last two months of 1971, Dickenson withdrew from the federal government's program of cost-aid and sold its production on the open market, a practice followed by Robin throughout 1971 due to its ineligibility for government assistance. Providing both mine production and the free market price of gold are maintained, the continuation of this practice during 1972 could mean increased revenues for Dickenson.

The Griffith Mine

Crude ore production at The Griffith Mine during 1971 amounted to 4,561,064 long tons from which 1,366,205 long tons of pellets containing 67.27 percent Fe and 2.97 percent SiO₂ were produced. In total, some 6,535,022 long tons of material were moved in the year's operation. During the year, Stelco reduced its critical requirement for pellet SiO₂ from 4.5 percent to 3.2 percent and meeting this new requirement resulted in a slight loss in plant efficiency. Iron unit recovery was subsequently improved by introducing fine screens in the mill circuit between the hydroseparators and the finishing magnetic separators.

Other developments at the mine included the erection of a new pumping station on the Troutlake River, the completion of the North Perimeter dike with the construction of the final 4,000-foot segment for a total length of

about 15,500 feet, and further diamond drill exploration of the south orebody in order to better define the orebody and establish pit limits. A program of tailings reclamation was instigated in co-operation with the Department of Lands and Forests, and, for aesthetic purposes, some 165 acres on the mine site were cleared.

Madsen Red Lake Gold Mines Limited

Madsen Red Lake Gold Mines Limited produced approximately 44,500 ounces of gold from 146,162 tons milled during 1971 in contrast to 40,572 ounces from 184,530 tons milled in 1970. Exploratory diamond drilling of the No. 8 zone continued during the year and the new zone was further developed by a crosscut from the shaft on the 25th level. In the older section of the mine raises were being driven or are planned on the 12th, 18th, and 20th levels, and a crosscut was being driven on the 22nd level in order to open up new ore potential.

South Bay Mines Limited

Production at the Confederation Lake property of South Bay Mines Limited commenced on March 3. By year end, 138,719 tons of ore had been treated in the mill and 14,438 tons of copper concentrate and 26,530 tons of zinc concentrate shipped. Average daily production for the year was about 456 tons per day but the planned production level of 500 tons per day was being maintained at year end. During 1971, the shaft was deepened 296 feet to its present depth of 717 feet; the decline extended from the 150-foot to the 300-foot level, and levels established at the 300-foot and 600-foot horizons. Underground production, employing long-hole cut and fill, and shrinkage mining methods in conjunction with load-haul-dump equipment, is presently coming from the 150-foot and 300-foot levels. Exploration on the 600-foot level during the year added substantially to the ore reserve picture.

EXPLORATION ACTIVITY

The pace of exploration in the District slowed somewhat during 1971 as a result of several closely interacting economic factors including a rather unsteady economic climate in Canada, uncertainty in regard to pending Canadian tax legislation, relatively unexciting prices for most metals, and the decision of several major American exploration companies to either abandon or else cut back their Canadian exploration programs. The most active areas were the Winisk River area where several companies were exploring ground acquired by exploratory licence from the Ontario Department of Mines and Northern Affairs; the Muskrat Dam Lake area where Canadian Nickel Co., Canadian Onex Ltd., Serem Ltee., and Texas Gulf Sulphur Company were following up airborne geophysical surveys with ground geophysical surveys and diamond drilling; and the Pickle Lake area where several companies, notably Union Miniere Exploration and Mining Corporation Ltd., Canadian Nickel Company, and Conwest Exploration Company Ltd., were following up airborne geophysical surveys with ground geophysical surveys and diamond drilling. A list of exploration activities known to be carried out in the Red Lake Resident Geologist's District is given in Table 11.

Table 11 Exploration Activity in 1971

The following is a list of companies and individuals engaged in exploration within the District in 1971 and the type of work known to be undertaken in each case. The numbers correspond to the various numbered areas on Figures

<u>Individual or Company</u>	<u>Activities</u>
1. Alexander Red Lake Mines Ltd.	EM and mag surveys and diamond drilling in central Balmer Tp.
2. Algoma Steel Corporation Ltd., The	Mag surveys and diamond drilling in the Lang Lake area.
3. Amoco Canadian Petroleum Co. Ltd.	Diamond drilling in the vicinity of Washi and Makokibatan Lakes.
4. Biron Bay Gold Mines Ltd.	EM and mag surveys and diamond drilling in central Ball Tp.
5. Bohme, J. D. S.	Geophysical and geological investigations in central Earngey Tp.
6. Canadian Nickel Co.	EM and mag surveys, geological surveys, and diamond drilling in the Owen, Springer, Rowlandson, Michikenopik, Nibinamik, and Wunnummin lakes area and in the area of Peagwon Creek. EM and mag surveys and diamond drilling in the Munekun Lake, Muskrat Dam Lake, and Severn River areas. Airborne and ground EM and mag surveys and diamond drilling in Connell and McCullagh Tp. and in the Otokwin River and Collishaw Lake areas. Airborne and ground EM and mag surveys, Turair surveys and diamond drilling in the Winisk River area. Diamond drilling in the Misikeyask Lake area. Geophysical investigations in the Lingman Lake area.
7. Canadian Onex Mines Ltd.	Diamond drilling in the Severn River-Muskrat Dam Lake area.
8. Canex Aerial Exploration Ltd.	Airborne mag and Turair surveys and ground mag and IP surveys in the Severn River area of the Hudson Bay Lowlands (Permit 7).
9. Cochenour Explorations Ltd.	Diamond drilling in west central Ball Tp; EM survey in north central Byshe Tp; prospecting and trenching in the Hornby-Kennedy lakes area.
10. Cochenour Willans Gold Mines Ltd.	Mag, resistivity, and IP surveys and diamond drilling in the northeast part of Mulcahy Tp; EM and mag surveys and diamond drilling in the Wesleyan Lake area.
11. Coin Lake Gold Mines Ltd.	IP survey and diamond drilling in northwest Heyson Tp. and southwest Dome Tp.
12. Cominco Ltd.	Airborne EM and mag surveys in the Winisk River area (Permit 8); airborne EM and mag surveys in the Fort Hope area.
13. Conwest Exploration Co. Ltd.	Airborne and ground EM and mag surveys and diamond drilling in the Pickle Lake area; diamond drilling in the Miminiska Lake area.
14. Copper-Lode Mines Ltd.	Trenching in the Snakeweed Lake area.
15. Denison Mines Ltd.	Airborne and ground EM and mag surveys, and diamond drilling in the Winisk River area (Permit 17).
16. Desmeulles, G.	Prospecting in Goodall, Honeywell, and Dent Tp.
17. Ducanex Resources Ltd.	Geological and geophysical investigations in the Favourable Lake area.
18. Ethyl Corporation of Canada Ltd.	Airborne and ground EM and mag surveys and Turam surveys in the Winisk River area (Permit 16).
19. Exdeco Ltd.	Diamond drilling in the Stone Lake area.
20. Gay, E.	Trenching in north central Byshe Tp.
21. Golden Arm Mines Ltd.	EM and mag surveys in Skinner Tp.
22. Hanna Mining Co., The	EM, mag, and geological surveys and diamond drilling in the Lang Lake area.
23. Hanson Mines Ltd.	Air and ground EM and mag surveys in the Winisk River area (Permits 26, 29).
24. Hermiston, W.	Trenching in central Balmer Tp.
25. Hoey, F.	General prospecting in the McVicar Lake area.

<u>Individual or Company</u>	<u>Activities</u>
26. Hudson's Bay Oil and Gas Co. Ltd.	Geological and geochemical investigations in the Exit Bay area of Birch Lake.
27. Initiative Explorations Ltd.	EM and mag surveys in the Lang Lake area.
28. James Bay Mining Corporation	EM and mag surveys in and north of Connell Township.
29. Johnson, E.	Geological survey and trenching in the Seeber Lake area.
30. Kennco Explorations (Canada) Ltd.	Airborne mag and Turair and ground EM and mag surveys and diamond drilling in the Winisk River area (Permit 6).
31. Kerr Addison Mines Ltd.	Geological investigations in the North Spirit Lake area.
32. Kostynuk, A.	Trenching in the northeast corner of Baird Tp.
33. Kostynuk, M.	EM and mag surveys and diamond drilling in the Brownstone Lake area.
34. Madsen Red Lake Gold Mines Ltd.	Airborne EM and mag surveys in Baird, Heyson, and Byshe Tp; diamond drilling in east central Baird Tp; diamond drilling in Fairlie Tp; geophysical investigations in west central Heyson Tp.
35. McIntyre Porcupine Mines Ltd.	Airborne and ground EM and mag surveys and VLFEM, IP, and Turam reconnaissance surveys in the Winisk River area (Permit 9).
36. Mextor Minerals Ltd.	Diamond drilling in the Sydney Lake area.
37. Muscocho Explorations Ltd.	EM and mag surveys and diamond drilling in Belanger Tp.
38. New Jersey Zinc Exploration Co. (Canada) Ltd.	Diamond drilling in the McVicar Lake area.
39. Noranda Exploration Co. Ltd.	Geological survey in the Bluffy Lake area; prospecting in the Cherrington Lake area and the Derniere Lake area.
40. Nordev Mines Ltd.	Airborne EM and mag and ground reconnaissance EM on the Matt Berry Mines Ltd. and Silver Key Mines Ltd. permits in the Winisk River area (Permits 20, 21).
41. Parvus Mines Ltd.	EM survey in northeast Baird and southeast Fairlie Tp.
42. Peterson, Chas.	Prospecting and diamond drilling in central Balmer Tp.
43. Phelps Dodge Corporation of Canada Ltd.	Airborne and ground EM and mag surveys in the Agutua Arm area of Weagamow Lake.
44. Pine, F.	Prospecting in southeast Fairlie Tp.
45. Prieston, E.	Trenching and diamond drilling on the Papaonga River north of Whitemud Lake.
46. Rexdale Mines Ltd.	Airborne and ground EM and mag surveys and diamond drilling in the Fort Hope area.
47. Selco Exploration Company Ltd.	Diamond drilling, EM and mag surveys in the Keezhik-Miminiska-Opikeigan-Reserve lakes area; airborne and ground EM and mag surveys, IP, Turam, and VLFEM reconnaissance surveys, and diamond drilling in the Winisk River area (Permits 10, and 11).
48. Serem Ltee.	Diamond drilling in the Stull Lake area; EM and mag surveys and diamond drilling in the Muskrat Dam Lake-Severn River area.
49. Sherritt Gordon Mines Ltd.	Airborne geophysical investigations in the Sherman Lake area and the Seeber Lake area.
50. Silvermaque Mining Ltd.	Diamond drilling in the southeast part of Fairlie Tp.
51. Smith, D.	EM survey in southeast Todd Tp.
52. South Bay Mines Ltd.	Diamond drilling in Belanger, Dent and Mitchell Tp.
53. Spirit Lake Mines Ltd.	EM, mag, and geological surveys and diamond drilling in the North Spirit Lake area.
54. Sudbury Contact Mines Ltd.	Diamond drilling in the Birch Lake area.
55. Saganaqueb, S.	Prospecting and trenching in the Sourdough Rapids area of the Ashweig River.
56. Texas Gulf Sulphur Company Inc.	Diamond drilling in the Muskrat Dam Lake-Severn River area.
57. Tuff, S.	Prospecting in the McVicar Lake area.
58. Transterre Explorations Ltd.	EM and mag surveys in Connell and McCullagh townships and in the Tarp Creek area north of Connell Township.
59. Union Miniere Explorations and Mining Corp. Ltd.	Diamond drilling in the Kapkichi Lake-Ponsford Lake area.
60. Vanco Exploration of Ontario Ltd.	EM and mag surveys and diamond drilling in Corless, Skinner and Goodall Tp.

Exploration Assistance Program

On September 1, the Ontario Department of Mines and Northern Affairs, in an effort to provide an economic stimulus to some of the province's gold mining camps, instigated the Exploration Assistance Program designed to aid prospectors and junior mining companies carrying out exploration programs in the Geraldton-Beardmore, Kirkland Lake, and Red Lake areas. In October, the program was enlarged to include the Cobalt area. Under the terms of the program, the government will limit its participation to a maximum of one-third of the total cost of an individual exploration program. Maximum government assistance for any one application is \$33,333.33.

In the Red Lake area, six applications for assistance have been approved by the Department of Mines and Northern Affairs as of December 31, 1971. Total costs of these proposed programs is estimated at \$281,110.00 for which the government is committed for a maximum of \$93,703.33.

The following programs have been approved for the Red Lake area:

- a) Cochenour Willans Gold Mines Limited
 1. Geochemical and geophysical surveys and diamond drilling in the Skookum Bay area of Dome and Heyson Townships.
 2. Geophysical surveys and diamond drilling in the Trout Bay area of Ball and Mulcahy Townships.
- b) Madsen Red Lake Gold Mines Limited
Geophysical surveys and diamond drilling in Baird and Heyson Townships.
- c) C. Fuller Pine
Diamond drilling in Fairlie Township.
- d) Parvus Mines Limited
Geophysical surveying and diamond drilling in Baird, Fairlie, and Heyson Townships.
- e) C.D. Huston and Sons
Geological and geophysical surveys and diamond drilling in Todd and Fairlie Townships.

If any of the above programs should lead to the discovery of a body of mineralization whose exploitation is economically feasible, the conditions of the assistance program necessitate that the amount of assistance granted to the company be repaid to the government. If, however, nothing of economic importance is discovered on the ground under exploration by the company receiving exploration assistance, then the assistance is considered to be in the form of a forgivable loan and repayment is not required.

New Mineral Potential in the Pickle Lake Area

At the annual meeting in Brussels in late May, officials of Union Miniere S.A. announced that that company's Canadian exploration arm, Union Miniere Exploration and Mining Corporation Limited, had made a discovery of "several million tons" of copper-nickel mineralization containing about 1.4 percent copper and 0.2 percent nickel. The discovery was reported to be located north of Kapkichi Lake in the Pickle Lake area of Ontario. At that time the deposit had been investigated with about 30 diamond drill holes and drilling was to continue into the latter part of the year.

ACCESS ROADS

The Department of Transportation and Communication continued work on two northerly access roads in the Red Lake Resident Geologist's District during 1971. In the south-central part of the Red Lake District, the access road toward the Wendigo Lakes from Central Patricia has now been grade-completed for a distance of 113 miles to about 20 miles northwest of the Pipestone River. Another 10 miles of right-of-way has been cleared and grade-completion for this section is scheduled for 1972. In the southwestern part of the District, the access road north from Balmertown has been completed for a distance of 47 miles and another 10 miles of right-of-way cleared in preparation for grade construction during 1972.

NEW INFORMATION

Publications - 1971

The following is a list of publications released in 1971 which pertain, in whole or in part, to the Red Lake District:

Ayres, L.D.

- 1971a: Northwind Lake area, District of Kenora (Patricia Portion); p.3-9 in Summary of field work, 1971, by the Geological Branch, edited by E.G. Pye, Ontario Dept. Mines and Northern Affairs, MP49, 109p.
- 1971b: Geology of the Trout Lakes area, District of Kenora (Patricia Portion); Ontario Dept. Mines and Northern Affairs, OFR5086, 272p. Accompanied by 2 maps, 37 tables and 28 figures.

Ayres, L.D., and Averill, S.A.

- 1971a: The Setting Net Lake Stock - an early Precambrian porphyry molybdenum deposit (abstract); p.2-3 in Abstract of Papers, GAC-MAC Annual Meeting, Sudbury, Ontario, 80p.

Ayres, L.D., Lumbers, S.B., Milne, V.G., and Robeson, D.W.

- 1970: Ontario Geological Map, West Central and Northwest Sheets; Ontario Dept. of Mines and Northern Affairs, Maps 2199 and 2201, scale 1 inch to 16 miles. Compiled 1970.

Fenwick, K.G.

- 1971: Lang-Cannon Lakes area (central part), District of Kenora (Patricia Portion); Ontario Dept. Mines and Northern Affairs, Prelim. Map P.665, Geol. Ser., scale 1 inch to 1/2 mile.

Fenwick, K.G., and Srivastava, P.

- 1971: Lang-Cannon Lakes area, District of Kenora (Patricia Portion); p.22-24 in Summary of field work, 1971, by the Geological Branch, edited by E.G. Pye, Ontario Dept. Mines and Northern Affairs, MP49, 109p.

Ferguson, Stewart A.

- 1971: Columbium (Niobium) Deposits of Ontario; Ontario Dept. Mines and Northern Affairs, MRC14, 58p. Accompanied by Prelim.Map P.452 (revised).

Ferguson, S.A., Groen, H.A., and Haynes, R.

- 1971: Gold Deposits of Ontario; Ontario Dept. Mines and Northern Affairs, MRC13, 315p.

Pryslak, A.P.

- 1971a: Corless Township, District of Kenora (Patricia Portion); Ontario Dept. Mines and Northern Affairs, Prelim. Map P.634, Geol. Ser., scale 1 inch to 1/4 mile.
1971b: Knott Township, District of Kenora (Patricia Portion); Ontario Dept. Mines and Northern Affairs, Prelim. Map P.635, Geol. Ser., scale 1 inch to 1/4 mile.
1971c: Narrow Lake-Shabumeni River area (Skinner and Goodall Townships), District of Kenora (Patricia Portion); p.24-27 in Summary of field work, 1971, by the Geological Branch, edited by E.G. Pye, Ontario Dept. Mines and Northern Affairs, MP49, 109p.

Riley, R.A.

- 1971a: Red Lake District; p.57-86 in Annual report of Resident Geologists' Section, Geological Branch, edited by G.R. Guillet, Ontario Dept. Mines and Northern Affairs, MP46, 175p.
1971b: Todd and Fairlie Townships, District of Kenora (Patricia Portion); p.27-30 in Summary of field work, 1971, by the Geological Branch, edited by E.G. Pye, Ontario Dept. Mines and Northern Affairs, MP49, 109p.

Riley, R.A., King, H.L., and Kustra, C.R.

- 1971: Mineral exploration targets in northwestern Ontario; Ontario Dept. Mines and Northern Affairs, MP47, 72p.

Thurston, P., Sage, R.P., and Siragusa, G.M.

- 1971: Operation Winisk Lake, District of Kenora (Patricia Portion); p.13-22 in Summary of field work, 1971, by the Geological Branch, edited by E.G. Pye, Ontario Dept. Mines and Northern Affairs, MP49, 109p.

Wood, J.

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Assessment Data Received 1971

Table 12 is a list of all assessment data received at the Red Lake Resident Geologist's office in 1971. Table 13 and Figures 9, 10, and 11 provide detailed information on all airborne geophysical data received at the Red Lake Resident Geologist's office in 1971. The data in these tables have been compiled as a matter of general interest and as a source of reference for the mining and exploration public.

Winisk River Area

Although all the data collected by the various exploration companies working in the Winisk River area during 1971 had not been submitted to the Department by the end of the year, the data available, particularly diamond drill information, provide some new insights into the geology of the area. A more comprehensive report on the results of the first year's work on the Winisk River area is presently being compiled for release later in 1972.

Diamond drilling on Permits 6, 17, and 18 indicate the absence of overlying Paleozoic rocks in these areas and necessitates a reinterpretation of the Paleozoic-Precambrian boundary in this area (see Figure 10) to a configuration somewhat similar to that proposed by Hobson (1968). Lower Ordovician rocks, ranging from about 25 to 150 feet thick and consisting predominantly of massive to vuggy carbonate, with minor siltstone, and a thin basal sandstone, were indicated by drilling to at least partly overlie the Precambrian basement on Permits 8, 10, and 11. Pleistocene and Recent sediments in the vicinity of the drill holes range from approximately 175 to 370 feet thick (Figure 10). A blue-grey tacky Pleistocene clay was recovered from some holes and the presence of a few cobbles and pebbles of both carbonate and granitic rocks at a few drill sights suggests the presence of Pleistocene till at least locally.

Precambrian rocks encountered in drill holes on Permits 10, 11, 17, and 18 were, for the most part, granitic in nature. The predominant rock type on Permits 10, 11, and 17 was a pink, porphyritic to equigranular, massive to poorly foliated medium-grained granitic rock with a variable quartz and mafic mineral content. An estimation of the mode of a specimen of this rock from Permit 17 by petrological examination (Wahl 1971) indicates the rock to be a hornblende granite. As also reported by Wahl (1971) the magnetic susceptibility of several samples of this granite are within the range of those common to North American serpentinites. A few minor granitic dikes were present in all holes on Permits 10, 11, and 17 and two of the holes on Permit 17 also contained a few narrow, fine-grained mafic dikes which have tentatively been interpreted as diorite. The logs submitted for the drill hole on Permit 18 indicated medium-grained granite and granodiorite to be the predominant rock types intersected.

Table 12 Assessment Work and Other Reports Received in 1971

Abbreviations:

Air	- Airborne	Mag	- Magnetometer survey
Afmag	- Afmag survey	Rad	- Radiometric survey
BM	- Base Metals	Radem	- Radem survey
cs	- core samples	SP	- Self potential survey
DD(6) - 410'	- 6 diamond drill holes totalling 410'	Tr	- Trenching
EM	- Electromagnetic survey	Turair	- Turair survey
GL	- Geological survey	Turam	- Turam survey
IP	- Induced polarization survey	VLfEM	- Very low frequency electromagnetic survey

Note: Areas, as herein listed, do not necessarily refer to claim maps.

Area	Ownership	Data	Metals Sought	NTS	File Number
Agnew-Costello Tp.	Sheridan, J. P.	EM/1969-1970.	BM	52N/2	Agnew Tp.
Balmer Tp.	Cochenour Exploration Ltd. (Kostynuk Option)	EM, Mag/1970.	BM,Au	52N/4	Balmer Tp.
	Peterson, Chas.	EM/1970.	BM	52N/4	Balmer Tp.
Belanger Tp.	Copper-Lode Mines Ltd.	DD(18) - 11,781'/1969. DD(2) - 751'/1970.	Cu,Ag	52K/15	Belanger Tp.
	Muscocho Explorations Ltd.	EM, Mag/1971.	Cu,Zn,Ag	52K/15	Belanger Tp.
	South Bay Mines Ltd.	DD(1) - 380'/1970. DD(1) - 610'/1971.	BM	52K/15	Belanger Tp.
	Zinc Metal Corporation Ltd.	Air EM, Air Mag/1968.	BM	52K/15	Belanger Tp.
Bowerman Tp.	Rouyn Exploration Ltd.	SP/1970.	BM	52K/15	Bowerman Tp.
Dent Tp.	Canex Aerial Exploration Ltd. (Dalhousie Oil Option)	GL, DD(1) - 502'/1970.	BM	52N/2	Dent Tp.
	Selco Exploration Co. Ltd.	EM/1970.	BM	52N/2	Dent Tp.
	South Bay Mines Ltd.	DD(2) - 1582'/1969. DD(1) - 621'/1970.	BM	52N/2	Dent Tp.
Earngey Tp.	Sheridan, J. P.	EM/1969-1970.	BM	52N/2	Earngey Tp.
Earngey-Birkett Tp.	Falconbridge Nickel Mines Ltd.	Mag/1970.	BM	52N/2	Earngey Tp.
Fairlie Tp.	Madsen Red Lake Gold Mines Ltd. (Pine Option)	EM, Mag/1970.	BM	52N/4	Fairlie Tp.
	Pine, F.	Tr/1971.	BM	52N/4	Fairlie Tp.
	Silvermaque Mining Ltd. (Pine Option)	DD(1) - 1370'/1971.	BM	52N/4	Fairlie Tp.
Goodall Tp.	Falconbridge Nickel Mines Ltd.	Afmag/1970.	BM	52N/2	Goodall Tp.
McCullagh Tp.	Canadian Nickel Co.	DD(2) - 344'/1971.	BM	52P/12	McCullagh Tp.
McNaughton Tp.	Huston, C. C.	EM, Mag/1969.	BM	52N/2	McNaughton Tp.
Mitchell Tp.	Sheridan, J. P.	EM/1969-1970.	BM	52N/2	Mitchell Tp.
	South Bay Mines Ltd.	DD(2) - 826'/1970. DD(5) - 2215'/1970. DD(2) - 1121'/1971.	BM	52N/2	Dent Tp. Mitchell Tp.
Mitchell-Earngey Tp.	Selco Exploration Co. Ltd. (Columbiere Option)	EM/1970.	BM	52N/2	Mitchell Tp.
Mulcahy Tp.	Cochenour Willans Gold Mines Ltd.	Tr/1970.	Cu,Zn,Ag	52M/1	Mulcahy Tp.
Ponsford Tp.	Canadian Nickel Co.	DD(2) - 381'/1971.	BM	52O/9	Ponsford Tp.
Todd Tp.	Smith, D. and Solterman, R.	Tr/1971.	BM,Au	52M/1	Todd Tp.
Todd-Killala Tp.	Coin Lake Gold Mines Ltd.	EM/1970, DD(6) - 3527'/1970.	BM	52M/1	Todd Tp.
Willans Tp.	Touchdown Syndicate (Selco-Cochenour)	EM/1970.	BM	52N/4	Willans Tp.
Bearhead Lake Area	Keevil Mining Group Ltd. (Cam-Tudale Options)	GL/1969-1970; Tr/1970. DD(1) - 300'/1967. DD(6) - 1153'/1968. DD(3) - 5333'/1969.	U	53C/13	53C/NW

Area	Ownership	Data	Metals Sought	NTS	File Number
Birch Lake Area	Falconbridge Nickel Mines Ltd. (Koezur Option)	Air EM, Air Mag/1969.	BM	52N/8	52N/SE
	Sudbury Contact Mines Ltd.	EM, Mag/1970. DD(3) - 1499'/1970. DD(3) - 1611'/1971.	Ni,Cu	52N/8	52N/SE
Brash (Keezhik) Lake Area	Selco Exploration Co. Ltd.	EM/1970.	BM	52P/15	52P/NE
Bluffy Lake Area	Noranda Mines Ltd.	EM, Mag/1970.	BM	52K/15	52K/NE
Bug Lake Area	Bertram, A. & Frank, R.	Tr/1971.	BM	52K/15	52K/NE
Carb Lake Area	Big Nama Creek Mines Ltd.	Mag/1967.	Nb,U,RE	52K/16 53J/13	53K/NE
Card (McVicar) Lake Area	Card Lake Copper Mines Ltd.	DD(1) - 529'/1970.	BM	520/11	520/NW
Dernier (Big Trout) Lake Area	Canadian Nickel Co.	DD(1) - 167'/1970.	BM	53J/1	53J/SE
Dixie Lake Area	Newmont Mining Corporation of Canada Ltd. (Caravelle Option)	DD(7) - 2756'/1970.	BM	52K/13	52K/NW
Firstloon Creek (Pickle Lake) Area	Canadian Nickel Co.	DD(1) - 161'/1971.	BM	52P/12	52P/NW
Fort Hope Area	Rexdale Mines Ltd.	Air EM, Air Mag/1971.	BM	42M/12	42M/NW
Fox Bay (Muskrat Dam Lake) Area	Canadian Onex Mines Ltd.	DD(3) - 1115'/1971.	BM	53G/4- 53F/1	53F/SE
	Texas Gulf Sulphur Co. Inc.	DD(3) - 702'/1971.	BM	53F/1	53F/SE
Gerry Lake Area	Erzgesellschaft, m.b.h. (Yorbeau Option)	EM, Mag, IP/1969. EM, Mag, GR/1970.	BM	52K/14	52K/NW
Goose River (Big Trout Lake) Area	Canadian Nickel Co.	DD(1) - 237'/1970.	BM	53I/4	53I/SW
Hewitt Lake Area	Noranda Exploration Co. Ltd.	EM, Mag/1969.	BM	53C/7	53C/SE
Kapkichi Lake Area	Union Miniere Explorations and Mining Corp. Ltd.	DD(4) - 2643'/1970. DD(10) - 6008'/1971.	Cu,Ni	520/8	520/NE
Kawinogans River Area	Canadian Nickel Co.	DD(3) - 560'/1971.	BM	52P/12	52P/NW
Keezhik Lake Area	Selco Exploration Co. Ltd.	EM, Mag/1970.	BM	52P/15- 10	52P/NE
Hornby Lake-Loree Lake Area	Coin Lake Gold Mines Ltd.	Air EM, Air Mag, Tr/1970.	U,BM	53C/5- 12	53C/NW
Kippen (Muskrat Dam) Lake Area	Texas Gulf Sulphur Co. Inc.	DD(1) - 256'/1971.	BM	53G/5	53G/SW
Lang Lake Area	Algoma Steel Corp. Ltd. (The)	GL, DD(2) - 60'/1970. DD(4) - 1405'/1971, cs	Fe	520/12	520/NW
	Bochawna Copper Mines Ltd.	EM/1969.	Cu,Ag,Mo	520/12	520/NW
	Hanna Mining Co., The	EM, Mag/1970. DD(2) - 998'/1971.	BM	520/12	520/NW
	Hanna Mining Co., The (Bochawna Option)	DD(11) - 5214'/1971.	Cu,Ag,Mo	520/12	520/NW
	Initiative Explorations Ltd.	EM, Mag/1971.	BM	520/12	520/NW
Luther (Keezhik) Lake Area	Selco Exploration Co. Ltd.	EM/1970.	BM	52P/15	52P/NE
MacDowell Lake Area	Selco Exploration Co. Ltd. (Green Option)	DD(5) - 669.5'/1970.	BM	53C/2- 7	53C/SE
Makoop River Area	Canadian Nickel Co.	DD(1) - 149'/1971.	BM	53G/6	53G/SW
McCoy Lake Area	McCoy Lake Mines Ltd.	Air EM, Air Mag/1970.	BM	53C/9	53C/NE
McVicar Lake Area	Amax Exploration, Inc.	EM, Mag/1970.	BM	520/11- 12	520/NW
	New Jersey Zinc Exploration Co. (Canada) Ltd.	DD(5) - 697'; GL rept./1971.	BM	520/11- 12	520/NW
Michikenopik (Wunnummin) Lake Area	Canadian Nickel Co.	DD(4) - 1861'/1971.	BM	53A/9	53A/NE
Miminiska Lake Area	Conwest Exploration Co. Ltd.	DD(2) - 161'/1971.	BM	52P/11	52P/NE

Area	Ownership	Data	Metals Sought	NTS	File Number
Misikeyask (Big Trout) Lake Area	Canadian Nickel Co.	DD(2) - 332'/1969. DD(2) - 564'/1970. DD(2) - 827'/1971.	BM	53G/16	53G/NE
Misquamaebin (Munekun) Lake Area	Canadian Nickel Co.	DD(2) - 1592'/1971.	BM	53G/6	53G/SW
Morrison River (Muskrat Dam Lake) Area	Canadian Nickel Co.	DD(1) - 151'/1971.	BM	53G/12	53G/NW
Munekun Lake Area	Canadian Nickel Co.	DD(6) - 1691'/1970. DD(6) - 3324'/1971.	BM	53G/6	53G/SW
Munekun River Area	Canadian Nickel Co.	DD(5) - 2412'/1970. DD(2) - 983'/1971.	BM	53G/6	53G/SW
Muskrat Dam Lake Area	Canadian Nickel Co.	DD(11) - 2503'/1970. DD(4) - 1218'/1971.	BM	53G/5	53G/SW
	Texas Gulf Sulphur Co. Inc.	DD(6) - 1921'/1971.	BM	53G/5	53G/SW
Muskrat Dam Lake (West) Area	Canadian Nickel Co.	DD(2) - 382.2'/1969. DD(7) - 3472'/1970.	BM	53G/5	53G/SW
	Texas Gulf Sulphur Co. Inc.	DD(1) - 270'/1971.	BM	53G/5	53G/SW
Nemeigusabins Lake Area	Canadian Nickel Co.	DD(9) - 3506'/1970.	BM	53H/5	53H/SW
Nesting (Keezhik) Lake Area	Selco Exploration Co. Ltd.	Mag/1970.	BM	52P/10	52P/NE
Nibinamik (Wunnummin) Lake Area	Canadian Nickel Co.	DD(9) - 4279'/1971. Mag/1971.	BM	53A/15	53A/NE
North Spirit Lake Area	Spirit Lake Mines Ltd.	GL rept., EM, Mag/1971.	BM	53C/7	53C/SE
Otoskwin River Area	Canadian Nickel Co.	DD(3) - 520'/1971.	BM	53P/12	53P/NE
Owen River Area	Canadian Nickel Co.	DD(5) - 1701'/1971.	BM	43D/6	43D/SW
Papaonga River Area	Prieston, E.	Tr, Rock drilling/1971.	Fe	52K/15	52K/NE
Peeagwon Creek Area	Canadian Nickel Co.	DD(10) - 2326'/1971.	BM	53A/10	53A/NE
Pickle Lake Area (east)	Union Miniere Explorations and Mining Corp. Ltd. Canadian Nickel Co. Ltd. Conwest Exploration Co. Ltd.	Air EM, Air Mag/1971.	BM	520/9 12	520/NE
Pike Lake Area	Canadian Nickel Co.	DD(3) - 497'/1971.	BM	53G/6	53G/SW
Ponsford Lake Area	Union Miniere Explorations and Mining Corp. Ltd.	DD(13) - 6218'/1970. DD(2) - 1074'/1971.	Cu,Ni	520/8	520/NE
Rain (Muskrat Dam) Lake Area	Canadian Nickel Co.	DD(4) - 689'/1970. DD(3) - 1799'/1971.	BM	53G/5, 6	53G/SW
	Texas Gulf Sulphur Co. Inc.	DD(2) - 676'/1971.	BM	53G/5	53G/SW
Redfern (Keezhik) Lake Area	Selco Exploration Co. Ltd.	EM/1970.	BM	52P/15	52P/NE
Sandhill Crane Island (Muskrat Dam Lake) Area	Canadian Nickel Co.	DD(1) - 489'/1970.	BM	53G/5	53G/SW
Schade River (Munekun Lake) Area	Canadian Nickel Co.	Mag/1971.	BM	53G/6	53G/SW
Seeber Lake Area	Johnson, E.	Tr/1971.	BM	53F/14	53F/NW
Setting Net Lake Area	Minorex Ltd.	EM, Mag/1970.	BM	53C/13	53C/NW
	Newconex Canadian Expl. Ltd.	EM, Mag/1970.	BM	53C/13	53C/NW
Severn River Area (Muskrat Dam Lake)	Canadian Nickel Co.	DD(1) - 121'/1969. DD(1) - 652'/1970. DD(7) - 1231'/1971.	BM	53F/1	53F/SE
	Canadian Onex Mines Ltd.	DD(3) - 1323'/1970. DD(1) - 406'/1971.	BM	53F/1	53F/SE
	Texas Gulf Sulphur Co. Inc.	EM, Mag, Radem/1970. DD(1) - 239'/1970.	BM	53F/1	53F/SE
Severn River Area (Lowlands)	Canex Aerial Exploration Ltd. (Permit 7)	Air Mag, Turair, IP, Mag	BM	53P/1	53P/SE
Shabumeni Lake Area	Northwest Explorers (1967) Ltd.	Air Rad/1969. EM, Mag, GL, Tr/1970. DD(1) - 205.6'/1970.	BM	52N/7	52N/SE
Springer Lake Area	Canadian Nickel Co.	DD(7) - 2174'/1971.	BM	43D/5	43D/SW

