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# Geology, Gold Mineralization and Property Visits in the Area Investigated by the Dryden-Ignace Economic Geologist, 1984-1987

by

J.R. Parker

1989



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V.G. Milne, Director
Ontario Geological Survey

# FORWARD

The Dryden-Ignace Economic Geologist Program, originally funded by the Ontario Ministry of Northern Affairs, was initiated in July, 1984 and terminated in July, 1987. The objective of the program was to encourage and promote mineral exploration in the Dryden-Ignace area, in anticipation of decreasing activity at the base-metal mines at Sturgeon Lake.

The purpose of this report is to present information accumulated during the Economic Geologist Program and to provide recommendations for future gold exploration. The main body of the report is comprised of detailed descriptions of the geology and characteristics of gold deposits in the Dryden-Ignace area, which has been divided into six sub-areas, namely: Eagle-Wabigoon Lakes; Dinorwic Lake; Sandybeach Lake; Melgund-Revell-Hyndman Townships; Kawashegamuk-Meggisi Lakes; and Upper Manitou Lake. In addition, an extensive appendix includes a listing and a map showing the location of 214 known gold occurrences, and detailed descriptions of 81 gold deposits visited during the program. The latter includes assay data obtained fom samples collected and an up-to-date comprehensive summary of exploration work conducted on each property.

This report will be of interest to mineral exploration industry geologists, and to prospectors, and to members of the general public desiring to better understand the geology and mineral potential of the Dryden-Ignace area.

TABLE OF CONTENTS


Forward ..................................................... v

Abstract .................................................... xxiii

Table of Contents ........................................... vii

List of Tables .............................................. xiii

List of Figures ............................................. xv

List of Appendices .......................................... xix

List of Maps (In Back Pocket) ............................... xxi

Title Page .................................................. xxix

INTRODUCTION ................................................ 1

ACKNOWLEDGEMENTS ............................................ 4

THE DRYDEN-IGNACE ECONOMIC GEOLOGIST PROGRAM
AREA: GEOLOGY, HISTORY AND MINERALIZATION ................... 4

I) REGIONAL GEOLOGICAL SETTING ............................... 4

II) GOLD EXPLORATION AND PAST PRODUCTION ...................... 8

III) REGIONAL DISTRIBUTION OF MINERALIZATION .................. 13

CONTROLS ON GOLD MINERALIZATION BY AREA ...................... 14

I) EAGLE-WABIGOON LAKES ....................................... 15

i) Introduction .............................................. 15

ii) Stratigraphy ............................................. 18

iii) Tectonics ................................................ 21

iv) Types of Gold Emplacement ................................ 22

a) Structurally Controlled Gold Deposits ................22
Shear Zone-Hosted ..................................22
Tension Fracture-Hosted ............................29
b) Stratigraphically Controlled Gold Deposits ...........35
v) Barren Structures .......................................39
vi) Conclusions and Recommendations for Exploration ..........41

II) DINORWIC LAKE ................................................46
i) Introduction ................................................46
ii) General Geology ............................................48
iii) Characteristics of Gold Deposits .........................51
iv) Conclusions and Recommendations for Exploration ..........54

III) SANDYBEACH LAKE .............................................55
i) Introduction ................................................55
ii) General Geology ............................................58
iii) Characteristics of Gold Deposits .........................62
iv) Conclusions and Recommendations for Exploration ..........70

IV) MELGUND-REVELL-HYNDMAN TOWNSHIPS ............................71
i) Introduction ................................................71
ii) General Geology ............................................72
iii) Characteristics of Gold Deposits .........................77
iv) Conclusions and Recommendations for Exploration ..........81

V) KAWASHEGAMUK-MEGGISI LAKES ..................................83
i) Introduction ................................................83

ii) General Geology ....................................85

iii) Characteristics of Gold Deposits ......................88

iv) Conclusions and Recommendations for Exploration ..........98

VI) UPPER MANITOU LAKE .....................................103

i) Introduction ..........................................103

ii) General Geology .....................................105

iii) Characteristics of Gold Deposits ......................108

iv) Conclusions and Recommendations for Exploration .........117

SUMMARY AND CONCLUSIONS ....................................120

REFERENCES .................................................133

## LIST OF TABLES

Table I: Gold and Silver Production Reported in the Dryden-Ignace Area ........................................ 9

LIST OF FIGURES

Figure 1: The Dryden-Ignace Economic Geologist Program Area (location of figures for sub-areas indicated) ......... 2

Figure 2: Stratigraphy and structure of the Eagle-Manitou Lakes greenstone belt in the Dryden-Ignace area ............ 6

Figure 3: Geology of Eagle-Wabigoon Lakes ............................16

Figure 4: Geology at Flambeau Lake-Larson Bay ........................24

Figure 5: Geology at Fornieri Bay-Hardrock Bay, Eagle Lake ...........28

Figure 6: Rose diagram of orientation of quartz veins at Flambeau Lake-Larson Bay (500 measurements) ................30

Figure 7: Rose diagram of orientation of felsic dikes at Flambeau Lake-Larson Bay (250 measurements) ................32

Figure 8: Geology at Dinorwic Lake ....................................47

Figure 9: Geology at Sandybeach Lake ..................................56

Figure 10: Geology at Melgund-Revell-Hyndman Townships ................73

Figure 11: Geology at Kawashegamuk-Meggisi Lakes ......................84

Figure 12: Geology at Upper Manitou Lake ............................104

Figure 13: Location of gold deposits, mixed metavolcanic sequences, and known eruptive centres in the Eagle-Manitou Lakes greenstone belt .......................125

LIST OF APPENDICES

APPENDIX A: List of Gold Occurrences, Prospects, and Past Producing Mines in the Dryden-Ignace Area (keyed to Location Map A, in back pocket) ......................151

APPENDIX B: Descriptions of Selected Gold Deposits Visited During the Economic Geologist Program ..........................159

MAP (IN BACK POCKET)

Map A - Location Map of Gold Occurrences, Prospects, and Past Producing Mines in the Dryden-Ignace Area; scale 1:100,000 or 1 inch to 1.6 miles.

## ABSTRACT

The Dryden-Ignace Economic Geologist Program encompassed the Eagle-Manitou Lakes greenstone belt within the Western Wabigoon Subprovince. The 3 year program focussed on gold, and successfully encouraged and promoted mineral exploration in the Dryden-Ignace area. Field work involving detailed mapping and the documentation of numerous gold deposits has resulted in recommendations for gold exploration, based on observations indicating that controls on gold mineralization are related to a combination of structure and stratigraphy.

The majority of gold deposits and past producing mines were discovered between 1888 and 1912 and are concentrated at Eagle and Wabigoon Lakes, at Kawashegamuk Lake or the "New Klondike" area, and at Upper Manitou Lake in the vicinity of Goldrock. Total gold production was about 19471 ounces of gold, 62% of which was extracted from the mines at Goldrock.

The Dryden-Ignace area was divided into six sub-areas, Eagle-Wabigoon Lakes, Dinorwic Lake, Sandybeach Lake, Melgund-Revell-Hyndman Townships, Kawashegamuk-Meggisi Lakes, and Upper Manitou Lake. The areas possess individual features that distinguish them one from another but they also share fundamental characteristics which define broad regional controls for gold mineralization.

Gold deposits are commonly situated within greenschist grade metavolcanic rocks and mafic to felsic intrusive rocks. Host rocks at many of the

deposits contain abundant disseminated magnetite, which serves as a chemical trap for gold precipitation by sulphidation. Gold is associated with sulphides and variable alteration, consisting dominantly of carbonatization, sericitization, and chloritization, which is typically restricted to the immediate wall rocks.

The majority of gold deposits consist of gold-bearing quartz veins located within ductile shear zones and brittle fracture zones, related to the style of deformation along major faults and shear zones. Regional deformation events both preceded and accompanied the establishment of gold-associated alteration and gold deposition.

Regional stratigraphic control of gold mineralization characterizes the Dryden-Ignace area: gold is associated with middle or upper metavolcanic sequences of calc-alkaline or mixed tholeiitic to calc-alkaline affinity. Gold is also spatially related to subvolcanic intrusions and felsic volcanic centers which occur within the mixed and calc-alkaline metavolcanic sequences.

Gold mineralization is related both to volcanic processes and to tectonic environments of calc-alkaline metavolcanic rocks and their associated intrusive rocks. Although gold occurs within structurally controlled quartz veins the concentration of gold deposits at a specific stratigraphic level suggests original synvolcanic gold enrichment and later concentration of gold due to metamorphic hydrothermal processes. This is demonstrated by a gold prospect on Eagle Lake, where gold mineralization is hosted by stratiform, sulphide-rich, mafic flows, and evidence suggests that gold was

deposited synvolcanically.

The structural favourability of the mixed sequences, which are commonly spatially related to major faults, provided nearby structures for the emplacement of gold-bearing quartz veins. The heterogeneous nature of the mixed sequences caused the localization of tension and compression during deformation, which resulted in fracturing of the rigid rock types and shearing at lithologic contacts.

The relationship of gold both to structure and to stratigraphy indicates that there must be a combination of these two principle components for the concentration of significant gold mineralization in the Dryden-Ignace area.

# Geology, Gold Mineralization, and Property Visits in the Area Investigated by the Dryden-Ignace Economic Geologist 1984 - 1987

by

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## INTRODUCTION

The Dryden-Ignace Economic Geologist Program, originally funded by the Ontario Ministry of Northern Affairs, was initiated in July, 1984 and terminated in July, 1987. The program was staffed by J. R. Parker assisted by A. Schottroff (July 1984-March 1985) and R. Schienbein (June 1985-July 1987). Area of coverage was from Eagle Lake east to Ignace, north to Sandybeach Lake and south to Lower Manitou Lake (Figure 1). The objective was to encourage and promote mineral exploration. This was accomplished by: providing assistance and advice to prospectors and exploration companies; facilitating contact between prospectors and the mining industry; monitoring local exploration activities; establishing a data base by documenting, sampling, and investigating old and new mineral occurrences; providing free limited analytical services; conducting literature searches; publishing property descriptions and recommendations for exploration in the Report of Activities of the Resident Geologists; conducting detailed mapping in areas of high gold potential; presenting displays and talks at conferences and seminars; and conducting prospecting courses in Dryden and Ignace.

The Dryden-Ignace Economic Geologist Program focussed on gold, due to the emphasis on gold exploration since 1979. About 131 separate mineral properties were examined between 1984 and 1987. 119 were gold properties, while the remaining 12 were base metal, uranium, rare element, tungsten, soapstone, building stone, and barren sulphide properties.

During the program the majority of work was conducted where gold occurrences were known from previous activity but where relatively little work was being

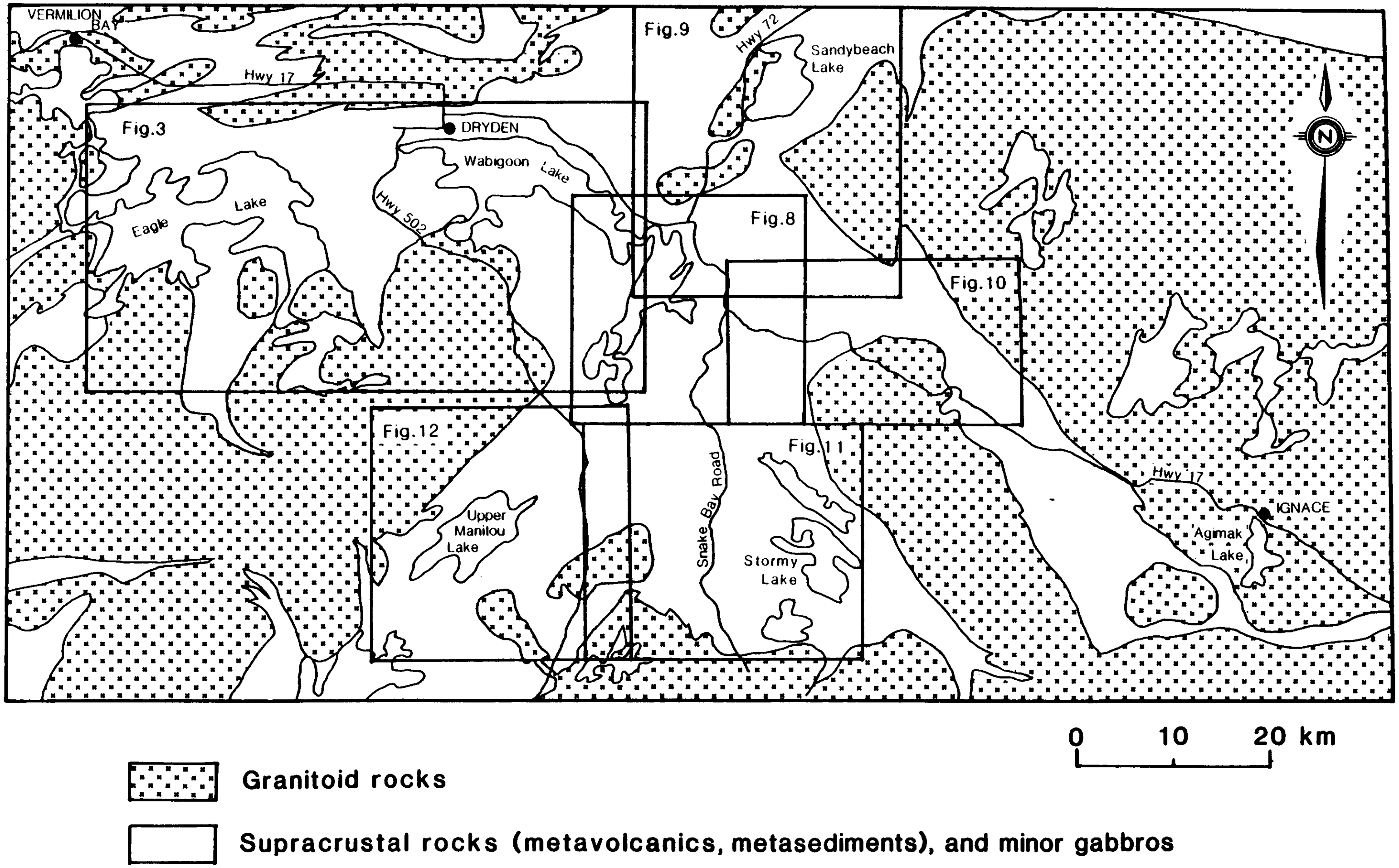



Figure 1: The Dryden-Ignace Economic Geologist Program Area (location of figures for sub-areas indicated)

conducted by exploration companies and prospectors, such as at Eagle-Wabigoon Lakes, at Dinorwic Lake, in Melgund, Revell, and Hyndman Townships, and at Kawashegamuk-Meggisi Lakes. New gold discoveries and poorly documented old gold properties, whose locations were not indicated on any previously published maps, have recently been discovered in all five areas due to the subsequent increase in prospecting and exploration.

No work was conducted in the immediate Ignace area (ie: the Raleigh Lake Volcanic belt) by the Economic Geologist, because of the lack of known gold occurrences and exploration activity. Historically, gold exploration has always been minimal in the vicinity of Ignace, and no significant gold mineralization has been found (Sage et al 1974).

The purpose of this report is to present information accumulated during the Economic Geologist Program, to review and summarize the general characteristics of the gold deposits, to provide an overall regional understanding of structural and stratigraphic controls on gold mineralization, and to provide suggestions and recommendations for future gold exploration.

During the course of the program, detailed mapping at a scale of 1 inch to 400 feet was carried out in two areas of known high gold potential: the first was between Flambeau Lake and Larson Bay of Wabigoon Lake; the second was at Fornieri Bay and Hardrock Bay of Eagle Lake. Resultant preliminary maps (Parker and Schienbein 1988a, b; Parker, Engler, and Schottroff, in preparation) should be used in conjunction with the present open file report: many of the gold deposits discussed here are located in these two areas.

## ACKNOWLEDGEMENTS

The author would like to thank C.E. Blackburn, Resident Geologist, Kenora, for his direction, assistance, constructive criticisms, and discussions during the Economic Geologist Program, as well as M.R. Hailstone, Staff Geologist, Kenora, for assistance and helpful discussions. Special thanks to A. Schottroff and R. Schienbein, who assisted with various aspects of the field work and drafting. The author also thanks Marge Guderyan and Susan Turner for their typing skills and patience. All analyses presented in this report were done by the Geoscience Laboratories, Ontario Geological Survey in Toronto, unless otherwise noted.

A special word of thanks must be expressed to all geologists and mining company personnel who have worked in the Dryden-Ignace area, for their helpful co-operation and discussions.

Finally, the author thanks all the prospectors who work in the Dryden-Ignace area for their hospitality, support, and most of all, their friendship.

## THE DRYDEN-IGNACE ECONOMIC GEOLOGIST PROGRAM AREA; GEOLOGY, HISTORY, AND MINERALIZATION

### I) REGIONAL GEOLOGICAL SETTING

The Dryden-Ignace Economic Geologist Program encompassed the Eagle-Manitou

Lakes greenstone belt within the Western Wabigoon Subprovince. The belt includes Eagle and Wabigoon Lakes in the west, Dinorwic Lake in the central portion of the belt, Kawashegamuk, Wapageisi, and Stormy Lakes in the east, Upper Manitou Lake in the south and Sandybeach Lake in the north.

The belt is predominantly composed of mafic, intermediate, and felsic metavolcanic flows and pyroclastics and lesser amounts of metasedimentary rocks, intruded by large granitic batholiths such as the Atikwa, Basket Lake, and Revell Batholiths, and the Irene-Eltrut Lakes Batholithic Complex. Various late felsic, mafic and ultramafic stocks, plugs, dikes, and sills intrude the volcanic-sedimentary assemblage (Figure 2). With the exception of a northwesterly-trending Proterozoic diabase dike, all of the rocks are of Archean age. Supracrustal rocks are generally metamorphosed to greenschist grade assemblages over wide areas while amphibolite grade rocks are more locally concentrated within the contact aureoles of the large granitic batholiths and smaller intrusions. Mafic to felsic metavolcanics and metasediments of the Raleigh Lake belt, near Ignace, are almost entirely metamorphosed to lower amphibolite grade. Varying degree of alteration of metavolcanic rocks is common throughout the Eagle-Manitou Lakes belt, but an extensive area of intense iron carbonate alteration centered on Dinorwic Lake dominates the eastern part of the belt. Numerous gold occurrences and prospects have been discovered within or near the margin of this carbonate alteration zone.

Large scale folding is common in the eastern part of the Eagle-Manitou Lakes belt where major fold structures such as the Manitou Anticline and the Kamanatogama Syncline have been recognized (Blackburn 1979; Kresz et al.

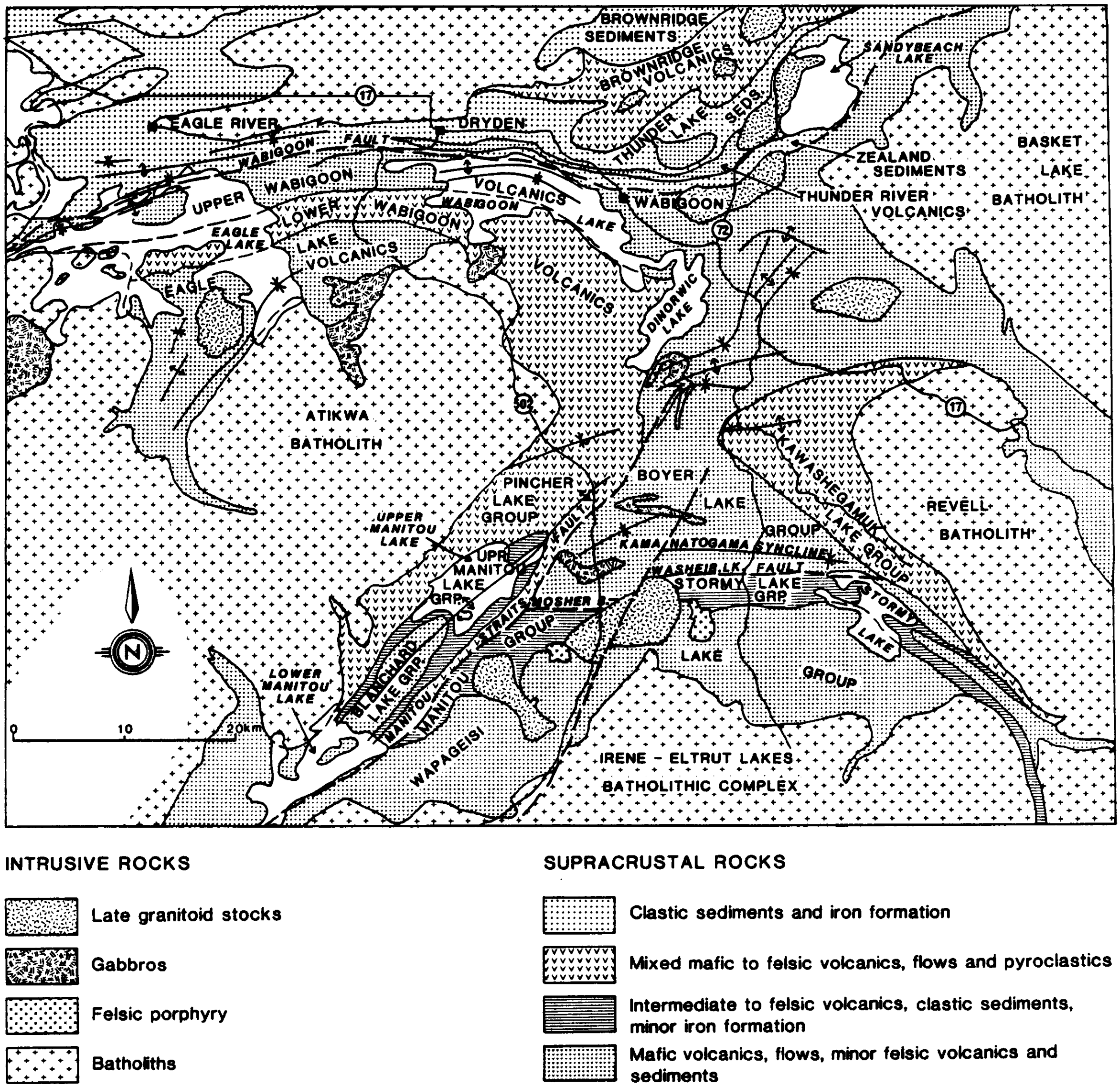



Figure 2: Stratigraphy and structure of the Eagle-Manitou Lakes greenstone belt in the Dryden-Ignace area

1982a, b). Domal structures are common in the Sandybeach Lake area where Satterly (1943) recognized the Laval Anticline and the Hartman Dome. Berger et al. (1987a) also recognized a domal structure in McAree Township, north of Sandybeach Lake. The metavolcanic rocks which extend from Eagle Lake to Wabigoon Lake face homoclinally northward except for tight isoclinal folding close to the Wabigoon Fault. Several north- and northeast-trending anticlinal and synclinal fold axes have been recognized in the dominantly mafic metavolcanic rocks south of Eagle Lake.

Along the north shore of Eagle and Wabigoon Lakes, metasediments and granitoid rocks of the English River Subprovince to the north, are in fault contact with lower grade metavolcanic rocks to the south. A major component of movement along this Wabigoon Fault can be shown to be dominantly dextral based on major and minor tectonic structures. Another major fault is the northeast-trending Manitou Straits Fault, which extends from Lower Manitou Lake to Dinorwic Lake. Large scale movements along these faults have resulted in widespread shearing and fracturing throughout the Eagle-Manitou belt. Both faults have a genetic and spatial relationship with gold mineralization.

Field investigations and geochemical work have made it possible to make correlations between volcanic and sedimentary sequences within the Eagle-Manitou belt (Figure 2). This refinement of the stratigraphy has also shown that many gold deposits are stratigraphically controlled on a regional scale (Blackburn and Hailstone 1983; Blackburn and Janes 1983; Parker and Blackburn 1986; Melling et al. in preparation).

## II) GOLD EXPLORATION AND PAST PRODUCTION

The Dryden-Ignace area was the site of intensive prospecting for gold from about 1888 to 1912. Gold production in the interval 1895-1912 came principally from mines near the community of Goldrock, at the northeast end of Upper Manitou Lake (Table 1). The total recorded gold production at Goldrock during that time, from the Laurentian and Big Master Mines, was approximately 9782 ounces of gold. Total production was certainly higher, since gold produced from 1000 tons of ore at the Big Master Mine in 1902 was not recorded (Table 1; Thomson 1942). The ore at the Laurentian Mine was reported to have occurred in extremely rich pockets, and some gold was thought to have been stolen (Thomson 1942). Development and exploration was conducted southwest of Upper Manitou Lake, in the vicinity of Carleton Lake, during the interval 1895-1904 at the Gold Rock, Queen Alexandra and Twentieth Century Mines, and at the Reliance Prospect. Minimal amounts of gold were produced from the Gold Rock and Queen Alexandra Mines (Table 1), and considerable development was conducted at the Reliance Prospect, although no production was reported. The Twentieth Century Mine produced 2563.9 ounces of gold from 8688 tons of ore during 1902 and 1903 (Table 1; Thomson 1942).

In 1897, the area northeast of Kawashegamuk Lake had gained interest, and was dubbed the "New Klondike". Gold discoveries were made at Tabor Lake and north of Kawashegamuk Lake, but the only gold producer in the area was the Sakoose Mine (also known as the Munroe and Watson Mine, Van Houten Mine, or the Golden Whale) where 8028 tons of ore was extracted between 1899 and 1902 (Table 1; Tremblay 1940). Approximately 7735 tons of ore were shipped to

Table 1: Gold and Silver Production Reported in the Dryden-Ignace Area

| Property | Years of Production | Ounces Gold | Ounces Silver | Tons of Ore Milled | Average Grade of Gold (ounce per ton) | Average Grade of Silver (ounce per ton) |
|---|---|---|---|---|---|---|
| Alto-Gardnar | 1941 | 10.14 | 2 | 125 | 0.08 | 0.02 |
| Baden-Powell | 1902 | 90 | --- | 30 | 3.0 | --- |
| | 1903 | 167 | --- | 83 | 2.01 | --- |
| | 1904 | 20 | 6 | 30 | 0.67 | 0.2 |
| | 1905 | 11 | --- | 20 | 0.55 | --- |
| Big Master (Kenwest) | 1902 | --- | --- | 1000 | --- | --- |
| | 1903 | 1189 | --- | 2527 | 0.47 | --- |
| | 1905 | 450 | --- | 1500 | 0.30 | --- |
| | 1942 | 489.04 | 104 | 6324 | 0.07 | 0.02 |
| | 1943 | 437.48 | 80 | 3119 | 0.14 | 0.03 |
| Bonanza | 1920 | 101.27 | --- | 291 | 0.34 | --- |
| | 1923 | 142.58 | 83 | 915 | 0.16 | 0.09 |
| Eldorado | 1904 | 14.0 | --- | 30 | 0.47 | --- |
| Elora (Jubilee) | 1936 | 277.09 | 40 | 1477 | 0.19 | 0.03 |
| | 1937 | 534.68 | 168 | 8888 | 0.06 | 0.02 |
| | 1939 | 557.03 | 88 | 3401 | 0.16 | 0.03 |
| Gold Moose | 1902 | --- | --- | 67 | --- | --- |
| Golden Eagle | 1901 | 9.5* | --- | 19 | 0.05* | --- |
| | 1903 | 17 | --- | 29 | 0.58 | --- |
| Gold Rock | 1929 | 35 | 5.0 | 300 | 0.17 | 0.02 |
| Grace | 1902 | 20.0 | --- | 15 | 1.33 | --- |
| | 1907 | 32.0 | --- | 100 | 0.32 | --- |
| | 1908 | 17.0 | --- | 300 | 0.06 | --- |
| Laurentian | 1906-1909 | 8143.0 | --- | 19950 | 0.41 | --- |
| Lost+ | 1929 | 8.0 | 34.0 | 34 | 0.26 | 1.0 |
| Queen Alexandra | 1904 | 16.94 | --- | 18 | 0.94 | --- |
| Redeemer | 1904 | 116.11 | --- | 100 | 1.16 | --- |
| | 1905 | 84.66 | --- | 350 | 0.24 | --- |
| | 1906 | 134.97 | --- | 550 | 0.24 | --- |
| | 1918 | 8.22 | --- | 200 | 0.04 | --- |
| Rognon | 1916 | 6.0 | --- | 1 | 6.0 | --- |
| | 1917 | 14.0 | --- | 40 | 0.35 | --- |
| | 1918 | 2.21 | --- | 8 | 0.27 | --- |
| Sakoose (Van Houten or Golden Whale) | 1899-1902 | 3413 | --- | 8028 | 0.42 | --- |
| | 1945 | 25.15 | 4.0 | --- | --- | --- |
| | 1947 | 230.94 | 141.0 | 800 | 0.29 | 0.18 |
| Tabor Lake | 1934-1938 | 45.75 | 4.0 | 78.9 | 0.58 | 0.05 |
| Twentieth Century | 1902-1903 | 2563.88 | --- | 8688 | 0.29 | --- |
| Van Houten | 1940 | 3.0 | --- | 150 | 0.02 | --- |
| Vanlas | 1939 | 33.6 | --- | 80 | 0.42 | --- |
| | --- | 19471.13 | 759.0 | 69665.9 | 0.28 | 0.03 |

Compiled from O.G.S. Statistical and Geological Reports except for:
*Canadian Mining Review (1901) p. 186.

+The production figures for the Lost Mine have been erroneously reported to have come from the Wachman Prospect in previous literature.

the Keewatin Reduction Works at Keewatin, Ontario (Carter 1902).

Prospectors were actively exploring for gold near McNamara and Agimak Lakes, south and southwest of Ignace, during the 1890's. The Ryan Occurrence on McNamara Lake was the first gold occurrence reported in the Ignace area (W. McInnes 1898), and later described by T. L. Tanton (1938). Satterly (1943) described the Ryan Occurrence as a molybdenite occurrence and did not report any gold mineralization.

Exploration expanded into Eagle Lake by 1900, where a number of prospects were located along the granite-metavolcanic contact in the southwest part of the lake. Attempts to develop these discoveries into mines failed, except for the Baden Powell Mine, which produced 288 ounces of gold between 1902 and 1905 (Mineral Deposit Files, Resident Geologist's Office, Kenora), and the Grace Mine, which sporadically produced 69 ounces of gold between 1902 and 1908 (Mineral Deposit Files, Resident Geologist's Office, Kenora). Most mining activity had ceased at Eagle Lake by 1912, although development continued at the Grace Mine until the early 1920's.

Gold exploration was concentrated west of Larson Bay and Contact Bay of Wabigoon Lake from 1897 to the 1920's. In 1902, a shaft was started at the Gold Moose Prospect west of Larson Bay, and a mill test on 67 tons of ore was made at the Keewatin Reduction Works (Satterly 1943). The shaft was deepened to 114 ft. by 1913 but no production values were reported (Satterly 1943). The Redeemer Mine, west of Larson Bay, produced approximately 335.7 ounces of gold between 1904 and 1906. The mine was dewatered and reexamined between 1910 and 1911, and produced 8.2 ounces of gold from 200 tons milled in 1918 (Satterly 1943). In 1916 the Rognon Mine, west of Contact Bay on Wabigoon Lake, produced 6 ounces of gold from 1 ton of ore. During 1917 and 1918, the Rognon Mine is reported to have produced 16.21 ounces of gold from 48 tons milled, although it was rumoured that about 600 tons of ore was mined, and possibly sent to the Redeemer mill for treatment (Satterly 1943). Gold exploration and production had waned by 1916, but re-evaluations of properties and minor production continued into the 1920's. The Bonanza Mine, located north of the Redeemer Mine, operated from 1920 to 1923, and produced 243.85 ounces of gold at an average grade of 0.20 ounce gold per ton. Production figures are only available for the years 1920 and 1923 (Satterly 1943). Development work and minor producton took place at the Lost Mine and Wachman Prospect throughout the 1920's (Satterly 1943).

During 1928 and 1929, the Gold Rock Mine on Upper Manitou Lake produced 35 ounces of gold from 300 tons of ore (Thomson 1934), however, development elsewhere on the lake was minimal.

Limited and sporadic gold exploration occurred during the 1930's and 1940's, with the reevaluation of many properties throughout the area. The "New Klondike" was reactivated with exploratory development at the Sakoose Mine, and minor production from the Tabor Lake Mine, between 1931 and 1938 (Kresz et al. 1982a, b). Re-evaluation at Goldrock led to development work at the Laurentian and Big Master Mines in 1934. The Elora Mine, a new producer at Goldrock, operated during 1936, 1937 and 1939, producing 1369.69 ounces of gold (Young 1937, 1938; Tremblay 1940). Considerable exploration work, which included bulk sampling, was conducted at the Alto-Gardnar Prospect in Avery Township from 1938 to 1942. About 125 tons of ore was shipped to the mill at the Sakoose Mine (then known as the Van Houten Mine) in 1941, and produced 10.14 ounces of gold (Tower 1942; Satterly 1943). During 1942 and 1943 the Big Master Mine, renamed the Kenwest, produced 926 ounces of gold (Tremblay 1943, 1944), and continued to operate until 1948. In 1940, the Van Houten Mine, south of Wabigoon Lake, produced 3 ounces of gold (Satterly 1943). The Sakoose Mine produced 256 ounces of gold during 1945 and 1947, and sporadic development took place at the Tabor Lake Mine between 1947 and 1960 when operations were finally terminated (Kresz et al. 1982a, b). Intensive gold exploration was concentrated at Fornieri and Hardrock Bays on Eagle Lake from 1931 to 1951.

Total recorded gold production in the Dryden-Ignace area, by the end of the 1940's, was approximately 19,471.13 ounces of gold (Table 1). About 12,113.21 ounces of gold were produced at Goldrock, which is 62% of the total gold production. The total production value for the area is probably higher, since production figures from many of the mines and prospects were inaccurate or not reported.

Base metal, iron, and uranium exploration occurred throughout the area from the 1950's to the late 1970's, but no significant deposits were discovered. Tungsten and rare elements have been the focus of exploration immediately north of Dryden, in Brownridge and Zealand Townships, since the 1950's. Laval Township and the Sandybeach Lake area was the focus of gold exploration during the late 1940's and 1950's; most of this was due to increased activity in the area around the Goldlund Mine. Gold exploration was conducted during the mid-1970's on a few properties such as the Fornieri Bay and W.W. Smith Prospects on Eagle Lake, the Pidgeon-Avery Township

Prospect, and the Pelham Prospect at Washeibemaga Lake. Widespread exploration around Dryden and Ignace has been directed toward gold since 1979, due to its resurgence in price and demand. Gold exploration has been concentrated in the Manitou Lakes and "New Klondike" areas, but activity has increased in the vicinity of Eagle, Wabigoon, and Dinorwic Lakes since the inception of this Economic Geologist Program. Although a small heap leach circuit was tested at the Sakoose Mine during 1984, no gold production has taken place since the 1940's. Map A (back pocket) indicates the locations of the majority of known gold deposits in the Dryden-Ignace area.

## III) REGIONAL DISTRIBUTION OF GOLD MINERALIZATION

There are over 200 known gold deposits in the Dryden-Ignace area, the majority of which are structurally controlled, gold-bearing quartz veins hosted by shear and/or fracture zones in greenschist grade metavolcanic rocks, and mafic and felsic intrusive rocks. Several gold occurrences are hosted by amphibolite grade metavolcanic rocks, but the gold mineralization is generally erratic and restricted to narrow quartz veins in shear zones. Only a few occurrences are hosted by sedimentary rocks and iron formation.

The majority of gold deposits, including almost all of the past producing mines, are concentrated at Eagle and Wabigoon Lakes, at Kawashegamuk Lake or the "New Klondike" area, and at Upper Manitou Lake in the vicinity of Goldrock. Gold is concentrated at the transition from lower mafic sequences of tholeiitic composition into overlying calc-alkaline sequences or mixed tholeiitic to calc-alkaline sequences. Many gold deposits are associated with volcanic centers situated within or at the base of the mixed sequences.

Relatively few deposits are situated within the thick sequences of monotonous, tholeiitic, mafic flows. Some gold deposits in the southwest corner of Eagle Lake and in the vicinity of the Revell Batholith, at the east end of the Eagle-Manitou Lakes greenstone belt, occur within and are marginal to granitic plutons.

There is a strong spatial and genetic correlation between gold mineralization and major zones of deformation and faulting, such as the Wabigoon Fault, the Manitou Straits Fault, the Mosher Bay-Washeibemaga Lake Fault, and shear zones at Kawashegamuk Lake, in Melgund Township, and in Hyndman Township. The faults either extend along abrupt contacts between metavolcanic rocks and predominantly clastic metasedimentary successions, or bisect metavolcanic assemblages. Gold is not known to occur within the faults but is controlled by associated structures related to the style of deformation along the faults.

## CONTROLS ON GOLD MINERALIZATION BY AREA

In the sections that follow, the Dryden-Ignace Economic Geologist Program area has been divided into six sub-areas (Figure 1), namely: Eagle-Wabigoon Lakes; Dinorwic Lake; Sandybeach Lake; Melgund-Revell-Hyndman Townships; Kawashegamuk-Meggisi Lakes; and Upper Manitou Lake. Although all these sub-areas overlap, they possess individual features that distinguish them one from another. The general geology, characteristics of gold deposits, and recommendations for further exploration, for each sub-area are discussed.

## I) EAGLE-WABIGOON LAKES

### i) Introduction

The area in the vicinity of Eagle and Wabigoon Lakes, south of Dryden, was second to the Manitou Lakes as the most important location for gold exploration. Although gold production was minimal, exploration between 1897 and 1930 was intense, especially in the vicinity of Larson Bay on Wabigoon Lake. The area is pockmarked with numerous trenches, test pits, and old shafts. The Baden Powell Mine (Figure 3, Number 3) at Eagle Lake, and the Bonanza (5) and Redeemer (19) Mines near Larson Bay, produced a total of 875.8 ounces of gold. Limited base metal and iron exploration was conducted from the 1950's to the 1970's, most of it being concentrated at Eagle Lake. Gold exploration was renewed in 1980 when Van Horne Gold Exploration Inc. acquired 28 contiguous claims immediately west of Larson Bay. Since 1983 the majority of activity has been concentrated on gold occurrences in two locations, one in the vicinity of Flambeau Lake, west of Wabigoon Lake, and the second in south-central Eagle Lake. The discovery of new gold occurrences, and the "rediscovery" of old gold properties at Flambeau Lake, Larson Bay and Contact Bay on Wabigoon Lake, Butler Lake, and Hardrock Bay on Eagle Lake resulted from prospecting during 1985 and 1986.

The Wabigoon Lake area was mapped by J. Satterly (1943) in 1939 and 1940, as part of the Dryden-Wabigoon map sheet, while the Eagle Lake area was mapped by W. W. Moorhouse (1941), during 1938. Descriptions of various gold occurrences at Eagle and Wabigoon Lakes were made by Coleman (1898), Carter (1901), Parsons (1911), and Thomson (1917). E. L. Bruce (1925) mapped the

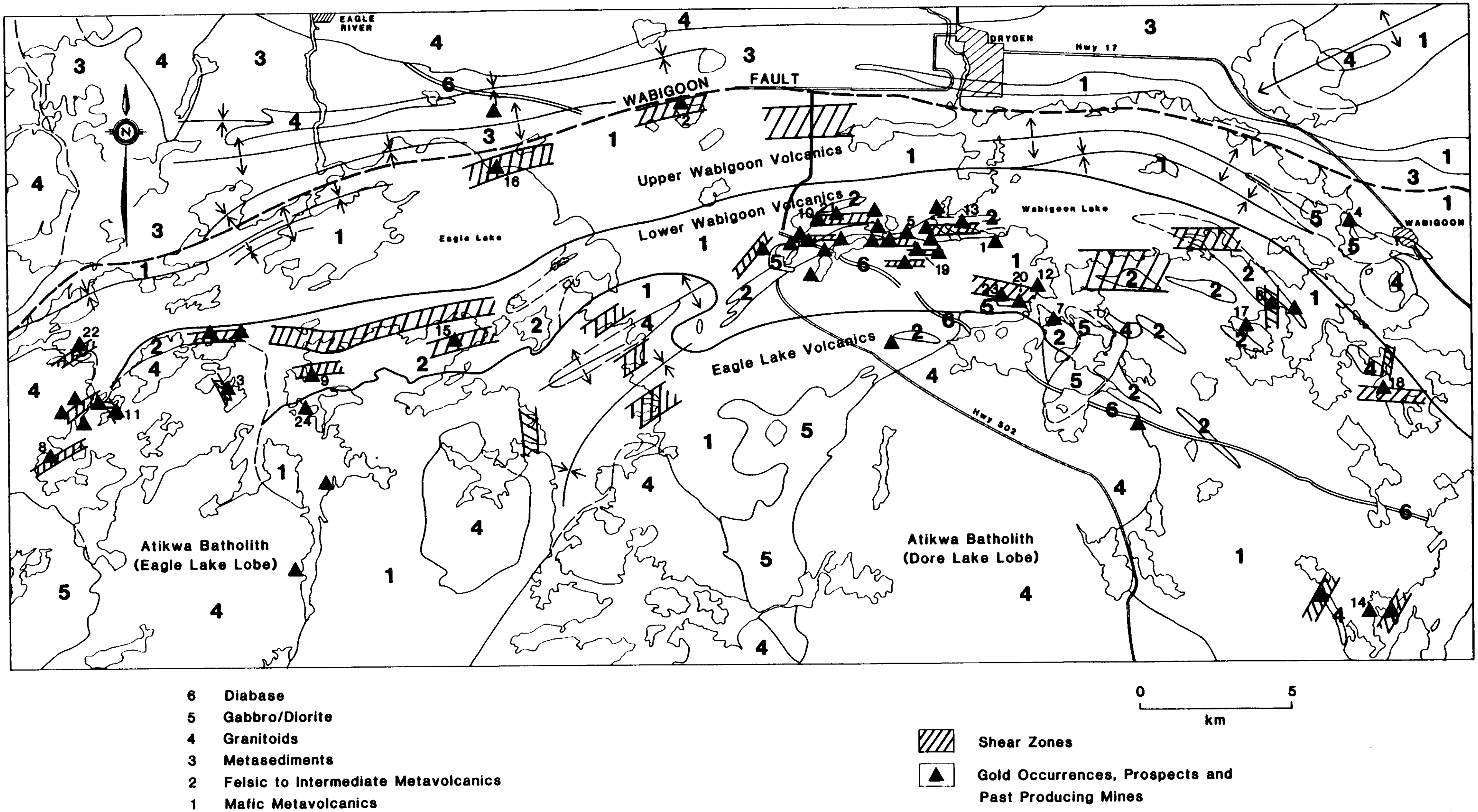



Figure 3: Geology of Eagle-Wabigoon Lakes

local geology at the Bonanza and Redeemer Mines at a scale of 1 inch to 200 feet while documenting gold deposits in the Kenora and Rainy River Districts. The Eagle-Wabigoon Lakes area was also included in regional studies of stratigraphy and structure conducted in 1977 and 1978 (Trowell et al. 1977, 1978, 1980). During 1984, R. H. Sutcliffe (Sutcliffe and Smith 1985) mapped the Mulcahy Gabbro Intrusion southwest of Eagle Lake. The most recent mapping was conducted by J.R. Parker from 1985 to 1987, who carried out detailed mapping (1:4800 or 1 inch to 400 feet) at Flambeau Lake-Larson Bay in Van Horne and Aubrey Townships (Parker and Schienbein 1988a, b) and at Hardrock and Fornieri Bays on Eagle Lake (Parker et al. in preparation). The Eagle-Wabigoon Lakes area was included in an extensive airborne electromagnetic and magnetic survey flown over the Dryden area and published in 1987 (OGS 1987).

Controls on gold deposits in the area have not been well documented or understood. Studies of the gold occurrences at Eagle Lake have shown that gold-bearing quartz veins are dominantly controlled by northeast-trending shear zones in granitic rocks and by shearing and fracturing in metavolcanic rocks. Two gold occurrences northeast of Eagle Lake are situated immediately south of the Wabigoon Fault. At Hardrock Bay on Eagle Lake gold is associated with sulphide mineralization which is stratigraphically controlled. Gold-bearing quartz veins west of Wabigoon Lake are controlled by northwest-trending tension fractures and east- and east-northeast-trending shear zones. At the extreme east end of Wabigoon Lake, in the vicinity of Butler Lake, gold-bearing quartz veins are controlled by north- and northwest-trending shears and crosscutting fracture zones.

ii) Stratigraphy

The majority of known gold occurrences at Eagle and Wabigoon Lakes are situated within a mixed sequence of mafic to felsic metavolcanics grouped together as the Lower Wabigoon Volcanics: it overlies a thick sequence of massive and pillowed mafic flows, the Eagle Lake Volcanics, and underlies a pillowed mafic flow sequence occurring at the top of the volcanic succession, the Upper Wabigoon Volcanics (Figures 2 and 3).

The sequences that overlie and underlie the mixed sequence are characterized by tholeiitic rocks, the upper sequence showing a more pronounced trend toward iron enrichment (Trowell et al. 1980). The Lower Wabigoon Volcanics were studied and sampled at the east end of the belt near Butler Lake, and were found to demonstrate a mixed tholeiitic and calc-alkaline affinity, distinctly different from their bounding sequences. The metavolcanics are bounded by the Atikwa Batholith to the south and by the Wabigoon Fault to the north. In general, the sequences face homoclinally northward, though top reversals in pillowed mafic flows are present in the Upper Wabigoon Volcanics close to the Wabigoon Fault, defining several subhorizontal fold axes (Figure 3). The lithologic continuity of the Lower Wabigoon Volcanics between Eagle and Wabigoon Lakes is by no means certain: macroscopic northeast-trending fold axes identified by rather poorly developed pillow facings along the eastern shoreline of Eagle Lake complicate the stratigraphy (Figure 3).

Zircon U-Pb geochronology, performed by Don Davis at the Royal Ontario

Museum (Davis et al. 1982), has shown that the Atikwa Batholith was emplaced at about 2732 Ma based on two samples, taken 35 km apart from Eagle and Wabigoon Lakes, that gave identical dates within experimental error: this suggests that the time span of intrusive activity was short. A rhyolite from the Lower Wabigoon Volcanics at Wabigoon Lake, that was intruded by the batholith, was dated at 2734.8 Ma, whereas a dacite from Eagle Lake was dated at 2742.8 Ma: these results suggest that the felsic metavolcanics at Wabigoon Lake could be extrusive equivalents of the Atikwa Batholith, but the date from the dacite at Eagle Lake indicates that the felsic metavolcanic assemblage was erupted about 11 Ma before the intrusion of the Atikwa Batholith. The dates also indicate that the metavolcanic rocks at Eagle Lake were extruded about 8 Ma before the metavolcanics at Wabigoon Lake.

The Lower Wabigoon Volcanics, in the vicinity of Wabigoon Lake, dominantly consist of massive and brecciated flows intercalated with coarse heterolithic pyroclastics. Mafic, intermediate and felsic metavolcanics are commonly intimately intermixed, with many interdigitating lensoid-shaped units. The metavolcanics are variably altered with widespread but selective iron carbonate alteration. Felsic rocks are commonly fractured, sheared, and altered to carbonate-sericite schist. Metavolcanic rocks commonly contain abundant magnetite (1-5%) and disseminated pyrite (1-3%), especially in the vicinity of Flambeau Lake and Larson Bay. The metavolcanics are intruded by gabbro and diorite plugs, stocks, and sills, some of which are subvolcanic and may be remnant feeder pipes. Other intrusive rocks include intermediate and mafic dikes, felsic dikes, and a late west-northwest-trending diabase dike which crosscuts all rock types and structures. Thin, discontinuous units of tuffaceous epiclastic sediments randomly occur as interflow metasediments or interlayered with pyroclastic rocks (Parker and Schienbein 1988a, b). Sulphide and magnetite-rich interflow metasediments are common, and can be observed at Contact Bay, in the Butler Lake area, at Eagle Lake, and amongst the dominantly mafic flows in the Upper Wabigoon and Eagle Lake Volcanic Groups. The Lower Wabigoon Volcanics at Eagle Lake are dominantly composed of intermediate and felsic pyroclastics, such as crystal tuffs and dominantly heterolithic lapilli-tuffs and tuff-breccias (Parker et al. in preparation).

### iii) Tectonics

Along the Wabigoon-English River boundary near Dryden, migmatitic, metasedimentary units to the north, are in contact with lower grade metavolcanic rocks to the south, along a sharp, sinuous, but predominantly east-trending contact in excess of 150 km long. Horizontal axes of isoclinal folds, in both the metasedimentary and metavolcanic suites on either side of the contact, are subparallel to and terminate at low angles against it (Figure 3). On either side of the contact there are opposing facings of sequences. The contact is interpreted to be a fault of major proportions. North of the fault, a major dextral (right-hand) component of shear is documented by two generations of ubiquitous mesoscopic and macroscopic Z-folds with steep westerly and southwesterly plunges and by dextrally offset pegmatite and quartz veins. This style of folding is not recognized on the macroscopic scale south of the fault, where all major folds appear to have subhorizontal axes. Therefore, two components of movement appear to have operated along the fault zone. One component was compressional, with production of broad isoclinal folds with horizontal axes and anomalous younging relationships in both rock types. This was followed by late dextral movement considered to have been accommodated by Z-folding in the metasedimentary units north of the fault, which was accompanied by strike-slip movement along the fault and associated shear zones (Trowell et al. 1978).

A major component of the deformation is therefore a dextral shear: this style is by no means unique to the Wabigoon-English River Subprovincial boundary, but is present along others such as the Sydney Lake Fault, along the English River-Uchi boundary, and the Quetico and Seine River Faults along the Wabigoon-Quetico boundary. These observations are important in understanding the setting of gold mineralization at Eagle-Wabigoon Lakes.

iv) Types of Gold Emplacement

There are approximately 50 known gold occurrences in the vicinity of Eagle and Wabigoon Lakes, the majority of them being situated within the Lower Wabigoon Volcanic Group and a lesser number occurring within the Atikwa Batholith, close to its contact with the metavolcanics in the vicinity of Eagle Lake (Figure 3).

Almost all of the occurrences are structurally controlled with the gold-bearing quartz veins occurring in shear zones and tension fractures. However, there is another type of gold occurrence that appears to be stratigraphically controlled, and possibly genetically related to volcanism.

a) Structurally Controlled Gold Deposits

Shear Zone-Hosted

The majority of gold properties at Eagle and Wabigoon Lakes consist of mineralized quartz veins hosted by shear zones occurring in all rock types and at all rock contacts, excluding the late diabase dike. The shears host narrow [< 1m] quartz veins and stringers which may contain variable amounts of finely disseminated euhedral pyrite, chlorite, iron carbonate, calcite, black tourmaline, specular hematite and accessory sulphide minerals such as chalcopyrite and galena. Variable wall rock alteration consists of chloritization and carbonatization (either iron or calcium carbonate) which may be accompanied by pyritization, sericitization, and minor tourmalization. The alteration is generally not extensive and is strictly confined to the sheared host. Metavolcanic rocks within the shear zones are fissile, whereas sheared granitic rocks at Eagle Lake are commonly mylonitized and porphyroclastic due to the presence of numerous, elliptical, blue quartz "eyes" in a granular matrix. In general, gold mineralization is restricted to the quartz veins although anomalous gold values do occur within the granitic wall rock at a few occurrences.

At Wabigoon Lake numerous subparallel to parallel linear shear zones, hosting gold-bearing quartz veins, strike between 075°-100° and vary in width [<1m-45m] and strike lengths. The overall east-west trend of the shear zones suggest that they were developed as secondary shear bands subparallel to the east-trending Wabigoon Fault (Figure 3). Shear zones commonly developed along lithologic contacts and are parallel or subparallel to stratigraphy. Dominant east-trending shearing in the vicinity of Larson Bay of Wabigoon Lake controls all gold-bearing quartz veins, including veins at the Bonanza (Figure 3, Number 5) and Redeemer Mines (19), and has also controlled the intrusion of felsic quartz-feldspar porphyry and felsite dikes (Figure 4). Shearing is more widespread east of Larson Bay.

At Pritchard Lake, situated west of Wabigoon Lake, a broad zone of moderate to intense iron and calcium carbonate alteration, associated with east-trending shearing and fracturing extends eastward from the lake (Figure

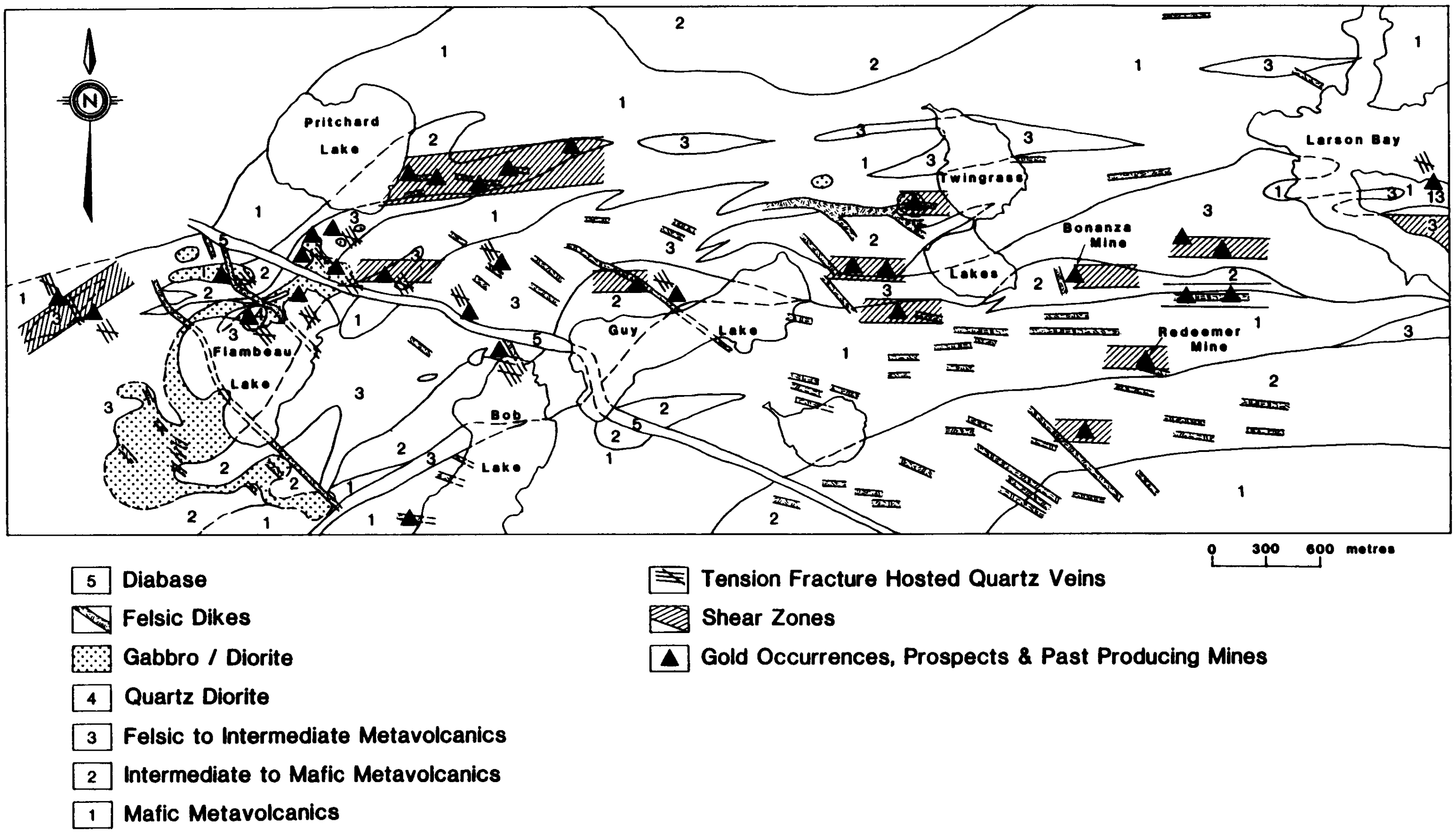



Figure 4: Geology at Flambeau Lake-Larson Bay

4). Numerous pyritic quartz veins occur throughout the zone, as well as east-trending felsic dikes commonly containing variable amounts of disseminated pyrite and magnetite and hosting quartz veins. Two grab samples taken from quartz veins within the zone assayed 1300 and 3150 ppb gold while assays of grab samples taken from the felsic dikes gave anomalous gold values as high as 400 ppb gold. The Glatz-Pritchard Lake Occurrence (Figure 3, Number 10) and the Vanlas Prospect (21) are situated within this zone, as well as numerous trenches and test pits.

An exception to the generally east-west-trending shear zones occurs at the Rognon Mine (Figure 3, Number 20) and at the Wachman Prospect (23) on the west shore of Contact Bay on Wabigoon Lake. The Rognon and Wachman shafts were sunk on a gold-bearing quartz vein striking 108° to 120° for about 1.0 km, occupying a 0.5m to 3.0m wide shear zone. The vein varies in width from 4cm to 1.0m, commonly splitting into discontinuous stringers. Numerous, wide, east-trending felsic dikes occur in this area which indicates that east-trending structures also controlled the emplacement of relatively late intrusive rocks.