Area	Ownership	Data	Metals Sought	NTS	File Number
Stull Lake Area	Serem Ltee.	EM, Mag/1970.	BM	53K/7	53K/SE
Sydney Lake Area	Falconbridge Nickel Mines Ltd.	Afmag, EM, Mag/1970.	BM	52L/16	52L/NE
	Mextor Minerals Ltd.	Mag/1970. Tr, DD(3) - 1213'/1971.	Cu,Zn,Ag	52L/10	52L/NE
Troutlake River Area	Caravelle Mines Ltd.	DD(8) - 2944'/1970.	BM	52K/14	52K/NW
Uchi Lake Area	Dome Exploration (Canada) Ltd.	DD(8) - 2437'/1970.	BM	52N/2- 52K/15	52N/SE
Wesleyan Lake Area	Cochenour Willans Gold Mines Ltd.	EM/1971, DD(4) - 694'/1971.	BM	520/4	520/SW
Wettlaufer Lake Area	Card Lake Copper Mines Ltd.	EM, Mag/1970. DD(2) - 370'/1969. DD(6) - 2246'/1970.	BM	520/10	520/NE
Winisk River Area	Cominco Ltd. (Permit 8)	Mag, Turam, VLFEM/1970. Air EM, Air Mag/1971. DD(2) - 2066'/1970.	BM	43L/3	43L/SW
	Denison Mines Ltd. (Permit 17)	Air EM, Air Mag/1971. EM, Mag/1971. DD(3) - 2200'/1971.	BM	43E/15- 16 43L/2	43E/NE
	Ethyl Corporation of Canada Ltd. (Permit 16)	Air EM, Air Mag/1971. EM, Mag, Turam, 1971.	BM	43L/3	43L/SW
	Hanson Mines Ltd. (Permits 26, 29)	Air EM, Air Mag/1971. EM, Mag/1971.	BM	43E/9- 43F/12	43E/NE
	Kennco Explorations (Canada) Ltd. (Permit 6)	Air Mag, Turair, 1971. Mag, Turam/1971. DD(3) - 2119'/1971.	BM	43E/15- 16	43E/NE
	McIntyre Porcupine Mines Ltd. (Permit 9)	Air EM, Air Mag, 1971. EM, IP, Mag, Turam, VLFEM/1971.	BM	43E/15- 43L/2	43E/NE
	Selco Exploration Co. Ltd. (Permit 10)	Air EM, Air Mag/1971. EM, Mag/1971. DD(1) - 600'/1971.	BM	43L/3	43L/SW
	Selco Exploration Co. Ltd. (Permit 11)	Air EM, Air Mag/1971. EM, IP, Mag, Turam, VLFEM/1971. DD(1) - 800'/1971.	BM	43L/3	43L/SW
	Texas Gulf Sulphur Co. Inc. (Permit 18)	Air EM, Air Mag/1971. EM, Mag/1971. DD(1) - 390'/1971.	BM	43L/3	43L/SW
	Wunnummin Lake Area	Canadian Nickel Co.	DD(2) - 385'/1971.	BM	53A/15
Zionz Lake Area	Fort Reliance Minerals Ltd.	GL/1969.	BM	520/5	520/SW
Data Received from the Ontario Securities Commission					
Agnew Tp.	Colleen Copper Mines Ltd.	Prospectus	BM	52N/2	Agnew Tp.
Ball Tp.	Biron Bay Gold Mines Ltd.	EM, Mag, Prospectus/1970-71.	BM,Au	52M/1	Ball Tp.
Fairlie Tp.	Silvermaque Mining Ltd.	Prospectus/1971.	BM	52N/4	Fairlie Tp.
Lang Lake Area	Initiative Explorations Ltd.	Prospectus/1971.	BM	520/12	520/NW
Lang Lake- Wettlaufer Lake Area	Card Lake Copper Mines Ltd.	Summary Exploration Rept./70. Prospectus/1970.	BM	520/10- 11, 12	520/NE- 520/NW
Data Received from Other Sources					
Baird Tp.	Aiken-Russet Red Lake Mines Ltd.	GL, DD Rept/1968.	Au	52K/13	Baird Tp.
Balmer Tp.	Peterson, Chas. (Cordoba Mines Ltd.)	EM, Mag, Geol./1958-59. DD(19) - 2278'/1957. DD(21) - 12,565.5'/1958. DD(24) - 12,676'/1959.	BM,Au	52N/4	Balmer Tp.
Belanger Tp.	Copper-Lode Mines Ltd.	Summary Rept. (Fredart Lake)	Cu,Zn,Ag	52K/15	Belanger Tp.
Miminiska Lake Area	Algoma Steel Corp. Ltd., The	Mag/1965.	Fe	52P/10	52P/NE
Pickle Lake Area	Huston, C. C.	EM, Mag/1967.	BM	520/9	520/NE
Ponask Lake Area	Kennco Explorations (Canada) Ltd.	Air Mag/1959. DD(4) - 104'/1960.	BM	53F/15- 16 53K/2	53F/NE
Snakeweed Lake Area	Copper-Lode Mines Ltd.	Summary Rept. (Rexdale Group)	Cu,Ag	52K/15	52K/NE

Table 13

Detailed Information Regarding Airborne Geophysical Data Received in 1971

Survey locations can be determined by the position of the various numbers on Figures

NO.	COMPANY	CONTRACTOR	TYPE	EQUIPMENT	YR.	AREA	FILE
7.	Canex Aerial Exploration Ltd.	Seigel Associates	Turair MAG	Sintrex TAR-1 Sintrex MAP-2	1971	Severn River (Permit 7)	53P/SE
11.	Selco Exploration Co. Ltd.	Questor	EM MAG	Barringer Mark V Input Barringer AM-101A	1971	Winisk River (Permit 11)	43L/SW
18.	Texas Gulf Sulphur Co. Inc.	Questor	EM MAG	Barringer Mark V Input Barringer AM-101A	1971	Winisk River (Permit 18)	43L/SW
16.	Ethyl Corporation of Canada Ltd.	Lockwood	EM MAG	Lockwood LEM-210 Gulf Mark III(?) Fluxgate	1971	Winisk River (Permit 16)	43L/SW
10.	Selco Exploration Co. Ltd.	Questor	EM MAG	Barringer Mark V Input Barringer AM-101A	1971	Winisk River (Permit 10)	43L/SW
8.	Cominco Ltd.	Questor	EM MAG	Barringer Mark V Input Barringer AM-101A	1971	Winisk River (Permit 8)	43L/SW
A1.	Cominco Ltd.	Questor	EM MAG	Barringer Mark V Input Barringer AM-101A	1970	Winisk River	43L/SW
9.	McIntyre-Porcupine Mines Ltd.	Questor	EM MAG	Barringer Mark V Input Barringer AM-101A	1971	Winisk River (Permit 9)	43E/NE
6.	Kennco Explorations (Canada) Ltd.	Seigel Associates	Turair MAG	Sintrex TAR-1 Sintrex MAP-2	1971	Winisk River (Permit 6)	43E/NE
17.	Denison Mines Ltd.	Questor	EM MAG	Barringer Mark V Input Barringer AM-101A	1971	Winisk River (Permit 17)	43E/NE
29.	Hanson Mines Ltd.	Lockwood	EM MAG	Lockwood LEM-210 Gulf Mark III(?) Fluxgate	1971	Winisk River (Permit 29)	43E/NE
26.	Hanson Mines Ltd.	Lockwood	EM MAG	Lockwood LEM-210 Gulf Mark III(?) Fluxgate	1971	Winisk River (Permit 26)	43E/NE
A2.	Kennco Exploration (Canada) Ltd.	Hunting	MAG	?	1959	Lingman-Ponask lakes	53F/NE
A3.	McCoy Lake Mines Ltd.	Canadian Aero	EM MAG RAD	Canadian Aero Mark III Low Frequency Gulf Mark III Fluxgate 4 Channel Gamma Ray Spectrometer	1970	McCoy Lake	53C/NE
A4.	Coin Lake Gold Mines Ltd.	Questor	EM MAG	Barringer Mark V Input Barringer AM-101A	1970	Hornby-Loree lakes	53C/NW
A5.	Union Miniere Expl. and Mining Corp. Ltd. Canadian Nickel Co. Conwest Expl. Co.	Spartan Aero	EM MAG	Canadian Aero Mark III Low Frequency Gulf Mark III Fluxgate	1971	Pickle Lake	520/NE
A6.	Rexdale Mines Ltd.	Seigel Associates	EM MAG	Rio-Mullard Sintrex MAP-2(?)	1971	Fort Hope	42M/NW
A7.	Northwest Explorers (1967) Ltd.	Canadian Aero	RAD (Tapes only)	4 Channel Gamma Ray Spectrometer	1969	Shabumeni Lake	52N/SE

The two holes drilled on Permit 8 cut iron formation and greywacke which has been reported by L.D. Ayres (personal communication) to be metamorphosed to the lower to middle amphibolite facies. Several breccia zones within these sediments contained pyrite in estimated amounts up to 15 percent. Drilling on Permit 6 intersected a major mylonite zone consisting of dark grey mylonite containing small round granitic clasts and which grades in places to a sheared and highly foliated pink granitic rock. The mylonite contained very finely and widely disseminated pyrite and an occasional narrow breccia zone. This drilling substantiates the northwest-trending fault interpreted from aeromagnetic data by Ayres et al. (1969) and named the Winisk River Fault by Ayres et al. (in press).

Under the Paleozoic in the vicinity of the diamond drill holes on Permit 8 the Precambrian basement has been affected by weathering for a depth of about 65 feet, on Permit 11 for about 10 feet, and on Permit 10 for between 3 to 10 feet.

Most of the airborne electromagnetic responses recorded in the area appear to be caused by (1) conductive overburden, (2) conductive zones within the Paleozoic sediments, (3) a zone of disseminated to stringy pyrite which commonly occurs along the interface between the Precambrian basement and the overlying Paleozoic sediments, or (4) possibly by conductive shear zones within the Precambrian basement. To date, sulphide zones in the Precambrian basement which may have caused electromagnetic responses have only been indicated by diamond drilling on the northwest end of Permit 8.

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SAULT STE. MARIE DISTRICT

By

R.J. Rupert

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Sault Ste. Marie District

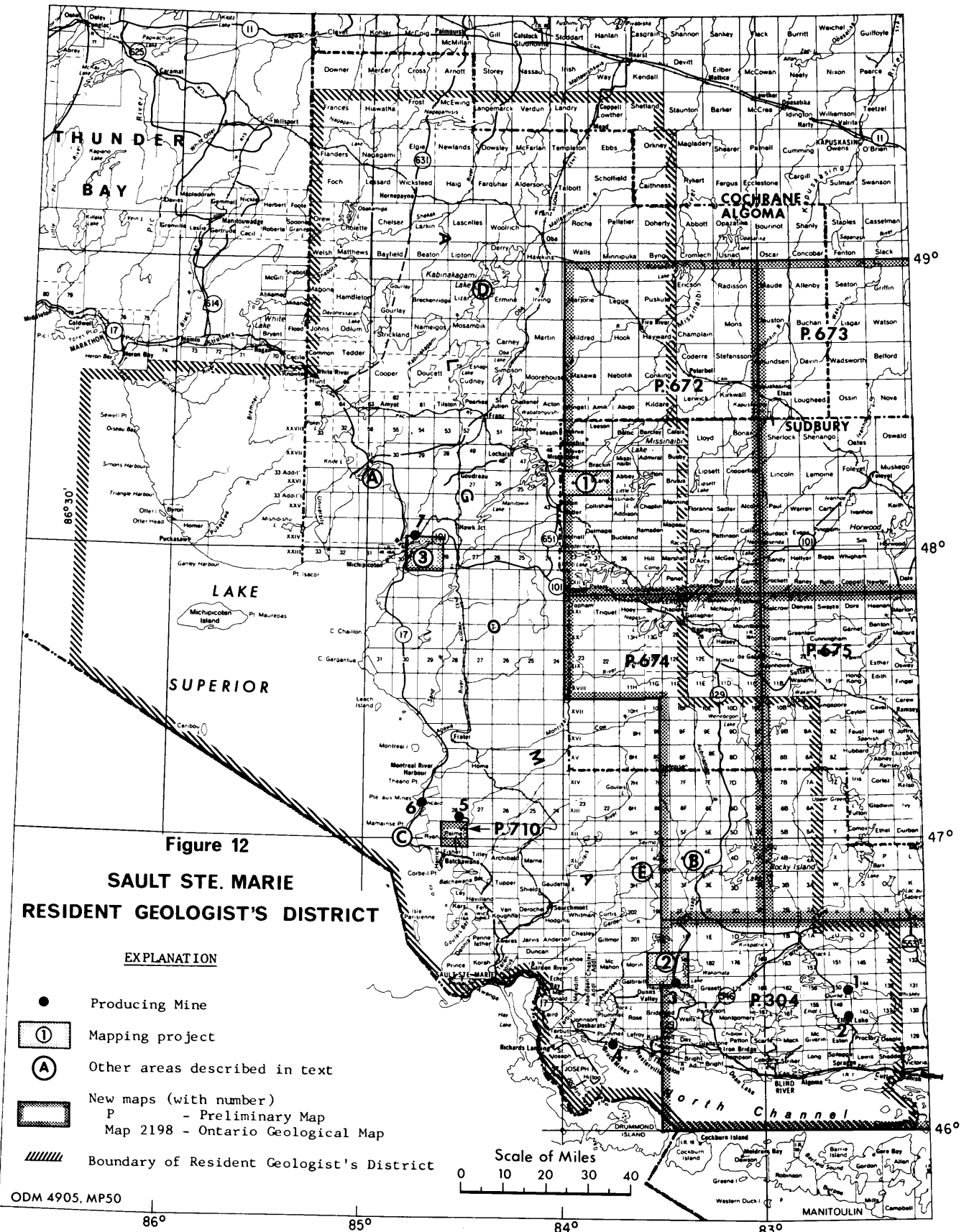
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Producing Mines

- 1 - Dennison, Quirke, and New Quirke Mines.
- 2 - Nordic Mine.
- 3 - Gould Copper Mine.
- 4 - Taylor Shaft, Bruce Mines.
- 5 - Tribag Mine.
- 6 - Coppercorp Mine.
- 7 - G.W. McLeod Mine.



Mapping Projects

- 1 - Lang Township and Township 44.
- 2 - Wakomata Lake.
- 3 - Township 29, Range 23 and environs.



Other Areas Described in Text

- A Kabenung Lake.
- B Seabrook Lake.
- C Batchawana Area.
- D Kabinakagami Lake.
- E Ranger Lake.

SAULT STE. MARIE DISTRICT

By

R.J. Rupert¹

STAFF AND OFFICE

During 1971, staff at the Sault Ste. Marie Resident Geologist's office comprised R.J. Rupert, Resident Geologist; E.J. Leahy, assistant to the Resident Geologist; and Mrs. G. Nivins, secretary. In addition, G. Bennett, geologist, of the mapping branch, was permanently based at this office as of March, 1971.

A small laboratory was furnished at this office during 1971, completing the new facilities in Sault Ste. Marie which were occupied in 1970.

RESEARCH AND MAPPING PROJECTS

The Geological Surveys Section of the Ontario Department of Mines and Northern Affairs was involved in three active field mapping projects in this area during 1971. These were conducted by G. Bennett, F.W. Chandler, and J.A. Robertson. In addition, several areas were examined by department personnel in connection with continuing projects or research work.

Lang Township and Township 44

G. Bennett mapped Lang Township and Township 44 in the Missinaibi Lake area at a scale of 1 inch to 1/4 mile, as the first part of a two-year program which also will include Stover and Brackin Townships to the north. Preliminary maps of work in 1971 are in press. These townships are south of the Rennie Township gold area on the eastern extension of the Michipicoten greenstone belt. Locally the greenstones are metasedimentary and metavolcanic rocks enclosed in a complex granitic and gneissic assemblage. Several faults with displacements up to several thousand feet are indicated by displacement of a titaniferous magnetite horizon within a 6-mile long sill-like metagabbro body.

Wakomata Lake Area, Township 188 and Otter Township

F.W. Chandler has mapped and published preliminary maps of Otter Township and half of Township 188, along with parts of Haughton and Gould Townships, near Wakomata Lake, also as the first part of a two-year project. Chandler has mapped a structurally and stratigraphically complex area on the

¹Resident Geologist, 370 Lake Street, Sault Ste. Marie, Ontario. Manuscript accepted for publication January 24, 1972.

southwest flank of the 'Haughton High' geological structure, where considerable drilling for uraniferous conglomerates has been done. In addition, he has locally subdivided the Gowganda Formation into stratigraphic units which may be of value to persons prospecting for extensions and higher values in the copper-bearing vein structures of the area.

Compilation Map P.340

J.A. Robertson has not undertaken any major field projects in this area during 1971. As part of his continuing work in the eastern half of the Huronian uraniferous belt, a revised geological map (P.340) of the Blind River-Elliot Lake area has been published (Robertson 1971b). A new guide book of the area, Guide Book No. 4, Geology and Scenery along the North Shore of Lake Huron, has been prepared and is in press (Robertson and Card in press).

Palmer Township

P.E. Giblin prepared the recently released preliminary geological map of Palmer Township for the Ontario Department of Mines and Northern Affairs (Giblin 1971).

Geochemical Orientation Surveys

W.J. Wolfe of this department has been conducting geochemical orientation surveys in northern Ontario and two areas in this district were examined this year. These were the Kabenung Lake area where rock geochemistry of a high-level intrusive is being studied, and the Seabrook Lake area where studies of heavy minerals in till were done.

Wawa Area, Township 29, R.23

Map compilation projects undertaken by staff of this office have included completion of a geological compilation map of Township 29, Range 23 begun in 1970, a subsurface stratigraphic compilation of drill hole data in the Huronian area between Elliot Lake and Sault Ste. Marie, and reconnaissance examination of unmapped greenstone areas between Goulais Bay and Ranger Lake.

The compilation of Township 29, Range 23 and environs at Wawa has been completed this year, now that all reports filed for assessment work have been forwarded to this office. A preliminary map with marginal notes is expected to be published in 1972. Most of the township is underlain by a complex felsic volcanic pile with intrusive macrobreccia units in the vicinity of many of the abandoned gold mines which are stratigraphically below the operating iron mines. Several separate volcanic facies have been noted. In addition, previously unmapped iron formations have been traced, and several gabbroic bodies are shown. At least three of these bodies have been drilled for nickel.

Elliot Lake Area, Subsurface Compilation

E.J. Leahy has prepared a summary of significant drill holes in the Huronian Basin west of the Elliot Lake area. A contour map showing basement elevations and distribution of Huronian volcanic members is completed and in press. Isopach maps of major units are in preparation. Several features evident on these maps have led the writer to propose changes in concepts of origin of the Elliot Lake ores. These concepts could be useful to persons prospecting for deep ore zones by drilling.

Goulais Bay to Ranger Lake Area

As the result of prospect examinations, it has become evident that there is a significant belt(s) of metasedimentary rocks and some metavolcanic rocks between Goulais Bay and Ranger Lake. Reconnaissance mapping of this belt was begun this year, and will continue next season. To date it appears that this belt has been overlooked because it is more metamorphosed than most, and distinction between orthogneisses and amphibolite facies paragneisses is difficult. There are many known Pb-Zn prospects and several nickel prospects in the area, as well as a few relatively unmetamorphosed siliceous iron formations.

Miscellaneous

The Earth Physics Branch of the Canada Department of Energy, Mines and Resources has continued palaeomagnetic studies of the Keweenawan volcanic sequence around Lake Superior, and other publications dealing with regional field studies of this area are in print (Robertson and Fahrig 1971; Annells 1971a; 1971b).

Significant contributions to the geological knowledge of this region have been made by the Department of Physics, University of Toronto (Halls and West 1971), and by other universities in the Great Lakes area. There has been an increase in papers on the limnology and geology of the Lake Superior region, as shown in the list of new publications.

MINING OPERATIONS

Due to depressed economic conditions, several mining operations in this district have been operating at reduced levels. Denison Mines at Elliot Lake has continued operations only on the basis of long-term marketing assistance from the federal government; Rio Algom Mines Limited have limited operations to the New Quirke and Quirke Mines, with production at Nordic Mine suspended.

At Wawa, Algoma Steel Corporation is producing only from The George W. McLeod Mine. Operations at the Lucy Mine have been terminated. Algoma Steel Corporation's Wawa operations produce a relatively low-grade ore which has merit to them mainly because of its convenient location and moderately high manganese content. During 1971, estimated production was 1.642 million tons

of sinter, up from 1.542 in 1970. 1971 was the first year since 1939 in which the Wawa operation did not produce significant quantities of ore on a merchant basis. A new cold screening plant is being built at their sinter plant in Wawa.

Normal operations have continued at both Coppercorp Mine and Tribag Mine, although reduced copper prices have affected their profitability. At Tribag, a long drive on the 600- to 1,000-foot level has entered the 'West Breccia' where ore is being mined. The ore in the 'West Breccia' differs from ore in the main 'Breton Breccia', partially due to differences in the host rock. A technically interesting, but apparently uneconomic feature of the ore exposed by this drive is the presence of local concentrations of stibnite crystals. Surface exploration programs are continuing at both Tribag and Coppercorp Mines.

Two exploratory mining operations have continued in the Huronian area north of Lake Huron. At Gould Copper Mine, a plant to leach ore was constructed during 1971, and later partially dismantled and sold after it proved unworkable. The Taylor Shaft at Bruce Mines was kept dewatered for most of the year and a sampling program was undertaken there. Diamond drilling was done on both properties this year.

Mining operations in the District are summarized in Table 14.

Table 14 Summary of Mining Operations in 1971

<u>Mine Name</u>	<u>Operator</u>	<u>Location</u>	<u>Product & Remarks</u>
Denison	Denison Mines Ltd.	Elliot Lake	Uranium producer
Quirke	Rio Algom Mines Ltd.	Elliot Lake	Uranium producer
New Quirke		Elliot Lake	Uranium producer
Nordic		Elliot Lake	Uranium, care and maintenance only
Gould	Gould Copper Mines	Gould Tp.	Copper, no production. Mill constructed 1970-71, dismantled and salvaged 1971. Continuing exploration.
Tribag	Tribag Mining Co. Ltd.	Tp.28, R.13	Copper producer
Coppercorp	Northern Canadian Enterprises Ltd.	Batchawana	Copper producer
G.W. MacLeod	The Algoma Steel Corp. Ltd.	Wawa	Iron producer
Taylor Shaft	Huron-Bruce Mines Ltd.	Bruce Mines	Copper, no production. Dewatered mine, sampling.

EXPLORATION ACTIVITY

Elliot Lake Area Uranium

In the Elliot Lake area, exploration has been curtailed by those companies affected by the Canadian ownership restrictions on uranium producers, so that only two companies have been actively prospecting for new deep, hidden uranium orebodies in 1971. Gulf Minerals drilled one hole in McMahon Township and shared expenses with Cominco on another hole. Cominco Limited drilled or shared drilling costs on three holes greater than 5,000 feet in depth in Township 162, as well as one abortive 1,500-foot drill hole there.

Other exploration companies who have prospected for deep ore in this area during the past four or five years are either surveying claims to bring them to lease or they are maintaining the claims in good standing by flying airborne surveys for assessment credits required by the Mining Act. However, a considerable amount of ground in the area is coming open as unprotected claims lapse.

Copper Deposits North of Lake Huron

Several junior mining companies and individuals are actively prospecting for vein or fault-breccia copper deposits north of Lake Huron. This work mainly involves re-examination of known copper prospects or old mines. Although there has been a distinct increase in prospecting for this type of deposit, no announcements of particular significance have been made by those involved.

Greenstone Belts

Prospecting in greenstone belts is continuing but at a reduced pace. Exploration in the vicinity of Mishibishu Lake and between Wawa and Renabie has consisted of geophysical surveys and some follow-up drilling. Except for some drilling in Meath Township and Township 29, Range 23, most of this exploration has been for base metal deposits with volcanic associations. Interest in the Batchawana greenstone belt has increased, with active prospecting for iron and base metals in Archean rocks as well as in Keweenawan copper deposits in the southwestern part of the belt.

SUGGESTIONS FOR MINERAL EXPLORATION

Mafic to Ultramafic Rocks in the Kabinakagami Lake Region

During August 1971, the writer spent three days examining the geology and mineral occurrences near Kabinakagami Lake. Mineral occurrences examined included the Hiawatha Mine and an iron prospect in a mafic intrusion which was drilled by Sand River Gold Mining Company Limited in 1957. Core was still available on racks at the latter prospect.

On the basis of this examination, along with recompilation of information in files of this area and aeromagnetic interpretation (Figure 13) has been prepared. This figure differs from the Preliminary Geological Map P.476 (Giblin 1968). On the figure there are several gabbroic to ultramafic plugs; several magnetically interpreted plugs; and one band of very lean sulphide (pyrite) banded sedimentary iron formation in clastic metasediments. It can also be noted from the figure that metasediments are a significant part of the sequence. A geologically interesting macrobreccia zone cemented by bull quartz and several hundred feet across in at least one direction, was also located. Gneissic fragments in this breccia zone are several feet or more across, well packed, and completely disoriented, but show little or no crushing.

The mafic to ultramafic rocks observed by the writer are mainly biotite-rich amphibolite gabbros. Mineralogically, they contain up to 40 percent plagioclase, 20 to 60 percent hornblende, 5 to 35 percent biotite, up to 40 percent magnetite and other metallic oxides and 2 to 4 percent sphene and leucoxene. Pyrite is a common accessory mineral, in quantities up to 3 or 4 percent. In core, minor pyrrhotite and graphite were noted.

An intrusion drilled in 1957 by Sand River Gold Mining Company Limited was bulk-sampled by them for metallurgical testing. The reported analysis of this material is copied below:

Heads Analysis in percent:

Fe	45.6	Ca	3.1	TiO ₂	5.6
Ni	0.022	Cr	2.03	Al ₂ O ₃	6.1
S	0.021	SiO ₂	13.9	MgO	3.89
P	0.023				

Magnetic Separation at -48 Mesh in percent:

	<u>Weight</u>	<u>Fe</u>	<u>SiO₂</u>	<u>Ni</u>	<u>Cr</u>	<u>TiO₂</u>
Magnetic concentrate	66.5	63.0	2.3	0.022	2.03	5.6
Tails	33.5	12.7	32.6	0.020	2.03	5.5
Calc. Heads	100.0	46.2	12.4	0.022	2.03	5.6

Note the high chrome and titania contents in both magnetic and non-magnetic fractions. Although these analyses were made on a selected specimen with possible bias towards oxide minerals, they do indicate anomalous values in these elements.

In hand specimen, in core sections, and especially in outcrops, these intrusions may contain frequent inclusions of both wall-rocks and also finer grained phases of similar gabbros. The textures and structures suggest rather forceful intrusion.

The presence of ultramafic phases is indicated by two reliable descriptions of pyroxenites in the assessment work files.

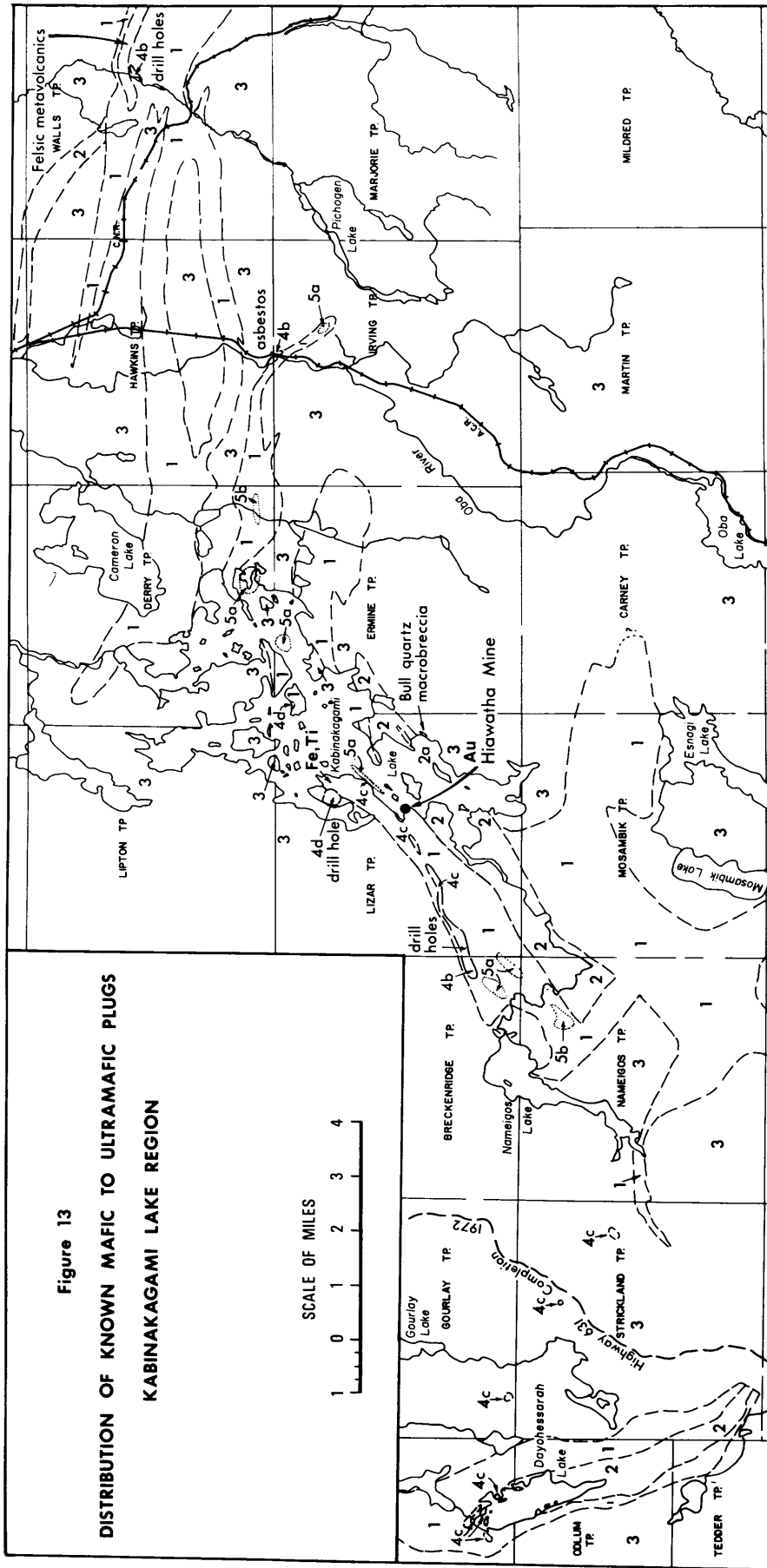


Figure 13
DISTRIBUTION OF KNOWN MAFIC TO ULTRAMAFIC PLUGS
KABINAKAGAMI LAKE REGION

SCALE OF MILES
 1 0 1 2 3 4

LEGEND

5	Magnetically inferred ultramafic rocks
3	Granitic rocks. Includes substantial amounts of metasedimentary gneiss
2	Recognized sedimentary schists and gneisses; 2a iron-rich units
1	Metavolcanics (mafic)
4	Mafic to ultramafic intrusive rocks
4a	Unsubdivided
4b	Serpentinities
4c	Gabbros
4d	Amphibolites

SOURCES OF INFORMATION

Field examination and compilation by R.J. Rupert, August 1971.
 Files, Resident Geologist's office, Sault Ste. Marie.
 ODM Preliminary Maps P.476, P.397, P.672.

ODM 4906, MP50

Geographically, these mafic to ultramafic intrusions are scattered throughout a zone extending east-northeast from near Nameigos to at least the Algoma Central Railway line. Nickel prospects farther east in Walls and Minnipuka Townships (Figure 12) suggest a further possible extension.

Diamonds

This area has several possible exploration targets. Continuation of prospecting for nickel is undoubtedly warranted, and the possibility of locating titaniferous iron ores should not be ignored. However, this writer would also suggest that the area should be considered in any regional prospecting program for diamonds in northern Ontario.

Although none of the feldspar-bearing intrusions seen by the writer can be described as a kimberlite, it is noted that their xenolithic nature, anomalous titania and chrome content, and the abundance of biotite suggests a possible petrographic affinity with kimberlites. Further, if a line parallel to known Wisconsinan glacial transport directions is projected back from known diamond finds in glacial till in Indiana and Wisconsin, a source considerably west of the Lower Abitibi River and Abitibi Lake areas (where most diamond prospecting has been done to date) is indicated. Till and esker sampling in this area to determine whether or not diamond indicator minerals are present is suggested.

Elliot Lake Area, Uranium

In the past five years, deep drilling has considerably extended knowledge of stratigraphy in the Elliot Lake area. Although volcanic strata were recognized in the basal part of the Huronian sequence by Logan, Murray, and many other geologists since before 1850, many geologists engaged in uranium exploration near Elliot Lake have chosen to ignore these volcanics as insignificant or refused to recognize their existence. It is now recognized that no major uraniferous beds are more than a mile or two, measured laterally, from volcanic members in, or at the base of, the Matinenda Formation. Stratigraphically, such volcanic members are present within a few hundred vertical feet of the uraniferous beds. Any study of the sedimentology or stratigraphy of these conglomerate beds must consider the possible and probable effects of volcanism on the deposition of ores if it is to be at all objective. Among the obvious effects which volcanic activity may have produced are: a) a source for the buckshot (rounded monocrystalline cubes) pyrite and other heavy minerals which occur with the ore; b) a source of uranium, either as an aqueous solution or in detrital minerals; c) sudden pronounced eustatic variations which could have produced the periodic scouring conditions necessary to create extensive pebble beds from pebbly sand accumulations; d) damming effects which may have influenced currents near strand lines; e) various modifications to Archean basement topography which may have affected Matinenda Formation deposition; f) reducing conditions in the basin of deposition. These factors should be considered by persons exploring for uranium in this area.

Copper Prospecting North of Lake Huron, Free Geophysical Surveys

As the result of the depressed rate of uranium exploration, many companies in that area have attempted to hold claims in anticipation of renewed interest by doing only minimal required assessment work. Many large areas have been flown using airborne geophysical instruments, for the express purpose of obtaining assessment credit, and no significant follow-up or serious interpretation has been done with these surveys. They are available on file at this office or in the assessment work library at Toronto.

It is suggested that careful interpretation of these geophysical data by a person with a reasonable knowledge of the local geology is warranted. Some of the areas involved have recently come open for staking, and many others will probably come open within the next few years.

Batchawana Area

The mineral suite found in the breccia pipes at Tribag Mine and other prospects in that region is unique in Ontario. Although chalcopyrite is the main economic mineral, local concentrations of scheelite, stibnite, and molybdenite have been found. Whereas none of these occurrences has yet been found to be economically feasible, some are close enough that they have required serious consideration.