At Eagle Lake, subparallel, linear shear zones striking 040°-060° occur within granitic rocks along the northern contact of the Atikwa Batholith, where it commonly contains xenoliths of mafic metavolcanic rocks. This is the area where most of the gold occurrences at Eagle Lake are situated (Figure 3). Gold-bearing quartz veins are hosted by shears which occur in the granite and at granite/xenolith contacts. The Wabigoon Fault in this area is dominantly northeast-trending, and the shear zones may be secondary shear bands developed subparallel to the shear boundaries of the fault.

Exceptions to this are the Golden Eagle Mine (Figure 3, Number 11) and the Baden Powell Mine (3) where gold-bearing quartz veins are controlled by northwest-trending shear zones. The significance of these shears has not been determined. Anomalous gold mineralization has been discovered in the sheared, altered, pyritic, granitic host rocks at the Eldorado Mine (8) which suggests that the Atikwa Batholith may have the potential to host low grade gold deposits in zones of deformation, where there is significant alteration and pyritization. At the Viking Prospect (22), the granitic host rock is very quartz-rich which may indicate pervasive silicification. Feldspars are typically altered, and patchy gossan and hematite staining occur along fractures in the granite with variable amounts of pyrite disseminated throughout. However, grab samples of the pyritic altered granitic rocks, taken by the author, assayed trace amounts of gold which indicates that gold may be strictly confined to quartz veins.

Numerous shear zones occur throughout the metavolcanic rocks at Eagle Lake (Figure 3). Commonly, shearing is subparallel to the general boundaries of the main intrusive masses indicating that they acted as buttresses during deformation. A few gold occurrences are situated within these sheared metavolcanic rocks. Gold mineralization at the Fornieri Bay Prospect (Figure 3, Number 9; Figure 5, Number 1) on the south shore of Eagle Lake, occurs in shear- and fracture-hosted quartz veins and stringer zones in felsic metavolcanic and intrusive rocks, and by slightly fractured felsic metavolcanic rocks hosting disseminated sulphides. Host rocks are altered by sericitization, calcium carbonate alteration, and weak silicification.

Gold mineralization is also associated with sheared felsic and intermediate metavolcanic rocks northwest of Camp 6 Bay where a deep, timbered shaft is located (Figure 5, Number 5). No previous documentation concerning the shaft or its location is available. It may have been developed during the 1930's when Ventures Limited held claims in the area (Kirkland Lake Prospectors' Syndicate, Assessment Files, Resident Geologist's Office, Kenora). The shaft has been sunk on sheared, sulphide-rich, intermediate to felsic lapilli-tuff. The metavolcanics in the vicinity of the shaft are sericitized, carbonatized, and silicified, and contain pyrite and chalcopyrite disseminated throughout the matrix. No quartz veins or quartz vein material was observed at the shaft. The metavolcanics are extensively sheared, commonly fissile, and intensely altered. Grab samples from the shaft and surrounding sheared rocks, taken by the author, assayed trace amounts of gold. However, a grab sample taken by the author from strongly sheared, sericitized, and slightly pyritic feldspar crystal tuff, 245 m due east of the shaft (Figure 5, Number 6), assayed 0.39 ounce gold per ton.

At the Manhattan Prospect (15) on Buchan Bay of Eagle Lake, gold-bearing quartz veins are controlled by a northeast-trending shear zone in a wide gabbro dike. Iron carbonate is present in the quartz veins and wall rocks but sulphide mineralization is sparse.

Gold mineralization occurs near the Wabigoon Fault at the Morning Star Prospect (Figure 3, Number 16) and Aubrey Lake Occurrence (2) northeast of Eagle Lake. At the Morning Star Prospect high grade gold mineralization occurs within narrow quartz veins of variable thicknesses hosted by sheared and iron carbonatized mafic metavolcanics. At the Aubrey Lake Occurrence gold occurs within narrow arsenopyrite-rich sulphide layers within sheared

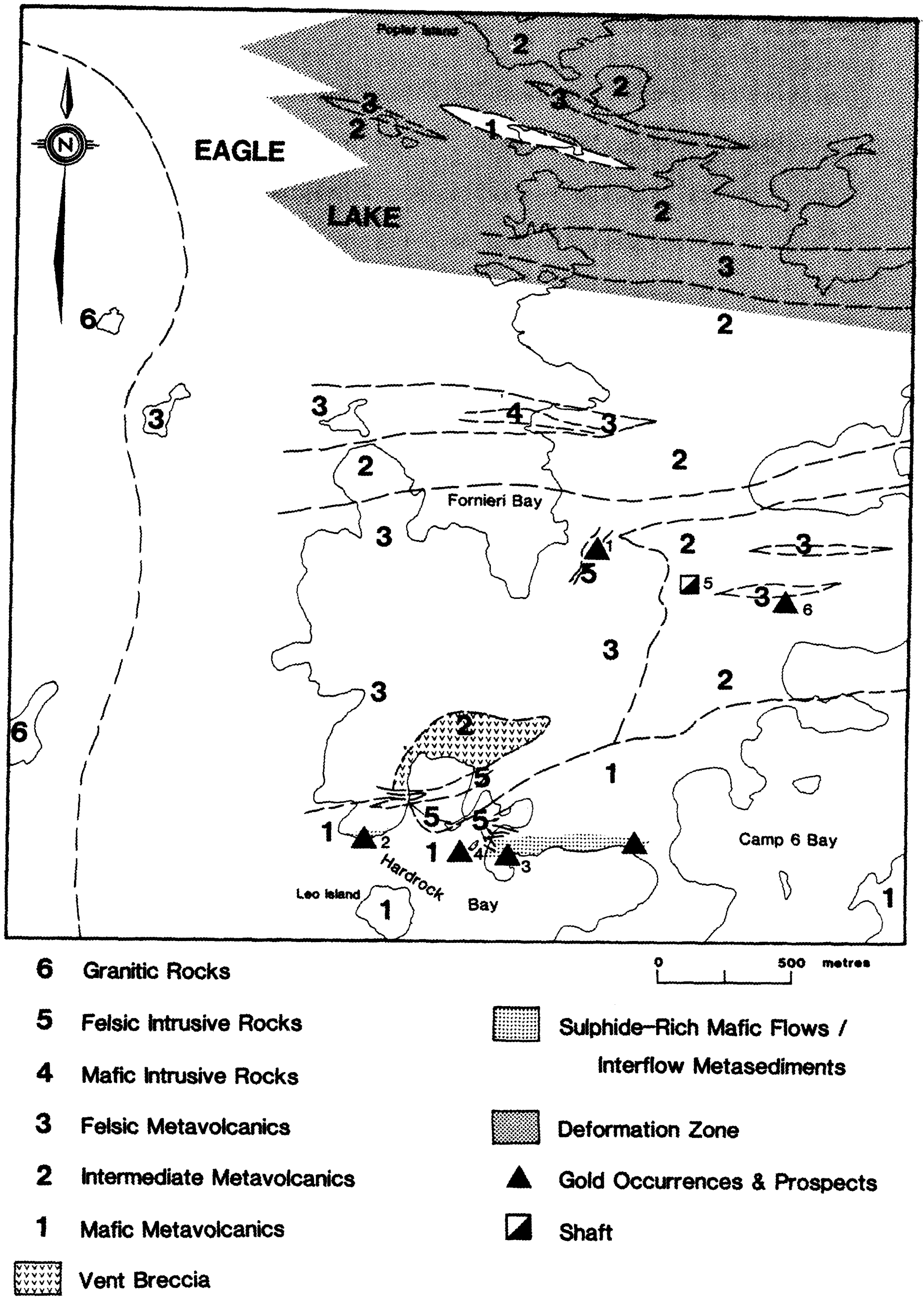



Figure 5: Geology at Fornieri Bay-Hardrock Bay, Eagle Lake

and altered mafic metavolcanics. Abundant quartz veining and iron carbonate alteration have been observed elsewhere along the fault.

### Tension Fracture-Hosted

A few of the more promising gold occurrences at Eagle and Wabigoon Lakes consist of numerous gold-bearing quartz veins controlled by tension fracture networks concentrated at Flambeau Lake (Figures 3 and 4), a few kilometres west of Wabigoon Lake. The majority of the quartz veins have a northwest-southeast trend, ranging between 120°-150°, and averaging 135° (Figure 6), with a consistent northeast dip. The veins are typically narrow (1m-10m), closely spaced, and are associated with intense iron and calcium carbonate alteration, sericitization, pyritization, and weak silicification. Alteration appears to be extensive in areas of closely spaced veins but is restricted to narrow halos which occur around the quartz veins. Variable amounts (2-5%) of fine- to coarse-grained pyrite is disseminated throughout the host rocks with local concentrations up to 25%.

The veins consist of white quartz, and contain variable amounts of iron carbonate and pyrite with minor accessory sulphide minerals such as chalcopyrite, sphalerite, and galena. Gold mineralization is typically restricted to the quartz veins, though recent discoveries at Flambeau Lake appear to have significant concentrations of gold in the pyritic wall rock. Very shallow dipping tension fracture-hosted tourmaline-bearing quartz veins trending between 110°-140° are also gold-bearing.

Quartz veins controlled by tension fractures are hosted by all rock types,

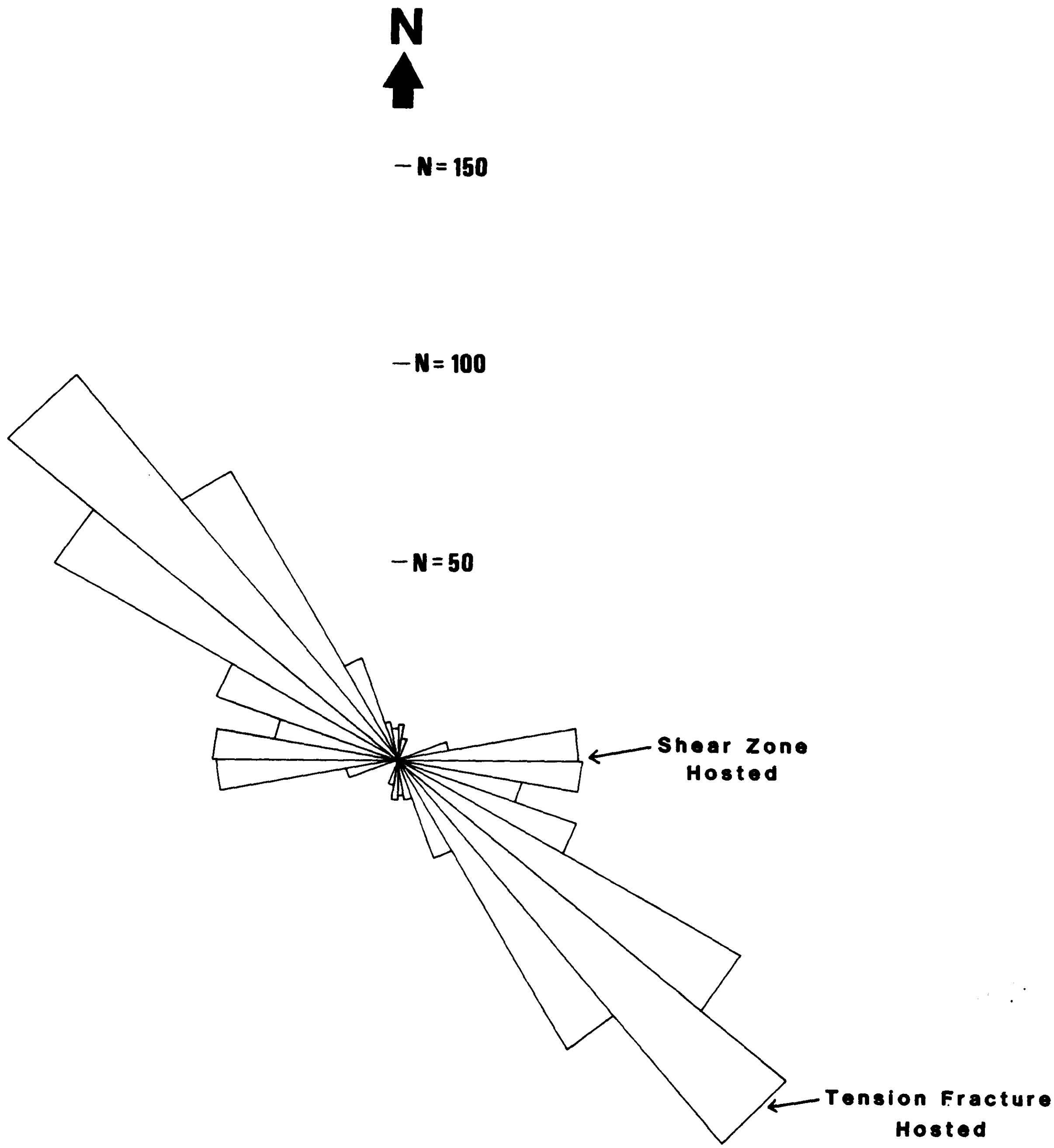



Figure 6: Rose diagram of orientation of quartz veins at Flambeau Lake-Larson Bay (500 measurements)

excluding the late diabase dike, in the Wabigoon Lake area but are typically concentrated, and attain their greatest thicknesses, within competent felsic to intermediate intrusive rocks and felsic metavolcanic rocks. Competency and susceptibility to fracturing of the host rock is the controlling influence on the concentration of the veins. At Flambeau Lake, abundant tension fracture controlled quartz veins are hosted by quartz-diorite and diorite/gabbro intrusions, but the majority of veins terminate abruptly at the contact of the quartz-diorite with adjacent mafic metavolcanic rocks, which did not respond in a brittle manner when deformed. This is due to the fact that intercalated rock types of variable composition and ductility respond differently during deformation and may show different degrees of structural disruption.

At Flambeau Lake there is a consistent northwest-trend of tension fracture-hosted quartz veins and numerous felsic dikes (Figures 6 and 7), as well as an overall northwest trend to a late diabase dike. The felsic dikes intrude all rock types, excluding the diabase dike, and are crosscut by the quartz veins. This dominant northwesterly trend indicates that tension fractures controlled the emplacement of late intrusive rocks as well as quartz veins. These fractures can be attributed to the demonstrated dextral movement on the Wabigoon Fault, during simple shear deformation, when tension fractures were developed perpendicular to the maximum elongation (Ramsay 1967).

Northwest-trending fractures control gold-bearing quartz veins elsewhere in the Wabigoon Lake area, such as at the E.D.B.-1 Prospect (Figure 3, Number 7) on the east shore of Contact Bay on Wabigoon Lake, where quartz veins are

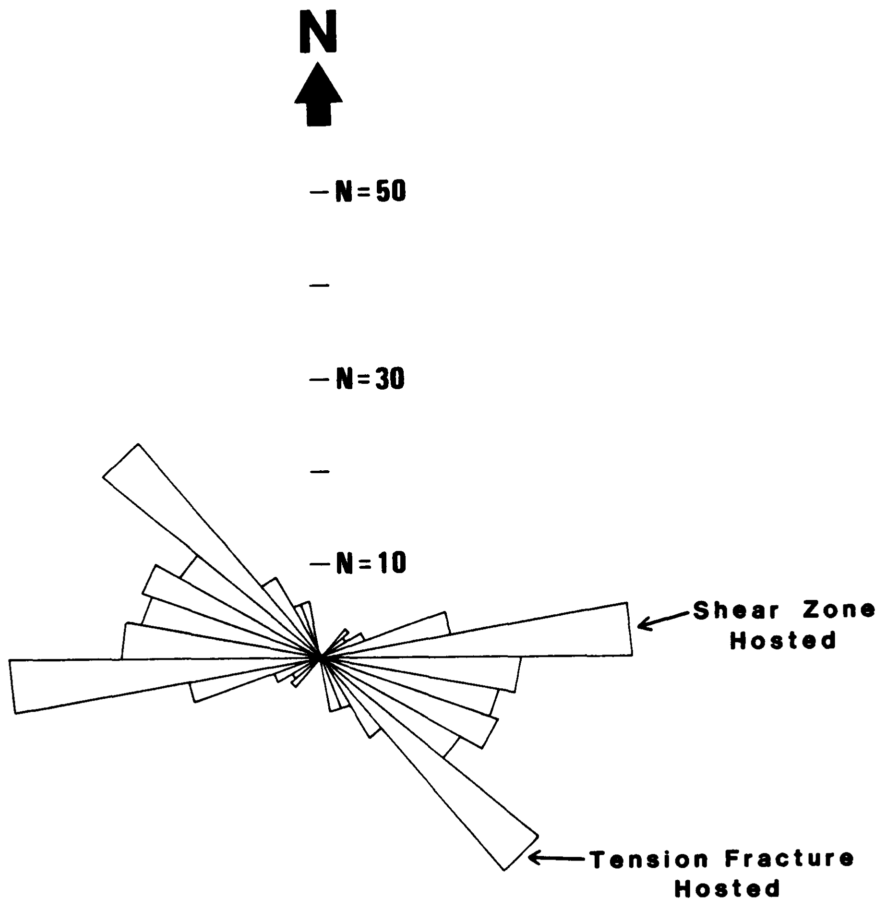



Figure 7: Rose diagram of orientation of felsic dikes at Flambeau Lake-Larson Bay (250 measurements)

hosted by felsic pyroclastics. Recent prospecting led to the "rediscovery" of the E.D.B.-1 Prospect which consists of two shafts and some test pits. The location of the E.D.B.-1 Prospect has never been accurately indicated on any published map.

A northwest-trending tension fracture-hosted quartz vein, in felsic metavolcanics on the south shore of Larson Bay on Wabigoon Lake (Figures 3 and 4, Number 13), was grab sampled by the author and assayed 1.13 ounces gold per ton, 8.40 ounces silver per ton and 3.64% copper. This is a previously undiscovered occurrence (now known as the J.P. Occurrence), and suggests that detailed prospecting in the Larson Bay area may lead to more new gold discoveries.

At the extreme east end of Wabigoon Lake gold-bearing quartz veins at the Butler Lake Prospect (Figure 3, Number 6) and at the Pidgeon-Wabigoon Lake Occurrence (18) are controlled by fracturing. At the Butler Lake Prospect the metavolcanic host rocks show a weak to intense foliation striking 320°, however, veins crosscut the foliation and trend between 065° to 154°, dipping south and southwest. A 6 m wide breccia zone is also present, where angular, altered, and pyritic fragments of wall rock are cemented by quartz-carbonate. At the Pidgeon-Wabigoon Lake Occurrence the metavolcanic host rocks are sheared in two directions, a shear striking 014° and dipping 37° E intersected by an east-trending shear. The quartz veins crosscut the shearing at all angles. In both areas the veins are not controlled by shearing, but by later crosscutting fractures with no consistent trend. At the Barritt Bay Occurrence (Figure 3, Number 4), on the north shore of Wabigoon Lake near Wabigoon, a 50 ft. shaft was sunk on northwest-trending porphyritic felsic dikes hosting pyrite and tourmaline (Thomson 1917). Thomson's (1917) description of the occurrence suggests that the felsic dikes are controlled by northwest-trending structures.

Tension fracture-hosted quartz veins are not abundant at Eagle Lake but some do occur within the Atikwa Batholith and at the Fornieri Bay Prospect (Figure 3, Number 9). The tension fractures which occur within the Atikwa Batholith generally trend 140° and host barren, white quartz veins. Tension fractures at the Fornieri Bay Prospect have variable trends and host white and blue-gray quartz veins and stringers containing <1% disseminated pyrrhotite, pyrite, minor chalcopyrite and chlorite. Moorhouse (1941) observed small amounts of visible gold and bismuthinite within the larger quartz veins.

Another controlling factor on gold deposition is the presence of abundant disseminated magnetite in many of the metavolcanic and intrusive rocks which host shear zones and tension fractures controlling gold-bearing quartz veins. Abundant magnetite within the country rocks may have served as a chemical trap for gold precipitation: sulphidation of magnetite to pyrite during the circulation of mineralized hydrothermal fluids through open fissures in the country rocks. At Flambeau Lake gold-bearing quartz veins are hosted by magnetite-rich quartz-diorite. Magnetite is abundant where the quartz-diorite is relatively unaltered, but it is sparse or absent in the altered wall rock adjacent to the veins where it is replaced by abundant pyrite. Macdonald (1984) has suggested three processes to explain gold deposition within iron-rich rocks: crystallization of gold from hydrothermal fluids may occur either by (1) the plating of gold upon sulphide grains, (2) by the destabilization of gold in solution by a fall in fluid pH, caused by $CO_2$ loss during carbonate formation, or (3) by the destabilization of gold in solution due to sulphur loss. Any or all of these processes may have operated in the Flambeau Lake area where abundant pyrite occurs within intensely carbonatized wall rocks, and where gold is restricted to quartz veins as visible gold or associated with sulphide mineralization in the quartz veins and wall rocks.

b) Stratigraphically Controlled Gold Deposits

A stratiform unit of sulphide-rich mafic metavolcanic flows, overlying interflow metasediments, is the host for gold mineralization at Hardrock Bay (Figure 3, Number 24; Figure 5, Numbers 2, 3, and 4). The mafic flows are no different from surrounding flows, except that they are mineralized with sulphides and gold. The underlying metasediments host anomalous levels of gold.

Exploration has been concentrated on the sulphide-rich flows which extend east from Iron Island along the north shore of Hardrock Bay (Figure 5, Numbers 2, 3, and 4). Gold mineralization is associated with dark green, massive and pillowed fine- to medium-grained mafic flows containing 5% to 50% disseminated pyrrhotite. Pyrrhotite is also concentrated in pillow selvages, interpillow breccias, and amygdules. Pyrrhotite is the most abundant sulphide mineral, and combined with chalcopyrite, makes up 90% of the sulphides in the mafic metavolcanics. Leaming (1948) estimated that the ratio between pyrrhotite and chalcopyrite was 10 to 1. Minor amounts of pyrite, marcasite, and sphalerite have been identified under the microscope in polished sections of samples taken from Iron Island. The marcasite is present as colloform or concentric growths with cores of pyrrhotite (Leaming 1948). Visible gold occurs as small flakes along quartz-filled hairline fractures [<3 mm] within the sulphide-rich mafic flows, and in small blebs and flakes intimately associated with the disseminated sulphides. Leaming (1948) observed gold associated with chalcopyrite, and isolated amongst gangue minerals in polished sections of samples from Iron Island.

Alteration of the mafic metavolcanics consists of epidotization, chloritization and saussuritization of feldspars with the presence of epidote, fibrous actinolite, clinozoisite or zoisite, chlorite, and minor carbonate. The rocks are generally moderately to intensely altered. Petrographic work and whole rock analyses of the gold-bearing flows indicates the absence of secondary silicification and carbonatization. The sulphide-rich, gold-bearing flows are overlain and underlain by pillowed and massive flows which contain only minor amounts of sulphides but which are also intensely epidotized.

The majority of metavolcanic rocks in the Hardrock Bay area appear relatively undeformed with minimal shearing. However, inspection of drill core and slabbed rock pieces of the metavolcanic rocks indicate that some of the metavolcanic rocks and cherty metasediments have been disrupted by abundant, hairline fracturing. Minor displacement has been observed by the author along fractures in very thinly bedded chert. Some hairline fractures in the mafic metavolcanics at Hardrock Bay have been filled with quartz, sulphides, gold and calcite. The fracturing at Hardrock Bay does not consist of "open" fractures and appears to have developed by brittle shattering of the more competent rock types.

Two grab samples taken by the author from intensely fractured, sulphide-rich, mafic metavolcanics, in a large trench on a peninsula west of Iron Island, assayed 1.0 and 1.12 ounces gold per ton. Assays from chip samples, taken by Magdalena Red Lake Gold Mines Limited from Iron Island and trenches throughout the sulphide-rich zone, range between 0.02 to 0.48 ounce gold per ton across widths up to 60 ft. (Leaming 1948; Assessment Files, Resident Geologist's Office, Kenora). Other encouraging assay values have been obtained from core drilled by Birch Bay Gold Mines Limited and Tasu Resources Limited (Assessment Files, Resident Geologist's Office, Kenora).

Anomalous gold mineralization is associated with interflow metasediments situated immediately below the sulphide-rich mafic flows. Although pyrrhotite and chalcopyrite occur along hairline fractures in some of the metasediments, the higher gold values have been obtained from metasediments hosting very fine-grained, finely disseminated pyrite and thin layers of pyrite. Grab samples, taken by the author, have assayed up to 275 ppb gold. The metasediments have been previously mapped and described as iron formation (Moorhouse 1948) but very minor amounts of magnetite were found by the author. Although interflow metasediments can be found amongst mafic flows stratigraphically above and below the sulphide-rich flows, the majority of interflow metasediments are spatially and temporally associated with the sulphide-rich flows.

Auriferous, pyritic, interflow metasediments may represent chemical sedimentation during hiatuses in basaltic volcanism of the Eagle Lake

Volcanics, prior to felsic volcanism of the Lower Wabigoon Volcanics. Similar occurrences have been documented by Thurston (1986) in the Uchi Subprovince. It is also possible that the majority of sulphides, and possibly the gold, were deposited synvolcanically shortly before or after the deposition of the mafic flows. These flows are a discrete unit extruded at a specific stratigraphic level within the mafic metavolcanic sequence, immediately after a hiatus in basaltic volcanism. The sulphide-rich, gold-bearing mafic flows occur a few hundred metres below a phreatic vent breccia at the base of the Lower Wabigoon Volcanics (Figure 5). The vent breccia represents a volcanic vent, which was a centre of intense hydrothermal activity at the transition from mafic to felsic volcanism.

Stratigraphically controlled gold mineralization occurs elsewhere at Eagle Lake. Recent diamond drilling at the Morning Star Prospect (Figure 3, Number 16) intersected a 4 inch section of slightly pyritic, black chert which assayed 0.12 ounce gold per ton. A 9 ft. section of massive sulphides associated with intermediate to felsic tuff, was intersected at a contact between felsic metavolcanics and overlying mafic flows. However, no significant gold mineralization was detected in the sulphide zone (International Platinum Corporation, Assessment Files, Resident Geologist's Office, Kenora). Stratigraphically controlled gold mineralization is found at other localities as well as at Eagle Lake. At the Johnson-Contact Bay Occurrence (Figure 3, Number 12) on Wabigoon Lake, recently discovered gold mineralization is hosted by granular, recrystallized quartz associated with banded magnetite iron formation within sheared interflow sediments. At Mud Bay (Figure 3, Number 17) on Butler Lake, immediately south of Wabigoon Lake, gold is associated with pyritic, "cherty" rock in close proximity to coarse, felsic pyroclastics. A grab sample, taken by the author, from the sulphide zone at Mud Bay assayed 1095 ppb gold.

v) Barren Structures

The major structures hosting gold-bearing quartz veins at Eagle and Wabigoon Lakes are shear zones and tension fractures. However, there are structures in the area that do not host gold.

West of Flambeau Lake (Figures 3 and 4), situated between Eagle and Wabigoon Lakes, a wide northeast-trending (040°-060°) deformation zone, that may be due to sinistral shearing, extends through intercalated felsic to intermediate flows and massive, mafic amygdaloidal flows. The mafic flows are very intensely sheared, while the felsic flows display a penetrative, protomylonitic fabric where narrow anastamosing shear planes consisting of sericite envelope lenses of relatively undeformed rock. Intensely boudinaged quartz veins, appearing as rounded lenses of quartz which have been rotated in a sinistral sense, are scattered throughout the felsic metavolcanic rocks. The protomylonitic fabric is also S-folded, indicating that later sinistral movement occurred along the shear zone. The intensely deformed mafic and felsic metavolcanic rocks are crosscut by a northwest-trending felsic dike and quartz veins hosted by tension fractures. This indicates that the structure predated the dextral shearing that produced the tension fractures. Mafic dikes, which are earlier than the felsic dikes and quartz veins in the area, also crosscut the deformation zone. These observations indicate that the northeast shear zone is a relatively early structure which was active before much of the later intrusive activity in the area, and that it is not associated with gold mineralization. Intense northeast (040°-060°) shearing occurs along the east shore of Eagle Lake (Figure 3) and is associated with indicators of overall sinistral shearing such as S-folds and sinistrally offset mafic dikes. No iron carbonate alteration and minimal sulphide mineralization and quartz veining appears to be associated with this shearing, which may extend into the Lavo Lake area, east of Eagle Lake. To date, no gold mineralization has been identified with this northeast shear.

Northeast and minor northwest faulting occurs in the vicinity of Flambeau Lake. These narrow structures may host mineralized quartz veins, but they are more important in that they offset northwest- and east-trending gold-bearing quartz veins.

A wide west-trending zone of deformation, dipping steeply to the northeast, extends along the south shore of Eagle Lake (Figure 3 and Figure 5). The zone has been traced by the author for a strike length in excess of 7.0 km. Rocks within the deformation zone are intensely sheared, fissile, sericitized, and intensely iron carbonatized. Sulphides have not been found, and quartz veining throughout the deformation zone is minimal. Clasts in pyroclastic rocks have been flattened and numerous, narrow, anastomosing sericitic shear planes occur throughout deformed felsic rocks. The orientation of shear bands and secondary shear bands in some mylonitized felsic flows indicates dextral movement along the deformation zone. Vertically plunging S- and Z-shaped kink folds, with dominant northwest orientations, occur within the deformation zone. To date no significant gold mineralization has been detected within the zone.

### vi) Conclusions and Recommendations for Exploration

Almost all of the gold deposits at Eagle and Wabigoon Lakes are controlled by shear and fracture zones which appear to be regionally related to dextral movement along the Wabigoon Fault. Gold-bearing quartz veins are commonly controlled by northeast- and east-trending shear zones which may be secondary shear bands subparallel to the shear boundaries of the Wabigoon Fault. Most of the shearing and fracturing was developed after the emplacement of the Atikwa Batholith.

West of Wabigoon Lake, in the vicinity of Flambeau Lake, gold-bearing quartz veins are controlled by numerous, dominantly northwest-trending tension fractures related to simple shear deformation and dextral shearing on the Wabigoon Fault. Competency and susceptibility to fracturing of felsic rocks is the controlling influence on the concentration of quartz veins. The dominant northwesterly trend of felsic dikes in the Flambeau Lake area, as well as the overall northwesterly trend of the diabase dike, suggests that the tension fractures also controlled the emplacement of late intrusive rocks. The presence of boudinaged gold-bearing quartz veins within east-trending shear zones, of northwest-trending tension fracture-hosted quartz veins, of felsic dikes crosscutting a northeast-trending protomylonite zone hosting boudinaged quartz veins, and of narrow northeast- and east-trending faults offsetting tension fracture-hosted quartz veins, indicates a complex deformational history, developed over a long period of time, both pre- and post-dating gold mineralization.

At Eagle Lake, the presence of anomalous gold within sheared, altered, pyritic, granitic rock at the Eldorado Mine (Figure 3, Number 8) and evidence of pervasive silicification and pyritization of the granite at the Viking Prospect (22) suggests that the Atikwa Batholith may have the potential to host low grade gold deposits. A similar geological situation occurs in the Bluffpoint Lake area, where an altered trondhjemitic phase of the Lawrence Lake Batholith hosts wide alteration zones containing anomalous gold, that have most recently been under investigation by Corporation Falconbridge Copper (now Minnova Inc.). Blackburn (1982a) briefly described the geology of this area and suggested that the Eagle Lake area warrants investigation for similar deposits. The fact that gold deposits occur within and marginal to granitic rocks of the Atikwa Batholith suggests that gold was deposited by magmatic and/or metamorphic hydrothermal fluids generated during the emplacement of the batholith.

The felsic and intermediate metavolcanics which extend east from Fornieri Bay to Buchan Bay on Eagle Lake consist dominantly of variably sheared, sericitized, and carbonatized pyroclastics intruded by wide mafic and felsic dikes. These rocks are known to host anomalous gold mineralization associated with disseminated sulphides (ie: Fornieri Bay Prospect), and higher grade gold associated with shear zone and tension fracture-hosted quartz veins. Sulphide-rich shear zones, north of the W. W. Smith Prospect (24) at Hardrock Bay, have also been reported to host low grade gold assaying between 0.02 and 0.06 ounce gold per ton (Magdalena Red Lake Gold Mines Limited, Assessment Files, Resident Geologist's Office, Kenora). The author has also discovered gold mineralization in sheared, pyritic, metavolcanic rocks northwest of Camp 6 Bay (Parker et al. in preparation).

At Wabigoon Lake, wide east-trending zones of alteration, shearing, and fracturing may have potential for widespread gold, such as the zone which extends eastward from Pritchard Lake, west of Wabigoon Lake, in the vicinity of the Glatz-Pritchard Lake Occurrence (10) and the Vanlas Prospect (21).

Wide fracture zones within magnetite-bearing intrusive rocks and competent metavolcanics are also favourable targets due to their greater widths. Fractures within the host rocks provide abundant open fissures for the circulation of hydrothermal fluids, while the magnetite serves as a chemical trap for gold deposition.

Shear zones parallel to the boundaries of the Wabigoon Fault and northwest-trending tension fractures hosting quartz veins are good targets for gold within the immediate Wabigoon Lake area. Controls on gold mineralization differ, where the influence of the Wabigoon Fault is not as dominant, and where other major structural features complicate the overall style of deformation. At the Butler Lake Prospect (Figure 3, Number 6), north- and northwest-trending shears are dominant, but the majority of quartz veins are controlled by fractures which crosscut shearing in all directions. At the Pidgeon-Wabigoon Lake Occurrence (Figure 3, Number 18) east-trending shears intersect north-trending shears, but quartz veins are hosted by crosscutting fractures with no apparent consistent orientation. This style of deformation is similar to gold occurrences at Dinorwic Lake immediately east of Wabigoon Lake. The north-trending shear zones may be subparallel shears related to the Manitou Straits Fault at Dinorwic Lake, or may be related to northeast-trending fold axes, recognized by Satterly

(1943), immediately west of Dinorwic Lake. These structures are discussed in the Dinorwic Lake section of this report.

Stratigraphically controlled gold mineralization occurs at the W.W. Smith Prospect (Figure 3, Number 24) on Hardrock Bay of Eagle Lake. Gold-bearing sulphide-rich mafic flows and interflow metasediments are situated in the vicinity of a volcanic centre at the transition from a lower mafic sequence into an overlying mixed sequence of dominantly intermediate and felsic metavolcanic rocks (Figure 5). Gold and sulphides may have been emplaced within the mafic flows by hydrothermal fluids shortly before or after they were capped by overlying flows. The interflow metasediments, below the mineralized flows, may have been deposited by low temperature hydrothermal fluids which discharged silica, and perhaps gold, onto the sea floor during hiatuses in basaltic volcanism.

Stratigraphically controlled gold mineralization may occur elsewhere along the contact between the felsic and mafic metavolcanics which extends for approximately 6.5 km east and 1.6 km southwest of Hardrock Bay. Banded iron formation, chert, and fine-grained, bedded, felsic tuffs have been intersected in diamond drill holes, in the vicinity of the contact, as far east as Stanton Island at the extreme east end of Eagle Lake. However, gold-bearing sulphide-rich flows, similar to those at Hardrock Bay, have not been reported to accompany the metasediments (Union Miniere Exploration and Mining Corp., Assessment Files, Resident Geologist's Office, Kenora). Airborne magnetic and electromagnetic surveys have delineated east-trending magnetic highs and coincident electromagnetic conductors of variable strengths which occur within the vicinity of the contact between the Lower

Wabigoon and Eagle Lake Volcanics (Pollock, J.A., Assessment Files, Resident Geologist's Office, Kenora; OGS 1987). Sulphide-rich flows associated with cherty interflow metasediments are exposed in trenches on the west side of Midway Point, approximately 1.6 km southwest of Hardrock Bay. One composite grab sample taken from the trenches by the author assayed 16 ppb gold. It is possible that this occurrence is at the same stratigraphic level as the sulphide-rich flows at Hardrock Bay.

The recent discovery of gold mineralization associated with interflow metasediments at the Morning Star Prospect (Figure 3, Number 16) on the northeast shore of Eagle Lake, suggests that stratigraphically controlled gold mineralization is not restricted to the Hardrock Bay area. Iron formation and chert occurs elsewhere along the north shore of Eagle Lake, such as at North Twin Island, Schroeder Island and Farabout Peninsula (Moorhouse 1941), along the contact between felsic metavolcanics and overlying mafic metavolcanics to the north. This northern contact could also host stratigraphically controlled gold occurrences.

Gold deposits at Eagle-Wabigoon Lakes are concentrated within the mixed mafic to felsic, tholeiitic to calc-alkaline metavolcanic rocks of the Lower Wabigoon Volcanics. Gold is also associated with volcanic centers within the Lower Wabigoon Volcanics, such as at Fornieri and Hardrock Bays where gold occurs stratigraphically above and below a vent breccia (Figure 5), and at Flambeau Lake where gold deposits occur within and marginal to subvolcanic gabbro and quartz diorite intrusions (Figure 4).

The association of gold, mixed metavolcanic sequences, and volcanic centers occurs elsewhere throughout the Dryden-Ignace area, and is discussed in greater detail in the Summary and Conclusions section of this report.

## II) DINORWIC LAKE

### i) Introduction

Gold exploration began in the vicinity of Dinorwic Lake in 1897, at the Big Ruby Occurrence (Figure 8, Number 1), where a 30 ft. shaft was sunk on a high-grade (assay values between 1.0 and 82.0 ounces gold per ton), gold-bearing quartz vein on the north shore of the lake (Coleman 1898). The Moose Bay Prospect (Figure 8, Number 7), at the southwest end of Dinorwic Lake, was developed at approximately the same time. Two deep test pits, an open cut, and a 102 ft. shaft with some drifting were reported by Carter (1901). Work was reported to have started at the Minnehaha Lake Prospect (Figure 8, Number 6) on mining locations S.V. 234 and S.V. 235 in 1905, and a 100 ft. shaft with a 25 ft. crossut at the bottom was completed by 1906 (Corkill 1907, 1909). A 25 ft. test pit was sunk and some trenching was completed by 1908 when operations ceased (Corkill 1909). The property was reactivated in 1910 and a 40 ft. adit was developed by 1911 when development work finally came to an end (Parsons 1911). In late 1939, two shafts and an open cut were sunk at the Van Houten Mine (Figure 8, Number 10), west of Dinorwic Lake, which produced 3 ounces of gold before operations ceased in 1941. Very little work has been conducted in the area since that time, with the exception of base metal exploration during the 1960's and 1970's. In 1956, some gold exploration was conducted at the Niemi Occurrence (Figure 8,

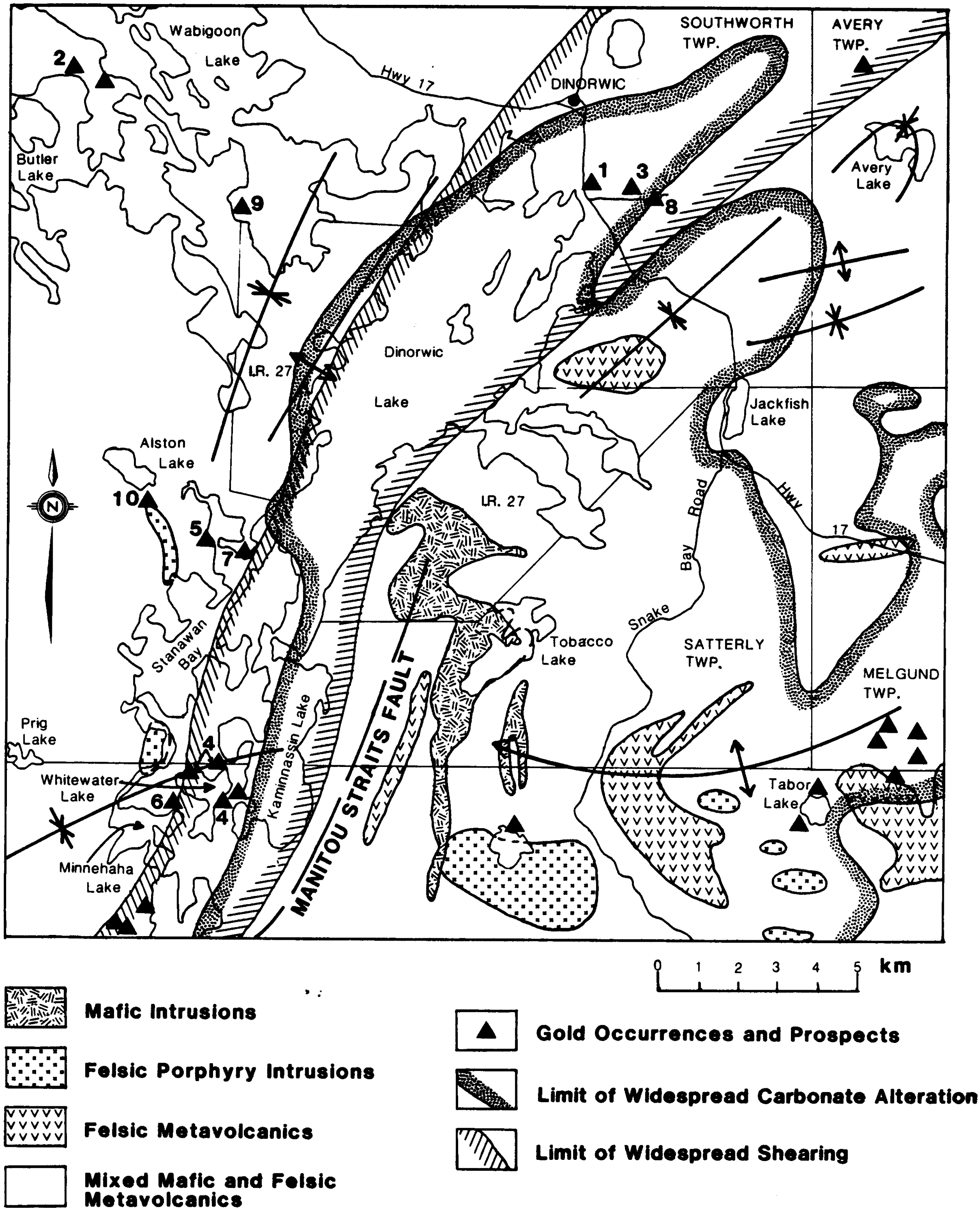



Figure 8: Geology at Dinorwic Lake

Number 8) in Southworth Township, northeast of Dinorwic Lake. The Minnehaha Lake Prospect (Figure 8, Number 6) was staked in 1982 and optioned to Asamera Minerals Incorporated who conducted ground magnetometer and electromagnetic surveys, humus and lithogeochemical surveys, and geological mapping over the property. The geology of Dinorwic Lake was mapped by Satterly (1943), as part of the Dryden-Wabigoon map sheet, and the area immediately to the south, in the vicinity of Whitewater Lake south of Stanawan Bay, was last mapped by Thomson (1934). The Dinorwic Lake area was included in an extensive airborne electromagnetic and magnetic survey flown over the Dryden area and published in 1987 (OGS 1987). The southern part of the Dinorwic Lake area, in the vicinity of Whitewater Lake, was included in an airborne electromagnetic and magnetic survey flown over the Manitou-Stormy Lakes area and published in 1980 (OGS 1980).

The discovery of new gold occurrences at Whitewater Lake and the "rediscovery" of the Moose Bay Prospect (Figure 8, Number 7) on Dinorwic Lake, resulted from prospecting in 1986. The location of the Moose Bay Prospect has never been indicated on any published map.

ii) General Geology

The Dinorwic Lake area is situated at the eastern end of the Lower Wabigoon Volcanic Group, the same stratigraphic sequence which hosts the majority of gold deposits at Eagle and Wabigoon Lakes. Satterly (1943) indicated these volcanics to be folded about northeast-trending synclinal and anticlinal axes west of Dinorwic Lake (Figure 8). Southwest of Dinorwic Lake, the Lower Wabigoon Volcanics have been interpreted (Blackburn et al. 1982) to be folded about a northeast-trending syncline (Figures 2 and 8), and to be identical to the Pincher Lake Volcanic Group which extends into the Upper Manitou Lake area. The zone of shearing constituting the Manitou Straits Fault (Figure 8) extends northeast from the Manitou Lakes through Dinorwic Lake, where it widens and is responsible for broad, northeast-trending, subparallel shear zones or splays which extend into Southworth and Avery Townships northeast of the lake. Airborne magnetic surveys flown over the Tobacco Lake area in Satterly Township, east of Dinorwic Lake, suggests the presence of an open fold with an apparent west- or west-northwest-trending fold axis (Kasner, R.J., Assessment Files, Resident Geologist's Office, Kenora; OGS 1987). This fold structure may be related to the anticlinal fold axis which extends westwards from Tabor Lake toward Tobacco Lake and which Kresz (1987) named the Tabor Lake Anticline (Figure 8). The Manitou Straits Fault and numerous west-northwest-trending linear magnetic lows, which are interpreted to be shear zones, crosscut the fold without apparent offset. Complex folding is present in Southworth Township, northeast of Dinorwic Lake, where Satterly (1943) mapped a north-northeast-trending synclinal fold axis and east-northeast-trending synclinal and anticlinal fold axes.

The dominantly mafic metavolcanic rocks in the area are intercalated with lenses of felsic metavolcanic flows and pyroclastics and felsic and mafic intrusive rocks. Gabbroic sills are intercalated with mafic metavolcanic flows in Southworth and Satterly Townships. The rocks are commonly intensely sheared, iron-carbonatized, chloritized or sericitized, and host variable amounts of disseminated sulphides. Satterly (1943) mapped an extensive area of chlorite-carbonate schist centered on Dinorwic Lake, and

Beard and Rivett (1977) recognized intense carbonatization, quartz-carbonate veining, and gold mineralization. The carbonate alteration appears to have been controlled by the Manitou Straits Fault but extends at least 10 km southeast of the fault zone (Figure 8). Numerous quartz veins hosting abundant pyrite, arsenopyrite, and chalcopyrite occur throughout the sheared metavolcanics. Grab samples from quartz veins and wallrocks taken by the author along the north shore of Dinorwic Lake, assayed trace to 65 ppb gold and were anomalous in arsenic, with values ranging from 125 ppb to 1.54% arsenic. Immediately north of Dinorwic Lake, at the Niemi (Figure 8, Number 8) and H.W. 123 (3) Occurrences, very high arsenic values up to 7.5% are associated with gold and silver mineralization. Coarse-grained arsenopyrite is commonly hosted by the mafic wall rocks. The significance of the high arsenic values, if any, has not been determined, but elevated levels of arsenic are concentrated within quartz veins and intensely carbonatized wall rocks, some of which are associated with gold mineralization.

iii) Characteristics of Gold Deposits

The majority of gold occurrences at Dinorwic Lake consist of gold-bearing quartz veins hosted by north- or northeast-trending shear zones occurring in all rock types. Variable wall rock alteration consists of chloritization and carbonatization (either iron or calcium carbonate) which may be accompanied by pyritization and sericitization. The alteration can be very intense and extensive but is commonly confined to the sheared host.

At Whitewater Lake, recently discovered gold occurrences, such as the Johnson-Whitewater Lake Occurrences (Figure 8, Number 4), consist of gold-bearing quartz veins within wide, intense, north- northeast-trending (015°-020°) shear zones hosted by mafic metavolcanic flows. Quartz veins are controlled by the shearing, but the majority appear to be confined to east-trending tension fractures and minor shears which crosscut the shearing, and indicate the presence of crosscutting, east-trending structures. The quartz veins generally contain minor amounts of sulphides and host dark chlorite bands and pyritic xenoliths of wall rock associated with visible gold. The quartz veins are known to host pyrite, chalcopyrite, bornite, and galena. The sheared, sericitized wall rock commonly contains abundant disseminated pyrite (2-15%), and hosts widespread and consistent low grade and anomalous gold mineralization between 0.02 and 0.16 ounce gold per ton. A grab sample of pyritic wall rock taken by the author from an old open cut discovered between Whitewater and Kaminnassin Lakes assayed 8100 ppb gold, while two grab samples of the quartz vein at the open cut assayed 0.76 and 1.62 ounces gold per ton.

Ground electromagnetic and magnetic surveys conducted in the vicinity of Kaminnassin Lake (also known as Rock Lake or Kaminnassin Bay) for Golden Range Resources Inc. (Assessment Files, Resident Geologist's Office, Kenora), immediately east of Whitewater Lake, indicate the presence of numerous, northeast-trending, magnetic lows that can be interpreted to delineate shear zones associated with the Manitou Straits Fault. The shear zone at Whitewater Lake appears to be one of these structures (Figure 8). V.L.F. electromagnetic conductors which may be due, in part, to topography, either crosscut the lows or are coincident with them. Airborne electromagnetic and magnetic surveys, flown south of Whitewater Lake for June Resources Inc. (Assessment Files, Resident Geologist's Office, Kenora), indicate the presence of northeast-trending magnetic lows and northwest- and northeast-trending conductors extending into the Whitewater Lake area.

The workings at the Minnehaha Lake Prospect (Figure 8, Number 6) have been sunk on fracture-hosted quartz veins in mafic metavolcanic flows, but it is difficult to observe the strike of the quartz veins due to poor exposure. The veins contain calcite, iron carbonate, narrow bands and fracture-fillings of black tourmaline and chlorite, and disseminated fine-grained pyrite and chalcopyrite. The sulphides may also occur as large blebs in the quartz. A grab sample of the quartz vein material, taken by the author from the dump at the main shaft assayed 1350 ppb gold, while a sample of pyritic wall rock assayed 14 ppb gold. The wall rocks at a test pit a few hundred metres east of the main shaft are more intensely altered, pale gray, carbonatized, sericitized and contain very abundant disseminated pyrite. A grab sample of the pyritic wall rock, taken by the author, assayed 5700 ppb gold while a sample of the quartz vein assayed 490 ppb gold. More gold mineralization occurs in the wall rock than in the quartz vein and the alteration and appearance of the wall rocks is very similar to that at the Whitewater Lake Occurrences (Figure 8, Number 4).

The Moose Bay (Figure 8, Number 7) and Van Houten (10) Prospects consist of gold-bearing quartz veins controlled by north- northeast-trending shear zones (025°), and flat-lying and vertical tension fractures which crosscut shearing. At the Moose Bay Prospect (7), located on Moose Bay at the southwest corner of Dinorwic Lake, the host rocks are commonly felsic, feldspar-porphyry dikes or sills, while at the Van Houten Prospect (10), located about 1.6 km directly west of Moose Bay, quartz veins are hosted by a granodiorite sill. The wall rocks are variably pyritic, sericitized, and carbonatized, and at the Van Houten Prospect, they host accessory molybdenite and chalcopyrite. Airborne magnetic surveys flown in the vicinity of the Van Houten Prospect (Kasner, R.J., Assessment Files, Resident Geologist's Office, Kenora; OGS 1987), indicate the presence of a linear northeast-trending magnetic low extending through the area, as well as a weak, crosscutting, east-northeast-trending magnetic low.

Other gold occurrences in the vicinity of Dinorwic Lake, such as the Big Ruby (Figure 8, Number 1), Niemi (8), and H.W. 123 (3) Occurrences in Southworth Township, and the Butler Lake Prospect (2) and Pidgeon-Wabigoon Lake (9) Occurrence at the east end of Wabigoon Lake consist of gold-bearing quartz veins dominantly controlled by northerly-trending shear zones, or fractures which crosscut the shear zones.

The K.812786 Occurrence (Figure 8, Number 5), situated immediately west of

Moose Bay on Dinorwic Lake, consists of fracture-hosted gold-bearing quartz stringers within discontinuous pyritic, cherty, interflow metasediments bounded by mafic metavolcanic flows. The metasediments are very thinly laminated, carbonatized, and sericitic. Grab samples from the chert, taken by the author, assayed anomalous values of gold, while grab samples of the pyritic chert that hosts quartz veinlets assayed 0.15 and 1.51 ounces gold per ton.

iv) Conclusions and Recommendations for Exploration

The above observations suggest that the Dinorwic Lake area is structurally complex, with dominant north-northeast shear zones, related to the Manitou Straits Fault, controlling quartz veins at the majority of known gold occurrences. Gold-bearing quartz veins are also controlled by crosscutting, east-trending fractures. Widespread shearing, alteration, and gold mineralization occurs in the vicinity of Whitewater, Kaminnassin, and Turtlepond Lakes, indicating an extensive area with good exploration potential.

Evidence for crosscutting west-northwest and east-northeast-trending structures in the area are linear magnetic lows, indicated by the results of airborne magnetic surveys, and the presence of crosscutting fractures and minor shears within northeast-trending shear zones. A lack of field evidence makes the interpretation of these crosscutting features somewhat tenuous. The numerous east-trending fractures which control many of the gold-bearing quartz veins may also be tension fractures, developed perpendicular to the maximum elongation, during simple shear along the

Manitou Straits Fault and its associated shear zones. If that is the case, the east-west orientation of the fractures could indicate dextral movement along the fault.

The widespread intense carbonate alteration in the area appears to be related to the Manitou Straits Fault and associated shear and fracture zones. The emplacement of gold-bearing quartz veins and sulphide mineralization post-dated carbonate alteration.

Gold occurs within fracture-hosted quartz stringers in sulphide-rich cherty, interflow metasediments. The rigid, competent, chert responded in a brittle manner during deformation providing open fractures for the emplacement of quartz veins and acted as a structural trap for gold deposition.

## III) SANDYBEACH LAKE

### i) Introduction

The Sandybeach Lake area is located immediately north and northeast of Dinorwic Lake and encompasses Laval, McAree, Hartman, MacFie and Avery Townships. The first recorded gold exploration was in 1907, when two shafts were sunk at the Midas Prospect (Figure 9, Number 6) east of Sandybeach Lake in McAree Township. During the early 1920's an inclined shaft was sunk at the Schmidt-Wallbridge Prospect (Figure 9, Number 9) northwest of Swimit Lake (Hurst 1932). The Alto-Gardnar Prospect (1), northwest of MacFie Lake in MacFie Township, was discovered by E. Pidgeon, J. Alto, and W. Gardnar in 1937. Development work took place at the prospect until 1946 (Sandybeach

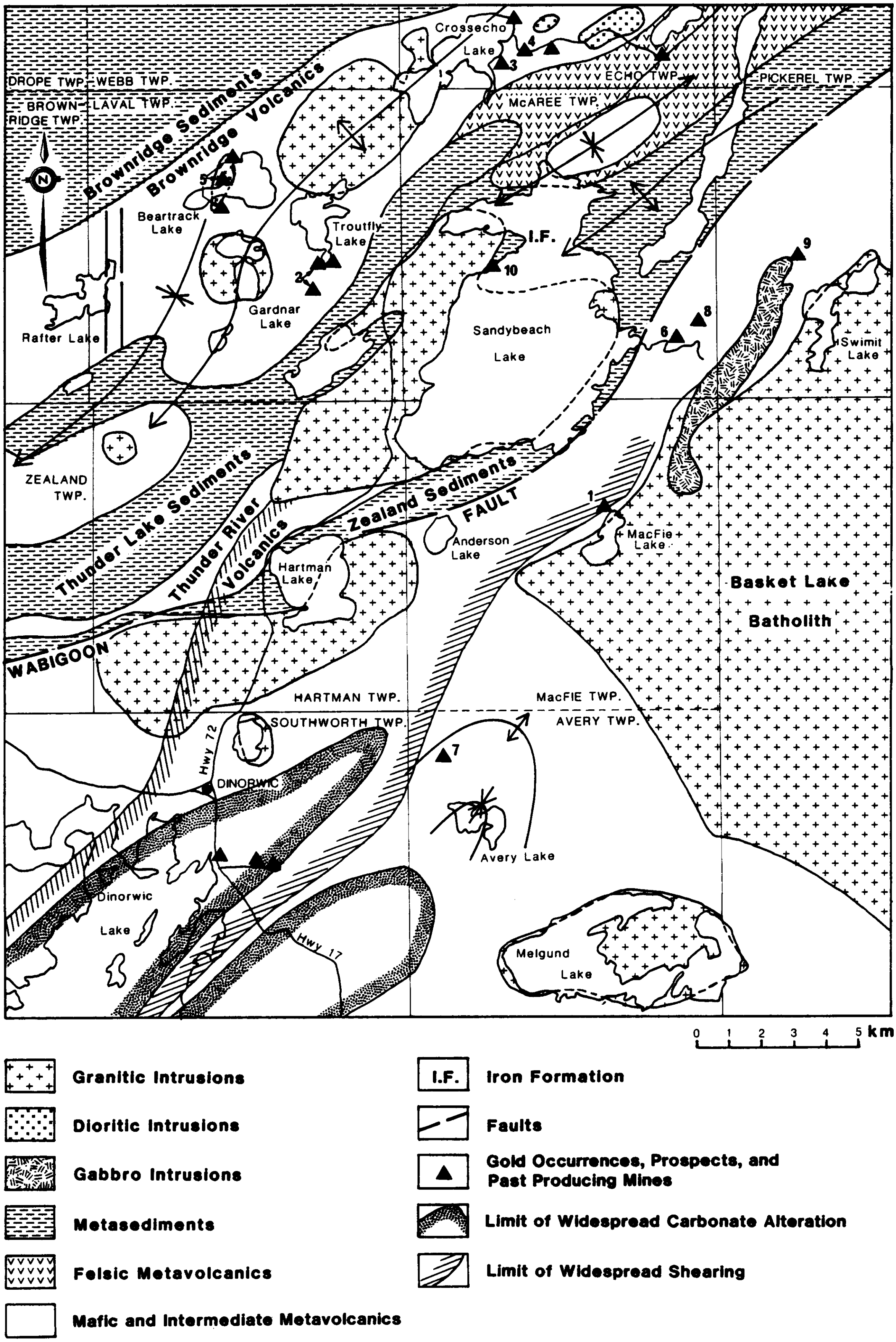



Figure 9: Geology at Sandybeach Lake

Lake Syndicate, Assessment Files, Resident Geologist's Office, Kenora).

The Goldlund Mine (4) in Echo Township, north of Sandybeach Lake, was discovered by A. Ward and R. Lundmark in 1941 (Page 1984). Extensive trenching, sampling, and drilling was conducted throughout the 1940's and two exploration shafts had been sunk by 1950. Underground development commenced until 1952 when the operation was shut down (Page 1984). Exploration by Goldlund Mines Ltd. commenced again in 1973 and by 1982 the mine was producing gold at an average grade between 0.28 and 0.37 ounce gold per ton (Page 1984). Reserve estimates, as of October 1983, were 600,000 tons to the 800 foot level grading 0.20 ounce gold per ton (Page 1984). The mine was shut down in 1985 but an extensive drill program, conducted by Camreco Inc. to extend the mineralized zones and increase reserves, was initiated in 1987.

Development and exploration work in the vicinity of the Goldlund Mine (4) during the 1940's and 1950's, stimulated gold exploration in Laval Township at Troutfly and Beartrack Lakes. No significant discoveries were made except for a few small occurrences such as the Calder-Bousquet Occurrence (2) at Troutfly Lake, and the Graham-Bousquet Occurrence (5) at Beartrack Lake (Calder-Bousquet Mines Ltd., Eclund Gold Mines Ltd., Graham-Bousquet Gold Mines Ltd., Assessment Files, Resident Geologist's Office, Kenora). Trenching and sampling was conducted at the Rivers Option (8) in McAree Township sometime during the 1930's with further work conducted during 1960 and 1980 (Nova-Co. Exploration Ltd., Assessment Files, Resident Geologist's Office, Sioux Lookout). During the 1960's, S. Johnson discovered the Standon Occurrence (10) on the west shore of Sandybeach Lake in McAree

Township (S. Johnson, prospector, Wabigoon, personal communication, 1986), and G. L. Pidgeon discovered the Pidgeon-Avery Township Prospect (7) in 1975, near the northwest corner of Avery Township (Beard and Scott 1976). Recent exploration is once again concentrated at all the occurrences, with the exception of the Midas Prospect (6) and the Graham-Bousquet Occurrence (5).

Geological mapping of Hartman and Laval Townships was conducted by J. Satterly (1943) during 1939 and 1940, as part of the Dryden-Wabigoon map sheet. M. E. Hurst (1932) mapped McAree Township as part of a reconnaissance mapping program in the Sioux Lookout area during 1931. B. Berger mapped Avery, MacFie, and McAree Townships during 1986 (Berger et al. 1987a, 1987b, 1987c) and Laval and Hartman Townships during 1987 (Berger 1987). L.B. Chorlton studied the relationships between stratigraphy, structural development, and gold mineralization in the Crossecho-Troutfly Lakes area during 1986 and 1987 (Chorlton 1987). The Sandybeach Lake area was included in an extensive airborne magnetic and electromagnetic survey flown over the Dryden area in the winter of 1986-1987 (OGS 1987).

ii) General Geology

Laval, Hartman, and McAree Townships are underlain by intercalated, greenschist and amphibolite grade, south- and southeast-facing metavolcanic and metasedimentary rocks. These are intruded by mafic and felsic dikes, sills, and plugs, and by numerous, pink, granodiorite stocks, such as the Melgund Lake Stock, the Hartman Lake Stock, the Sandybeach Lake Stock, the Gardnar Lake Stock, and the Crossecho Lake Stock (Figure 9). The metavolcanic and metasedimentary rocks were distinguished as three stratigraphic units by Pettijohn (1939): the Brownridge Volcanics, the Thunder River Volcanics, and the Thunder Lake Sediments. Satterly (1943) distinguished two additional stratigraphic units as the Zealand Sediments and the Brownridge Sediments.

The Brownridge Volcanics, which underlie most of Laval Township (Figure 9), consist of intermediate to mafic, massive and pillowed, variolitic metavolcanic flows with lesser amounts of pillow breccias, feldspar-phyric flows, mafic tuffs, and coarse heterolithic pyroclastics. Wide northeast-trending felsic dikes occur throughout the Brownridge Volcanics, as well as subvolcanic gabbro/diorite sills and dikes, lenticular interflow units of felsic flows and pyroclastics, and chemical sediments associated with massive pyrite and pyrrhotite. Felsic metavolcanic rocks underlie most of McAree Townhip, and consist of rhyolitic and dacitic pyroclastics with minor autoclastic flows (Berger 1986). The Brownridge Volcanics are a mixed tholeiitic to calc-alkaline volcanic sequence (Trowell et al. 1980). The metavolcanics are situated between the Brownridge Sediments in the north and the Thunder Lake Sediments, Thunder River Volcanics, and Zealand Sediments in the south (Figure 9). The metasediments consist of well bedded graywackes, arkoses, and impure quartzites. Banded oxide iron formation is hosted by the Thunder Lake Sediments in Zealand Township, and on the northwest shore of Sandybeach Lake. The five sequences extend northeast through Laval and McAree Townships into the Vermilion-Minnitaki Lakes area, where they comprise parts of the Abram, Neepawa, and Minnitaki Groups (Berger 1987; Blackburn et al. 1985; Trowell et al. 1980).

Satterly (1943) recognized the presence of the Laval Anticline with a northeast-trending fold axis extending across Laval Township and plunging 025°-065° to the southwest. The Gardnar Lake and Crossecho Lake Stocks are situated along the axis of the anticline. Satterly (1943) also recognized a major northeast-trending synclinal fold axis situated along the northwest flank of the Laval Anticline (Figure 9), and interpreted the structure of the Brownridge Volcanics in Laval Township to be a southwest plunging Z-shaped drag fold. Chorlton (1987) has shown that two periods of deformation affected the supracrustal rocks in Laval Township: the first is responsible for subhorizontal structures and bedding between the Gardnar and Crossecho Lake Stocks, and the second is related to northeast-trending foliations, shear zones and fold axes. Berger (1986) recognized a doubly-plunging structural dome oriented about a northeast-southwest fold axis in northern McAree Township (Figure 9), which he interpreted to be formed by the interference of two folding events (Berger 1986). Berger (1986) also noted tight isoclinal folding about northeast-trending axes in the metasediments north of the Wabigoon Fault in McAree Township.

North of Crossecho Lake, the Little Vermilion Fault extends along the contact between the Brownridge Sediments and Brownridge Volcanics. However, the presence of the fault along the northeast-trending contact in Laval Township, has not been determined, due to poor outcrop exposure. The metavolcanics have been pervasively and variably foliated at 045°-060°, which is subparallel or parallel to the northeasterly strike of the metavolcanic rocks. Foliations are also parallel to the boundaries of the intrusive masses. Intense to moderate northeast or east-northeast-trending shears occur throughout the area, especially south of Troutfly Lake, and along the west shore of Beartrack Lake. North-trending faults occur along the east shore of Rafter Lake (Figure 9).

The rocks in MacFie and Avery Townships, south of Sandybeach Lake, consist dominantly of greenschist facies, tholeiitic, mafic, massive, and pillowed, metavolcanic flows intruded by the Basket Lake Batholith in the east, and by the Melgund Lake Stock in the southeast corner of Avery Township. The metavolcanics in Avery Township narrow into a thin wedge which extends northeast between the Basket Lake Batholith in the east and the Wabigoon Fault and Sandybeach Lake Stock in the west (Figure 9). Coarse-grained, sill-like, gabbro intrusions occur throughout the metavolcanics and are similar to gabbroic intrusions in the dominantly mafic metavolcanic rocks east and northeast of Dinorwic Lake. If these gabbros are an integral part of the volcanic stratigraphy, then they may indicate a general continuity of the volcanic sequences from Dinorwic Lake to Sandybeach Lake (Trowell et al. 1980).

Complex fold structures are present in Avery Township (Figure 9) where anticlinal and synclinal fold axes appear to be refolded (Berger et al. 1987c). Strong, northeast-trending shear zones, related to the Manitou Straits Fault, extend from Dinorwic Lake into the northwest corner of Avery Township. The Wabigoon Fault is located along the metasedimentary-metavolcanic contact which extends to the northeast along the south and east shores of Sandybeach Lake. Strong, northeast-trending shear zones in the metavolcanics east of the fault, are parallel to the fault, and host gold-bearing quartz veins.

### iii) Characteristics of Gold Deposits

Relatively few gold deposits are situated in the vicinity of Sandybeach Lake compared to other areas near Dryden. The majority of deposits are located south and east of Sandybeach Lake: the Pidgeon-Avery Township Prospect (Figure 9, Number 7) in Avery Township; the Alto-Gardnar Prospect (1) in MacFie Township; and the Midas Prospect (6) and Rivers Option (8) in McAree Township.

The Alto-Gardnar Prospect (Figure 9, Number 1) and Midas Prospect (6) consist of gold-bearing quartz veins controlled by wide, northeast-trending shear zones (040°-060°) in mafic metavolcanic flows. The quartz veins at the Alto-Gardnar Prospect (1) are intensely boudinaged, discontinuous, and drag folded, while the veins at the Midas Prospect (6) are relatively undeformed. The shear zone at the Alto-Gardnar Prospect (1) is more complex than the shear zone at the Midas Prospect (6) and consists of sinuous, anastomosing bands of sheared fissile rock separated by lenses of less deformed rock. Both shear zones host several porphyritic felsic dikes. Alteration is commonly restricted to the sheared metavolcanic wall rocks which are intensely iron carbonatized, chloritized, sericitized, and pyritized. Quartz veins host variable amounts of pyrite, chalcopyrite, iron carbonate, calcite, black tourmaline, and hematite. Visible gold was observed by the author in the "main vein" at the Alto-Gardnar Prospect (1) where assays ranging from trace to over 1.0 ounce gold per ton have been obtained (Sandybeach Lake Syndicate, Assessment Files, Resident Geologist's Office, Kenora). Scheelite has been observed in the fractured and sheared felsic porphyry dikes at the Alto-Gardnar Prospect (Sandybeach Lake

Syndicate, Assessment Files, Resident Geologist's Office, Kenora). Grab samples, taken by the author, from the quartz vein in the western shaft at the Midas Prospect (6) assayed 460 ppb gold, while the pyritic wall rock assayed 720 ppb gold. Grab samples from the quartz veins taken by B. Berger (Berger et al. 1987a, b, c) assayed 1030 ppb gold at the east shaft and 260 ppb gold at the west shaft while a grab sample of the wall rock from the east shaft assayed 120 ppb gold.

The Rivers Option (Figure 9, Number 8) consists of five en echelon northeast-trending (020°-040°) shear zones in mafic metavolcanic flows intruded by feldspar porphyry dikes parallel to the shearing. The shear zones are similar to the Alto-Gardnar (1) shear zone and consist of anastamosing bands of sheared rock amongst lenses of less deformed rock. Quartz veins are hosted by the sheared metavolcanics and by crosscutting tension fractures in the felsic dikes. Alteration consists of weak to intense carbonatization, sericitization, and pyritization, with intense alteration haloes enveloping many of the veins. The veins pinch and swell and contain iron carbonate, pyrite, chalcopyrite, galena, and sphalerite. Visible gold was observed by the author in the No.1 quartz vein. Drilling conducted by Teck Explorations Ltd. in 1960 encountered a number of encouraging intersections in four separate drill holes, such as 0.78 ounce gold per ton across 2 ft., 0.66 ounce gold per ton across 2.2 ft., 0.42 ounce gold per ton across 1.5 ft., and 0.70 ounce gold per ton across 4.3 ft., but the highest assay obtained from extensive surface sampling of the old trenches by Derry, Michener, and Booth Ltd., in 1980, was 0.08 ounce gold per ton across 4 inches (Nova-Co. Exploration Ltd., Assessment Files, Resident Geologist's Office, Sioux Lookout).

The Alto-Gardnar Prospect (1) is about 800m west of the Basket Lake Batholith and occurs just within the greenschist side of the greenschist-amphibolite metamorphic isograd, which marks the limit of the contact aureole of the Basket Lake Batholith. The Midas Prospect (6) and Rivers Option (8) are situated within greenschist grade rocks. All three properties are located less than 2 km east of the Wabigoon Fault. The overall northeast trend of the shear zones controlling the quartz veins suggests that they were developed as secondary shear bands subparallel to the fault boundary.

Very little is known about the Schmidt-Wallbridge Prospect (Figure 9, Number 9) located near Swimit Lake. The prospect consists of a 2.5 m wide, northeast-trending (025°) quartz vein containing sphalerite, pyrite, chalcopyrite, galena, and minor carbonate. The host rock is a "coarse, feldspar basalt porphyry" intruded by quartz porphyry dikes (Hurst 1932). A gabbro intrusion is situated immediately south of the prospect. It is likely that a northeast-trending shear zone, related to the Wabigoon Fault, hosts the gold-bearing quartz vein. The area around the prospect was last mapped, on a reconnaissance scale, by M. E. Hurst (1932) in 1932.

The Pidgeon-Avery Township Prospect (Figure 9, Number 7), located north-northwest of Avery Lake, is similar to the other deposits in the area since it consists of a 30m wide shear zone striking 040°- 042° within mafic metavolcanic flows. However, the shear zone does not host wide quartz veins, but instead intensely sheared, felsic, quartz-feldspar porphyry dikes and brecciated, silicified, carbonate zones. Berger et al. (1987a, b, c) observed that the gold-bearing zone was located at the intersection of a northeast-trending lineament with an east-northeast-trending lineament. Berger et al. (1987a, b, c) contend that gold appears to correlate closely with the east-northeast-trending lineament even though the northeast-trending lineament appears to be the dominant structure. Strong iron carbonate alteration is restricted to the shear zone which hosts numerous quartz-carbonate veinlets controlled by narrow fractures crosscutting the shear. The breccia zones are parallel to the shear, and consist of carbonatized, buff-white, brown, and green, angular fragments of host rock in a quartz-carbonate matrix. Gold mineralization is associated with the quartz-carbonate veinlets and widespread, fine-grained, disseminated pyrite in the mafic metavolcanics and breccia zones. One grab sample from the prospect, taken by Kerr Addison Mines Limited, assayed 0.5 ounce gold per ton, and another sample containing visible gold assayed 2.0 ounces gold per ton (Beard and Scott 1976). Grab samples taken by A. Glatz (prospector, Dryden) from the mafic metavolcanics and breccia zones, gave assay values ranging from trace to 0.32 ounce gold per ton (Assessment Files, Resident Geologist's Office, Kenora). Anomalous gold values have been obtained from quartz veins in similar shear zones, situated immediately north and south of the main showing. The northeast shears are part of a major shear zone which extends northeast from Dinorwic Lake.

The only known gold occurrence which is not hosted by a shear zone in mafic metavolcanics is the Standon Occurrence (Figure 9, Number 10), on the northwest shore of Sandybeach Lake, in McAree Township. Gold is associated with arsenopyrite and pyrite mineralization hosted by thinly laminated, tightly-folded, north- to east-trending iron formation, interbedded with quartz rich layers and amphibolitized graywacke. The thinly bedded iron formation grades into thick [>0.6m] beds of iron-rich graywacke to the southwest. The iron formation is part of the Thunder Lake Sediments which host iron formation in Zealand Township, southwest of the area. The iron formation has been intruded by a granite-pegmatite and aplite phase of the Sandybeach Lake Stock, and is crosscut by northwest- and east-trending, narrow, granodiorite and pegmatite dikes. The dikes contain numerous angular, xenoliths of iron formation and iron-rich graywacke. Pyrite occurs on fractures or along contacts between narrow granitic dikes and iron formation, while arsenopyrite is finely disseminated through the iron formation. Four grab samples from the main test pit, taken by the author, assayed between 12 ppb gold and 4290 ppb gold, although gold values over 2.0 ounces gold per ton have been obtained (S. Johnson, prospector, Dryden, personal communication, 1986).

Two gold deposits occur in the Brownridge Volcanics, the Calder-Bousquet Occurrences (Figure 9, Number 2) south of Troutfly Lake, and the Graham-Bousquet Occurrences (5) west of Beartrack Lake in Laval Township. During 1950 and 1951 Calder-Bousquet Gold Mines Limited, and Eclund Gold Mines Limited, conducted exploration south of Troutfly Lake. Recent exploration has been conducted over the former Calder-Bousquet claim group by Billiton Canada Limited and Mistango Consolidated Resources Limited. The Calder-Bousquet Occurrence (Figure 9, Number 2) is situated approximately 900m south-southwest of the south bay of Troutfly Lake, and consists of pyritic, silicified, mafic tuffs in contact with a northeast-trending quartz-feldspar porphyry dike. A grab sample of the mafic tuff taken by Calder-Bousquet Ltd. assayed 0.12 ounce gold per ton (Assessment Files, Resident Geologist's Office, Kenora).

The majority of exploration in the vicinity of the Calder-Bousquet Occurrence has been focussed on the search for "Goldlund-type" gold mineralization. At the Goldlund Mine (Figure 9, Number 4) and Camreco property (3), northeast of the Calder-Bousquet Occurrence (2), a series of diorite/gabbro intrusions and quartz-feldspar porphyry dikes have been soda-metasomatized, fractured and intruded by quartz-carbonate-pyrite-gold veins along a series of shallow dipping, east-northeast-trending fractures (Chorlton 1987). The dikes or sills vary from 10m to 30m in width, and quartz veins vary in thickness from millimetres to as much as a metre. Ore zones are known to contain carbonate, ilmenite, magnetite, lead telluride, sphalerite and minor scheelite. Gold occurs within the quartz veins and in alteration haloes around the veins (Blackburn and Janes 1983).

At the Calder-Bousquet Property (Figure 9, Number 2) wide, northeast-trending, diorite/gabbro and quartz-feldspar porphyry dikes occur throughout the mafic metavolcanics. Many of the dikes are pink or buff on fresh surfaces due to intense carbonatization and silicification along their strike lengths. The dikes contain numerous fracture-hosted quartz veins and disseminated pyrite, chalcopyrite and galena. However, sampling of the dikes and quartz veins by Calder-Bousquet Ltd. and Billiton Ltd. resulted in trace to low anomalous gold, silver, and tungsten values. Recent drilling by Mistango Consolidated Resources Limited was targeted on a diorite dike on the west shore of the small south bay of Troutfly Lake, where a drill hole intersected 1.33 ounces gold per ton across 2 ft. (Assessment Files, Resident Geologist's Office, Kenora).

During 1951, Eclund Mines Ltd. drilled eleven holes south and southwest of Troutfly Lake on a 15m wide zone of shearing and alteration. The majority of holes intersected trace amounts of gold and anomalous silver values within silicified and fractured intermediate to mafic metavolcanic rocks and felsic and dioritic dikes, containing massive pyrite, pyrrhotite, and disseminated galena(Assessment Files, Resident Geologist's Office, Kenora).

Several old, unreported trenches were located on a small island in the south bay of Troutfly Lake by Billiton Ltd., where a 30m wide, intensely carbonatized, northwest-trending shear zone hosts pyritic quartz-carbonate veins in a gabbro sill or dike. A second set of north-trending quartz veins crosscuts the shear zone. The altered gabbro wall rocks contain disseminated pyrite and galena. Samples taken from the zone by Billiton Ltd. assayed trace amounts of gold (Assessment Files, Resident Geologist's Office, Kenora).

The Graham-Bousquet Occurrences (Figure 9, Number 5) were discovered by Graham-Bousquet Gold Mines Limited in 1950, along the west shore of Beartrack Lake, immediately northwest of Troutfly Lake. The company conducted geological mapping, sampling, and trenching, and drilled 12 short holes (Assessment Files, Resident Geologist's Office, Kenora). Six occurrences were discovered consisting of silicified, pyritic, northeast- and east-northeast-trending shear zones within or marginal to a small, irregularly shaped, subvolcanic diorite stock. More recently, Berger (1987) observed fragments of the stock incorporated in nearby pyroclastics, and noted a gradational contact between trachytic flows and the stock, indicating that the stock is subvolcanic and was the source for some of the adjacent metavolcanic rocks. A silicified shear zone, on the north shore of the narrow bay which extends west from Beartrack Lake, was reported by Graham-Bonsquet Gold Mines Limited to host visible gold. Two of the holes drilled by the company, that where targeted on the shear zone, named the No.1 Showing, intersected 0.03 ounce gold per ton across 3 ft. and 0.01 ounce gold per ton across 1.5 ft. in a highly silicified, weakly pyritic, diorite. Berger (1987) noted that quartz veins at the No.1 Showing were shear zone-hosted and that metavolcanic wall rocks were tourmalinized, pyritic, and contained arsenopyrite. An extensive area of silicified and tourmalinized pyritic diorite containing scheelite was discovered in the vicinity of the No.1 Showing during mapping by Berger (1987).

Four of the 12 holes drilled by Graham Bousquet Gold Mines Limited tested another shear zone, named the No. 2 Showing, on the south shore of the same narrow bay on Beartrack Lake. Two of the holes intersected 0.09 ounce gold per ton across 2 ft., and 0.01 ounce gold per ton across 2.5 ft., both in silicified, pyritic, diorite, and a third hole intersected 0.27 ounce gold per ton across 2 ft. in a silicified, pyritic andesite. The drill intersection which assayed 0.27 ounce gold per ton has been incorrectly applied to the Calder-Bousquet Occurrence (2) in previously published literature. Assays from the fourth hole on the No.2 Showing were not reported (Assessment Files, Resident Geologist's Office, Kenora). Berger (1987) noted that mineralization at the No.2 Showing consists of pyrite, sphalerite, galena, and magnetite in a sericitic shear zone. Berger (1987) obtained assays as high as 0.92 ounce gold per ton, 0.17 ounce silver per ton, 2860 ppm zinc, and 1000 ppm arsenic from grab samples taken from the shear zone.

The four other occurrences were drilled, but no significant silicification, pyrite, or gold mineralization was intersected.

Satterly (1943) located numerous quartz veins, sulphide zones, and a test pit, in the vicinity of north-trending faults, along the east shore of Rafter Lake. However, no assays or information about the test pit or quartz veins is available.

iv) Conclusions and Recommendations for Exploration

Gold exploration in Avery, MacFie, and McAree Townships should be directed towards northeast-trending ductile shear zones associated with intense iron carbonate alteration, overprinted by pervasive silicification and quartz veining accompanied by sulphides and gold. The shear zones were developed as secondary shear bands subparallel to the northeast-trending Wabigoon Fault and Manitou Straits Fault. The Basket Lake Batholith, east of the Wabigoon Fault, may have acted as a buttress during deformation. Intersecting structures, such as those at the Pidgeon-Avery Township Prospect (Figure 9, Number 7), may be a locus for significant gold mineralization and alteration, and make good prospecting targets. Zones of carbonatization and sulphide mineralization, mapped by B. Berger et al. (1987a, b, c) in MacFie, McAree, and Avery Townships, should be investigated for their gold potential. The area in the vicinity of the Schmidt-Wallbridge Prospect (Figure 9, Number 9) should also be thoroughly prospected for northeast-trending shear zones hosting gold.

The geological setting of the Standon Occurrence (Figure 9, Number 10) is unique to the area and it is doubtful if other iron formations in the Thunder Lake Sediments host gold mineralization. These other iron formations are commonly tightly folded, but Satterly (1943) did not report the presence of any brittle fracturing, quartz veining, or sulphide mineralization.

Good targets for gold exploration in Laval Township are northeast-trending, altered diorite/gabbro dikes hosting crosscutting fracture-controlled quartz veins, and northeast-trending, silicified, pyritic, shear zones in metavolcanic or intrusive rocks, such as those at Beartrack Lake. North-trending faults and northwest-trending shear zones are not known to host gold. The intrusion of the Ghost Lake Stock, within the English River Subprovince to the northwest of Laval Township, and the Basket Lake Batholith and Sandybeach Lake Stock, southeast of Laval Township, probably accounts for the presence and development of numerous northeast-trending fold axes in the metavolcanics. Shear and fracture zones may have developed due to movements along the contacts between intercalated metasedimentary and metavolcanic rocks during folding and horizontal compression.

## IV) MELGUND-REVELL-HYNDMAN TOWNSHIPS

### i) Introduction

Melgund, Revell, and Hyndman Townships are located approximately 52 km southeast of Dryden and straddle the Trans-Canada Highway. This area was first mapped as part of a regional reconnaissance by W. McInnes (1906) during 1898 and 1899, for the Geological Survey of Canada. J. Satterly (1960) mapped Melgund, Revell, and Hyndman Townships in 1960. Melgund, Revell, and Hyndman Townships were included in an extensive airborne electromagnetic and magnetic survey flown over the Dryden area and published in 1987 (OGS 1987).

Gold exploration began in Melgund-Revell-Hyndman Townships as early as 1888. No gold has come from these townships, but production is recorded from outside the area, at the Sakoose Mine (Figure 10, Number 11) and at the Tabor Lake Mine (Figure 10, Number 13) located immediately south of Melgund Township, as discussed in the Kawashegamuk-Meggisi Lakes section of this report. Exploration for copper and nickel was conducted during the 1950's and 60's. Recent gold exploration, concentrated in Melgund and Hyndman Townships, has been conducted by Lynx-Canada Limited and by Teck Explorations Limited in Hyndman Township, by Silver Lake Resources (now known as International Platinum Corporation) at the New Klondike Prospect (5), and by Sulpetro Minerals Limited (now known as Novamin Resources) at the Pathfinder Prospect (9) and Tabor Lake Mine (13). Numerous gold occurrences are located in the area, but relatively little is known about their structural and stratigraphic controls.

ii) General Geology

Metavolcanic rocks are dominantly fine- to coarse-grained, massive and pillowed, mafic flows, which host widely scattered, narrow, lensoid interflow units of massive and brecciated rhyolitic flows and tuffs,

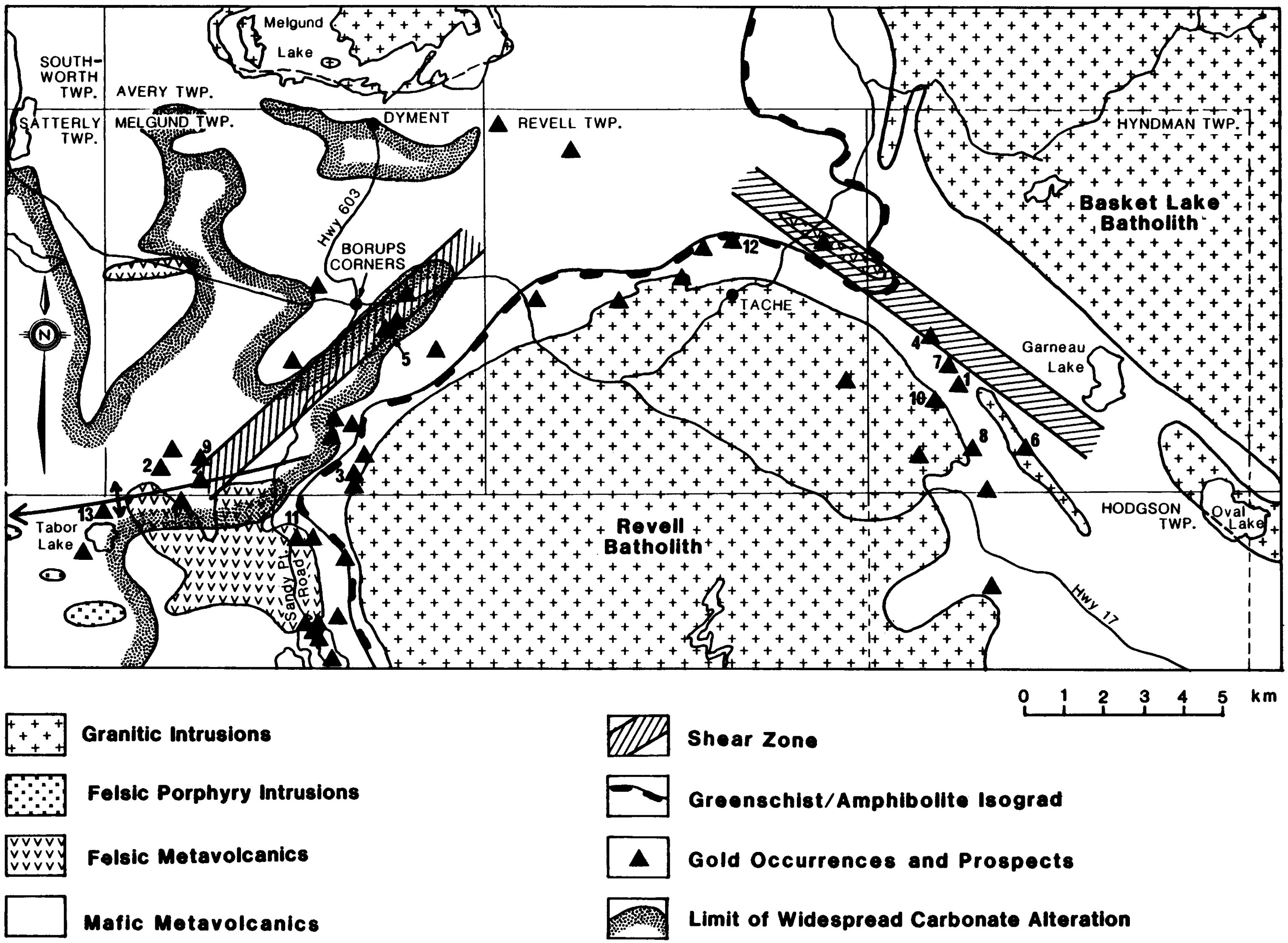



Figure 10: Geology at Melgund-Revell-Hyndmau Townships

intruded by numerous felsic dikes. The greenstone belt extends east from Melgund and Revell Townships into Hyndman Township, where it occupies a northwest-trending "wedge" between the Revell and Basket Lake Batholiths, which underlie the south half of Revell Township and the northeast half of Hyndman Township, respectively (Figure 10). Metamorphic grade is commonly greenschist in Melgund Township, but increases to amphibolite grade eastwards towards the two batholiths. The metavolcanic rocks in Hyndman Township are amphibolite grade, with a narrow contact aureole extending along the boundary of the Revell Batholith. The amphibolite grade rocks are composed of plagioclase, amphibole, and minor quartz, with the appearance of garnet in the eastern half of Hyndman Township. The metamorphic isograd between the greenschist and amphibolite grade rocks is marked by this mineralogical change and the disappearance of intense carbonatization, which is prevalent in the greenschist grade rocks (Figure 10).

The majority of the metavolcanic rocks which extend southeast from Hyndman Township to Ignace are generally regionally metamorphosed to almandine-amphibolite grade (Sage et al. 1974). They consist dominantly of medium- to coarse-grained black amphibole and plagioclase. Minor disseminated and massive pyrrhotite and pyrite are widely distributed amongst the metavolcanic rocks with traces of chalcopyrite and molybdenite. No significant gold or base metal mineralization has ever been reported (Sage et al. 1974).

Lack of top indicators in the area has made structural interpretation difficult. Satterly (1960) and Kresz et al. (1982a, b) recognized the presence of a west-plunging anticlinal axis along the south boundary of

Melgund Township (Figure 10). Kresz (1987) interpreted it to be a significant structure and named it the Tabor Lake Anticline. Satterly (1960) also indicated that the foliation throughout the area parallels the borders of the batholiths. However, two shear zones which are spatially and genetically related to gold occurrences have been overlooked during previous mapping. A northeast-trending zone of intense shearing extends through the southeast corner of Melgund Township and is associated with a number of gold occurrences (Figure 10). Movement along the structure is interpreted to be dextral based on detailed mapping at the New Klondike Prospect (Figure 10, Number 6) by Silver Lake Resources (Assessment Files, Resident Geologist's Office, Kenora), where right-hand sense of displacement of felsic dikes and mappable rock units is indicated in the vicinity of the shear. The second shear zone in Hyndman Township, trends northwest and dips steeply southwest, extending through the wedge of mafic metavolcanics between the Revell and Basket Lake Batholiths (Figure 10). Felsic metavolcanic and intrusive rocks within the shear zone are mylonitized, while the mafic metavolcanic rocks are fissile. Mafic metavolcanics at the northwest end of the shear zone are chloritized (Figure 10). Z-drag folding of quartz veins, and right-hand offsets of veins and dikes along fractures and shears, both observed by the author, indicate overall dextral movement along the shear zone. Airborne magnetic and electromagnetic surveys (Keeba Resources Ltd., Assessment Files, Resident Geologist's Office, Kenora; OGS-1987), indicate the presence of this major structure in the form of a strong, linear, northwest-trending magnetic low associated with coincident, weak, electromagnetic conductors. Gold occurrences in Hyndman Township are controlled by northwest-trending shear zones which are subparallel to this structure.

Extensive carbonate alteration associated with sericitization and fuchsite alteration extends from the northern boundary of Melgund Township, at Dyment, and broadens into a wide zone which extends south into the Tabor Lake area and westwards towards Dinorwic Lake. The alteration terminates in the east near the greenschist-amphibolite isograd (Figure 10).

A lithogeochemical study of the carbonate alteration, conducted by Sulpetro Minerals Limited (Assessment Files, Resident Geologist's Office, Kenora), along the southern boundary of Melgund Township and in the vicinity of Tabor Lake, revealed that the alteration dominantly consists of Mg-rich carbonate with local concentrations of Fe-rich carbonate at gold occurrences and prospects. This is an inherent characteristic of widespread carbonatization in mafic rocks, where the dominant carbonate changes from a distal facies of calcite and dolomite, to a proximal facies of ankerite with high magnesium and iron content close to gold mineralization (Colvine et al. 1984; Boyle 1979). According to Boyle (1979), this zonation is a result, in part, of the development of two or more ages of carbonate associated with gold-bearing quartz veins in mafic metavolcanic rocks: the oldest carbonate, developed in the altered wall rocks, consists dominantly of Mg- and Fe-rich ankerite; the second age of carbonate, present in quartz veins, consists of ankerite or calcite characterized by a higher calcium content and lower Fe and Mg contents compared with the oldest carbonate; the youngest age of carbonate consists of calcite, with low Fe and Mg contents, in crosscutting slips and fractures. The lithogeochemical study by Sulpetro Minerals Limied indicates that carbonate content in the mafic metavolcanic rocks generally increased from 7.5% in unaltered rocks to 15.0% in altered rocks, accompanied by enrichment in Co, Ni, and Cr, and depletion in

$Al_2O_3$, $TiO_2$, $Na_2O$, $K_2O$, and $P_2O_5$ either by dilution, or by replacement.

The lithogeochemical study also showed that the $SiO_2/Al_2O_3$ ratio increased substantially in the altered metavolcanic rocks, indicating an introduction or enrichment of quartz. Arsenic was found to be concentrated in elevated levels in silicified and carbonatized rocks associated with gold mineralization, in a similar manner to the association of arsenic with carbonate alteration and low grade gold mineralization in the Dinorwic Lake area.

iii) Characteristics of Gold Deposits

Gold occurrences within amphibolite grade metavolcanic rocks in Hyndman and Revell Townships consist of narrow boudinaged quartz veins within zones of intense, northwest-trending shearing associated with the major northwest shear zone described previously. Wallrocks are commonly chloritized and sericitized with weak to moderate calcium carbonate alteration, and are variably pyritic with accessory pyrrhotite and magnetite. Iron carbonate is rare and occurs erratically at a few occurrences. Northwest-trending diorite dikes and felsic, feldspar- and quartz-feldspar porphyry dikes occur throughout the area, and are commonly associated with the gold occurrences. Quartz veins host minor [<1-2%] amounts of disseminated pyrite with accessory chlorite, chalcopyrite, galena, tourmaline, and hematite.

Grab samples taken by the author, from the majority of the gold occurrences in the area, assayed low grade and anomalous gold values with some erratic high values. Coarse visible gold was observed in a quartz vein at the Swamp or H.W. 642 Occurrence (Figure 10, Number 12), where chip samples taken from the vein by A. Glatz (prospector, Dryden) assayed between 0.02 and 30.01 ounces gold per ton (Glatz, A., Assessment Files, Resident Geologist's Office, Kenora). Two grab samples of the quartz vein at the Swamp Occurrence, taken by the author, assayed 0.07 ounce gold per ton and 0.90 ounce gold per ton, with 0.50 ounce silver per ton. A grab sample of a pyritic quartz vein taken by C. Blackburn (Resident Geologist, Kenora), from the Old Showing Occurrence (8), assayed 4.38 ounces gold per ton and 0.26 ounce silver per ton. Samples from quartz veins, taken by Lynx-Canada Ltd. at the Dumond Occurrece(1), assayed between 0.072 and 0.132 ounce gold per ton (Lynx-Canada Ltd., Assessment Files, Resident Geologist's Office, Kenora), and some wall rocks on the property are also known to carry significant amounts of gold. Chip samples from pyritic, rusty, rhyolite schist bands, taken by J. Satterly in the vicinity of the Dumond Prospect (1), assayed 0.16 ounce gold per ton across 2 ft., and 4.35 ounces gold per ton across 4 inches (Satterly, J., Assessment Files, Resident Geologist's Office, Kenora). Satterly (1960) described the rhyolite schist as occurring in lenticular bands ranging from 4 inches to 20 ft. wide and striking northwest. At the Dumond Prospect (1), a chip sample taken by the author from altered, sheared, mafic metavolcanic rocks containing coarse amphibole, assayed 0.25 ounce gold per ton across 0.6m. The only two occurrences hosted by felsic intrusions are the Pidgeon-Hyndman Township Prospect (Figure 10, Number 10), located within the Revell Batholith along its northeastern contact, and the New Showing Occurrence (6), located within a granodiorite sill-like intrusion east of the Revell Batholith. Gold assays of grab samples from both properties have given low values with a few, erratic, high assays. Teck Explorations Limited conducted drill programs on both properties, but only a few, anomalous, gold values were intersected (Assessment Files, Resident Geologist's Office, Kenora).

Ground magnetic and electromagnetic surveys, conducted by Teck Explorations over a large portion of Hyndman Township, indicate that a number of gold-bearing quartz veins, such as the Dumond (Figure 10, Number 1), No. 3 (7), and McCracken (4) veins are associated with electromagnetic conductors which extend along the flanks of linear, northwest-trending magnetic highs. Similar correlative geophysical signatures are indicated in the surveys conducted by Teck elsewhere in Hyndman Township, and may provide good prospecting targets.

Amphibolite grade mafic metavolcanic rocks, along the western contact of the Revell Batholith in Melgund Township, host gold-bearing quartz veins controlled by northeast-trending shear zones. Grab samples of quartz veins and wall rocks taken by the author from the majority of occurrences, only assayed low, anomalous gold values. Sulphide occurrences consisting of abundant (5%-15%) disseminated pyrrhotite and pyrite within massive, dark green to black, aphanitic, amphibolitized, mafic metavolcanic flows, hosting cherty interflow metasediments, are common in this area. A grab sample, taken by the author, from one of these occurrences (H.W. 486 Occurrence, Figure 10, Number 3) assayed 1000 ppb gold.

The majority of gold occurrences in Melgund Township are situated within intensely carbonatized, greenschist grade, mafic metavolcanic rocks. Gold-bearing quartz veins are controlled by northeast-trending shear and fracture zones associated with the major northeast-trending deformation zone extending across Melgund Township. Mineralized quartz veins are also hosted by felsic feldspar- and quartz-feldspar porphyry dikes which are commonly east- and northwest-trending and are concentrated in the southwest corner of Melgund Township. Quartz veins commonly host small amounts of disseminated pyrite with accessory galena and minor chalcopyrite.

The New Klondike Prospect (Figure 10, Number 5), located immediately southeast of Borups Corners on the Trans-Canada Highway, one of the more significant gold deposits in the area, occurs within the major northeast-trending shear zone described previously. The property was acquired in 1983 by Silver Lake Resources (now known as International Platinum Corporation), who conducted geological mapping, magnetometer and electromagnetic surveys, diamond drilling, and channel and bulk sampling. Samples taken from quartz veins in numerous trenches across the property assayed between 0.02 and 36.22 ounces gold per ton (Assessment Files, Resident Geologist's Office, Kenora). Rocks within the shear zone consist of intensely altered, sheared, and fissile mafic metavolcanics intruded by sheared and altered northeast-trending feldspar-porphyry dikes. The sheared metavolcanics contain 1-20% disseminated pyrite and host two sets of quartz veins. An early set of veins striking parallel to the shear zone are intensely boudinaged and contain variable amounts of pyrite, chalcopyrite, and tourmaline. A later set of tightly folded, ptygmatic, quartz veins strike northwest and crosscut the shear zone, which may indicate two periods of deformation. The first deformation event may be related to elongation parallel to the shear zone which boudinaged the quartz veins, while the second event may have been compressional and perpendicular to the shear zone, folding crosscutting quartz veins.

Gold occurrences in the southwest corner of Melgund Township have been the focus of exploration by Sulpetro Minerals Limited (now known as Novamin Resources) during the last few years. Alteration is most intense in this area and is characterized by carbonatization resulting in pale brown to gray mafic metavolcanic rocks which have also been variably silicified and pyritized. Intense fuchsite alteration occurs at the Pathfinder Prospect (Figure 10, Number 9) where mafic metavolcanics have been completely altered to coarse, flaky, fuchsite and carbonate. Wide, east- and northwest-trending felsic dikes host mineralized quartz veins at the majority of gold occurrences. Gold mineralization is typically anomalous to low grade, with erratic high values. Diamond drilling conducted at the Pathfinder Prospect (9) and other nearby occurrences, by Sulpetro Minerals Limited, intersected trace to low anomalous gold values with the exception of the Glatz-West Zone Occurrence (2) (Sulpetro Minerals Ltd., Assessment Files, Resident Geologist's Office, Kenora). A drill hole targeted on a wide felsic feldspar-porphyry dike, hosting numerous gold-bearing quartz veins, intersected 0.07 ounce gold per ton across 7.3m including a 0.39m section assaying 0.915 ounce gold per ton (The Northern Miner, p.3, December 30, 1985).

iv) Conclusions and Recommendations for Exploration

The above observations indicate that major northeast- and northwest-trending shear zones and narrower, parallel, shear zones control the majority of gold occurrences at Melgund, Revell, and Hyndman Townships. Intense and extensive carbonate alteration in Melgund Township appears to be related, in part, to deformation zones. Carbonate alteration around Tabor Lake was found to be dominantly Mg-carbonate, which is commonly proximal to gold mineralization (Colvine et al. 1984). Lithogeochemical studies to determine the type of carbonate in areas of extensive alteration (i.e. around Dinorwic Lake) may be useful in locating specific target areas for gold exploration. Areas where Fe- and Mg-carbonate alteration is more extensive may have more potential for hosting significant gold mineralization than areas where dolomite or calcite alteration is dominant.

Prospecting in Melgund Township should be directed at felsic dikes and northeast-trending shear zones hosting quartz veins within silicified, pyritic metavolcanic wall rocks.

Amphibolite grade rocks in Hyndman and Revell Townships host narrow gold-bearing quartz veins in northwest-trending shear zones, but exploration has shown that gold mineralization is commonly erratic. Prospecting should be directed along northwest-trending shear zones and the numerous quartz veins which occur throughout the area, and in the vicinity of the geophysical targets described previously. Another good prospecting target in Hyndman Township is the gold-bearing "pyritic, rhyolite schist bands" described by Satterly (1960). Numerous occurrences of felsic metavolcanic rocks are widely scattered throughout the township, and may have considerable gold potential if a wide zone with a long strike length can be found.

## V) KAWASHEGAMUK-MEGGISI LAKES

### i) Introduction

Exploration for gold in the area between Kawashegamuk and Meggisi Lakes (Figure 11) began around 1897, subsequent to discoveries made at Goldrock on Upper Manitou Lake. The area around Kawashegamuk Lake, optimistically dubbed the "New Klondike", partially lived up to expectations in that the Sakoose Mine (Figure 11, Number 15) produced 3669 ounces of gold intermittently between 1899 and 1947. Gold was discovered on the north shore of Tabor Lake in 1897, but underground development did not take place until 1931, when the Tabor Lake Mine (Figure 11, Number 18) produced 45.75 ounces of gold from 78.9 tons of ore milled, between 1931 and 1938 (Clark Gold Mines Ltd., Assessment Files, Resident Geologist's Office, Kenora). Numerous small gold occurrences were discovered near Church, Brown, and Lowery Lakes during 1898, 1899, and in the 1930's. Further southwest, the Pelham Prospect (Figure 11, Number 13), south of Washeibemaga Lake, was discovered in 1937, where exploration continued intermittently between 1938 and 1974. Esso Minerals and Noranda are the most recent companies to conduct exploration programs at the Pelham Prospect (13). Esso Minerals has also been exploring for gold between Katisha and Stormy Lakes since 1983, following the discovery of gold at Katisha Lake by Esso geologists, guided by a G.A.C. field trip guidebook (Blackburn et al. 1982). Other recent exploration programs have been conducted at Tabor Lake, Church Lake and Brown Lake.

The area was first mapped by J. E. Thompson in 1932, as part of the

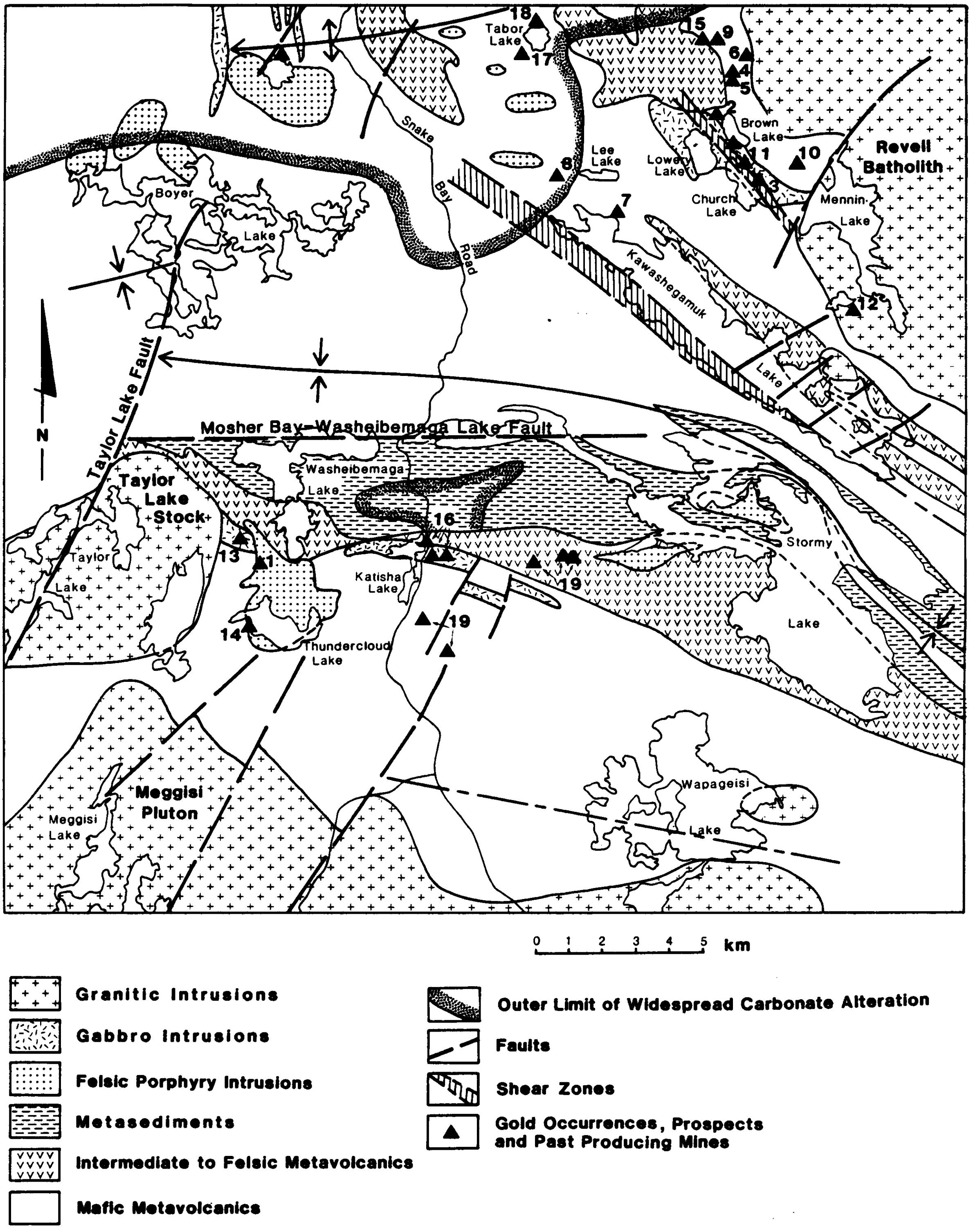



Figure 11: Geology at Kawashegamuk-Meggisi Lakes

Manitou-Stormy Lakes area (Thompson 1934), a reconnaissance survey extending from Lower Manitou Lake to Stormy Lake. C. E. Blackburn mapped the Boyer-Meggisi Lakes area during 1974 and 1975 (Blackburn 1981), followed by mapping, during 1980 and 1981, of the Kawashegamuk Lake area by D. U. Kresz and C. E. Blackburn (Kresz et al. 1982a, b; Kresz 1987). The Kawashegamuk-Meggisi Lakes area was included in an airborne electromagnetic and magnetic survey flown over the Manitou-Stormy Lakes area and published in 1980 (OGS 1980).

ii) General Geology

Four stratigraphic groups of metavolcanic and metasedimentary rocks have been established in the Kawashegamuk-Meggisi Lakes area: the Wapageisi Lake Group; the Stormy Lake Group; the Boyer Lake Group; and the Kawashegamuk Lake Group (Figure 2). The basal portion of the stratigraphic succession comprises the Wapageisi Lake Group, consisting of thick, north-northeast facing sequences of monotonous, tholeiitic, pillowed, mafic flows, transitional into an overlying calc-alkaline sequence of intermediate and felsic pyroclastics which Kresz (1984) suggested to be calc-alkaline, and interpreted to be a center of felsic volcanism. These are unconformably overlain by the north-facing Stormy Lake Group (Figures 2 and 11), consisting of coarse polymictic and volcanic-clast bearing conglomerates, and quartzo-feldspathic sandstones with thin intercalated felsic and mafic flows. This facies is transitional eastward into distal turbidites, that are intercalated with abundant iron formation at Bending Lake (Blackburn et al. 1982).

The Boyer Lake Group to the north is in contact with the Stormy Lake Group along the east-trending Mosher Bay-Washeibemaga Lake Fault (Figures 2 and 11). Numerous shear zones which occur south of the fault are also related to the fault. The Boyer Lake Group is a monotonous sequence of pillowed, mafic flows which are folded about the west-plunging Kamanatogama Syncline (Figures 2 and 11; Kresz et al. 1982a, b; Kresz 1987).

The Kawashegamuk Lake Group faces homoclinally southwest, and is situated on the northeast side of the Kamanatogama Syncline and folded about the Tabor Lake Anticline (Kresz 1987; Figures 2 and 11). Its contact with the overlying Boyer Lake Group is conformable but sheared, and marked by a transition from calc-alkaline to tholeiitic volcanism. The group consists of basal mafic metavolcanics, that are intruded by the Revell Batholith in the northeast, and an upper sequence of felsic to intermediate flows and pyroclastics with interbeds of clastic and chemical sedimentary rocks (Kresz et al. 1982a, b; Kresz 1987). Kresz (1984, 1987) identified a number of felsic volcanic vents and subvolcanic intrusions within the Kawashegamuk Lake Group.

The Boyer and Kawashegamuk Lake Groups are intruded by numerous gabbro sills and elliptical felsic intrusions which are abundant in the vicinity of Tabor Lake, where they are known to host gold-bearing quartz veins. Numerous small, felsic, porphyry and felsite intrusions are concentrated north of Boyer Lake and are identical to those at Tabor Lake. Test pits have been sunk on small, pyritic, and carbonatized quartz and quartz-feldspar porphry plugs at the northwest corner of Boyer Lake (Blackburn 1981), but it is not known if gold mineralization occurs at this location. Gabbro intrusions also host high grade, gold-bearing quartz veins at Church Lake. The intermediate to felsic sequence of pyroclastics and epiclastics at the top of the Wapageisi Lake Group, has been intruded by subvolcanic, felsic, quartz porphyry stocks, such as the Thundercloud Porphyry (Figures 2 and 11), which is interpreted to be the source of porphyritic felsic metavolcanics in the immediate area (Blackburn 1981). The top of the Wapageisi Lake Group is also intruded by a series of lamprophyric to peridotitic sills, that appear to be related to subaerial, alkalic, trachybasaltic flows. Composite gabbro sills also intrude the top of the Wapageisi Lake Group (Figure 11). The Taylor Lake Stock (Figure 11), at the west boundary of the area, is a composite quartz monzonite to granodiorite body with syenitic to monzonitic phases (Blackburn 1981).

Numerous, late, north-northeast-trending brittle faults (Figure 11) crosscut all rock types and structures. The most prominent of these is the Taylor Lake Fault (Figure 11), where a sinistral displacement of at least 2 km has been estimated (Blackburn 1981). A wide, intense, west-northwest-trending shear zone (Figure 11) extends west from Wapageisi Lake, and is expressed as a linear magnetic low on airborne magnetic maps (OGS 1980). A wide and intense northwest-trending shear zone extends along the entire length of Kawashegamuk Lake (Figure 11) and may be a thrust fault along which the Boyer Lake Group was overthrust onto the underlying Kawashegamuk Lake Group (Kresz 1987). Numerous, short, east-northeast-trending faults occur in the vicinity of Kawashegamuk Lake but have not offset major shear zones (Kresz 1987).

Variable iron carbonate alteration extends south from Tabor Lake to

Kawashegamuk Lake and west to Boyer Lake (Figure 11). Mafic metavolcanic rocks are intensely altered, and weather to a characteristic rusty red brown. Iron carbonate is ubiquitous in the majority of rocks exposed in this zone of alteration along the Snake Bay Road. Felsic metavolcanic and intrusive rocks are commonly carbonatized and sericitized especially in the vicinity of Kawashegamuk Lake. Metavolcanic rocks intruded by numerous felsic porphyry bodies near Tabor Lake are very intensely carbonatized.

iii) Characteristics of Gold Deposits

Gold deposits are clustered in two separate locations within the Kawashegamuk-Meggisi Lakes area (Figure 11). The Sakoose Mine (Figure 11, Number 15) and about fifteen known gold occurrences and prospects are situated north and northeast of Kawashegamuk Lake, within the dominantly calc-alkaline Kawashegamuk Lake Group. Numerous gold occurrences are located between Stormy and Taylor Lakes, within both the mafic metavolcanics, and gabbro sills of the basal part of the Wabageisi Lake Group, and the felsic and intermediate pyroclastic sequence at the top of the Group.

The Tabor Lake Mine (Figure 11, Number 18), situated on the north shore of Tabor Lake, consists of mafic and felsic metavolcanic flows and pyroclastics intruded by numerous, porphyritic, east-trending, felsic dikes and small irregular stocks. All of the rocks are intensely carbonatized and felsic rocks are commonly sericitized. Unaltered felsic intrusive rocks are gray-green, while altered rocks are pink to buff brown. Intense alteration and the abundance of felsic intrusions decreases east of Tabor Lake. Local structures consist of east-trending, subparallel shear zones, dipping steeply south, crosscut by at least two northwest-trending faults with apparent dextral displacement (Sulpetro Minerals Ltd., Assessment Files, Resident Geologist's Office, Kenora).

The Tabor Lake Mine consists of a 30 m wide, altered, quartz porphyry dike hosting four continuous quartz veins within two east-trending shear zones, and numerous crosscutting quartz stringers and veinlets controlled by a strong fracture cleavage. The veins vary in width from a few centimeters to 1.0 m. Barren veins occur within a shear zone which extends along the northern contact of the dike, but a subparallel shear within the dike hosts the gold-bearing veins. Silicification and slight enrichments of sodium and arsenic are restricted to the sheared wall rocks (Sulpetro Minerals Ltd., Assessment Files, Resident Geologist's Office, Kenora). Quartz veins are mineralized with sparse and disseminated pyrite, chalcopyrite, galena, sphalerite, and visible gold, while the wall rocks contain minor amounts of disseminated sulphides.