Prospectors and exploration company personnel working in this region should be aware of the possibility that tungsten, antimony, or molybdenum deposits exist there. They should be able and equipped to identify minerals of these elements.

SPECIAL LAND TENURE CONDITIONS AVAILABLE IN SAULT STE. MARIE DISTRICT

Algoma Central Railway Lands

Thirty-nine townships in this district are controlled by the Algoma Central Railway, and mining rights in these townships are administered by them (Figure 14). Staking of claims is permitted in these townships, subject to regulations published by the ACR. These regulations are very similar to those in the Ontario Mining Act. In other townships, the ACR has, or is willing to grant, mineral exploration concessions, which are attractive because they eliminate the nonproductive expense of staking.

Most of these ACR townships are in greenstone belts. Several years ago, the ACR relinquished control of many townships. Areas selected for retention were chosen on the basis of their resource potential, and as a result, these include better than average exploration areas.

Concessions granted by the ACR are subject to negotiation. Interested parties should contact the ACR directly. Most concessions granted to date involve rental payments, work commitments, and royalties in return for an exclusive prospecting licence for a specified period and the subsequent right to select mining tenements.

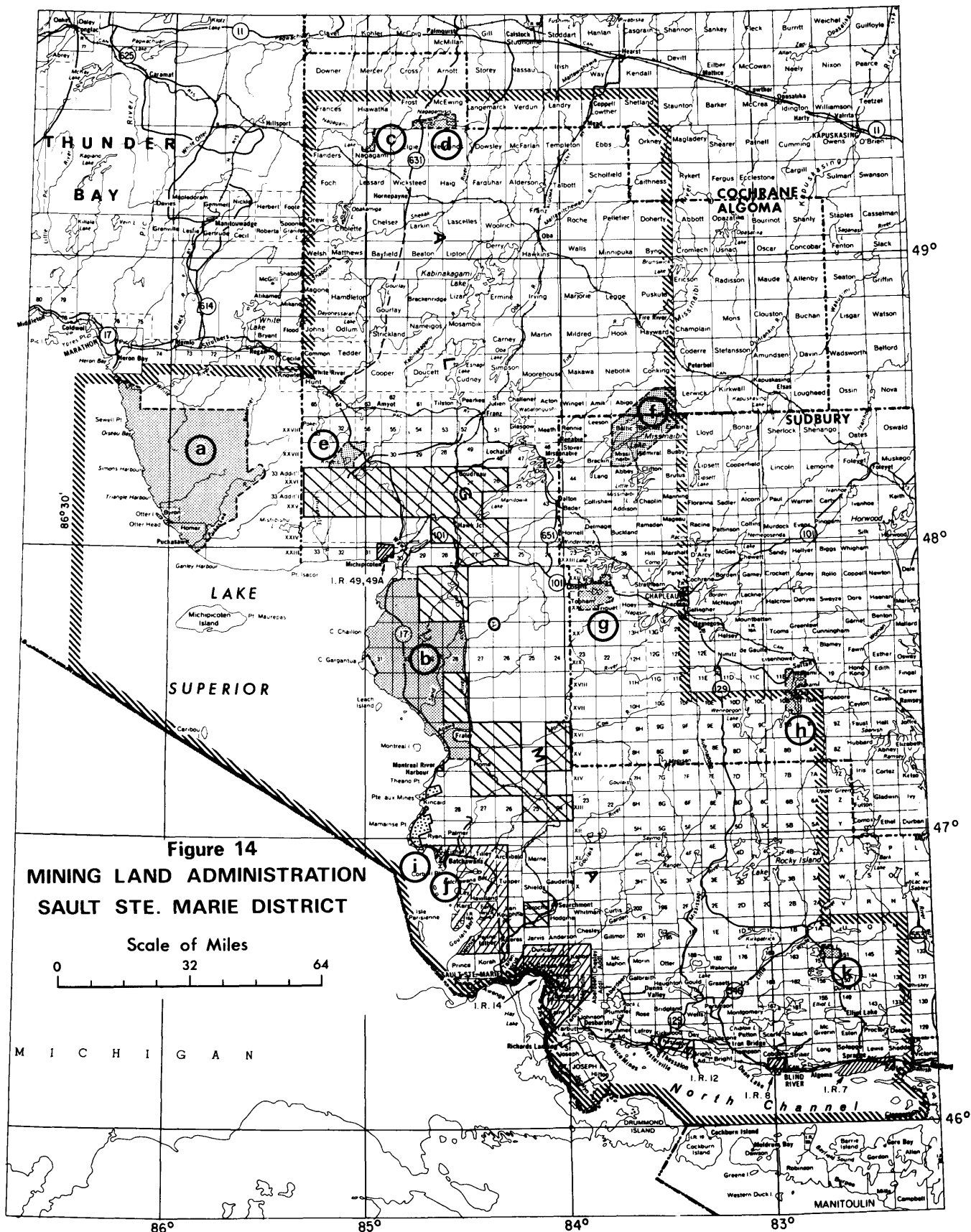
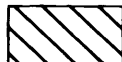





Figure 14
MINING LAND ADMINISTRATION
SAULT STE. MARIE DISTRICT


Scale of Miles
0 32 64

Legend for Figure 14

MINING LAND ADMINISTRATION - SAULT STE. MARIE DISTRICT

-  - Townships where mining rights are mainly controlled by the Algoma Central Railway.
-  - Indian Reserves.
-  - Surrendered Indian Lands. Mining rights discussed in text.
-  - Parks and Park Reserves.

	<u>Area</u>
a) Proposed Pukaskwa National Park. Prospecting banned.	720 sq.mi.
b) Lake Superior Provincial Park.	526 sq.mi.
c) Nagagami Lake Park Reserves. Prospecting banned.	
d) Nagagamisis Lake Provincial Park	22.6 sq.mi.
e) Obatanga Lake Provincial Park. New boundaries subject to final approval.	35.1 sq.mi.
f) Missinaibi Lake Provincial Park.	170.1 sq.mi.
g) The Shoals Provincial Park.	41.6 sq.mi.
h) Wakami Lake Provincial Park. Area in Sault Ste. Marie District only.	18 sq.mi.
i) Pancake Bay Provincial Park.	1.8 sq.mi.
j) Batchawana Bay Provincial Park.	
k) Mississagi Provincial Park. New boundaries.	<u>11.1 sq.mi.</u>
Area of Parks and Reserves. Prospecting banned.	1,746 sq.mi.

-  - Large Mining Locations.

In some townships, particularly Deroche Township and Township 28, Range 24, there are existing mining tenements granted by either the ACR, or by the Crown (Ontario) prior to acquisition of the lands by the ACR. These, of course, are not available for negotiation.

At the present time, nineteen townships are open for staking, six are closed to staking, but open for negotiation, and fourteen are subject to current prospecting concessions. Of the latter, the block of ten most northwesterly ACR townships plus Township 26, Range 26 and Township 27, Range 25, are in the sixth year of a prospecting concession to Acme Gas and Oil Company Limited. This area is mainly underlain by greenstones with several known mineral occurrences.

Indian Mineral Lands

As shown on Figure 14, there are two major classes of Indian Mineral Lands in this area; there are several Indian Reserves similar to those found elsewhere in Ontario and there are also about 600 square miles of surrendered Indian Lands. The latter were once part of reserves created by the Robinson-Huron and Robinson-Superior treaties of 1849, and subsequently surrendered by the Indian bands after the farming and mineral potential of the lands was recognized and amendments to the treaties were negotiated in 1859. The terms of the amendments were that the land was to be sold by the Crown (pre-Confederation) for the benefit of the Indian bands. Unless these lands were specifically sold as mineral locations, the Crown generally retained all mineral rights or at least the precious metal rights. At the present time, the mineral rights in large parts of these areas are administered by the Canada Department of Indian Affairs and Northern Development, in consultation and agreement with the wishes of the Indian bands concerned. The provincial government is also involved insofar as taxation and regulation of mining operations is concerned.

These areas represent substantial and reasonably contiguous areas where prospecting agreements can be negotiated. At least one such agreement has been negotiated for uranium exploration purposes in the past few years. As on ACR lands, the nonproductive expenses of staking are eliminated for prospecting tenements. Persons and organizations interested in prospecting in these areas should consult:

Mr. S.A. Crandall, Supervisor of Indian Minerals (Eastern Canada), Department of Indian Affairs and Northern Development, Ottawa, Ontario. K1A0H4.
(613) 996-5275.

for details of the procedures to be followed in applying to the Department and Indian Bands for prospecting rights. There have been significant improvements in the willingness of the above parties to enter into agreements during the past few years.

As stated earlier, in several townships and parts of townships, only the gold and silver rights have been reserved for the Crown (Department of Indian Affairs, etc.). Although this means that negotiation with land owners for mining rights is still necessary, it is an advantageous situation which has

been used in other jurisdictions to facilitate right-of-entry for bona fide prospectors engaged in preliminary exploration work. This can reduce the overhead expenses required for a land-man by an exploration organization.

Areas of particular interest in Indian Reserves or on Indian Mineral Lands include: a) IR49 at Michipicoten Harbour which is on strike from the western end of the Michipicoten Iron Ranges and is mainly underlain by a greenstone belt; b) the mapped greenstone belt (Giblin and Leahy 1967) in Fenwick, Havilland, and Vankoughnet Townships. This area is within the original Goulais and Batchewannany (sic) Indian Reserve which is now surrendered Indian Lands and largely patented as to surface rights; c) parts of Duncan and Kehoe Townships and Garden River IR14 which have several Elliot Lake-type uranium prospects; and d) IR7 on the Spanish River south of the Murray Fault, and the profitable Pater Mine. The reader should refer to Figures 12 and 14 for the locations of these areas.

Mining Locations

Prior to Confederation, several mining locations up to ten square miles in area were granted at or near Blind River, Bruce Mines, all of IR15d, Batchawana, and Cape Gargantua. After Confederation and until early in this century, mining locations varying from about 300 acres to several square miles were granted, many on Indian Mineral Lands. These still represent substantial contiguous patented areas which are attractive for exploration because they usually have only one owner, which simplifies prospecting and mining right acquisition. Many are owned by timber companies. These lands are taxed as mining lands, and owners are, therefore, reminded of their mineral rights and somewhat anxious to get some return on them. Due to increases in taxation, several of the smaller locations have been abandoned to the Crown (Ontario) for taxes during the past few years and are now open for staking.

Since these areas were presumably chosen for their mineral value, they deserve serious consideration as exploration targets. Many of them have not been subjected to thorough exploration with modern techniques. Many have been dormant for some time.

PARKS

As shown on Figure 14, over 7 percent of the total area of the Sault Ste. Marie Mining District is now park, or reserved for park, and in these areas prospecting is banned. Prospecting is still permitted in a few of the park reserves, as indicated in the legend.

It is noteworthy that the boundaries of the newly proposed Pukaskwa National Park have been selected with concern for the mineral value of the lands involved. This represents a deliberate attempt by governments to recognize the concept of optimum land use.

Lake Superior Provincial Park is currently under review by the Department of Lands and Forests which is preparing an overall plan for development of the park. When this park was originally created in 1944,

Table 15

Information Added to Resident Geologist's Files in 1971

ASSESSMENT WORK REPORTS

Abbreviations used: MAG - Magnetometer Survey
 EM - Electromagnetic Survey
 KCEM- Kilocycle EM Survey
 RAD - Radiometric Survey
 AMAG, AEM, ARAD - Airborne Surveys
 DD - Diamond Drilling
 AC - Assessment Credit

Township or Area	Owner	Commodity Sought	Assessment Work	File No.
Aberdeen Add'l.	Allison, A.	Cu	Geochemical Survey, 0.5 sq. miles, 1970.	SSM-1563
Aweres	Colleen Copper Mines Ltd.	Cu	DD Logs, 2 holes, 503', 1970.	SSM-1560
Bridgland	Paynter, R.	Cu	DD Logs, 7 holes, 1,488', 1969-70.	SSM-1108
	Subeo Ltd.	AC	AMAG & ARAD Survey, 4.3 sq. miles, 1970.	SSM-1575
Gaudette	MacDougall, D.	Ni	Trenching Plan, 1970.	SSM-1545
Gould	Pellerin, U.	Cu	Trenching Plan, 1971.	SSM-934
	Subeo Ltd.	AC	AMAG & ARAD Survey, 4.0 sq. miles, 1970.	SSM-1575
Grasett	Subeo Ltd.	AC	AMAG & ARAD Survey, 17.2 sq. miles, 1970.	SSM-1574
Kincaid	Tribag Mining Co. Ltd.	Cu	Geochemical Soil Survey, 2.6 sq. miles, 1970. DD Logs, 5 holes, 1,182', 1971. Core Specimens, 2 holes.	SSM-1586
Kirkwood	Anthony, H.W.	Cu	Trenching, 1970.	SSM-1191
Lake Huron, North Channel	Texas Gulf Sulphur Co. Ltd.	U	DD Logs, 3 holes, 1,240', 1970. Summary of Drill Results, 1968-70. Summary of Exploration Work, 1968-70.	SSM-1375
Lang	Canadian Nickel Co. Ltd.	Ni	DD Logs, 2 holes, 281', 1970.	SSM-1578
Lizar	Primrock Mining & Exploration Ltd.	Au	Report of Dewatering Operations, 1970.	SSM-1444
Meath	Noranda Exploration Co. Ltd.	Ni	DD Logs, 2 holes, M71-2 & M71-3, 725', 1971.	SSM-1525
Otter	McKee, R.	Cu	Trenching Plan, 1970.	SSM-1309
	Ouimet, M.	Cu	Trenching Plan, 1970.	SSM-1173
Palmer	Tribag Mining Co. Ltd. and Keevil Mining Group Ltd.	Cu	Geochemical Soil Survey, 0.6 sq. miles, 1970. Trenching Plan, 1970.	SSM-1597
Rose	Paynter, R.	Cu	Trench & Assay Plans (2 submissions) 1971.	SSM-1495
Ryan	Sinclair, D. B.	Cu	Trench Plan, 1970.	SSM-1618
	Tribag Mining Co. Ltd.	Cu	Geochemical Survey, 0.7 sq. miles, 1970.	SSM-1597
Vankoughnet	Airnorth Mines Ltd.	Cu	DD Logs, 4 holes, 905', 1971.	SSM-1600
	Feldstein, H. C.	Base Metals	MAG & KCEM Survey, 10 claims, 1970.	SSM-1124
	Gemmell, J. W.	Cu	DD Log, 1 hole, 261', 1971.	SSM-1617
Walls	Canadian Nickel Co. Ltd.	Ni	DD Log, 1 hole, 130', 1969.	SSM-1506
Wells	Subeo Ltd.	AC	AMAG & ARAD Survey, 11.0 sq. miles, 1970.	SSM-1575
Q	Rice, C. F.	Cu	Trench & Assay Plan, 1970.	SSM-1498
1F	Barcis, A.	Cu	Trench Plan, 1970,71.	SSM-1131
	MacDougall, D.	Cu	Trenching, 1971.	SSM-1619
3H	Warren, W. G.	Cu	Trench Plans, 1970.	SSM-780
8E	Canadian Lencourt Mines Ltd.	U	Trench & Assay Plans, 1970.	SSM-1450
	Marcil, L.	U	Trench & Assay Plans, 1969.	SSM-1451
22, Range 10	Polex Mines Ltd.	Base Metals, Ag	DD Log, 1 hole, 202', 1970.	SSM-1502
27, Range 12	Caputo, J.	Cu	DD Logs, 4 holes, Underground & Surface, 1,259', 1971.	SSM-1337
27, Range 13	Tribag Mining Co. Ltd.	Cu	Geochemical Soil Survey, 3.6 sq. miles, 1970. GEOL Survey, 6.2 sq. miles, 1970.	SSM-1596 SSM-1597

Township or Area	Owner	Commodity Sought	Assessment Work	File No.
28, Range 13	Tribag Mining Co. Ltd.	Cu	CEOL Survey, 5.0 sq. miles, 1970. Geochemical Soil Survey, 2.8 sq. miles, 1970. DD Log, hole #N-71, 135', 1971.	SSM-1586 SSM-1596 & SSM-1597
28, Range 23	Pango Gold Mines Ltd.	Base Metals	CEOL Map and Report, 5.5 sq. miles, 1970. MAG Survey, 5.5 sq. miles, 1970.	SSM-1598 SSM-1599
29, Range 23	Pango Gold Mines Ltd.	Base Metals	MAG Survey, 14.1 sq. miles, 1970. CEOL Survey, 11.1 sq. miles, 1970.	SSM-1598 SSM-1599
	Pango Gold Mines Ltd.	Ni	DD Log with Assays, 444', 1971. Petrographic Report on Drill Core, 1971.	SSM-1601
29, Range 24	Pango Gold Mines Ltd.	Base Metals	CEOL Maps & Report, 1.0 sq. miles, 1970. MAG Survey & Report, 1.25 sq. miles, 1970.	SSM-1598 SSM-1599
30, Range 22	Pango Gold Mines Ltd.	Base Metals	CEOL Map & Report, 0.8 sq. miles, 1970. MAG Survey, 0.8 sq. miles, 1970.	SSM-1598 SSM-1599
33, Range 23	Falconbridge Nickel Mines Ltd.	Base Metals	AMAG, AKCEM Surveys, 9 sq. miles, 1970.	SSM-1568
	Rawhide "U" Mines Ltd.	Base Metals	DD Logs, 8 holes, 1,437', 1970.	SSM-1556
33, Range 24	Falconbridge Nickel Mines Ltd.	Base Metals	AMAG, AKCEM Surveys, 5 sq. miles, 1970.	SSM-1568
43	Miller, H. J.	? AC	Trench Plans, 1970.	SSM-1607
157	St. Denis, A.	Cu, AC	DD Logs, 15 holes, 100' to 109' long, 1971. Core Specimens, 15 holes.	SSM-1554
162	Algoma Steel Corp. Ltd.	AC	DD Logs, 2 holes, 227', 1970.	SSM-1505
	Cominco Ltd.	U	Partial DD Log, hole K-5, 0' -1,058', 1970 Core Specimens, hole K-5, 0' -1,490'. Partial DD Log, hole K-6, 0' -1,134', 1970, 71. Partial DD Log, hole K-7, 0' -4,843', 1971. Core Specimens, hole K-7, 0' -4,843'.	SSM-1577
	Gulf Minerals Company	U	DD Log, hole CG-1-70, 5,679', 1970. Core Specimens, hole CG-1-70.	SSM-1539
163	JonSmith Mines Ltd.	Cu	Trenching Plans, 1966.	SSM-1137
168	Cominco Ltd.	U	Completion of DD Log, hole K-3, 5,580', 1970. Partial Log, hole K-4 to 3,883', 1970.	SSM-1443
	North Summit Explorations Ltd.	AC	DD Log, 1 hole, 102', 1971. RAD Survey, 1 sq. mile, 1971.	SSM-747
	Subeo Ltd.	U	DD Log, DH #MS-1, 5,941', 1970.	SSM-1567
175	Falconbridge Nickel Mines Ltd.	U	Completion of DD Log, hole 175-100, 1,285', 1970.	SSM-1526
	Subeo Ltd.	AC	AMAG, ARAD Survey, 2.5 sq. miles, 1970.	SSM-1574
188	Aggressive Mining Ltd.	Cu	DD Logs, 5 holes, 1,759', 1971. KCEM Survey, 1.5 sq. miles, 1971. Summary Report of Work done, 1971.	SSM-1409
M.6, Pt. Isacor	Falconbridge Nickel Mines Ltd.	Base Metals	AMAG & AKCEM Surveys, 24 sq. miles, 1970.	SSM-1568
M.7, Mishibishu L.	Falconbridge Nickel Mines Ltd.	Base Metals	AMAG & AKCEM Surveys, 14 sq. miles, 1970.	SSM-1568
M.8, Abbie L. Area	Miro Mines Ltd. (Phelps Dodge Corp.)	Base Metals	EM & MAG Survey, 1.5 sq. miles, 1970.	SSM-1570
M13, Pukaskwa R.	Miro Mines Ltd. (Phelps Dodge Corp.)	Base Metals	EM & MAG Survey, 0.5 sq. miles, 1970.	SSM-1570
M.25, Herrick Lake	Hesse, W. A.	Base Metals	KCEM & I.P. Survey, 0.43 sq. miles, 1970.	SSM-1472

Table 16

Information Added to Resident Geologist's Files in 1971

DATA OTHER THAN ASSESSMENT WORK REPORTS

Abbreviations used: Q.P. - Quarry Permit
DD - Diamond Drilling

Township or Area	Owner or Property Name	Commodity Sought	Type of Information	File No.
Aberdeen	Amax Exploration Inc.	U	DD Logs, 8 holes, 3,798', with Assays, 1969. GEOL Maps & Report, 1969.	SSM-1437
Aberdeen Add'l.	Safari Explorations Ltd.	Cu	Notice of Incorporation, 1970.	SSM-1563
Awenge	Forrest Oil & Ranson & Associates	U	Seismic Survey, 3 sq. miles, 1969.	SSM-1569
Aweres	Colleen Copper Mines Ltd.	Cu	Prospectus Reporting Termination of Work.	SSM-1560
	Tribridge Mines Ltd.	Cu	Prospectus, 1971. Property Report, 1971.	SSM-1573
Chapleau	Collings, W. H.	Sand & Gravel	Q.P., 1971.	SSM-1064
	Hublitz, G.	Gravel	Q.P., 1971.	SSM-1603
Cobden	Canada Dept. Indian Affairs & Northern Development		Literature Survey re Mineral Potential, 1971.	SSM-1588
Ebbs	Northern Canada Mines Ltd.	Base Metals	Core Specimens, various holes, collected by S. Ferguson circa 1960.	SSM-1463
Fenwick	Lucinda Mine.	Au, Base Metals	Notes by Resident Geologist, 1971.	SSM-1611
Galbraith	Imperial Oil Enterprises Ltd.	U	Core Specimens, hole 68-1, 0'-2,469', 1968.	SSM-1220
Garden R. I.R.#14	Canada Dept. Indian Affairs & Northern Development		Literature Survey re Mineral Potential, 1971.	SSM-1587
Glasgow	Algoma Steel Corp. Ltd.	Base Metals	DD Log, 1 hole, 763', 1958. Correspondence re Geophysical Surveys.	SSM-1584
	Riley, R. A.		Field Notes re Geology, 1966.	SSM-1585
Gould	Imperial Oil Enterprises Ltd.	U	Core Specimens, hole 68-3, 1,172', 1968.	SSM-1338
Haig	Township of Wicksteed	Sand & Gravel	Q.P., 1971.	SSM-1564
Haughton	Imperial Oil Enterprises Ltd.	U	Relog of DH 68-5 & 68-8 by F. Chandler. Core Specimens, drill holes 68-2, 2,562'; 68-5, 643'; 68-7, 932'; 68-8, 1,891'.	SSM-1339
	Kerr Addison Mines Ltd.	U	Core Specimens, DH#2, drilled 1966, sampled 1971.	SSM-1010
Hunt	Canadian Pacific Railway	Gravel	Q.P., 1971.	SSM-1088
	Sauriol, M. J.	Gravel	Q.P., 1971.	SSM-1083
Kincaid	Jogran Mines Ltd.	Cu	Various Core Specimens collected by Dr. P. E. Giblin, 1963-69.	SSM-1167
	Tribag Mining Co. Ltd.	Cu	Core Specimens, various holes, collected 1963-67.	SSM-1586
Korah	Forrest Oil & Ranson & Associates	U	Seismic Survey, 15 sq. miles, 1969.	SSM-1569
Leeson	Braminco Mines Ltd.	Au	Plan of Prospects, 1968.	SSM-1580
	Nudulama Gold Mines Ltd.	Au	Underground Plans, 1947.	SSM-1566
	Renable Mines Ltd.	Au	Underground Plans, 1964.	SSM-1377
Lizar	Sand River Gold Mining Co. Ltd.	Fe	Notes by Resident Geologist. 100' of drill core, hole #3, 200'-300', drilled 1955, sampled 1971. Report re metallurgical tests, etc., circa 1957.	SSM-138
McMahon	Gulf Minerals Ltd.	U	DD Log, hole #1, 1,593'. Core Specimens, hole #1.	SSM-C-63
Meath	Cascadden, E. S.	Au	Summary of Work Completed, 1919-26.	SSM-1582
	Riley, R. A.		Field Notes re Geology, 1966.	SSM-1585
	Winchester Exploration Ltd.	Au	Property Ownership Plan, 1966.	SSM-1579
Michipicoten Island	Advance Red Lake Gold Mines Ltd.	Cu	Core Specimens, 8 holes.	SSM-955
	Boylen, M. J.	Cu	Underground Plans, Quebec Mine.	SSM-632
Montgomery	Cominco Ltd.	U	Core Specimens, hole M-2, 1,525' - 4,975'.	SSM-1361
	Master Metals Corp.	Cu	Prospectus & GEOL Report, 1970. Prospectus & GEOL Report, 1971.	SSM-1602
Otter	Kerr Addison Mines Ltd.	U	Core Specimens, DH#4, drilled 1966, sampled 1971.	SSM-1010
Palmer	Jogran Mines Ltd.	Cu	Various Core Specimens collected by Dr. P. E. Giblin, 1963-69	SSM-1167

Township or Area	Owner or Property Name	Commodity Sought	Type of Information	File No.	
Panet	Municipality of Chapleau	Sand & Gravel	Q.P., 1971.	SSM-1520	
	Nouzon Holdings Ltd.	Gravel	Q.P., 1971.	SSM-1605	
	Simon Ouellette Contracting Co. Ltd.	Gravel & Dirt	Q.P., 1971.	SSM-1521	
Parke	Forrest Oil & Ranson & Associates	U	Seismic Survey, 2 sq. miles, 1969.	SSM-1569	
Parkinson	Amax Exploration Inc.	U	Core Specimens, hole PD-1, 2,000'. Core Specimens, hole PD-2, 2,019'.	SSM-1374	
	Cominco Ltd.	U	Core Specimens, hole M1, 3,840'.	SSM-1261	
Plummer Add'l.	Huron-Bruce Mines Ltd.	Cu	Prospectus, Nov. 27, 1970. Prospectus & Correspondence, Mar. 20, 1971. Prospectus & GEOL Report, May, 1971.	SSM-1543	
Prince	Forrest Oil & Ranson & Associates	U	Seismic Survey, 3 sq. miles, 1969.	SSM-1569	
Proctor	Kerr-McGee Corp.	Cu	Core Specimens, 2 holes, 1967.	SSM-1152	
Rennie	Braminco Mines Ltd.	Au	Plan of Prospects, 1968.	SSM-1580	
	Camabie Mines Ltd.	Au	Summary of Work Done, 1969.	SSM-1583	
	Riley, R. A.		Field Notes re Geology, 1966.	SSM-1585	
Ryan	Cliffs of Canada Ltd.	Fe	GEOL Report, ore reserve calculations, feasibility study, 1961-62.	SSM-156	
	Jogran Mines Ltd.	Cu	Various Core Specimens, collected by Dr. P. E. Giblin, 1963-69.	SSM-1167	
	McKinney Gold Mines Ltd.	Cu	Core Specimens, 4 holes, drilled 1964.	SSM-595	
Scholfield	Northern Canada Mines Ltd.	Base Metals	Core Specimens, various holes, collected by S. Ferguson, circa 1960.	SSM-1463	
Serpent R. I.R.#7	Canada Dept. Indian Affairs & Northern Development		Literature Survey re Mineral Potential, 1971.	SSM-1590	
Talbott	Northern Canada Mines Ltd.	Base Metals	Core Specimens, various holes, collected by S. Ferguson, circa 1960.	SSM-1463	
Tarentorus	Forrest Oil & Ranson & Associates	U	Seismic Survey, 6 sq. miles, 1969.	SSM-1569	
Thessalon	Canada Dept. Indian Affairs & Northern Development		Literature Survey re Mineral Potential, 1971.	SSM-1589	
Wicksteed	Township of Wicksteed	Sand & Gravel	Q.P., 1971.	SSM-1344	
Q	Rice, C. F.	Cu, U	File Note & Specimens of Copper Mineralization, 1971.	SSM-1498	
1A	William Albert Ltd.	Gravel	Q.P., 1971.	SSM-1449	
2F	Lebel, Alfred	Cu	Correspondence re locations of old diamond drill standpipes.	SSM-1614	
22, Range 10	Polex Mines Ltd.	Base Metals, Ag	Notice of Incorporation, 1970.	SSM-1502	
29, Range 23	Cooper Mine.	Au	Plan of Open Stope, Oct., 1939.	SSM-1623	
	Miller, H. Jr.	Top Soil	Q.P., 1971.	SSM-1057	
	Minto Gold Mines Ltd.	Au	Composite Underground Plans, Jan., 1928.	SSM-303	
	Pango Gold Mines Ltd.	Au, Ni, Base Metals	Annual Report, 1971.	SSM-1601	
	Parkhill Gold Mines Ltd.	Au	Composite Underground Plan, March, 1938.	SSM-305	
	Stanley Gold Mines Ltd.	Au	Surface & Underground Plans, 1937.	SSM-1624	
	Surluga Gold Mines Ltd.	Au	Underground Plans, Jubilee Mine, 1928. Underground Plans, Jubilee Mine, 1939. Underground Plans, March, 1970 & Aug., 1968. Underground GEOL Plan, 1970. Surface Plant Plans, 1968.	SSM-1621	
	Teare, J. H.	Au, Fe	Property Description & Assay Reports, 1936.	SSM-1616	
	Van Sickle, L. A.	Au	Surface Plan of vein locations and trenches, circa 1965.	SSM-1129	
	Wawa Goldfields Ltd.	Au	Composite Underground & Surface Plan, 1934. Trench Plans, 1934.	SSM-1622	
	30, Range 19	Ayres, L. D.		GEOL Field Notes & other data, 1961.	SSM-1610
		Canadian Pacific Railway	Gravel	Q.P., 1971.	SSM-1084
	30, Range 20	Ayres, L. D.		GEOL Field Notes & other data, 1961.	SSM-1610
		Lost Gacie Mine	Cu, Au	Survey Notes showing claim location, 1901.	SSM-1620

Township or Area	Owner or Property Name	Commodity Sought	Type of Information	File No.
30, Range 22	Dufferin Materials & Const. Ltd.	Gravel	Q.P., 1971.	SSM-1604
30, Range 23	Dufferin Materials & Const. Ltd.	Gravel	Q.P., 1971.	SSM-1606
	Guest, T. E.	Fe	GEOL Report, 5 claims, 1909.	SSM-1581
	Miller, H.	Gravel	Q.P., 1971.	SSM-1386
	Ward Bros.	Sand & Gravel	Q.P., 1971.	SSM-1059
31, Range 19	Ayres, L. D.		GEOL Field Notes & other data, 1961.	SSM-1610
	Cape Chaillon	?	Claim Survey Plans, showing 2 miles discrepancy in locations.	SSM-1625
31, Range 20	Ayres, L. D.		GEOL Field notes & other data, 1961.	SSM-1610
	Cape Chaillon	?	Claim Survey Plans, showing 2 miles discrepancy in locations.	SSM-1625
31, Range 27	Canadian Pacific Railway	Gravel	Q.P., 1971.	SSM-1087
33, Range 23	Broad Scope Developments Ltd.	Base Metals	Prospectus, 1971.	SSM-1576
47	Algoma Steel Corp. Ltd.	Base Metals	DD Logs, 2 holes, 788', 1958. Correspondence re Geophysical Surveys.	SSM-1584
48	Lake George Mines Ltd.	Au	GEOL Report filed with Ontario Securities Comm.	SSM-1608
143	Denison Mines Ltd.	Sand & Gravel	Q.P., 1971.	SSM-1241
149	Bloxom, S.	Sand & Gravel	Q.P. (2) 1971.	SSM-1079
150	Denison Mines Ltd.	Sand & Gravel	Q.P., 1971.	SSM-1242
	Rio Algom Mines Ltd.	Sand & Gravel	Q.P., 1971.	SSM-1363
	William Albert Ltd.	Gravel	Q.P., 1971.	SSM-1243
156	Raylloyd Mines & Explorations Ltd.	U	Prospectus, 1971.	SSM-1356
157	Mid-North Engineering Services Ltd.	U	Core Specimens, hole 69-1, 846'; 70-1, 675'.	SSM-1448
162	Raylloyd Mines & Explorations Ltd.	U	Prospectus, 1971.	SSM-1356
163	Morrison Nuclear Inc.	U	Core Specimens, hole Lillybest #1, 0'-4,330'.	SSM-1411
	Raylloyd Mines & Explorations Ltd.	U	Prospectus, 1971.	SSM-1356
168	Falconbridge Nickel Mines Ltd.	U	Partial DD Log, hole 168-100, 2,300'-3,353', by Resident Geologist, 1971. Core Specimens, hole 168-100, 0'-3,353'. Core Specimens, hole 168-102, 0'-2,500'.	SSM-1287
	Summit Explorations & Holdings Ltd.	Cu, U	Prospectus & GEOL Report, 1971.	SSM-747
175	Master Metals Corp.	Cu	Prospectus & GEOL Report, 1970. Prospectus & GEOL Report, 1971.	SSM-1602
	Ridgefield Uranium Mining Corp. Ltd.	Cu	DD Logs, 4 holes drilled 1956, relogged 1971. Core Specimens, hole S-3A, 0'-445'. Core Specimens, hole S-4, 0'-500'. Core Specimens, hole S-5, 0'-300'. Core Specimens, hole S-6, 0'-256'.	SSM-463
188	Aggressive Mining Ltd.	Cu	KCEM Survey, 0.5 sq. miles, 1970.	SSM-1409
M.29, Mussy Lake	Galex Mines Ltd.	Base Metals	Prospectus, 1971.	SSM-1615

mining was accepted as a compatible land use. In 1955, new prospecting was banned and only existing prospects were permitted to be explored and developed. Many of these have been lost by attrition since then. This area is prime prospective mineral land.

If the proposed Pukaskwa National Park is created, and if all mining is finally banned in Lake Superior National Park, this district will have over 7 percent of its total area reserved exclusively for recreational development, and excluded from the mineral resource base of the nation.

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- 1971: Palmer Township, District of Algoma; Ontario Dept. Mines and Northern Affairs, Prelim. Map P.710, Geol. Ser., scale 1 inch to 1/4 mile. Geology 1965, 1967.