Past exploration and development has shown that gold mineralization occurs in erratic high grade sections. Assay data from diamond drill holes indicate narrow intersections of low anomalous gold to values as high as 26.95 ounces gold per ton across 3 ft. In 1937, ore reserve estimates were 49,000 tons with an average grade of 0.56 ounce gold per ton (Clark Gold Mines Ltd., Assessment Files, Resident Geologist's Office, Kenora). Diamond drilling and underground sampling conducted by Sulpetro Minerals Limited (formerly St. Joe Explorations Ltd., who acquired the ground in 1979) in 1980 and 1981, confirmed past results and indicated that erratic, high grade gold values alternate with anomalous gold values. In 1981, estimated ore reserves were 13,300 tons with an average grade of 0.34 ounce gold per ton (Sulpetro Minerals Ltd., Assessment Files, Resident Geologist's Office, Kenora). Sulpetro Minerals Limited discovered similar but smaller gold occurrences in the Tabor Lake area, consisting of sheared, carbonatized, and silicified, mafic metavolcanics and fracture zones within felsic dikes hosting gold-bearing quartz veins.

The Superstition Occurrence (Figure 11, Number 17), situated southwest of Tabor Lake, is reported to consist of silicified "rhyolite" intruded by blue quartz porphyry dikes and quartz veins. A grab sample from an east-trending structure on claim K.8575 was reported to have assayed 0.82 ounce gold per ton (Superstition Gold Mines, Assessment Files, Resident Geologist's Office, Kenora). The author did not locate the old trenches, but did observe intense iron carbonate alteration in the metavolcanic rocks. Past publications have erroneously reported that the Superstition Occurrence occurs northeast of Tabor Lake. Other gold occurrences in Melgund Township, north of Tabor Lake, share many similar characteristics to those at Tabor Lake.

The Sakoose Mine (Figure 11, Number 15), east of Tabor Lake, is in a much more complex geological environment. Rocks in the vicinity of the mine consist of massive and pillowed, mafic, metavolcanic flows, mafic and felsic tuffs, lapilli-tuffs, and tuff-breccias, as well as abundant tuffaceous sediments, graywacke, slate, chert, and magnetite iron formation. These rocks have been intruded by crosscutting felsic, feldspar- and quartz-feldspar porphyry dikes of variable colors and textures, mafic dikes, and the Revell Batholith, situated 600 m east of the mine shafts. The Sakoose Mine is situated on the greenschist grade side of the greenschist-amphibolite isograd, which defines the contact aureole around the Revell Batholith. Structural evidence suggests that the rocks have been folded, but the complexity of the deformation requires detailed mapping to better understand the structural relationships.

Three shafts have been sunk on a 2 m wide, intensely fractured, blue-gray to black quartz vein, containing pyrite, chalcopyrite, pyrrhotite, sphalerite, galena, and gold. The northeast-trending vein is hosted by felsic metavolcanics, and can be traced on surface for a strike length of 200 m until it takes an abrupt bend, perpendicular to its dominant northeast trend, and then continues in a northeast direction. The vein appears to be controlled by intersecting fractures, but it has been suggested that it may be drag folded (J. Redden, Consulting Geologist, Wabigoon, personal communication). Although wall rock alteration is not extensive, it commonly consists of iron carbonate, sericite, chlorite, minor fuchsite and disseminated pyrite. Other dark blue-gray and white quartz veins have been found on the property, but are not as well mineralized as the main vein. White quartz veins contain iron carbonate and some sparse disseminated pyrite, but do not host other sulphide minerals which are associated with the gold mineralization.

Other occurrences in the vicinity of the Sakoose Mine, are the Maw (Figure 11, Number 9) and H.W. 456 (6) Occurrences consisting of east-trending shear zones in mafic metavolcanics hosting sparsely mineralized quartz veins.

Numerous gold occurrences and prospects are concentrated in the vicinity of Lowery, Brown, and Church Lakes. The Northwestern Ontario Exploration Company sank shafts and test pits on quartz veins encompassed by former mining locations H.W. 417 (Figure 11, Number 4), H.W. 418(5), and H.W. 419 (2), north of Brown Lake, but no gold values were reported (Bow 1899). The Brockman Prospect (Figure 11, Number 2), on former mining location H.W. 419, was one of these properties, where a shaft and adit were sunk on quartz veins on the immediate northwest shore of Brown Lake. The veins on these properties are commonly controlled by east- and west-northwest-trending shear and fracture zones in mafic metavolcanic rocks, a gabbro intrusion which extends from Church Lake, and porphyritic felsic dikes. Alteration is minimal, and consists of intense iron carbonate alteration, sericitization, and pyritization of the immediate wall rocks. Quartz veins are generally white to gray, and have considerable strike lengths, but pinch and swell along their strikes and dips. The veins host disseminated chalcopyrite, pyrite, sphalerite, pyrrhotite, galena, and visible gold. However, gold values are commonly erratic, ranging from trace to as high as 12.66 ounces gold per ton (Kresz 1987).

The Church Lake (Figure 11, Number 3) and New Church Lake (11) Occurrences, on the east shore of Church Lake, consist of high grade, gold-bearing quartz veins controlled by a northwest-trending shear zone in a magnetite-rich (up to 25%), coarse-grained gabbro intruded by felsic dikes. The gabbro extends to the northwest along the east shore of Church Lake, the west shore of Brown Lake, and encompasses Lowery Lake (Figure 11). The shear zone is approximately 1.6 km in strike length, and extends northwest from Church Lake along the west shore of Brown Lake (Figure 11). It is a secondary shear band developed subparallel to the shear zone at Kawashegamuk Lake. The sheared gabbro is chloritic, soft and fissile, mylonitized, carbonatized, and contains up to 15% disseminated pyrite. The quartz veins are intensely boudinaged and drag-folded along their strike and dip, and host disseminated pyrite, galena, and chalcopyrite. The vein at the Church Lake Occurrence (3) is well-known for hosting coarse visible gold. About 5.5 tons of ore was extracted from the occurrence, and milled at the Sakoose Mine, by Mr. O. H. Bronger in 1942 (Tower 1943). Recent drilling at the New Church Lake Occurrence (11) intersected gold-bearing quartz veins and wide alteration zones within the gabbro. The zones are carbonatized, silicified, and bleached, containing up to 15% disseminated pyrite with pyrrhotite and chalcopyrite. The zones host anamalous gold values across wide intersections, such as 0.05 ounce gold per ton across 5.0 m (Kozowy, A., Assessment Files, Resident Geologist's Office, Kenora).

The McLean Syndicate (Figure 11, Number 10), Lee Lake (8), and Long Lake-McCracken (7) Occurrences consist of east-trending shear zones in mafic metavolcanic rocks and felsic dikes. The McLean Syndicate Occurrence (10), located east of Church Lake, was the site of extensive trenching and sampling, but only assayed trace amounts of gold. Two "bulk samples" from the trenches were reported to assay 0.17 and 0.09 ounce gold per ton (McLean Syndicate, Assessment Files, Resident Geologist's Office, Kenora). The occurrence consists of "large lenticular bodies and stringers of dark blue-gray quartz" controlled by an east-trending shear zone in carbonatized metavolcanic rocks (McLean Syndicate, Assessment Files, Resident Geologist's Office, Kenora). The shear zone intersects a northeast-trending fault, which has sinistrally offset the Revell Batholith-metavolcanic contact.

Wallrocks and quartz veins contain minor amounts of disseminated pyrite.

The Long Lake-McCracken Occurrence (Figure 11, Number 8), also known as the Long Lake Mine or Santa Marie claims, consists of two shallow shafts situated on former mining location H.W. 575 west of Lee Lake. Gold occurs within five quartz veins hosting pyrite, galena, sphalerite, and chalcopyrite. Quartz veins occur along contacts between felsic dikes and intensely carbonatized metavolcanics which have been previously described as dolomitic limestone (Long Lake Mine, Assessment Files, Resident Geologist's Office, Kenora). Visible gold was observed in the No.1 vein and a grab sample from the vein assayed 0.27 ounce gold per ton (Long Lake Mine, Assessment Files, Resident Geologist's Office, Kenora). Chip samples across two other veins assayed 0.04 ounce gold per ton across 94 inches and 95 inches (McCracken Property, Assessment Files, Resident Geologist's Office, Kenora). Old test pits were discovered on the southeast shore of Lee Lake (Kresz et al. 1982a, b; Kresz 1987), which contained quartz-carbonate veins in a sericitized, carbonatized, feldspar-porphyry. A grab sample of the quartz, taken by D. Kresz (1987), containing disseminated pyrite and galena, assayed 0.04 ounce gold per ton.

The Lee Lake Occurrence (Figure 11, Number 7) situated on the north shore of Kawashegamuk Lake (also known as Long Lake), consists of a gold-bearing quartz vein at the contact between a quartz porphyry dike and metavolcanic rocks (Lee Lake Occurrence, Mineral Deposit Files, Resident Geologist's Office, Kenora). There has been confusion in previous literature between the Lee Lake and Long Lake Occurrences due to the fact that the Lee Lake Occurrence is located at Kawashegamuk or Long Lake, and the Long Lake

Occurrence is located at Lee Lake.

The Oldberg Lake Occurrence (Figure 11, Number 12), on the southeast shore of Oldberg Lake west of Mennin Lake, consists of a shaft sunk on molybdenite-bearing quartz veins. Only low anomalous gold values have been obtained from this occurrence (Dome Exploration Ltd., Assessment Files, Resident Geologist's Office, Kenora).

The other gold deposits situated within the Kawashegamuk-Meggisi Lakes area are located between Stormy and Taylor Lakes, within the calc-alkaline, felsic and intermediate pyroclastic sequence at the top of the Wapageisi Lake Group, commonly intruded by gabbroic sills (Figure 11). One of the most promising properties in this area is the Pelham Prospect (Figure 11, Number 13), south of Washeibemaga Lake. Blackburn (1981) described the geology of the property as a complex succession of mafic flows and pyroclastics alternating with lenses of felsic flows, ash flows, coarse pyroclastic rocks and very minor epiclastics. Recent observations indicate that the coarse mafic flows may be part of a gabbro sill (P. Moreton, geologist, Esso Minerals Ltd., personal communication, 1986). These rocks are wedged between a syenodiorite phase of the Taylor Lake Stock to the west, and the Thundercloud Porphyry to the east. The porphyry is interpreted to be a subvolcanic feeder of adjacent, overlying, felsic ash flow and pyroclastic material (Blackburn 1981). The coarse-grained, magnetite-rich (up to 25%) gabbro hosts wide, pervasively silicified zones containing variable amounts (up to 5%) of disseminated pyrite, pyrrhotite, chalcopyrite, and gold. Alteration consists of biotization, epidotization, and minor carbonatization. Epidote is associated with gold-bearing zones and commonly occurs within numerous veinlets. The gold-bearing zones trend in northeast, northwest, and east-west directions, are weakly to moderately foliated and consist of complex fracture systems. Many good gold values have been obtained from chip samples taken across several of the zones such as, 0.125 ounce gold per ton across 8 ft., 0.43 ounce gold per ton across 3.5 ft. and 0.46 ounce gold per ton across 14 ft., with grab samples assaying over 5.0 ounces gold per ton (Osisko Lake Mines Ltd., Assessment Files, Resident Geologist's Office, Kenora).

The Armstrong Occurrence (Figure 11, Number 1), located southeast of the Pelham, is situated at the contact between metavolcanic rocks and the Thundercloud Porphyry. The occurrence has been described as a northeast-trending, fractured, silicified, pyritic zone within a "brecciated conglomerate" (Fornieri Option, Assessment Files, Resident Geologist's Office, Kenora). P. Neilson (geologist, Noranda Ltd., personal communication, 1986) described the host rock as a heterolithic breccia. Chip samples taken across the zone gave assay values ranging between 0.08 ounce gold per ton across 3 ft., and 0.32 ounce gold per ton across 3.2 ft. (Fornieri Option, Assessment Files, Resident Geologist's Office, Kenora).

The Renders Occurrence (Figure 11, Number 14), on the west shore of Thundercloud Lake, also occurs at the contact of the Thundercloud Porphyry. Samples taken from trenches on the property gave consistent anomalous gold and silver values as high as 5743 ppb gold and 31.5 ppm silver (Renders, P., Assessment Files, Resident Geologist's Office, Kenora).

The Snake Bay Prospect (Figure 11, Number 16), near Katisha Lake, consists of numerous gold showings discovered by Esso Minerals geologists in 1983. The majority of the showings consist of 1 m to 15 m wide intensely carbonatized and silicified, north- and southeast-trending shear zones hosting abundant pyrite and arsenopyrite, with accompanying sericitization characterized by green mica. Most of the showings are hosted by a composite, magnetite-rich gabbroic sill. The Main Katisha Zone occurs within sheared, brecciated, and silicified felsic tuff, immediately south of the unconformity between the Stormy Lake and Wapageisi Lake Groups. Diamond drilling at the Twilight Zone, situated within the gabbro sill, has indicated that gold occurs within numerous narrow intersections assaying as high as 0.14 ounce gold per ton across 0.85 m, 0.26 ounce gold per ton across 0.15 m, and 0.5 ounce gold per ton across 0.54 m (George Cross Newsletter, September 13, 1986; Esso Minerals, Assessment Files, Resident Geologist's Office, Kenora).

Voyager Explorations (Figure 11, Number 19) conducted gold exploration near Gawiewiagwa and Kawijekiwa Lakes, immediately west of Stormy Lake, within the Wapageisi Lake Group. The company's exploration model (Voyager Explorations Ltd., Assessment Files, Resident Geologist's Office, Kenora) was to search for deposits similar to those at Timmins, considered to be situated on the flanks of felsic volcanic domes. Numerous northwest-trending, silicified, pyritic, shear zones within felsic metavolcanic rocks were discovered, but no gold assays were obtained. Further sampling of trenches, in 1985, resulted in a gold assay of 0.06 ounce gold per ton from silicified, carbonatized, mafic metavolcanics hosting pyrite, chalcopyrite, and minor arsenopyrite. Sampling also indicated that wall rocks contained anomalous gold values, but nearby quartz-carbonate veins were barren (Voyager Explorations Ltd., Assessment Files, Resident Geologist's Office, Kenora).

A wide, west-northwest-trending shear zone extending west from Wapageisi Lake (Figure 11), was the focus of base metal exploration by Derry, Michener, and Booth in 1970. Numerous zones of pyrite, pyrrhotite, and chalcopyrite mineralization within sheared silicified, amphibolitized, mafic metavolcanics, were trenched and drilled along the south shore of Wapageisi Lake (Assessment Files, Resident Geologist's Office, Kenora).

iv) Conclusions and Recommendations for Exploration

As stated previously, gold deposits within the Kawashegamuk-Meggisi Lakes area are commonly confined within the calc-alkaline felsic pyroclastics of the Wapageisi Lake Group and the calc-alkaline Kawashegamuk Lake Group (Figures 2 and 11). Both calc-alkaline sequences host felsic subvolcanic intrusions and pyroclastic rocks which are characteristic of felsic volcanic centers (Kresz 1984, 1987). No gold has been found in the dominantly mafic, tholeiitic, Boyer Lake Group and the lower part of the Wapageisi Lake Group.

The gold deposits in the Kawashegamuk Lake Group consist of discrete gold-bearing quartz veins controlled by east, northeast, and northwest-trending shear and fracture zones in felsic intrusive and metavolcanic rocks, and in iron-rich gabbros and mafic metavolcanics. The competent felsic rocks were fractured during structural disruptions, which provided numerous conduits for the circulation of gold-bearing hydrothermal solutions. More ductile iron-rich mafic rocks were sheared, providing open fissures where abundant magnetite served as a chemical trap for gold precipitation during sulphidation of magnetite to pyrite. Shearing and fracturing also occurred along numerous contacts between intercalated felsic and mafic rocks. Shear and fracture zones are probably related to the major, northwest-trending shear zone at Kawashegamuk Lake.

Many of the gold-bearing quartz veins hosted by shear zones, have been boudinaged along their strikes and dips, which indicates that the shear zones were reactivated after gold deposition, with components of strike- and dip-slip.

The majority of gold deposits occur in close proximity to the greenschist-amphibolite isograd, which defines the contact aureole of the Revell Batholith. Alteration of the wall rocks at these deposits is intense, but confined to the controlling shear or fracture zones. The only area of extensive pervasive alteration, within the Kawashegamuk Lake Group, is at Tabor Lake.

The area north of Kawashegamuk Lake is pockmarked with shafts, adits, and test pits, but few have been accurately located or recently sampled. Literature searches may assist in acquiring more information about these properties which may prove to be interesting prospecting targets.

The gold deposits within the calc-alkaline, intermediate to felsic metavolcanics of the Wapageisi Lake Group (Figures 2 and 11), are spatially and genetically related to a major tectonic zone that was the focus for shear zone development, and intrusive and hydrothermal activity. The stratigraphic succession suggests that there was an evolution from quiescent, deep-water, mafic, tholeiitic, submarine flows, with little or no clastic sedimentation, to more violent, felsic, calc-alkaline pyroclastic volcanism, some of which was subaerial. The clastic metasediments, associated with the felsic volcanic rocks, are of proximal, alluvial fan to fluvial facies, which grades both laterally and upward into distal submarine fan facies. The thick, mafic flow sequences probably formed during rifting of an early, undetermined basement (Blackburn 1980). Later calc-alkaline volcanism has been suggested to result from subduction (Blackburn 1980). Proximal sedimentation developed on the flank of rising, felsic, volcanic arcs, and distal sedimentation developed in adjacent troughs possibly above subduction zones (Blackburn 1980; Blackburn et al. 1985). According to this model, the Mosher Bay-Washeibemaga Lake Fault may represent a reactivated, syn-volcanic basin-margin fault.

At the Snake Bay Prospect (Figure 11, Number 16), shear zones, developed after calc-alkaline, felsic volcanism, were associated with widespread carbonate veining and alteration which was synchronous with pervasive widespread carbonate alteration in the overlying Stormy Lake Group (Figures 2 and 11), (Moreton and Gerber 1985). Moreton and Gerber (1985) suggested that marginally alkaline, composite, mafic to ultramafic sills and dikes were intruded into the shear zones before or during carbonate alteration, and may be related to subaerial, alkalic, trachybasaltic flows and pyroclastics which were extruded as part of the Stormy Lake Group. The alkalic metavolcanics were erupted approximately 600 m stratigraphically above the active shear zones (Moreton and Gerber 1985). Later silicification accompanied by arsenopyrite, pyrite, and gold, overprinted the carbonate-bearing zones.

At the Pelham Prospect (Figure 11, Number 13), rocks adjacent to syenodioritic intrusive rocks of the Taylor Lake Stock and the subvolcanic Thundercloud Porphyry, were metamorphosed and strongly altered. Silica, epidote, and minor carbonate were remobilized to form epidote vein systems and wide, biotized, silicified alteration zones. Blackburn (1981) suggested that the gold and sulphide mineralization, and associated quartz veining and silicification was associated with fault and shear zones related to the intrusion of the Thundercloud Porphyry, which may have provided hydrothermal mineralizing fluids. This possibility is supported by Armstrong (Figure 11, Number 1) and Renders (14) occurrences also being located at the contact with the porphyry. However, the porphyritic texture of the Thundercloud Porphyry, which supports a hypabyssal emplacement, may also indicate that the magmas were relatively anhydrous (Hyndman 1981).

The transition upward from lower mafic sequences into overlying calc-alkaline sequences has been suggested by a number of workers (Blackburn and Hailstone 1983; Blackburn and Janes 1983; Parker and Blackburn 1986; Melling et al. in preparation) to be the locus for gold mineralization in many volcanic sequences in the Kenora-Fort Frances-Dryden region, including the Kawashegamuk-Meggisi Lakes area. A number of other geological features and relationships in the area are similar to those found in major gold camps. Hodgson and MacGeehan (1982) stated that in all major gold camps there is a spatial relationship between gold mineralization and significant volumes of turbiditic metasediments with lesser amounts of iron formation. They also noted that gold is localized along contact zones between adjacent volcanic and sedimentary terrains. The lateral facies change within the metasediments, from areas of active volcanism to flanking zones of dominantly sedimentary accumulation has been documented in the vicinity of the Campbell and Dickenson Mines at Red Lake (Hodgson and MacGeehan 1981, 1982). The relationship of gold with tectonic and stratigraphic environments associated with porphyritic, subvolcanic intrusions, alkalic intrusions, calc-alkaline, and alkalic metavolcanic rocks, alluvial-fluvial metasediments consisting of distinctive polymictic conglomerates, and turbiditic metasediments, has been documented in the Timmins and Kirkland Lake gold camps (Jensen 1981; Pyke 1981; Karvinen 1982; Hodgson 1986). The pervasive, widespread iron carbonate alteration which appears to predate gold depostion is also characteristic of many gold camps (Colvine et al. 1984). It is clear that the stratigraphic and tectonic setting of gold mineralization within the Wapageisi Lake Group is characteristic of a major gold-bearing environment that deserves much more intensive prospecting and exploration.

Prospecting should be concentrated in the intermediate to felsic metavolcanics at the top of the Wapageisi Lake Group, and along their contacts with the overlying Stormy Lake Group and underlying mafic metavolcanics. Prospecting should also be focussed on mafic and ultramafic intrusions and in the vicinity of subvolcanic, felsic intrusions. Intense carbonate alteration silicification, and abundant sulphide mineralization in shear zones are good indicators of gold-bearing zones. Sericitization, biotization, and the presence of green mica are also associated with gold mineralization.

## VI) UPPER MANITOU LAKE

### i) Introduction

During the late 1800's the community of Goldrock was established at the northwest end of Trafalgar Bay on Upper Manitou Lake (Figure 12). As previously stated, 62% of gold production (12,113.21 ounces of gold) in the Dryden-Ignace area came from mines at Goldrock. The three principal producers were the Laurentian (Figure 12, Number 16), Big Master (3), and Elora Mines (4). The most intensive exploration and production was during the interval 1895-1912, but mines were reevaluated and reactivated during the 1930's and 1940's. Base metal exploration was conducted throughout the area in the 1960's and 1970's. During the 1980's, the Manitou Lakes were completely staked, and exploration programs were conducted on a few large claim blocks by Teck Explorations Limited, St. Joe Canada Incorporated, Cochrane Oil and Gas Limited, Jalna Resources Limited, and Falconbridge

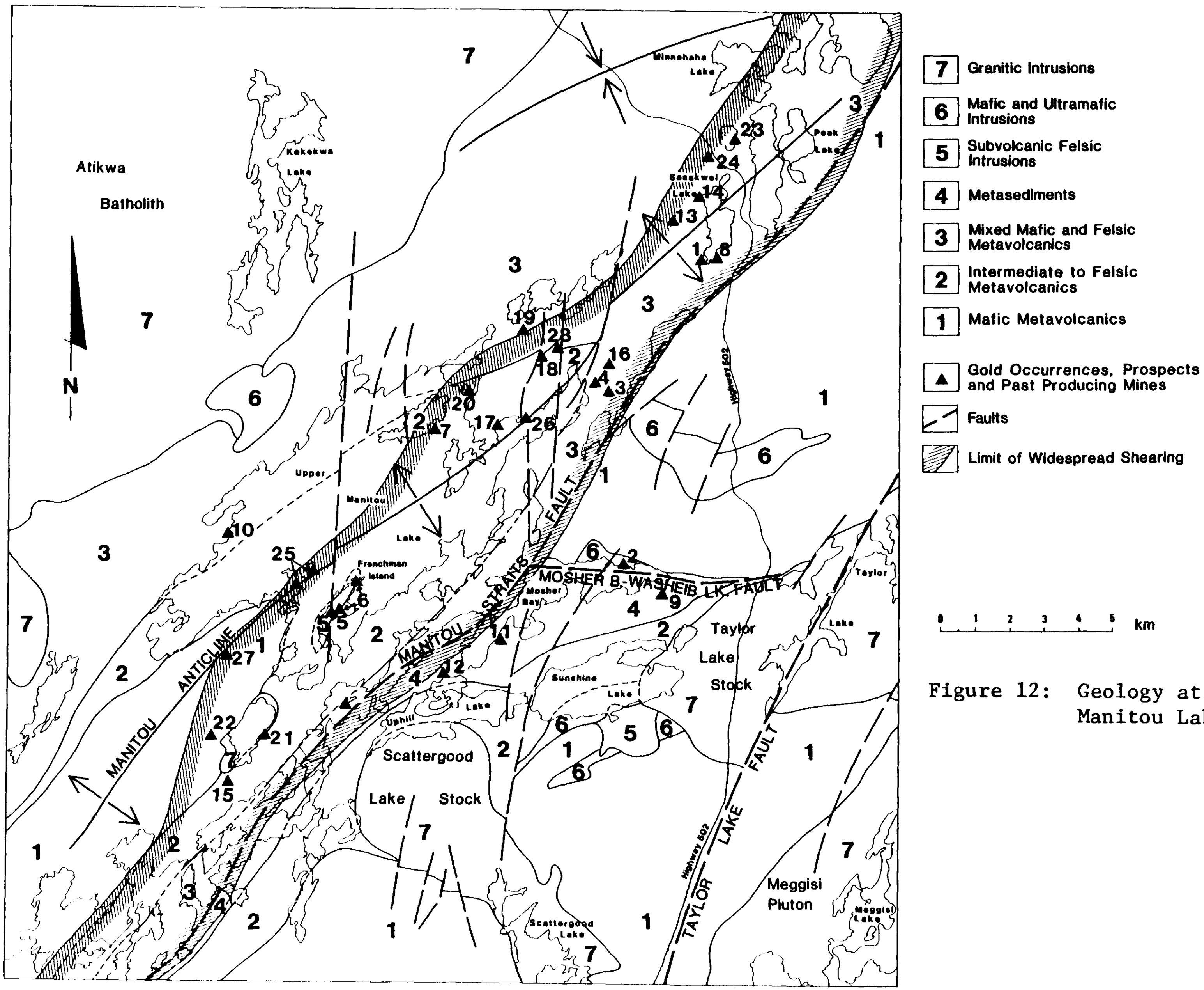



Figure 12: Geology at Upper Manitou Lake

Limited. A large number of claims, including complete claim blocks, were allowed to lapse during 1986, opening the area once again for prospecting and exploration by other interested companies.

The first geological survey in the Dryden-Ignace area was conducted in the vicinity of the Manitou Lakes between 1896 and 1898 as part of a regional reconnaissance by W. McInnes (1902) for the Geological Survey of Canada. Various reconnaissance projects to document gold deposits in the vicinity of the Manitou Lakes were conducted by A. P. Coleman (1895, 1897, 1898), J. A. Bow (1898, 1900), W. E. H. Carter (1901, 1902, 1904, 1905), W. G. Miller (1903), E. T. Corkill (1906, 1907, 1908, 1909, 1910), Parsons (1911, 1912), and Bruce (1925). In 1932, J. E. Thomson (1934) mapped the Manitou-Stormy Lakes area, and in 1933, mapped the Straw-Manitou Lakes area (Thomson 1935). Thomson returned to Upper Manitou Lake in 1937 to study the gold deposits at Goldrock (Thomson 1942). Between 1972 and 1975, detailed mapping by C.E. Blackburn of the Lower Manitou-Uphill Lakes (Blackburn 1976), Upper Manitou Lake (Blackburn 1979), and Boyer-Meggisi Lakes (Blackburn 1981) led to a synoptic report on the stratigraphy and petrochemistry of the Manitou Lakes area (Blackburn 1982b). An airborne electromagnetic and magnetic survey was flown over the Upper Manitou Lake area in the winter of 1979-1980 (OGS 1980).

ii) General Geology

The geological succession southeast of the northeast-trending Manitou Straits Fault is substantially different from that to the northwest. Southeast of the fault, at Uphill and Sunshine Lakes, the basal mafic flow sequence of the Wapageisi Lake Group faces homoclinally northwest, and is overlain by calc-alkaline intermediate pyroclastic rocks of the Manitou Group (Figure 2). The intermediate metavolcanics are overlain by polymictic conglomerates, sandstone, argillite, and minor iron formation (Figures 2 and 12), which may represent an alluvial fan and braided fluvial system followed by later submarine fan development (Teal 1979). The Manitou Group is intruded by subvolcanic, felsic porphyries, interpreted to be sources of felsic flows in the immediate area, and by marginally alkaline, mafic to ultramafic sills related to alkalic and trachybasaltic flows and pyroclastics at Sunshine Lake. Dominantly granodiorite to quartz-monzonite stocks, such as the Taylor Lake and Scattergood Lake Stocks, also intrude the Manitou Group (Figures 2 and 12). The geology of the Manitou Group is very similar to the Stormy Lake Group, to the east of the Taylor Lake Stock.

The metavolcanics at Upper Manitou Lake, west and northwest of the Manitou Straits Fault, comprise three sequences: a lower tholeiitic, mafic flow sequence (Blanchard Lake Group), a middle sequence of predominantly calc-alkaline, intermediate pyroclastics (Upper Manitou Lake Group), and an upper mixed, calc-alkaline to tholeiitic sequence of mafic flows and intermediate pyroclastics (Pincher Lake Group) (Figure 2). All three sequences are folded about the Manitou Anticline (Figures 2 and 12). The volcanic sequences are intruded by the Atikwa Batholith in the northwest, and by numerous northeast-trending felsic dikes, sills, and small elliptical, felsic plugs and stocks (Figure 12). Volcanic and intrusive rocks are metamorphosed to amphibolite facies up to 3.0 km from the contact zone of the Atikwa Batholith.

It is probable that the Pincher Lake Group is identical to the Lower Wabigoon Volcanics which extend southeast from Wabigoon Lake, and are folded about a northeast-trending syncline at Minnehaha Lake (Figure 2). The contact between the Pincher Lake Group, and the Manitou and Boyer Lake Groups in the east is defined by the Manitou Straits Fault (Figures 2 and 12).

An important part of the stratigraphy is a subvolcanic intrusion at Frenchman Island (Figure 12), which is considered to be an integral part of the Upper Manitou Lake Group. A microgranodiorite to micro quartz-diorite porphyry underlies most of Frenchman Island, and was probably emplaced in a feeder or vent from which a large portion of the pyroclastic material at Upper Manitou Lake was ejected (Blackburn 1979). The tectonic and stratigraphic evolution of the Upper Manitou Lake area is related to the same events described in the Kawashegamuk-Meggisi Lakes section of this report. A more comprehensive and detailed description is given by Blackburn (1982b).

Three major structures in the area are the Manitou Anticline, the Manitou Straits Fault, and the Mosher Bay-Washeibemaga Lake Fault. Blackburn (1979) recognized the presence of the Manitou Anticline centered on Upper Manitou Lake (Figure 12). Structural evidence suggests that the fold is an overturned anticline with limbs and axial plane dipping southeastward (Blackburn 1979). The fold axial plane trace strikes northeast, and the fold axis may plunge to the northeast or east at a moderate angle. Tight folding about the anticline is probably due to the progressive emplacement of the Atikwa Batholith (Blackburn 1982b).

The Manitou Straits Fault strikes northeast from Lower Manitou Lake and extends along the southeast shore of the Manitou Straits and along the west shore of Mosher Bay (Figure 12). The fault continues into the Dinorwic Lake area and has been interpreted by Berger et al. (1987c) and Berger (1987) to intersect the Wabigoon Fault at Sandybeach Lake. The fault is defined by a 30 m wide zone of highly schistose, fissile rocks, and the majority of metavolcanic rocks northwest of the fault have been variably sheared. Shear zones separated by less sheared rock parallel the fault, and intense shearing is commonly accompanied by carbonatization. The Mosher Bay-Washeibemaga Lake Fault terminates at the Manitou Straits Fault, and strikes east-west along the contact between clastic sequences of the Manitou Group and the overlying mafic metavolcanics of the Boyer Lake Group to the north (Figures 2 and 12). The Boyer Lake Group has been interpreted to have been thrust over the underlying clastic sequences (Blackburn 1981). Numerous north- and southeast-trending crossfaults, considered to have developed later than the shear zones, occur northwest of the Manitou Straits Fault and are part of a regional fracture pattern (Figure 12). The faults are brittle and are not accompanied by shearing (Blackburn 1979). Late, north-northeast trending faults, including the Taylor Lake Fault, crosscut all rock types and structures southeast of the Manitou Straits Fault. The horizontal component of displacement along many of these faults is sinistral.

iii) Characteristics of Gold Deposits

There are over 50 gold deposits at Upper Manitou Lake and over half of them, which includes the Laurentian (Figure 12, Number 16), Big Master (3), and Elora Mines (4), are situated within the upper mixed, calc-alkaline to tholeiitic Pincher Lake Group near its contact with the underlying Upper Manitou Lake Group. Gold deposits within the Blanchard Lake and Upper Manitou Lake Groups are also spatially related to the contacts between the stratigraphic groups (Figures 2 and 12). All the gold deposits are located on the northwest side of the Manitou Straits Fault, with the exception of four deposits at Mosher Bay and Rush Bay (Figure 12) and some recently discovered gold occurrences north of the Mountdew Lake Gabbro in the Boyer Lake Volcanics. The majority of the deposits are controlled by northeast-trending shear and fracture zones generally dipping to the southeast and related to the Manitou Straits Fault. Gold-bearing quartz veins at Goldrock are hosted by sheared and fractured felsic sills and dikes, metavolcanic rocks, and along the dike/sill-metavolcanic contacts. Thomson (1942) interpreted the felsic host rocks to be sills, whereas Blackburn (1981) interpreted them to be rhyolitic flows. Their fine-grained textures and their consistent, linear strike lengths and widths, combined with their similarity to other felsic dikes and sills in the general area, suggests to this writer that they are intrusive. The Jubilee vein at the Laurentian (Figure 12, Number 16) and Elora Mines (4), and the veins at the Big Master Mine (3) are spatially related to feldspar-phyric mafic flows, as is the Gold Rock Mine (10), at the southwest corner of Upper Manitou Lake (Blackburn 1979, 1981) though the significance of this is not understood, and may be more apparent than real. Wallrock alteration at Goldrock, and in the general area, almost everywhere consists of sericitization, chloritization, and variable iron carbonatization (iron carbonate and calcium carbonate) accompanied by pyritization (1-10%), bleaching, and fuchsite.

According to Carter (1902, 1905), Parsons (1911), and Thomson (1942), the ore zones at the Laurentian (Figure 12, Number 16), Big Master (3), and Elora Mines (4) consist of numerous white-gray quartz veins, stringers, and quartz lenses hosting visible gold and minor amounts of disseminated pyrite. Pyrite occurs along the edges of the quartz veins and in the wall rocks, but the wall rocks have not been reported to carry significant amounts of gold. Many of the larger veins pinch and swell along strike with widths ranging from a few centimeters to 4.0 m. The veins or ore zones have considerable continuous strike lengths such as the No. 3 at the Big Master Mine (3) with a strike length in excess of 1.5 km (Thomson 1942). Alteration at Goldrock is variable and confined to the immediate sheared wall rocks. Carter (1902) observed that alteration extended for 1.5 m to 1.8 m on either side of the quartz veins at the Big Master Mine (3). The present author noted that most of the felsic sills are green-gray on fresh surfaces but weather buff-brown to pink due to carbonate alteration. The wall rocks are commonly described as yellow and light-colored carbonate-sericite schists (Carter 1902) and chloritic, dark-coloured or black schists (Thomson 1942). Thomson (1942) observed graphitic schists at the Elora Mine (4): the present author interpreted broken fragments of graphitic and pyritic shale on the mine dump to be interflow metasediments within the mafic metavolcanic flows. Broken pieces of felsic wall rocks also observed by the present author in the mine dumps are commonly sheared and brecciated. At the Big Master Mine (3), the felsic host rock contains small, round, clear, quartz eyes embedded in an aphanitic groundmass which may represent a cataclastic texture.

The McEdna (Figure 12, Number 18), Victory (28) and Oxford (19) Prospects are situated within the Pincher Lake Group west of Goldrock. All three prospects consist of shafts and test pits sunk on numerous, white, boudinaged quartz stringers, veinlets and veins controlled by northeast-trending shear zones dipping southeast. Quartz veins contain variable (1-2%) amounts of disseminated pyrite, chalcopyrite, carbonate, and tourmaline. Metavolcanic wall rocks are sericitized, chloritized, hematized, and variably carbonatized, and contain variable [<1-10%] amounts of pyrite and magnetite. The host rocks at the McEdna Prospect (18) contain narrow (10 cm) zones containing up to 75% pyrite. Grab samples from these sulphide-rich "pods", taken by St. Joe Canada Inc., assayed 0.28 and 1.7 ounces gold per ton (Assessment Files, Resident Geologist's Office, Kenora). The Victory Prospect (Figure 12, Number 28) is situated northeast of the McEdna Prospect (18), which was considered to be on the southwest extension of the Victory vein. The Victory Prospect (28) consists of a sheared quartz porphyry dike hosting two narrow quartz veins (Thomson 1942), which have been reported to have produced some "brilliant specimens" of gold (Coleman 1897).

Gold deposits northeast of Goldrock are situated near Peak, Sasakwei, and Minnehaha Lakes. Numerous pits and shafts are located near Sasakwei Lake (formerly Summit Lake) but have not been well documented. Asamera Inc. located and sampled the workings at the A. L. 208 (Figure 12, Number 1), H.W. 326 (13), H.W. 773 (14) and G. 19 or Imperial (8) Occurrences. The majority were reported to consist of quartz veins within silicified and carbonatized zones in felsic dikes and metavolcanic rocks. Disseminated pyrite and arsenopyrite were noted in the veins and wall rocks, which assayed anomalous gold values (Asamera Inc., Assessment Files, Resident Geologist's Office, Kenora). The Sovereign Prospect (Figure 12, Number 23), located between Peak and Sasakwei Lakes, consists of five showings. Most of the showings consist of northeast-trending shear zones in chloritic, carbonatized, mafic metavolcanics, crosscut by fracture-hosted north-northwest-trending quartz veins. The high grade, gold-bearing vein at the main Sovereign Showing hosts pyrite and chalcopyrite, and is 0.5 m to 1.0 m wide, striking 350° across an east-trending shear zone. The structural relationships at Peak Lake differ from the dominant northeast trend of quartz veins and shear zones at Goldrock, but are similar to gold deposits at Dinorwic Lake where northeast-trending shear zones are crosscut by fracture-hosted quartz veins.

A very rich gold-bearing quartz vein (Figure 12, Number 24) was discovered by E. Starr (prospector, Thunder Bay), west of Peak Lake, in a roadcut on the east side of Highway 502 in the early 1980's. The vein was hosted by mafic metavolcanics and had a short strike length and limited depth but contained spectacular massive gold. A large portion of the vein was removed during trenching.

Gold deposits within the Upper Manitou Lake Group are concentrated near its contact with the overlying Pincher Lake Group and its contact with the underlying Blanchard Lake Group (Figures 2 and 12). The majority of deposits consist of wide quartz vein stockworks controlled by northeast-trending shear zones within intermediate to mafic flows and pyroclastics and wide felsic dikes. Sheared wall rocks are characterized by sericite, chlorite, and carbonate alteration accompanied by fuchsite and disseminated pyrite. Quartz veins commonly contain <1-2% disseminated pyrite and chalcopyrite. Occurrences such as the Peninsula Zone (Figure 12, Number 20), Fuchsite Zone (7), Lunch Box Bay Zone (17) and Frenchman Island Occurrences (5, 6) are characterized by consistent anomalous and low grade gold values over widths ranging from 0.5 m to 6.0 m. The Peninsula (20) and Lunch Box Bay (17) Zones consist of massive stockworks of numerous white quartz veins within sheared felsic dikes.

Channel samples taken from both occurrences, by St. Joe Canada Inc., assayed 400 ppb gold across 4.8 m and 350 ppb gold across 3.0 m at the Peninsula Zone, and 0.04 ounce gold per ton across 2.0 m and 0.02 ounce gold per ton across 6.0 m at the Lunch Box Bay Zone (Assessment Files, Resident Geologist's Office, Kenora).

The Trafalgar Bay Zone Occurrence (Figure 11, Number 26), on the northwest shore of Trafalgar Bay, differs from the other occurrences since quartz veins are hosted by a combined shear and breccia zone. The occurrence consists of carbonatized, pyritic [<1-2%], angular fragments of intermediate lapilli-tuff embedded in a milk white quartz-carbonate-tourmaline matrix. Grab samples, taken by St. Joe Canada Inc. from the Trafalgar Bay Zone (26), gave assays as high as 0.5 ounce gold per ton, while a chip sample across 1.0 m assayed 0.1 ounce gold per ton (Assessment Files, Resident Geologist's Office, Kenora).

Gold occurrences situated on Frenchman Island, at the south end of Upper Manitou Lake, consist of quartz vein stockworks controlled by northeast-trending shear and breccia zones. The Frenchman Island Occurrence (Figure 12, Number 5), located on former mining location P. 150 at the southwest end of the island, consists of quartz veins hosted by a northwest-trending shear and breccia zone in granodiorite, which is an exception to the dominant northeast trend of shear zones in the area. This author followed the vein along strike for 160 m until it terminated at an abrupt cliff along the east edge of a north-trending crossfault. A chip sample of the quartz vein, taken by Thomson (1934), assayed 0.10 ounce gold per ton across 3 ft.

In 1984, St. Joe Canada Inc., discovered gold-bearing zones in granodiorite at the northeast end of Frenchman Island (Figure 12, Number 6), and in sheared metavolcanics on the southeast side (6) of the island. Encouraging gold values were obtained from both occurrences (Assessment Files, Resident Geologist's Office, Kenora). More recently, in 1985 and 1986, St. Joe Canada Inc. have concentrated drill programs south of Frenchman Island. Most of the holes intersected anomalous gold values ranging from trace to 0.08 ounce gold per ton. However, a hole drilled in the vicinity of Bird Island, situated immediately southwest of Frenchman Island, intersected 0.20 ounce gold per ton across 5 ft. in a pyritic, rhyodacitic to dioritic pyroclastic rock. Another hole drilled at the north end of North Island, south of Frenchman Island, intersected 0.16 ounce gold per ton across 5 ft. in sheared metavolcanic rocks hosting pyritic quartz stringers (Assessment Files, Resident Geologist's Office, Kenora).

The Gold Rock Mine (Figure 12, Number 10) is the only known gold deposit on the northwest shore of Upper Manitou Lake. It is situated within garnet-bearing, amphibolitized, coarse-grained porphyritic basalt at the contact between the Upper Manitou and Pincher Lake Groups. It consists of a typical northeast-trending shear zone controlling quartz veins hosting pyrite, chalcopyrite, and visible gold (Thomson 1934).

Gold deposits which occur within the Blanchard Lake Group, a basal sequence of mafic metavolcanic flows, consist of quartz veins controlled by northeast-trending shear zones. Wallrocks are pyritic, chloritized, and carbonatized, and quartz veins host visible gold, pyrite, and chalcopyrite, with minor galena and sphalerite. Thomson (1934) reported that he had observed visible gold in chlorite schist, at the Swede Boys Island Prospect (Figure 11, Number 25), in a pit northeast of the shaft on mining location H.P. 259. The majority of the deposits occur at or near the contact between the Blanchard Lake Group and t he overlying Upper Manitou Lake Group, except for the Reliance Prospect (Figure 11, Number 22) and the Twentieth Century Mine (27), which occur well within the mafic metavolcanic rocks. The Queen Alexandra Mine (21) and the King Edward Occurrence (15) are reported to consist of fracture-controlled quartz veins within the granodioritic rocks of the Carleton Lake Stock (Thomson 1934; Carter 1903). St. Joe Canada Inc., in addition to their work on Frenchman Island and near Trafalger Bay, have concentrated exploration efforts in this area (Assessment Files, Resident Geologist's Office, Kenora).

Four gold deposits are situated within the Manitou Lake Group, southeast of the Manitou Straits Fault. The Big Dick Prospect (Figure 12, Number 2) consists of quartz veins hosted by a pyritic gabbro intrusion immediately north of the Mosher Bay-Washeibemaga Lake Fault. A chip sample, taken by Thomson (1934) across the mineralized gabbro assayed 0.05 ounce gold per ton across 8 ft.

The Giant Prospect (Figure 12, Number 9), south of the east end of Mosher Bay, consists of an east-northeast trending shear zone with a strike length of approximately 180 m. Quartz stringers and veins are hosted by a gray sericite schist developed in argillitic metasediments (Cochrane Oil & Gas Ltd., Assessment Files, Resident Geologist's Office, Kenora). Channel sampling across the zone by Cochrane Oil and Gas Limited gave assays averaging 0.32 ounce gold per ton across 3.6 m (Assessment Files, Resident Geologist's Office, Kenora). A diamond drill program conducted by Cochrane Oil and Gas Limited intersected a quartz stringer zone developed along the contact between massive bedded siltstone and a graphitic sericite-quartz schist. Another shear zone was intersected along the contact between metasediments and a wide, quartz porphyry dike hosting pyritic quartz veinlets. No assays have been reported (Assessment Files, Resident Geologist's Office, Kenora). Drill holes which tested iron formation within the metasediments intersected an 11 m wide zone of brecciated magnetite iron formation hosting quartz-pyrite stringers, but no assays were reported (Assessment Files, Resident Geologist's Office, Kenora).

The H.W. 167 Occurrence (Figure 12, Number 11) east of Mosher Bay and north of Surprise Lake, and the H.W. 170 Occurrence (12) situated near the north shore of Rush Bay on Uphill Lake, consist of east-northeast-trending quartz porphyry dikes intruding metasediments. Dikes at both locations are reported to host "good looking" fracture-controlled quartz veins containing visible gold (Coleman 1898).

iv) Conclusions and Recommendations for Exploration

It is apparent that stratigraphy plays an important role in the concentration of gold at Upper Manitou Lake. Gold deposits are situated near the contacts between the Blanchard Lake, Upper Manitou Lake, and Pincher Lake Volcanic Groups (Figures 2 and 12). The mines at Goldrock, and the significant gold occurrences and prospects in the area, are situated within the Pincher Lake Group, near its contact with the underlying Upper

Manitou Lake Group. The Pincher Lake Group may be identical to the Lower Wabigoon Volcanics, which host numerous gold deposits and past producing mines at Eagle and Wabigoon Lakes. The Pincher Lake Group and Lower Wabigoon Volcanics are mixed sequences of calc-alkaline to tholeiitic, mafic and felsic metavolcanic rocks (Figures 2 and 12).

The fact that gold deposits are concentrated northwest of the Manitou Straits Fault is partly due to the fact that geological successions on either side of the fault are substantially different. The rocks southeast and east of the fault consist of the dominantly mafic Boyer Lake Group, and the Manitou Lake Group, both of which host a few scattered gold occurrences (Figures 2 and 12). Rocks northwest of the fault are dominantly calc-alkaline to tholeiitic and are more typical of gold-bearing environments elsewhere in the Dryden-Ignace area. Structural disruption is also more significant northwest of the fault, providing numerous dilatant zones for the emplacement of gold-bearing quartz veins. Extensive and intense northeast shearing controls the majority of gold-bearing quartz veins. At Peak Lake, northeast of Upper Manitou Lake, gold-bearing quartz veins are controlled by northwest-trending fractures which crosscut east- and northeast-trending shear zones. This style of deformation is similar to gold deposits at Dinorwic Lake, and differs from the dominant northeast controls at Goldrock.

Competency and susceptibility to fracturing of the host rock is the controlling influence on the concentration of the quartz veins: ductility contrasts between felsic dikes and mafic metavolcanics have focussed zones of extension and compression, commonly resulting in fracturing of the more rigid felsic dikes.

Prospecting and exploration in the Upper Manitou Lake area should be concentrated along stratigraphic contacts between major volcanic groups and within the Pincher Lake Group (Figures 2 and 12). Felsic intrusive and metavolcanic rocks within northeast-trending shear zones are preferred hosts for gold-bearing quartz veins but mafic rocks should not be disregarded.

Good prospecting targets also occur southeast of the Manitou Straits Fault in the Manitou Group, since the geology is almost identical to the gold-bearing area at Washeibemaga and Katisha Lakes in the Stormy Lake and Wapageisi Lake Groups (Figures 2 and 11) (see Kawashegamuk-Meggisi Lakes section of this report). Marginally alkaline mafic intrusions, subvolcanic felsic intrusions, associated metavolcanic rocks, felsic dikes, and the contact between the calc-alkaline intermediate metavolcanics of the Manitou Group and the underlying, tholeiitic, mafic metavolcanics of the Wapageisi Lake Group should be carefully prospected for gold.

The Upper Manitou Lake area still holds the promise of future discoveries and deserves more prospecting and exploration. As Arthur Pitt (1938) eloquently and optimistically wrote: "What of the Manitou in the future? Your guess is as good as mine. But you may rest assured that the old timer of the Manitou, has still unbounded faith. To him Red Lake, Patricia, Larder Lake, Cobalt, Porcupine, Kirkland Lake, Little Long Lac, are only pan flashes. Man's mismanagement has kept the Manitou from its own. Some day it will be discovered that the riches of the continent are in the Manitou. He will not live to see the glories of the discovery. That is forbidden him. But some day, some day!".

## SUMMARY AND CONCLUSIONS

The majority of gold-bearing quartz veins in the Dryden-Ignace area are controlled by ductile shear zones and brittle fracture zones related to major faults or "breaks" of a predominantly ductile nature. Shear zones are developed as secondary shear bands parallel or subparallel to the boundaries of these ductile faults, while complex brittle fracture systems are developed in specific orientations related to the sense of movement and style of deformation along the faults. Regional deformation events both preceded and accompanied the establishment of gold-associated alteration and gold deposition. The fact that gold-bearing quartz veins at many deposits are boudinaged and offset along fractures, indicates that deformation events continued after gold deposition.

Difficulty has been found in defining continuous and/or closely spaced gold-bearing quartz vein networks that would be profitable to mine. Therefore, large and persistent structures, such as the northeast-trending shear zones in the vicinity of Whitewater and Upper Manitou Lakes, and the shear zones in Melgund and Hyndman Townships should be sought, since they are more likely to host wide, continuous vein networks. Gold mineralization may also be hosted by altered and pyritic wall rocks within these structures, such as in the shear zones at Whitewater Lake, which increases their favourability as exploration targets.

Structural disruption, quartz veins, and gold mineralization, are common in areas where rock types of variable composition are concentrated. This is due to the fact that intercalated rock types of variable composition, ductility, and homogeneity, focus zones of tension and compression. This results in the fracturing of rigid rock types (ie: iron formation, chert, felsic rocks, and intrusive rocks), shearing of less rigid rock types (ie: mafic rocks and pyroclastics), and shearing along lithologic contacts. The abundance of shear and fracture zones provide numerous sites for the emplacement of gold-bearing quartz veins.

In an area where the metavolcanic rocks consist dominantly of one rock type, such as mafic metavolcanic flows, then rock types of different compositions and competency within the mafic flows, such as felsic or mafic intrusions and interflow metasediments, may be a focus for gold deposition. Competent felsic rocks bounded by dominantly mafic metavolcanics are common hosts to shear- and fracture-hosted gold-bearing quartz veins, such as at Upper Manitou Lake, Tabor Lake, and in Melgund and Hyndman Townships. Numerous felsic intrusions at Boyer Lake, Whitewater Lake and Eagle-Wabigoon Lakes occur within predominantly mafic metavolcanic flows and have not recently been prospected.

Another controlling factor on gold deposition is the presence of abundant iron oxides (i.e. magnetite, ilmenite) and silicates (i.e. pyroxene, hornblende, biotite) in the metavolcanic and intrusive rocks which host shear and fracture zones controlling gold-bearing quartz veins. Abundant iron within the host rocks serves as a chemical trap for gold precipitation by sulphidation. This process has been described in detail in the Eagle-Wabigoon Lakes section of this report. Although felsic rocks are not commonly enriched in iron the author has noted that abundant disseminated magnetite occurs in many felsic intrusions and felsic metavolcanic rocks in the area, which makes them more attractive as exploration targets.

Sulphides are spatially and genetically associated with gold mineralization and are an important part of every gold deposit in the Dryden-Ignace area. A lack of sulphides commonly indicates a lack of gold. Pyrite is the most common sulphide mineral but other minerals such as arsenopyrite, galena, sphalerite and chalcopyrite may also occur with gold. High grade gold values have almost always been obtained from quartz veins hosting chalcopyrite and/or galena. Although wall rocks that contain pyrite do not commonly host gold mineralization, they should always be tested for gold. Gold is commonly associated with specific sulphide minerals in different areas. Galena is a common constituent of gold-bearing quartz veins in the Kawashegamuk Lake area and in Melgund Township. Arsenopyrite is associated with gold in the Dinorwic Lake and Washeibemaga Lake areas, while gold-bearing quartz veins at Wabigoon and Upper Manitou Lakes commonly host chalcopyrite. Many of the gold-bearing veins at Eagle Lake contain sparse amounts of pyrite.

Iron carbonate alteration of host rocks is also a controlling factor for the deposition of gold. Widespread iron carbonate alteration occurs at Dinorwic Lake, in Melgund Township, and in the Kawashegamuk-Meggisi Lakes area. The timing of gold associated alteration and the emplacement of gold-bearing quartz veins is generally considered to be post-volcanic, post-earlier( $\geq$ 2700 Ma) granitoids and syn- to post-metamorphism (Blackburn and Janes 1983). However, at the Snake Bay Prospect in the Kawashegamuk-Meggisi Lakes area, intense carbonate alteration may have been developed during or shortly before late stage alkalic volcanism (Moreton and Gerber 1985). Extensive carbonate alteration is a characteristic of many major gold camps, is indicative of hydrothermal fluid activity, and is a precursor to very localized gold deposition (Colvine et al. 1984). The regional pattern of alteration indicates that it is spatially related to major structures and is well developed within mafic rocks although it affects all rock types. Mafic rocks are more susceptible to extensive carbonate alteration due to their iron-rich and more permeable nature.

Other alteration associated with gold in mafic rocks includes chloritization, pyritization, and sericitization commonly with associated green fuchsite mica. These various alteration types give rise to a discoloration of the host rock, commonly refered to as "bleaching", due to alteration of mafic minerals from typical dark green-gray or black to pale gray, buff white, or brown. Gold-bearing quartz veins hosted by felsic rocks are commonly accompanied by calcium carbonate alteration, sericitization, pyritization, and minor chloritization and iron carbonate. Felsic host rocks may also be "bleached" to gray, pink, or buff. Alteration such as silicification, sulphidation, sericitization, biotization, tourmalization, and epidotization are much more localized than carbonate alteration and are commonly restricted to the immediate gold-bearing structures.

A regional stratigraphic control of gold mineralization occurs throughout the Dryden-Ignace area. Gold deposits are spatially associated with the transition upward from lower mafic metavolcanic sequences into overlying middle or upper metavolcanic sequences of calc-alkaline or mixed tholeiitic to calc-alkaline composition. Fewer gold deposits are situated within the dominantly tholeiitic, monotonous sequences of mafic metavolcanic flows (Figure 13). The majority of gold deposits, including past producing mines, are situated within these sequences at Eagle-Wabigoon Lakes (Lower Wabigoon Volcanics), Sandybeach Lake (Brownridge Volcanics), Kawashegamuk-Meggisi Lakes (Kawashegamuk Lake Group, Upper Wapageisi Lake Group), and at Upper Manitou Lake (Pincher Lake Group, Upper Manitou Lake Group) (Figures 2 and 13). This characteristic transition has been suggested as a locus for gold mineralization throughout the Dryden-Sioux Narrows region (Blackburn and Hailstone 1983; Blackburn and Janes 1983; Parker and Blackburn 1986; Melling et al. in preparation).

Gold mineralization also occurs within and marginal to subvolcanic intrusions and felsic volcanic centres situated within the mixed and calc-alkaline sequences. Gold is associated with volcanic centres at Hardrock Bay on Eagle Lake, at Flambeau Lake (Parker 1986), Beartrack Lake (Berger 1987), Upper Manitou Lake (Blackburn 1979, 1982b), in the vicinity of Stormy Lake (Blackburn 1981; Kresz 1987), and in the vicinity of Kawashegamuk and Tabor Lakes (Kresz 1984, 1987) (Figure 13).