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- 1971b: Operation Chapleau, Horwood Lake Sheet, Districts of Algoma, Cochrane, and Sudbury; Ontario Dept. Mines and Northern Affairs, Prelim. Map P.673, Geol. Ser., scale 1 inch to 2 miles. Geology 1970.
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SOUTHERN ONTARIO DISTRICT

By

Shirley J. Gibson

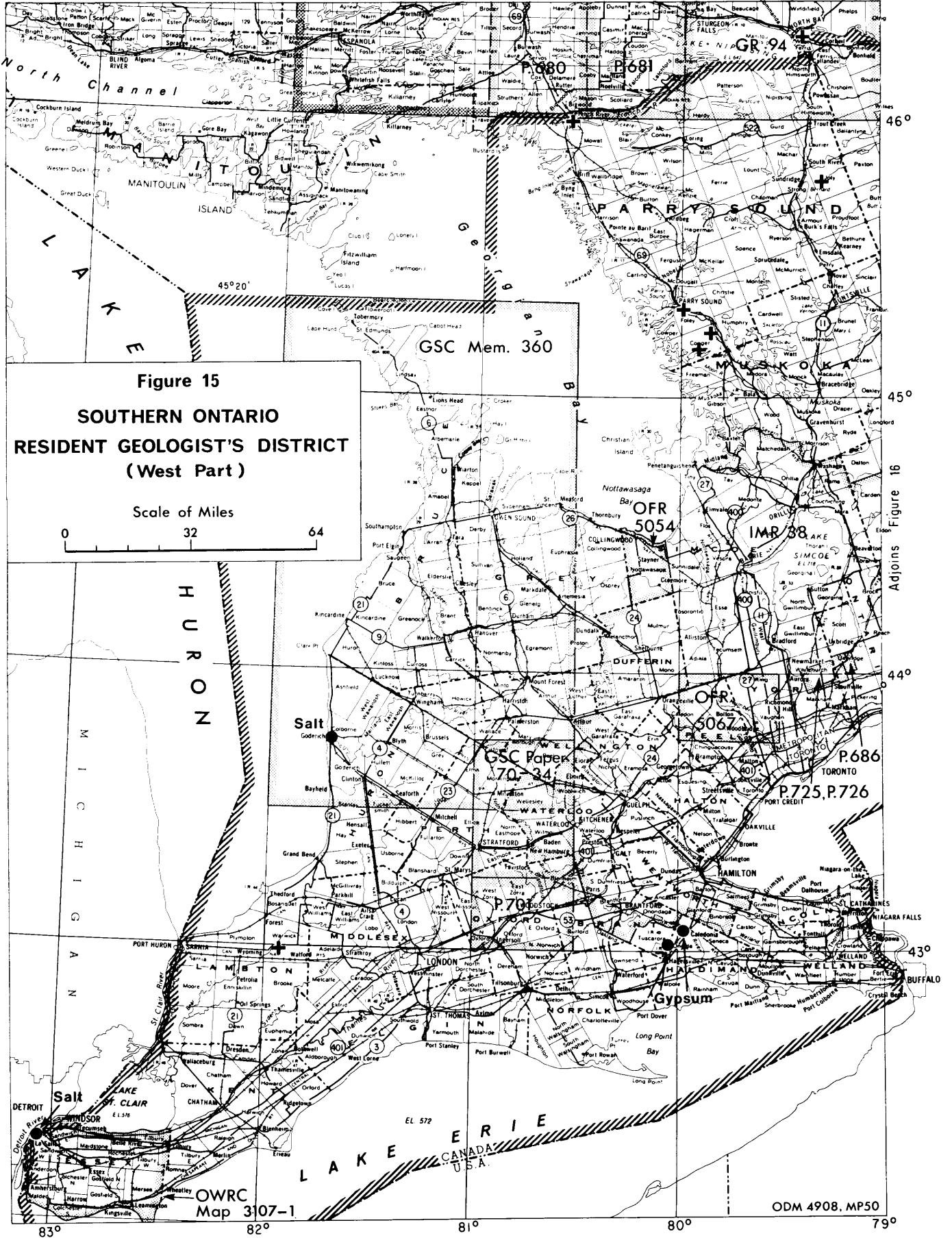


Figure 15
SOUTHERN ONTARIO
RESIDENT GEOLOGIST'S DISTRICT
(West Part)

Scale of Miles
 0 32 64

Adjoins Figure 16

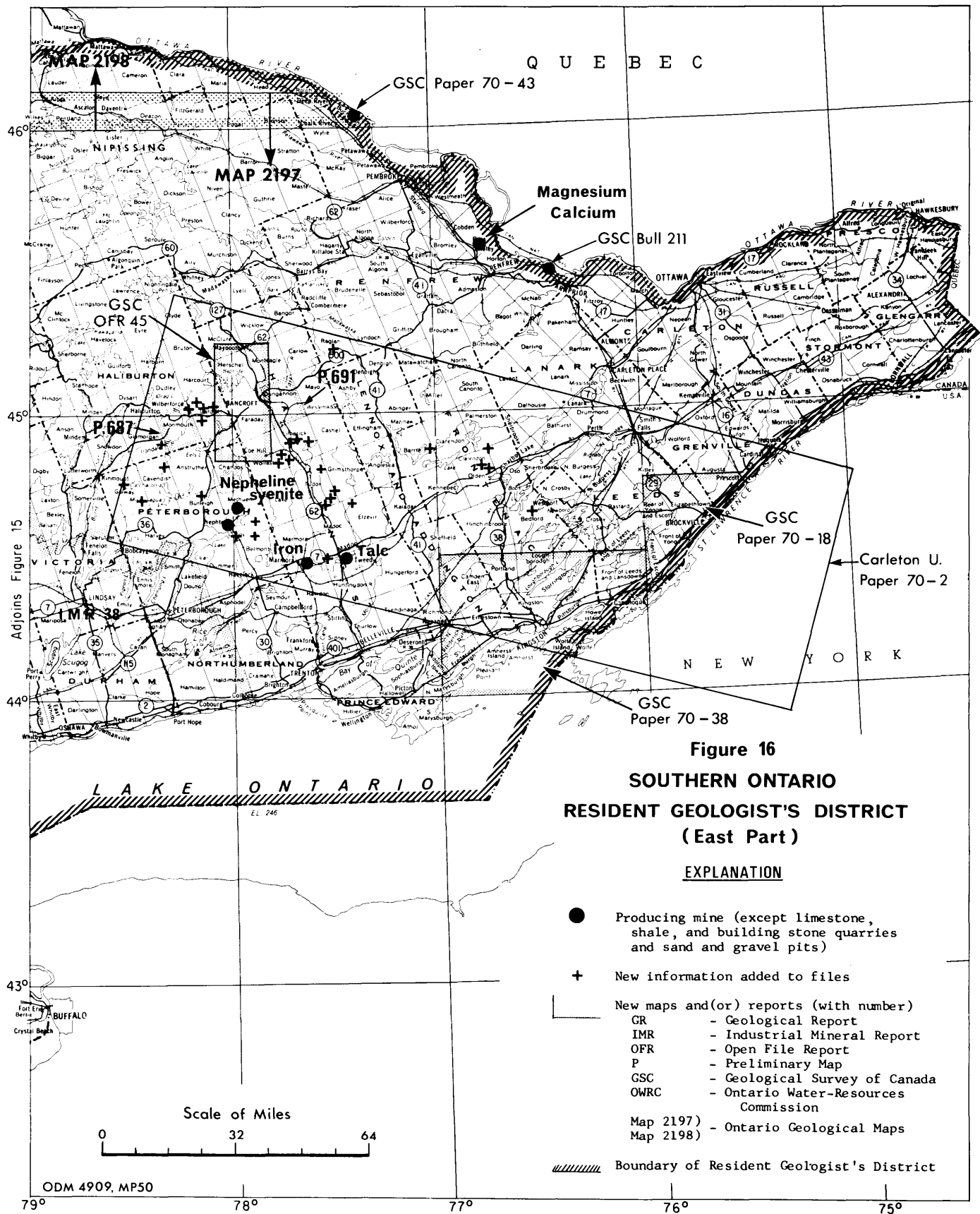


Figure 16
SOUTHERN ONTARIO
RESIDENT GEOLOGIST'S DISTRICT
(East Part)

EXPLANATION

- Producing mine (except limestone, shale, and building stone quarries and sand and gravel pits)
- + New information added to files
- ┌ New maps and(or) reports (with number)
 - GR - Geological Report
 - IMR - Industrial Mineral Report
 - OFR - Open File Report
 - P - Preliminary Map
 - GSC - Geological Survey of Canada
 - OWRC - Ontario Water-Resources Commission
- Map 2197) - Ontario Geological Maps
- Map 2198) - Ontario Geological Maps
- ▬▬▬▬▬▬ Boundary of Resident Geologist's District

ODM 4909, MP50

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SOUTHERN ONTARIO DISTRICT

By

Shirley J. Gibson¹

INTRODUCTION

A continued decrease in exploration activity in Southern Ontario (Eastern Ontario Mining Division) reflected the generally uneasy economic climate and the depressed uranium market. Proportionately more attention was given to base metals exploration.

The office was staffed by G.R. Guillet, Resident Geologist, Miss Shirley Gibson, assistant to the Resident Geologist, and Miss Janice Blair, summer geological assistant. Mrs. Lenore Fordyce, secretary, officially joined the Resident Geologists' Section in September, having previously served in the Geological Surveys Section. Early in 1972 the Resident Geologist's office will be moved from the eleventh floor to the second floor of the Whitney Block, Room W2311.

During the year Mr. Guillet continued to give consultation to geologists seeking information on Southern Ontario, but administrative duties absorbed an increasing amount of time. In April, he was appointed a commissioner on the Ontario Securities Commission. He is also chairman of the technical program committee for the 1972 annual general meeting of the Canadian Institute of Mining and Metallurgy, Industrial Minerals Division.

Miss Gibson handled much of the routine work of the office, especially that concerned with assessment files. Data Series maps, which describe and show the location of information in the Resident Geologist's files, were published for Monmouth and Dungannon Townships. Misses Gibson and Blair visited two provincial parks in Parry Sound District and a small part of Algonquin Park to collect background geological information for the Department of Lands and Forests.

Dr. J. Satterly, who retired from the Department in September, donated a collection of excellent mineral specimens, many collected from the Bancroft area in the mid-1950s at the height of the uranium exploration activity. Miss Blair catalogued and labelled them, and arranged the display of these and other selected specimens.

E.B. Freeman and E.C. Blunden of the Data Retrieval and Education Section conducted basic mineral exploration courses in seven southern centres (Hamilton, Kingston, London, Pembroke, Peterborough, Ottawa, and Toronto), organized a special topics course in Toronto, and led two practical field work courses in the Madoc area. They also lectured to many groups in Southern Ontario: 13 Junior Ranger camps, a Resource Ranger camp

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at Bracebridge, several public schools, and mineral clubs. They also gave two courses for school teachers.

The exploration assistance program announced by the Minister in August was for the most part managed from the Resident Geologist's office. The program pertains only to approved ground exploration projects in the vicinity of Red Lake, Kirkland Lake, Geraldton-Beardmore, and Cobalt-Gowganda. By the end of December, 32 projects had been approved, representing a total exploration effort of \$1,466,555. The Ontario Government agrees to pay \$482,016 of this sum. The program is expected to continue for another two years with an annual budget of \$1,000,000.

MINING ACTIVITY

Mineral Production

The level of mining activity has been fairly constant for several years. The Marmoration Mining Company, a division of Bethlehem Chile Iron Mines Company, produces iron ore pellets at a capacity of 500,000 tons annually. Dominion Magnesium Limited at Haley produces magnesium and calcium by sublimation of dolomite. All other mineral production in Southern Ontario is in nonmetallics. Nepheline syenite is produced from Blue Mountain in Methuen Township by Indusmin Limited and International Minerals and Chemical Corp. (Canada) Limited. Several grades of talc are produced by Canada Talc Industries Limited at Madoc. Ontario's two gypsum producers, Canadian Gypsum Company Limited and Domtar Construction Material Limited, are in Haldimand County. Salt is mined by the Canadian Rock Salt Company Limited at Windsor and by Domtar Chemicals Limited at Goderich, and is also produced from brine wells. Cement is produced by Canada Cement Company Ltd. at Belleville and Woodstock, by Lake Ontario Cement Ltd. at Picton, by St. Lawrence Cement Company at Clarkson (from material quarried at Colborne), and by St. Mary's Cement Company Ltd. at Bowmanville and St. Mary's. Other major industrial minerals produced include construction aggregates, lime, heavy clay products, and building stone.

The total value of mineral production in 1970, shown in Table 17, is approximately 5 percent higher than in 1969.

Table 17: Southern Ontario Mineral Production in 1970.

	Number of Producers	Quantity (tons)	Value Dollars
Iron, magnesium, calcium	2	-	15,311,972
Sand and gravel	194	64,900,872	45,809,439
Clay and shale products	45	-	24,987,764
Crushed stone	62	27,370,735	31,079,852
Cement	6	3,142,511	58,481,550
Lime	8	1,147,061	13,547,886
Gypsum	2	537,271	1,195,424
Building stone*	17	128,467	2,673,428
Salt	5	4,158,157	22,700,000
Nepheline syenite, talc	3	505,774	6,136,117
Peat	4	22,229	773,570
Natural gas		17,063,893 mcf.	6,487,852
Petroleum		1,048,168 bbl.	<u>2,839,904</u>
			\$232,024,758

*Includes ornamental stone, special aggregates, roofing granules.

Quarry Permits

A total of 78 quarry permits were issued for Southern Ontario during 1971; the number is essentially unchanged from the previous year. Quarry permits allow immediate commercial production of industrial minerals from Crown lands for a small royalty fee. Table 18 is a breakdown of quarry permits issued in 1971.

Table 18: Quarry Permits issued in 1971.

Commodity	Number of permits
Sand, gravel, and fill	70
Quartz	2
Granite	2
Stone	1
Marble	1
Flagstone	1
Mica, amazonite, feldspar	<u>1</u>
	78

EXPLORATION ACTIVITY

Summary

Exploration activity showed a further decrease during 1971. Only 392 claims were recorded in the Eastern Ontario Mining Division in 1971 compared with 508 in 1970 and 2,912 in 1969. There were 1,281 claims in good standing on December 31, 1971.

The total credit for assessment work during 1971 was almost 50 percent lower than 1970. Assessment work recorded in 1971 totalled 13,987 days credit compared to 35,887 days in 1970. Table 19 gives a breakdown by type of work. A listing of assessment files received in the Resident Geologist's office during the year is included in Table 21 in a later section.

Table 19: Assessment Work Recorded in 1969-1971.

	Number of days assessment credit		
	1971	1970	1969
Diamond drilling	6,930	18,512	34,448
Core samples	30	36	52
Manual labour	715	6,525	3,498
Power equipment	667	1,321	2,560
Geophysical surveys	5,130	8,482	7,270
Geological surveys	433	779	2,060
Geochemical surveys	-	-	326
Other expenditures	82	232	-
Land surveys	-	-	160
	13,987	35,887	50,374

Known exploration carried out during 1971 is summarized in Table 20. Much of this work was directed towards base metals; iron, uranium, molybdenum, precious metals, tremolite, and vermiculite also received attention. A number of prospects examined had been small-scale producers in the early 1900s.

Lynx-Canada Explorations Limited

Work continued through the year on the Olden Township zinc deposit 40 miles north of Kingston held under option by Lynx-Canada Explorations Limited and Canadian Reynolds Metals Co. Limited. Sphalerite is in a series of pods or lenses in a band of Grenville marble which is 4,000 feet long. A few of these lenses were mined in the early 1900s.

Fill-in drilling was completed on the original grid at the west end of the property. Holes at 25-foot centres made it possible to correlate mineralized

Table 20 Exploration in 1971 (compiled from assessment work files and news releases).

Company or Individual	Township	Commodity Sought	Work Done
T.E. Barton	Anstruther	Iron	Drilling
Bethlehem Chile Iron Mines Ltd.	Madoc	Iron	Drilling
CAM Mines Ltd. and Imperial Oil Enterprises Ltd.	Hindon	Copper	Surface exploration, geophysical work
M.L. Anna Drouin	Cardiff	--	Stripping
East Rock Explorations Ltd.	Limerick	Copper-Nickel	Magnetometer and EM surveys
Roger B. England	Tudor	Gold, silver, copper	Pitting
Great Indian Explorations Ltd.	Tudor	Base metals, silver	Drilling
Archie Haggerty	Joly	Copper	Drilling, stripping
Frank Halas	Galway	Base metals	Drilling, trenching
Heinz K. Hesselmann	Cardiff	--	Pitting
Eward T. Hogan	Cardiff	--	Trenching
Everett T. Jones	Ferrie	--	Trenching
Lynx-Canada Explorations Ltd. and Canadian Reynolds Metals Ltd.	Olden	Zinc	Drilling, geochemical survey, feasibility study
William T. Millward	Cavendish	--	Geological, magnetometer, and EM surveys
Min-Ore Mines Ltd.	Renfrew Co.	Molybdenum	Bulk sampling
William H. Nichol	West Ferris	--	Drilling
Pamike Mines Ltd.	McClintock	Nickel-copper	Drilling, geological and magnetometer survey
Power Mines Ltd.	Foley	Copper, gold, silver	Dewatering and mapping of shafts, magnetometer and EM surveys, drilling
Ram Petroleum Ltd.	Palmerston	Tremolite	Drilling, laboratory testing
Earl Sager	Madoc	Base metals	Drilling
Peter Simonds	Cardiff	Uranium	Stripping
Silver Stack Mines Ltd.	North Burgess	Vermiculite	Feasibility studies
Swiss Oils of Canada (1959) Ltd.	Galway	Uranium	Drilling
Toronado Mines Ltd.	McClintock	Nickel-copper	Linecutting
Willroy Mines Ltd.	Limerick Wollaston	Nickel-copper	Drilling, borehole geophysics; EM survey

be added early in 1972. Quarrying in the Amabel and Lockport Dolomite Formations within 300 feet of the escarpment edge is prohibited.

Geological Field Studies

Mapping of Pleistocene and Quaternary deposits was carried out by geologists of the Industrial Minerals Section in the following areas: Dundalk by Q.H.J. Gwyn; Orangeville by W.R. Cowan, Niagara by B.H. Feenstra, and Windsor-Essex by U.J. Vagners. Field studies of industrial minerals in southern Ontario undertaken by M.A. Vos included Ordovician and Devonian limestone resources, the clay products industry, and mineral resource surveys for use in local land-use planning. For details of these projects see Summary of Field Work, 1971, by the Geological Branch (Pye 1971).

Surveys begun by R.S. Middleton, geophysicist, to develop a geophysical method of mapping Pleistocene geology and sand and gravel deposits were continued. In 1970 Barringer Research Limited flew a helicopter-borne E-Phase^R survey using VLF EM waves to map variations in the apparent resistivity of the upper 300 feet of surface material in the Uxbridge area. Results were published in 1971 (ODMNA 1971a; Middleton 1970). In April 1971, the same system was flown in a fixed-wing aircraft using broadcast band and VLF transmitters to measure to a depth of 20 to 50 feet and 100 to 300 feet respectively (ODMNA 1971b; 1971c). Areas of high resistivity correlate with areas of sand and gravel, and areas of low resistivity correlate with clay and boulder clay till. Interpretation of values obtained at the two frequencies shows the near-surface and depth extent of resistive bodies, with gravel content increasing the resistivity.

Dr. R. Bell of Brock University made a reconnaissance study of the geology of the interior of Algonquin Park to assist the Ontario Department of Lands and Forests in the preparation of the park Master Plan.

NEW INFORMATION

Assessment Reports

Reports of work on unpatented mining claims submitted for assessment credit are placed on public file in the Resident Geologist's office and the assessment work library. Reports received in 1971 are listed in Table 21, and the location of work is shown in Figures 15 and 16. Several files of previously submitted work transferred from other offices are included in the table.

An index of Ontario airborne surveys filed for assessment credit is available for reference in each Resident Geologist's office and in the assessment work library. This is being revised and will be updated frequently.

Table 21 **Assessment Reports Received in 1971**

County	Township	Ownership (Optionee)	Commodity Sought	Assessment Work	File No.
Frontenac	Barrie	Rudy Bereziuk (68 Park St., Scarborough 713)	--	1970 - Trenching & pitting	Barrie 20
Frontenac	Bedford	Megaton Mines Ltd.	Lead, zinc	1970 - 1 DDH (891')	Bedford 5
Frontenac	Olden Oso Palmerston	R.J. Wright (P.O. Box 49, Toronto-Dominion Centre, Toronto 1) (Keevil Mining Group Ltd.)	Uranium	1970 - Property report Geological Survey Scintillometer survey	Olden 11
Frontenac	Olden	Solar Explorations Ltd.	Uranium	1970 - Spectrometer survey	Olden 12
Haliburton	Cardiff	Elmer Campbell (Haileybury) (Molybdenum Corp. of America)	Sulphides	1955 - 1 DDH (301')	Cardiff 128*
Haliburton	Cardiff	Alexander Skrecky (Box 85, Bancroft) (Red Bark Mines Ltd.)	Uranium, iron	1955 - 4 DDH (162')	Cardiff 129*
Haliburton	Cardiff	Peter Simonds (2682 Flannery Dr., Ottawa 8)	Uranium	1971 - Stripping	Cardiff 131
Haliburton	Cardiff	M.L. Anna Drouin (Mrs.) (298 Lavergne St., Vanier City)	--	1970-71 Stripping	Cardiff 132
Haliburton	Cardiff	Eward T. Hogan (Box 32, Wilberforce)	--	1971 - Trenching	Cardiff 133
Haliburton	Cardiff	Heinz K. Hesselmann (732 Detroit Court, Lincoln Park, Michigan 48146, U.S.A.)	--	1971 - Pitting	Cardiff 134
Haliburton	Glamorgan	Fred Walsh (Tory Hill)	--	1957 - 2 DDH (80')	Glamorgan 6*
Haliburton	Glamorgan	Nu-World Uranium Mines Ltd.	Uranium	1955 - 10 DDH (419')	Glamorgan 7*
Haliburton	Hindon	Dupel Mines Ltd.	Copper	1954-55 31 DDH (5118')	Hindon 2*
Haliburton	Monmouth	Blue Rock Cerium Mines Ltd. & Rare Earth Mining Corp. of Canada Ltd.	Uranium	1954 - 1 DDH (548')	Monmouth 24*
Haliburton	Monmouth	Canadian All Metals Exp'orations Ltd.	Uranium	1955 - Property report 26 DDH (3360')	Monmouth 25*
Haliburton	Monmouth	Cordell Gold Mines Ltd. & B. Gould	Uranium	1955 - 6 DDH (541')	Monmouth 26*
Haliburton	Monmouth	Benjamin Gould (1177 Bloor W., Toronto)	Uranium	1955 - 4 DDH (415')	Monmouth 27*
Haliburton	Monmouth	Jesko Uranium Mines Ltd.	Uranium	1954 - 13 DDH (1998')	Monmouth 28*
Haliburton	Monmouth	Long Ridge Uranium Mines Ltd.	Uranium	1958 - 4 DDH (1568')	Monmouth 29*
Haliburton	Monmouth	Benjamin Meen (129 Bannockburn Ave., Toronto 12)	Iron	1955 - 1 DDH (675')	Monmouth 30*
Haliburton	Monmouth	Rare Earth Mining Corp. of Canada Ltd.	Uranium	1954 - 3 DDH (1051')	Monmouth 31*
Haliburton	Monmouth	Saranac Uranium Mines Ltd.	Uranium	1956 - 15 DDH (3166')	Monmouth 32*
Haliburton	Monmouth	A.H. Sovereign (Huttonsville) (Fairley Red Lake Gold Mines Ltd.)	Uranium	1956 - 8 DDH (483')	Monmouth 33*
Haliburton	Monmouth	L.G. Tompkins (Gooderham) (Scaddore Gold Mines Ltd.)	Uranium	1955 - 1 DDH (520')	Monmouth 34*
Haliburton	Monmouth	Urotomic Mines Ltd.	Uranium	1956 - 2 DDH (160')	Monmouth 35*
Haliburton	Monmouth	Urotomic Mines Ltd.	Uranium	1956 - 4 DDH (644')	Monmouth 36*
Haliburton	Monmouth	Fred Walsh (Tory Hill) (Nu-Age Uranium Mines Ltd.)	Uranium	1955 - 6 DDH (240')	Monmouth 37*
Haliburton	Monmouth	Fred Walsh & G.A.McNabb (Tory Hill) (Nu-Age Uranium Mines Ltd.)	Uranium	1955 - 8 DDH (2126')	Monmouth 38*
Haliburton	Monmouth	Fred Walsh (Stratmat Ltd.)	Uranium	1955 - 3 DDH (91')	Monmouth 39*
Hastings	Dungannon	Indusmin Ltd.	Nepheline Syenite	1962 - 2 DDH (147')	Dungannon 17*
Hastings	Elzevir	Terrence F. Madden (Apt.18, 707 Dundas St. W., Whitby)	Copper, Nickel	1970 - Trenching	Elzevir 6

County	Township	Ownership (Optionee)	Commodity Sought	Assessment Work	File No.
Hastings	Elzevir	Terrence F. Madden	Copper Nickel, Platinum, Chromium	1970 - 1 DDH (500')	Elzevir 7
Hastings	Elzevir	Terrence F. Madden (Madden-Osborne Prospecting Syndicate)	Copper, Nickel, Gold, Silver	1970 - I.P. & resistivity survey	Elzevir 8
Hastings	Elzevir	Terrence F. Madden (Madden-Osborne Prospecting Syndicate)	Copper Nickel, Gold, Silver	1970 - I.P. & resistivity survey	Elzevir 9
Hastings	Limerick	John L. Campbell (3746 Sheppard Ave.E., Agincourt).	--	1970 - Stripping & Pitting	Limerick 6
Hastings	Limerick	Macassa Gold Mines Ltd.	Nickel Copper	1970 - Magnetometer Survey	Limerick 8
Hastings	Limerick	Macassa Gold Mines Ltd. (now Willroy Mines Ltd.)	Nickel, Copper	1971 - EM survey	Limerick 9
Hastings	Madoc	Bethlehem Chile Iron Mines Ltd.	Iron	1971 - 6 DDH (1670')	Madoc 16
Hastings	Monteagle	Viola M. Mintern (Mrs) (36 Dennis Ave., Toronto 9)	Feldspar	1956 - 7 DDH (1570')	Monteagle 9*
Hastings	Tudor	W.H. Musselwhite (8 Queensgrove Rd., Scarborough) (Noranda Exploration Co. Ltd.)	Copper, Nickel	1970 - 3 DDH (726')	Tudor 10
Hastings	Tudor	Heinz K. Hesselmann (732 Detroit Court, Lincoln Park, Michigan 48146, U.S.A.)	--	1970 - 1 DDH (205')	Tudor 11
Hastings	Tudor	W.H. Musselwhite (Noranda Exploration Co. Ltd.)	Copper, Nickel	1970 - 1 DDH (201')	Tudor 12
Hastings	Tudor	Roger B. England (170 Berry Rd., Apt.24A, Toronto 18)	Gold, Silver, Copper	1970-71 - Stripping, pitting & assaying	Tudor 13
Hastings	Tudor	John Tokarsky (Suite 203, - 350 Bay St., Toronto) (Great Indian Explorations Ltd.)	Copper, Nickel, Lead, Zinc, Silver	1971 - 4 DDH (996')	Tudor 14
Hastings	Wollaston	Macassa Gold Mines Ltd.	Copper, Nickel	1970 - Magnetometer survey	Wollaston 6
Hastings	Wollaston	Macassa Gold Mines Ltd.	Copper, Nickel	1970 - Magnetometer survey	Wollaston 7
Nipissing	West Ferris	William H. Nichol (Nipissing Junction)	--	1971 - 1 DDH (170')	West Ferris 2
Parry Sound	Conger	Richore Gold Mines Ltd.	Uranium	1970 - Scintillometer survey	Conger 1
Parry Sound	Conger	Richore Gold Mines Ltd.	Uranium	1970 - Airborne scintillometer survey.	Conger 2
Parry Sound	Joly	Archie Haggerty (R.R. #3, Bancroft)	Copper, Nickel	1970 - Property report Geological survey	Joly 2
Parry Sound	Mowat	David J. Morin (Box 1600, Gravenhurst)	--	1970 - Test pitting	Mowat 1
Peterborough	Belmont	C.R. Young (R.R.#1, Havelock (Keevil Mining Group Ltd.)	Copper, Zinc, Gold, Silver	1964 - 1 DDH (368')	Belmont 13*
Peterborough	Belmont	John Yatchuk (6 Dennison Ave., Toronto)	--	1970 - Test pitting	Belmont 14
Peterborough	Burleigh	Joseph Kakish (Suite 517, 85 Richmond St.W. Toronto) (Partridge River Mines Ltd.)	Uranium	1970 - Geological survey	Burleigh 15
Peterborough	Cavendish	Ganymede Uranium Mines Ltd.	Uranium	1957 - 3 DDH (1281')	Cavendish 49*
Peterborough	Cavendish	David McKay, (R.R. #4, Wakefield)	--	1970 - Stripping	Cavendish 52
Peterborough	Galway	Frank Halas (79 Woodycrest Ave., Toronto 6)	Uranium, Sulphides	1970 - Magnetometer survey Geiger counter survey	Galway 10

County	Township	Ownership (Optionee)	Commodity Sought	Assessment Work	File No.
Peterborough	Galway	Frank Halas	Sulphides	1970 - 5 DDH (255')	Galway 11
Peterborough	Galway	Frank Halas	Sulphides	1970 - Trenching	Galway 12
Peterborough	Galway	George C. Stevens (250 University Ave., 7th Floor, Toronto) (Swiss Oils of Canada (1959) Ltd.)	Uranium	1970 - Geological Survey Spectrometer survey.	Galway 13
Peterborough	Galway	George C. Stevens (Swiss Oils of Canada (1959) Ltd.)	Uranium	1971 - 1 DDH (102')	Galway 14
Peterborough	Galway	Frank Halas	Sulphides	1971 - 8 DDH (820')	Galway 15
Peterborough	Galway	Frank Halas	Sulphides	1971 - Trenching	Galway 16
Peterborough	Galway	Frank Halas	Sulphides	1971 - 1 DDH (120')	Galway 17
Peterborough	Methuen	Marshall R. Tripp (R.R. #3, Port Perry)	Iron, Titanium	1969 - 2 DDH (298')	Methuen 7
Peterborough	Methuen	Marshall R. Tripp	Iron, Titanium, Copper, Nickel	1970 - 2 DDH (435')	Methuen 8
Peterborough	Methuen	W.A. Brown et al. (Trent River)	Iron, Titanium	1969-70 14 DDH (1956')	Methuen 9
Renfrew	Raglan	Stewart Henderson (Box 601, Bancroft)	--	1970 - Pitting	Raglan 14

* Reports of previously submitted work, added to Resident Geologist's files during 1971.

Other Information

Other reports added to the files are listed in Table 22. Most of these are prospectuses and accompanying property reports filed with the Ontario Securities Commission.

Also received were data sheets on southern Ontario uranium and gold deposits compiled by the Data Retrieval and Education Section. Other acquisitions include some of the colour and infrared (both colour and black and white) airphotos taken by a private firm under contract to the Geological Survey of Canada. Geological Survey of Canada gamma ray spectrometer radioactive element profiles and ratio maps from the Bancroft area are now in the Resident Geologist's office. These open files are listed under new publications.

The new Ontario Geological Map, in five parts (Ayres *et al.* 1971a; 1971b; 1971c; 1971d; 1971e) contains significant changes in interpretation of Grenville geology.

1971 Publications, Ontario Department of Mines and Northern Affairs

Geological Report

GR94 Geology of the North Bay area, Districts of Nipissing and Parry Sound; by S.B. Lumbers. Accompanied by Map 2216, scale 1 inch to 2 miles.

Industrial Mineral Reports

IMR35 The Niagara Escarpment; by D.F. Hewitt.
IMR36 Asbestos in Ontario; by M.A. Vos
IMR38 Mineral resources of the Toronto-centred region; by D.F. Hewitt and S.E. Yundt. Accompanied by 5 maps.

Mineral Resources Circular

MRC14 Columbium (niobium) deposits of Ontario; by Stewart A. Ferguson.

Miscellaneous Papers

MP46 Annual report of the Resident Geologists' Section, Geological Branch, 1970; edited by G.R. Guillet.
MP49 Summary of field work, 1971, by the Geological Branch, MP49, edited by E.G. Pye.

Coloured Geological Maps

Map 2188 Sudbury-Cobalt Sheet, Algoma, Manitoulin, Nipissing, Parry Sound, Sudbury, and Timiskaming Districts, Geol. Comp. Series; compiled by K.D. Card, J.F. Donovan, H.L. Lovell, S.B. Lumbers, H.D. Meyn, W.S. Savage, R. Thomson, and J.E. Thomson. Scale 1 inch to 4 miles.

Table 22

Other Reports Received in 1971

County	Township	Ownership	Commodity Sought	Type of Work	File No.
Carleton	Fitzroy	Stanton Lead Mines Ltd.	Lead	1951 - ODM Property examination	Fitzroy 2
Frontenac	Bedford Loughborough	Richardson Feldspar Mine, etc.	Feldspar	1946 - M.Sc. thesis (Geology of the Desert Lake Area) by H.I. Marshall	Bedford 4
Haliburton	Cardiff	International Mine Services Ltd. (Initiative Explorations Ltd.)	Uranium	1971 - Progress report Prospectus (Initiative)	Cardiff 130
Haliburton	Cardiff Monmouth	Amalgamated Rare Earth Mines Ltd.	Uranium	1971 - Prospectus	Cardiff 58
Haliburton	Glamorgan	Mandarin Mines Ltd.	Uranium	1971 - Property report Prospectus.	Glamorgan 5
Haliburton	Monmouth Cardiff	Landair Explorations Ltd.	Fluorite, Uranium	1971 - Property report Prospectus.	Monmouth 51
Hastings	Limerick	East Rock Explorations Ltd.	Base metals	1970 - Property report Prospectus	Limerick 7
Lambton	Warwick	New United Salt Mines Ltd.	Salt	1971 - Property report Prospectus.	Warwick 3
Parry Sound	Foley	Power Mines Ltd.	Copper, Gold, Silver	1971 - Property report Prospectus.	Foley 1
Peterborough	Cavendish	Amalgamated Rare Earth Mines Ltd.	Uranium	1971 - Prospectus.	Cardiff 58

- Map 2197 Southern Sheet, Ontario Geological Map. Scale 1 inch to 16 miles.
Map 2198 East Central Sheet, Ontario Geological Map. Scale 1 inch to 16 miles.

Preliminary Maps

- P.680 Burwash area (west half), Districts of Sudbury and Parry Sound; by S.B. Lumbers. Scale 1 inch to 1 mile.
P.681 Burwash area (east half), Districts of Nipissing, Parry Sound, and Sudbury; by S.B. Lumbers. Scale 1 inch to 1 mile.
P.686 Uxbridge Township (part of), Ontario County, Geoph. Ser., helicopter E-PhaseTM survey, apparent resistivity contours; airborne survey by Barringer Research Limited. Scale 1 inch to 800 feet.
P.687 Monmouth Township, Haliburton County, Data Series; compiled by S. Gibson. Scale 1 inch to 1/2 mile.
P.691 Dungannon Township, Hastings County, Data Series; compiled by S. Gibson. Scale 1 inch to 1/2 mile.
P.701 Pleistocene geology of the Woodstock area, southern Ontario; by W.R. Cowan. Scale 1:50,000.
P.725 Airborne broadcast-band E-Phase^R survey, apparent resistivity contours, Uxbridge, Whitchurch, and Markham Townships (parts of), York and Ontario Counties; airborne survey by Barringer Research Limited. Scale 1 inch to 1/2 mile.
P.726 Airborne VLF E-Phase^R survey, apparent resistivity contours, Uxbridge, Whitchurch, and Markham Townships (parts of), York and Ontario Counties; airborne survey by Barringer Research Limited. Scale 1 inch to 1/2 mile.

Open File Reports

- OFR5054 Industrial mineral resources of Nottawasaga Township, Simcoe County, Ontario; by G.J. Burwasser.
OFR5057 Some radioactive mineral occurrences in the Counties or Districts of Frontenac, Haliburton, Hastings, Manitoulin, Nipissing, Parry Sound, Peterborough, and Renfrew (1954-1957); by J. Satterly.
OFR5067 Pleistocene geology of the Bolton area, southern Ontario; by O.L. White.

Other Publications

- Vol.79 Annual report on mining operations in Ontario during calendar year 1969; by G.S. Riddell.
Vol.2 Annual statistical report on the mineral production of Ontario during calendar year 1969; by E.E. Matten.
1970 Annual review of the Ontario Department of Mines and Northern Review Affairs.
Map 2211 Discover Ontario; colourful brochure emphasizing the mineral-collecting areas of Ontario.
Rocks and minerals information (revised 1971); booklet listing pertinent government publications and company brochures, sources of rock and mineral specimens, and mineral clubs.

1971 Publications, Geological Survey of Canada

- Econ. Geol. Rept. No.1 (fifth edition), Geology and economic minerals of Canada; edited by R.J.W. Douglas. Accompanied by 4 correlation charts and 8 maps, scale 1:5,000,000 (published 1970).
- Econ. Geol. Rept. No.7 (fourth edition), Prospecting in Canada; by A.H. Lang (published 1970).
- Bulletin 181, Faunas of the Pleistocene Champlain Sea; by Francis J.E. Wagner (published 1970).
- Bulletin 187, Contributions to Canadian paleontology (nine papers) (published 1970).
- Bulletin 211, A Middle Ordovician fauna from Braeside, Ottawa Valley, Ontario; by H.M. Steele and G.W. Sinclair.
- Memoir 360, Paleozoic geology of the Bruce Peninsula area, Ontario; by B.A. Liberty and T.E. Bolton. Accompanied by Map 1194A, scale 1 inch to 4 miles.
- Paper 70-2, Part B - Radiocarbon dates IX; by J.A. Lowdon and W. Blake, Jr.
- Paper 70-18, Surficial Geology Map (No.6-1970) of Brockville and Mallorytown map-areas, Ontario; by E.P. Henderson. Scale 1:50,000.
- Paper 70-34, Quaternary geology of the Stratford-Conestogo area, Ontario; by P.F. Karrow. Accompanied by Maps 26-1970, 27-1970, 28-1970, and 29-1970, scale 1:50,000.
- Paper 70-35, Paleozoic geology of Wolfe Island, Bath, Sydenham, and Gananoque map-areas, Ontario; by B.A. Liberty. Accompanied by Maps 17-1970, 18-1970, 19-1970, and 20-1970, scale 1:50,000.
- Paper 70-43, Biogeochemical investigations in the Perch Lake area, Chalk River, Ontario; by E.H.W. Hornbrook.
- Paper 70-48, Geological comparison between East European and Canadian uranium deposits; by V. Ruzicka.
- Paper 70-50, Rocks and minerals for the collector: Ottawa to North Bay, Ontario; Hull to Waltham, Quebec; by Ann P. Sabina.
- Paper 70-69, Notes on lacustrine manganese-iron concretions; by J. Terasmae.
- Paper 71-1, Part A - Report of activities, April to October 1970; compiled by R.G. Blackadar.
- Paper 71-1, Part B - Report of activities, November 1970 to March 1971; compiled by R.G. Blackadar.
- Paper 71-4, Abstracts of publications in scientific journals by officers of the Geological Survey of Canada, April 1970 to March 1971.

Open File 45, Experimental high-sensitivity gamma-ray spectrometer survey flight profiles and contoured radiometric maps showing radioactive element count rates and ratios, Bancroft area.

Open File 53, Thermal infrared imagery, flight log data, index maps and report of infrared survey flown over various parts of southern Ontario and Quebec.

Open File 55, Flight data, index maps and samples of imagery using panchromatic, infrared, colour and false-colour (both negative and positive) on two flights west from Bancroft and colour and panchromatic colour separation negatives on one flight in Quebec.

Index Sheet No.31 (revised), Index of published geological maps (GSC) to March 1, 1971, latitude 44°-48°, longitude 72°-80°.

Index Sheet No.30,40 (revised), Index of published geological maps (GSC) to July 31, 1971, latitude 42°-44°, longitude 75°-83°.

1971 Miscellaneous Publications

Ontario Water Resources Commission (135 St. Clair Ave. West, Toronto 195).

Map 3107-1, Ground water probability map, County of Essex. Scale 1:100,000.

Bulletin 2-10, Ground Water Series. Ground water in Ontario, southwestern area, 1964 to 1967 (published 1970).

Carleton University, Department of Geology, Ottawa.

Paper 70-2, Geology of the Kingston area: a compilation; compiled by G. MacDonald. Scale 1:250,000 (published 1970).

Guelph University, Department of Soil Science, Guelph.

The rocks and soils of southern Ontario; by I.P. Martini, R. Protz, and W. Chesworth (published 1970).

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 - 1971b: Ontario Geological Map, East Central Sheet; Ontario Dept. Mines and Northern Affairs, Map 2198, scale 1 inch to 16 miles. Compilation 1970.
 - 1971c: Ontario Geological Map, West Central Sheet; Ontario Dept. Mines and Northern Affairs, Map 2199, scale 1 inch to 16 miles. Compilation 1970.
 - 1971d: Ontario Geological Map, Northeast Sheet, Ontario Dept. Mines and Northern Affairs, Map 2200, scale 1 inch to 16 miles. Compilation 1970.

- 1971e: Ontario Geological Map, Northwest Sheet; Ontario Dept. Mines and Northern Affairs, Map 2201, scale 1 inch to 16 miles. Compilation 1970.
- Middleton, R.S.
- 1970: Airborne geophysical surveys in northern and southern Ontario; p.72-73 in Summary of field work, 1970, by the Geological Branch, edited by E.G. Pye, Ontario Dept. Mines and Northern Affairs, MP43, 96p.
- Northern Miner
- 1971a: Limerick Township nickel deposit (article); Northern Miner Press, p.17(549), 24(556), May 27, 1971.
- 1971b: Hopes high for Lynx-Canada Kingston area zinc property (article); Northern Miner Press, p.11(871), September 2, 1971.
- 1971c: Lynx-Canada results better than expected (article); Northern Miner Press, p.17(923), September 16, 1971.
- 1971d: Willroy revises ore calculations (query); Northern Miner Press, p.18(1044), October 14, 1971.
- 1971e: Lynx-Canada to continue testing but new financing needed (article); Northern Miner Press, p.18(1132). November 11, 1971.
- 1971f: Lynx-Canada drill results encouraging (article); Northern Miner Press, p.3(1333), December 30, 1971.
- ODMNA
- 1971a: Uxbridge Township (part of), Ontario County; Ontario Dept. Mines and Northern Affairs, Prelim. Map P.686, Geoph. Ser., Helicopter E-PhaseTM Survey, apparent resistivity contours, scale 1 inch to 800 feet. Survey flown 1970.
- 1971b: Uxbridge, Whitchurch, and Markham Townships (parts of), York and Ontario Counties; Ontario Dept. Mines and Northern Affairs, Prelim. Map P.725, Geoph. Ser., Airborne Broadcast Band E-Phase^R Survey, apparent resistivity contours, scale 1 inch to 2,640 feet. Survey flown April 1971.
- 1971c: Uxbridge, Whitchurch, and Markham Townships (parts of), York and Ontario Counties; Ontario Dept. Mines and Northern Affairs, Prelim. Map P.726, Geoph. Ser., Airborne VLF E-Phase^R Survey, apparent resistivity contours, scale 1 inch to 2,640 feet. Survey flown April 1971.
- Pye, E.G. (editor)
- 1971: Summary of field work, 1971, by the Geological Branch, Ontario Dept. Mines and Northern Affairs, MP49, 109p.

SUDBURY DISTRICT

By

D.G. Innes

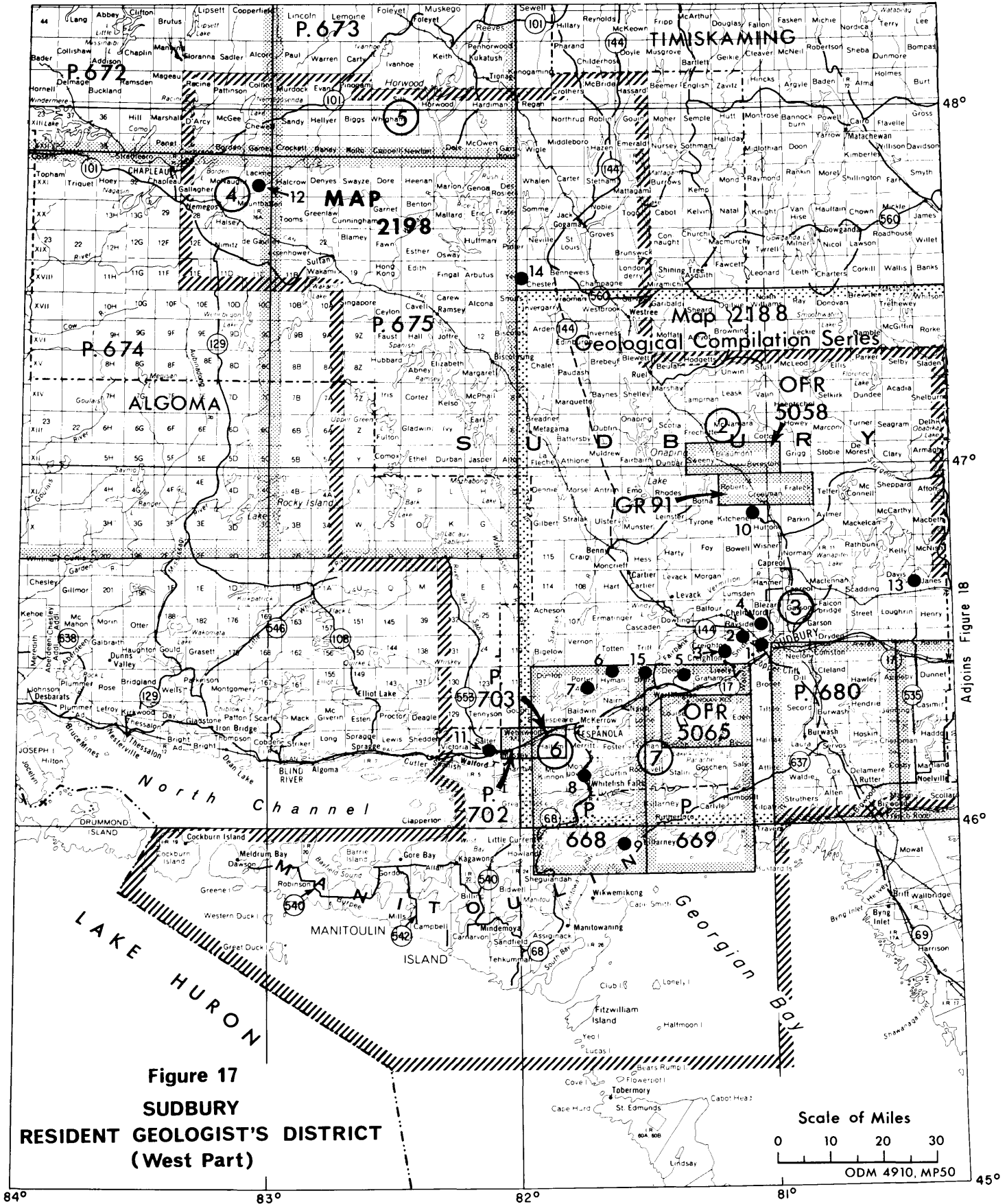


Figure 17
SUDBURY
RESIDENT GEOLOGIST'S DISTRICT
(West Part)

Adjoins Figure 18

45°

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18. Sudbury Resident Geologist's District (East Part)	141

Meyn (1971) investigated the Archean and Proterozoic rocks in an area northeast of Sudbury. A body of magnetite iron formation in Cotton Township is of possible economic potential.

Wolfe (1971) carried out experimental geochemical surveys in the vicinity of the Nemogosenda, Lackner Lake, and Seabrooke Lake alkalic-carbonatite complexes to test the detectability of clastic dispersion in glacial drift around these bodies.

In an Archean greenstone belt in the northern part of the district, there are sulphide-bearing mafic and felsic metavolcanics, subvolcanic granitic intrusions, iron formation, and metasediments (Milne and Breaks 1971).

Robertson and Siemiatkowska (1971) worked in May and Hallam Townships in the area along the contact between the Southern and Superior Provinces. They established the fact that there are sulphide-bearing Proterozoic metavolcanics and an anorthositic gabbro intrusion which is probably a member of a group of such intrusions located along the Archean-Proterozoic contact in this region.

Card and Innes investigated problem areas and measured stratigraphic sections of most of the Huronian sequence in the Panache Lake area southwest of Sudbury (Card and Innes 1971). Preliminary Compilation Maps (Card 1971a; 1971b) of this area at a scale of 1 inch to 1 mile were released during 1971. The volcanic sequence at the base of the Huronian has many features in common with Archean greenstone belts in which there are important mineral deposits. These features include a cyclic nature, an overall progression from mafic to felsic extrusive activity, the presence of relatively high-level granitoid plutons (Creighton and Murray Granites), and the occurrence of extensive, stratiform zones of sulphide mineralization. The sequence merits detailed exploration.

Card and Innes visited the Agnew Lake Mines Ltd. property in Hyman Township (Location 6, Figure 17) and the Spanish River Mines Limited in Baldwin Township (Location 7, Figure 17).

MINING AND EXPLORATION ACTIVITY

There was a marked decline of mining and exploration activity in the Sudbury District during 1971. According to the office of the Mining Recorder, Sudbury, there were 1,350 claims recorded in 1971 as compared with 3,868 claims in 1970. The International Nickel Company of Canada, Limited recently announced the temporary closure of the Murray Mine in McKim Township (Location 1, Figure 17); the immediate suspension of operations at the Clarabelle No. 2 open pit in Snider Township (Location 2, Figure 17); closure of the No. 3 Shaft of the Creighton Mine in Snider Township (Location 3, Figure 17), and the Creighton Mill by January 1972. In addition, production will be reduced at the Stobie section of the Frood-Stobie Mine in Blezard Township (Location 4, Figure 17). A general three-week shut down of INCO operations in the Sudbury area is scheduled for mid-summer 1972.

Falconbridge Nickel Mines Limited announced in September 1971 that construction work at the new Lockerby Mine in Denison Township (Location 5,

Figure 17) was to be slowed down, and a general two-week shut down of operations is scheduled for mid-summer 1972.

The Agnew Lake Mines Limited uranium mine in Hyman Township (Location 6, Figure 17) suspended mining operations but surface exploration work was continued. In 1971, Spanish River Mines Limited suspended operations at their copper mine in Baldwin Township (Location 7, Figure 17).

INCOs Lawson Quarry near Whitefish Falls (Location 8, Figure 17) and the Indusmin Limited quarries in the Killarney area (Location 9, Figure 17) continued their silica quarrying operations throughout 1971.

Throughout 1971, the National Steel Corporation of Canada Limited in Hutton Township (Location 10, Figure 17) continued production of iron-ore pellets. Production continued at the Hermina Mine near Massey (Location 11, Figure 17) with the ore being treated at the Pronto Mill in Spragge.

According to the Northern Miner, arrangements between Multi-Minerals Limited and Fetio Industrial Development Limited have been made to establish production of the No. 6 titaniferous magnetite-apatite and rare earth orebody near Nemegos, Ontario (Location 12, Figure 17).

Mid-North Engineering Services Limited continued the investigation of diabase bodies with widespread, low-grade copper-nickel mineralization in Davis and Janes Townships (Location 13, Figure 17).

Throughout 1971, exploration for copper and gold mineralization associated with metavolcanics and metasediments in Benneweiss and Chester Townships (Location 14, Figure 17) was carried out by Mr. H. Cravit, Safari Explorations Limited, Texas Gulf Sulphur Co., Beaverbridge Mines Limited, Bridge Hill Mines Limited, Gogama Minerals Limited, Kingbridge Mines Limited, Viewpoint Explorations Limited, T.C.H. Baldwin, J. Jones, and W.R. Miller.

Acme Gas and Oil Co. Limited continued exploration for uranium and base metals in the Agnew Lake area, Drury Township (Location 15, Figure 17).

NEW INFORMATION

References in papers, geological reports, and maps containing information on the geology and known ore deposits of the Sudbury District are listed below. Assessment work data received in 1971 is in Table 24 and is summarized in Table 23. For comparison, figures for 1970 are included.

Table 23. Summary List of New Information Received.

	<u>1970</u>	<u>1971</u>
Townships or areas represented	455	455
Geological Surveys	41	14
Geophysical Surveys	57	59
Reports of drilling	140	47
Total footage of reported drilling	73,895.5	44,839
Reports of stripping and trenching	34	47
Quarry permits	95	82

Table 24

Assessment and other Reports Received in 1971

GL Geological survey SP Self Potential survey DDH Diamond drill hole log Rept. Report
 GP Geophysical survey MAG Magnetometer survey SDDH (1230') diamond drill Tr. Trenching
 EM Electromagnetic survey RA Radiometric survey hole logs for 1,230 feet St. Stripping

Symbols

Au Gold Cu Copper Ky Kyanite U Uranium
 Cb Columbium F Fluorite Ni Nickel Zn Zinc
 S Sulphides

Date received means the date on which the file was received at the Sudbury office.

Township or Area	Ownership	Date Received	Nature of Work	No. of Claims	Commodity
Badgley Island, Killarney	Indusmin Limited	June 29/71	Topographic map; work with mech. equipment.		
Baldwin	Rivers, E. J.	Feb. 2/71	1 DDH (1006'). Assays.	1	Cu, Ni
	Stump Mines Limited	Nov. 22/71	Prospectus.	10	
Benne Weiss	Cravit, H.	Mar. 19/71	GP: work.	12	
	Cravit, H.	June 29/71	3 DDH (1001'). Location map.	3	Cu
	Cravit, H.	Sept. 7/71	GP: EM rept. & maps. Location.	12	Cu, Au
	Safari Explorations Ltd.	June 29/71	DD program & core specimens; grid. GP: work.	9	
	Texas Gulf Sulphur Co. Inc.	Oct. 20/71	1 DDH (352'). Location.	1	Cu, Ni
Blezard	Kenn Holdings & Mng. Ltd.	June 29/71	GP: MAG survey.	37	
Blezard & Gaxson	Kenn Holdings & Mng. Ltd.	Aug. /71	GP: MAG survey.	37	
Broder	Rainville, Robert Romeo	Aug. /71	Manual labour. Location.	1	
	Rainville, Robert Romeo	Oct. 20/71	Manual labour.	1	
Butler	Macwilliam, Morris Jr.	Sept. /71	2 DDH (241'). Locations.	1	Verm.
	Roy, Joseph	Apr. 19/71	GP: RA ground surveys.	6	U ₃ O ₈
	Roy, Joseph	Apr. 19/71	Rock-trenching.	1	
	Roy, Joseph	Sept. 7/71	GP: RA survey & map.	6	U ₃ O ₈
Carew	Texas Gulf Sulphur Co. Inc.	June 29/71	2 DDH (472'). Locations.	1	Cu
Champagne	Molly River Mines Limited	May 27/71	Prop. rept. Location claim map. Prospectus.	23	Au, Cu
	Tokarsky, John	Sept. 14/71	7 DDH (1007'). Locations.	3	Cu, Ni
	Tokarsky, John	Oct. 20/71	GP: MAG work.	18	
Chester	Baldwin, Thomas C. H.	Apr. 19/71GP	GP: ground & Ronka EM survey.	6	
	Baldwin, Thomas, C. H.	Sept. 28/71	1 DDH (704'). Location.	1	
	Baldwin, Thomas, C. H.	Oct. 13/71	GP: ground & EM rept. Maps & sections.	9	
	Beaverbridge Mines Ltd.	Aug. /71	1 DDH(307').	1	Au
	Bridge Hill Mines Ltd.	Aug. 24/71	Expl. rept. Location Plan. Plan of sampling and vein system. Assay.	19	Cu, Au
	Gogama Minerals Ltd.	Apr. 6/71	GP: EM rept. & maps.	12	Cu
	Gogama Minerals Ltd.	Aug. /71	GP: EM survey.	11	Cu
	Jones, John	Feb. 21/71	Manual labour (St. & Tr.). Plugger (cobra). Location.	2	
	Jones, John	Feb. 21/71	Manual labour (St. & Tr.). Plugger (cobra). Location.	2	
	Kingbridge Mines Ltd.	Apr. 19/71	1 DDH (514'). Location.	1	Cu
	Kingbridge Mines Ltd.	Oct. 20/71	1 DDH(709'). Location.	1	Au, Cu, Mo
	Miller, Wm. Russell	Feb. 2/71	Manual labour. Location.	1	
	Miller, Wm. Russell	Sept. 29/71	1 DDH(150'). Location.	1	Mo?
	Viewpoint Explorations Ltd.	Sept. 8/71	Prospectus. Prop. rept. Plan of DDH.	14	Cu, Au
Chester & Benne Weiss	Hames, C. Marshall	Oct. 20/71	GP: IP survey.	20	
Craig	Almore Explorations Ltd.	Aug. /71	GP: MAG & EM surveys.	18	Cu, Au
Creelman	Assembly Mines Ltd.	Feb. 2/71	DD Plan. Location.	1	U ₃ O ₈
Creelman & Hutton	Initiative Explorations Ltd.	Apr. 30/71	Progress rept.	29	U ₃ O ₈
Crerar	Tomrose Mines Ltd.	Feb. 2/71	Manual labour (Tr., sampling). Location.	1	Ni, Cu
	Tomrose Mines Ltd.	Feb. 2/71	Plugger	1	Ni, Cu
Cunningham	Consolidated Shunsby Mines Ltd.	Feb. 2/71	Assay charge credits.	9	Zn, Cu, Pb
	Consolidated Shunsby Mines Ltd.	Nov. 22/71	Prospectus.		Cu, Zn

Township	Ownership	'Date Received'	Nature of Work	'No. of'Commodity 'Claims'
Cunningham	'Sootheran, Earle	'Aug. /71	'St., Tr. Location.	1 'Au, Ag
Curtin	'Bousquet, Lorne	'Oct. 9/71	'Mech. equipment.	2
	'White, Stanley J.	'Feb. 2/71	'Tr. with gas drill. Location.	3 'Cu
Davis & Janes	'Mid-North Eng. Serv. Ltd.	'Feb. 2/71	'3 DDH(1027'). Location.	2 'Cu, Ni
	'Mid-North Eng. Serv. Ltd.	'Feb. 2/71	'GP: survey.	10 'Cu, Ni
	'Mid-North Eng. Serv. Ltd.	'June 22/71	'GP: MAG & EM surveys & maps.	10 'Cu, Ni
Demorest	'Patrie, J. P.	'Oct. 20/71	'8 DDH (667'). Locations.	1 'Cu, Ag, Zn
Denyes	'Plese, Mike	'Feb. 2/71	'Plugger. Location.	1
	'Scan Explorations Ltd.	'Oct. 20/71	'GP: EM survey.	17
Denyes & Swayze	'Brown, Ethel C.	'Aug./71	'Manual labour. Location.	8
	'Brown, Ethel, C.	'Oct. 20/71	'Manual labour.	1
Dowling	'International Nickel 'Company of Canada Ltd., The	'Aug. /71	'GP: MAG survey. EM survey.	4
Drury	'Acme Gas & Oil Co. Ltd.	'Apr. 19/71	'GL: work.	18
	'Acme Gas & Oil Co. Ltd.	'Apr. 19/71	'1 DDH (1807'). Location.	1 'U ₃ O ₈
	'Acme Gas & Oil Co. Ltd.	'Apr. 19/71	'1 DDH (954'). Location.	2 'U ₃ O ₈
	'Acme Gas & Oil Co. Ltd.	'Oct. 20/71	'4 DDH (3073'). Locations.	4 'U ₃ O ₈
	'Acme Gas & Oil Co. Ltd.	'Nov. 1/71	'1 DDH (954'). Location.	2
Dryden	'Lariviere, Wilfred and 'Desgranges, R.	'Feb. 2/71	'1 DDH (120'). Location.	1 'Cu, Ni
Elizabeth	'Texas Gulf Sulphur Co. Inc.	'June 29/71	'GP: MAG survey.	3
Falconbridge	'Hodden Grey Mining and 'Explorations Ltd.	'Oct. 18/71	'Prospectus.	6
	'Kingsland, L. R.	'Feb. 2/71	'GP: MAG survey.	12
	'Kingsland, L. R.	'June 29/71	'2 DDH (604'). Locations.	2 'U ₃ O ₈
	'Kingsland, L. R.	'June 29/71	'2 DDH (611'). Locations.	2 'U ₃ O ₈
	'Robinson, F.	'June 29/71	'2 DDH (501'). Locations.	2 'Cu, Ni
	'Robinson, F.	'June 29/71	'2 DDH (510'). Locations.	2 'Cu, Ni
	'Thorpe Bay Explorations Ltd.	'Feb. 5/71	'GP: MAG survey. GL: survey. EM survey plan 'with GL findings.	32 'Cu, Ni
	'Thorpe Bay Explorations Ltd.	'Oct. 10/71	'6 DDH (1545.4'). Location.	6 'Ni, Cu
Falconbridge	'Walsh, Eber	'Sept. 28/71	'3 DDH (329'). Locations.	3
	'Walsh, Eber	'Oct. 20/71	'1 DDH (104'). Location.	1
Foster	'Cerro Mining Co. of Canada 'Ltd.	'May 3/71	'Tr. Surface sampling rept. Plan of locations. 'Assays.	4 'Cu, Zn, MoS ₂ 'Bi, W, Sn, Ag
	'Dauphin Iron Mines Ltd.	'Sept. 27/71	'12 DDH (3174.5'). Locations.	4 'Cu, Ni
	'Tamminen, T.	'Feb. 2/71	'Mech. equipment (plugger).	1
	'Tamminen, T.	'Feb. 2/71	'Manual work. Location of new trenches.	1
	'Tamminen, T.	'Feb. 2/71	'Assay. Rept. of Tr. and surface sampling.	1 'W, MoS ₂ , Bi 'Cu, Ag
Garson	'International Nickel 'Company of Canada Ltd., The	'Aug. /71	'1 DDH (602'). Location.	1
Genoa	'Amalgamated Rare Earth Mines 'Ltd.	'Sept. 8/71	'Prospectus.	'Cu
	'Marquis Explorations Ltd.	'Oct. 20/71	'GP: MAG survey.	12 'Cu
	'Marquis Explorations Ltd.	'Oct. 20/71	'GP: Resistivity survey.	12 'Cu
	'Marquis Explorations Ltd.	'Oct. 20/71	'GP: IP survey.	12 'Cu
Genoa & Eric	'Marquis Explorations Ltd.	'May 27/71	'Prospectus.	49 'Cu
	'Parr Mines Limited	'Aug. 24/71	'Prospectus.	36 'Cu
	'Parr Mines Limited	'Aug. 24/71	'Exploration rept.	182 'Cu
Graham	'Falconbridge Nickel Mines 'Limited	'Feb. 2/71	'GL: mapping.	18
	'Falconbridge Nickel Mines 'Limited	'Mar. 12/71	'GL: rept. & map	18 'Cu
Graham	'Falconbridge Nickel Mines 'Limited	'June 29/71	'2 DDH (1240'). Location, maps & sections.	1 'Cu, Ni
	'Falconbridge Nickel Mines 'Limited	'Nov. 4/71	'GP: surveys.	18

Township or Area	Ownership	Date Received	Nature of Work	No. of	Commodity
	'International Nickel Company of Canada Ltd., The	'Apr. 19/71	'2 DDH (2006'). Locations.	2	
	'International Nickel Company of Canada Ltd., The	'May 17/71	'GP: MAG rept. & map.	1	
	'Palangio, Carl A.	'June 29/71	'2 DDH (367'). Locations.	1	'Cu,Ni
Hammer	'International Nickel Company of Canada Ltd., The	'Oct. 20/71	'GP: MAG survey.	2	
	'International Nickel Company of Canada Ltd., The	'Oct. 20/71	'GP: EM survey.	2	
	'International Nickel Company of Canada Ltd., The	'Oct. 20/71	'GP: EM & MAG surveys.	4	
	'International Nickel Company of Canada Ltd., The	'Nov. 2/71	'GP: EM survey.	2	
	'International Nickel Company of Canada Ltd., The	'Nov. 2/71	'GP: MAG survey.	2	
Hart	'Roth, Clarence B.	'Feb. 2/71	'Bulldozing. St. Manual labour. Location.	2	
	'Landry, Alcide	'Apr. 19/71	'Drilling & mucking.	1	
Hodgetts	'Metron Explorations Ltd.	'Feb. 9/71	'GP: EM survey (rept. & map).	18	
	'Seldore Mining Co. Ltd.	'Apr. 30/71	'Prospectus. GL: rept. & map. Location map.	18	'Cu
Huffman & Osway	'Falconbridge Nickel Mines Limited	'Aug. /71	'GP: MAG survey & line cutting.	56	
Huffman & Osway	'Falconbridge Nickel Mines Limited	'Aug. /71	'GP: EM survey.	56	
Hutton	'Miron, Theodore	'Feb. 2/71	'Portable gas plugger. Location.	2	
Hyman	'Jacka, E. C.	'Oct. 20/71	'1 DDH (1242'). Location.	1	'Cu
	'Jacka, E. C.	'Oct. 20/71	'3 DDH (1266'). Locations.	1	'Cu
	'Richore Gold Mines Limited	'May 6/71	'GL: rept. & map. GP: ground RA rept. & map.	25	'U ₃ O ₈
Joffre	'Texas Gulf Sulphur Co. Inc.	'June 29/71	'GP: MAG survey.	4	
Killarney	'Indusmin Limited	'Nov. 10/71	'2 DDH (451'). Locations.		'SiO ₂
MacLennan	'Blanchard, Ed	'Nov. 13/71	'Manual work. Drilling. St. Blasting. Location	1	
	'Blanchard, Ed	'Nov. 17/71	'Manual work. Drilling. St. Blasting. Location	1	
	'Blanchard, Ed	'Nov. 17/71	'Bulldozer. Location.	1	
	'Kosciuzko, John	'Feb. 2/71	'Plugger. Location.	1	
	'Kosciuzko, John	'Oct. 20/71	'Mech. equipment. Plugger.	1	
	'Mangotich, George	'Apr. 19/71	'Drilling. Plugger. Location.	1	
Mallard	'Bulldog Mines Limited	'Apr. 30/71	'Prospectus.		
	'Bulldog Mines Limited	'May 27/71	'GP: rept. & maps (MAG & EM). Prospectus. Claims location map.	12	'Cu
	'Murphy, John A.	'Aug. /71	'GP: MAG & EM surveys.	12	
	'Panacea Mining and Exploration Ltd.	'Feb. 5/71	'Rept. on property. Prospectus. Location map. GL: map. Aeromag. map.	12	'Cu
	'Sherman, Ronald A.	'Oct. 20/71	'GP: EM survey.	6	
Mallard	'Sherman, Ronald A.	'Oct. 20/71	'GL: survey.	12	
	'Sherman, Ronald A.	'Oct. 20/71	'GP: EM survey.	12	
	'Sherman, Ronald A.	'Oct. 20/71	'GP: MAG survey.	12	
Manitou Island Complex, Lake Nipissing	'Nord Interex	'Oct. 15/71	'GP: MAG repts. & maps. 7 DDH (5252'). DD rept. and sections.		'Cb ₂ O ₅ ,U ₃ O ₈
Marion	'Jerome, A. E.	'Oct. 20/71	'St. Tr. & blasting. Location.	1	
	'Noranda Exploration Co. Ltd.	'Oct. 20/71	'GP: EM survey.	11	
	'Noranda Exploration Co. Ltd.	'Oct. 20/71	'GP: MAG survey.	11	
	'Noranda Exploration Co. Ltd.	'Oct. 20/71	'Geochemical - rock sampling, soil sampling	11	
	'Yorbeau Mines Inc.	'Aug. 7/71	'GP: work.	30	
Marion & Genoa	'Parr Mines Limited	'Aug. /71	'GP: work and linecutting.	49	
	'Parr Mines Limited	'Oct. 20/71	'6 DDH (2489'). DDH Location map.	5	'Cu
Merrick	'Chevrier, Germain	'Aug. /71	'Drilling. Manual labour. Location.	1	
Merritt	'Hunta, William	'Oct. 20/71	'Manual Labour. Location.	1	
Nairn	'Brown, Ethel Charlotte	'Oct. 20/71	'Manual labour. Location.	2	