Despite the assertion by some workers (Kerrich 1986; Roberts 1987) that there is no evidence that gold deposits are restricted to a specific stratigraphic level, the preferred setting of gold deposits in the volcanic stratigraphy of the Eagle-Manitou Lakes greenstone belt suggests that there is both a spatial and temporal relationship between gold and stratigraphy. Gold mineralization may be closely related to the volcanic processes and

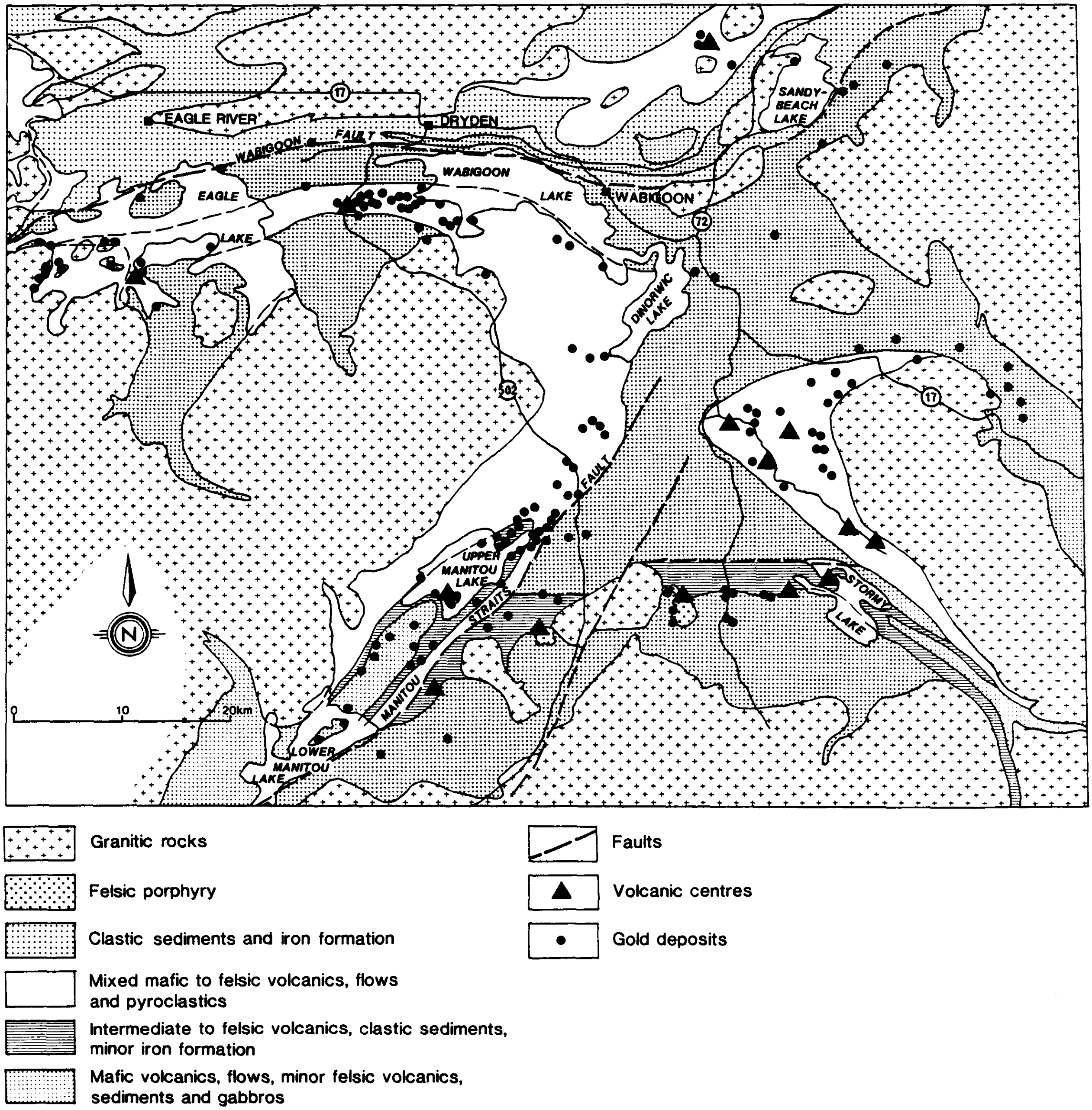



Figure 13: Location of gold deposits, mixed metavolcanic sequences, and known eruptive centres in the Eagle-Manitou Lakes greenstone belt

tectonic environments of calc-alkaline metavolcanic rocks: this suggests that there may have been original synvolcanic gold enrichment and later concentration of gold, due to metamorphic hydrothermal processes, into nearby structures. Gold may have been initially deposited in volcanic rocks proximal to rising felsic volcanic arcs during dominantly calc-alkaline volcanism and intense intrusive and hydrothermal activity.

Gold deposits within the Manitou-Stormy Lakes metavolcanic-metasedimentary belt appear to be spatially related to a characteristic group of clastic sedimentary rocks and calc-alkaline to alkaline extrusive and intrusive rocks, which are known to be associated with gold mineralization in the Abitibi greenstone belt. As previously described, in the Kawashegamuk-Meggisi Lakes and Upper Manitou Lake sections of this report, calc-alkaline volcanism within the belt commenced after the development of a thick basaltic platform, and may have coincided with associated subduction. Intermediate and felsic flows and pyroclastics were deposited proximal to rising felsic volcanic arcs in a shallow marine and subaerial environment. These rocks were overlain by alluvial to fluvial sediments consisting of distinctive polymictic conglomerates produced by rapid erosion. This erosion may have been associated with uplift adjacent to a basin-margin fault which formed a linear trough in which synvolcanic sediments were deposited. The intermediate and felsic metavolcanics were intruded by numerous subvolcanic, porphyritic, felsic intrusions which represent the intrusive equivalents of nearby felsic metavolcanic rocks. Development of dilatant zones associated with widespread carbonate alteration and veining occurred near the end of felsic calc-alkaline volcanism. Ultramafic and mafic alkaline subvolcanic intrusions that are interpreted by Blackburn

(1982) to be the source for overlying alkalic, trachybasaltic flows are interpreted by Moreton and Gerber (1985) to have been emplaced in the shear zones, and to have accompanied carbonate alteration. Carbonate alteration may have resulted from the release of $CO_2$ saturated magmatic hydrothermal fluids originating from the porphyritic, felsic intrusions (Karvinen 1982) and/or from the alkalic mafic intrusions (Mutschler et al. 1985).

The geological relationships and development of the Manitou-Stormy Lakes belt is similar to that documented in the Timmins and Kirkland Lake gold camps (Jensen 1981; Karvinen 1982; Hodgson 1986), and analagous to some more recent Cordilleran epithermal gold deposits associated with calc-alkaline rocks, coeval with alkaline rocks, emplaced in extensional tectonic environments (Mutschler et al. 1985) where gold mineralization has been deposited synvolcanically within extrusive phases: at an epithermal deposit in the Cripple Creek area of Colorado, gold mineralization is disseminated within lacustrine volcaniclastic rocks in a subsiding volcanic vent.

Gold at Manitou-Stormy Lakes is spatially related to eruptive centers (i.e.: Pelham Prospect, Snake Bay Prospect, Frenchman Island Occurrences) and may have been initially deposited in proximal volcanic and sedimentary rocks. Later tectonism associated with the emplacement of granitic batholiths and crustal shortening resulted in reactivation of existing faults (i.e. the Mosher Bay-Washeibemaga Lake Fault and the Manitou Straits Fault), and was accompanied by hydrothermal fluids originating from magmatic sources, or released during metamorphic events, which concentrated and redistributed the gold in quartz veins within nearby structures. Blackburn (1982b, p.53) came to similar conclusions and stated: "...the source of gold in the area was volcanic and subvolcanic rocks...concentration into presently known deposits was accomplished both by thermal or hydrothermal effects of subvolcanic or epizonal felsic intrusions and by opening up of dilatant zones during tectonism. The volcanic and subvolcanic sources were probably both mafic flows and sills, and felsic stock-like and sill-like bodies. Process of final emplacement is thus viewed as epigenetic...".

Widespread gold mineralization has a close spatial relationship with subvolcanic intrusions at the Flambeau Lake Prospect situated within the Lower Wabigoon Volcanics west of Wabigoon Lake. Gold-bearing quartz veins occupying tension fractures and shear zones are hosted by gabbro and quartz-diorite subvolcanic intrusions that are sources of nearby metavolcanic rocks. They are flanked by coarse heterolithic pyroclastics and alloclastic and autoclastic breccias, that are intruded by hypabyssal porphyritic felsic dikes and amygdaloidal, vesicular, mafic dikes (Parker an Schienbein 1988a, b). These rocks are characteristic of a subaerial environment, proximal to a volcanic vent where synvolcanic gold enrichment may have occurred. Gold within the metavolcanic rocks, proximal to the subvolcanic intrusions, may have been remobilized and disseminated by hydrothermal fluids of metamorphic origin into numerous nearby shear zones and fractures, developed during structural disruption along the Wabigoon Fault.

In general, proposed sources for mineralizing fluids are metamorphic fluids, magmatic hydrothermal fluids, and juvenile fluids formed by granulitization of the lower crust and/or degassing of the upper mantle (Roberts 1987). In fact, many gold deposits in the Dryden area, particularly those which occur within or marginal to granitic plutons and stocks, may be genetically associated with magmatic and metamorphic fluids. These mineralizing processes result in typical structurally controlled Archean lode gold deposits.

Fyfe (1987), among others, has suggested that the metamorphic process of remobilizing gold from metavolcanic rocks into structurally controlled quartz veins involves magmatic underplating of the crust, and the development of a large thermal aureole, which initiates the formation of acid magmas by melting. The acid magmas rise to form high level plutons which heat the crust and upgrade massive thicknesses of greenschist facies rocks to amphibolite grade, initiating a huge degassing event. The water mass evolved during this metamorphic event could reach 100 $km^3$. The resulting low salinity fluids would be dominated by $H_2O$ with a large quantity of $CO_2$, which is consistent with the composition of fluid inclusions found in most lode gold deposits (Colvine et al. 1984; Fyfe 1987). If the fluid has solvent capacity for gold, then the mechanism provides an efficient extraction process. Subvertical structures created by the intrusion of the rising plutons focus the flow of the metamorphic fluids. Fyfe (1987) points out that many of the currently known features of gold deposits fit a model of metamorphic degassing associated with felsic plutonism.

Gold at Hardrock Bay, on Eagle Lake, occurs within stratiform sulphide-rich mafic metavolcanic flows overlying interflow metasediments. The mafic flows are no different from surrounding flows, except that they are mineralized with sulphides and gold. Mineralized and barren flows share the same widespread, pervasive alteration, consisting dominantly of epidotization. Petrographic work and whole rock analyses of the gold-bearing flows indicates the absence of significant secondary silicification and carbonatization. The host rocks are virtually undeformed with the exception of minor hairline fracturing. The presence of gold in this unusual geological environment suggests that mineralizing processes at Hardrock Bay were different from those which deposited gold elsewhere in the Dryden-Ignace area.

The gold-bearing mafic flows at Hardrock Bay are situated a few hundred metres stratigraphically below a vent breccia, at the base of the Lower Wabigoon Volcanics, suggesting that mineralization took place in an area of high hydrothermal activity at the transition from basaltic to felsic volcanism. It is possible that gold and sulphide mineralization was emplaced within the mafic flows by hydrothermal fluids shortly before or after they were capped by overlying flows. It is unclear why the sulphides and gold are restricted to a discrete unit of flows and not more widely distributed. It has also been suggested that cherty interflow metasediments at Hardrock Bay were deposited amongst mafic flows during lengthy hiatuses in basaltic volcanism of the Eagle Lake Volcanics, prior to felsic volcanism of the Lower Wabigoon Volcanics (Parker and Blackburn 1986). The interflow metasediments, below the mineralized flows, may have been deposited by low temperature hydrothermal fluids which discharged silica onto the sea floor during the volcanic hiatuses (Fyfe 1987; Fyon and Crocket 1983).

The gold occurrences at Hardrock Bay do not possess pervasive carbonate alteration, major quartz veins, or any of the common characteristics typical of Archean lode gold deposits. This infers that the hydrothermal fluids which deposited gold at Hardrock Bay were different from those commonly involved in the formation of lode gold deposits.

Very little grassroots exploration has been conducted to locate gold mineralization in drift covered areas. A number of locations with gold potential are situated in topographically recessive areas or in clay covered terrains. Wide, intensely carbonatized shear zones associated with gold mineralization extend beneath swamps and heavy clay cover in the Dinorwic and Sandybeach Lakes area. Gold-bearing structures in Melgund, Revell, and Hyndman Townships at Eagle Wabigoon Lakes, and at Upper Manitou Lake, also extend beneath extensive sand plains and bogs.

Literature searches of the numerous old reports on the Dryden-Ignace area can lead to the discovery of old, forgotten gold occurrences in areas overlooked by recent exploration. The majority of gold mineralization was discovered during the early 1900's, but a large number of occurrences have been poorly documented and never accurately located. Recent prospecting and exploration in areas that have been overlooked, such as at Wabigoon and Dinorwic Lakes, have led to many significant new discoveries, and the rediscovery of forgotten gold occurrences and prospects. The importance of exhaustive literature searches cannot be overemphasized.

Gold mineralization is controlled by a combination of structure and stratigraphy and is associated with similar structures, host rocks, and alteration throughout the Dryden-Ignace area. Many promising areas have been overlooked and neglected in the past. Persistent, intensive prospecting and exploration will lead to more, and hopefully larger, gold discoveries.

REFERENCES

Beard, R.C., and Scott, W.

1976: 1975 Report of the Kenora Resident Geologist; p. 1-15 in Annual Report of the Regional and Resident Geologists, 1975, edited by C. R. Kustra, Ontario Division of Mines, Miscellaneous Paper 64, 146p.

Beard, R.C., and Rivett, S.

1977: 1976 Report of the Kenora Resident Geologist; p. 1-15 in Annual Report of the Regional and Resident Geologists, 1976, edited by C. R. Kustra, Ontario Division of Mines, Miscellaneous Paper 71, 141p.

Berger, B. R.

1986: Melgund Lake Area, District of Kenora; p. 61-65 in Summary of Field Work and Other Activities 1986, by the Ontario Geological Survey, edited by P.C. Thurston, Owen L. White, R.B. Barlow, M.E. Cherry, and A.C. Colvine, Ontario Geological Survey, Miscellaneous Paper 132, 435p. Accompanied by 1 chart.

1987: Laval and Hartman Townships Area, District of Kenora: p. 84-89 in Summary of Field Work and Other Activities 1987, by the Ontario Geological Survey, edited by R.B. Barlow, M.E. Cherry, A.C. Colvine, Burkhard O. Dressler, and Owen L. White, Ontario Geological Survey, Miscellaneous Paper 137, 429p.

Berger, B.R., MacMillan, D., Butler, G.

1987a: Precambrian Geology of the Melgund Lake Area, McAree Township, Kenora District; Ontario Geological Survey, Map P.3063, Geological

Series-Preliminary Map, scale 1:15,840 or 1 inch to 1/4 mile. Geology 1986.

1987b: Precambrian Geology of the Melgund Lake Area, MacFie Township, Kenora District; Ontario Geological Survey, Map P.3069, Geological Series-Preliminary Map, scale 1:15,840 or 1 inch to 1/4 mile. Geology 1986.

1987c: Precambrian Geology of the Melgund Lake Area, Avery Township, Kenora District; Ontario Geological Survey, Map P.3070, Geological Series-Preliminary Map, scale 1:15,840 or 1 inch to 1/4 mile. Geology 1986.

Blackburn, C.E.

1976: Geology of the Lower Manitou-Uphill Lakes Area, District of Kenora; Ontario Division of Mines, G.R. 142, 81p. Accompanied by Map 2320, scale 1:31,680. (1 inch to 1/2 mile).

1979: Geology of the Upper Manitou Lake Area, District of Kenora; Ontario Geological Survey, G. R. 189, 74p. Accompanied by Map 2409, scale 1:31,680 (1 inch to 1/2 mile).

1980: Towards a Mobilist Tectonic Model for Part of the Archean of Northwestern Ontario; Geoscience Canada, Volume 7, Number 2, p. 64-72.

1981: Geology of the Boyer Lake-Meggisi Lake Area, District of Kenora; Ontario Geological Survey, G. R. 202, 107p. Accompanied by Maps 2437 and 2438, scale 1:31,680 (1 inch to 1/2 mile) and 3 Charts.

1982a: 1981 Report of the Kenora Resident Geologist; p. 1-14 in Annual Report of the Regional and Resident Geologists, 1981, edited by C. R. Kustra, Ontario Geological Survey, Miscellaneous Paper 101, 184p.

1982b: Geology of the Manitou Lakes Area, District of Kenora, (Stratigraphy and Petrochemistry); Ontario Geological Survey, G. R. 223, 61p. Accompanied by Map 2476, scale 1:50,000.

Blackburn, C.E., Breaks, F.W., Edwards, G.R., Poulsen, K.H., Trowell, N.F. and Wood, J.

1982: Stratigraphy and Structure of the Western Wabigoon Subprovince and its Margins, Northwestern Ontario; Geological Association of Canada - Mineralogical Association of Canada, Trip 3: Guidebook, 105p.

Blackburn, C.E., and Hailstone, M.R.

1983: The Geological Environment of Gold Mineralization, Cameron-Rowan Lakes, N. W. Ontario; Unpublished text of a paper presented at the Ontario Geological Survey Geoscience Research Seminar, Toronto, 1983.

Blackburn, C.E., and Janes, D.A.

1983: Gold Deposits in Northwestern Ontario; p. 194-210, in The Geology of Gold in Ontario, edited by A. C. Colvine, Ontario Geological Survey, Miscellaneous Paper 110, 278p.

Blackburn, C. ., Bond, W.D., Breaks, F.W., Davis, D.W., Edwards, G.R., Poulsen, K.H., Trowell, N.F. and Wood, J.

1985: Evolution of Archean Volcanic-Sedimentary Sequences of the Western Wabigoon Subprovince and its Margins: A Review; p. 89-116 in Evolution of Archean Supracrustal Sequences, edited by L. D. Ayres, P. C. Thurston, K. D. Card, and W. Weber, Geological Association of Canada Special Paper 28.

Bow, J.A.

1898: Mines of Northwestern Ontario: Manitou-Wabigoon Region; Ontario Bureau of Mines, Volume 7, Part 1, p. 75-77.

1899: Mines of Northwestern Ontario: Locations in the New Klondike and Manitou Lake; Ontario Bureau of Mines, Volume 8, Part 1, p. 72-76.

1900: Mines of Northwestern Ontario: Manitou Lake Region; Ontario Bureau of Mines, Volume 9, Part 1, p. 61-63.

Boyle, R.W.

1979: The Geochemistry of Gold and its Deposits; Geological Survey of Canada, Bulletin 280, 584p.

Bruce, E.L.

1925: Gold Deposits of Kenora and Rainy River Districts; Ontario Department of Mines, Volume 34, Part 6, p. 1-42. Accompanied by Map 34h, scale 1:2400 (1 inch to 200 feet).

Carter, W.E.H.

1901: Mines of Northwest Ontario; Manitou Lake Region; Ontario Bureau of Mines, Volume 10, Part 1, p. 97-100.

1902: The Mines of Ontario; Ontario Bureau of Mines, Volume 11, Part 1, p. 231-298.

1904: Mines of Western Ontario; Ontario Bureau of Mines, Volume 13, Part 1, p. 58-87.

1905: Mines of Western Ontario; Ontario Bureau of Mines, Volume 14, Part 1, p. 43-75.

Chorlton, L.B.

1987: Stratigraphy, Structural Development and Auriferous Mineralization in the Cross Echo-Troutfly Lakes Area, Northern Wabigoon Greenstone Belt, Northwestern Ontario: p.72-83 in Summary of Field Work and Other Activities 1987, by the Ontario Geological Survey, edited by R.B. Barlow, M.E. Cherry, A.C. Colvine, Burkhard O. Dressler, and Owen L. White, Ontario Geological Survey, Miscellaneous Paper 137, 429p.

Coleman, A.P.

1895: Gold in Ontario: Its Associated Rocks and Minerals; Ontario Bureau of Mines, Volume 4, Part 2, 1894, p. 35-100.

1897: The Manitou Region, in Third Report of the West Ontario Gold Region; Ontario Bureau of Mines, Volume 6, Part 2, 1896, p. 83-87.

1898: Manitou-Wabigoon Region in Fourth Report on the West Ontario Gold Region; Ontario Bureau of Mines, Volume 7, Part 2, 1897, p. 121-126.

Colvine, A.C., Andrews, A.J., Cherry, M.E., Durocher, M.E., Fyon, A.J., Lavigne Jr., M.J., Macdonald, A.J., Marmont, Soussan, Poulsen, K.H., Springer, J.S., and Troop, D.G.
1984: An Integrated Model for the Origin of Archean Lode Gold Deposits, Ontario Geological Survey, Open File Report 5524, 98p., 7 tables, 53 figs., and 2 appendices.

Corkill, E.T.
1906: Mines of Ontario; Ontario Bureau of Mines, Volume 15, Part 1, p. 50-53.

1907: Mines of Ontario; Ontario Bureau of Mines, Volume 16, Part 1, Number 14, p. 57-59.

1908: Mines of Ontario; Northwestern Ontario; Ontario Bureau of Mines, Volume 17, Part 1, p. 62-64.

1909: Mines of Ontario; Northwestern Ontario; Ontario Bureau of Mines, Volume 18, Part 1, p. 79-81.

1910: Mines of Ontario; Northwestern Ontario; Ontario Bureau of Mines, Volume 19, Part 1, p. 78-79.

Davis, D.W., Blackburn, C.E., and Krogh, T.E.

1982: Zircon U-Pb Ages from the Wabigoon-Manitou Lakes Region, Wabigoon Subprovince, Northwest Ontario; Canadian Journal of Earth Sciences, Volume 19, p. 254-266.

Fyfe, W.S.

1987: Tectonics, fluids and ore deposits: Mobilization and remobilization; p. 21-36 in Mechanical and Chemical (Re)mobilization of Metalliferous Mineralization, edited by B. Marshall and L.B. Gilligan, Ore Geol. Rev., 2.

Fyon, A.J. and Crocket, J.H.

1983: Gold Exploration in the Timmins Area Using Field and Lithogeochemical Characteristics of Carbonate Zones; Ontario Geological Survey Study 26, 56 p. Accompanied by 2 Charts, 2 Maps.

Hodgson, C.J.

1986: Place of Gold Ore Formation in the Geological Development of Abitibi Greenstone Belt, Ontario, Canada; Trans. Instr. Min. Metall. (Sect. B: Appl. earth sci.), 95, p. B183-B194.

Hodgson, C.J. and MacGeehan, P.J.

1981: The Relationship of Gold Mineralization to Volcanic and Alteration Features in the Area of the Campbell Red Lake and Dickenson Mines, Red Lake Area, Northwestern Ontario; p.94-110 in Genesis of Archean, Volcanic-Hosted Gold Deposits, Symposium Held at the University of Waterloo, March 7, 1980, Ontario Geological Survey, MP97, 175p.

1982: A Review of the Geological Characteristics of "Gold Only" Deposits in the Superior Province of the Canadian Shield, p. 211-228 in Geology of Canadian Gold Deposits, edited by R. W. Hodder and W. Petruk, Canadian Institute of Mining and Metallurgy, Special Volume 24.

Hurst, M.E.

1932: Geology of the Sioux Lookout Area; Ontario Department of Mines, Volume 41, Part 6, p. 1-33. Accompanied by Map 41h, scale 1:95,040 (1 inch to 1 1/2 miles).

Hyndman, D.W.

1981: Controls on Source and Depth of Emplacement of Granitic Magma; Geology, Volume 9, p. 244-249.

Jensen, L.S.

1981: Gold Mineralization in the Kirkland Lake-Larder Lake Area; p. 59-65 in Genesis of Archean, Volcanic-Hosted Gold Deposits, Symposium Held at the University of Waterloo, March 7, 1980, Ontario Geological Survey, Miscellaneous Paper 97, 175p.

Karvinen, W.O.

1982: Geology and Evolution of Gold Deposits, Timmins Area, Ontario; p. 101-112 in Geology of Canadian Gold Deposits, edited by R. W. Hodder and W. Petruk, Canadian Institute of Mining and Metallurgy, Special Volume 24.

Kerrich, R.

1986: Archean Lode Gold Deposits of Canada: Part 1, A Synthesis of Geochemical Data from Selected Mining Camps with Emphasis on Pattern of Alteration; University of the Witwatersrand, Economic Geology Research Unit, Information Circular No. 182, 30p.

Kresz, D.U., Blackburn, C.E., and Fraser, F.B.

1982a: Precambrian Geology of the Kawashegamuk Lake Area, Western Part, Kenora District; Ontario Geological Survey, Map P. 2569, Geological Series, Preliminary Map, scale 1:15,840 or 1 inch to 1/4 mile. Geology 1980, 1981.

1982b: Precambrian Geology of the Kawashegamuk Lake Area, Eastern Part, Kenora District; Ontario Geological Survey Map P.2570, Geological Series, Preliminary Map, scale 1:15,840 or 1 inch to 1/4 mile. Geology 1980, 1981.

Kresz, D.U.

1984: Evolution of an Archean Greenstone Belt in the Stormy Lake-Kawashegamuk Lake Area (Stratigraphy, Structure, and Geochemistry), Western Wabigoon Subprovince, Northwest Ontario; Unpublished M.Sc. Thesis, Brock University, 262p.

1987: Geology of the Kawashegamuk Lake Area, Kenora District; Ontario Geological Survey, Open File Report 5659, 201 p., 14 figures, 13 tables, 18 photos, 3 appendices, and 3 maps in back pocket.

Leaming, S.F.

1948: Gold Deposits on Eagle Lake, Ontario; M.Sc. Thesis, University of Toronto, 48p.

Macdonald, A.J.

1984: Gold Mineralization in Ontario: The Role of Banded Iron Formation; p. 412-430 in Chibougamau-Stratigraphy and Mineralization, edited by J. Guha and E. H. Chown, Canadian Institute of Mining and Metallurgy, Special Volume 34.

McInnes, W.

1898: Untitled report of fieldwork for 1897; p. 38A-43A in Summary Report on the Operations of the Geological Survey for the Year 1897, by G. M. Dawson, Geological Survey Canada, Volume 10, Part A, 156p.

1902: Manitou Lake sheet; Geological Survey Canada, Map No. 720, scale 1 inch to 4 miles (1:253,440).

1906: Ignace Sheet: Geological Survey Canada, Map No.1 0, scale 1 inch to 4 miles (1:253,440).

Melling, D.R., Blackburn, C.E., Watkinson, D.H., and Parker, J.R.

In preparation: Geological Setting of Gold, Western Wabigoon Subprovince Canadian Shield: Exploration Targets In Mixed Volcanic Successions; Canadian Journal of Earth Sciences (submitted).

Miller, W.G.

1903: Mines of Northwestern Ontario: Lake Manitou Gold Area; Ontario

Bureau of Mines, Volume 12, Part 1, p. 91-92.

Moorhouse, W.W.

1941: Geology of the Eagle Lake Area; Ontario Department of Mines, Volume 48, Part 4, p. 1-31. Accompanied by Map 48d, scale 1:63,360 (1 inch to 1 mile).

Moreton, E.P. and Gerber, R.

1985: Stratigraphy and Hydrothermal Alteration in an Archean Structural Zone, the Katisha Lake Area, Wabigoon Subprovince, Northwestern Ontario; p. 59 in Technical Sessions and Abstracts, edited by C. E. Blackburn, Institute on Lake Superior Geology, 31st Annual Meeting, Kenora, Ontario, 121p.

Mutschler, F.E., Griffin, M.E., Stevens, D.S., and Shannon Jr., S.S.

1985: Precious Metal Deposits Related to Alkaline Rocks in the North American Cordillera - An Interpretive Review, Trans. Geol. Soc. S. Afr., 88, p. 355-377.

OGS

1980: Airborne Electromagnetic and Total Intensity Magnetic Survey, Manitou-Stormy Lakes Area, District of Kenora, by Kenting Earth Sciences Limited for Ontario Geological Survey, Geophysical-Geochemical Series, Maps 80458, 80459A, 80459B, 80460, 80461A, 80461B, 80462A, 80462B, 80463, 80464, 80465A, 80465B, 80466A, 80466B, 80467A, 80467B, 80468, 80469, 80470, 80471, 80472A, 80472B, 80473A, 80473B, 80474, 80475, 80476, 80477, 80478, 80479, scale 1:20,000, Survey and Compilation, November, December 1979 and January, February 1980.

1987: Airborne Electromagnetic and Total Intensity Magnetic Survey. Dryden Area, District of Kenora, Ontario: by Geoterrex Limited, for Ontario Geological Survey, Geophysical/Geochemical Series. Maps 80953, 80954, 80956, 80957, 80958, 80959, 80960, 80961, 80962, 80963, 80964, 80965, 80966, 80967, 80968, 80969, 80970, 80971, 80972, 80973, 80974, 80975, 80976, 80977, 80978, 80979, 80980, 80981, 80982, 80983, 80984, 80985, 80986, 80987, 80988, 80989, 80990, 80991, 80992, 80993, 80994, 80995, 80996, 80997, 80998, 80999, 81000, 81001, 81002 Scale 1:20,000. Survey and compilation from September 1986 to February 1987.

Page, R.O.

1984: Geology of the Lateral Lake Area, District of Kenora, Ontario Geological Survey Open File Report 5518, 175 p., 8 tables, 12 photos, 13 figures, and 4 maps in back pocket.

Parker, J.R.

1986: Dryden-Ignace Economic Geologist Program; p. 20-41 in Report of Activities 1985, Regional and Resident Geologist, edited by C.R. Kustra, Ontario Geological Survey, Miscellaneous Paper 128, 340p.

Parker, J.R. and Blackburn, C.E.

1986: Controls on Gold Mineralization at Eagle-Wabigoon Lakes, Dryden, Ontario; Unpublished text of a paper presented at the Ontario Geological Survey Geoscience Research Seminar, Toronto, 1986.

Parker, J.R. and Schienbein, R.

1988a: Precambrian Geology of the Flambeau Lake-Larson Bay Area, Western Part, District of Kenora; Ontario Geological Survey, Map P.3111, Geological Series, Preliminary Map, Scale 1:4800 or 1 inch to 400 feet. Geology 1985, 1986.

1988b: Precambrian Geology of the Flambeau Lake-Larson Bay Area, Eastern Part, District of Kenora; Ontario Geological Survey, Map P.3112, Geological Series, Preliminary Map, Scale 1:4800 or 1 inch to 400 feet. Geology 1985, 1986.

Parker, J.R., Engler, T., and Schottroff, A.

In preparation: Precambrian Geology of the Fornieri Bay-Hardrock Bay Area, Eagle Lake, District of Kenora; Ontario Geological Survey, Geological Series, Preliminary Map, Scale 1:4800 or 1 inch to 400 feet. Geology 1987.

Parsons, A.L.

1911: Gold Fields of Lake of the Woods, Manitou, and Dryden; Ontario Bureau of Mines, Volume 20, Part 1, p. 153-198.

1912: Gold Fields of Lake of the Woods, Manitou and Dryden; Ontario Bureau of Mines, Volume 21, Part 1, p. 169-204.

Pettijohn, F.J.

1939: "Coutchiching" of Thunder Lake, Ontario; Bull. Geol. Soc. Amer., Vol.50, No.5, p.761-775.

Pitt, A.

1938: The Manitou, p. 62, Wilson, Dryden.

Pyke, D.R.

1981: Relationship of Gold Mineralization to Stratigraphy and Structure in Timmins and Surrounding Area; p. 1-15 in Genesis of Archean, Volcanic-Hosted Gold Deposits, Symposium Held at the University of Waterloo, March 7, 1980, Ontario Geological Survey, Miscellaneous Paper 97, 175p.

Ramsay, J.G.

1967: Folding and Fracturing of Rocks; McGraw-Hill, New York, 568p.

Roberts, R.G.

1987: Archean Lode Gold Deposits; Geoscience Canada, Volume 14, Number 1, p. 37-52.

Sage, R.P., Breaks, F.W., Stott, G.M. and McWilliams, G.M., and Atkinson, S.

1974: Operation Ignace-Armstrong, Ignace-Graham Sheet, Districts of Thunder Bay, Kenora, and Rainy River; Ontario Div. of Mines, Preliminary Map P.964, Geol. Ser., scale 1 inch to 2 miles. Geology 1973.

Satterly, J.

1943: Geology of the Dryden-Wabigoon Area; Ontario Department of Mines, Volume 50, part 2, p. 1-67. Accompanied by Map 50e, scale 1:63,360 (1 inch to 1 mile).

1960: Geology of the Dyment Area; Ontario Department of Mines, Volume 59, Part 6, p. 1-32. Accompanied by Map 1960h, scale 1:31,680 (1 inch to 1/2 mile).

Sutcliffe, R.H., and Smith, A.R.

1985: Precambrian Geology of the Mulcahy Gabbro, District of Kenora; Ontario Geological Survey, Map P. 2826, Geological Series, Preliminary Map, scale 1:15,840 or 1 inch to 1/4 mile. Geology 1984.

Tanton, T.L.

1938: Preliminary Report, Ignace Sheet, Southwest Quarter, Kenora District, Ontario; Geological Survey of Canada, Paper 38-13, 11p. Accompanied by one map, scale 1 inch to 2 miles.

Teal, P.R.

1979: Stratigraphy, Sedimentology, Volcanology, and Development of the Archean Manitou Group, Northwestern Ontario, Canada; Unpublished Ph.D. Thesis, McMaster University, 310p.

Thomson, J.E.

1917: Dryden Gold Area; Ontario Bureau of Mines, Volume 26, p. 163-189.

1934: Geology of the Manitou-Stormy Lakes Area; Ontario Department of Mines, Volume 42, Part 4, 1933, p. 1-40. Accompanied by Map 42c, scale 1:63,360 (1 inch to 1 mile).

1935: Geology of the Straw-Manitou Lakes Area; Ontario Division of Mines, Volume 43, Part 4, 1934, p. 1-32. Accompanied by Map 43a, scale 1:63,360 (1 inch to 1 mile).

1942: Some Gold Deposits Near Goldrock, Upper Manitou Lake; Ontario Department of Mines, Volume 47, Part 6, 1938, p. 1-10. Accompanied by Map 47k, scale 1:48,000 (1 inch to 400 feet).

Thurston, P.C.
1986: Volcanic Cyclicity in Mineral Exploration; the Caldera Cycle and Zoned Magma Chambers; p. 104-123 in Volcanology and Mineral Deposits, edited by John Wood and Henry Wallace, Ontario Geological Survey, Miscellaneous Paper 129, 183p.

Tower, W.O.
1942: Mines of Ontario in 1941; Ontario Bureau of Mines, Volume 51, Part 1, 1941 p. 64-236.

1943: Mines of Ontario in 1942; Ontario Bureau of Mines, Volume 52, Part 1, 1942 p. 68-230.

Tremblay, M.
1940: Statistical Review of the Mineral Industry of Ontario for 1939, Ontario Department of Mines, Volume 49, Part I, 1939, p. 1-54.

1943: Statistical Review of the Mineral Industry of Ontario for 1942, Ontario Department of Mines, Volume 52, Part 1, 1942, p. 1-50.

1944: Statistical Review of the Mineral Industry of Ontario for 1943, Ontario Department of Mines, Volume 53, Part 1, 1943, p. 1-52.

Trowell, N.F., Blackburn, C.E., Edwards, G., and Sutcliffe, R.H.

1977: Savant Lake-Crow Lake Special Project, Districts of Thunder Bay and Kenora; p. 29-50 in Summary of Field Work, 1977, by the Geological Branch, edited by V. G. Milne, Owen L. White, R. B. Barlow, and J. A. Robertson, Ontario Geological Survey, Miscellaneous Paper 75, 208p.

Trowell, N.F., Blackburn, C.E., and Bartlett, J.R.

1978: Savant Lake-Crow Lake Special Report, District of Thunder Bay and Kenora; p.28-44 in Summary of Field Work 1978 by Ontario Geological Survey, edited by V.G. Milne, Owen L. White, R.B. Barlow, and J.A. Robertson, Ontario Geological Survey, Miscellaneous Paper 82, 225p.

Trowell, N.F., Blackburn, C.E., and Edwards, G.R.

1980: Preliminary Synthesis of the Savant Lake-Crow Lake Metavolcanic-Metasedimentary Belt, Northwestern Ontario, and its Bearing upon Mineral Exploration; Ontario Geological Survey, Miscellaneous Paper 89, 30p. Accompanied by Chart A.

Young, A.C.

1937: Statistical Review of the Mineral Industry of Ontario for 1936, Ontario Department of Mines, Volume 46, Part 1, 1936, p. 1-69.

1938: Statistical Review of the Mineral Industry of Ontario for 1937, Ontario Department of Mines, Volume 47, Part 1, 1938, p. 1-59.

## APPENDIX A

LIST OF GOLD OCCURRENCES, PROSPECTS, AND PAST PRODUCING MINES IN THE DRYDEN-IGNACE AREA (KEYED TO LOCATION MAP A IN BACK POCKET)

## LIST OF GOLD OCCURRENCES, PROSPECTS, AND PAST PRODUCING MINES IN THE DRYDEN-IGNACE AREA (KEYED TO LOCATION MAP A IN BACK POCKET)

The following is an up-to-date (as of 1986) list of all known gold occurrences, prospects, and past producing mines in the immediate Dryden-Ignace area. The list is keyed to a location map included in the back pocket. Properties in the vicinity of western Minnitaki Lake and Lower Manitou Lake have been included for completeness, but have not been discussed in the text of this Open File Report. An Occurrence is herein defined as a deposit on which less than 600m of diamond drilling was carried out; a Prospect is a deposit on which undergound development or more than 600m of diamond drilling was carried out, or where there has been significant surface work; and a Past Producer or Mine, is a former producer of any amount of the commodity.

1. A.D. 75 Occurrence - Melgund Township, Con. I, lot 9
2. A.D. 84 Occurrence - Melgund Township, Con. III, lot 7
3. A.D. 87 Occurrence - Melgund Township, Con. I, lot 10
4. *Ahearn, W., Occurrence - Van Horne Township, Con. I, lot 3
5. A.L. 88 Occurrence - Van Horne Township, Con. I, lot 12
6. A.L. 208 Occurrence - Boyer Lake area
7. *A.L. 211 Occurrence - Lower Manitou Lake area
8. Alto-Gardnar Prospect (alternate names: Sandybeach Lake Syndicate Property or Sandybeach Lake Occurrence) - MacFie Township
9. *American Jack Occurrence - Contact Bay area
10. Armstrong Occurrence - Boyer Lake area
11. Aubrey Lake Occurrence (former mining location A.S. 16) - Aubrey Township Con. IV, lot 6
12. Baden Powell Mine - Buchan Bay area
13. Barkers' Prospect (alternate name: Barker Bros. Mine) - Barker Bay Area
14. *Barritt Bay Occurrence (mining location H.W. 133) - Zealand Township, Con. I, lot 8 and 9
15. Beck Lake Occurrence (alternate name: Watson Occurrence) - Lower Manitou Lake area
16. Beehive Prospect - Lower Manitou Lake area
17. Big Dick Prospect (mining location H.W. 66) - Boyer Lake area
18. Big Master Mine (alternate name: Kenwest Mine) - Boyer Lake area
19. *Big Ruby Occurrence (mining locations H.W. 125 or H.W. 126) - Southworth Township, Con. IV, lot 8
20. B.J. 12 Prospect - Kabik Lake area and Pickerel Township
21. Black Fox Occurrence-Hodgson Township
22. Bonanza Mine - Van Horne Township, Con. I, lot 7
23. Brockman Prospect (alternate name: Northwestern Ontario Exploration Company Occurrences; former mining locations H.W. 417, H.W. 418 and H.W. 419) - Tabor Lake area
24. Buffalo Prospect - Garnet Bay area
25. Butler Lake Prospect - Butler Lake area
26. Calder-Bousquet Occurrence - Laval Township
27. Campbell Occurrence - Kabik Lake area and Pickerel Township
28. Camreco Prospect - Echo and McAree Townships
29. Church Lake Prospect (alternate name: Bronger, O.H. Occurrence; former mining claim K.9194) - Kawashegamuk Lake area
30. Concession I, lot 4 (north half) Occurrence - Melgund Township

31. Concession I, lot 5 (northwest corner) Occurrence - Melgund Township
32. Concession II, lot 5 (south half) Occurrence - Melgund Township
33. Concession III, lot 2 (south half) Occurrence - Melgund Township
34. Concession IV, lot 11 (northeast corner of mining location S.V. 338) Occurrence - Revell Township
35. Concession VI, lot 4 (north half) Occurrence - Melgund Township
36. Concession VI, lot 10 Occurrence - Revell Township
37. Concession VI, lot 12 (northeast corner of mining location S.C. 1) Occurrence - Revell Township
38. Conecho Prospect - Echo Township, Con. I, lot 9
39. Consolidated Mosher Mines Limited Prospect - Kabik Lake area and Pickerel Township
40. *Cox Occurrence - Kawashegamuk Lake area
41. *D. 138 Occurrence - Harper Lake area
42. Detola Prospect (alternate names: Detola Mine or Tecumseh Property) - Boyer Lake area
43. Drake Prospect - Van Horne Township, Con. I, lot 9
44. Dryden-Red Lake Prospectors Occurrence - Lower Manitou Lake area
45. Dumond Occurrence - Hyndman Township
46. E.161 Occurrence - Melgund Township, Con. IV, lot 6
47. E.163 Occurrence - Melgund Township, Con. IV, lot 2
48. Eaglelund Occurrence - Pickerel Township, Con. V, lot 7
49. East Zone, Flambeau Lake Prospect (mining location A.L. 90) - Van Horne Township, Con. I, lot 12 and Aubrey Township, Con. I, lot 1
50. E.D.B. 1 Prospect (alternate name: S.224 Occurrence) - Contact Bay area
51. Eldorado Mine - Garnet Bay area
52. Elora Mine (alternate name: Jubilee Mine) - Boyer Lake area
53. Fornieri Bay Prospect (alternate name: Kirkland Lake Prospectors' Syndicate Option) - Buchan Bay area
54. Frederick Mining Occurrence - Buchan Bay area
55. Frenchman Island Occurrence - Harper Lake area
56. Frenchman Island-St. Joe Occurrences - Harper Lake area
57. Fuchsite Zone Occurrence - Harper Lake area
58. Gaffney Prospect (alternate name: Manitou Island Prospect) - Lower Manitou Lake area
59. Geisler-Koistinen Occurrence (alternate name: Tobacco Lake Occurrence) - Turtlepond Lake area
60. Giant Prospect (mining location H.W. 74) - Boyer Lake area
61. Glass Reef Prospct (mining locations H.W. 594 and H.W. 391) - Lower Manitou Lake area
62. Glatz-Pritchard Lake Occurrence - Van Horne Township, Con. I, lot 11
63. Glatz-West Zone Occurrence (former mining location A.D. 88) - Melgund Township, Con. I, Lot 11
64. Gold Quartz Mining Company Occurrence (mining location V.33) - Hyndman Township
65. Golden Eagle Mine - Garnet Bay area
66. Golden Moose Prospect (alternate name: Gold Moose Mine) - Van Horne Township, Con. I, lot 8
67. Golden Park Occurrence - Van Horne Township, Con. II, lot 5
68. Goldlund Mine (alternate names: Lunward Mine and Newlund Mine)

- Echo Township, Con. I, II, III, lots 2 to 7
69. Gold Rock Mine (alternate names: Goldrock Mine, Vaughn Mines Occurrence, Haycock Occurrence, Rooney Occurrence, mining location D.141) - Harper Lake area
70. Goldrock Zone Occurrence (claim K.733106) - Boyer Lake area
71. Good Luck Prospect - Van Horne Township, Con. I, lot 8
72. Grace Mine (alternate name: Higbee Mine) - Garnet Bay area
73. Graham-Bousquet Occurrence - Laval Township
74. Harrison, J. Occurrence - Buchan Bay area
75. Hays and Campbell Occurrence - Van Horne Township, Con. I, Lot 5
76. Helena Prospect - Boyer Lake area
77. H.P. 267 Prospect (alternate name: Quackenbush Location) - Lower Manitou Lake area
78. *H.P. 376 Occurrence - Boyer Lake area
79. Hutchinson Occurrence - Van Horne Township, Con. II, lot 9
80. H.W. 123 Occurrence - Southworth Township, Con. IV, lot 6
81. *H.W. 144 Occurrence - Lower Manitou Lake area
82. *H.W. 167 Occurrence - Boyer Lake area
83. *H.W. 170 Occurrence - Boyer Lake area
84. H.W. 326 Occurrence - Boyer Lake area
85. H.W. 456 Occurrence (alternate name: Hoey and McMillan Property) - Kawashegamuk Lake area
86. H.W. 479 Occurrence - Tabor Lake area
87. H.W. 486 Occurrence - Melgund Township, Con. I, lot 5
88. H.W. 586 Occurrence - Kabik Lake area and Pickerel Township
89. H.W. 595 Occurrence - Lower Manitou Lake area
90. H.W. 609 Occurrence - Revell Township, Con. IV, lot 8
91. H.W. 611 Occurrence - Revell Township, Con. IV, lot 8
92. H.W. 673 Occurrence - Revell Township, Con. IV, lot 6
93. H.W. 773 Occurrence - Boyer Lake area
94. Ideal Prospect - Van Horne Township, Con. I, lot 8
95. Imperial Occurrence (former mining location G.19) - Boyer Lake area
96. Johnson-Contact Bay Occurrence - Contact Bay area
97. Johnson-Whitewater Lake Occurrences - Turtlepond Lake area
98. J.P. Occurrence - Van Horne Township, Con. I, lot 4
99. K.812786 Occurrence - Turtlepond Lake area
100. King Edward Occurrence (former mining location H.W. 171) - Lower Manitou Lake area
101. *Kishkutena Occurrence (mining locations H.P. 367 to H.P. 389 inclusive) - Boyer Lake area
102. K.R.L. 30579 Occurrence - Pickerel Township, Con. IV, lot 9
103. Lady Marion Prospect (mining location H.W. 525) - Revell Township, Con. IV, lot 6
104. Lantz Occurrence - Echo Township, Conc. II and III, lot 2
105 *Last Chance Occurrence (alternate name: P. Whytock Property, mining location S. 28) - Boyer Lake area
106. Laurentian Mine - Boyer Lake area
107. League Prospect (alternate names: Gold Coin Mine or League Mine) - Van Horne Township, Con. I, lot 6
108. Lee Lake Occurrence (former claims K.9885-K.9888, formerly mining locations N.T. 14 and H.W. 581) - Kawashegamuk Lake area
109. Little Jumbo Prospect (alternate names: Pitt or Walker Occurrence) - Van Horne Township, Con. I, lot 10
110. Little Master Prospect (alternate name: Little Master Mine) -

Boyer Lake area

111. *Location 165P. Occurrence - Harper Lake area
112. Lone Jack Occurrence (alternate name: Lone Jack Mine) - Van Horne Township, Con. I, lot 11
113. Lone Pine Prospect (alternate name: Lone Pine Mine; former mining location R.L. 33) - Aubrey Township, Con. II, lot 6
114. Long Lake-McCracken Occurrence (alternate name: Long Lake Mine on former claims K.9904-K.9907, formerly mining locations S.V. 353, S.V. 354, S.V. 355, and H.W. 575) - Kawashegamuk Lake area
115. Long Lead Prospect - Contact Bay area
116. Longe, R. Occurrence - Buchan Bay area
117. Lost Mine (alternate name: Lost Prospect) - Van Horne Township, Con. I, lot 6
118. Lunch Box Bay Zone Occurrence - Boyer Lake area
119. Machin Occurrence - Van Horne Township, Con. II, lot 11
120. Manhattan Occurrence - Buchan Bay area
121. Maw Occurrence (former mining location H.W. 477) - Tabor Lake area
122. *McCracken Occurrence - Hyndman Township
123. McCracken-Cameron Occurrence - Aubrey Township, Con. IV, lot 15
124. McEdna Prospect (alternate name: Edna Mine; former mining location McA. 29) - Boyer Lake area
125. McLean Syndicate Occurrence - Kawashegamuk Lake area
126. Meridian Bay Occurrence - Osbourne Bay area
127. Midas Prospect (mining location H.W. 409) - McAree Township
128. Minnehaha Lake Prospect (former mining locations S.V. 434 and S.V. 435) - Turtlepond Lake area
129. Misfit Lake Occurrence - Kabik Lake area and Pickerel Township
130. Monroe and Hutchison Occurrence (alternate names: K.560680 Occurrence or Eastern Townships Mining and Development Company Limited Property) - Van Horne Township, Con. V, lots 1 and 2
131. Moose Bay Prospect (alternate name: Moose Lake Mine; former mining locations H.W. 6, H.W. 38, and H.W. 63) - Turtlepond Lake area
132. Morning Star Prospect (alternate name: Swanson Occurrence) - Buchan Bay area
133. Mosher Long Lac Gold Mines Prospect - Echo Township Con. II and III, lot 1 and Con. II, lot 2 (northeast corner)
134. *National Prospect (alternate name: National Mine; mining location H.W. 78) - Boyer Lake area
135. New Brown Lake Occurrence - Tabor Lake area
136. New Church Lake Prospect - Kawashegamuk Lake area
137. New East Zone, Flambeau Lake Prospect (mining location A.L.90) - Aubrey Township, Con. I, lot 1
138. New Kelore Mines Limited Occurrence - Kabik Lake area and Pickerel Township
139. New Klondike Prospect (mining locations S.V. 254 and S.V. 263) - Melgund Township, Con. III, lots 3 and 4
140. New Showing Occurrence - Hyndman Township
141. Niemi Occurrence - Southworth Township, con. III, lot 6
142. No. 3 Vein Occurrence - Hyndman Township
143. North Twin Island Occurrence - Garnet Bay area
144. Northern Queen Occurrence (mining location H.W. 130) - Zealand Township, Con. II, lot 3
145. Old Showing Occurrence - Hyndman Township

146. Oldberg Lake Occurrence (former mining location H.W. 434) - Kawashegamuk Lake area
147. *Orion Prospect - Lower Manitou Lake area
148. Oxford Prospect (alternate name: Robin Hood Gold Mine; former mining location S.V. 129) - Boyer Lake area
149. P. 75 Occurrence - Hyndman Township
150. P. 99E, 93E Occurrence - Hodgson Township
151. P. 133 Occurrence - Boyer Lake area
152. Pathfinder Prospect (former mining locations A.D. 89, A.D. 72, A.D. 68) - Melgund Township, Con. I, lots 9 and 10
153. Paymaster Prospect (alternate name: Paymaster Mine) - Boyer Lake area
154. Pelham Prospect (alternate names: Washeibemaga Lake Occurrence or Fornieri Option) - Boyer Lake area
155. Peninsula Zone Occurrence - Harper Lake area
156. Peninsular Prospect (mining location H.W. 31) - Harper Lake area
157. Petrie, D.C., Occurrence - Barker Bay area
158. Pidgeon-Avery Township Prospect (alternate name: L. Pidgeon Gold Occurrence) - Avery Township
159. Pidgeon-Bob Lake Occurrence (patented claim K.33346) - Contact Bay area
160. Pidgeon-Hyndman Township Occurrence (former mining location H.W. 534) - Hyndman Township
161. Pidgeon-Trap Lake Occurrence - Contact Bay area
162. Pidgeon-Wabigoon Lake Occurrence (alternate name: I.R. 27 Occurrence) - Butler Lake area
163. Pincher Creek Zone Occurrence (claims K.696307, K.696308, K.696309) - Boyer Lake area
164. Pioneer Island Prospect - Garnet Bay area
165. Quackenbush Prospect (mining location H.P. 375) - Boyer Lake area
166. Queen Alexandra Mine (former mining location H.W. 270) - Lower Manitou Lake area
167. Quyta Occurrence - Pickerel Township, Con. VI, lots 4 and 5
168. R. 540 Occurrence - Aubrey Township, Con. I, lot 1
169. R. 544 Occurrence - Van Horne Township, Con. I, lot 12
170. R. 545 Occurrence - Van Horne Township, Con. I, lot 12
171. R. 546 Occurrence - Van Horne Township, Con. I, lot 12
172. R. 547 Occurrence - Aubrey Township, Con. I, lot 1
173. Redeemer Mine (alternate name: Hermann and Larson Mine) - Van Horne Township, Con. I, lot 6
174. Reliance Prospect (alternate names: Independence Mine or Westerfield Mine) - Lower Manitou Lake area
175. Renders, P.J. Occurrence (alternate name: Patterson Occurrence) - Meggisi Lake area
176. Rivers Option - McAree Township
177. Rognon Mine - Contact Bay area
178. Royal Sovereign Prospect (alternate name: Lower Neepawa Property) - Lower Manitou Lake area
179. *S.500 Prospect - Line Lake area
180. Sakoose Mine (alternate names: Munroe and Watson Mine, Van Houten Mine, or Golden Whale) - Tabor Lake area
181. Schmidt-Wallbridge Prospect - Keikewabik Lake area
182. Selby Lake Prospect (mining location H.P. 405, mining claims K.918, K.919) - Boyer Lake area

183. Snake Bay Prospect (including: Twilight Zone, Fiji Zone, Zig Zone, Old Timer's Zone, Main Katisha Zone, 'O' Zone) - Kawashegamuk Lake area
184. Sovereign-Peak Lake Prospect - Turtlepond Lake area
185. Sovereign Sister Occurrence - Turtlepond Lake area
186. Standon Occurrence - McAree Township
187. Starr Occurrence - Turtlepond Lake area
188. Sulpetro Occurrence - Tabor Lake area
189. Superstition Occurrence - Tabor Lake area
190. S.V. 210 Occurrence - Melgund Township, Con. II, lot 5
191. S.V. 211 Occurrence - Melgund Township, Con. I, lot 5
192. S.V. 372 Occurrence (alternate name: Larson Occurrence) - Contact Bay area
193. Swamp Occurrence (former mining location H.W. 642) - Revell Township, Con. V, lot 5
194. Swede Boys Island Prospect (alterenate name: Swede Boys Island Occurrence; former mining locations H.P.259, H.P.260) - Harper Lake area
195. Swede Boy Prospect (mining locations H.P.304 and H.P. 384) - Lower Manitou Lake area
196. Tabor Lake Mine - Tabor Lake area
197. Trafalgar Bay Zone Occurrence - Boyer Lake area
198. Twentieth Century Mine (mining location H.P. 399) - Lower Manitou Lake area
199. V. 37 Occurrence - Revell Township, Con. II, lot 1
200. Van Houten Mine - Turtlepond Lake area
201. Vanlas Prospect (alternate names: Grimsby Gold Mining Company Property, Gordon Occurrence, Dryden Mining Company Property, or Cleveland Mining Company Property) - Van Horne Township, Con. I, lot 11
202. Victory Occurrence (alternate name: Upper Neepawa Property; mining location McA.28) - Boyer Lake area
203. Viking Prospect - Garnet Bay area
204. *Volcanic Reef Prospect (alternate name: Vulcan Property) - Boyer Lake area
205. Voyager Occurrences - Kawashegamuk Lake area
206. *Wabigoon Lake Occurrence (alternate name: Daunais Bay Occurrence) - Butler Lake area
207. Wachman Prospect (alternate name: Wachman Mine) - Contact Bay area
208. West Zone, Flambeau Lake Prospect (former mining location R.541) - Aubrey Township, Con. I, lot 2
209. *Wetelainen Occurrence - Lower Manitou Lake area
210. Whitewater Lake Occurrence - Turtlepond Lake area
211. Widow's Showing Occurrence (alternate name: A.L. 89 Occurrence) - Van Horne Township, Con. I, lot 12
212. Wilkinson-Bob Lake Occurrence - Contact Bay area
213. Windward Prospect - Echo Township, Con. I, lots 7 and 8
214. W.W. Smith Prospect (alternate names: Magdalena or Hardrock Bay Occurrence; patented claims K.12180 to K.12185 inclusive, K.12222, K.12223, K.12196) - Buchan Bay area

* Property locations determined from references to old claims in O.B.M. reports, however, exact location of development work is uncertain.

Properties not indicated on the location maps, due to a lack of information verifying their existence and/or their locations are:

1. Anderson Lake Occurrence (alternate name: Sandybeach Lake Occurrence) - MacFie Township
2. Dead Dog Occurrence - Satterly Township
3. Foulis Prospect - Boyer Lake area
4. Godson Lake Occurrence - Turtlepond Lake area
5. H.P. 298 Occurrence - Boyer Lake area
6. H.W. 311 Occurrence - Southworth Township, Con. IV, lots 6 and 7
7. Maryjo Lake Occurrence - Turtlepond Lake area
8. McKenzie Creek Occurrence - Hartman Township, Con. I, lot 1

# APPENDIX B

DESCRIPTIONS OF SELECTED GOLD DEPOSITS VISITED DURING
THE DRYDEN-IGNACE ECONOMIC GEOLOGIST PROGRAM

DESCRIPTIONS OF SELECTED GOLD DEPOSITS VISITED DURING

THE DRYDEN-IGNACE ECONOMIC GEOLOGIST PROGRAM

(Number in Brackets is the Location Number of the Gold Deposit on Location Map A in the Back Pocket)


A.D. 75 Occurrence (1) ....162
A.L. 88 Occurrence (5) ....164
Alto-Gardnar Prospect (8) ....166
Aubrey Lake Occurrence (11) ....168
Baden-Powell Mine (12) ....169
Big Ruby Occurrence (19) ....171
Bonanza Mine (22) ....173
Brockman Prospect (23) ....176
Buffalo Prospect (24) ....178
Butler Lake Prospect (25) ....180
Church Lake Prospect (29) ....182
Drake Prospect (43) ....184
Dumond Occurrence (45) ....185
E. 163 Occurrence (47) ....187
East Zone, Flambeau Lake Prospect (49) ....188
E.D.B. 1 Prospect (50) ....191
Eldorado Mine (51) ....193
Fornieri Bay Prospect (53) ....195
Frederick Mining Occurrence (54) ....198
Frenchman Island Occurrences (55, 56) ....200
Fuchsite Zone Occurrence (57) ....202
Glatz-West Zone Occurrence (63) ....203
Golden Eagle Mine (65) ....205
Golden Moose Prospect (66) ....207
Golden Park Occurrence (67) ....209
Good Luck Prospect (71) ....210
Grace Mine (72) ....212
Harrison, J. Occurrence (74) ....214
H.W. 123 Occurrence (80) ....215
H.W. 486 Occurrence (87) ....216
H.W. 673 Occurrence (92) ....217
Ideal Prospect (94) ....218
Johnson-Contact Bay Occurrence (96) ....220
Johnson-Whitewater Lake Occurrences (97) ....221
K.812786 Occurrence (99) ....224
Lady Marion Prospect (103) ....225
League Prospect (107) ....226
Little Jumbo Prospect (109) ....228
Lone Jack Occurrence (112) ....230
Lone Pine Prospect (113) ....231
Long Lead Prospect (115) ....233
Longe, R., Occurrence (116) ....234
Lost Mine (117) ....236
Lunch Box Bay Zone Occurrence (118) ....239
Manhattan Occurrence (120) ....240
McEdna Prospect (124) ....241

Meridian Bay Occurrence (126) ....................................243
Midas Prospect (127) ..............................................245
Minnehaha Lake Prospect (128) .....................................246
Moose Bay Prospect (131) ..........................................248
Morning Star Prospect (132) .......................................250
New Church Lake Prospect (136) ....................................252
New East Zone, Flambeau Lake Prospect (137) .......................254
New Klondike Prospect (139) .......................................256
Niemi Occurrence (141) ............................................258
No. 3 Vein Occurrence (142) .......................................260
North Twin Island Occurrence (143) ................................261
Old Showing Occurrence (145) ......................................262
Oxford Prospect (148) .............................................263
Pathfinder Prospect (152) .........................................265
Peninsula Zone Occurrence (155) ...................................267
Pidgeon-Avery Township Prospect (158) .............................268
Pidgeon-Bob Lake Occurrence (159) .................................271
Pidgeon-Hyndman Township Occurrence (160) .........................272
Pidgeon-Trap Lake Occurrence (161) ................................274
Pidgeon-Wabigoon Lake Occurrence (162) ............................276
Pioneer Island Prospect (164) .....................................278
R.544 Occurrence (169) ............................................279
R.545 Occurrence (170) ............................................280
Redeemer Mine (173) ...............................................281
Rognon Mine (177) .................................................284
Sovereign-Peak Lake Prospect (184) ................................286
S.V. 372 Occurrence (192) .........................................288
Trafalgar Bay Zone Occurrence (197) ...............................290
Vanlas Prospect (201) .............................................291
Viking Prospect (203) .............................................294
Wachman Prospect (207) ............................................295
West Zone, Flambeau Lake Prospect (208) ...........................297
Widow's Showing Occurrence (211) ..................................299
Wilkinson-Bob Lake Occurrence (212) ...............................301
W.W. Smith Prospect (214) .........................................303

A.D. 75 OCCURRENCE

NTS 52F/9SW

LOCATION AND ACCESS

The A.D. 75 Occurrence is located on mining location A.D. 75 in Concession I, lot 9, Melgund Township. The property is accessible by the Melgund 8C road which branches west from the Sandy Point Road, 5.3 km south of its intersection with Highway 17 at Borups Corners. The occurrence is 230 m north of the road, approximately 2.2 km west of its intersection with the Sandy Point Road.

DESCRIPTION

Geology: The occurrence is underlain by dominantly mafic metavolcanic flows intercalated with felsic flows and intruded by felsic dikes. The occurrence is 4.0 km west of the contact between the Revell Batholith and the metavolcanics.

Mineralization: The occurrence consists of weakly to moderately carbonatized mafic metavolcanic flows intruded by felsic dikes. Two pits have been sunk on quartz veins hosted by the felsic dikes.

Pit No. 1

A 0.3 m wide stockwork of quartz veins are controlled by a 1.5 m to 1.8 m wide northeast-trending (053°, 063°) shear/fracture zone in a felsic dike. Sheared, fissile wall rock is situated immediately next to the veins but most of the wall rock is massive, hard, and blocky. The wall rock is pale gray-green, weakly carbonatized, silicified, and contains 1-2% pyrite and fuchsite. The white quartz veins contain abundant crystalline iron carbonate (on fresh surfaces the carbonate is brilliant pink) and blebs of brilliant green mica. The veins contain [<1-5%] disseminated pyrite with chalcopyrite and very minor sphalerite.

Pit No.2

This pit is situated 6 m northeast of pit No. 1 and has been sunk on a 1.2 wide, brecciated, quartz-feldspar porphyry dike. The breccia zone consists of carbonatized, silicified, fuchsitic, and pyritic [<1%], angular wall rock fragments embedded in a white quartz-iron carbonate matrix. Quartz veins do not contain sulphides.

ASSAYS OF MINERALIZATION

R. Thomson (1945) reported an assay of 0.04 ounce gold per ton from a grab sample taken from the property.

Two grab samples from the pyritic quartz veins, taken by the author, assayed 100 ppb gold and 235 ppb gold.

DEVELOPMENT HISTORY

None reported.

SELECTED REFERENCES

Satterly 1960, O.D.M. Vol. 69, pt. 6, p. 25.

Field Notes by R. Thomson (1945?), Pathfinder Occurrence, Mineral Deposit Files, Resident Geologist's Office, Kenora.

## A.L.88 OCCURRENCE

NTS 52F/10NW

### LOCATION AND ACCESS

The A.L. 88 Occurrence is located at the southwest corner of mining location A.L. 88 (owned by the Town of Dryden) Concession 1, lot 12, Van Horne Township, on the north shore of Flambeau Lake, east of a small creek. The occurrence is on the lakeshore and is accessible by boat or by an old drill road which extends along the north shore of Flambeau Lake.

### DESCRIPTION

Geology: The occurrence is situated at the north end of a subvolcanic gabbro stock intruding brecciated mafic and felsic metavolcanic flows and mafic to intermediate heterolithic pyroclastic debris flows. The gabbro is intruded by felsic and mafic dikes. The occurrence is situated within the mixed, tholeiitic to calc-alkaline Lower Wabigoon Volcanics.

Mineralization: The A.L. 88 Occurrence consists of four deep test pits sunk within altered gabbro hosting a stockwork of abundant, narrow, parallel and subparallel quartz veins and stringers located in tension fractures striking 135°-140°. The quartz veins contain tourmaline, carbonate, and disseminated pyrite (1-2%). The gabbro is massive, gray-green, medium-grained, and variably altered, with weak to intense carbonate alteration (calcium carbonate with some iron carbonate), sericitization, and pyritization. The gabbro contains finely disseminated magnetite and 1-2% disseminated pyrite.

An outcrop of massive, intermediate metavolcanic flows is located immediately east of the A.L. 88 Occurrence, along the north edge of a small swampy area surrounding a small creek. The outcrop is on the east side of the creek and consists of aphanitic, gray-green, strongly magnetic, pyritic (1%), and weakly to moderately carbonatized, massive, intermediate flows. A grab sample taken from the outcrop by the author assayed 550 ppb gold.

A 1.8 m x 1.8 m x 3 m deep test pit is located at the northeast corner of mining location A.L. 88. It is situated on the south side of a small outcrop, at the edge of a small swampy area about 240 m north of Flambeau Lake. A wide shear zone striking 085° hosts a 0.3 m to 0.6 m wide, white to pinkish-red, quartz vein containing tourmaline and <1% pyrite. The host rocks are pyritic, intermediate to felsic, autoclastic flows with red-brown gossan occurring over much of the outcrop surface. The wall rocks in the shear zone are pyritic, sericitized and intensely carbonatized.

### ASSAYS OF MINERALIZATION

A grab sample, taken by the author, from quartz vein material in the most easterly trench at the lake shore assayed 0.55 ounce gold per ton, while a grab sample of the altered, pyritic, gabbro assayed 40 ppb gold.

Grab samples, taken by Voyager Explorations Limited, from the dump at the most easterly test pit at the lake shore assayed between 3267 ppb gold and 22,500 ppb gold, while grab samples from the dump at the most westerly test pit assayed between 2368 ppb gold and 13,800 ppb gold (Assessment Files, Resident Geologist's Office, Kenora).

A grab sample taken by the author from the quartz vein in the test pit at the northeast corner of A.L. 88 assayed 250 ppb gold, while a sample of the altered, pyritic, wall rock assayed 75 ppb gold.

DEVELOPMENT HISTORY

1911: Test pits were sunk on quartz veins.

1983-1984: Voyager Explorations Limited acquired the property from the Town of Dryden and conducted geological mapping, sampling, geophysical surveys, and diamond drilling on the claim.

1985: Kidd Creek Mines Limited acquired the property from the Town of Dryden and conducted geological mapping, sampling, and geophysical surveys over the claim.

1986-1987: Falconbridge Limited assumed the option from the Town of Dryden.

SELECTED REFERENCES

Parker and Schienbein 1988, O.G.S. Maps P.3111 and P.3112

Parsons 1911, O.B.M. Vol. 20, pt. 1, p. 192.

Thomson 1917, O.B.M. Vol. 26, pt. 1, p. 183.

Voyager Explorations Limited, Assessment Files, Resident Geologist's Office, Kenora.

ALTO-GARDNAR PROSPECT (SANDYBEACH LAKE SYNDICATE PROPERTY, OR SANDYBEACH LAKE OCCURRENCE)

NTS 52F/16SW

LOCATION AND ACCESS

The Alto-Gardnar Prospect is located on claim Pa. 851179, northwest of MacFie Lake in MacFie Township, southeast of Sandybeach Lake. The claim is accessible by an old gravel road which branches east from Highway 72, about 12 km north of its intersection with Highway 17 at Dinorwic. A narrow, overgrown skidder road branches north from the gravel road about 6.9 km east of its intersection with Highway 72. The skidder road continues for 8.0 km to the property.

DESCRIPTION

Geology: The Alto-Gardnar Prospect is underlain by fine-grained, chloritized, dark green-gray, mafic, metavolcanic flows intruded by wide [ $\leq$ 3m], felsic, fine-grained, gray-white, quartz-feldspar porphyry dikes. A 3 m-15 m wide, strong shear zone extends through the host rocks and strikes 064°-070° at the southwest end of the prospect and 040°-052° at the northeast end. The shear zone may have a strike length in excess of 300 m. The dip of the shear zone is variable, ranging between 050° southeast to vertical. The prospect is situated immediately west of the contact between metavolcanic rocks and granitic rocks of the Atikwa Batholith.

Mineralization: The Alto-Gardnar Prospect consists of a large open cut, 15 m long and 3 m wide, with numerous test pits extending for at least 150 m along the strike of the main vein, northeast of the open cut.

The shear zone of the Alto-Gardnar Prospect hosts a 0.3 m-4.0 m wide "main" quartz vein, and narrow, irregular quartz veins of variable thicknesses. The veins are drag-folded, boudinaged along their strikes and dips, pinch and swell, and are typically discontinuous. The veins contain disseminated clots of chalcopyrite [ $\leq$ 1%], disseminated pyrite [<1-2%], minor specular hematite and associated red staining, minor black tourmaline, iron carbonate, dark green stringers and seams of chlorite and angular fragments of the host rocks. Small blebs and flakes of gold are commonly observed with the chlorite stringers in the quartz.

Wall rocks are intensely sheared and fissile with chloritization in the mafic metavolcanic rocks and sericitization in the felsic dikes. Iron carbonate alteration is intense within the shear zone, in proximity to the quartz veins, but decreases in intensity away from the veins.

The shear zone generally consists of numerous, sinuous sections of fissile, sheared, rock, anastamosing around lenses of less deformed rock. The sheared wall rocks anastamose around almond-shaped lenses of discontinuous quartz veins. In a small test pit, northeast of the open cut, small vertical S-folds occur within the shear, along the vertical face of the outcrop. The fold axes dip 060° to the northwest with a horizontal plunge or shallow plunge to the southwest. In the large open cut the dip of the shearing changes from vertical to 060°-066° southeast. The main vein dips to the southeast and crosscuts the vertical shearing.

Felsic dikes occur within the shear zone. A dike located north of the shear zone strikes 093°, but it intersects the shear zone where its strike abruptly changes to follow the dominant direction of shearing. The dike is only sheared and altered within the shear zone. Another dike, located south of the main vein, and hosted by the shear zone, is relatively undeformed and unaltered. Quartz veins commonly fill fractures within the felsic dikes and contain angular fragments of the dike rock.

ASSAYS OF MINERALIZATION

Four grab samples taken from the main quartz vein by the author assayed 3450 ppb, 555 ppb, 700 ppb, and 110 ppb gold. However, sampling by past workers have resulted in assays over 1 ounce gold per ton (Assessment Files, Resident Geologist's Office, Kenora).

DEVELOPMENT HISTORY

1937: Staked by Pidgeon, Alto, and Gardnar.

1937: Alto and Gardnar formed Sandybeach Lake Syndicate.

1937, 1938: Optioned by Russel Clark; sampling and trenching conducted.

1940: Sandybeach Lake Syndicate conducted over 1500 feet of trenching, sampling, and drilled two holes.

1941: A 125 ton bulk sample, sent to Van Houten Gold Mines for a test run, produced 10.14 ounces gold and 2 ounces silver.

1946: Sandybeach Lake Syndicate conducted trenching and diamond drilling.

1982: Staked by Ken Bernier; blasting was done in old trenches. A property evaluation by Abitibi Price minerals Resources included chip sampling and assaying.

1986: Staked by Loydex Resources Incorporated.

1987: Optioned by G.M.L. Consulting Ltd.; airborne geophysical surveys were flown. G.M.L. Consulting Ltd. with joint venture partner, Camine Resources, conducted geological mapping, trenching, sampling, stripping, and soil sampling.

SELECTED REFERENCES

Satterly 1943, O.B.M. Vol. 50, pt. 2, p. 58-59.

Berger et al. 1987, O.G.S. Map P.3070.

Bernier, M., Assessment Files, Resident Geologist's Office, Kenora.

Gardnar-Alto Property, Assessment Files, Resident Geologist's Office, Kenora.

Loydex Resources Inc., Assessment Files, Resident Geologist's Office, Kenora.

Sandybeach Lake Syndicate, Assessment Files, Resident Geologist's Office, Kenora.

## AUBREY LAKE OCCURRENCE

NTS 52F/15SW

### LOCATION AND ACCESS

This occurrence is located on the north shore of Aubrey Lake on former mining location A.S. 16 in Concession IV, lots 5 and 6, Aubrey Township. The occurrence is accessible from Highway 594 and requires a short walk across a hay field.

### DESCRIPTION

Geology: The occurrence is underlain by mafic metavolcanic flows and interflow metasediments of the Upper Wabigoon Volcanics, intruded by felsic dikes. The mining location on which the occurrence is located straddles the Wabigoon Fault, with metawackes of the Thunder Lake Sediments at the north boundary of the claim, and metabasalt of the Upper Wabigoon Volcanics at the south claim boundary.

Mineralization: The occurrence consists of intensely sheared (080°) mafic metavolcanic flows which are chloritic, sericitized, and iron carbonatized. The metavolcanics are intruded by east-trending, altered and sheared felsic dikes. Narrow quartz stringers, black tourmaline veinlets, and layers of sulphides occur throughout the sheared rocks. Variable bleaching and silicification occur in close proximity to some of the quartz veins. The sulphide rich layers consist dominantly of pyrite and arsenopyrite with minor chalcopyrite and some red hematite staining.

### ASSAYS OF MINERALIZATION

Mr. A. Glatz (prospector, Dryden) informed the author that he had obtained assays from samples taken from the quartz veins ranging between 0.02 ounce gold per ton and 0.2 ounce gold per ton, while samples from the metavolcanic rocks assayed between 0.02 ounce gold per ton and 0.06 ounce gold per ton including an assay of 0.16 ounce silver per ton. A sample from an arsenopyrite rich sulphide layer, taken by Mr. Glatz, assayed 0.40 ounce gold per ton (Mr. A. Glatz, prospector, Dryden, personal communication, 1986).

Grab samples, taken by the author from pyritic, sheared, metavolcanics and from a pyritic quartz vein assayed trace amounts of gold. A grab sample of a sulphide-rich layer containing <1% pyrite and 1% arsenopyrite assayed 2580 ppb gold and 2.38% arsenic.

### DEVELOPMENT HISTORY

No record of work on mining location A.S. 16.

1986: Sampled by A. Glatz

### SELECTED REFERENCES

None.

BADEN-POWELL MINE

52F/11NE

LOCATION AND ACCESS

The Baden-Powell Mine is located on mining location F.M. 168 in the middle of South Twin Island on Eagle Lake. The property is accessible by boat.

DESCRIPTION

Geology: The mine is situated within granitic rocks of the Atikwa Batholith, south and west of its contact with felsic metavolcanic rocks of the Lower Wabigoon Volcanics.

Mineralization: The Baden-Powell Mine consists of two shafts, approximately 61 m apart, with shallow trenches north of the most northerly shaft. The geology of the property consists of a medium- to coarse-grained, massive, buff gray, granitic rock containing large [1cm], rounded, dark green clots of carbonate and chloritized biotite. The host rock is carbonatized (calcite), chloritized, and weakly to moderately sericitized. Pieces of feldspar porphyry were found in the waste dumps beside the shafts and consist of irregular white feldspar phenocrysts in an aphanitic, dark gray, chloritic matrix. A narrow, linear, shear zone striking 150°/90° extends through the granite and hosts a milk white quartz vein (0.45m-1.5m wide) containing clots and stringers of chlorite, pink hematite staining, rusty gossan staining and minor (1%), finely disseminated pyrite along the edges of the vein.

There is very poor exposure around the shafts due to thick overburden cover, therefore, the surrounding geology could not be observed.

ASSAYS OF MINERALIZATION

A grab sample, taken by the author, from the quartz vein at the edge of the most southerly shaft assayed <2 ppb gold. Two out of four grab samples taken from the underground workings on the first level by Mr. B. Smith, present owner of the property, assayed 0.40 and 0.42 ounce gold per ton while the other samples assayed 0.02 ounce gold per ton and trace (Mineral Deposit Files, Resident Geologist's Office, Kenora).

DEVELOPMENT HISTORY

1900: Stripping and test pitting conducted.

1902: 30 tons of ore tested at the Eldorado Mill and a shaft was planned to be sunk on an open cut.

1903: Property acquired by the Northern Light Mines Company. 83 tons of ore milled at the Eldorado Mill. Main open cut was lengthened to 50 ft. and deepened to 35 ft. A shaft was sunk to a depth of 50 ft. approximately 61m southwest of the open cut.

1904: A shaft sunk for 100 ft. on the open cut and a level was made at 60 ft. with 67 ft. of drifting. 30 tons of ore were milled.

1905: Headframe destroyed by fire and rebuilt. The shaft was deepened to

140 ft. where a second level was established. The drift on the first level was extended to 112 ft. 20 tons of ore were milled.

1906: Operations ceased during this year. Total production is recorded as 288 ounces of gold from 163 tons of ore with an average grade of 1.77 ounces gold per ton.

1985: Property acquired by Mr. B. Smith and Mr. J. Owen.

1986: Mr. Owen and Mr. Smith dewatered the main shaft to the first level, examined the drift, and conducted some preliminary grab sampling.

SELECTED REFERENCES

Bow 1901, O.B.M. Vol. 10, pt. 1, p. 96.

Carter 1904, O.B.M. Vol. 13, pt. 1, p. 65.

Corkill 1906, O.B.M. Vol. 12, pt. 2, p. 54.

Miller 1903, O.B.M. Vol. 12, pt. 2, p. 93.

Moorhouse 1941, O.B.M. Vol. 48, pt. 4, p. 23.

Baden-Powell Mine, Mineral Deposit Files, Resident Geologist's Office, Kenora.

## BIG RUBY OCCURRENCE

52F/9NW

### LOCATION AND ACCESS

The Big Ruby Occurrence is located in Concession IV, lot 8, Southworth Township, north of Dinorwic Lake. The occurrence is approximately 2.3 km south of Dinorwic, on mining locations H.W. 125 or H.W. 126 and is accessible from the Trans Canada Highway.

### DESCRIPTION

Geology: The occurrence is situated within monotonous mafic metavolcanic flows within a major shear zone associated with the Manitou Straits Fault.

Mineralization: A.P. Coleman (1898) described the occurrence as follows: "A short distance from the lake the main shaft was being sunk in chlorite schist and at the time was 30 feet deep. The vein, which is a bedded one, consists of a mixture of quartz and slate about six feet in width. Near the bottom of the shaft two feet of solid quartz was visible on the wall, but this mass may be much wider as it was not all exposed. There is considerable iron pyrites in the quartz. Near the shore of the lake a similar bedded vein has been sunk on for a few feet. The quartz is here more mixed with schist. Small grains of native copper are found on the location." The author was unable to locate the shaft. Mr. J. Gaudette, owner of the two patented claims, indicated to the author that the shaft may be buried under an old garbage dump at the extreme northwest corner of mining location H.W. 126. Mr. Gaudette stated that the previous owner of the claims had filled a deep, timbered, hole with garbage (Mr. J. Gaudette, Ignace, personal communication, 1986).

The author located a shear zone on the north shore of Dinorwic Lake, in excess of 300m wide and striking 040°, with lineations plunging 050°-060° to the southwest. The zone consists of chloritized and variably sheared mafic metavolcanics with strong iron carbonate alteration. Satterly (1943) mapped these rocks as carbonate-chlorite schist. The shear zone hosts irregular veins, clots, and discontinuous stringers of quartz-iron carbonate, as well as narrow (7cm-10 cm), horizontal, quartz-calcite filled fractures, crosscutting shearing. Veins commonly host minor amounts (1-2%) of disseminated pyrite, chalcopyrite, and arsenopyrite, with one vein hosting up to 30% pyrite.

### ASSAYS OF MINERALIZATION

Grab samples from the shaft assayed 1.0 ounce gold per ton to 82.0 ounces gold per ton with a chip sample across the shaft assaying 0.38 ounce gold per ton (Coleman 1898). Grab samples taken by the author, from the quartz veins on the lakeshore, assayed between 3 ppb gold and 65 ppb gold and between 20 ppm arsenic and 1.54% arsenic.

### DEVELOPMENT HISTORY

1898: A shaft was sunk 30 ft.

1987: Patented claims owned by Mr. J. Gaudette, Ignace.

SELECTED REFERENCES

Coleman 1898, O.B.M. Vol. 7, pt. 2, p. 124.

Parker 1985, O.G.S. Miscellaneous Paper 122, p. 25-26.

BONANZA MINE

NTS 52F/10 NW

LOCATION AND ACCESS

The Bonanza Mine is located on mining claim K. 533304, Concession I, lot 7, Van Horne Township, about 400 m east of Twingrass Lakes. The shaft is situated on the west side of a rough gravel road, approximately 2 km south of its intersection with the Wabigoon Lake Road, about 3.2 km east of its intersection with Highway 502.

DESCRIPTION

Geology: The Bonanza Mine is situated within tholeiitic to calc-alkaline, mafic to felsic metavolcanic flows and pyroclastics of the Lower Wabigoon Volcanics which are intruded by numerous felsic and mafic dikes.

Mineralization: Narrow shear zones trending 082°/90° extend through intermediate lapilli-tuff and tuff-breccia intruded by a northwest-trending felsic dike and numerous east-trending mafic dikes. The shaft has been sunk on a narrow shear zone hosting a lenticular, quartz-calcite-tourmaline vein containing <1% pyrite. It has been reported that sphalerite, galena, and hematite also occur in the quartz vein. Wallrocks are chloritic, weakly carbonatized, and slightly sericitic. Alteration is restricted to the shear zone, while rocks in the general vicinity of the shaft appear relatively unaltered except for chloritization.

An open cut, a few hundred metres west of the shaft, occurs along the strike of the shear zone and quartz vein at the shaft. The open cut was sunk on a northwest-trending, massive, pink, fine- to medium-grained quartz-feldspar porphyry dike. The dike is sericitic, weakly carbonatized, and hosts some narrow quartz veins although most of the vein material has been excavated. A geological map by E.L. Bruce (1925) indicates that the dike has been dextrally offset along the shear zone, but the author could not verify Bruce's observation due to poor exposure.

ASSAYS OF MINERALIZATION

Two grab samples of pyritic, quartz vein material taken by the author from the dump, assayed 0.15 ounce gold per ton and 1.42 ounces gold per ton, while a grab sample of the quartz vein in the open cut assayed 1740 ppb gold. Diamond drilling conducted by Van Horne Gold Exploration Incorporated intersected encouraging gold values. A drill indicated tonnage of 5,000 tons averaging 0.25 ounce gold per ton was calculated, with gold values across an average width of 1 ft. (Assessment Files, Resident Geologist's Office, Kenora).

DEVELOPMENT HISTORY

1918: Acquired by Contact Bay Mines Limited.

1919: Two-compartment vertical shaft sunk to a depth of 15 ft.

1920: Two-compartment shaft sunk to a depth of 88 ft. A level was opened at 85 ft. with drifts extending 126 ft. east and 90 ft. west of the shaft. A 59 ft. raise was driven in the west drift, 80 ft. from the shaft. Production for 1920 was reported as 101.270 ounces of gold and 25.75 ounces of silver from 291 tons of ore. Milling was done at the 10-stamp mill at the Redeemer Mine.

1921: Shaft sunk to 170 ft. with 214 ft. of drifting to the east and 170 ft. of drifting to the west on the 80 ft. level. A 90 ft. inclined raise to the surface was completed from this level. 125 ft. of drifting east of the shaft, and 135 ft. of drifting west of the shaft, was completed on the new 160 ft. level. No production was recorded for this year.

1922: Shaft sunk to 290 ft.. Drifts were extended to 278 ft. east of the shaft and 287 ft. west of the shaft on the second level which was surveyed to be at 170 ft.

1923: Shaft sunk to 333 ft. First level drifting was extended to 220 ft. east of the shaft and to 196 ft. west of the shaft. A stope was opened on the east drift which was calculated to be 511 tons of material. Second level drifting was extended to 346 ft. on the west side of the shaft. Two small stopes of an estimated 950 tons of material were opened at this level. A third level at 268 ft. was opened with drifting 31 ft. and 20 ft. east and west of the shaft. A station with a hoist was installed at this level to continue shaft sinking. 915 tons of ore was milled at the Redeemer Mill producing 144 ounces of gold and 57 ounces of silver. Total production for the Bonanza Mine was 243 ounces of gold and 82.75 ounces of silver from 1,206 tons of ore milled with an average ore grade of 0.20 ounce gold per ton and 0.07 ounce silver per ton.

1924: 25 men employed during most of 1924 for Contact Bay Mines Limited with work concentrated on the Bonanza property.

1939: The shaft was dewatered and sampled.

1947: Baden R. Smith and C. Ettles became owners of the property of Bonanza United Mines. Trenching and assaying were conducted.

1980-1983: Van Horne Gold Exploration Incorporated acquired the property and conducted diamond drilling (13 holes) on the Bonanza vein as well as geological mapping and geophysical surveys.

SELECTED REFERENCES

Bruce 1925, O.B.M. Vol. 34, pt. 6, p. 39-42.

Parker and Schienbein 1988, O.G.S. Map P.3111 and P.3112.

Rogers 1924, O.B.M. Vol. 33, pt. 1, p. 5.

Satterly 1941, O.B.M. Vol. 50, pt. 2, p. 49-50.

Sutherland 1920, O.B.M. Vol. 29, pt. 1, p. 66.

Sutherland 1922, O.B.M. Vol. 31, pt. 10, p. 15.

Sutherland 1923, O.B.M. Vol. 32, pt. 6, p. 19.

Sutherland 1924, O.B.M. vol. 33, pt. 7, p. 18.

Sutherland 1925, O.B.M. Vol. 34, pt. 6, p. 75.

B.R. Smith, Assessment Files, Resident Geologist's Office, Kenora.

Van Horne Gold Exploration Incorporated, Assessment Files, Resident Geologist's Office, Kenora.

BROCKMAN PROSPECT (NORTHWESTERN ONTARIO EXPLORATION COMPANY OCCURRENCE)

NTS 52F/9SW

LOCATION AND ACCESS

The Brockman Prospect is situated about 150 m northwest of Brown Lake on claim K. 590550 (formerly mining location H.W. 419). The shaft, trenches, and adit are accessible from a narrow bush road, which branches east from the Sandy Point Road, 9.5 km south of its intersection with Highway 17 at Borups Corners. An old footpath branching southwest from the bush road leads to the shaft.

DESCRIPTION

Geology: The Brockman Prospect is underlain by fine-grained, dark green, chloritic and carbonatized, massive, mafic metavolcanic flows, in close proximity to a large gabbro intrusion to the southwest and felsic to intermediate pyroclastics to the north. The Brockman Prospect occurs within the dominantly calc-alkaline Kawashegamuk Lake Group.

Mineralization: A 6.5 ft. x 9.8 ft. timbered shaft was sunk to a depth of 142 ft. on a narrow shear zone occupied by a thin (15 cm-30 cm) milk white to dark blue-gray quartz vein. The vein strikes northwest, dips steeply west, and pinches and swells along its strike and dip. Bow (1899) reported that the vein was traced for a strike length of 1000 ft. The vein contains iron carbonate and angular, chloritic fragments of mafic wall rock. The fragments and wall rock immediately next to the vein are intensely altered by iron carbonate. Variable amounts [<1-3%] of disseminated chalcopyrite, sphalerite, pyrrhotite and pyrite occur along the edges of the vein and within the vein. The vein was reported by Bow (1899) to have been "extremely rich" with visible old. The author observed small flakes of visible gold in quartz vein material on the dump.

Numerous pieces of dark brown-gray felsic quartz-feldspar porphyry were found in the dump, which indicates that a porphyry dike may be closely associated with the quartz vein. Bow (1899) noted that the vein at the bottom of the shaft was "included in a dike of this hard felsitic rock three or four feet in width, with softer schistose rock on each side." The dike could not be located by the writer due to poor exposure and water in the shaft.

Two small trenches, which occur along the strike of the quartz vein and shaft, are located 60 m south of the shaft. The trenches have been sunk on a 60 cm to 90 cm wide shear zone, hosting a 30 cm wide quartz vein containing fragments of wall rock, pyrrhotite, pyrite, chalcopyrite, tourmaline, and orange iron carbonate. A grab sample taken by Teck Explorations Ltd., from the quartz vein in one of the trenches, assayed 4 ounces gold per ton (W. Penno, geologist, Teck Explorations Ltd., personal communication, 1984).

A small adit on the face of a hill, located approximately 240 m west-southwest of the Brockman shaft, has been driven 50 ft. along a shear zone occupied by a narrow [ $\leq$ 50 cm] quartz vein, striking east-west, dipping 60° north. The milk white vein pinches and swells along its strike and dip and contains disseminated pyrite and small angular fragments of chloritic, mafic, wall rock. The surrounding mafic metavolcanics are iron carbonatized and contain disseminated pyrite. An assay of 1 ounce gold per ton was obtained from the quartz vein on surface, but poor gold assays were obtained from samples taken inside the adit (W. Penno, geologist, Teck Explorations Ltd., personal communication, 1984). Bow (1899) reported that the vein was traced along strike for 600 ft. and was rich with gold at the adit entrance, but poor within the adit.

## ASSAYS OF MINERALIZATION

Three grab samples of quartz vein material, taken by the author from the dump at the shaft, assayed 0.01, 0.08, and 0.52 ounce gold per ton. Sampling at the dump by Kresz (1987) gave assays of 0.05 ounce gold per ton, and 2.16, 2.92, and 12.66 ounces gold per ton, with silver assays ranging from 0.2 ounce silver per ton to 1.56 ounces silver per ton.

## DEVELOPMENT HISTORY

1898 - 1900: The Northwestern Ontario Exploration Company sunk a 142 ft. shaft on a north-south-trending quartz vein, drove an adit 50 ft. along an east-west-trending quartz vein, and did some trenching on both veins.

1981: Staked by A. Kozowy.

1983 - 1984: Teck Explorations Ltd. optioned the claims, conducted ground geophysics, geological mapping, and sampled the dump at the shaft, the adit and trenches.

1985: Claims transferred back to A. Kozowy.

1987: Claims optioned to International Platinum Corporation who conducted stripping and sampling.

## SELECTED REFERENCES

Bow 1899, O.B.M. Vol. 8, pt. 1, p. 72-75.

Kresz 1987, O.G.S. Open File Report 5659.

International Platinum Corporation, Assessment Files, Resident Geologist's Office, Kenora

Wright, R.J., Assessment Files, Resident Geologist's Office, Kenora.

BUFFALO PROSPECT

NTS 52F/11NW

LOCATION AND ACCESS

The Buffalo Prospect is situated on mining claim K. 590188 (former mining location M.H. 246) on the southwest shore of Eagle Lake directly west of Prendible Island in the Garnet Bay area. The property is accessible by boat.

DESCRIPTION

Geology: The Buffalo Prospect occurs within granitic rocks of the Atikwa Batholith, south of its contact with mafic and intermediate metavolcanic rocks of the Lower Wabigoon Volcanics.

Mineralization: An adit has been driven into a northeast-trending, narrow, linear shear zone within medium-grained, massive, pink, biotite-hornblende granite. The sheared host rocks are serictic, chloritic, and weakly carbonatized containing elliptical, blue, quartz "eyes." The shear zone hosts narrow quartz-iron carbonate veins and discontinuous stringers containing 1% disseminated pyrite. Very little geology could be observed at the adit due to poor exposure, and two shafts reported to be west of the adit have not been located.

ASSAYS OF MINERALIZATION

Grab samples of the quartz vein and wall rock material, taken by the author, assayed trace amounts of gold.

DEVELOPMENT HISTORY

1902: A shaft had been sunk 16 ft. on a quartz vein by Northern Light Mines Company.

1903: An adit had been driven west for 29.5 ft. to crosscut a northeast-trending quartz vein which was followed for 78 ft. to the southwest. About 553 ft. west of the adit a No. 1 shaft was sunk to a depth of 28 ft.. A test pit and a No. 2 shaft (15 ft. deep) were sunk southwest of the No. 1 shaft.

1982: Staked and transferred to Mistango Consolidated Resources Limited.

1983: Mistango Consolidated Resources Limited conducted geological mapping and an airborne geophysical survey over the area.

1987: Claim cancelled and restaked by C.M. Schulze.

SELECTED REFERENCES

Miller 1903, O.B.M. Vol. 12, pt. 1, p. 93.

Moorhouse 1941, O.B.M. Vol. 48, pt. 4.

Carter 1904, O.B.M. Vol. 13, pt. 1, p. 65.

Mistango Consolidated Resources Limited, Assessment Files, Resident Geologist's Office, Kenora.

BUTLER LAKE PROSPECT

52F/10NE

LOCATION AND ACCESS

The Butler Lake Prospect is located on the northern shore of the western half of Butler Lake, south of Wabigoon Lake, approximately 13 km southeast of Dryden. The occurrence is accessible by boat, and is situated along the southern boundary of the Butler Lake Provincial Park Reserve, in an area that has not recently been explored for gold. The occurrence was rediscovered in 1985 by Stan and Sherridon Johnson (prospectors, Dryden).

DESCRIPTION

Geology: The geology in the vicinity of the occurrence consists of lenticular masses of felsic flows and heterolithic, lapilli-tuff and tuff-breccia, intercalated with intermediate to mafic flows and heterolithic tuff-breccia within the Lower Wabigoon Volcanics.

Mineralization: Thomson (1917) briefly described the occurrence as: "two small shafts, ...the first on a tangle of quartz stringers containing pyrite, ankerite, tourmaline, chalcopyrite and malachite, the second on a quartz vein 4 feet wide, containing the same vein material as at the first shaft. The country rock at the latter is felsite schist striking about northwest...."

The author found the occurrence to consist of eight large test pits and several trenches trending in a general northwest direction. Two of the pits appear to be shallow shafts (10 m) with fairly large rock dumps beside them. The country rocks consist of fine- to medium-grained, chloritic, carbonatized, massive mafic flows and mafic to intermediate tuffs. The metavolcanics commonly contain 1% to 5% disseminated euhedral pyrite, are weakly to intensely foliated (320°), and are variably altered and bleached pale green-gray. The metavolcanics are intruded by single quartz-carbonate veins and stringers, stockworks of veins, and sinuous masses and clots of quartz-carbonate. The veins strike between 065° to 154°, commonly dip south and southwest, and are composed of milk white and sugary gray quartz hosting variable amounts of buff-brown to orange iron carbonate, calcite, very abundant massive black tourmaline, <1% to 2% disseminated euhedral pyrite, ≤ 3% irregular blebs of chalcopyrite, and ≤ 1% blebs of sphalerite. At one pit there is a wide breccia zone (6 m), where angular, altered, and pyritic fragments of wall rock are embedded in a quartz-carbonate-tourmaline matrix. The wall rocks in the trenches are intensely sheared, sericitized with fuchsite, altered by iron carbonate, and contain very abundant disseminated pyrite (up to 10%).

ASSAYS OF MINERALIZATION

Although the author did not observe visible gold at the occurrence, Mr. Stan Johnson panned some good gold tails from sulphide-rich samples. The best assays from grab samples randomly taken by the author from various quartz veins in the trenches and pits, were 100 ppb gold, 830 ppb gold, 2510 ppb gold, 4590 ppb gold, 8420 ppb gold, 0.31 ounce gold per ton and 1.6 ounces gold per ton, with a zinc assay of 2270 ppm, copper assays ranging from 415 ppm to 8760 ppm, and silver assays ranging from <2 ppm to 16 ppm.

DEVELOPMENT HISTORY

1917: Two shafts sunk on quartz veins on the north shore of Butler Lake.

1985: Rediscovered by Stan and Sherridon Johnson.

SELECTED REFERENCES

Parker 1986, O.G.S. Miscellaneous Paper 128, p. 21-22.

Thomson 1917, O.B.M. Vol. 26, pt. 1, p. 186.

CHURCH LAKE PROSPECT (BRONGER, O.H. OCCURRENCE)

NTS/52F 8NW

LOCATION AND ACCESS

The Church Lake Prospect is located on the east shore of Church Lake at the southwest corner of claim K. 851307 (formerly claim K.590549 which was K. 9194). The property is accessible by a narrow bush road branching east from the Sandy Point Road, approximately 14 km south of its intersection with the Trans Canada Highway at Borups Corners. The bush road continues for 1.5 km to the east shore of Church Lake where it terminates. A short foot path to the lake leads to the showing.

DESCRIPTION

Geology: The prospect is underlain by mafic to felsic metavolcanic flows and pyroclastics of the calc-alkaline Kawashegamuk Lake Volcanics, intruded by gabbro stocks and felsic dikes. The prospect is situated within a northwest-trending shear zone parallel to the Kawashegamuk Lake shear zone southwest of the property.

Mineralization: The prospect is underlain by a medium- to coarse-grained, dark green gabbro in contact with metavolcanics to the east and west. The gabbro commonly contains blue quartz "eyes" and disseminated magnetite, as well as small pods and clots of magnetite. The gabbro is porphyritic and glomeroporphyritic with large clots of white, euhedral feldspar crystals. A massive, buff white, fine-grained, felsite dike occurs along the east shore of Church Lake, in contact with the gabbro.

A 2 m wide shear zone striking 350° for approximately 90 m and dipping 60° to the west, extends through the gabbro and along its contact with the felsite dike. The shear is parallel to the contact and occupied by a 30 cm-50 cm wide, milk white, gold-bearing quartz-carbonate vein. The sheared gabbro is dark green and intensely chloritized with white calcite on shear planes and in narrow fractures. Vertical lineations on the shear surface indicate some dip-slip movement along the shear. Chloritized angular xenoliths of gabbro commonly occur within the vein.

Disseminated flakes, blebs and wires of visible gold occur along the edges of the quartz vein, around xenoliths of gabbro, and well within the quartz. Minor amounts [<1%] of disseminated pyrite and chalcopyrite are present, but occur independently of the gold. Visible gold and the best gold assays occur in the main trench, which is 15 m long, 2 m wide and 2 m deep. Two smaller trenches, 25 m north and on strike with the main trench, contain trace amounts of gold. The shear zone narrows within the smaller trenches and the quartz vein narrows and becomes discontinuous.

Five holes, totalling 200 m, were drilled perpendicular to the strike of the shear zone. Drilling results indicate that the quartz vein pinches out at depth and that the shear zone actually consists of a number of narrow, parallel shears, continuing at depth (W. Penno, geologist, Teck Explorations Limited, personal communication, 1984).

DEVELOPMENT HISTORY

1942: 5.5 tons of ore extracted from the property by Mr. O.H. Bronger, and milled at the Sakoose Mine.

1982: Staked by A. Glatz, 85% interest transferred to A. Kozowy.

1983: Transferred to Teck Explorations Limited who conducted geological mapping, sampling, geophysical surveys, and diamond drilling.

1985: Transferred to International Platinum Corporation.

SELECTED REFERENCES

Kresz 1987, O.G.S. Open File Report 5659.

Tower 1943, O.D.M. Vol. 52, pt. 1, p. 182.

R.J. Wright, Assessment Files, Resident Geologist's Office, Kenora.

A. Kozowy, Assessment Files, Resident Geologist's Office, Kenora.

DRAKE PROSPECT

NTS 52F/10NW

LOCATION AND ACCESS

The Drake Prospect is located on a section of patented land in Concession 1, lot 9, Van Horne Township, and is 125 m directly west of the Good Luck Prospect. The property is accessible by a very overgrown bush road.

DESCRIPTION

Geology: The prospect is situated within intercalated intermediate and mafic metavolcanic flows and pyroclastics of the Lower Wabigoon Volcanics which are intruded by numerous felsic dikes.

Mineralization: The Drake Prospect consists of a deep shaft on the south edge of a large, extensive outcrop. It is underlain by fine-grained, dark green-gray, chloritic, mafic to intermediate tuff, lapilli-tuff and tuff-breccia. The metavolcanics are foliated 092°/90° and host a narrow, linear, shear/fracture zone trending 090°-095° for approximately 800 m. The shear zone hosts a narrow (0.3 m), quartz-iron carbonate-tourmaline vein containing <1% disseminated, fine-grained pyrite and dark green chlorite. The vein extends eastward through the shaft at the Good Luck Prospect. Wall rock alteration is characterized by chloritization, sericitization, pyritization [<1-2%], and some minor iron carbonatization.

ASSAYS OF MINERALIZATION

Two grab samples of the pyritic quartz vein material taken by the author assayed 170 ppb Au and 870 ppb Au. Van Horne Gold Exploration Incorporated obtained an assay of 0.20 ounce gold per ton from a representative grab sample taken from the dump (Assessment Files, Resident Geologist's Office, Kenora).

DEVELOPMENT HISTORY

1917: Three shafts were sunk on the quartz vein, extending east from the Good Luck Prospect, to depths of 10 ft., 12 ft., and 52 ft. with considerable stripping between the shafts.

1983: Shaft was sampled and the surrounding area mapped by Van Horne Gold Exploration Incorporated.

SELECTED REFERENCES

Parker and Schienbein 1988, O.G.S. Maps P.3111 and P.3112.

Thomson 1917, O.B.M. Vol. 26, pt. 1, p. 183.

Van Horne Gold Exploration Incorporated, Assessment Files, Resident Geologist's Office, Kenora.

DUMOND OCCURRENCE

NTS 52F/9SE

LOCATION AND ACCESS

The Dumond Occurrence is located north of Highway 17, in Hyndman Township, at the southeast corner of claim K.561295. The property is accessible by a narrow gravel road which branches east from the Basket Lake Road, 7.3 km north of its intersection with Highway 17. A narrow bush road branches south from the gravel road, about 3.2 km east of its intersection with the Basket Lake Road, and continues for 4 km to a foot path, which branches east from the road for 600 m to the occurrence.

DESCRIPTION

Geology: The Dumond Occurrence is situated dominantly within mafic metavolcanic flows intercalated with thin lenses of intermediate and felsic pyroclastics. The occurrence is a few hundred metres east of the contact between the metavolcanics and dioritic rocks of the Revell Batholith.

Mineralization: The Dumond Occurrence consists dominantly of dark green, fine- to medium-grained, amphibolitized, mafic, metavolcanic flows and pyroclastics. The mafic metavolcanics contain abundant biotite and long, black needles of hornblende. A large mass of feldspar porphyry is situated at the north end of a large stripped area at the occurrence. Feldspar porphry dikes extend from this mass and are intersected by quartz-feldspar porphyry dikes.

Lithologic contacts are discontinuous, irregular, sheared, and dextrally offset along hairline fractures.

Rocks are foliated and sheared 330°/90° with narrow (0.9 m - 1.5 m), fissile, subparallel shear zones occurring along lithologic contacts. Irregular quartz veins are typically $\leq$ 0.3 m wide, strike 328°, and pinch and swell along their strike lengths. The veins consist of rusty, red (hematite staining), granular or "sugary" quartz containing dark green chlorite stringers, and finely disseminated pyrite [<1-5%]. Pyrite is commonly associated with the chlorite stringers.

Wall rocks are intensely chloritized, sericitized, weakly carbonatized, rusty, and commonly contain $\leq$ 1% disseminated pyrite.

A massive, 1.8 m wide unit of extremely siliceous rock, containing tiny quartz phenocrysts, is situated along the east edge of the stripped area at the occurrence. The unit of felsic rock strikes 350° and may be a dike, however, Teck Explorations Ltd. mapped it as a rhyolitic flow. The rock is intensely sericitized, pyritic ( $\leq$ 1%), gossan-stained, and hosts narrow, boudinaged, and Z-folded milk white quartz veins with red hematite staining.

ASSAYS OF MINERALIZATION

Three 0.3 m wide chip samples taken by the author across one of the larger quartz veins, situated at the southeast corner of the stripped area at the occurrence, assayed 0.02, 0.12, and 0.17 ounce gold per ton. The quartz vein that was sampled is boudinaged into long sinuous lenses of quartz. Two grab samples, taken by Lynx-Canada Ltd., from a zone of thin white quartz stringers assayed 0.074 and 0.132 ounce gold per ton (Assessment Files, Resident Geologist's Office, Kenora).

A 0.6 m wide chip sample, taken by the author across a rusty zone of sheared, chloritic, weakly carbonatized, amphibolitized, mafic metavolcanics assayed 0.25 ounce gold per ton. This shear zone gives consistently encouraging gold assays (A. Glatz, prospector, Dryden, personal communication, 1985, 1987). Grab samples taken by the author from a small test pit sunk on the rhyolitic dike (?) at the east end of the occurrence did not assay significant amounts of gold.

Chip samples from pyritic, rusty, rhyolite schist bands, taken by J. Satterly in the vicinity of the Dumond Prospect, assayed 0.16 ounce gold per ton across 2 ft., and 4.35 ounces gold per ton across 4 inches (Assessment Files, Resident Geologist's Office, Kenora). Satterly (1960) described the rhyolite schist as occurring in lenticular bands ranging from 4 inches to 20 ft. wide and striking northwest.

DEVELOPMENT HISTORY

1936: Discovery of quartz veins by Dumond Mining and Exploration Co. Ltd. The company conducted trenching and sampling.

1981: Staked by A. Glatz (claim K.561295).

1982: Optioned to Lynx-Canada Ltd. who conducted power stripping, geological mapping, and sampling.

1983: Optioned to R.J. Wright (Teck Explorations Ltd.) who conducted geophysical and geological work.

1984: Transferred back to A. Glatz.

SELECTED REFERENCES

Satterly 1960, O.D.M. Vol. 69, pt. 6.

Dumond Property, Assessment Files, Resident Geologist's Office, Kenora.

Glatz, Alexander, Assessment Files, Resident Geologist's Office, Kenora.

Satterly, J., Assessment Files, Resident Geologist's Office, Kenora.

Wright, R.J., Assessment Files, Resident Geologist's Office, Kenora.

## E.163 OCCURRENCE

NTS 52F/9SW

### LOCATION AND ACCESS

The E.163 Occurrence is located in Concession IV, lot 2, Melgund Township on mining location E.163. The property is accessible from the Trans Canada Highway and is 1.7 km east of the Sandy Point Road at Borups Corners and approximately 100 m north of the Trans Canada Highway.

### DESCRIPTION

Geology: The occurrence is situated within greenschist grade, mafic, metavolcanic flows and occurs within a strong northeast-trending shear zone. The occurrence is 2 km northwest of the contact between dioritic rocks of the Revell Batholith and mafic metavolcanics.

Mineralization: The surrounding geology at the occurrence consists of mafic, vesicular, metavolcanic flows, which are fine-grained, chloritic, moderately iron carbonatized and consistently sheared 067° to 069°. The metavolcanics are intruded by a wide, fine-grained, sheared felsic dike striking 068°. The dike is slightly pyritic, gossan-stained, and hosts discontinuous quartz stringers. A 1.5 m x 1.8 m x 6 m deep timbered shaft has been sunk on a stockwork of quartz stringers and veins which is 1.2 m to 1.5 m wide and strikes 067°/97°. The metavolcanic wall rocks are intensely sheared, chloritic, sericitized, and moderately iron carbonatized. Quartz veins are milk white containing orange iron carbonate and dark green stringers of chlorite. No sulphides were observed in the wall rocks or quartz veins.

### ASSAYS OF MINERALIZATION

A grab sample of the quartz vein material, taken by the author at the edge of the shaft, assayed 16 ppb gold.

### DEVELOPMENT HISTORY

No record of development.

### SELECTED REFERENCES

Satterly 1960, O.D.M. Vol. 69, pt. 6, p. 26.

Pidgeon, G.L., E-163 Occurrence, Assessment Files, Resident Geologist's Office, Kenora.

EAST ZONE, FLAMBEAU LAKE PROSPECT

NTS 52F/10NW

LOCATION AND ACCESS

The East Zone at the Flambeau Lake Prospect is located on patented claim A.L. 90 in Concession 1, lot 12, Van Horne Township and Concession 1, lot 1, Aubrey Township, on the north shore of Flambeau Lake. The property is accessible by a narrow gravel road which branches east from Highway 502 at Pritchard and Flambeau Lakes.

DESCRIPTION

Geology: The East Zone is underlain by a small, intensely altered, quartz-diorite plug intruded by a larger gabbro stock. Both intrusions are intersected by a variety of mafic and intermediate dikes crosscut by felsic quartz-feldspar porphyry dikes. The intrusions are surrounded by coarse, chaotic, intermediate to mafic pyroclastics, and mafic to felsic, brecciated, and massive metavolcanic flows. The quartz diorite and gabbro intrusions have been interpreted by the author to be subvolcanic intrusions which were the sources for some of the surrounding metavolcanic rocks.

Mineralization: Quartz veins at the East Zone are hosted by a very wide zone of numerous, en echelon, northwest-trending (120°-150°) tension fractures dipping consistently to the northeast. The average trend of the quartz veins is 135°. Quartz veins occur in all rock types, but are concentrated in the quartz-diorite intrusion, and are less numerous in the surrounding mafic rocks. This is probably due to rock competency, where the brittle felsic rocks fracture more readily during deformation than the more ductile mafic rocks. Quartz veins are crosscut by a few narrow, east-trending, shear zones which also host quartz veins.

The quartz veins are typically narrow (1 to 10 cm) and composed of white quartz, orange-brown iron carbonate, black tourmaline, and $\leq$ 3% disseminated pyrite, with variably amounts of accessory sulphides such as, chalcopyrite, galena, and sphalerite. Numerous, narrow, flat-lying quartz-tourmaline veins also occur throughout the quartz-diorite.

Significant gold mineralization is restricted to the quartz veins and does not occur within the altered wall rocks. Coarse visible gold is commonly found in the quartz veins.

The quartz-diorite and gabbro wall rocks are intensely carbonatized, sericitized, pyritized, and weakly silicified. Alteration appears to be extensive in areas of closely spaced veins but is restricted to narrow haloes which occur around the quartz veins. The quartz-diorite and gabbro are magnetite-rich (up to 5%). Magnetite is abundant where the quartz-diorite is relatively unaltered but it is sparse or absent in the altered wall rock, adjacent to the veins, where it is replaced by abundant pyrite. Solid magnetite and chlorite veinlets up to 1.5 cm wide occur within the quartz-diorite.

A "clotty" phase of the quartz-diorite occurs at the northwest end of the intrusion. Dark green and pale gray clots [ $\leq$ 1 cm in size] consisting of chlorite-sericite-carbonate and sericite-carbonate, respectively, are embedded in a fine-grained groundmass.

The "clotty" quartz diorite, abundance of mafic to felsic dikes, alteration, and quartz veining, gives the entire zone a chaotic appearance.

## ASSAYS OF MINERALIZATION

Four grab samples, taken by the author, from quartz veins in trenches on the East Zone, assayed 0.02 ounce gold per ton, 3.86 ounces gold per ton with 4.88 ounces silver per ton, 0.17 ounce gold per ton, and 0.04 ounce gold per ton. Four grab samples of quartz vein material, taken by the author, from test pit 45 m east of the East Zone assayed between 0.03 and 0.04 ounce gold per ton.

Chip samples taken from various trenches on the East Zone by Voyager Explorations Ltd. assayed 0.088 ounce gold per ton across 9 ft., 0.089 ounce gold per ton across 8 ft., 0.103 ounce gold per ton across 6 ft., and 0.636 ounce gold per ton across 8 ft. (Assessment Files, Resident Geologist's Office, Kenora).

Four diamond drill holes drilled by Voyager Explorations Ltd. and targeted on the East Zone, intersected narrow sections of gold mineralization assaying between 0.11 and 0.29 ounce gold per ton (Assessment Files, Resident Geologist's Office, Kenora).

## DEVELOPMENT HISTORY

1917: Small test pits sunk at the northeast corner of claim A.L.90.

1983-1984: A. Kozowy acquired patented claim A.L.90 and discovered gold in the vicinity of the East Zone. Voyager Explorations Limited optioned the property and conducted sampling, trenching, minor stripping, mapping and diamond drilling (8 holes totalling 3220 ft.). The option was subsequently dropped.

1985: A. Kozowy did more intensive prospecting, stripping, sampling and trenching and discovered high grade gold mineralization at the East Zone, and also discovered the New East Zone. He subsequently optioned the property to Kidd Creek Mines Limited who conducted detailed sampling, mapping and extensive stripping.

1986: Kidd Creek's option was transferred to Falconbridge Ltd. who conducted geophysical surveys over the property.

1987: Falconbridge Ltd. dropped the option on the property which was subsequently optioned to International Platinum Corporation.

## SELECTED REFERENCES

Blackburn 1986, O.G.S., Report of Activities of the Regional and Resident Geologists, M.P. 128, p. 30-40.

Parker and Schienbein 1988, O.G.S. Maps P.3111 and P.3112.

Thomson 1917, O.B.M. Vol. 26, pt. 1, p. 183.

Kidd Creek Mines Ltd., Assessment Files, Resident Geologist's Office, Kenora.

Voyager Explorations Ltd., Assessment Files, Resident Geologist's Office, Kenora.

E.D.B. 1 PROSPECT (S. 224 OCCURRENCE)

NTS 52F/10NW

LOCATION AND ACCESS

The main shaft at the E.D.B. 1 Prospect is located on claim K.910935 (former mining location E.D.B. 1, which was formerly mining location S.224) on the north side of a small bay on the east shore of Contact Bay of Wabigoon Lake. A second shaft and large test pit is located on the south side of a small peninsula south of the main shaft. The occurrence is accessible by water.

DESCRIPTION

Geology: The occurrence is underlain by felsic and mafic metavolcanic flows and pyroclastics of the Lower Wabigoon Volcanics which are intruded by felsic dikes. The occurrence is approximately 1 km north of the contact between the Atikwa Batholith and the metavolcanics, and 1 km west of the contact between the Mile Lake Gabbro and the metavolcanics.

Mineralization: The "main" shaft and a number of shallow test pits have been sunk on tension fracture and shear zone hosted quartz veins. The host rock is a felsic quartz-feldspar crystal tuff which is fine-grained, well foliated to massive, and pale grey to buff brown containing small [ $\leq$ 3 mm], irregular crystal shards of quartz and feldspar. The wall rocks are sericitized, chloritized and weakly carbonatized.

The main quartz vein at the shaft is located in a narrow shear zone striking 325°/70° NE for approximately 75 m. A narrow flat-lying vein is situated on the south side of the shaft. The main quartz vein consists of white, "sugary", quartz containing abundant dark green chlorite, irregular xenoliths of wall rock, and <2% disseminated pyrite with minor chalcopyrite and sphalerite. The vein also contains extremely chloritic and biotitic mafic xenoliths. The immediate wall rocks and quartz veins contain abundant hematite and red hematite staining. Other quartz veins in the vicinity of the shaft consist of vitreous white quartz with rusty orange staining and strike 347°/90°. Narrow quartz veins in shallow test pits east of the shaft appear to strike between 320° to 340°. Numerous flat-lying or shallow dipping veins occur in some of the test pits.

The second shaft and test pit located on the south side of a small peninsula, south of the "main" shaft, have been sunk on fracture-hosted quartz veins in massive, mafic, metavolcanic flows. The mafic metavolcanics are dark gray-green to black and amphibolitized containing biotite and actinolite.

Quartz veins consist of white, gray, and translucent quartz containing chlorite, wall rock xenoliths, abundant crystalline calcite, very minor pyrite and chalcopyrite, and coarse blebs of visible gold.

The wall rocks, next to the veins, are tourmalinized, weakly carbonatized, and contain abundant disseminated arsenopyrite.

Felsic metavolcanics on the west shore of Mile Lake, east of the E.D.B. 1 Occurrence, consist of massive, aphanitic, rhyolite flows and feldspar porphyry which have been carbonatized and sericitized. The outcrops are covered with abundant rusty gossan and hematite staining due to approximately

1% fine-grained, pyrite disseminated throughout the metavolcanics. Narrow, north-trending quartz veins are hosted by shears and tension fractures and consist of vitreous white and gray quartz containing abundant dark green chlorite, hematite, and malachite. A number of small, shallow pits have been sunk on the quartz veins.