Township or Area	Ownership	Date Received	Nature of Work	No. of Claims	Commodity Sought
Nairn	Sudnor Mining Co. Ltd.	'Oct. 20/71	'Mech. equipment. Tr. Location.	1	'Cu, Ni
Nairn & Hyman	'Sudnor Mining Co. Ltd.	'Feb. 2/71	'Core rept. Location.	1	
Neelon	'MacIntyre, C.	'Jan. 7/71	'GP: MAG & EM rept. on surveys & maps; 'Location map.	7	
Parkin	'Laframboise, George	'Apr. 19/71	'Manual work. Location.	3	
	'Laframboise, George	'Apr. 19/71	'Plugger.	3	
	'Laframboise, George	'Dec. 15/71	'Plugger mech. equipment.	3	
	'Miron, Theodore	'Aug. /71	'Gas plugger work.	2	
Porter	'Canadian Johns-Manville 'Company Ltd.	'June 29/71	'Line cutting. GP: MAG survey.	20	
	'Canadian Johns-Manville 'Company Ltd.	'Aug. /71	'GP: EM survey.	20	
	'Phelan, L.	'Feb. 2/71	'2 DDH (1832').	1	
Potier	'Siscoe Metals of Ontario Ltd.	'Apr. 19/71	'GL: survey. Geochemical surveys.	8	'Cu, Ni, Ag
	'Siscoe Metals of Ontario Ltd.	'Apr. 19/71	'Geochemical survey.	18	'Cu, Ni, Ag
	'Siscoe Metals of Ontario Ltd.	'Oct. 20/71	'GP: MAG survey. IP survey.	6	'Cu, Ni, Ag
Raney	'Baker, Donald O.	'Dec. 15/71	'1 DDH(146'). Location.	1	'Cu
Rathbun	'Burco Explorations Limited	'Oct. 20/71	'1 DDH(508'). Location.	1	'U ₃ O ₈
	'Burco Explorations Limited	'Dec. 15/71	'2 DDH(410'). Locations.	1	'Cu
Rhodes	'Richardson Lake Iron Mines 'Limited	'Dec. 15/71	'2 DDH (166.6'). Locations.	1	'Fe
Roberts	'Humphries, Harold C.	'Aug. /71	'1 DDH (101.5'). Location.	1	'U ₃ O ₈
	'Humphries, Harold C.	'Aug. /71	'3 DDH (194.5'). Location.	2	'U ₃ O ₈
	'Leliever, Gordon	'Oct. 20/71	'Power stripping. Sampling plan.	24	
	'Leliever, Gordon	'Dec. 15/71	'Power stripping.	3	
Roberts, Creelman	'Colleen Copper Mines Ltd.	'Dec. 13/71	'Prospectus.	36	
Salter	'Arrowsmith, W. C.	'Oct. 20/71	'GP: EM survey.	12	
	'Arrowsmith, W. C.	'Oct. 20/71	'GP: MAG survey.	12	
	'Carlyle, R. W.	'June 29/71	'3 DDH (224.6'). Location.	1	'Cu
	'Dagenais, Armand	'Dec. 15/71	'Manual labour.	2	
Springer,	'Laverigne Rare Earth Property	'Dec. 2/71	'DD rept. 4 DDH (2947'). Locations. 'Sections through DDH. GL maps.	1	'CeO ₂ , REO
Stetham	'JonSmith Mines Limited	'Feb. 2/71	'2 DDH (208.5'). Location.	1	'U ₃ O ₈
	'JonSmith Mines Limited	'Feb. 2/71	'1 DDH (103'). Location.	1	'U ₃ O ₈
	'JonSmith Mines Limited	'Feb. 2/71	'1 DDH(102'). Location.	1	'U ₃ O ₈
Swayze	'Plese, Mike	'Dec. 15/71	'Plugger. Mech. equipment. Location.	1	
	'Scan Explorations Limited	'Oct. 20/71	'GP: EM survey.	3	
	'Scan Explorations Limited	'Oct. 20/71	'GP: MAG survey.	3	
	'Scan Explorations Limited	'Oct. 20/71	'GP: EM survey.	4	
Stull	'Metron Explorations Limited	'Mar. 19/71	'1 DDH (642'). Index map. VLF survey. North 'Grid. Profile section.	1	
	'Metron Explorations Limited	'Mar. 22/71	'GL: survey & map. Index map. Location Plan. 'GP: VLF-EM, IP rept. on surveys, grids & maps.	8	Cu
	'Rivers, E. J.	'Feb. 2/71	'Manual labour. Location.	1	
	'Rivers, E. J.	'Feb. 2/71	'Plugger work. Location.	1	
Stull & Unwin	'Langille, Gordon	'Feb. 2/71	'Manual labour. Plugger. Location.	1	
Trill	'Plaskett, G.	'Aug. /71	'GP: IP survey.	5	
Ulster	'Dupont, Jack	'Apr. 19/71	'Manual labour.	1	
Valin	'Langille, Gordon	'Apr. 19/71	'GP: work.	10	
	'Langille, Gordon	'Aug. /71	'GP: EM & MAG surveys. Location map.	10	
Vernon	'Canadian Johns-Manville 'Company Limited	'Feb. 10/71	'GL: rept. GP: MAG, EM rept. Location plan. 'GL: map. MAG & EM profile plans.	7	'U ₃ O ₈
	'Canadian Johns-Manville 'Company Limited	'June 29/71	'GL: surveys.	26	
Waters	'International Nickel Company 'of Canada Ltd., The	'Apr. 19/71	'DD Bore Hole Record.	1	
130	'Shea, Raymond Leo	'Feb. 2/71	'Manual labour. Plugger. Location.	3	

New Maps

(See Figures 17 and 18)

- P.668 Card, K.D., Panache Lake area (west half), scale 1 inch to 1 mile.
- P.669 Card, K.D., Panache Lake area (east half), scale 1 inch to 1 mile.
- P.672 Thurston, P.C., Siragusa, G.M., and Sage, R.P., Operation Chapleau, Missinaibi Lake Sheet, scale 1 inch to 2 miles.
- P.673 Thurston, P.C., Siragusa, G.M., and Sage, R.P., Operation Chapleau, Horwood Lake Sheet, scale 1 inch to 2 miles.
- P.674 Thurston, P.C., Siragusa, G.M., and Sage, R.P., Operation Chapleau, Chapleau Sheet, scale 1 inch to 2 miles.
- P.675 Thurston, P.C., Siragusa, G.M., and Sage, R.P., Operation Chapleau, Opeepeesway-Rocky Island Lakes Sheet, scale 1 inch to 2 miles.
- P.678 Lumbers, S.B., Tomiko area (west half), scale 1 inch to 1 mile.
- P.679 Lumbers, S.B., Tomiko area (east half), scale 1 inch to 1 mile.
- P.680 Lumbers, S.B., Burwash area (west half), scale 1 inch to 1 mile.
- P.681 Lumbers, S.B., Burwash area (east half), scale 1 inch to 1 mile.
- P.702 Robertson, J.A., and Siemiatkowska, K.M., May Township, scale 1 inch to 1/4 mile.
- P.703 Robertson, J.A., and Siemiatkowska, K.M., Hallam Township, scale 1 inch to 1/4 mile.
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Buchan, R., Abel, M.K., and Tomlinson, M.C.

An occurrence of coarse hexagonal prisms of pyrrhotite, Strathcona Mine.

Cantin, R., and Card, K.D.

Was the Sudbury basin circular during deposition of the Chelmsford Sandstone?

Card, K.D., and Hutchinson, R.W.

The Sudbury structure: its regional geological setting.

Corbett, M.

Minor element variation in pyrrhotite from Falconbridge Mine - an aid in geological interpretation.

Dence, M.R.

Meteorite impact craters and the structure of the Sudbury Basin.

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- Gait, R.I., and Harris, D.C.
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- Gibbins, W.A., Adams, C.J.D., and McNutt, R.H.
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- Greenman, L.
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- Guy-Bray, J.V.
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- Hewins, R.H.
The mafic norite and the sublayer: the petrology of the basal zone of the Sudbury Nickel Irruptive.
- Krogh, T.E.
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- Lumbers, S.B.
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- McKenna, P.F.
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- Peredery, W.V.
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- Siemiatkowska, K.M.
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- Stevenson, J.S.
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THUNDER BAY DISTRICT

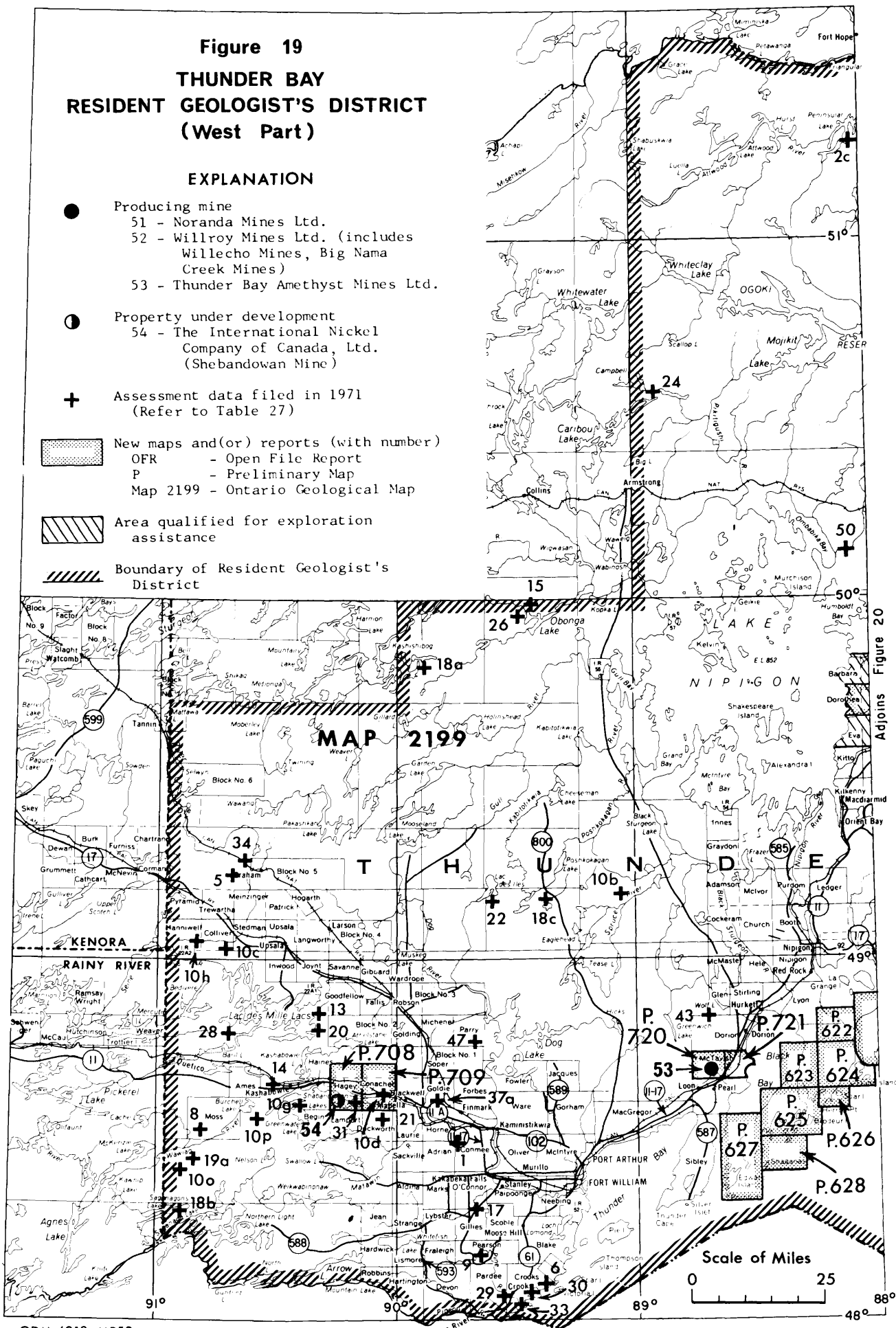
By

C.R. Kustra

Figure 19 THUNDER BAY RESIDENT GEOLOGIST'S DISTRICT (West Part)

EXPLANATION

- Producing mine
51 - Noranda Mines Ltd.
52 - Willroy Mines Ltd. (includes Willecho Mines, Big Nama Creek Mines)
53 - Thunder Bay Amethyst Mines Ltd.
- Property under development
54 - The International Nickel Company of Canada, Ltd. (Shebandowan Mine)
- +
- Assessment data filed in 1971 (Refer to Table 27)
- OFR - Open File Report
 - P - Preliminary Map
 - Map 2199 - Ontario Geological Map
- Area qualified for exploration assistance
- Boundary of Resident Geologist's District



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THUNDER BAY DISTRICT

By

C.R. Kustra¹

INTRODUCTION

Claim staking activity during 1971 decreased markedly from 1970, although follow-up work continued at a high level. Exploration was widespread generally and two areas received much attention. The Shebandowan-Moss Lake area had a sharp increase in exploration activity and numerous companies and individuals were very active in the Beardmore-Geraldton area. Increased activity in the latter area was encouraged to some extent by the Provincial Government's program of mineral exploration assistance.

Four properties continued production throughout 1971; one operation terminated. A single property will commence production in 1972 and another is at an advanced exploration stage.

Two field geologists, K.G. Fenwick and W.H. McIlwaine, are at the Thunder Bay office. The former completed mapping in the Shonia Lake area east of Red Lake, and the latter mapped a part of McTavish Township.

Mr. J. Scott joined the staff in October as Resident Geologist's assistant. He is currently completing work leading to a B.Sc. degree in geology and comes to the department with varied experience in mineral exploration and government geological surveys.

Mineral exploration classes were conducted in December by E.B. Freeman of the Data Retrieval and Education Section of the Department. The Resident Geologist co-ordinated a Special Topics Series, held during the early part of February, utilizing personnel from the mining industry, the business community, and Lakehead University.

A panel display and mineral exhibit was arranged by the Department for the Canadian Lakehead Exhibition and a display of rocks and minerals was set up at a secondary school science fair.

In addition to regular duties involving consultation and rock and mineral identification, the writer was secretary of the Northwestern Ontario Regional Advisory Board, participated in outdoor science workshops sponsored by the Board of Education, and led several student field trips. Work was done for a field report of the Obonga-Leigh Lakes area and revisions were in progress on the Atikokan-Lakehead Compilation Map. The latter project involved considerable time in the field. The writer was also engaged in the preparation of a guide book for the International Geological Congress field trip, scheduled for the Atikokan-Thunder Bay-Marathon area in August 1972.

¹Resident Geologist, 179 South Algoma Street, Thunder Bay. Manuscript accepted for publication January 24, 1972.

OTHER GEOLOGICAL BRANCH ACTIVITY

Three geological survey parties conducted mapping programs during the 1971 field season. W.H. McIlwaine mapped a part of McTavish Township and W.O. Mackasey continued mapping in the Beardmore area. The latter also conducted magnetic susceptibility measurements in conjunction with an airborne high-resolution magnetic survey, sponsored jointly by the federal and provincial governments.

G. Burwasser of the Industrial Minerals Section of the Department began a study of the Pleistocene geology and industrial mineral resources of Thunder Bay and vicinity.

A brief description of the projects outlined above is contained in Miscellaneous Paper 49 (Pye 1971).

At the present time, several mapping projects are scheduled for the Thunder Bay area during 1972. W.H. McIlwaine will complete mapping McTavish Township and begin to map Dorion Township. W.O. Mackasey and H. Wallace will map Elmhirst and Rickaby Townships near Jellicoe. K.G. Fenwick will start mapping Duckworth and Lampport Townships in the Shebandowan area, and P.C. Thurston will start work in the Onaman area, north of Beardmore.

EXPLORATION AND MINING ACTIVITY

A substantial decrease in the number of claims recorded in 1971 (4,627 claims) compared with 1970 (5,830 claims) reflected a general lessening of exploration activity in the district. Much of the exploration was undertaken as follow-up work in the form of ground surveys, trenching, and diamond drilling.

Two areas received much exploration attention. In addition to The International Nickel Company of Canada, Limited development in the Shebandowan Lake area, which is scheduled to start production in 1972, several companies were exploring a width of mixed felsic and mafic metavolcanics extending southwestward from Burchell Lake to the Quetico Park boundary.

Freeport Canadian Exploration has diamond drilled its property near a former copper producer, the North Coldstream Mine, and Conwest Exploration is examining its property in the Moss Township area.

Belore Mines holds 2,400 patented acres in Moss Township, including a former gold producer, the Ardeen Mine.

The orebodies of the former North Coldstream Mine are thought to be stratabound and the favourable horizon of felsic metavolcanics extends from the old property southwestward into Moss Township.

Southwest of Moss Township, Falconbridge Nickel Mines completed considerable work including ground geophysical and geological surveys followed by diamond drilling, in an area of mafic metavolcanics which had been intruded along the Knife Lake Fault by ultramafic rocks.

In the Geraldton-Beardmore-Onaman Lake area, numerous companies and individuals are engaged in exploration. For several years much of the activity has been in the search for base metal deposits. Exploration work has been concentrated in efforts to find felsic and mafic metavolcanics and their associated sulphide mineral deposits.

Carling Copper Mines conducted a program of geophysical surveys (induced polarization), geological mapping, and diamond drilling on a property straddling the boundary between Elmhirst and Pifher Townships (Northern Miner 1971b; 1971e).

A molybdenite discovery in the northwestern part of Elmhirst Township was tested by Chemalloy Minerals by stripping, trenching, and diamond drilling. Finely disseminated molybdenite and pyrite are closely associated with narrow quartz veins which cut an altered granodioritic rock.

Near the Chemalloy property, Chesterville Mines outlined approximately 1,000,000 tons of copper-nickel mineralization in gabbro, which averaged 0.94 percent combined copper-nickel. Plans were to drive a decline and begin underground operations (Northern Miner 1971a), but this has been deferred in favour of a continuation of diamond drilling in 1972 (Northern Miner 1971c).

The Algoma Development Company recently acquired a copper-gold prospect in Pifher Township. During the early part of 1971, crushing, grinding, and milling facilities were set up. Broken material from a gold-copper-bearing quartz vein was processed and the company poured its first gold brick in August 1971 (Mackasey 1971, p.44).

Near Geraldton, The Algoma Steel Corporation Limited has outlined a substantial iron deposit. The company optioned ground from Little Long Lac Mines, spending a total of \$825,000 on 20,000 feet of diamond drilling and extensive metallurgical work. Approximately 325,000,000 tons of iron-bearing material, grading 25.2 percent iron has been outlined to a depth of 1,000 feet (Northern Miner 1971f).

In addition to the above programs, other companies and individuals, including Noranda Exploration, Hudson Bay Explorations, Lynx-Canada Explorations, and the Phelps Dodge Corporation, were active in the Onaman Lake area.

Exploration in other sections of the Thunder Bay Mining Division was widespread. Virtually all known "greenstone belts" again received cursory to intensive examination.

Producing Properties

Five mines operated in 1971. These are listed in the index to Figures 19 and 20.

In the Manitouwadge District, Geco Mines continued operations as the largest base metal producer in northwestern Ontario. As of December 30, 1970, the company indicated 29,200,000 tons of ore reserves, averaging 2.03 percent copper, 4.63 percent zinc and 1.9 ounces silver per ton (Canadian Mines Handbook 1971, p.276).

Willroy Mines started an exploratory diamond drill program on its base metals-silver property west of Geco Mines. The drill program will test targets

outlined by a consultant during a survey completed in the fall of 1971. The company is milling ore at the rate of 1,200 tons per day, most of which comes from the Willecho Mine. Ore from the adjoining property of Big Nama Creek Mines was depleted in September 1971 (Northern Miner 1971d).

Thunder Bay Amethyst Mines Limited had a successful summer of operation. The mine is located 35 miles northeast of Thunder Bay. Two open cuts were operated for six months and approximately 2,800 tons of amethyst, amethystine stone, and granite were produced. The operation was visited by over 5,000 tourists. There are plans for an improved road, expanded facilities, and manufacture of jewellery and cut and polished stone at the mine site (R. Hartviksen, president, personal communication).

NEW INFORMATION

Literature and Maps

During the year, various reports and maps were received. Those containing information about the Resident Geologist's District are listed below.

Open File Reports

- OFR5064 Operation Rosspport - Geochemistry of Cu, Zn, Mn, and cold extractable total heavy metals in seepage soils, stream sediments, and spring sediments, District of Thunder Bay, by W.J. Wolfe, 16p., 1 figure, 13 maps.

A sampling program was designed to test the effectiveness of geochemical procedures to locate mineralized breccia zones that cross granitic and migmatitic terrain. The report concludes that "the base metal potential of the Operation Rosspport region appears to be limited to low-grade, structurally controlled copper deposits localized in zones of shearing and brecciation".

- OFR5066 Geology of Dorothea, Sandra, and Irwin Townships, District of Thunder Bay, by W.O. Mackasey, 100p., 4 figures, 5 tables, 3 maps.

This report describes the general geology, structure and economic geology of the three townships north of Beardmore. Numerous property descriptions are included and suggestions for mineral exploration are outlined.

- OFR5063 Geology of St. Ignace Island and vicinity, District of Thunder Bay, by J.F. Giguere, 43p., 2 figures, 2 tables, 2 maps.

Middle to Late Precambrian rocks underlie an arcuate group of islands, including St. Ignace, Simpson, Salter, Wilson, and Copper Islands, in northern Lake Superior. A large part of the islands has Late Precambrian sedimentary and volcanic rocks belonging to the Osler Group. These rocks have an arcuate pattern and dip at low angles to the south, and have been intruded by mafic dikes of Keweenawan age.

Preliminary Maps

- P.622 Black Bay Peninsula and vicinity, Nipigon Strait Sheet, District of Thunder Bay (52A/16). Geology by W.H. McIlwaine, Henry Wallace, S.J. d'Apollonia, and C.R. Kustra, 1970. Scale 1 inch to 1/4 mile.
- P.623 Black Bay Peninsula and vicinity, Shesheeb Bay Sheet, District of Thunder Bay (52A/9). Geology by W.H. McIlwaine, Henry Wallace, and S.J. d'Apollonia, 1970. Scale 1 inch to 1/4 mile.
- P.624 Black Bay Peninsula and vicinity, Fluor Island Sheet, District of Thunder Bay (52A/16). Geology by W.H. McIlwaine, Henry Wallace, S.J. d'Apollonia, and R.G. Keeler, 1970. Scale 1 inch to 1/4 mile.
- P.625 Black Bay Peninsula and vicinity, Sturgeon Bay Sheet, District of Thunder Bay (52A/9). Geology by W.H. McIlwaine, Henry Wallace, and S.J. d'Apollonia, 1970. Scale 1 inch to 1/4 mile.
- P.626 Black Bay Peninsula and vicinity, Spar Island Sheet, District of Thunder Bay (52A/9). Geology by W.H. McIlwaine, Henry Wallace, and S.J. d'Apollonia, 1970. Scale 1 inch to 1/4 mile.
- P.627 Black Bay Peninsula and vicinity, Edward Island Sheet, District of Thunder Bay (52A/7, 52A/10). Geology by W.H. McIlwaine, Henry Wallace, and S.J. d'Apollonia, 1970. Scale 1 inch to 1/4 mile.
- P.628 Black Bay Peninsula and vicinity, Cartwright Island Sheet, District of Thunder Bay (52A/9). Geology by W.H. McIlwaine, Henry Wallace, and S.J. d'Apollonia, 1970. Scale 1 inch to 1/4 mile.

This set of maps delineates the Late Precambrian geology of the peninsula and nearby islands in Black Bay. Much of the area is underlain by the Osler Group, a sequence of flood basalts with intercalated sedimentary lenses, intruded by the Moss Lake Gabbro and diabase sills and dikes.

- P.690 Operation Rosspoint - Dickison Lake area, District of Thunder Bay (42E/5, 42E/6, 42E/4, 42E/3). Geology by M.W. Carter and assistants, 1970. Scale 1 inch to 1 mile.

This map-area, with its centre approximately at Dickison Lake, is in a Precambrian area. A helicopter reconnaissance was made and a semi-detailed survey done. A geochemical program was allied with this project. A description is given of the various rock units, structural geology, and economic geology. Major structural features and associated mineral occurrences are described.

- P.708 Hagey Township (and area north), District of Thunder Bay (52B/9). Geology by J. Morin and assistants, 1971. Scale 1 inch to 1/4 mile.
- P.709 Conacher Township (and area north), District of Thunder Bay (52B/9). Geology by J. Morin and assistants, 1971. Scale 1 inch to 1/4 mile.

Early Precambrian rocks were mapped in an area east of INCO's Shebandowan Mine. The geology of this area is included on these maps. The Shebandowan Lakes area is currently receiving much exploration attention, particularly for base metal deposits.

- P.720 McTavish Township (west part of north half), District of Thunder Bay (52A/10). Geology by W.H. McIlwaine and assistants, 1971. Scale 1 inch to 1/4 mile.
- P.721 McTavish Township (east part of north half), District of Thunder Bay (52A/10). Geology by W.H. McIlwaine and assistants, 1971. Scale 1 inch to 1/4 mile.

Migmatitic metasediments and metasediments of the Early Precambrian are shown to be intruded by plutonic rocks of granitic composition. These rocks formed an erosion surface upon which the Sibley Group of sedimentary rocks were deposited. All rocks have been intruded by sheets and dikes of Logan-type diabase. The maps illustrate major structural features and delineate a zone within which numerous lead-zinc and amethyst occurrences are found.

Coloured Geological Maps

- M.2202 Caramat-Pagwa River Sheet, Algoma, Cochrane, and Thunder Bay Districts. Geology by L.D. Ayres and D.G. Innes, 1969. Scale 1 inch to 4 miles.
- M.2229 Aeromagnetic Index of Ontario. Scale 1 inch to 30 miles.

Miscellaneous Papers

- MP46 Annual Report of Resident Geologists' Section, Geological Branch, 1970, 175p., 21 figures. Edited by G.R. Guillet.
- MP47 Mineral exploration targets in northwestern Ontario, by R.A. Riley, H.L. King, C.R. Kustra, 72p., 16 figures, 1 table.
- MP49 Summary of field work, 1971, by the Geological Branch, edited by E.G. Pye, 109p., 5 figures.

Mineral Resources Circular

- MRC13 Gold deposits of Ontario, Part 1: Districts of Algoma, Cochrane, Kenora, Rainy River, and Thunder Bay, by S.A. Ferguson, H.A. Groen, and R. Haynes, 315p., 9 figures.

Others

- B.A.Hon. Thesis Analysis of the sand and gravel industry in the Thunder Bay area, by Clayton D. Petrick, Lakehead University, Thunder Bay, 1971.
- B.Sc. Thesis The petrology of the Moss Lake noritic intrusion, by R.G. Keeler, University of Toronto, Toronto, 1971.

Ph.D. Metallogeny of the Proterozoic rocks of the Thunder Bay District,
Thesis by James McWillie Franklin, University of Western Ontario, London,
1970.

Core Library

In addition to core specimens submitted for assessment credit, the writer collected other core from exploration drilling and well and construction borings.

Numerous logs from a number of sources are being currently collected and stored. It is hoped that, when enough material is collected, a map can be produced showing drift thickness, bedrock topography, and water-table levels.

The core of one hole, drilled for water on the north bank of the Kaministikwia River in the southwestern part of the City of Thunder Bay, intersected 87 feet of drift and 390 feet of shaly and granular taconite of the Gunflint Iron Formation. Magnetite is present as narrow layers in the shaly facies and as grains in the granular greenalite facies. Similar material was intersected in a diamond drill hole put down through the ice of Whitefish Lake, approximately 40 miles southwest of Thunder Bay. The writer sampled a magnetite-bearing section from 185 feet to 264 feet. Four sections each returned 24.8 percent, 27.2 percent, 27.4 percent, and 29.4 percent HCl soluble iron. The latter analysis represents 14 feet of material above a diabase sill.

Analyses were performed by the Laboratory and Research Branch of the Ontario Department of Mines and Northern Affairs.

EXPLORATION ASSISTANCE PROGRAM

In August 1971, the Ontario Government initiated a program of exploration assistance to companies and individuals. The assistance, up to one-third of the cost of exploration expenditures, is restricted to four areas, which include the Geraldton-Beardmore District.

As of December 31, 1971, ten companies and individuals had received approval of their programs. Total expenditure commitment by these companies is \$435,866.00 of which the government commitment is \$145,288.67.

SUMMARY OF AIRBORNE GEOPHYSICAL SURVEYS

Since 1952, the results of various types of airborne geophysical surveys were filed. These are summarized in Table 25.

ASSESSMENT REPORTS RECEIVED IN 1971

Assessment data, excluding mechanical and manual work, filed for 1971 is summarized in Table 27. A summary of the types of assessment work recorded for 1970 and 1971 is given in Table 26.

Table 25 Summary of Airborne Geophysical Surveys

Client	Contractor	N.T.S.	Date	Type of Survey	Line Miles Flown
O. Albert	Sherritt Gordon Mines Ltd.	42E9	Nov. 1970	Mag., E.M.	127
M.J. Boylen	Hunting Survey Corp. Ltd.	52P8	Nov. 1960	Mag., E.M., Scint.	291
Cairngorm Mines Ltd.	Spartan Air Services Ltd.	52A5	Feb. 1959	Mag., E.M.	100
Can-Fer Mines Ltd.	Aeromagnetic Surveys Ltd.	42E9	Jan. Feb. 1958	Mag.	350
Canadian Onyx Mines Ltd.	McPhar Geophysics	52P2,7,8	Feb. 1970	Mag., E.M.	503
Canadian Superior Exploration Ltd.	Selco	42C13	June 1965	E.M.	9.5
Chellev Gold Mines Cirrus Syndicate Cree Group Kenogamisis Gold Mines MacLeod-Cockshutt Mines Pic Nickel Mines	Canadian Aero Service Ltd. ↓	42D16 ↓	July 1953 ↓	Mag., Scint. ↓	167 ↓
Caravelle Mines Ltd.	Selco	42C13	June 1965	Mag., E.M.	148
Cominco Ltd.	Canadian Aero Mineral Surveys Ltd.	52B7,10	Mar. 1965	Mag. E.M. (not submitted)	1016
Consolidated Morrison Exploration Ltd.	Canadian Aero Mineral Surveys Ltd.	42E16	April 1966	E.M., Mag	100
Conwest Exploration Co. Ltd. Gavan Mines Ltd. Hucamp Mines Ltd. Winora Gold Mines Ltd.	Aeromagnetic Surveys ↓	42F4 ↓	Mar. 1954 ↓	Mag. ↓	340 ↓
Dome Exploration (Canada) Ltd.	Spartan Aero Ltd.	52H3	April 1971	Mag.	393
Dome Exploration (Canada) Ltd.	Spartan Aero Ltd.	52B7	Mar. April 1971	Mag.	400
Falconbridge Nickel Mines Ltd.	Canadian Aero Mineral Surveys Ltd.	42F4	July 1964	Mag., E.M.	1090
D.E. Gale	Oja Ltd.	42D15	Oct. 1970	E.M.	40
V.R. Henbid	Oja Ltd.	52A13 52H4	Oct. 1970	E.M.	358
Irish Copper Mines Ltd.	Canadian Aero Mineral Surveys Ltd.	42C13	May 1965	Mag., E.M.	100
Keevil Mining Group Ltd.	Geophysical Engineering & Surveys Ltd.	42D15	Sept. 1965	Mag., E.M.	7.6
Keevil Mining Group Ltd.	Geophysical Engineering & Surveys Ltd.	42D16	June 1964	Mag., E.M.	87
Keevil Mining Group Ltd.	Geophysical Engineering & Surveys Ltd.	42D16	Sept. 1965	Mag., E.M.	8.7
Kennco Exploration (Canada) Ltd.	Aeromagnetic Surveys Ltd.	42L5	1952	Mag.	720
Kemins Exploration Ltd.	Canadian Aero Mineral Surveys Ltd.	52B15	Dec. 1969	Mag., E.M.	231
C. Morton	Oja Ltd.	52A15	Feb. 1969	Radiometric	50
Northfield Mines Ltd.	Questor Surveys Ltd.	52G7	May 1970	Mag., E.M.	628
Prospectors Airways Co. Ltd.	Canadian Aero Service Ltd.	42E1	May, June 1954	Mag.	190
R.D.P. Canadian Joint Venture	Barringer Research Ltd.	42M7	Mar. 1969	E.M.	
N.A. Timmins Exploration (Ont.) Ltd.	Aeromagnetic Surveys Ltd.	42F3	Mar. April 1954	Mag., Scint	25.
Univex Exploration & Development Corp. Ltd.	Oja Ltd.	52A15	Feb. 1969	Radiometric	47.5

Table 26. Assessment work recorded, 1970 vs. 1971

Type of Work	1970 Days	1971 Days
Manual Labour	1,722	1,771
Geophysical	83,389	53,028
Geological	6,078	7,456
Diamond drilling	103,559	63,774
Power equipment	2,999	4,206
Land surveys	280	160
Geochemical	500	880
Core submission	184	234
Assaying	80	453
Total	198,791	131,962

PROPERTY EXAMINATIONS

J. Zmudzinski

Location and Access:

The property lies 0.75 miles east of Humboldt Bay, Lake Nipigon, and approximately 25 miles north of Beardmore. It can be reached by taking Highway 801 and the Auden Road to a point 1/2 mile west of the Onaman River. A private road continues west to Humboldt Bay. The showing is located in a ditch excavation on the south side of the private road, 400 feet east of Stewart Creek.

Geology and Mineralization:

Regional geology shows the area to be underlain by a slightly overturned sequence of mafic metavolcanics (amphibolite, tuff, and chlorite schists) underlain by bedded metasediments (arkose, greywacke, and thinly laminated iron formation). The rocks are foliated, strike approximately east-west and dip 85 degrees north. Graded beds in the metasedimentary formations indicate south-facing tops. Muskeg and clay are extensive but do not appear to be thick.

The showing was uncovered by ditching operations and subsequently trenched by J. Zmudzinski. There is an approximately 9-foot wide band of sulphide facies iron formation striking N85W and dipping 80 to 85 degrees north. The south wall of the formation is sericite schist, with some pyrite mineralization. The north contact was covered with clay, but 15 feet away a partially recrystallized, stretched, quartz pebble conglomerate was uncovered.

The iron formation consists of over 85 percent pyrite and to a lesser extent pyrrhotite, both of which in places enclose small milky quartz lenses.