ASSAYS OF MINERALIZATION

A grab sample from the quartz vein at the "main" shaft, taken by the author, assayed 735 ppb gold, while a sample of the wall rock assayed 110 ppb gold.

Two grab samples taken by the author from a quartz vein in a shallow test pit 15 m south of the "main" shaft assayed 115 and 640 ppb gold.

A grab sample of quartz vein material taken by the author from the dump at the second shaft assayed 400 ppb gold and 1700 ppm arsenic.

DEVELOPMENT HISTORY

1917: It was reported that two shafts were sunk to depths of 25 ft. and 35 ft. on a 5 ft. wide quartz vein.

1986: Staked by S. Johnson.

SELECTED REFERENCES

Thomson 1917, O.B.M. Vol. 26, pt. 1, p. 186.

ELORADO MINE

NTS 52F/11NW

LOCATION AND ACCESS

The Eldorado Mine is located on mining claim K.594274 (former mining locations M.H.257 and M.H.338) on the northwest shore of Eldorado Bay of Eagle Lake in the Garnet Bay area. The property is accessible by boat and the dump at the shaft can be observed from the lake.

DESCRIPTION

Geology: The Eldorado Mine occurs within medium-grained, gray, biotite-hornblende granitic rocks of the Atikwa Batholith south of its contact with the metavolcanics of the Lower Wabigoon Volcanics.

Mineralization: The prospect consists of an open cut and shaft sunk on a 1.4 m wide, linear, east-northeast-trending shear zone dipping 65°-75° N, with a strike length of at least 152 m. The granitic wall rocks are fissile, sericitized, chloritized and intensely carbonatized, containing numerous blue quartz "eyes" and <1% disseminated pyrite. The shear zone hosts a 1 m wide stockwork of quartz-iron carbonate veins and stringers containing <1% disseminated pyrite.

ASSAYS OF MINERALIZATION

A grab sample, taken by the author, of sheared, altered, granitic wall rock assayed 1640 ppb gold, while grab samples of the quartz vein assayed 80 ppb gold and 1290 ppb gold. A 1.5 m chip sample across the shear zone in the open cut, taken by the author, assayed 19 ppb gold.

Diamond drilling conducted by Mistango Consolidated Resources Limited only intersected trace amounts of gold in the shear zone and quartz veins (Assessment Files, Resident Geologist's Office, Kenora).

DEVELOPMENT HISTORY

1900: Development work at this time consisted of a 70 ft. long trench sunk along the northeast strike of the quartz vein and a 2-stamp mill was installed.

1902: Property held by the Northern Light Mines Company. A shaft, at the southwest end of the open cut had been sunk to a depth of 31 ft.

1903: Shaft sunk to a depth of 60 ft. and ore was milled at the 2-stamp mill.

1904: Eldorado Mining Company deepened the shaft to 95 ft. and established a level at 70 ft. where they drove a drift 53 ft. to the southwest.

1905: Shaft sunk to a depth of 140 ft. and a 100 ft. long drift was driven to the northeast on the 70 ft. level. A 25 ft. drift was also developed on the 120 ft. level. The Eldorado reportedly produced 14 ounces of gold from 30 tons of ore milled.

1910: All work had ceased at the property by this time.

1982: Staked and transferred to Mistango Consolidated Resources Limited.

1983: Mistango Consolidated Resources Limited conducted geological mapping, geophysical surveys, and sampling.

1984: Mistango conducted an airborne geophysical survey.

1986: Mistango drilled two holes on the property with discouraging results.

SELECTED REFERENCES

Bow 1901, O.B.M. Vol. 10, pt. 1, p. 96-97.

Carter 1904, O.B.M. Vol. 13, pt. 1, p. 65.

Carter 1905, O.B.M. Vol. 14, pt. 1, p. 49.

Corkill 1906, O.B.M. Vol. 15, pt. 1, p. 53.

Ferguson 1971, M.R.C. 13, p. 180.

Miller 1903, O.B.M. Vol. 12, pt. 1, p. 93.

Moorhouse 1941, O.D.M. Vol. 48, pt. 4, p. 23-24.

Mistango Consolidated Resources Limited, Assessment Files, Resident Geologist's Office, Kenora.

## FORNIERI BAY PROSPECT (KIRKLAND LAKE PROSPECTORS' SYNDICATE OPTION)

NTS 52F/11NE

### LOCATION AND ACCESS

The majority of old workings at the Fornieri Bay Prospect are located a few hundred metres inland along the east and southeast shore of Fornieri Bay on Eagle Lake. The property is accessible by boat.

### DESCRIPTION

Geology: The prospect is situated within intermediate to felsic pyroclastics of the Lower Wabigoon Volcanics, dominantly consisting of massive, feldspar- and quartz-feldspar crystal tuffs intruded by gabbro, diorite, and felsite or porphyritic felsic dikes.

Mineralization: The majority of trenching and sampling at Fornieri Bay was conducted less than 100 m inland along the east shore of the bay. Although it was difficult to observe geological relationships within the numerous trenches due to poor exposure, the author noted numerous narrow, fracture-hosted quartz veins and veinlets occurring throughout the felsic and intermediate crystal tuff host rocks. Previous descriptions of the quartz veins by Erie Canadian Gold Mines Limited indicate that the majority are fracture hosted, lensoid, and discontinuous (Assessment Files, Resident Geologist's Office, Kenora). At the most extensively trenched zone, gold-bearing, fracture-controlled quartz veins are hosted by a wide quartz porphyry dike intruding felsic crystal tuffs. Moorhouse (1941) indicated that gold values were obtained from four, wide, generally east-trending quartz veins and two large lenticular zones of quartz stringers.

The majority of quartz veins and stringers consist of white and blue-gray quartz containing <1% disseminated pyrrhotite, pyrite, minor chalcopyrite and chlorite. Moorhouse (1941) observed small amounts of visible gold and bismuthinite within the larger quartz veins.

Host rocks at Fornieri Bay contain <1-5% disseminated pyrrhotite and pyrite. Aleration is not obvious on weathered outcrop surfaces but is well defined in drill core. Host rocks containing disseminated sulphides, hairline fractures, and quartz veining, are pale gray to buff brown-gray, due to sericitization, calcium carbonate alteration, and moderate silicification. Feldspar fragments in the crystal tuffs are sericitized and less distinguishable in the alteration zones. Many of the fractures and quartz veins are surrounded by narrow, alteration haloes in which sericitization and carbonatization impart a pale gray appearance to the host rocks.

Other large trenches east of Fornieri Bay have been sunk on shear zone hosted quartz veins ranging in thickness from 0.3 m to 1.2 m. The narrow shear zones occur within intermediate and felsic crystal tuff and generally strike west-northwest, dipping steeply to the south. The host rocks are intensely sheared, sericitized, carbonatized, and pyritic (up to 15%) with minor chalcopyrite and pyrrhotite. Quartz veins contain dark green chlorite and iron carbonate with <1%-4% sulphides. The veins are lenticular, discontinuous, and pinch and swell along their strike lengths. Tension fracture-hosted quartz veins within the shear zones generally strike east-northeast or east-west.

## ASSAYS OF MINERALIZATION

Extensive chip sampling in the trenches by Erie Canadian Mines Limited indicate that most of the gold mineralization is low grade or anomalous with rare, narrow, high grade zones assaying up to 1.54 ounces gold per ton (Assessment Files, Resident Geologist's Office, Kenora). The best assay from ten chip samples, taken by the author, from the quartz veins and stringer zones exposed in the main trenched area was 280 ppb gold. Grab samples taken by the author from shear zone-hosted quartz veins in test pits north of the main trenched area assayed 165 ppb and 980 ppb gold.

Holes drilled by Kamlo Gold Mines Limited and Raleigh Resources Limited, in the vicinity of the trenches, have intersected felsic crystal tuffs hosting wide intervals of abundant (4%-5%) pyrrhotite, chalcopyrite and pyrite in quartz-carbonate veinlets, along fractures, and disseminated throughout the metavolcanics. Raleigh Resources Limited drilled 19 holes totalling 5615 ft. between 1982 and 1985, in the vicinity of the Fornieri Bay Prospect (Assessment Files, Resident Geologist's Office, Kenora).

Sulphide-rich samples of fractured rhyolite, containing narrow quartz stringers, taken from a hole drilled in the vicinity of the old trenches in 1982, assayed 0.057 ounce gold per ton over 10 ft., and 0.374 ounce silver per ton and 0.65% copper over 5 ft. Holes drilled south and west of the trenches in 1983, intersected relatively narrow diorite and gabbro dikes intruding rhyolitic flows and felsic tuffs hosting wide intervals of abundant (4-5%) pyrite, pyrrhotite, and chalcopyrite in quartz-carbonate veinlets, along fractures, and disseminated throughout relatively undeformed host rocks. These wide sulphide-rich intersections were found to host anomalous gold mineralization assaying 0.013 ounce gold per ton over 150 ft. and 0.023 ounce gold per ton over 178 ft., including a smaller intersection of 0.036 ounce gold per ton over 70 ft. In 1985, further drilling intersected more sections of anomalous gold, with one intersection assaying 0.24 ounce gold per ton over 3.5 ft. and 0.22 ounce gold per ton over 10 ft. (Assessent Files, Resident Geologist's Office, Kenora). It should be noted the holes drilled by Kamlo Gold Mines Ltd. were drilled down dip and the holes drilled by Raleigh Resources Ltd. were drilled parallel to the strike of stratigraphy and structures such as shear zones.

## DEVELOPMENT HISTORY

1935: Staked by Mr. S.S. Fornieri.

1936-1939: Extensive trenching conducted by Erie Canadian Mines Limited. Property known as the Kirkland Prospector's Claims.

1948: Mapped and sampled by Magdalena Red Lake Gold Mines Limited.

1973: Acquired by Kamlo Gold Mines Limited who conducted geological mapping, geophysical surveys, and diamond drilling on the property.

1981: Staked by R. Knappett and transferred to C.M. Hames.

1982-1985: Diamond drilling and geophysical surveys conducted by Raleigh Resources Limited.

## SELECTED REFERENCES

Moorhouse 1941, O.D.M. Vol. 48, pt. 4, p. 21-22.

Parker et al. (map in preparation), Geology of the Fornieri Bay-Hardrock Bay Area, Eagle Lake.

Kirkland Prospectors' Syndicate, Assessment Files, Resident Geologist's Office, Kenora.

Magdalena Red Lake Gold Mines Limited, Resident Geologist's Office, Kenora.

Kamlo Gold Mines Limited, Resident Geologist's Office, Kenora.

C.M. Hames, Assessment Files, Resident Geologist's Office, Kenora.

Raleigh Resources Limited, Assessment Files, Resident Geologist's Office, Kenora.

## FREDERICK MINING OCCURRENCE

NTS 52F/11NE

### LOCATION AND ACCESS

The Frederick Mining Occurrence is located on the northwest shore of Midway Point, southwest of Hardrock Bay, on Eagle Lake. The location of the occurrence is indicated by a test pit symbol on W.W. Moorhouse's map (1941) of the Eagle Lake area.

### DESCRIPTION

Geology: The occurrence is underlain by mafic metavolcanic flows of the Eagle Lake Volcanics, east of the contact between the metavolcanics and granitic rocks of the Atikwa Batholith to the west.

Mineralization: A few large trenches and shallow test pits have been sunk on very hard, massive, fine-grained, sulphide-rich mafic metavolcanic flows. The metavolcanics appear to be amphibolitized and contain abundant disseminated pyrrhotite and chalcopyrite. Sulphides are also concentrated in amygdules within the flows. Narrow, discontinuous lenses of interflow metasediments striking 325°/65° NE occur amongst the mafic flows. The metasediments consist dominantly of alternating thin layers of chert, siltstone, and mafic tuff. Narrow and minor glassy gray quartz veins were observed but they contain minor amounts of sulphides. The mafic flows are also intruded by fine-grained felsic dikes.

The sulphide-rich flows and metasediments at this occurrence are very similar to the sulphide-rich, gold-bearing mafic flows at the W.W. Smith Prospect, 1.6 km to the northeast, at Hardrock Bay. The flows appear to be situated along the same stratigraphic level. One hole drilled by Frederick Mining Company Limited in 1949 intersected epidotized and carbonatized mafic flows intruded by felsic feldspar and quartz-feldspar porphyry dikes and mafic dikes. The mafic flows were reported to contain up to 3% evenly disseminated chalcopyrite and pyrrhotite. This geology is very similar to the W.W. Smith Prospect at Hardrock Bay.

### ASSAYS OF MINERALIZATION

A composite grab sample of sulphide-rich material, taken by the author from a few trenches, assayed 16 ppb gold.

### DEVELOPMENT HISTORY

1948: Trenching and sampling conducted by Frederick Mining and Development Company.

1969: Trenching and sampling by C. Doak.

1982: Tasu Resources staked the area and conducted ground geophysical surveys.

1987: Staked by H. Tibbo.

### SELECTED REFERENCES

Moorhouse 1939, O.B.M. Vol. 48, pt. 4.

Doak, C., Assessment Files, Resident Geologist's Office, Kenora.

Tasu Resources, Assessment Files, Resident Geologist's Office, Kenora.

## FRENCHMAN ISLAND OCCURRENCES

NTS 52F/07NW

### LOCATION AND ACCESS

The Frenchman Island Occurrences are located at the northeast end of the island on mining claim K.594270 and in the middle of the island on mining claims K.594262 and K.594263 in the Harper Lake area. The entire island was formerly known as mining location P.150. The occurrences are accessible by boat.

### DESCRIPTION

Geology: Frenchman Island is mostly underlain by a subvolcanic intrusion, situated within the Upper Manitou Lake Group, consisting of massive microgranodiorite porphyry and micro quartz-diorite porphyry, and flanked by intermediate lapilli-tuff and tuff-breccia on the east side of the island. The granodiorite is intruded by numerous felsite and quartz-feldspar porphyry dikes. A north-trending crossfault extends across the southwest end of the island, which is situated on the southeast limb of the Manitou Anticline, and 2.4 km northwest of the Manitou Straits Fault.

Mineralization: The occurrence at the northeast end of the island on mining claim K.594270 consists of a stockwork of white quartz veins within a 0.3 m wide, northeast-striking breccia/shear zone. The microgranodiorite host rocks weather buff to pink, and are sericitized and carbonatized. Finely disseminated pyrite occurs throughout the wall rocks and quartz veins. St. Joe Canada Incorporated obtained anomalous gold assays from the zone, including three channel samples which assayed 0.05 ounce gold per ton across 2 m, 0.10 ounce gold per ton across 1 m, and 0.25 ounce gold per ton across 0.5 m (Assessment Files, Resident Geologist's Office, Kenora).

The "St. Joe Occurrence" on claim K.594263, is located on the east side of Frenchman Island, and consists of a strong, 15 m to 23 m wide shear zone striking 038°/30° SE within intermediate tuffs. The host rocks are chloritic, sericitic, carbonatized (calcite, iron carbonate), and rusty brown, containing 2-10% disseminated pyrite. The shear zone hosts a stockwork of quartz veins of variable thicknesses containing iron carbonate and <1-3% finely disseminated pyrite. A grab sample of the quartz vein material taken by the author assayed 0.37 ounce gold per ton, while other samples assayed trace amounts of gold.

A west-northwest-trending shear zone on claim K.594263 extends from the east shore of Frenchman Island on to claim K.594262, at the southwest end of the island. The shear zone hosts a 0.9 m wide quartz vein dipping 70° SW within fine-grained, pink, sericitized, and carbonatized microgranodiorite. Trenches and pits are situated along the entire strike length (160 m) of the quartz vein and shear zone, both of which terminate at an abrupt cliff along the edge of the north-trending crossfault extending across the island. The vein and sheared wall rock are weakly pyritic. Thomson (1934) reported that the vein had a variable width between 1 ft. and 8 ft. and that the wall rock contained disseminated chalcopyrite. Thomson (1934) took a chip sample across the quartz vein and wall rock, where the vein is terminated by the fault, which assayed 0.1 ounce gold per ton across 3 ft. Grab samples, taken by the author, from the pyritic wall rock and quartz vein assayed 85 ppb gold and trace, respectively.

DEVELOPMENT HISTORY

1894: Frenchman Island was prospected and staked. Several quartz veins were discovered and some trenching was conducted. A 25 ft. deep shaft was sunk in the middle of the island but was not located by the author.

1933: Trenching reported on the west-northwest-trending quartz vein at the southwest end of the island.

1972: Frenchman Island staked by J. McNeil.

1980: Beth Canada Mining Company staked Frenchman Island and conducted geochemical and geophysical surveys.

1982: Frenchman Island staked by M. Woitowicz and transferred to St. Joe Canada Incorporated who conducted diamond drilling.

1984-1987: St. Joe Canada Incorporated conducted geological mapping, sampling, geophysical surveys, and diamond drilling.

SELECTED REFERENCES

Beard and Garratt 1976, M.D.C. 16, p. 17.

Blackburn 1979, G.R. 189, p. 63-64.

Coleman 1894, O.B.M. Vol. 4, pt. 2, p. 64.

Thomson 1934, O.B.M. Vol. 42, pt. 4, p. 31.

Beth Canada Mining Company, Assessment Files, Resident Geologist's Office, Kenora.

St. Joe Canada Incorporated, Assessment Files, Resident Geologist's Office, Kenora.

## FUCHSITE ZONE OCCURRENCE

NTS 52F/7NW

### LOCATION AND ACCESS

The Fuchsite Zone Occurrence is located in the Harper Lake area on mining claim K.754731 situated on the south shore of a small island, which is northwest of Leuiller Island, at the north end of Upper Manitou Lake. The property is accessible by boat.

### DESCRIPTION

Geology: The occurrence is situated within northwest facing intermediate pyroclastics and mafic metavolcanic flows of the Upper Manitou Lake Group, intruded by northeast-trending felsite dikes and a granitic plug on the northwest limb of the Manitou Anticline. The occurrence is about 4.8 km east of the contact between the metavolcanics and the granodiorite of the Atikwa Batholith and 4.8 km northwest of the Manitou Straits Fault.

Mineralization: The Fuchsite Zone consists of a strong 15 m wide shear zone striking 020°/70° SE for 152 m through intermediate lapilli-tuff and massive, coarse-grained, mafic metavolcanic flows. Host rocks are intensely sheared, sericitic, pink to pale buff brown, carbonatized, and contain 1-2% disseminated pyrite and abundant green fuchsite mica. Small (2-3 mm) elliptical chlorite clots occur within the wall rocks. The shear zone hosts a stockwork of white quartz veins containing 1-3% pyrite and chalcopyrite as well as fuchsite, chlorite, iron carbonate, and minor tourmaline. Alteration appears extensive but is confined to alteration haloes which extend for 6 cm on either side of the veins. A quartz vein at the lake shore is 2.1 m wide, milk white, and slightly pyritic. Some trenching and some stripping has been conducted on the occurrence, in recent years.

### ASSAYS OF MINERALIZATION

Three grab samples, taken by the author, of the altered, pyritic (1-3%) host rock assayed 50 ppb gold, 195 ppb gold, and 520 ppb gold, however, no values were obtained from the quartz veins.

### DEVELOPMENT HISTORY

1983: Claim K.754731 staked by M. Woitowicz and transferred to St. Joe Canada Incorporated.

1985: Transferred to M. Woitowicz.

1986: Claim cancelled.

### SELECTED REFERENCE

St. Joe Canada Inc., Assessment Files, Resident Geologist's Office, Kenora.

GLATZ-WEST ZONE OCCURRENCE

NTS 52F/9SW

LOCATION AND ACCESS

The Glatz-West Zone Occurrence is located at the boundary between mining claims K.697635 and K.697634 (formerly mining location A.D. 88) in Concession I, lot 11, Melgund Township. The property is accessible by the Melgund 8C road, a narrow gravel road branching east from the Snake Bay Road, about 4.8 km south of its intersection with the Trans Canada Highway. A very narrow, rough road branches north from the Melgund 8C road, about 3.0 km east of its intersection with the Snake Bay Road, and continues for 0.8 km to the occurrence. The occurrence is also accessible by the Melgund 8C road branching west from the Sandy Point Road.

DESCRIPTION

Geology: The occurrence is underlain by dominantly mafic, massive, and pillowed metavolcanic flows intruded by felsic dikes.

Mineralization: A few shallow pits are sunk on a stockwork of en echelon, fracture-hosted, gold-bearing quartz veins within a 15 m wide, fine-grained, quartz-feldspar porphyry dike intruding massive, and pillowed, fine-grained, dark green, mafic metavolcanic flows and lapilli tuff. The mafic metavolcanics are intensely sheared 059°-065°/90°, fissile, chloritized, and iron carbonatized. Pillows in the metavolcanics are elliptical and flattened with discontinuous and disrupted pillow selvages. The quartz-feldspar porphyry dike is sheared 056°-070°/90° and intruded in an arcuate form, bending gently to the west and east. A narrow shear trending 170°/63° SW crosscuts the northeast-shearing at the extreme east end of the dike. The dike is intensely sericitized, iron carbonatized, and contains <1% finely disseminated, fine-grained pyrite. Mineralized quartz veins strike 015°-025°/60°-85° SE through the dike and crosscut shearing. The veins are narrow [<1 cm-4 cm], closely spaced, and consist of white quartz, containing minor iron carbonate, and small blebs and clusters of pyrite, galena, and chalcopyrite along the edges of the quartz veins. A second set of subparallel, barren, quartz veins strike 155°-170°/60°-85° SW. The majority of quartz veins occur within the felsic dike and terminate at its contact with the mafic metavolcanics.

ASSAYS OF MINERALIZATION

A grab sample, taken by the author, from the pyritic, altered, dike assayed <0.01 ounce gold per ton, while a grab sample of the dike hosting a pyritic quartz vein assayed 0.06 ounce gold per ton. The best assays from samples taken by the author came from quartz vein material hosting abundant galena: two grab samples returned 0.18 ounce gold per ton with 0.42 ounce silver per ton and 0.88 ounce gold per ton with 2.26 ounces silver per ton, respectively.

Channel sampling of the dike by Sulpetro Minerals Limited gave low anomalous gold values, although three channel samples assayed 0.13 ounce gold per ton across 3 ft., 0.24 ounce gold per ton across 3 ft., and 0.25 ounce gold per ton across 3 ft. (Assessment Files, Resident Geologist's Office, Kenora). A hole drilled on the dike, by Sulpetro Minerals Limited, intersected 0.07 ounce gold per ton across 24 ft. including a 1.3 ft. section assaying 0.915

ounce gold per ton (The Northern Miner, p. 3, December 30, 1985), while a second hole intersected 0.137 ounce gold per ton across 3 ft. (Assessment Files, Resident Geologist's Office, Kenora).

DEVELOPMENT HISTORY

1981: Staked by A. Glatz and transferred to Sulpetro Minerals Limited.

1984: Sulpetro Minerals Limited conducted stripping, mapping, and channel sampling on the occurrence.

1985: Sulpetro Minerals Limited drilled two holes on the occurrence.

SELECTED REFERENCES

Sulpetro Minerals Limited, Assessment Files, Resident Geologist's Office, Kenora.

GOLDEN EAGLE MINE

NTS 52F/11NW

LOCATION AND ACCESS

The Golden Eagle Mine is situated on the west shore of Prendible Island in the southwest corner of Eagle Lake. The mine is located on mining claim K.590082 (former mining location McA. 282). The mine is accessible by boat, and the dump at the shaft and a narrow adit can be observed from the lake.

DESCRIPTION

Geology: The Golden Eagle Mine occurs within granitic rocks of the Atikwa Batholith, south of its contact with mafic and intermediate metavolcanic rocks of the Lower Wabigoon Volcanics.

Mineralization: The rocks at the Golden Eagle Mine consist of coarse- to medium-grained, gray, biotite-hornblende granitic rocks hosting a 0.6m-1.2 m wide, northwest-trending shear zone. The sheared wall rocks are sericitized, chloritic, carbonatized (calcite) and pyritic [<1%], and contain large (1mm-3mm), glassy, blue, quartz "eyes" embedded in a fine-grained groundmass. The shear zone hosts a 0.3 m to 0.6 m wide quartz vein, striking 155° to 170°/90°, and containing angular xenoliths of granite, and chlorite, and approximately 1% disseminated pyrite.

The mine consists of a 75 ft. deep shaft, a few shallow test pits, and a 160 ft. long adit at the lake shore, which intersects the bottom of the shaft.

ASSAYS OF MINERALIZATION

Two grab samples of the quartz vein, taken by the author, which contained <1% pyrite, assayed 45 ppb gold and 3500 ppb gold, while a third sample of the quartz, containing almost no pyrite, assayed 1.10 ounces gold per ton.

DEVELOPMENT HISTORY

1901: Discovery of a quartz vein made by Mr. N. Higbee. 19 tons of ore were tested at the Eldorado Mill and produced 9.5 ounces of gold at an average grade of 0.5 ounce gold per ton.

1903: A 75 ft. shaft was reported to have been sunk on the quartz vein with 160 ft. of drifting completed. About 29 tons of ore were tested at the Eldorado Mill and produced 17 ounces of gold at an average grade of 0.58 ounce gold per ton. No further work was reported after 1906.

1982: Staked and transferred to Mistango Consolidated Resources Limited.

1983: Mistango Consolidated Resources Limited conducted geological mapping, geophysical surveys, and sampling.

1984: Mistango conducted an airborne geophysical survey over the area. Property still held by Mistango as of January, 1987.

SELECTED REFERENCES

Carter 1904, O.B.M. Vol. 13, pt. 1, p. 64.

Moorhouse 1941, O.D.M. Vol. 48, pt. 4, p. 24.

The Canadian Mining Review, 1901, Vol. 20, p. 186.

Engineering and Mining Journal, August 24, 1901, p. 260.

Daily Times Journal, June 24, 1903.

Mistango Consolidated Resources Limited, Assessment Files, Resident Geologist's Office, Kenora.

## GOLDEN MOOSE PROSPECT (GOLD MOOSE MINE)

NTS 52F/10NW

### LOCATION AND ACCESS

The Golden Moose Prospect is located on a patented section of land, Concession I, lot 8, Van Horne Township, about 400 m south of Twingrass Lakes. The property is on the immediate north side of a narrow, grassy, bush road which branches west from an all-weather road.

### DESCRIPTION

Geology: The prospect is situated within intimately intercalated mafic and intermediate metavolcanic flows and pyroclastics of the Lower Wabigoon Volcanics.

Mineralization: The prospect consists of a small shaft sunk on a 0.9 m-1.5 m wide shear zone hosting a 0.3 m wide, rusty, pyritic [<1%], quartz-tourmaline-carbonate vein striking 086°/80° N. The host rocks are fine-grained, gray-green, intermediate lapilli-tuff and tuff-breccia intruded by an east-trending, massive, fine-grained, pale green-gray intermediate dike on the northeast side of the shaft. Wallrocks are intensely sheared, chloritic, and carbonatized.

### ASSAYS OF MINERALIZATION

A grab sample from the quartz vein, taken by Van Horne Gold Exploration Incorporated, assayed 0.31 ounce gold per ton (Assessment Files, Resident Geologist's Office, Kenora).

### DEVELOPMENT HISTORY

1901-1902: Shaft sunk to 64 ft. with 31 ft. of drifting at the bottom. A mill test of 67 tons of ore was made at the Keewatin Reduction Works.

1911: Shaft reported to be 60 ft. deep which conflicts with reports from 1902.

1913: Shaft sunk to 114 ft.

1986: Owned by the Town of Dryden.

### SELECTED REFERENCES


Carter 1902, O.B.M. Vol. 11, pt. 1, p. 244.

Carter 1904, O.B.M. Vol. 13, pt. 1, p. 66.

Parker and Scheinbein 1988, O.G.S. Maps P.3111 and P.3112.

Parsons 1911, O.B.M. Vol. 20, pt. 1, p. 194.

Parsons 1913, O.B.M. Vol. 22, pt. 1, p. 228.

Satterly 1943, O.D.M. Vol. 50, pt. 2, p. 50.

Van Horne Gold Exploration Incorporated, Assessment Files, Resident Geologist's Office, Kenora.

## GOLDEN PARK OCCURRENCE

NTS 52F/10NW

### LOCATION AND ACCESS

The shaft at the Golden Park Occurrence is located on lot 5, Concession II, Van Horne Township. The shaft is accessible from Coombs Road, which branches south from the Wabigoon Lake Road, and terminates on the north shore of Larson Bay of Wabigoon Lake. The shaft is approximately 120 m due west of a small clearing, at the end of Coombs Road, and is also about 150 m due north of the extreme west end of Larson Bay.

### DESCRIPTION

Geology: The Golden Park Occurrence is underlain by intermediate to mafic pyroclastics and flows of the Lower Wabigoon Volcanics.

Mineralization: The occurrence consists of a small shaft sunk on a narrow, east-trending shear zone in intermediate to mafic tuffs and flows. It is difficult to observe geological relationships due to poor exposure in the vicinity of the shaft. The shear zone hosts a quartz vein which is approximately 0.3 m wide, and consists of white-gray quartz containing disseminated pyrite, clots and stringers of chalcopyrite, malachite, dark green, chlorite, and fragments of altered wall rock.

The wall rocks next to the vein are fissile, chloritic, and carbonatized, but the alteration appears to be confined to the shear zone.

### ASSAYS OF MINERALIZATION

A composite grab sample, taken by the author, from quartz vein material containing 3% sulphides, consisting of pyrite and chalcopyrite, assayed 3050 ppb gold. A chip sample across the vein, taken by the author, assayed 37 ppb gold. Although it has been reported that two shafts occur at the Golden Park Occurrence, the author was only able to locate one of them.

### DEVELOPMENT HISTORY

1906: The Golden Park Mining Company sunk two shafts on lots 5 and 6, Concession II, Van Horne Township. The western shaft was reported to be 40 ft. deep and the eastern shaft was reported to be 37 ft. deep.

1980: Staked by Frank Rodgers.

1986: Staked by A. Glatz.

### SELECTED REFERENCES


Corkill 1907, O.B.M. Vol. 16, pt. 1, p. 59.

Parker and Schienbein 1988, O.G.S. Maps P.3111 and P.3112.

Parsons 1911, O.B.M. Vol. 20, pt. 1, p. 191.

Golden Park Claim - Contact Bay, Mineral Deposit Files, Resident Geologist's Office, Kenora.

## GOOD LUCK PROSPECT

NTS 52F/10NW

### LOCATION AND ACCESS

The Good Luck Prospect is located on the east side of claim K.533394, lot 8, Concession I, Van Horne Township. The property is accessible by a very overgrown bush road and is 125 m east of the Drake Prospect.

### DESCRIPTION

Geology: The prospect is situated within intercalated intermediate and mafic metavolcanic flows and pyroclastics of the Lower Wabigoon Volcanics which are intruded by numerous felsic dikes.

Mineralization: The Good Luck Prospect consists of a very deep shaft on the south side of an extensive, steep outcrop. It is underlain by fine-grained, dark green-gray, chloritic, mafic to intermediate tuff, lapilli-tuff, and tuff-breccia intercalated with intermediate to felsic flows and intruded by felsic dikes. The metavolcanics are foliated 092°/90° and host a narrow, linear, shear/fracture zone trending 090°-095° for approximately 800 m. The shear zone controls a <0.3 m wide, quartz-iron carbonate-tourmaline vein containing <1% disseminated, fine-grained, pyrite and clots and stringers of dark green chlorite. The vein is trenched for its entire strike length. The wall rock is slightly pyritic, chloritized, sericitic, and carbonatized (calcite) with minor iron carbonate. The vein and shear zone extend west to the Drake Prospect.

### ASSAYS OF MINERALIZATION

A representative grab sample from the dump, taken by Van Horne Gold Exploration Incorporated, assayed 0.12 ounce gold per ton and visible gold was observed. Van Horne Gold Exploration Incorporated drilled one hole under the Good Luck Shaft which failed to intersect a discrete zone of quartz veining or significant gold values (Assessment Files, Resident Geologist's Office, Kenora).

### DEVELOPMENT HISTORY

1911: Test pit sunk on a quartz vein containing visible gold.

1912: Shaft sunk to 45 ft.

1916: No further work was done on the property since 1913, but tests were made for the Dominion Reduction Company during the summer of 1916.

1980: Acquired by H. Hodge.

1981-1983: Van Horne Gold Exploration Incorporated conducted geological mapping, geophysical surveys, and sampling on the property.

1987: Van Horne Gold Exploration Incorporated diamond drilled one 306 ft. hole beneath the shaft.

### SELECTED REFERENCES

Corkill 1913, O.B.M. Vol. 22, pt. 1, p. 40.

Parker and Schienbein 1988, O.G.S. Maps P. 3111 and P.3112.

Parsons 1911, O.B.M. Vol. 20, pt. 1, p. 192.

Parsons 1912, O.B.M. Vol. 21, pt. 1, p. 185.

Thomson 1917, O.B.M. Vol. 26, pt. 1, p. 182.

Van Horne Gold Exploration Incorporated, Assessment Files, Resident Geologist's Office, Kenora.

## GRACE MINE (HIGBEE MINE)

NTS 52F/11NW

### LOCATION AND ACCESS

The Grace Mine is located on the southwest shore of Eagle Lake, west of Prendible Island, on mining claim K.594273 (former mining location M.H. 251) in the Garnet Bay area. The property is accessible by boat.

### DESCRIPTION

Geology: The Grace Mine is situated within granitic rocks of the Atikwa Batholith, south of its contact with mafic and intermediate metavolcanic rocks of the Lower Wabigoon Volcanics.

Mineralization: The rocks at the Grace Mine consist of massive, coarse-grained, gray, biotite-hornblende granitic rocks hosting a large, irregular, xenolith of porphyritic mafic metavolcanic flows. The rocks are crosscut by narrow (0.9 m–1.3 m), subparallel shear zones striking 022°-028°/74' NW, 032°/80° NW, 046°/70' NW, and hosting narrow, discontinuous, quartz-iron carbonate-chlorite veins and stringers containing <1% disseminated pyrite. Galena, sphalerite, and an "unusually thick sprinkling of visible gold" was observed in the quartz veins by W.E.H. Carter (1904). The granitic wall rocks are sheared, weakly to moderately sericitic, chloritic, weakly carbonatized (calcite) and slightly pyritic [<1%], with pale green epidote on fractures. The wall rocks at the adit on the lakeshore contain abundant iron carbonate. A 60 m long x 4.5 m wide xenolith of porphyritic, mafic, metavolcanic flows is situated immediately northwest of the shaft. The xenolith is sheared, chloritic, and contains small (1 mm-3 mm), white-green feldspar phenocrysts. The xenolith is intruded by numerous, boudinaged, pink-white, aplitic dikes striking 057°, which are crosscut by numerous narrow, tension fracture-hosted quartz veins. Quartz veins also occur within the xenolith and along the sheared xenolith/granite contact.

The prospect consists of a 135 ft. deep shaft and a northeast-trending open cut extending southwest from the shaft for approximately 100 ft. A second shaft reported to occur on the property was not located. An adit, on the lakeshore southwest of the shafts, was driven 128 ft. northwest into a granite hill and included 70 ft. of drifting.

### ASSAYS OF MINERALIZATION

Grab samples of the quartz veins, taken by the author in the shaft and open cut, assayed 26 ppb gold and 11 ppb gold respectively.

### DEVELOPMENT HISTORY

1901: Earliest report of work.

1903: Shaft and adit started on the property.

1904: No. 1 shaft sunk to 28 ft., No. 2 shaft sunk to 96 ft., an adit driven 128 ft., 21.3 tons of ore were removed and produced 4.74 ounces of gold.

1905: Two compartment shaft sunk to 55 ft.

1906: Shaft sunk to 65 ft.

1907: Mill erected in the spring. Total production as of 1908 was 69 ounces of gold from 415 tons of ore.

1911: Shaft reported to be 135 ft. deep and adit reported to be 160 ft. long.

1921: Two compartment shaft reported to be 115 ft. deep with 51 ft. of lateral work.

1922: Shaft reported to be 187 ft. deep with 20 ft. of drifting at the 100 ft. level with 15 ft. and 25 ft. crosscuts. Two 45 ft. crosscuts were developed at the 180 ft. level as well. Work was finally abandoned.

1982: Staked and transferred to Mistango Consolidated Resources Limited.

1983: Mistango Consolidated Resources Limited conducted geological mapping, geophysical surveys, and sampling.

1984: Mistango conducted an airborne geophysical survey over the area.

SELECTED REFERENCES

Carter 1904, O.B.M. Vol. 13, pt. 1, p. 64.

Carter 1905, O.B.M. Vol. 14, pt. 1, p. 49.

Corkill 1906, O.B.M. Vol. 15, pt. 1, p. 54.

Corkill 1908, O.B.M. Vol. 17, pt. 1, p. 6.

Miller 1903, O.B.M. Vol. 12, pt. 1, p. 93.

Parsons 1911, O.B.M. Vol. 20, pt. 1, p. 196.

Sutherland 1921, O.B.M. Vol. 30, pt. 1, p. 63.

Sutherland 1922, O.B.M. Vol. 31, pt. 10, p. 16.

Sutherland 1924, O.B.M. Vol. 33, pt. 7, p. 19.

Mistango Consolidated Resources Limited, Assessment Files, Resident Geologist's Office, Kenora.

HARRISON, J. OCCURRENCE

NTS 52F/11NE

## LOCATION AND ACCESS

The Harrison Occurrence is located on the northeast shore, at the mouth of Meridian Bay on Eagle Lake, on claim K.851594 in the Buchan Bay area. The occurrence is on the immediate lakeshore and is accessible by boat.

## DESCRIPTION

Geology: The occurrence is situated within massive and pillowed mafic metavolcanic flows of the Eagle Lake Volcanics and is 1.6 km east of the contact between the mafic metavolcanics and the granitic rocks of the Atikwa Batholith.

Mineralization: Two 0.9 m to 6.0 m wide, subparallel, north- and north-northeast-trending shear zones are crosscut by an east-trending, 2 m wide shear zone in mafic metavolcanic flows. The wall rocks are chloritized, sericitized, and moderately carbonatized. The north-trending shears host narrow quartz-iron carbonate-tourmaline veins and stringers, containing up to 5% disemminated pyrite and chalcopyrite with associated malachite and azurite. The quartz has a "sugary" texture which may indicate recrystallization.

## ASSAYS OF MINERALIZATION

Four grab samples, taken by the author, from the pyrite and chalcopyrite-bearing quartz veins assayed: 0.01 ounce gold per ton with 5760 ppm copper, <0.01 ounce gold per ton with 1640 ppm copper, 0.02 ounce gold per ton with 4880 ppm copper, and 0.22 ounce gold per ton with 0.46 ounce silver per ton, and 2.22% copper. The grab samples which assayed gold are the first discovery of gold at the occurrence.

## DEVELOPMENT HISTORY

The occurrence was discovered and staked for its copper potential around 1968 and has been restaked for 18 consecutive years by various parties. The only work that has been done is some shallow trenching on one of the shear zones.

## SELECTED REFERENCES

Parker 1986, O.G.S., Miscellaneous Paper 128, p. 25, 28-29.

## H.W. 123 OCCURRENCE

NTS 52F/9NW

### LOCATION AND ACCESS

The H.W. 123 Occurrence is located in lot 6, Concession IV, of Southworth Township, and is approximately 3 km southeast of Dinorwic, on mining location H.W. 123. The occurrence is 200 m north of a concession road, about 1 km east of its intersection with Highway 17, which is 2.3 km south of Dinorwic. A shallow 3 m x 4 m trench is situated on the edge of a brush covered area in a hay field.

### DESCRIPTION

Geology: The area around the H.W. 123 Occurrence is underlain by mafic, massive and pillowed metavolcanics intruded by gabbroic sills containing abundant magnetite. Intensely sheared and iron carbonatized mafic metavolcanics occur southwest of the occurrence where J. Satterly (1943) mapped them as carbonate-chlorite schists.

Mineralization: The H.W. 123 Occurrence consists of a 3.0 m-5.0 m wide quartz-diorite dike striking 130° and crosscutting a 12 m wide shear zone striking 040°. The shear is hosted by medium-grained, chloritized, intensely carbonatized, mafic metavolcanic flows. The metavolcanics contain minor amounts [<1-3%] of disseminated pyrite, chalcopyrite and arsenopyrite. Narrow veinlets of iron carbonate commonly contain small blebs of chalcopyrite. The quartz-diorite dike is fine- to medium-grained, pink-gray, and variably foliated, containing variable amounts of iron carbonate and small xenoliths of the mafic metavolcanics. The dike is intruded by an irregular stockwork of quartz-iron carbonate veins. Arsenopyrite, pyrite, and chalcopyrite are finely disseminated throughout the quartz-diorite dike, but are not associated with the quartz-carbonate veins. Arsenopyrite is commonly massive, comprising <5-50% of the rocks.

### ASSAYS OF MINERALIZATION

The best assay from grab samples taken from the dike by the author was 0.05 ounce gold per ton. A grab sample from the sheared and altered mafic metavolcanics assayed 0.05 ounce gold per ton and 0.42 ounce silver per ton.

### DEVELOPMENT HISTORY

There is no record of work done on mining location H.W. 123, however, the occurrence was stripped and trenched sometime in the past.

### SELECTED REFERENCES

Parker 1985, O.G.S., Miscellaneous Paper 122, p. 25-26.

## H.W. 486 OCCURRENCE

NTS 52F/9SW

### LOCATION AND ACCESS

The H.W. 486 Occurrence is located on mining location H.W. 486 in lot 5, Concession I, Melgund Township. It is accessible by a narrow, thickly overgrown trail which branches southeast from the Sandy Point Road.

### DESCRIPTION

Geology: The occurrence is situated within massive, mafic, amphibolitized, metavolcanic flows approximately 200 m west of the contact between dioritic rocks of the Revell Batholith and the metavolcanics.

Mineralization: A test pit has been sunk on hard, massive, aphanitic, dark gray-green, amphibolitized mafic metavolcanics which are weakly carbonatized. The metavolcanics contain finely disseminated pyrrhotite and large (up to 1 cm), elliptical (vesicle fillings?) concentrations of pyrrhotite and pyrite. Total sulphide content ranges between 10% and 20%. The wall rocks do not appear sheared but some sericitized, sheared rock was found in the dump near the pit. The sulphide zone hosts a 5 cm wide milk white quartz vein with red and rusty staining.

### ASSAYS OF MINERALIZATION

A grab sample, taken by the author, from the sulphide-rich metavolcanics assayed 1000 ppb gold.

### DEVELOPMENT HISTORY

None reported.

### SELECTED REFERENCES

Satterly 1960, O.D.M. Vol. 69, pt. 6.

## H.W. 673 OCCURRENCE

NTS 52F/9SE

### LOCATION AND ACCESS

The H.W. 673 Occurrence is located on mining location H.W. 673 in lot 2, Concession IV, Revell Township, north of Tache. The occurrence is accessible from a narrow gravel road which branches east from the Basket Lake Road, approximately 7.3 km north of its intersection with the Trans Canada Highway.

### DESCRIPTION

Geology: The occurrence is situated within amphibolite grade, mafic, metavolcanic flows intruded by wide felsic dikes within a northwest-trending shear zone. The occurrence is 1.2 km north of the contact between dioritic rocks of the Revell Batholith and the mafic metavolcanics.

Mineralization: The geology at the occurrence consists of amphibolitized, dark green, chloritic, intensely sheared (120°/76° SW), mafic metavolcanic flows intruded by a 6 m wide quartz-feldspar porphyry dike which hosts the majority of the quartz veins. The dike is intensely sheared, and contains tiny, white, feldspar phenocrysts, and small [<1 mm-3 mm], elliptical phenocrysts of vitreous and milky white quartz which may be a cataclastic texture. The dike is very siliceous and was previously mapped as a rhyolite (Satterly 1960). A shaft has been sunk on a stockwork of intensely boudinaged, milk-white, quartz stringers and veins containing minor iron carbonate and rusty gossan stain. Many of the veins are Z-drag folded. Mafic metavolcanic rocks are chloritized while the felsic wall rocks are sericitized, but no carbonate alteration or sulphides were observed.

### ASSAYS OF MINERALIZATION

Two grab samples of the felsic dike, taken by the author, assayed <2 ppb gold and 7 ppb gold, while a 1.2 m chip sample across the felsic dike and quartz veins assayed 150 ppb gold.

### DEVELOPMENT HISTORY

None reported.

### SELECTED REFERENCES

Satterly 1960, O.D.M. Vol. 69, pt. 6, p. 26.

## IDEAL PROSPECT

NTS 52F/10NW

## LOCATION AND ACCESS

The Ideal Prospect is located along the north boundary of claim K. 533394, lot 8, Concession I, Van Horne Township, about 180 m west of Twingrass Lakes. The property is accessible by a very overgrown bush road.

## DESCRIPTION

Geology: The prospect is situated within a diorite/gabbro stock which intrudes massive mafic metavolcanic flows of the Lower Wabigoon Volcanics intruded by wide, east-trending felsic dikes.

Mineralization: The Ideal Prospect consists of a deep shaft, a large dump, numerous trenches, and a small open cut which have been sunk on a small, massive, fine- to medium-grained, green-gray, diorite stock intruded by a 9.0 m-15.0 m wide, pink, fine- to medium-grained quartz-feldspar porphyry dike. The dike strikes 090°-106° and was traced 800 m to the west from the shaft. Narrow northwest-trending dikelets extend from the main dike. The dike and diorite are intensely sheared, fractured, and fissile within a 2.0 m wide shear zone striking 117°. The shear zone controls a 0.9 m wide quartz-iron carbonate-tourmaline vein including quartz stringers and veinlets which contain ≤ 1% fine-grained, disseminated pyrite, and minor hematite. The veins generally occur within the dike or along its sheared contacts. Disseminated pyrite is most abundant in the wall rocks, but is commonly sparse. The quartz-feldspar porphyry and diorite are chloritized, sericitized with accompanying green mica, tourmalinized, and contain variable amounts of orange iron carbonate.

## ASSAYS OF MINERALIZATION

Two grab samples of pyritic, altered, diorite, taken by the author, assayed 7 ppb gold and 20 ppb gold, while a grab sample of quartz vein material taken by Van Horne Gold Exploration Incorporated assayed 1.12 ounces gold per ton. Van Horne Gold Exploration diamond drilled one hole beneath the Ideal Shaft which intersected substantial zones of intense silicification, and quartz veins, however, no significant gold values were intersected (Assessment Files, Resident Geologist's Office, Kenora).

## DEVELOPMENT HISTORY

1903: The Ideal Mining Company acquired the north 80 acres of lot 8, Concession I, in Van Horne Township. A shaft was sunk to 36 ft. and some stripping was done.

1905: Shaft deepened to 89 ft.

1906: 20 ft. of drifting was completed at the bottom of the shaft and a stamp mill was installed and operating at this time.

1980: Acquired by H. Hodge.

1981-1983: Van Horne Gold Exploration Incorporated conducted geological mapping, sampling, and geophysical surveys.

1987: Van Horne Gold Exploration Incorporated diamond drilled one 406 ft. hole beneath the Ideal Shaft.

SELECTED REFERENCES

Bow 1904, O.B.M. Vol. 13, pt. 1, p. 66.

Carter 1905, O.B.M. Vol. 14, pt. 1, p. 51.

Corkill 1906, O.B.M. Vol. 15, pt. 1, p. 55.

Parker and Schienbein 1988, O.G.S. Maps P.3111 and P.3112.

Van Horne Gold Exploration Incorporated, Assessment Files, Resident Geologist's Office, Kenora.

## JOHNSON-CONTACT BAY OCCURRENCE

NTS 52F/10NW

### LOCATION AND ACCESS

The Johnson-Contact Bay Occurrence is located on the lake shore of a small bay, on the west shore of Contact Bay of Wabigoon Lake, on mining claim K.911490. It is situated immediately southwest of the southeast corner of patented claim K.649. The occurrence is accessible by boat.

### DESCRIPTION

Geology: The occurrence is situated within mafic to felsic metavolcanic flows and pyroclastics of the tholeiitic to calc-alkaline Lower Wabigoon Volcanics. The metavolcanics are intruded by numerous east-trending felsic dikes and gabbro stocks. The occurrence is 850 m north of the contact between granitic rocks of the Atikwa Batholith and the metavolcanics.

Mineralization: A shear zone striking 125°/60° N extends through sheared, magnetite- and sulphide-rich interflow metasediments within mafic metavolcanic flows, intruded by numerous fine-grained felsite dikes. Narrow, discontinuous quartz veins and stringers occur within the sheared rocks. The quartz has a very "sugary", granular texture, which may indicate that it has been recrystallized. Abundant disseminated pyrite (1-10%) occurs within the most intensely sheared, fissile rocks and "sugary" quartz. The surrounding metavolcanic rock and felsic dikes are massive, blocky, and fractured. Siliceous, clastic, interflow metasediments immediately south of the shear zone host discontinuous, bifurcating layers of magnetite. The metasediments are a few feet thick but appear to have a limited strike length.

Numerous quartz veins were examined in the area surrounding the occurrence. The majority of the veins are hosted by tension fractures with variable, but dominantly northwest orientations. The veins consist of white quartz containing variable amounts of pyrite, covellite, molybdenite, and hematite.

### ASSAYS OF MINERALIZATION

The author observed excellent gold pannings from the occurrence, however, the highest gold assay from grab samples taken by the author was 100 ppb gold.

### DEVELOPMENT HISTORY

1986: Occurrence discovered and staked by Stan and Sherridon Johnson.

### SELECTED REFERENCES

None.

## JOHNSON-WHITEWATER LAKE OCCURRENCES

NTS 52F/10SE

### LOCATION AND ACCESS

The Johnson-Whitewater Lake Occurrences consist of numerous gold showings around the shore of Whitewater Lake on mining claims K.910930, K.910932, K.910934 and K.911482. Whitewater Lake is immediately east of Kaminnassin Bay of Dinorwic Lake and north of Minnehaha Lake. The majority of occurrences are accessible by boat.

### DESCRIPTION

Geology: The occurrences are situated within mafic to felsic metavolcanic flows and pyroclastics of the tholeiitic to calc-alkaline Lower Wabigoon Volcanics. The gold occurrences are 2.4 km west of the northeast-trending Manitou Straits Fault and occur within numerous north-northeast-trending shear zones parallel to the fault.

Mineralization: The known Whitewater Lake occurrences consist of the original gold discovery on the northwest shore of Whitewater Lake, a new test pit on the east shore of the lake, numerous new and old test pits north and northeast of Whitewater Lake, between Whitewater Lake and Turtlepond Lake to the northeast, an open cut situated between Kaminnassin and Whitewater Lakes, and a vein on the north shore of a small unnamed lake immediately north of Whitewater Lake.

The new test pit on the east shore of the lake has been sunk on quartz veins hosted by pale gray, pillowed, mafic, metavolcanic flows with abundant amygdules and feldspar phenocrysts. The rocks are carbonatized (calcium carbonate), sericitized, and contain up to 15% fine-grained, disseminated pyrite and are sheared at 015° to 020°, dipping vertically or steeply west. Quartz veins are controlled by shearing, and by northwest- or west-trending tension fractures which crosscut shearing. Veins are generally 5 cm to 10 cm wide with numerous blue-gray quartz stringers occurring throughout. Veins contain angular fragments and "stringers" of very pyritic wall rock and chlorite but pyrite does not commonly occur within the quartz. Visible gold was observed in the quartz veins by the author. Three random grab samples of the wall rocks, taken by the author from the test pit, assayed 345 ppb gold, 2070 ppb gold, and 3610 ppb gold, while two samples of the quartz vein material assayed 200 ppb gold and 1480 ppb gold.

The original Whitewater Lake Occurrence, on the northwest shore of the lake, consists of a 0.3 m to 0.6 m wide, east-trending quartz vein crosscutting sheared, chloritic and carbonatized mafic metavolcanic flows. The vein consists of "sugary" white quartz containing dark green to black chlorite stringers, disseminated pyrite, chalcopyrite, galena, and fine-grained flakes of visible gold. A grab sample of the vein, taken by the author, assayed 1.56 ounces gold per ton while a sample of the wall rock assayed 1315 ppb gold.

The new test pits excavated by Stan and Sherridon Johnson between Whitewater and Turtlepond Lakes have been sunk on intensely sheared, fissile, rusty, sericitized, iron carbonatized mafic metavolcanic flows and tuffs. The wall rocks next to the quartz veins are very pale gray-green, contain green mica and 3% to 5% disseminated pyrite. Quartz veins are generally narrow but numerous, and consist of white quartz containing dark green chlorite stringers and associated pyrite. Five grab samples of the wall rock, taken by the author from the various trenches, assayed 895, 1290, 1670, 2440, and 3520 ppb gold, while two samples of quartz vein material assayed 430 and 855 ppb gold. At these occurrences, the altered wall rocks host more gold mineralization than the quartz veins.

Old trenches situated approximately 250 m due west of the new test pits described previously have been sunk on a 0.3 m to 0.46 m wide quartz vein striking 010°, and dipping vertically or steeply west. The vein has been trenched for a strike length of about 70 m and consists of white quartz, iron carbonate, calcite and disseminated bornite, chalcopyrite and pyrite. The vein has a banded appearance with dark green bands of chlorite extending parallel to the vein contacts. The wall rocks consist of intensely sheared, fissile, intermediate tuff, and contain abundant iron carbonate and calcite but lack sulphides. Grab samples of the quartz vein, taken along the strike of the vein by the author, assayed 540, 2530, 3390, and 4180 ppb gold, with lesser values of 4 and 180 ppb gold from samples taken at the northeast end of the vein. A grab sample of the wall rock assayed 9 ppb gold.

Another gold showing is located at an old open cut situated between Whitewater Lake and Kaminnassin Lake. The open cut has been driven on a 0.6 m wide quartz vein and numerous narrow quartz veinlets hosted by intensely sheared mafic metavolcanics. The shear zone strikes 020° and dips steeply west. The host rocks are fissile, carbonatized, sericitized, and pale green-yellow with a "waxy" appearance. The rocks contain abundant fine-grained, finely disseminated pyrite. The quartz veins consist of white quartz, iron carbonate, and contain variable amounts of pyrite, chalcopyrite, galena, and some malachite. Two grab samples from the quartz vein, taken by the author, and containing <1% sulphides, assayed 0.76 ounce gold per ton and 1.62 ounces gold per ton, while a sample of the wall rock assayed 8100 ppb gold.

Gold mineralization is distributed extensively throughout the Whitewater Lake area as indicated from sampling conducted by Comaplex Resources, Stan and Sherridon Johnson (Stan Johnson, prospector, Wabigoon, personal communication), and the author. The author obtained gold values from other locations in the area, including assays of 5410 ppb gold and 0.5 ounce gold per ton from grab samples taken from a quartz vein on the north shore of the small unnamed lake north of Whitewater Lake.

DEVELOPMENT HISTORY

1957: Gold was reported to have been discovered on the north shore of Whitewater Lake by Carl Mosher. However, Mr. Stan Johnson (prospector, Wabigoon, personal communication, 1986) told the author that Carl Mosher discovered the occurrence in the early 1930's.

1958: Staked by E.C. Stinson.

1960: Staked by W. Kirkpatrick.

1973: Staked and held by Whitewater Gold Mines Limited who conducted ground geophysical surveys over the property.

1983: Staked by B. McKay.

1984: Staked by R. Fairservice.

1986-1987: Staked by S. Johnson. Stan and Sherridon Johnson also made new gold discoveries on the east shore of Whitewater Lake and northwest of the lake. All previous work and staking had been centered on the original discovery by Carl Mosher. Comaplex Resources optioned the property and conducted reconnaissance mapping, sampling and prospecting. Comaplex subsequently dropped the option which was picked up by St. Joe Canada Inc.

SELECTED REFERENCES

Parker 1988, O.G.S., Miscellaneous Paper 138, p. 19-20.

Whitewater Gold Mines Limited, Assessment Files, Resident Geologist's Office, Kenora.

K.812786 OCCURRENCE

NTS 52F/10SE

LOCATION AND ACCESS

The K.812786 Occurrence (formerly K.718737) is situated on the west shore of Moose Bay of Dinorwic Lake. Moose Bay is located on the west shore of Dinorwic Lake, north of Stanawan Bay. The occurrence is indicated as a small test pit on J. Satterly's (1943) map of the Dryden-Wabigoon area.

DESCRIPTION

Geology: The occurrence is underlain by mafic metavolcanic flows intercalated with intermediate to felsic pyroclastic rocks of the Lower Wabigoon Volcanics.

Mineralization: The K.812786 Occurrence conists of a 2.4 m deep test pit situated on the northern edge of a large, steep, outcrop.

The test pit has been sunk on very fine-grained, pale gray, thickly to thinly laminated, interflow metasediments consisting of chert and siltstone, and surrounded by massive and pillowed, amygdaloidal, metavolcanic flows. The metasediments fracture conchoidally, effervesce vigourously in dilute hydrochloric acid, and are easily scratched. Abundant, massive pyrite occurs throughout the metasediments. Narrow quartz vein stringers occur amongst the sulphides and appear to be fracture-hosted.