Table 27

Assessment and Other Reports Received in 1971

Explanation of Abbreviations

DDH - Diamond drill hole; number of holes drilled and total footage
 Rpt. - Geological report
 Mag. - Magnetometer survey
 EM - Electromagnetic survey
 Rad. - Radiometric survey
 I.P. - Induced Potential

Ownership	Township or Area	N.T.S.	Year Work Performed	Type of Assessment Data
1. Acorn Mining Syndicate	Commee Tp.	52A5/NE 52A12/SE	1968-1969	Mag. EM.
2a. Addicks Canadian Properties Ltd.	St. Ignace Island	42D13/SW	Nov. 1970	4 DDH - 997'; EM
b. " " " "	Georgia Lake	42E4/NW	Oct. 1969	2 DDH - 270'
c. " " " "	Peninsular Lake	52P1	June 1970	Mag.
3. Albert, O.	Longlac-Pagwachuan	42E9/SE	1971	3 DDH - 1,173'
4. Algoma Steel Corp. Ltd.	Errington Tp.	42E11/NE	1971	2 DDH - 1,031; Rpt.
5. Ameranium Mines Ltd.	Hogarth-Upsala	52D2/NE	1970	Rpt. and Prospectus
6. Bahlieda, A. Thunder Bay, Ont.	Crooks Tp.	52A3/SW	June-July 1971	3 DDH - 2,005'
7. Bellex Mines Ltd.	Longlac-Pagwachuan	42E9/NE	Aug. Sept. 1970	Mag. EM
8. Belore Mines Ltd.	Moss Tp.	52B10/SW	June 1970	5 DDH - 1,354'
9. Brodie, J. Thunder Bay, Ont.	Pearson Tp.	52A4/NE	Aug. 1970	Mag., Rpt.
10a Canadian Nickel Company Ltd.	Bickle Tp.	42E15/NE	Oct. 1970	2 DDH - 294'
b " " " "	Black Sturgeon	52H3/NE	Sept. 1968	3 DDH - 1,020'
c " " " "	Colliver Tp.	52G2/SE	Sept. 1968	1 DDH - 163'
d " " " "	Conacher Tp.	52B9/SE	June, Aug. 1968	1 DDH - 335'
e " " " "	Errington Tp.	42E11/NE	Aug. Sept. 1970	1 DDH - 385'
f " " " "	Pulford & McQuesten Tps.	42E15/SW	May, Aug. 1970	7 DDH - 2,503'
g " " " "	Haines Tp.	52B9/SW	Aug. Sept. 1970	6 DDH - 3,236'
h " " " "	Hanniwell Tp.	52D2/SW	Sept. 1968	1 DDH - 212'
i " " " "	Houck Tp.	42E15/SW	1970	1 DDH - 412'
j " " " "	Leduc Tp.	42E12/NE	1969-1970	6 DDH - 1,766'
k " " " "	Lindsley Tp.	42E11/NE	Aug. 1970	2 DDH - 791'
l " " " "	Little Long Lac-Sturgeon River	42E12/NE	Sept. 1970	1 DDH - 388'
m " " " "	Longlac-Pagwachuan	42E10/NE	May, April 1970	8 DDH - 2,658'
n " " " "	Onaman (South)	42E13/NW	Oct. Nov. 1970	1 DDH - 335'
o " " " "	Saganaga	52B7/NW	Aug. 1969; Sept. 1970	3 DDH - 687'
p " " " "	Shebandowan	52B10/SE	Oct. 1969 Mar. 1971	6 DDH - 1,773'
11. Carravelle Mines Ltd.	Gzowski Tp.	42L5/SE 42L6/SW	Nov. 1971	2 DDH - 335'
12. Chimo Gold Mines Ltd.	Melchett-Percy Lakes	42L14/SE	Sept. Nov. 1970	Mag., EM
13. Cliffs of Canada Ltd.	Lac Des Milles Lacs	52B16/SW	1971	7 DDH - 1,788'
14. Cominco Ltd.	Shebandowan	52B10/NE	1970	Rpt.
15. Commerce Nickel Mines Ltd.	Survey Lake	52H13/NE	Mar. 1971	1 DDH - 400'
16. Cox, N. Beardmore, Ont.	Georgia Lake	42E4/NE	June 1968	Mag., EM
17. Creswell Mines Ltd.	Kakabeka	52A5/SE		Prospectus, Summary Rpt.
18a Dome Exploration(Canada) Ltd.	Survey Lake	52H13/SW/SE	Dec. 1970	16 DDH - 5,188'
b " " " "	Saganagons Lake	52B7/SW	Mar. April 1971	Mag (Airborne)
c " " " "	Block Creek	52H3/NW	April 1971	Mag (Airborne)
19a Falconbridge Nickel Mines Ltd.	Shebandowan	52B10/SE 52B7/NW/NE	Aug. Sept. 1970 Aug. Sept. 1970	11 DDH - 6,172'
b " " " "	Manitouwadge	42F3/NW	Aug. 1967	EM., Mag
c " " " "	Herbert Tp.	42F4/NE	Jan. 1970	Rpt., EM Mag., EM
20. Freeport Canadian Exploration Co.	Lac Des Mille Lacs	52F16/SW	Feb. March 1971	3 DDH - 1,236'
21. Hackl, K. Shebandowan, Ont.	Duckworth Tp.	52B9/SE	April 1970	1 DDH - 135'
22. Henbid, V.R. Michigan.	Block Creek	52H4/SE	Aug. Oct. 1970	EM (Airborne)
23. Hollinger Mines Ltd.	Ashmore Tp.	42E10/NE	1970	2 DDH - 603'
24. Hollingsworth Iron Mines Ltd.	Caribou Lake	52I 10/SW	1970	Mag(Airborne (ground)); Rpt.
25. Holm, H. Geraldton, Ont.	Meador & Sandra Tps.	42E13/SW	June 1971	1 DDH - 160'
26. Jorex Ltd.	Survey Lake	52H13/NE	June 1971	4 DDH - 1,206'; I.P.
27. Jones, E., & Sijpkens, J.	Summers Tp.	42E12/NW	Sept. 1970	Rpt.
28. Kemins Explorations Ltd.	Lac Des Mille Lacs	52B15/SW	Dec. 1969	EM (airborne)

Ownership	Township or Area	N.T.S.	Year Work Performed	Type of Assessment Data
29. Kennco Explorations (Canada) Ltd.	Tps. 81,82,83	42D14/15 42E/13	April. May 1971	Airborne Mag, EM
30. Lake Superior Nickel Corp. Ltd.	Crooks Tp.	52A3/SW	Aug. 1968	3 DDH - 5,881'
31. Mandarin Mines Ltd.	Hagey Tp. Conacher Tp.	52B9/SE 52B9/NE	1969 1970	EM 2 DDH - 1,007'
32. Midland Nickel Mining Corp. Ltd.	Pardee Tp.	52A4/SE	Sept. 1971	1 DDH - 16'
33. Miners, W.S. Thunder Bay, Ont.	Crooks Tp.	52A3/SW	April 1971	2 DDH - 2,145'
34. Millenbach, J.	Hogarth-Upsala	52G7/SW/SE	Sept. 1971	266 drill core specimens
35. Mykytiuk, B.A. Toronto 3, Ont.	Melchett Lake	42L10/NW	May 1970	Dip needle survey
36. Nichol Mines Ltd.	Duck Lakes-Schreiber	42D14/NE/NW	1970	9 DDH - 4,040'
37a. Noranda Exploration Ltd.	Goldie Tp.	52A12/NW	Nov. 1969	Mag. EM; 4 DDH - 1,486'
b. " "	Gzowski-Kowkash	42L5/SW	Sept. Oct. 1969	EM
38. Northwest Territories Copper Mines Ltd.	Gzowski Tp.	42L6/SW	July. Aug. 1970	EM, Mag.
39. Petrick, J. Thunder Bay, Ont.	Little Long Lac-Sturgeon (Pifher Tp.) River	42E13/SW	July. Aug. 1971	1 DDH - 163'
40a. Phelps Dodge Corp. of Canada	Gzowski-Kowkash	42E4/NE	Oct. 1970	2 DDH - 186'
b. " " " "	Oboshkegan Tp.	42L3/NW	Nov. 1970	2 DDH - 295'
41. Porter, H.K. Company (Canada) Ltd.	Heron Bay-White Lake	42D16/NE/NW	Jan. Mar. 1969	Mag.
42. Rio Tinto Canadian Exploration Ltd.	Melchett Lake	42L10, 11, 14, 15	June 1970	EM., Mag
43. Santack Mining Company Ltd.	Loon Lake	52A15/SE	Feb. 1970	Prospectus
44. Sciminex Ltd.	O'Sullivan Lake	42L6/NE 42L7/NW		Rpt. and Prospectus
45. Seaway Copper Mines Ltd.	Long Lac - Pagwachuan	42F12/SE	May. June 1970	Prospectus
46. Tontine Mining Ltd.	Gzowski-Kowkash	42L6/SW	1970	10 DDH - 4,439'
47. Tuominen, R. Thunder Bay, Ont.	Parry Tp.	52A13/SE	June 1970	1 DDH - 502'
48. Univex Exploration & Dev. Corp. Ltd.	Tp. 84	42D14/SE	1970	1 DDH - 335'
49. Willroy Mines Ltd.	Manitouwadge	42F4/NE	Nov. Dec. 1970	1 DDH - 852'
50. Zmudzinski, J. Jellicoe, Ont.	Zig Zag Lake	52I 1/NE	Feb. Mar. 1971 Aug. 1970	Mag. 2 DDH - 1,113'

The banded part of the formation consists of narrow (up to 2 inches wide) alternating layers of quartz-rich and quartz-poor material. The darker, quartz-poor layers are richer in pyrrhotite.

A brecciated part of the formation consists of fine-grained pyrite fragments showing possibly recrystallized pyrite adjacent to fragment edges.

Analyses for copper, zinc, gold, and silver, done by the Laboratory and Research Branch, Ontario Department of Mines and Northern Affairs, returned nil to trace.

J. Untersander

Location:

The showings are located approximately 25 miles west of Thunder Bay in the N1/2, sec. 9 and the S1/2, sec. 10, conc. III, of O'Connor Township.

Geology and Mineralization:

The area is underlain by gently southeast-dipping taconite-argillite facies of the Gunflint Iron Formation which is overlain in other areas by Logan-type diabase sills. A northeast-trending fault system, formed during Late Keweenaw intrusive activity, has in some places quartz-calcite-barite gangue with various amounts of galena, sphalerite, and argentite.

The vein system on the Untersander property strikes approximately N40E, dips vertically and has been exposed by numerous trenches and pits extending along a strike length of 1.5 miles. Single veins measure 0.5 inch to over 5 feet in width and are in a zone up to 25 feet wide. Vein fillings consist of quartz, amethyst, calcite, barite, and fluorite with small amounts of sphalerite, galena, and chalcopryrite.

A grab sample of vein material from one pit gave 0.19 ounces silver per ton and 15-inch chip samples from two other veins returned 0.66 and trace silver, respectively.

Assays were done by the Laboratory and Research Branch, Ontario Department of Mines and Northern Affairs.

W. Forsgren-R. Erickson

(Mining Location D-4)

Location:

D-4 is located in the southwestern part of Oliver Township, approximately 1 mile north of Kakabeka Falls. The north boundary of the location is delineated by the south bank of the Kaministikwa River.

Geology and Mineralization:

The area of the showing is underlain by foliated hornblende-plagioclase schist striking S85E and dipping 50 degrees north. A quartz vein, 5.5 feet wide cuts across the foliation, and is in a fault that strikes N10E.

A face, measuring 5.5 feet wide and 6 feet high, has been blasted into river bank slope, uncovering a massive, white, somewhat sugary-textured quartz vein. The vein can be traced southward for 200 feet where it is covered by thick drift, and northward for 15 feet into the waters of the river.

Grains of sphalerite, galena, and pyrite, in amounts not exceeding 5 percent, are associated with a zone of brecciated material near the west wall of the vein.

A continuous chip sample, taken across 4.5 feet of the face was submitted to the Laboratory and Research Branch, Ontario Department of Mines and Northern Affairs for assay. The sample returned nil gold and trace silver.

W. Forsgren

Location:

Two areas of mineralization were visited; both are situated on the Stuart Location in south-central Pardee Township, approximately 30 miles southwest of Thunder Bay.

In the first area, along the north side of Highway 593, 2.5 miles west of its intersection with Highway 61, there is part of a gabbro dike.

The second area is located a few hundred feet west of Highway 593, 1 mile northwest of Horne Falls on the Pigeon River.

Geology and Mineralization:

The part of Pardee Township where this property is located is underlain by flat-lying shale and greywacke of the Rove Formation which is of Middle Precambrian age and which has been intruded by sills and northeast-trending dikes of Keweenawan age.

A gabbro dike, 150 feet to 200 feet high, and approximately 600 feet wide, is in the first area. On the south side of the dike, near the top and close to the contact with Rove Shale, several trenches have uncovered a zone of copper-nickel mineralization. The trenches are up to 30 feet in length and cover a strike-length of approximately 1 mile. Chalcopyrite and pyrrhotite, locally making up to 10 percent of the rock by volume, occur as splashes and interstitial grains in dark grey, medium-grained gabbro. Much of the host material exposed in the trenches is sheared in a direction parallel to the strike of the dike.

Chip samples, one 10 feet in length, and another 30 feet in length, taken from two trenches 400 feet apart, analyzed 0.20 percent copper, 0.08 percent nickel and 0.24 percent copper, 0.15 percent nickel respectively.

The second area is at one end of a northeast-trending dike where, on the south side, and near the crest, there is a 6-foot by 6-foot trench in the hillside. Here there is mineralized gabbro porphyry which is narrow in width and may be only a small part of the south side of the dike. It is not in the dike 15 feet north. At this outcrop the dike material is medium-grained diabase.

The porphyry consists of euhedral plagioclase phenocrysts, up to 1 inch long, embedded in a fine-grained groundmass of plagioclase and pyroxene. The phenocrysts show orientation subparallel to the strike of the dike. Mineralization consists of chalcopyrite and pyrrhotite, in amounts up to 5 percent and in splashes and interstitial grains.

A selected grab sample gave 0.28 percent copper and 0.12 percent nickel.

All analyses and assays were done by the Laboratory and Research Branch, Ontario Department of Mines and Northern Affairs.

G. Kusserow

A narrow vein system of the silver-bearing type is exposed in a creek bed and by several trenches on the farm of G. Kusserow, lot 30, conc. III, Paipoonge Township.

The vein cuts granular taconite of the Gunflint Iron Formation and consists of quartz and calcite mineralized with a very small amount of sulphide.

A three-foot chip sample taken from a trench north of the house returned nil silver and a grab sample of siliceous cherty granular taconite gave nil gold.

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- 1971d: New drill programs starting at Willroy ore reserves lower (article); Northern Miner Press, p.1(1252), 2(1253), December 2, 1971.
- 1971e: Carling drilling cuts sulphides (article); Northern Miner Press, p.3(1293), December 16, 1971.
- 1971f: Algoma finds large iron deposit on Little Long Lac's gold property (article); Northern Miner Press, p.1(1331), 10(1340), December 30, 1971.

Pye, E.G. (editor)

- 1971: Summary of field work, 1971, by the Geological Branch, Ontario Dept. Mines and Northern Affairs, MP49, 109p.

TIMMINS DISTRICT

By

E.G. Bright

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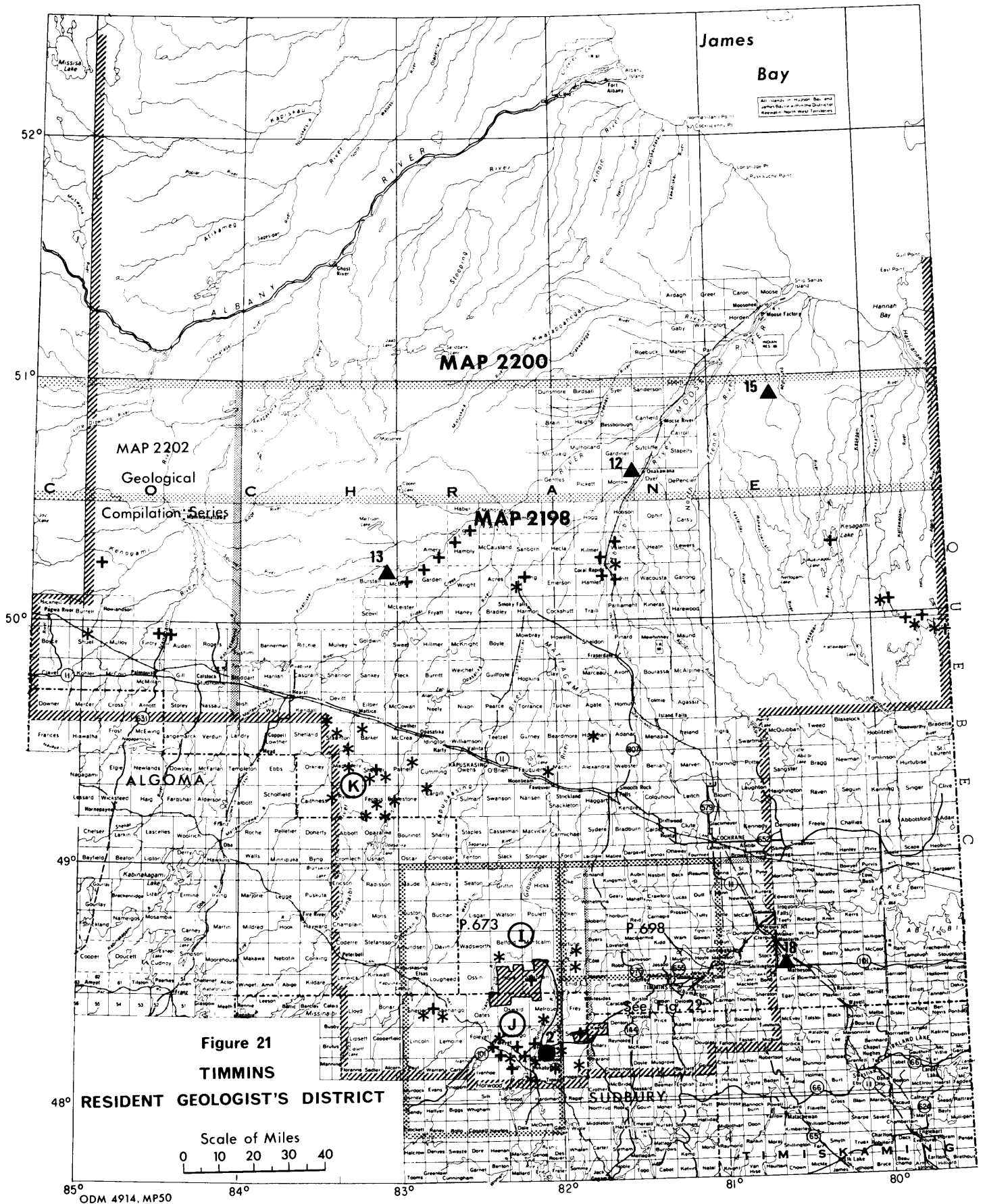
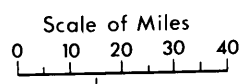


Figure 21
TIMMINS

48° RESIDENT GEOLOGIST'S DISTRICT



85° ODM 4914.MP50

84°

83°

82°

81°

80°

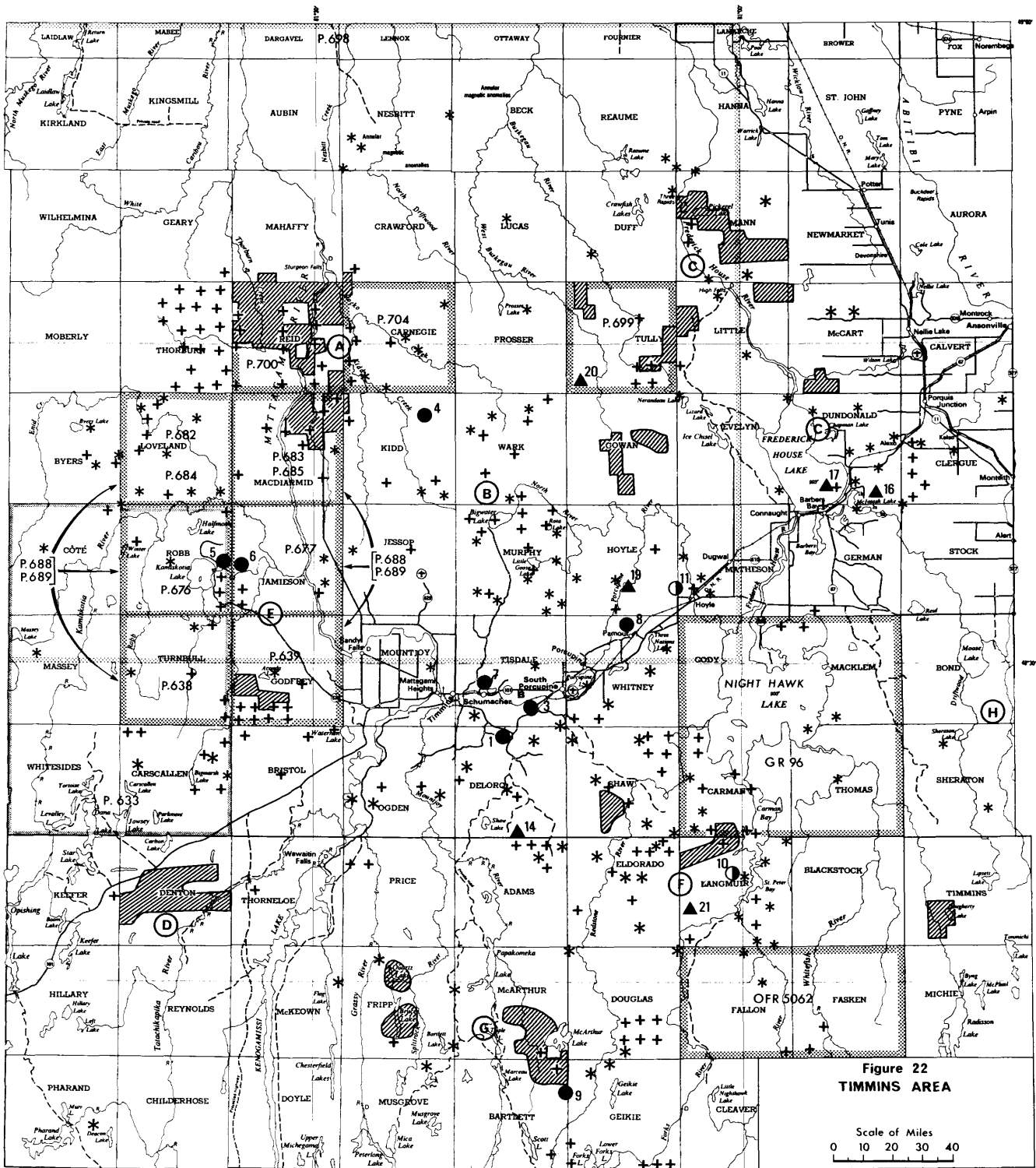


Figure 22
TIMMINS AREA

Scale of Miles
0 10 20 30 40

ODM 4915, MP50

EXPLANATION

- | | | |
|--------------------------------|------------------------------|---|
| ● Producing mine | ▨ Major staking activity | ▭ New maps and (or) reports (with number) |
| + Assessment work filed 1971 | ▲ Property under exploration | GR - Geological Report |
| * Minor staking activity | Ⓐ Area referred to in report | P - Preliminary Map |
| ● Properties under development | | OFR - Open File Report |
| | | Map 2198 - Ontario Geological Map |
| | | Map 2200 - Ontario Geological Map |
| | | ▨ Boundary of Resident Geologist's District |

INDEX TO FIGURES 21 AND 22



Producing Mines

1. Aunor Gold Mines Limited	Gold, silver
2. Canadian Johns-Manville Co. Ltd., Reeves Mine	Asbestos
3. Dome Mines Limited	Gold, silver
4. Ecstall Mining Limited, Kidd Creek Mine	Copper, zinc, silver, lead, cadmium
5. Jameland Mines Limited	Copper, zinc
6. Kam-Kotia Mines Limited	Copper, zinc
7. McIntyre Porcupine Mines Limited	Gold, silver, copper
8. Pamour Porcupine Mines Limited	Gold, silver
9. Texmont Mines Limited	Nickel



Properties Under Development

10. Noranda-Langmuir Mine	Nickel
11. Texas Gulf Zinc Refinery Complex	-



Properties under Exploration and/or Evaluation

12. Alberta Coal Limited, Onakawana Project	Lignite
13. Algocen Mines Limited, Missinaibi Project	China clay, silica sand
14. Canadian Magnesite Limited	Magnesite
15. Consolidated Morrison Expl. Ltd., Moosonee Project	Columbium
16. Falconbridge Exploration Ltd. Dundonald Township Project	Nickel
17. Hollinger Exploration Ltd. Dundonald Township Prospect	Nickel
18. Hollinger Exploration Ltd. Taylor Township Prospect	Gold
19. INCO, Hoyle Township Prospect	Gold
20. McIntyre Exploration Ltd., Tully Township Prospect	Gold
21. McWatters-Langmuir Prospect	Nickel

TIMMINS DISTRICT

By

E.G. Bright¹

SUMMARY

In March 1971, the McIntyre Mine celebrated its 60th year of production. To date their total production has been 10 million ounces of gold, 2.5 million ounces of silver, and 70 million lbs. of copper. Total mineral production in the Timmins area was derived from five gold-silver operations, five copper and copper-zinc-silver operations, one nickel operation, and one asbestos operation. During the latter part of 1971, two mines, the Hallnor gold mine and the Canadian Jamieson copper mine hoisted their last ton of ore. Similarly the Kam-Kotia copper-zinc operation broke its last ore late in the year but expects operations to continue up to the end of 1972. To date this mine has hoisted about 6,000,000 tons of ore averaging about 1 percent copper and 3 percent zinc.

New developments in the area include the 1972 projected start-up of the Noranda nickel mine in Langmuir Township and the Texas Gulf Sulphur Zinc Refinery-Sulphuric Acid Plant in Hoyle Township, east of Timmins. Underground mining operations at the Kidd Creek Mine are also expected to begin in 1972.

Favourable feasibility reports or re-evaluations are still pending on the following mineral deposits:

- (a) Consolidated Morrison: columbium deposit near Moosonee.
- (b) Alberta Coal Co. Ltd.: lignite deposits at Onakawana.
- (c) Algocen Mines: silica-sand-kaolin deposit north of Hearst.
- (d) McWatters: nickel deposit in Langmuir Township south of Timmins.
- (e) Canadian Magnesite: magnesite deposit in Deloro Township south of Timmins.
- (f) Falconbridge: nickel deposit in Dundonald Township east of Timmins.
- (g) McIntyre: Tully Township gold deposit.
- (h) INCO: Hoyle Township gold deposit.
- (i) Hollinger: Taylor Township gold deposit.

INTRODUCTION

The Timmins Resident Geologist's office is located together with the Mining Recorder's office in the new Ontario Department of Mines and Northern Affairs building at 60 Wilson Avenue in Timmins. Regular duties of the Resident Geologist and his staff include mapping, collecting, filing, and

¹Resident Geologist, 60 Wilson Avenue, Timmins. Manuscript accepted for publication February 24, 1972.

compiling geological, geophysical, geochemical, and economic mineral occurrence data from all sources; consultation and discussion with prospectors and exploration geologists; visiting mining operations and exploration prospects; and geological presentations to professional, social, and school groups in the district.

During the year the Timmins office completed and published a new interpretative geological-geophysical compilation map for the area north of Timmins¹. In association with the Pamour Sheet and to complement it, a new series of Timmins Data Series maps were published for Tully, Reid, and Carnegie Townships at a scale of 1 inch to 1/4 mile. Slated for publication early in 1972 are Data Series maps for Macdiarmid, Gowan, Duff, Mann, Mahaffy, Geary, and Prosser Townships.

Field Surveys in the Timmins Area - 1971

Ontario Department of Mines and Northern Affairs Surveys:

- 1) Keith and Horwood Townships, District of Sudbury, by V.G. Milne and F. Breaks.
- 2) Bartlett-Geikie Townships, District of Timiskaming, by D.R. Pyke.
- 3) Ground magnetic survey of Langmuir-Eldorado Townships, by W. Moon.
- 4) Magnetic base station (approx. 150 sites) program - Timmins-Kirkland Lake area, by W. Moon.
- 5) Float-surface geochemical tracing study on certain esker complexes in the Chapleau area, by W. Wolfe.

Federal Government Programs:

- 1) Overburden basal-till geochemical-drilling program in the Kamiskotia area.
- 2) Hammer-seismic profile survey in selective areas north of Timmins.

MINING ACTIVITIES AND DEVELOPMENTS

Texmont Nickel Mine

The Texmont nickel mine (Figure 22, 9), 22 miles south of Timmins, began production on July 1, 1971. The mine is to produce a 17 percent nickel concentrate at an eventual production peak rate of 500 tons per day. Ore reserves in two zones as indicated by surface and underground drilling is reported at 3,800,000 tons with an average grade of 1 percent nickel, after dilution, to a depth of 1,600 feet.

¹Bright, E.G., and Hunt, D.S., 1971. Pamour Sheet, District of Cochrane; Ontario Dept. Mines and Northern Affairs, Geol. Comp. Ser. Prelim Map P.698, Scale 1 inch to 2 miles. Compilation 1970, 1971. An interpretive geological-geophysical compilation map of the area north of Timmins.

Noranda Langmuir Nickel Mine

In 1971, a shaft for this nickel mine (Figure 22, 10) was sunk to a depth of 1,485 feet. Construction continues on the 700-ton per day mill and concentrator facilities. Production start-up is slated for late 1972 or early 1973. Reserves have been estimated at 1,500,000 tons, 1.87 percent nickel. The orebody which is within 200 feet of the surface has been drill tested to a depth of at least 1,100 feet.

Texas Gulf Sulphur - Kidd Creek Mine

The new completion date for the Ecstall Zinc Refinery complex at Hoyle, south of Kidd Creek Mine (Figure 22, 11) is set for April, 1972. The proposed annual output for the refinery complex is 230,000 tons of sulphuric acid, 120,000 tons of refined zinc, 1,000,000 pounds cadmium, substantial quantities of silver, some copper and tin, and several other accessory metals. Copper concentrates will continue to be processed at the Noranda smelter in Quebec. The total mine complex is presently the world's largest single zinc-silver producer. At the mine site in Kidd Township, 10 miles north of Timmins, a 3,000-foot shaft has been completed and underground mining operations are expected to augment the tonnage derived from the open-pit operations by the end of 1972.

The estimated ore reserves at the Kidd Creek deposit were revised upwards this year from 62 million tons to 90 million tons. Estimated recovery grade based on production output is 1.2 percent copper, 8.4 percent zinc, and 3.6 ounces silver per ton. The mine is presently operating at a 10,000-ton per day rate.

EXPLORATION ACTIVITY

Exploration activity in the Timmins area continued its upward trend in the metavolcanic-metasedimentary belt despite the numerous adverse economic forecasts for the mining industry in Canada. An estimated \$3,000,000 was spent last year on exploration programs throughout the Timmins area. This increase is primarily due to the exploration programs of the larger mining companies such as: Hollinger, Imperial Oil, Texas Gulf Sulphur, Noranda, INCO, Falconbridge, Amax, Dome, McIntyre, Newmont, Cominco, Mattagami Lake, and Canex.

This continuing upsurge which started in 1967 is reflected in the amount of geophysical work (almost a threefold increase over 1970) reported by these larger companies for assessment work credits (see Table 28).

In 1971, conventional deep diamond drilling was curtailed considerably throughout the area as compared with 1970. This, however, did not reflect the increased use of large overburden drilling machines which are used to take samples for geochemical analysis of the basal till just above the bedrock surface. It is estimated that approximately 200 holes of this type were drilled in the thick clay-till area north of Timmins by such companies as Texas Gulf, Newmont, and Cominco. These programs are designed to define

or evaluate more economically, previously known conductors and new anomalous zones that show little or no response to conventional ground EM surveys. They are also used as an aid in interpreting the stratigraphy of an area.

The major part of the exploration activity was carried out within a 40-mile radius of Timmins (see Figure 22, Timmins area). The numbers or letters following a name refer to the location on the district maps, Figures 21 or 22.

Table 28. Chart of Recent Exploration Activity

	<u>1963</u>	<u>1964</u>	<u>1965*</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>
Total applied days assessment credit	40,370	146,633	486,246	227,732	117,299	42,575	143,304	167,468	195,457
Days credit for DDH	34,328	48,095	242,869	151,747	79,634	42,575	86,397	96,946	52,401
Days credit for geophysics	2,348	93,863	224,959	65,577	32,220	26,896	53,497	59,013	131,385
Total claims staked	1,971	20,823	47,900	5,724	2,944	3,923	3,482	3,900	3,840

*Texas Gulf discovery announced April, 1964.

Reid-Macdiarmid Area (A)

Large-scale airborne and ground geophysical programs have been undertaken by Newmont Exploration Ltd. on their 131-claim group holdings in Reid Township as well as Mattagami Lake Mines Ltd. on a 322-claim group option from Tex-Sol Mines in Reid, Macdiarmid, Carnegie, and Kidd Townships. Indications of copper, zinc, and silver in the intercalated rhyolitic and andesitic pyroclastics which underlie this region have prompted these programs as well as those of Hollinger, Imperial Oil, McIntyre, Texas Gulf, and Noranda Explorations on claim holdings in the townships adjacent to the Kidd Creek Mine area.

Murphy-Wark Area (B)

Encouraging indications of copper and zinc mineralization in the mixed rhyolite and mafic flows and pyroclastics near Big Water Lake have spurred considerable exploration work in this area by McIntyre Exploration, Noranda, Hollinger-Imperial Oil, Amax Exploration, Falconbridge, and Tex-Sol.

Mann-McCart-Dundonald Area (C)

Encouraging indications of copper, zinc, and silver mineralization associated with the rhyolitic pyroclastic rocks in Mann Township, along with several known occurrences of nickel sulphides associated with some of the ultramafic sills in this region have spurred exploration in this area by such companies as Amax Exploration, Van Gulf Exploration, Dome Exploration, Hollinger Exploration, Falconbridge, INCO, and Canex.

Keefer-Denton Area (D)

The opening up of several old copper and copper-zinc occurrences associated with volcanic tuffs and flows with intercalated sulphide iron formation bands spurred a considerable amount of staking and exploration in this old gold area.

Other Areas

Staking and exploration for copper-zinc-silver and nickel deposits continued throughout the year in the Kamiskotia area (E), the Langmuir-Eldorado area (F), and the Bartlett-Fripp area (G). The re-evaluation of an old zinc-copper prospect in the southeastern part of Bond Township prompted a renewed exploration interest in this area (H).

Outside the area shown in Figure 22, several other regions in the Porcupine District (see Figure 21) received an upsurge of staking and exploration activity. Amax Exploration, Dome Exploration, and Noranda Exploration carried out geophysical and diamond drilling programs in the Belford-Nova-Strachan rhyolite belt (Area I). Noranda Exploration, Hollinger Exploration, Newmont Exploration, and McIntyre Exploration conducted drilling programs in the volcanic-sedimentary belt in the area between Kukatush and Foleyet (Area J). Exploration programs were carried out by INCO, Kennco, and Spruce Falls Paper in the volcanic-sedimentary belt southeast of Opasatika (Area K).

EXPLORATION GUIDELINES AND SUGGESTIONS

The interbedded sediments and tuffs which overlies and flank the felsic-to-mafic pyroclastics and flows near Big Water Lake in Murphy Township form part of the southern edge of a large structural sedimentary basin which underlies parts of Kidd, Jessop, Wark, and Murphy Townships (Figure 23). Over the years, encouraging intersections of copper and zinc mineralization as well as massive zones of pyrite and pyrrhotite have been encountered in the intercalated volcanic-sedimentary sequences underlying the northern part of Murphy Township. The Texas Gulf-Kidd Creek copper-zinc-silver deposit is along the northern edge of this same structural basin. The author proposes that the margins of this deformed sedimentary basin delineate a zone of predeformational block faulting along the flanks of the main volcanic piles which now underlie: 1) Robb-Jamieson-Jessop-Macdiarmid Townships; 2) Reid-Carnegie-Prosser Townships; and 3) Murphy-Gowan Townships. During the waning

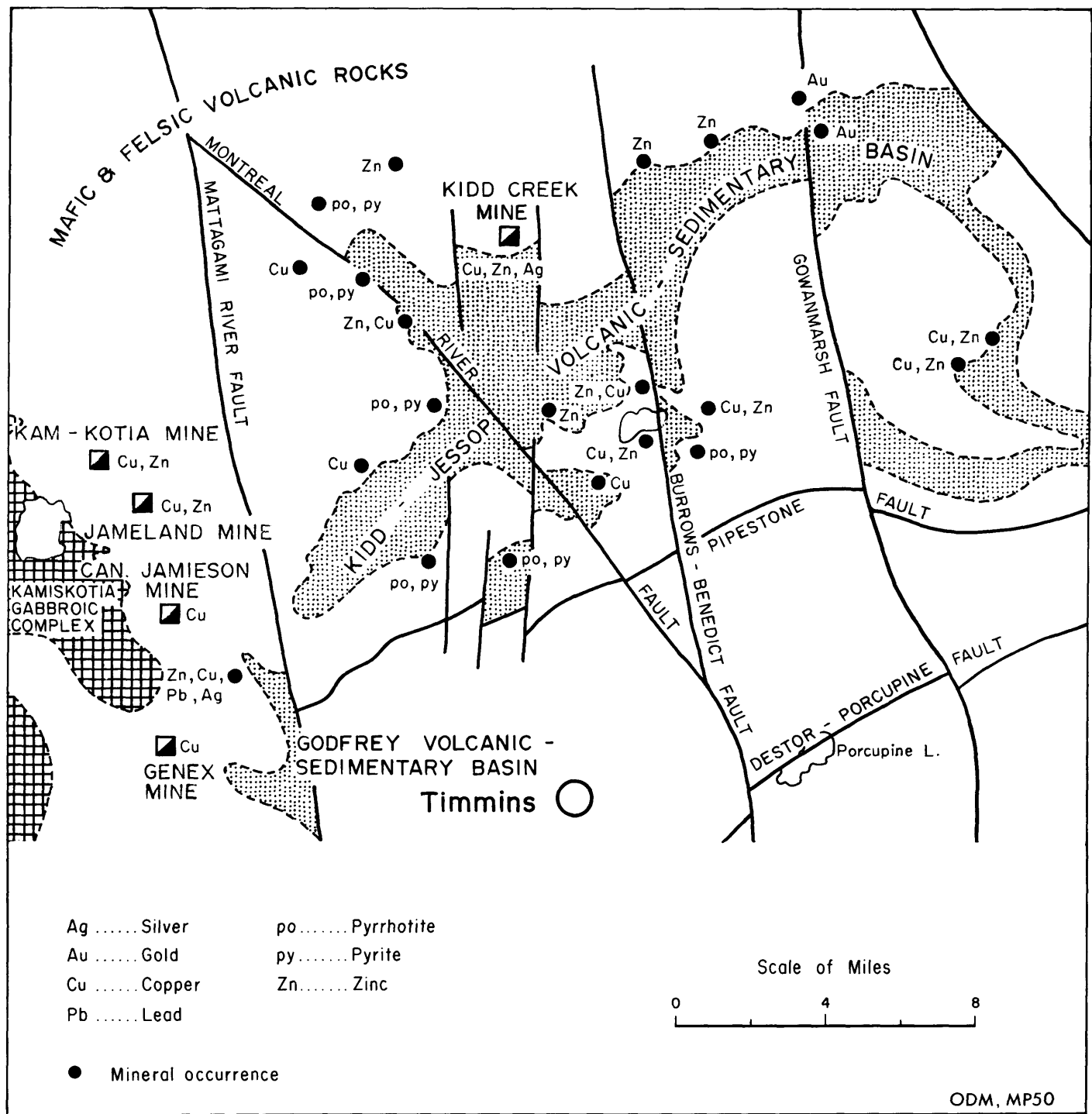


Figure 23 — Diagrammatic outline of the Kidd-Jessop Tectonic Basin

stages of explosive volcanism, hot sulphurous emanations (fumarole activity) localized along the faults at the margins of this volcanic-sedimentary basin could have been the controlling factor which concentrated the base metal sulphides in the unconsolidated host rhyolite lapilli-tuff agglomerate at Kidd Creek. The reducing character of this tuffaceous horizon during the deposition of the sulphide minerals is indicated by the iron sulphide-rich carbonaceous (now graphitic) lapilli-tuff zone adjacent to the orebody. In volcanic island arc systems today, sulphide minerals are now being deposited by a fumarole activity in the littoral tuffs and sediments within localized basins and along the margins of the larger tectonic sedimentary basins bordering the main crater complexes.

Exploration for syngenetic strataform sulphide deposits localized in the same geological environment as that at Kidd Creek should then be concentrated along the entire peripheral zone of the Kidd-Jessop sedimentary basin (Figure 23). A similar and possibly related tectonic sedimentary basin structure occurs along the western flank of the Mann-McCart Township rhyolite-rich volcanic complex. There are several good copper-zinc occurrences associated with the rhyolite pyroclastics in Mann Township. Another basin-type area of intercalated sediments and tuffs is along the eastern flank of the base metal producing volcanic complex which underlies the western part of Godfrey Township. The Canadian Jamieson and the Genex copper deposits are stratigraphically several thousand feet lower than these sediments and tuffs. Only the northern edge of this basin is in the area of the Pamour Sheet P.698. The eastern part of the Godfrey sedimentary basin has been truncated by the Mattagami River Fault. Since the movement on this fault is west side up and south (4 to 6 miles) relative to the rocks east of the fault, the Godfrey sedimentary basin is very likely a faulted extension of the Kidd-Jessop Basin.

The presence of chemically precipitated bedded chert horizons in the volcanic-sedimentary sequence near the margins of these basins may be a very useful indicator as to the presence of fumarole activity during the deposition of the adjacent rocks.

At the Kidd Creek Mine, a 100- to 200-foot thick finely laminated chert unit outcrops in the northeast wall of the open pit. Although cross-faulting has disrupted the rock-units in the vicinity of the orebody, the author believes that this chert horizon lies directly along strike from the altered and silicified rhyolite lapilli-tuff agglomerate unit which hosts the copper and zinc mineralization. This dark grey to buff (carbonate-sericite alteration) coloured chert horizon contains numerous megascopic quartz-'eye' aggregates and finely disseminated pyrite; no copper or zinc sulphides are visibly present. This chert unit appears to extend eastward beyond the open pit for at least 1,200 feet. In the east wall of the pit, a part of this same chert horizon shows a sharp contact with an extremely coarse brecciated rhyolite zone. The secondary matrix of this localized discordant breccia zone is also dark grey chert. This explosion vent breccia, a relic of the Kidd Creek fumarole shows evidence of repeated fracturing and silicification of the finely laminated rhyolite tuff that is below the host rhyolite lapilli-tuff agglomerate.

Beyond the area of the Kidd Creek Mine, massive to finely bedded chert horizons containing some copper and zinc mineralization are intercalated with

Table 29

Assessment and Other Reports Received in 1971

Symbols and Abbreviations

asb: asbestos	Mag: magnetite	AEM, Turair - airborne electromagnetic surveys
cp: chalcopyrite	Ni: nickel	AMag - airborne magnetometer survey
Cu: copper	py: pyrite	DDH - diamond drill hole
gn: galena	po: pyrrhotite	EM, IP, EM-16, JEM, VLF - ground electromagnetic surveys
IF: iron formation	sp: sphalerite	HEM - ground horizontal loop electromagnetic survey
		Mag - ground magnetometer survey
		VEM - ground vertical loop electromagnetic survey

Location	Ownership	Commodity Found	Type of Work	Year	File No.
Adams Tp.	W. H. Wilson, 143 Cedar St.N., Timmins, Ont.		VLF, Mag.	1970	T-731
Adams Tp.	Dr. R. Opatowski, c/o The Lord Simcoe Hotel, 150 King St. W., Toronto, Ontario.		Trenching	1970	T-642
Adams Tp.	Canadian Nickel Co. Ltd.		1 DDH - 805'	1970	T-1383
Amery Tp.	Algocen Mines Ltd. (The Algoma Steel Corp.Ltd.)		48 DDH - 7664'	1968-1970	T-1303
Atkinson Lake Area	Dome Exploration (Can.) Limited	po, cp, sp.	1 DDH - 482'	1970	T-561
Auden Tp.	Colleen Copper Mines Ltd.		Prospectus		T-354
Auden Tp.	North D'Arcy Explorations Ltd.	py, po	Prospectus, VLF 6 DDH - 1511'	1970 1971	T-385
Bartlett Tp.	Texmont Mines Limited		Mag., VEM, JEM	1970	T-1094
Bristol Tp.	Hollinger Mines Limited		1 DDH - 127'	1971	T-1460
Bristol Tp.	Hollinger Mines Limited		Mag., geology, bedrock geochem.	1969-1970	T-689
Bristol Tp.	Hollinger Mines Limited		VLF 1 DDH - 582'	1970 1971	T-496
Bristol Tp.	W. Kuehne, P.O. Box 315, Schumacher, Ont.		Manual	1970-1971	T-1099
Byers Tp.	Noranda Exploration Co. Ltd.		VEM, Mag.	1970	T-583
Byers Tp.	Noranda Exploration Co. Ltd.		VEM, Mag.	1970-1971	T-484
Carman Tp.	Babine International Resources Ltd.	Mag., asb.	3 DDH-2597'	1970	T-685
Carman Tp.	Canadian Nickel Co. Ltd.	py	3 DDH-3049'	1970-1971	T-1009
Carman Tp.	K.H.Darke, P.O.Box 983, Timmins, Ont.		4 DDH - 1965'	1971	T-1471
Carman Tp.	Mespi Mines Limited		VLF, soil sampling	1970	T-964
Carman Tp.	Molybdenum Explorations Ltd.	py, po, Mag., IF, asb.	2 DDH - 1488'	1970	T-1223
Carman Tp.	O. E. Smith, 111 Jarvis St., Toronto, Ont.		Mag., VEM	1970	T-1263
Carnegie Tp.	Hollinger Mines Limited	sp, cp, po, py.	1 DDH - 900'	1971	T-681
Carnegie Tp.	Hollinger Mines Limited		1 DDH - 401'	1971	T-1454
Carnegie Tp.	Tex-Sol Explorations Ltd., A. Leone, 64 3rd Ave., Timmins, Ont.; D. McKimmon, 99 Hemlock St., Timmins; P. DiSaverio, 251 Kirby Ave., Timmins		AEM, Turair, AMag.	1970-1971	T-470
Carscallen Tp.	Claw Lake Molybdenum Mines Ltd.		VLF, Mag.	1968-1969	T-1489
Carscallen Tp.	Hollinger Mines Limited		AEM	1970	T-560
Carscallen Tp.	Hollinger Mines Limited		Mag., geology, bedrock geochem.	1969-1970	T-689
Carscallen Tp.	Noranda Exploration Co. Ltd.	po, sp, trace cp	3 DDH-1463', Mag.	1970	T-582
Clergue Tp.	Falconbridge Nickel Mines Limited		Mag., VEM	1970	T-516
Clergue Tp.	C. R. Scott, Dalton Rd., Timmins, Ont.		Mag.	1971	T-493
Cody Tp.	Canadian Nickel Co. Ltd.		6 DDH - 4381'	1970	T-1494
Cote Tp.	Noranda Exploration Co. Ltd.		VEM, Mag.	1970-1971	T-479
Crawford Tp.	United Comstock Lode Mines Ltd.		Mag., VEM	1964	T-469
Deloro Tp.	Canadian Nickel Co. Ltd.	asb.	1 DDH - 980'	1970	T-1206
Deloro Tp.	P. Reidy, 85 Williams St., Bradford, Penna., USA		trenching	1971	T-641
Area of Lower Detour Lake	Canadian Nickel Co. Ltd.		1 DDH - 381'	1971	T-539
Douglas Tp.	Falconbridge Nickel Mines Ltd.		Mag., VEM	1970	T-969
Dundonald Tp.	Noranda Exploration Co. Ltd.		1 DDH - 400'	1970	T-1413
Eldorado Tp.	Acme Gas & Oil Co. Ltd.	py, po	3 DDH - 1318'	1971	T-1250
Eldorado Tp.	Canadian Nickel Co. Ltd.		Mag.	1971	T-473
Eldorado Tp.	Canadian Nickel Co. Ltd.		2 DDH - 2259'	1970	T-687
Eldorado Tp.	Mespi Mines Limited		Mag.	1970	T-728
Eldorado Tp.	W. Willson, 143 Cedar St. N., Timmins, Ont.		Trenching	1970	T-545
Fallon Tp.	Noranda Exploration Co. Ltd.		Mag., JEM	1970	T-525
Faiken Tp.	Noranda Exploration Co. Ltd.		Mag., JEM	1970	T-525
Fintry Tp.	North D'Arcy Explorations Ltd.		VLF, Mag.	1970	T-385

Location	Ownership	Commodity Found	Type of Work	Year	File No.
Foleytp Tp.	Noranda Exploration Co. Ltd.		Mag., VEM, VLF	1970-1971	T-402
Fripp Tp.	Hollinger Mines Limited	cp, gn, Mag., py	5 DDH - 1473'	1971	T-702
Garden Tp.	Algocen Mines Ltd. (The Algoma Steel Corp.Ltd.)		48 DDH - 7604'	1968-1970	T-1303
Geary Tp.	Hollinger Mines Limited		AEM	1970	T-560
Geikie Tp.	Falconbridge Nickel Mines Limited		Geology, Mag.,HEM	1970	T-967
Geikie Tp.	Texmont Mines Limited		Mag., VEM, JEM	1970	T-1094
German Tp.	Hollinger Mines Limited	trace Ni	10 DDH - 3205'	1971	T-1264
German Tp.	Canadian Nickel Co. Limited		6 DDH - 4381'	1970	T-1494
Godfrey Tp.	Hollinger Mines Limited	py, sp?	VLF 1 DDH - 1224'	1970 1971	T-496
Godfrey Tp.	Hollinger Mines Limited		Mag., geology, bedrock geochem.	1969-1970	T-689
Godfrey Tp.	Hollinger Mines Limited		2 DDH - 2103'	1971	T-1460
Habel Tp.	Algocen Mines Ltd. (The Algoma Steel Corp.Ltd.)		48 DDH - 7604'	1968-1970	T-1303
Hamby Tp.	Algocen Mines Ltd. (The Algoma Steel Corp.Ltd.)		48 DDH-7604'	1968-1970	T-1303
Hamlet Tp.	Kimberlite Mining Corp. Ltd.		Heavy media separation	1968-1971	T-1435
Area of Hopper Lake	Canadian Nickel Co. Ltd.		1 DDH - 345'	1971	T-533
Hoyle Tp.	Canadian Nickel Co. Ltd.		1 DDH - 627'	1971	T-1321
Hoyle Tp.	Ecstall Mining Limited		VEM, 2 DDH-1204'	1970-1971	T-1088
Jamieson Tp.	Falconbridge Nickel Mines Limited		Mag., VEM	1970-1971	T-497
Jamieson Tp.	Hollinger Mines Limited	py, po	AEM, 1 DDH-732'	1970-1971	T-560
Jessop Tp.	Hollinger Mines Limited	py	1 DDH - 609'	1971	T-1141
Keefe Tp.	Texas Gulf Sulphur Co. Inc.	po, cp.	3 DDH - 933'	1971	T-414
Keith Tp.	M. Chambers, 284 Hemlock St., Timmins, Ont.	py	3 DDH - 826'	1971	T-413
Keith Tp.	Noranda Exploration Co. Ltd.		Mag., VEM, VLF	1970-1971	T-402
Kesagami L. Area	Argor Explorations Ltd.	py, po	2 DDH - 1155', VEM, HEM, VLF, Mag., AEM, AMag.	1970-1971	T-1061
Kidd Tp.	Hollinger Mines Limited		EM-16, Mag.	1971	T-466
Kidd Tp.	Hollinger Mines Limited		EM-16	1971	T-467
Kidd Tp.	Tex-Sol Explorations Ltd.; A. Leone, 64 Third Ave., Timmins, Ont; D. McKinnon, 99 Hemlock St., Timmins, Ont; P. DiSaverio, 251 Kirby Ave., Timmins		AEM, Turair, A. Mag.	1970-1971	T-470
Kilmer Tp.	Kimberlite Mining Corp. Ltd.		heavy media separation	1968-1971	T-1435
Kipling Tp.	Indusmin Limited		9 DDH - 1490'	1970	T-1255
Langmuir Tp.	K.H.Darke, P.O.Box 983, Timmins, Ont.		4 DDH - 1965'	1971	T-1471
Langmuir Tp.	E. Galata, 1280 River Road, New Westminster, B.C.	po, cp, Mag.	7 DDH - 3031'	1970	T-1387
Langmuir Tp.	Canadian Nickel Co. Limited		1 DDH - 796'	1970	T-1386
Langmuir Tp.	Mespi Mines Limited		VLF, soil sampling	1970	T-964
Langmuir Tp.	Maycor Mines Limited		1 DDH - 715', geology, trenching, assays	1970-1971	T-1312
Langmuir Tp.	Seaway Copper Mines Limited		prospectus		T-659
Langmuir Tp.	Summit Explorations & Holdings Ltd.		prospectus		T-954
Little Tp.	Magoma Mines Limited	py	1 DDH - 1114'	1970	T-531
Loveland Tp.	Hollinger Mines Limited		AEM	1970	T-560
Loveland Tp.	Hollinger Mines Limited		Mag.	1970	T-1247
Loveland Tp.	Noranda Exploration Co. Ltd.		Geology	1970	T-477
Loveland Tp.	Noranda Exploration Co. Ltd.		VEM, Mag.	1970	T-603
Loveland Tp.	Sciminex Limited		prospectus		T-1155
MacDiarmid Tp.	Hollinger Mines Limited		AEM	1970	T-560
MacDiarmid Tp.	Hollinger Mines Limited		1 DDH -600', HEM	1971	T-681
MacDiarmid Tp.	G. J. Killeen, 465 Patricia Blvd., Timmins, Ont.		IP, soil sampling	1970	T-1475
MacDiarmid Tp.	Tex-Sol Explorations Ltd.; A. Leone, 64 Third Ave., Timmins, Ont; D. McKinnon, 99 Hemlock St., Timmins, Ont.; P. DiSaverio, 251 Kirby Ave., Timmins		AEM, AMag., Turair	1970-1971	T-470
MacDiarmid Tp.	United Comstock Lode Mines Limited		Mag., VEM	1964	T-469
Macklem Tp.	Canadian Nickel Co. Ltd.		6 DDH - 4381'	1970	T-1494
Mann Tp.	L. R. Berry, Box 174, N. Cobalt, Ont.		4 DDH - 409'	1970	T-537
Mann Tp.	Noranda Exploration Co. Ltd.		Geology, soil sampling	1970	T-1356
Matheson Tp.	Texas Gulf Sulphur Co. Inc.		VEM, Mag.	1970	T-541

Location	Ownership	Commodity Found	Type of Work	Year	File No.
McArthur Tp.	B. Whitmarsh, 544 Spruce St. S., Timmins, Ont.		stripping, trenching	1970	T-616
McBrien Tp.	Algocen Mines Ltd. (The Algoma Steel Corp. Ltd.)		48 DDH - 7604'	1968-1970	T-1303
Murphy Tp.	Amax Exploration Inc.		Mag.	1970	T-465
Murphy Tp.	Hollinger Mines Limited		Mag.	1971	T-460
Murphy Tp.	Hollinger Mines Limited		EM-16	1970	T-681
Murphy Tp.	McIntyre Porcupine Mines Limited		Mag.	1971	T-450
Murphy Tp.	McIntyre Porcupine Mines Limited	po, py, cp, sp.	1 DDH - 632', VEM, Mag.	1971	T-529
Murphy Tp.	Noranda Exploration Co. Ltd.	po, cp, py.	2 DDH - 1172', geology	1969-1971	T-1153
Murphy Tp.	United Comstock Lode Mines Ltd.		Mag., VEM	1964	T-469
Muskego Tp.	Mid-North Engineering Services Ltd.	Cu	Mag., VLF, chip sampling, 3 DDH-1289'	1970-1971	T-591
Muskego Tp.	Noranda Exploration Co. Ltd.		Mag., VEM, VLF	1970-1971	T-402
Ogden Tp.	Hollinger Mines Limited		Mag., HEM	1970	T-645
Pitt Tp.	Kimberlite Mining Corp. Ltd.		heavy media separation	1968-1971	T-1435
Price Tp.	Acme Gas & Oil Co. Ltd.		VLF	1969	T-1377
Reeves Tp.	Noranda Exploration Co. Ltd.		Mag., VEM, VLF	1970-1971	T-402
Reid Tp.	Hollinger Mines Limited		AEM, 1 DDH-543'	1970-1971	T-560
Reid Tp.	A. Leone, 64 Third Ave., Timmins, Ont.; D. McKinnon, 99 Hemlock St., Timmins, Ont.; P. DiSaverio, 251 Kirby Avenue, Timmins, Ont.; Tex-Sol Explorations Ltd.		AEM, AMag., Turair	1970-1971	T-470
Ridge Lake, Area south of	R. E. Kucera, 2946 W. 36th Street, Vancouver 13, B. C.		Mag.	1970	T-540
Robb Tp.	Casey Mines Inc.		prospectus		T-453
Robb Tp.	Cincinnati-Porcupine Mines Limited		VLF, stripping	1970-1971	T-1166
Robb Tp.	Falconbridge Nickel Mines Limited		Mag., VEM	1970-1971	T-497
Sewell Tp.	McIntyre Porcupine Mines Limited	py	Mag., JEM, 2 DDH-797'	1971	T-490
Shaw Tp.	Hollinger Mines Limited		Mag.	1970-1971	T-472
Shaw Tp.	Canadian Nickel Co. Limited		EM, Mag.	1969	T-1488
Shaw Tp.	Canadian Nickel Co. Limited		1 DDH - 817'	1970	T-1495
Shaw Tp.	W. Wilson, General Delivery, Porcupine, Ont.		manual, plugger drill	1970	T-563
Shearer Tp.	Canadian Nickel Co. Limited	py	1 DDH - 334'	1971	T-621
Shenango Tp.	P. Barry, 1612-2 Carlton St., Toronto 2, Ont. (630 Mt. Hope Ave., Rochester, N.Y., USA); R. Nabigon, Box 39, White R., Ont.		Mag., IP, 2 DDH	1969	T-1134
Sherlock Tp.	P. Barry, 1612-2 Carlton St., Toronto 2, Ont. (630 Mt. Hope Ave., Rochester, N.Y., USA); R. Nabigon, Box 39, White R., Ont.		Mag., IP, 2 DDH	1969	T-1134
Strachan Tp.	Dome Exploration (Canada) Limited		AMag.	1971	T-486
Sunday L. Area, west of	Canadian Nickel Company Limited		3 DDH - 1023'	1971	T-554
Thorburn Tp.	Hollinger Mines Limited		EM-16	1971	T-474
Thorburn Tp.	Hollinger Mines Limited		AEM	1970	T-560
Thorburn Tp.	Noranda Exploration Co. Ltd.		VEM, Mag.	1970-1971	T-483
Thorburn Tp.	Noranda Exploration Co. Ltd.		VEM, Mag.	1970	T-589
Thorburn Tp.	Sciminex Limited		prospectus		T-1155
Thornloe Tp.	Hollinger Mines Limited		geology	1970	T-556
Tisdale Tp.	Westfield Minerals Limited		prospectus		T-339
Tully Tp.	McIntyre Porcupine Mines Limited		VEM, Mag., 3 DDH-892'	1969-1970	T-1179
Tully Tp.	Noranda Exploration Co. Ltd.		2 DDH-436'	1969	T-1418
Tully Tp.	Noranda Exploration Co. Ltd.		1 DDH-499'	1969	T-1346
Tully Tp.	United Comstock Lode Mines Limited		VEM, Mag.	1964	T-893
Turnbull Tp.	Amax Exploration Inc.		VEM	1969	T-1472
Turnbull Tp.	Hollinger Mines Limited		Mag., geology, bedrock geochem.	1969-1970	T-689
Turnbull Tp.	Noranda Exploration Co. Ltd.		1 DDH - 319'	1969	T-1451
Valentine Tp.	Kimberlite Mining Corp. Ltd.		heavy media separation	1968-1971	T-1435
Wark Tp.	Falconbridge Nickel Mines Ltd.		4 DDH-2175'	1971	T-1161
Wark Tp.	Hollinger Mines Limited	po, py	2 DDH - 1215'	1971	T-688
Wark Tp.	D. McKinnon, 99 Hemlock St., Timmins		AMag	1971	T-401
Whitney Tp.	Hollinger Mines Limited		1 DDH - 603'	1971	T-471
Whitney Tp.	Oro Mines Limited	po, py, IF, magnesite	6 DDH - 2318'	1970-1971	T-1152

the volcanic-sedimentary units along the periphery of the Kidd-Jessop Basin near: 1) Big Water Lake in Murphy and Wark Townships, and 2) along the southern and southeastern margin of the domed volcanic pile in Gowan Township. These specific areas and their stratigraphic strike correlations should be considered prime exploration targets for investigation.

The Kamiskotia base metal environment differs from the Kidd Creek type in that the orebodies at Kam-Kotia, Jameland, Canadian Jamieson, and Genex were spatially deposited much closer to the main crater complexes in regions characterized by cyclical outpourings of mafic flows interspersed by subordinate felsic and mafic pyroclastics. Locally, intermittent submergence resulted in the deposition of minor sedimentary beds. In this area, chemically precipitated chert generally occurs as a series of discontinuous lenses within a narrow silicic tuff horizon along a major contact between andesitic flows and a major felsic (or mafic) pyroclastic unit. These interfingering chert lenses are at the same stratigraphic level as the ore lenses; they may also be at the ends of but usually along strike from the Cu-Zn sulphide concentrations. At the Kam-Kotia Mine, narrow (15 feet wide by 60 feet long) chert lenses outcrop in the hanging-wall silicic tuff approximately 800 feet due east of the No. A ore zone (the original open-pit workings). The No. B ore zone which does not come to surface lies directly south of the No. A ore zone and approximately 300 feet stratigraphically below it. Lenticular zones of bedded chert (10 feet by 40 feet and 20 feet by 150 feet) outcrop approximately 1,000 feet east of the No. B zone along or very close to the strike extension of the mineralized contact. At the Jameland and Canadian Jamieson Mines, there are thin banded chert units intercalated with silicic tuff a few feet directly along strike from some of the siliceous copper-stringer zones which have been determined by rock analyses.

Similar horizons of narrow unmineralized chert lenses and associated explosion breccia zones should then be sought throughout the rhyolite-rich volcanic complexes that underlie those areas to the north and west of the Kidd-Jessop tectonic sedimentary basin. Particularly favourable horizons for strataform and discordant base metal deposits localized in the Kamiskotia-type environment may then be better pin-pointed for concentrated diamond drilling.

NEW MAPS AND LITERATURE

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- 1971a: Pamour Sheet, District of Cochrane; Ontario Dept. Mines and Northern Affairs, Geol. Comp. Ser. Prelim. Map P.698, scale 1 inch to 2 miles. Compilation 1970, 1971.
An interpretive geological-geophysical compilation map of the area north of Timmins.
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- 1971c: Reid Township, District of Cochrane; Ontario Dept. Mines and Northern Affairs, Prelim. Map P.700, Timmins Data Ser., scale 1 inch to 1/4 mile. Compilation 1970, 1971.
- 1971d: Carnegie Township, District of Cochrane; Ontario Dept. Mines and Northern Affairs, Prelim. Map P.704, Timmins Data Ser., scale 1 inch to 1/4 mile. Compilation 1970, 1971.

Innis, D.G., and Ayres, L.D.

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Middleton, R.

- 1971a: Turnbull Township, District of Cochrane; Ontario Dept. Mines and Northern Affairs, Prelim. Map P.638, Geoph. Ser., Ground Vertical Field Magnetics, scale 1 inch to 1/4 mile. Geophysical survey and compilation 1969, 1970.
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- 1971c: Robb Township, District of Cochrane; Ontario Dept. Mines and Northern Affairs, Prelim. Map P.676, Geoph. Ser., Geoph. Grids, scale 1 inch to 1/4 mile. Compilation 1969.
- 1971d: Jamieson Township, District of Cochrane; Ontario Dept. Mines and Northern Affairs, Prelim. Map P.677, Geoph. Ser., Geoph. Grids, scale 1 inch to 1/4 mile. Compilation 1968.
- 1971e: Loveland Township, District of Cochrane; Ontario Dept. Mines and Northern Affairs, Prelim. Map P.682, Geoph. Ser., Ground Vertical Component Magnetics, scale 1 inch to 1/4 mile. Geophysical survey and compilation 1970. Contouring 1971.
- 1971f: Macdiarmid Township, District of Cochrane; Ontario Dept. Mines and Northern Affairs, Prelim. Map P.683, Geoph. Ser., Ground Vertical Component Magnetics, scale 1 inch to 1/4 mile. Geophysical survey and compilation 1970. Contouring 1970, 1971.
- 1971g: Loveland Township, District of Cochrane; Ontario Dept. Mines and Northern Affairs, Prelim. Map P.684, Geoph. Ser., Geoph. Grids, scale 1 inch to 1/4 mile. Compilation 1970.

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intersections. Before the last nine holes were completed, analyses of mineralized sections averaged 23 percent zinc with values as high as 47 percent zinc (Northern Miner 1971b; 1971c). Analyses for the nine remaining holes in the grid pattern were 44.6 percent zinc over 5.4 feet with wider intersections giving 19.7 percent over 49.3 feet, 34.7 percent over 36.1 feet, and 30.5 percent over 35.6 feet (Northern Miner 1971c).

A geochemical survey in the summer picked up the known zones and showed additional anomalies. Drill holes along strike 900 feet east of the known lenses returned narrow, high-grade sections. Several holes between these areas also have mineralized sections (Northern Miner 1971f). By year end, more than 100 holes had been drilled on the property.

A feasibility study on mining and milling of the ore was encouraging (Northern Miner 1971e). If sufficient reserves are proven it may be possible to develop the property.

Willroy Mines Limited

Willroy Mines Limited, which absorbed Macassa Gold Mines Limited in December 1970, completed a study of its Limerick Township nickel-copper deposit. The body was more accurately delineated by 39 additional holes, by a bore hole geophysical survey, and by the re-drafting of plans on a larger scale. Ore reserves are estimated at 1,800,000 tons grading 0.91 percent nickel, 0.26 percent copper and 0.06 percent cobalt to a depth of 1,200 feet (paper presented by P.D. Timms at GAC-MAC convention in Sudbury on May 15, 1971 and The Northern Miner 1971a; 1971d).

The sulphide minerals, pyrrhotite, pentlandite, pyrite, and chalcopyrite, are in a metapyroxenite differentiate of a mafic stock. The orebody is reverse L-shaped in plan with a north-northwest strike and a steep west-southwest dip.

No further plans have been announced.

ONTARIO GOVERNMENT ACTIVITIES

The Pits and Quarries Control Act

Legislation regulating pits and quarries and their rehabilitation was passed by the Ontario Legislature in 1971. The Pits and Quarries Control Act succeeded the Niagara Escarpment Protection Act, 1970. The new act requires all pits and quarries within designated areas to be licensed by the Minister of Mines and Northern Affairs. A site plan, which includes a progressive plan of operation and rehabilitation, must be approved before a license is granted. Among other requirements, the act provides for the posting of a performance bond to insure the eventual rehabilitation of the site.

At the end of 1971, the only area designated under the new act was the Niagara Escarpment area as defined in the former act, but other areas are to

Other small zones of radioactivity have been found over a distance of about a mile along strike to the west of the main showings. In addition to gold and uranium, a variety of mineral occurrences including molybdenum, lead, copper, and silver have been found at Bamaji Lake and it would appear that this general area warrants further prospecting.

Cameron Property (B)

An old copper property of possible significance is located on patented claim X-45 in Kirkup Township, about 12 miles southeast of Kenora.

Chalcopyrite and pyrite associated with brecciated quartz-carbonate veining occur in a sheared and fractured basalt. The mineralized zone strikes N15E and dips about 50 degrees east. A trench 100 feet long cuts the zone at a low angle, exposing mineralization over a distance of about 80 feet; the true width is about 30 feet. Selected grab samples are reported by M.Y. Cameron of Kenora to have run up to 11.5 ounces silver, 0.08 ounces gold, and 24.5 percent copper.

A limited amount of diamond drilling was carried out on the property some 20 years ago. The drill results indicate that the mineralized zone is of limited extent. However, the immediate area should be considered a favourable target and further exploration would appear to be warranted.

Mile Lake Property (C)

Several occurrences of nickel mineralization have recently been discovered at Mile Lake about 8 miles south of Dryden. The property is presently held by J. Harrison and H. Hanson of Eagle River.

Chalcopyrite and pyrrhotite have been found in at least six locations within an area of about 1,500 square feet on the south shore of Mile Lake. The sulphides are found along small shears and fractures and to a lesser extent, disseminated throughout the gabbroic host rock. Numerous small felsite dikes, some hosting minor mineralization, cut the gabbro. The mineralization appears to be widespread but except for minor, localized shearing and fracturing, controlling structural features are not evident.

Squaw Lake Property (D)

Several occurrences of porphyry-type copper and copper-molybdenum mineralization have recently been found at Squaw Lake by R. Longe of Kenora. The showings are located about 30 miles west of Kenora, just west of Ptarmigan Bay on Lake of the Woods.

Noranda Exploration Co. Ltd. carried out ground magnetometer, electromagnetic, and induced polarization surveys in 1970 but diamond drilling was not undertaken.

Trenching at several locations along the south shore of Squaw Lake has revealed considerable disseminated chalcopyrite and pyrite in quartz diorite

SUDBURY DISTRICT

By

D.G. Innes¹

INTRODUCTION

Sudbury staff of the Geological Branch during 1971 included the following persons: K.D. Card (field geologist), D.G. Innes (Resident Geologist's assistant), R. Cantin (Resident Geologist's assistant), L. Joliat (summer assistant), and Mrs. Y.M. Paquette (secretary). Miss Joliat returned to Laurentian University in September of 1971. Miss Cantin, a graduate of McMaster University, commenced her work with the Geological Branch in November 1971.

Card and Innes attended the annual Prospectors and Developers Convention in Toronto, and conducted several field trips in the Sudbury-Espanola areas for visiting geologists and students.

In May 1971, staff members participated in the Geological Association of Canada-Mineralogical Association of Canada Convention, held at Laurentian University, Sudbury. Card served on the organizing committee as field trip chairman, and Card and Cantin delivered papers at the technical sessions. A map display and mineral exhibit was arranged by Innes. Card also participated on the organizing committee for the 1972 International Geological Congress field trip to be held in the Sudbury-Elliot Lake area, and co-ordinated a joint paper on the Southern Province for the Geological Association of Canada symposium "Variations in Tectonic Styles in Canada".

During the 1971 field season geological investigations were done by S.B. Lumbers in the River Valley area (Location 1, Figure 18); by H.D. Meyn in Cotton, McNamara, and Frechette Townships (Location 2, Figure 17); by G.J. Burwasser in the Sudbury area (Location 3, Figure 17); by W.J. Wolfe in the Chapleau area (Location 4, Figure 17); by V.G. Milne and F.W. Breaks in the Keith-Horwood area (Location 5, Figure 17); by J.A. Robertson and K. Siemiatkowska in May and Hallam Townships (Location 6, Figure 17); and by K.D. Card and D.G. Innes in the Lake Panache map-area (Location 7, Figure 17).

The area that Lumbers worked in is transected by the Grenville Front, the tectonic contact zone between the Grenville, Southern, and Superior Provinces. Some rock units of the Southern and Superior Provinces extend into the Grenville, and a late, high-level anorthositic intrusive complex in this area locally contains appreciable amounts of copper-nickel sulphide minerals (Lumbers 1971).

Burwasser (1971) examined the Pleistocene geology and industrial mineral resources of the Sudbury Basin area.

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