It was difficult to determine the strike or extent of the metasediments due to poor exposure, but the metasediments may be striking 330° and dipping 50° E.

ASSAYS OF MINERALIZATION

A grab sample, taken by the author and consisting of metasediments containing very fine-grained pyrite, and fracture-hosted quartz veinlets containing pyrite, assayed 5110 ppb gold. Another grab sample consisting of angular fragments of chert and quartz embedded in massive pyrite, assayed 1.51 ounces gold per ton.

DEVELOPMENT HISTORY

None reported.

SELECTED REFERENCES

Satterly 1943, O.B.M. Vol. 50, pt. 2.

LADY MARION PROSPECT

NTS 52F/9SE

LOCATION AND ACCESS

The Lady Marion Prospect is located on mining location H.W. 525 in lot 6, Concession IV of Revell Township. The property can be found by walking 1.37 km west from Tache along the C.P.R. Railroad track. The prospect is 152 m due north of the railroad track.

DESCRIPTION

Geology: The prospect is situated at the contact between dioritic rocks of the Revell Batholith and amphibolitized mafic metavolcanic flows.

Mineralization: Two shafts have been sunk on a 0.9 m to 1.2 m wide shear zone striking 310°/60°-70° SW within medium-grained, biotite-hornblende diorite. The shear zone controls a stockwork of milk-white quartz veins and stringers with rusty brown and red hematite staining. The wall rocks are intensely sheared, iron carbonatized, and chloritic. The quartz veins and wall rocks contain $\leq$ 1% pyrite. Wall rocks in the dumps at the two shafts consists of biotite-hornblende diorite containing small [<1 mm], blue, quartz "eyes" and amphibolitized, porphyritic, mafic metavolcanic flows containing large [ $\leq$ 1.5 cm], white feldspar phenocrysts.

ASSAYS OF MINERALIZATION

A 0.45 m chip sample, taken by the author, across a quartz vein in a trench 4.6 m west of the south shaft assayed <2 ppb gold. A grab sample of quartz vein material from the dump at the north shaft assayed <2 ppb gold.

DEVELOPMENT HISTORY

1900: Shaft reported to be sunk on the claim.

SELECTED REFERENCES

Satterly 1960, O.D.M. Vol. 69, pt. 6, p. 26.

Revell Township, lot 6, Con. IV (H.W. 525), Mineral Deposit File, Resident Geologist's Office, Kenora.

LEAGUE PROSPECT (GOLD COIN MINE OR LEAGUE MINE)

NTS 52F/10NW

## LOCATION AND ACCESS

The League Prospect consists of two shafts on claims K.558594 and K.558597 in lot 6, Concession I, Van Horne Township. The League Prospect is accessible from an overgrown bush road which extends east from the gravel road along which the Bonanza Mine is located. The gravel road branches south from the Wabigoon Lake Road.

The overgrown bush road branches east where the gravel road terminates at a small beaver dam. Follow the bush road about 730 m and then walk 60 m west from the road to the No.1 shaft at the Lost Mine. Walk another 215 m due west to the No.2 shaft at the Lost Mine. Proceed due north for 300 m to the No.2 shaft at the League Prospect. The No.1 shaft is 244 m east-southeast of the No.2 shaft.

## DESCRIPTION

Geology: The League Prospect is situated within intermediate to felsic metavolcanic flows and pyroclastics, intercalated with mafic flows and pyroclastics of the Lower Wabigoon Volcanics. The metavolcanics are intruded by numerous felsic dikes. Felsic metavolcanic rocks in the vicinity of the shaft are weakly to moderately sericitized and carbonatized.

Mineralization: The geology at the two shafts consists of intermediate to felsic brecciated flows hosting an east-trending (095°/80° N), 5 m wide shear zone and quartz-tourmaline-iron carbonate veins and stringers containing <1% finely disseminated pyrite. The sheared wall rocks are sericitized, chloritic, pyritic (1%) and weakly carbonatized. Thomson (1917) recognized chalcopyrite and green mica in the rocks on the dump. A felsite dike probably hosts the quartz veins at the No. 2 shaft since pieces of fine-grained, massive, pink, siliceous and magnetite-bearing felsite were found in the dump beside the shaft. Shaft No. 2 is 244 m west-northwest of the No. 1 shaft, but a third shaft situated near Larson Bay could not be located.

## ASSAYS OF MINERALIZATION

Two grab samples of quartz vein material, taken by the author, from the dump at shaft No. 2 assayed 85 ppb gold and 370 ppb gold, while a grab sample of the felsite assayed 8 ppb gold. A grab sample of the quartz vein at the No. 1 shaft assayed 1960 ppb gold.

## DEVELOPMENT HISTORY

1904: Gold Coin Mining Company sunk a shaft to 55 ft. on a east-trending quartz vein containing "copper and iron pyrites." The vein was reported to be 5 ft. wide.

1910: Shareholders Protective League Limited took over the property. The shaft was deepened to 80 ft. while a second shaft was sunk to 35 ft.

1911: A shaft was variably reported to be 80 ft. deep and 70 ft. deep in the same O.B.M. Report. An experimental mill was erected.

1912: A drift was started at the 72 ft. level in the 80 ft. shaft.

1914: Two shafts sunk to a depth of 80 ft. with a third shaft sunk to 20 ft. The third shaft is reported to be located in lot 5, Concession I, Van Horne Township, near the shore of Larson Bay but was not located by the author.

1980: Acquired by H. Hodge.

1981-1983: Van Horne Gold Exploration Incorporated conducted geological mapping, geophyscial surveys, and sampling on the property.

1987: Held by H. Hodge.

SELECTED REFERENCES

Carter 1905, O.B.M. Vol. 14, pt. 1, p. 51.

Corkill, Parsons 1911, O.B.M. Vol. 20, pt. 1, p. 87, 192.

Corkill, Parsons 1912, O.B.M. Vol. 21, pt. 1, p. 101, 185.

Corkill 1913, O.B.M. Vol. 22, pt. 1, p. 229.

Hopkins 1917, O.B.M. Vol. 30, pt. 2, p. 51.

Parker 1986, O.G.S., Miscellaneous Paper 128, p. 36.

Parker and Schienbein 1988, O.G.S. Maps P.3111 and P.3112.

Satterly 1941, O.D.M. Vol. 50, pt. 2, p. 51.

Thomson 1917, O.B.M. Vol. 26. pt. 1, p. 181.

Van Horne Gold Exploration Incorporated, Assessment Files, Resident Geologist's Office, Kenora.

## LITTLE JUMBO PROSPECT (PITT OR WALKER OCCURRENCE)

NTS 52F/10NW

### LOCATION AND ACCESS

The Little Jumbo Prospect is located on claim K.672028, lot 10, Concession I, Van Horne Township, a few hundred metres north of Guy Lake. The property is accessible by an old trail that extends southeast from Pritchard Lake to the northwest shore of Guy Lake. Walk east from the road along the north shore of Guy Lake to find the property.

### DESCRIPTION

Geology: The prospect is underlain by fine-grained, dark gray-green, chloritic, carbonatized, intermediate to mafic, heterolithic, tuff-breccia and massive flows of the Lower Wabigoon Volcanics, intruded by a 4.6 m to 6.0 m wide, massive, medium-grained, pink to red quartz-feldspar porphyry dike striking 120°.

Mineralization: The metavolcanics are strongly foliated 086°/85° N with an intense shear zone extending through the felsic dike at the north end of a large, extensive, outcrop. A small, deep, shaft has been sunk on the sheared felsic dike which hosts stringers and veins of quartz-calcite-tourmaline containing <1% disseminated pyrite. The veins are controlled by the shear and fractures within the dike. The dike has been mylonitized and contains large, elliptical, blue, quartz "eyes" embedded in a fine-grained matrix. The dike is also intensely carbonatized, fissile, soft, crumbly, and buff-white, however, some pieces of the dike rock in the dump are relatively massive and undeformed, indicating variable deformation of the dike within the shear zone. All the rocks on the dump are poor in sulphides.

A 1.8 m deep test pit is situated approximately 122 m southeast of the shaft and has been sunk on quartz veins at the west contact of the quartz-feldspar porphyry dike with massive intermediate flows. A stockwork of tension fracture-hosted quartz veins striking 136° occur within the metavolcanic flows and felsic dike. Variable [<1-5%], disseminated pyrite occurs throughout the wall rocks and quartz veins. Another shallow test pit is situated on the east side of the dike approximately 61 m southeast of the first test pit.

### ASSAYS OF MINERALIZATION

Grab samples of the quartz veins and wall rocks at the shaft, taken by the author, assayed trace amounts of gold, but a grab sample of the quartz vein at the test pit, 122 m southeast of the shaft, assayed 4110 ppb gold.

A grab sample of "spotted schist," taken by A.P. Coleman (1898) from the shaft, assayed 1 ounce gold per ton. Coleman reported that the "spotted schist" assayed "on the average $14.00 per ton" (0.83 ounce gold per ton). Parsons (1911) reported that the quartz vein at the shaft asayed 0.99 ounce gold per ton. Van Horne Gold Exploration Incorporated diamond drilled one hole beneath the shaft with poor results (Assessment Files, Resident Geologist's Office, Kenora).

### DEVELOPMENT HISTORY

1898: Shaft sunk to 55 ft. with 20 ft. of crosscutting.

1911: The shaft was reported to have been sunk for 50 ft. by Mr. J.R. Walker.

1982: Acquired by H. Hodge.

1983: Van Horne Gold Exploration Incorporated conducted geological mapping, sampling, and geophysical surveys over the claim.

1987: Van Horne Gold Exploration Incorporated diamond drilled one 393 ft. hole beneath the shaft.

SELECTED REFERENCES

Coleman 1898, O.B.M. Vol. 7, pt. 2, p. 125.

Parker and Schienbein 1988, O.G.S. Maps P.3111 and P.3112.

Parsons 1911, O.B.M. Vol. 20, pt. 1, p. 192.

Van Horne Gold Exploration Incorporated, Assessment Files, Resident Geologist's Office, Kenora.

## LONE JACK OCCURRENCE (LONE JACK MINE)

NTS 52 F/10 NW

### LOCATION AND ACCESS

The Lone Jack Occurrence is located on the north shore of Bob Lake on two sections of patented ground, in the south half of lot 11, Concession I, Van Horne Township. The property is accessible by an old trail that extends southeast from Pritchard Lake to the northwest shore of Guy Lake where it adjoins a portage between Guy and Bob Lakes.

### DESCRIPTION

Geology: The occurrence is situated within mixed tholeiitic to calc-alkaline mafic to felsic metavolcanic flows and pyroclastics of the Lower Wabigoon Volcanics. The occurrence is underlain by felsic lapilli-tuff and tuff-breccia intercalated with thin layers of cherty, laminated tuff. The metavolcanics are intruded by a wide, fine-grained, northwest-trending quartz-feldspar porphyry dike.

Mineralization: A wide, shallow, test pit has been sunk on the quartz-feldspar porphyry dike which hosts numerous northwest-trending (120°-155°), tension fracture-hosted quartz veins which are generally <16 cm wide. The dike is sericitized, carbonatized (calcium carbonate), weakly magnetic, and variably pyritic. Quartz veins are commonly rusty, red, and pyritic, containing minor chlorite and tourmaline.

Another large test pit which may be part of the Lone Jack Occurrence is located 366 m northwest of the test pit at Bob Lake. The test pit has been sunk on another quartz-feldspar porphyry dike hosting numerous rusty, red, pyritic, tension fracture-hosted quartz veins. The dike is sericitized, carbonatized (calcium carbonate), weakly magnetic, and contains 3% disseminated pyrite.

### ASSAYS OF MINERALIZATION

A grab sample taken by the author from one of the pyritic quartz veins in the test pit near Bob Lake assayed 0.27 ounce gold per ton while a grab sample taken from a quartz vein at the lake shore assayed 0.11 ounce gold per ton. A grab sample from a quartz vein in the pit located 366 m northwest of Bob Lake, assayed 0.36 ounce gold per ton and a grab sample of the wall rock assayed 390 ppb gold.

### DEVELOPMENT HISTORY

1898: Some development work reported on the property.

1911: Several test pits reported to have been sunk and some stripping was conducted.

### SELECTED REFERENCES

Coleman 1989, O.B.M., Vol. 7, pt. 2, p. 125.

Parker and Schienbein 1988, O.G.S. Maps P.3111 and P.3112.

Parsons 1911, O.B.M., Vol. 20, pt. 1, p. 192.

LONE PINE PROSPECT (LONE PINE MINE)

NTS 52F/10 NW

LOCATION AND ACCESS

The Lone Pine Prospect is located on claim K.490177 (former mining location R.L. 33) in Concession II, lot 6, Aubrey Township, approximately 3.2 km east of Spring Bay of Eagle Lake. The property is accessible by a narrow, rutted road which extends south from Highway 594 across some cleared farm land.

DESCRIPTION

Geology: The Lone Pine Prospect is situated within mafic to intermediate metavolcanic flows near the transition between the tholeiitic Upper Wabigoon Volcanics and the underlying tholeiitic to calc-alkaline Lower Wabigoon Volcanics.

Mineralization: The Lone Pine Prospect consists of a deep shaft sunk on a 15m wide shear zone striking 084°/80° N through fine- to medium-grained, massive, vesicular, mafic metavolcanic flows and mafic tuff, interbedded with thin layers of cherty interflow metasediments. The host rocks are moderately to intensely sheared, chloritic, carbonatized (iron carbonate, calcite), variably pyritic <1-5%, and commonly contain at least 5% disseminated, euhedral, coarse-grained magnetite.

The shear zone hosts a 0.3-0.46 m wide quartz-iron carbonate-tourmaline vein which pinches and swells along its dip. Almond-shaped pods of quartz are surrounded by anastamosing sheared and fissile wall rocks. The vein contains chlorite, 1-2% disseminated pyrite, and some small flakes of visible gold that were observed by the author. Intense iron carbonate alteration is confined within an alteration halo which extends 0.3 to 0.6 m on either side of the vein. Narrow quartz stringers and veinlets occur parallel to the main vein and a few, narrow, horizontal veins extend from the main vein.

Approximately 800m east of the Lone Pine property the author observed other strong shear zones (0.9-1.8 m wide), striking 064°-066°, through variably pyritic <3%, mafic to intermediate tuffs and flows hosting discontinuous stringers of white quartz veins containing iron carbonate and tourmaline. Wallrocks are chloritic, sericitic, and carbonatized (calcite) and commonly contain variable amounts of magnetite, tourmaline, and abundant epidote in thin veinlets and stringers. Grab samples of the quartz veins and wall rock, taken by the author from these locations, assayed trace amounts of gold.

ASSAYS OF MINERALIZATION

Two grab samples of pyritic [<1%] quartz vein material, taken by the author from the main vein, assayed 55 ppb gold and 140 ppb gold, while a grab sample of the altered, pyritic (1%), wall rock assayed 100 ppb gold. Two grab samples of quartz vein material containing 2-3% pyrite, taken by Mr. Hoban near the bottom of the shaft, assayed 3820 ppb gold and 0.83 ounce gold per ton. Two grab samples of quartz vein material taken from around the shaft by C.E. Blackburn assayed 0.03 ounce gold per ton and <0.10 ounce silver per ton, and <0.01 ounce gold per ton and 0.16 ounce silver per ton. A grab sample of the quartz vein taken by S. Rivett assayed 0.13 ounce gold per ton.

DEVELOPMENT HISTORY

1910: Shaft sunk by Lone Pine Gold Mining and Milling Company Limited.

1981: Staked by Mr. M.J. Hoban.

1981-1986: Diamond drilling and excavation work by Mr. Hoban.

1986: Application submitted by Mr. Hoban for lease of surface and mining rights.

SELECTED REFERENCES

Moorhouse 1941, O.D.M. Vol. 48, pt. 4, p. 24.

M.J. Hoban, Assessment Files, Resident Geologist's Office, Kenora.

## LONG LEAD PROSPECT

NTS 52 F/10 NW

### LOCATION AND ACCESS

The Long Lead Prospect is located on mining claim K.972333 approximately 2 km west of Contact Bay on Wabigoon Lake and 400 m east of Highway 502. The prospect is accessible by several old logging trails branching east from Highway 502 and extending across an extensive swampy area.

### DESCRIPTION

Geology: The prospect is situated within massive amphibolitized mafic metavolcanic flows intruded by medium-grained gabbro dikes and stocks which may be coarse-grained flows. The prospect is 800 m north of the contact between granitic rocks of the Atikwa Batholith and metavolcanic rocks of the Eagle Lake Volcanics.

Mineralization: The Long Lead Prospect consists of a 1.2 m to 6.1 m wide shear zone striking 350°-360° for approximately 365 m and hosting wide (0.3 m-0.9 m), white, sugary, quartz veins, veinlets, and numerous lensoid and discontinuous stringers which are intimately intermixed with the wall rocks. The majority of quartz veins do not contain significant amounts of pyrite but are rusty and contain some chlorite and hematite. Wallrocks are silicified, variably chloritized, weakly carbonatized, and contain 1-10% disseminated pyrite with minor chalcopyrite. Wallrocks are commonly fractured and strongly foliated but are not fissile, although narrow fissile zones do occur.

Approximately eight deep test pits and a narrow open cut have been sunk along the entire strike length of the shear zone.

### ASSAYS OF MINERALIZATION

Grab and chip samples taken by the author from the majority of the test pits assayed trace and low anomalous gold values. A 1.5 m chip sample taken by the author in the open cut assayed 120 ppb gold. Grab samples of the wall rock and quartz vein in the first test pit north of the open cut assayed 465 ppb gold and 340 ppb gold respectively. Grab samples of the pyritic wall rock in one of the first test pits at the south end of the shear zone assayed 0.12, 0.14, and 0.15 ounce gold per ton. A grab sample taken by A. Kozowy (prospector, Dryden, personal communication, 1987) from a quartz vein immediately north of the pit assayed 0.26 ounce gold per ton, while a grab sample of the quartz vein taken by the author assayed 0.11 ounce gold per ton.

### DEVELOPMENT HISTORY

1917: Some work reported on the property.

1987: Staked by A. Kozowy.

### SELECTED REFERENCES

Thomson 1917, O.B.M., Vol. 26, pt. 1, p. 186.

LONGE, R., OCCURRENCE

NTS 52F/11NE

LOCATION AND ACCESS

The Longe Occurrence is located on the northeast tip of North Twin Island on Eagle Lake in the Buchan Bay area, and is accessible by boat.

DESCRIPTION

Geology: The Longe Occurrence is situated within intermediate and felsic pyroclastics of the Lower Wabigoon Volcanics. The occurrence is a few hundred metres north of the contact between the metavolcanics and granitic rocks of the Atikwa Batholith.

Mineralization: The Longe Occurrence consists of two sets of gold-bearing tension fracture-hosted quartz veins, one set striking 010° to 020°, and the other striking 060° to 070°. The host rocks are intermediate to felsic, heterolithic, pyroclastic breccias intruded by wide north-trending, xenolithic, mafic dikes. The pyroclastic breccias contain huge blocks consisting of mafic pillow breccia and massive magnetite in excess of 2.4 m in width. The main vein sampled by R. Longe is 0.3 m to 0.6 m wide, strikes 010°, and extends from the shore of North Twin Island into the lake. The vein consists of white quartz containing chlorite, tourmaline stringers, and scattered concentrations of chalcopyrite and pyrite.

ASSAYS OF MINERALIZATION

Chip samples taken by Mr. Longe across the main vein, at various intervals along an exposed strike length of 50 ft., were reported to assay 0.11, 0.12, 0.70, and 2.38 ounces gold per ton, while a grab sample of the wall rock assayed 0.03 ounce gold per ton. Visible gold was also observed in the vein (Assessment Files, Resident Geologist's Office, Kenora).

Mr. Sovereign (prospector, Dryden, personal communication, 1987) obtained an assay of 0.233 ounce gold per ton from a 22 cm wide chip sample taken across the main vein, but a grab sample taken by the author assayed <0.01 ounce gold per ton. Grab samples from other quartz veins on the property, taken by Mr. Sovereign, assayed 0.206 and 0.655 ounce gold per ton. According to Mr. Sovereign, the best gold assays are associated with chalcopyrite in the quartz veins. Grab samples from other nearby quartz veins taken by the author assayed 0.04 and 0.06 ounce gold per ton.

DEVELOPMENT HISTORY

1949: Occurrence discovered, staked, trenched, and sampled by R. Longe.

1954: Staked by H. Wallin.

1955: Magnetometer survey and diamond drilling conducted by Steep Rock Iron Mines Ltd. The company was testing nearby iron formation.

1983: Staked by R. Ferguson.

1984: Transferred to B. Perry.

1985: Transferred to J. Pollock.

1987: Staked by W. Sovereign who resampled the quartz veins, cleaned out old trenches, and did some manual stripping.

SELECTED REFERENCES

Longe, R., Assessment Files, Resident Geologist's Office, Kenora.

Steep Rock Iron Mines Ltd., Assessment Files, Resident Geologist's Office, Kenora.

LOST MINE (LOST PROSPECT)

NTS 52F/10 NW

LOCATION AND ACCESS

The Lost Mine consists of two shafts and several long trenches located on claims K.558506 and K.558598 in Concession I, lot 6, Van Horne Township. The Lost Mine is accessible from an overgrown bush road which extends east from the gravel road along which the Bonanza Mine is located. The gravel road branches south from the Wabigoon Lake Road.

The overgrown bush road branches east where the gravel road terminates at a small beaver dam. Follow the bush road about 730 m and then walk 60 m west from the road to the No.1 shaft at the Lost Mine. Walk another 215 m due west to the No.2 shaft at the Lost Mine.

DESCRIPTION

Geology: The mine is situated within intercalated mafic metavolcanic flows and intermediate to mafic tuff-breccia of the tholeiitic to calc-alkaline Lower Wabigoon Volcanics. The metavolcanics are intruded by mafic and felsic dikes.

Mineralization: The two shafts at the Lost Mine are located along the steep southern edge of an extensive outcrop. The second shaft is about 215 m west of the first shaft, with large continuous trenches between them. Both shafts have been sunk on the same wide shear zone and felsic dike.

SHAFT NO. 1

The geology at the No. 1 shaft consists of intermediate to mafic tuff-breccia intercalated with massive and brecciated flows intruded by narrow, mafic and felsic dikes. The metavolcanics host a wide shear zone striking 085°/076°, intruded by a 1.8 m to 6.0 m wide felsite dike striking 082°-084° and extending to the No. 2 shaft. The dike is fractured and sheared, buff gray to pink, siliceous, sericitic and pyritic ( <1%), with weak carbonate alteration. The dike contains pyritic, fracture hosted quartz-chlorite-tourmaline veins which contain angular xenoliths of the host rock. Sheared, chloritic, and carbonatized, metavolcanic rocks host narrow quartz-tourmaline stringers and veinlets.

The shaft is sunk on quartz veins hosted by sheared intermediate to mafic metavolcanic flows which are situated along the southern edge of the outcrop. The felsite dike is approximately 3 m north of the shaft.

SHAFT NO. 2

The geology is identical at the No. 2 shaft, however, the felsic dike hosts the majority of quartz-tourmaline veins. The veins contain <1% pyrite and crosscut the shearing in all directions. Numerous trenches occur between the two shafts and have been sunk along the southern contact between the dike and the metavolcanics. The No. 2 shaft has been sunk directly on the dike. The dike is 3 m wide at the shaft and hosts quartz veins containing 1-2% disseminated pyrite, tourmaline, chlorite, hematite, and minor iron carbonate.

## ASSAYS OF MINERALIZATION

A grab sample, taken by the author, from a quartz vein in a trench in sheared metavolcanics, about 4.6 m east of shaft No. 1, assayed 1950 ppb gold. A grab sample, taken by the author, from a quartz vein in a trench within sheared metavolcanics, about 36.6 m west of the No. 2 shaft, assayed 7950 ppb gold.

A grab sample of quartz vein material and a sample of the pyritic dike, taken by the author from a trench immediately east of the No. 2 shaft, assayed 100 ppb gold and 300 ppb gold respectively.

Assays from samples taken in one of the shafts, reported in the Daily Times Journal (April 26, 1910), ranged between 0.10 ounce gold per ton and 95 ounces gold per ton.

The property reportedly produced 8.0 ounces of gold from 34 tons of ore at an average grade of 0.26 ounce gold per ton (Mineral Deposit Files, Resident Geologist's Office, Kenora).

Van Horne Gold Exploration Incorporated drilled two holes beneath the No. 1 shaft. One hole intersected two gold-bearing sections assaying 0.14 ounce gold per ton across 1 ft. and 0.08 ounce gold per ton across 9 inches in felsic to intermediate tuff hosting quartz veins (Assessment Files, Resident Geologist's Office, Kenora).

## DEVELOPMENT HISTORY

1904: A quartz vein containing "a good deal of free gold" was stripped for 500 ft.

1910: Two shafts 298 ft. apart were sunk to depths of 22 ft. and 54 ft.

1917: Additional stripping completed between the two shafts.

1928: Purchased by Wabigoon Contact Bay Gold Mines Limited. 34 tons of ore tested in Chrome, New Jersey produced $182 worth of gold (about 8.0 ounces of gold).

1931: Minor development work reported.

1935: Purchased by Northern Mines Incorporated.

1980: Acquired by H. Hodge.

1981-1983: Van Horne Gold Exploration Incorporated conducted geological mapping, geophysical surveys, and sampling on the property.

1987: Van Horne Gold Exploration Incorporated diamond drilled two holes totalling 623 ft. beneath the No. 1 shaft. One hole intersected narrow gold-bearing sections.

## SELECTED REFERENCES

Bow 1904, O.B.M. Vol. 13, pt. 1, p. 66.

Parker 1986, O.G.S. Miscellaneous Paper 128, p. 36, 38.

Parker and Schienbein 1988, O.G.S. Maps P.3111 and P.3112.

Parsons 1911, O.B.M. Vol. 20, pt. 1, p. 194.

Satterly 1941, O.D.M. Vol. 50, pt. 2, p. 51-52.

Thomson 1917, O.B.M. Vol. 26, pt. 1, 182.

Daily Times Journal, April 26, 1910, p. 1.

Lost Mine, Mineral Deposit Files, Resident Geologist's Office, Kenora.

Van Horne Gold Exploration Incorporated, Assessment Files, Resident Geologist's Office, Kenora.

## LUNCH BOX BAY ZONE OCCURRENCE

NTS 52F/7NE

### LOCATION AND ACCESS

The Lunch Box Bay Zone Occurrence is situated on mining claim K. 740279 in the Boyer Lake area. The stripped showing is located on the west shore of Trafalgar Bay of Upper Manitou Lake, north of the mouth of Pincher Creek. The property is accessible by boat.

### DESCRIPTION

Geology: The occurrence is situated within intermediate lapilli-tuff intercalated with massive and pillowed mafic flows intruded by felsite dikes within the Upper Manitou Lake Group, and is immediately northwest of the Manitou Anticline fold axis. It is situated 2.4 km northwest of the Manitou Straits Fault.

Mineralization: The Lunch Box Bay Zone consists of intermediate lapilli-tuff intruded by a 15 m wide, northeast-trending, felsite dike. A strong shear zone striking 072°/076° SE extends through all the rock types. The felsite dike is sericitic, carbonatized, buff brown to white, and contains 1-5% disseminated pyrite. The dike weathers to buff brown with patches of rusty orange gossan staining and red-pink hematite staining. The orientation of shearing within the dike is variable, and kink-folding was observed by the author. The dike is intruded by a massive stockwork of intersecting milk-white quartz-iron carbonate veins and discontinuous stringers. The dike can be traced continuously for more than 600 m to the southwest on to claim K.740277. The dike/metavolcanic contact varies from 050°-074° along the strike of the dike.

### ASSAYS OF MINERALIZATION

A grab sample of the pyritic, felsic dike taken by the author, assayed 40 ppb gold, while channel samples taken by St. Joe Canada Incorporated assayed consistent anomalous gold values such as, 0.04 ounce gold per ton across 2 m and 0.02 ounce gold per ton across 6 m (Assessment Files, Resident Geologist's Office, Kenora).

### DEVELOPMENT HISTORY

? : Occurrence previously encompassed by former mining location H.P. 218 (formerly mining location H.W. 426) but no record of work prior to 1983.

1983: Staked by M. Woitowicz.

1984: Transferred to St. Joe Canada Incorporated who conducted geological mapping, sampling, and geophysical surveys.

1985: Transferred to M. Woitowicz.

1986: Transferred to Falconbridge Limited.

### SELECTED REFERENCES

St. Joe Canada Incorporated, Assessment Files, Resident Geologist's Office, Kenora.

MANHATTAN OCCURRENCE

NTS 52F/11NE

LOCATION AND ACCESS

The Manhattan Occurrence is located on claim K.677922 (formerly mining location D.J.2), on the south side of a large peninsula immediately north of Buchan Bay on Eagle Lake in the Buchan Bay area. The property is accessible by boat.

DESCRIPTION

Geology: The Manhattan Occurrence is underlain by a massive, wide, medium-grained gabbro dike intruding intermediate to felsic pyroclastics of the Lower Wabigoon Volcanics.

Mineralization: A shear zone trending 073°/080° N extends through a wide gabbro dike and hosts quartz-iron carbonate-calcite-tourmaline veins and stringers containing $\leq$ 1% disseminated pyrite. The wall rocks are intensely sheared, bleached pale green, and contain abundant iron carbonate, fuchsite, and disseminated pyrite [ $\leq$ 5%] with minor chalcopyrite and associated malachite. The gabbro is porphyritic, containing large [ $\leq$ 1 cm], rounded, green-white, feldspar phenocrysts, round, blue, quartz "eyes" ( $\leq$ 5 mm in size), variable amounts of biotite and up to 5% disseminated magnetite. The property consists of a timbered shaft of unknown depth.

ASSAYS OF MINERALIZATION

A grab sample, taken by the author, of altered, sheared gabbro containing approximately 2% pyrite and 1% chalcopyrite assayed 115 ppb gold and 805 ppm copper, while a sample of altered gabbro containing no sulphides assayed 7 ppb gold and 113 ppm copper. A grab sample, taken by the author, from quartz vein material containing 2% pyrite, assayed 720 ppb gold and 198 ppm copper.

DEVELOPMENT HISTORY

1900: Two test pits 8 ft. and 4 ft. deep were sunk on quartz veins by the Manhattan Gold Mining Company.

1983: Staked.

1984: Transferred to Beaufield Resources Inc. and then to J.A. Pollock who flew an airborne geophysical survey over the area.

1986: Geological mapping and sampling.

SELECTED REFERENCES

Bow 1901, O.B.M., Vol. 10, pt. 1, p. 95.

Moorhouse 1941, O.D.M., Vol. 48, pt. 4, p. 24.

J.A. Pollock, Assessment Files, Resident Geologist's Office, Kenora.

## McEDNA PROSPECT (EDNA MINE)

NTS 52F/7NE

### LOCATION AND ACCESS

The McEdna Prospect is located at the extreme northwest corner of mining claim K.696309 (formerly mining location McA. 29) in the Boyer Lake area, approximately 800 m west-northwest of Goldrock and immediately north of Pincher Creek. The prospect is accessible by old overgrown roads and trails.

### DESCRIPTION

Geology: The prospect is situated within intermediate flows and pyroclastics at the contact between the Pincher Lake Group and the underlying Upper Manitou Lake Group, on the northwest limb of the Manitou Anticline, between two north-trending crossfaults.

Mineralization: The McEdna Prospect is underlain by strongly sheared (042°/82°-89° SE), sericitized, chloritized, weakly iron carbonatized, hematitic, intermediate tuffs containing variable amounts of disseminated pyrite ( <1-3%) and narrow (10 cm), "pods" of sulphides consisting of that up to 75% pyrite. The sheared rocks host a stockwork of narrow (6 cm-20 cm), boudinaged quartz stringers and veins containing clots of chlorite, iron carbonate, and minor pyrite. Some quartz veins are Z-folded.

The quartz veins at the McEdna Prospect were considered to be the southwest extension of the gold-bearing veins at the Victory Prospect (mining location McA. 28) situated approximately 1 km to the northwest.

The McEdna Prospect consists of a shaft (not found by the author), a deep test pit, and a trench.

### ASSAYS OF MINERALIZATION

No samples were taken by the author, but St. Joe Canada Incorporated obtained numerous, high anomalous gold values from grab and channel samples, including two grab samples which assayed 9460 ppb gold and 56910 ppb gold (Assessment Files, Resident Geologist's Office, Kenora).

### DEVELOPMENT HISTORY

1897: Gold Explorer's of Canada sunk a 55 ft. shaft with 20 ft. of crosscutting on claim McA. 29.

1983: Claim K.696309 staked by M. Woitowicz.

1984: Transferred to St. Joe Canada Incorporated who conducted geological mapping, geophysical surveys, and sampling over the claim.

1985: Transferred to M. Woitowicz.

1986: Transferred to Falconbridge Limited.

1987: Falconbridge Limited conducted diamond drilling.

### SELECTED REFERENCES

Blackburn 1981, G.R. 202.

Coleman 1898, O.B.M. Vol. 7, p. 122.

St. Joe Canada Incorporated, Assessment Files, Resident Geologist's Office, Kenora.

MERIDIAN BAY OCCURRENCE

NTS 52F/11SE

LOCATION AND ACCESS

The Meridian Bay Occurrence is presently situated on claim K.897193 (former mining location S.904) at the south end of Meridian Bay of Eagle Lake on the west shore of the bay, in the Osbourne Bay area. The property is accessible by boat.

DESCRIPTION

Geology: The occurrence is situated within dioritic rocks of the Atikwa Batholith at its contact with mafic metavolcanic flows of the Eagle Lake Volcanics in the east.

Mineralization: A zone of massive sulphide mineralization 450 m long and 60 m wide occurs within a shear zone striking northeast through a medium-grained, sheared, gray granodiorite intruded by fine-grained, gray, siliceous, felsite dikes. The massive sulphides ( $\leq$ 50%) consist predominantly of coarse-grained, euhedral pyrite, pyrrhotite, and chalcopyrite accompanied by coarse-grained magnetite, no pentlandite was observed by the author. The granodiorite is weakly chloritized, carbonatized, and sericitized. Moorhouse (1941) suggested that the occurrence may be "a replacement of an inclusion in hybrid diorite".

ASSAYS OF MINERALIZATION

Various grab samples of sulphide-rich material from the Meridian Bay Occurrence have been reported to assay between 0.20 and 0.45 ounce gold per ton, 3.0 ounces silver per ton, 0.9-4.22% copper and 0.5-1.0% nickel (Shklanka 1969). A grab sample of sulphide-rich material, taken by the author, assayed <0.01 ounce gold per ton, 965 ppm copper, and 82 ppm nickel.

DEVELOPMENT HISTORY

1911: Meridian Bay Mining Company conducted stripping and trenching. Some of the ore was roasted.

1956-57: MacFie Explorations Limited staked the area and conducted geological and geophysical surveys. Numerous anomalies found to be of limited extent on both sides of Meridian Bay. Surface samples assayed only traces of nickle and copper.

1967: Staked by Mr. E. Sukava.

1978: Amoco Petroleum Co. drilled 2 holes on original showing to depths of 295 ft. and 353 ft.

1979: Sherritt Gordon Mines Ltd. drilled 3 holes immediately north of the original showing.

1987: The property has been staked several times since 1979. It was last staked by M. Galbraith in the spring of 1987.

SELECTED REFERENCES

King 1969, O.D.M., Annual Report of Resident Geologist's Section, Miscellaneous Paper 23, pt. 2, p. 26.

Moorhouse 1941, O.D.M. Vol. 48, pt. 4, p. 24-25.

Parsons 1911, O.B.M. Vol. 20, pt. 1, p. 196.

Shklanka 1969, O.D.M., M.R.C. No. 12, p. 166.

MacFie Exploration Limited, Assessment Files, Resident Geologist's Office, Kenora.

Amoco Petroleum Company Assessment Files, Resident Geologist's Office, Kenora.

A. Sukava, Assessment Files, Resident Geologist's Office, Kenora.

MIDAS PROSPECT

NTS 52F/16SW

LOCATION AND ACCESS

The Midas Prospect is located on patented mining location H.W. 409 in McAree Township. The prospect is 1.2 km east of Sandybeach Lake and 300 m north of a small creek. The property is accessible by walking east from the east shore of Sandybeach Lake.

Mineralization: Two shafts have been sunk on separate, subparallel quartz veins approximately 45 m apart. The quartz veins are controlled by narrow, northeast-trending (040°) shear zones in fine-grained, dark green-gray, massive mafic metavolcanic flows. The quartz veins are 0.9 m to 1.5 m wide, strike 030°-044°/65° SE, and contain iron carbonate, calcite, abundant tourmaline, and variable amounts [ $\leq$ 5%] of pyrite with minor chalcopyrite, associated malachite, and small amounts of hematite. Wall rocks closest to the veins are intensely iron carbonatized, sericitized, variably silicified, pyritic, and commonly contain numerous quartz-carbonate stingers . Abundant pyrite (up to 25%) is concentrated in the wall rock at the wall rock/quartz vein contacts. The metavolcanic rocks in the vicinity of the shafts are chloritic and pyritic [ <1%], and contain white calcite on fracture surfaces.

ASSAYS OF MINERALIZATION

Grab samples of the quartz veins, taken by the author, assayed 70 ppb gold (east shaft), and 460 ppb gold (west shaft), with assays of copper up to 3480 ppm. A grab sample of the wall rock at the east shaft assayed 90 ppb gold, while a grab sample of walk rock from the west shaft assayed 720 ppb gold. Grab samples from the quartz veins taken by B. Berger et al. (1987) assayed 1030 ppb gold (east shaft) and 260 ppb gold (west shaft), while a grab sample from the wall rock at the east shaft assayed 120 ppb gold.

DEVELOPMENT HISTORY

1907: Two shafts sunk to depths of 50 ft. and 75 ft. by Midas Mines Limited.

SELECTED REFERENCES

Berger et al. 1987, O.G.S. Map P.3068.

Hurst 1932, O.B.M. Vol. 41, pt. 6, p. 26.

MINNEHAHA LAKE PROSPECT

NTS 52F/10SE

LOCATION AND ACCESS

The Minnehaha Lake Prospect (on former mining locations S.V. 234 and S.V. 235) is located a few hundred metres due north of the large bay at the east end of Minnehaha Lake, between Minnehaha Lake and Whitewater Lake to the north, in the Turtlepond Lake area. The prospect is accessible by boat.

DESCRIPTION

Geology: The Minnehaha Lake Prospect is located within the Lower Wabigoon Volcanics and is in close proximity to the Manitou Straits Fault to the east.

Mineralization: The shaft and test pits at the Minnehaha Lake Prospect have been sunk on fracture-controlled quartz veins hosted by massive, brecciated, pillowed, and amygdaloidal mafic metavolcanic flows. It is difficult to observe the strike of the quartz veins due to poor exposure. The veins generally consist of white to gray quartz, calcite, and iron carbonate, narrow bands and fracture-fillings of black tourmaline and chlorite, and disseminated, fine-grained pyrite and chalcopyrite. The sulphides may also occur as large blebs in the quartz.

At the main shaft the wall rocks are dark green, weakly carbonatized, chloritic, and contain disseminated pyrite and chalcopyrite at vein/wall rock contacts where there is intense shearing.

The geological relationships at a 25 ft. deep test pit, a few hundred metres east of the main shaft, are the same as at the main shaft. However, the wall rocks are more intensely altered, pale gray, carbonatized, and sericitized, and contain very abundant disseminated pyrite. The rocks are sheared at the vein/wall rock contacts but are generally massive with numerous hairline fractures.

ASSAYS OF MINERALIZATION

Three grab samples of the quartz vein material, taken by the author from the dump at the main shaft assayed <2, 60, and 1350 ppb gold, while a sample of pyritic wall rock assayed 14 ppb gold. Grab samples of the pyritic wall rock, taken by the author at the test pit, assayed 5700 ppb gold while a sample of the quartz vein assayed 490 ppb gold. More gold mineralization occurs in the wall rock than in the quartz vein and the alteration and appearance of the wall rocks is very similar to that at the Whitewater Lake Occurrences.

DEVELOPMENT HISTORY

1905-1906: A 100 ft. shaft with a 25 ft. crosscut at the bottom was sunk by Minnehaha Gold Mining and Smelting Co.

1908: A 25 ft. test pit was sunk and some trenching was completed.

1910-1911: The property was reactivated in 1910 and a 40 ft. adit was developed by 1911 when operations ceased.

1960: Staked by E.C. Stinson

1982: Staked for J.P. Sherridan

1983: Transferred to Asamera Minerals Inc. who conducted ground geophysics, humus and rock sampling, and geological mapping.

1987: Staked by I.J. Riives.

SELECTED REFERENCES

Corkill 1907, O.B.M. Vol. 17, p.58.

Corkill 1909, O.B.M. Vol. 19, pt. 1, p.79.

Parsons 1911, O.B.M. Vol. 20, pt. 1, p. 188.

Asamera Minerals Inc., Assessment Files, Resident Geologist's Office, Kenora.

MOOSE BAY PROSPECT (MOOSE LAKE MINE)

NTS 52F/10SE

LOCATION AND ACCESS

The Moose Bay Prospect, on former mining locations H.W. 38, H.W. 6, and H.W. 63, is situated about 90 m inland along the east shore of Moose Bay on Dinorwic Lake. Moose Bay is situated along the west shore of Dinorwic Lake, northwest of Stanawan Bay, and is accessible by boat.

DESCRIPTION

Geology: The Moose Bay Prospect is underlain by intermediate to mafic flows and pyroclastics of the Lower Wabigoon Volcanics. The metavolcanics are intruded by felsic, porphyritic dikes.

Mineralization: The Moose Bay Prospect consists of three shafts and an open cut.

Main Shaft and Open Cut

The main shaft and open cut are situated on former mining location H.W. 6. The main shaft is 1.8 m x 2.7 m and is reported to be 102 ft. deep (Carter 1901).

The shaft has been sunk on a very wide, intensely sheared (025°/60°E), felsic, feldspar porphyry dike intruding mafic metavolcanic flows. The dike is fine-grained, weakly iron carbonatized, sericitized with some green mica, weathers buff pink, and has a greenish-white fresh surface. The dike contains numerous, tiny [ $\leq$ 1 mm] greenish-white, euhedral, feldspar phenocrysts. Pyrite [ $\leq$ 1%-2%] occurs throughout the dike, but is not evenly disseminated. Narrow [<0.3m], fracture-hosted, white quartz veins occur throughout the dike and contain orange iron carbonate. No pyrite was observed by the author in the quartz veins.

In the open cut, which is about 24 m south of the shaft, the majority of quartz veins are tension fracture-hosted, flat-lying, and crosscut shearing. The open cut is about 2.1 m deep, 5.5 m long and about 2 m wide.

A few new, shallow test pits are situated about 130 m north of the main shaft. The pits have been sunk on another sheared and altered felsic dike containing disseminated pyrite. This could be the same dike which occurs at the main shaft. The dike hosts narrow, flat-lying or shallow dipping, fracture-hosted quartz veins containing minor chalcopyrite and pyrite.

Shaft No. 2 and No. 3

Shaft No. 2 is situated about 189 m north of the main shaft and 60 m north of the new test pits, while shaft No. 3 is 250 m north of the main shaft and 60 m north of shaft No. 2.

Shaft No. 3 has been sunk on intensely sheared (020°-030°/65°-70°W), carbonatized, chloritized, mafic metavolcanic rocks containing 1%-3% finely disseminated pyrite and very narrow [ $\leq$ 1 cm] quartz-carbonate veinlets. The metavolcanics are intruded by a 0.9 m to 3.0 m wide felsic dike, striking about 050°, which is similar to the dikes at the main shaft, open cut, and new test pits. The dike is intensely sheared (025°/66° W), sericitized, buff pink to green and contains up to 3% finely disseminated pyrite. The dike hosts numerous flat-lying and shallow dipping (20° E), tension fracture-hosted, white quartz veins containing orange-brown iron carbonate and minor pyrite.

The geology at the No. 2 shaft is the same as at the No. 3 shaft.

ASSAYS OF MINERALIZATION

A grab sample of the pyritic felsic dike containing quartz stringers taken by the author from the No. 3 shaft assayed 645 ppb gold. A grab sample of the sheared and altered mafic metavolcanics taken by the author at the No. 3 shaft assayed 40 ppb gold.

Three grab samples of the pyritic felsic dike containing quartz stringers, taken by the author in the vicinity of the No. 2 shaft, assayed 24 ppb, 80 ppb, and 115 ppb gold. Two grab samples of the mafic metavolcanics at the No. 2 shaft assayed 80 ppb and 85 ppb gold.

A grab sample of the pyritic felsic dike with quartz stringers, taken by the author from one of the new test pits assayed 1080 ppb gold.

No samples were taken from the main shaft area or open cut.

DEVELOPMENT HISTORY

1900-1901: Two shafts were sunk on mining location H.W. 38. One shaft was sunk to 20 ft., while the other was sunk to 40 ft. An open cut was sunk on mining location H.W. 6 as well as a 7 ft. by 18 ft. shaft which was deepened to 102 ft.

1901: The mine was shut down after five months of operation. No production was recorded.

1986: Rediscovered and staked by S. Johnson.

1987: Claims cancelled.

SELECTED REFERENCES

Carter 1901, O.B.M. Vol. 10, p. 97.

Carter 1902, O.B.M. Vol. 11, p. 250.

MORNING STAR PROSPECT (SWANSON PROSPECT)

NTS 52F/11NE

LOCATION AND ACCESS

The Morning Star Prospect is located on the northeast shore of Eagle Lake on claim K.851351 and K.851354 (mining location McA. 230) in the Buchan Bay area. The property is accessible by boat or by a private gravel road which branches south from Ojibway Drive on the north shore of Eagle Lake.

DESCRIPTION

Geology: The prospect is situated within massive mafic and intermediate metavolcanic flows of the Upper Wabigoon Volcanics.

Mineralization: Narrow [ <0.3 m] but relatively continuous gold-bearing quartz veins are controlled by an east-trending shear zone in fissile, chloritic, and intensely iron carbonatized mafic metavolcanic flows. Narrow felsite dikes also intrude the shear zone.

The wall rocks and quartz veins host relatively minor amounts of disseminated pyrite, but the quartz veins are known to host significant amounts of visible gold. Quartz pebbles on a small gravel beach, east of the showing, are known to contain visible gold. The pebbles are remnants of quartz vein material which has been weathered out of the sheared mafic metavolcanic rocks. Drilling on the property by International Platinum Corporation intersected a contact between mafic metavolcanic flows and underlying felsic metavolcanics south of the main showing.

Very little can be seen of the geology and old workings, since the majority of outcrop has been covered by landfill. A small cottage has been built over the old shaft.

ASSAYS OF MINERALIZATION

No samples were taken by the author but visible gold was observed in the quartz pebbles on the gravel beach. Visible gold was panned from the quartz veins by R. Thomson (1947). Drilling by Mr. H. Hawes intersected quartz veins up to 5 ft. wide which were reported to contain visible gold. Samples of the quartz veins taken by Mr. Hawes assayed between 1.0 and 3.0 ounces gold per ton (Assessment Files, Resident Geologist's Office, Kenora). Recent drilling by International Platinum Corporation intersected two, east-trending, 2 inch to 5 inch wide quartz veins assaying up to 1.66 ounces gold per ton for a continuous strike length of 430 ft. The drilling also intersected a 4 inch section of slightly pyritic, black, interflow chert which assayed 0.12 ounce gold per ton (Assessment Files, Resident Geologist's Office, Kenora).

DEVELOPMENT HISTORY

1900: 57 ft. deep shaft was sunk on a quartz vein but the shaft was flooded and further work was terminated.

1925: Shaft cleaned out and retimbered.

1947: Four holes drilled on the property by Mr. H. Hawes and Mr. F. Joubin.

1982: Staked by B. Perry.

1983: Transferred to Atikwa Resources Incorporated who conducted geophysical surveys over the property.

1985: Staked by A. Glatz.

1986-1987: Transferred to International Platinum Corporation who conducted an extensive diamond drill program on the property.

SELECTED REFERENCES

Bow 1901, O.B.M. Vol. 10 pt. 2, p. 95.

Sutherland 1925, O.B.M. Vol. 34, pt. 1, p. 76.

Thomson, R. 1947, Notes of the Resident Geologist, Assessment Files, Resident Geologist's Office, Kenora.

Morning Star (H. Hawes), Assessment Files, Resident Geologist's Office, Kenora.

W. Whymark, J. F. O'Donnell, Assessment Files, Resident Geologist's Office, Kenora.

International Platinum Corporation, Assessment Files, Resident Geologist's Office, Kenora.

## NEW CHURCH LAKE PROSPECT

NTS 52F/8NW

### LOCATION AND ACCESS

The New Church Lake Prospect is located on mining claim K.590337, immediately northeast of Church Lake in the Kawashegamuk Lake area. The property is accessible by a narrow bush road branching east from the Sandy Point Road, approximately 14 km south of its intersection with Highway 17 at Borups Corners. The bush road continues for 1.5 km to the east shore of Church Lake. The property is accessible by boat or can be found by walking along the east shore of Church Lake.

### DESCRIPTION

Geology: The general geological setting of the area consists of tholeiitic to calc-alkaline, mafic, and intermediate to felsic flows and pyroclastics of the Kawashegamuk Lake Volcanic Group. These rocks have been intruded by numerous magnetite-bearing gabbros and small felsic intrusions which are commonly carbonatized and sericitized. Pervasive carbonatization occurs throughout the area, as well as numerous northeast-trending faults and northwest-trending shear zones.

Mineralization: The New Church Lake Occurrence consists of a massive, medium- to coarse-grained, commonly porphyritic, dark green gabbro containing extremely abundant [ $\leq$ 15%] disseminated, euhedral magnetite crystals [ $\leq$ 1-3 mm]. A wide, vertically dipping shear zone striking 340° extends for approximately 1.6 km through the gabbro, along the northeast shore of Church Lake and along the west shore of Brown Lake, immediately north of Church Lake. The gabbro is moderately to intensely sheared, fissile and mylonitized, chloritized and carbonatized, and hosts quartz stringers, veins, and variable amounts of disseminated pyrite (up to 2%). Gabbro xenoliths in the quartz veins, and sheared gabbro adjacent to the veins, is extremely soft, chloritic, pyritic [<1-2%], and intensely carbonatized with white-brown calcite and minor iron carbonate. The gabbro hosts a 0.6 m wide, S-drag folded, boudinaged, quartz vein composed of vitreous white quartz containing finely disseminated galena [ <1%], minor chalcopyrite [ <1%] and pyrite [ <1%]. The author observed extremely fine blebs of pale yellow visible gold disseminated amongst the sulphides and in massive quartz. The shear zone extends a few hundred metres northwestwards along a steep, sheared, cliff face where large boulders at the bottom of the cliff contain quartz vein material, and intensely sheared gabbro altered by iron carbonate. Three old east-trending trenches, at the extreme north end of the cliff, crosscut a wide felsite dike intruding the sheared gabbro. The dike is buff-white to pink, intensely carbonatized, silicified, and pyritic [ $\leq$ 1%], containing abundant fuchsite and hosting numerous quartz veins which have filled fractures within the felsite. The veins are composed of white quartz, hosting minor amounts of disseminated pyrite, chalcopyrite, and galena.

The felsite dike and shear zone can be traced along the south and west shore of Brown Lake. Two old, long, east-trending trenches on the west shore of Brown Lake crosscut sheared and altered gabbro intruded by the felsite dike, which hosts thin, milk-white quartz veins. Shearing remains intense, but alteration is less extensive and sulphide mineralization is not abundant.

The northwest-trending shear zone is the same structure which hosts a high grade gold-bearing quartz vein at the Church Lake Prospect to the southwest, on the east shore of Church Lake. Recent drilling by Silver Lake Resources Inc. (now known as International Platinum Corporation) intersected wide zones of sheared, intensely carbonatized, variably silicified sulphide-rich gabbro hosting narrow quartz veins. Sulphides consist of disseminated pyrite, pyrrhotite, and chalcopyrite.

ASSAYS OF MINERALIZATION

A random grab sample of the high grade vein taken by A. Kozowy assayed 33.68 ounces gold per ton (A. Kozowy, prospector, Dryden, personal communication, 1985). Two grab samples of altered gabbro containing <1% pyrite, taken by the author, assayed 4 ppb gold and 90 ppb gold. A grab sample of the felsite dike northwest of the main showing, taken by A. Kozowy, assayed 0.16 ounce gold per ton (A. Kozowy, prospector, Dryden, personal communication, 1985), and a grab sample from another location in the felsite, taken by the author, assayed 11 ppb gold and <2 ppm silver. Random grab samples of the felsite and gabbro at Brown Lake, taken by the author, assayed 5 ppb gold and 7 ppb gold, respectively.

Recent drilling by Silver Lake Resources Inc. (now known as International Platinum Corporation) encountered intersections of 0.05 ounce gold per ton across 16.5 ft., including a 3 ft. section assaying 0.108 ounce gold per ton, and 0.02 ounce gold per ton over 3.1 ft., including a 5 inch section assaying 0.079 ounce gold per ton (Assessment Files, Resident Geologist's Office, Kenora).

DEVELOPMENT HISTORY

1982: Staked by A. Kozowy.

1983: Transferred to Teck Explorations Limited who conducted geophysical surveys and geological mapping on the property.

1985: Transferred to A. Kozowy who then transferred the property to International Platinum Corporation.

1986: International Platinum Corporation drilled five holes on the property totalling 2786 ft. and conducted stripping.

SELECTED REFERENCES

Parker 1986, O.G.S. Miscellaneous Paper 128, p. 22-23.

A. Kozowy, Assessment Files, Resident Geologist's Office, Kenora.

## NEW EAST ZONE, FLAMBEAU LAKE PROSPECT

## NTS 52F/10NW

### LOCATION AND ACCESS

The New East Zone at the Flambeau Lake Prospect, north of Flambeau Lake, is situated on patented claim A.L. 90 in lot 1, Concession I, Aubrey Township. The New East Zone consists of a large stripped area which is 245 m northwest of the East Zone. The New East Zone is accessible by a skidder road, branching north from a gravel road, which branches east from Highway 502 at Pritchard and Flambeau Lakes.

### DESCRIPTION

Geology: The New East Zone occurs within a fine- to medium-grained, elliptical, diorite stock intruding intermediate to mafic pyroclastics and brecciated flows. The diorite stock is situated along the northern flank of a large gabbro/diorite intrusion at Flambeau Lake. The New East Zone is situated within the Lower Wabigoon Volcanics.

Mineralization: Quartz-iron carbonate-tourmaline veins are hosted by west- and northwest-trending (100°-110° and 335°-345°) tension fractures, and west (108°/50° N), northeast (061°/81° NW) and northwest-trending (307°/76° N), narrow (0.3 m-0.6 m), shear zones within the massive, gray-green, magnetite-bearing, diorite stock. The diorite is intruded by a northwest-trending (335°), 3.0 m to 3.6 m wide, medium-grained, massive, gray to pink, quartz-feldspar porphyry dike, and east-trending intermediate to mafic dikes. The majority of the diorite stock is weakly to moderately altered.

Four shallow test pits have been sunk on the gossan-covered "main" shear zone, striking 108°/50° N, which hosts a narrow (7.6 cm-10.2 cm) quartz vein. The quartz vein is rusty and contains minor disseminated pyrite, hematite and iron carbonate. The wall rock (diorite) is sericitized and contains 1%-3% disseminated pyrite (1-3%), and coarsely crystalline orange-brown iron carbonate. Flat-lying quartz veins containing abundant black tourmaline occur throughout the diorite. A trench, at the extreme east end of the zone, has been sunk on the diorite and on the quartz-feldspar porphyry dike, both of which host quartz veins located in tension fractures striking 322°/58° NE. The veins and wall rocks contain 2-5% disseminate pyrite. The diorite and porphyry dike wall rocks are carbonatized and sericitized.

The New East Zone is similar to the East Zone, located about 300 m south of the New East Zone, on the north shore of Flambeau Lake. The East Zone consists of numerous tension-fracture hosted quartz veins in quartz diorite and gabbro intrusions. However, alteration at the New East Zone is not as intense, and quartz veining is relatively minimal compared to the East Zone (see East Zone Flambeau Lake Prospect property description, this report).

### ASSAYS OF MINERALIZATION

Six grab samples, taken by the author, of intensely altered, pyritic diorite, hosting quartz veins and stringers, assayed 0.02, 0.03, 0.03, 0.04, 0.06 and 0.11 ounce gold per ton.

### DEVELOPMENT HISTORY

1917: Report of work being conducted on claim A.L. 90.

1983-1985: Patented claim A.L. 90 acquired by A. Kozowy, who discovered the East Zone on the north shore of Flambeau Lake. The property was optioned to Voyager Explorations Ltd. who conducted work at the East Zone and subsequently dropped the option. More prospecting by A. Kozowy resulted in the discovery of the New East Zone. The property was subsequently optioned to Kidd Creek Mines Ltd. who conducted geophysical and geological surveys, stripping, and sampling.

1986-1987: Kidd Creek's option was transferred to Falconbridge Ltd. who did not conduct work on the New East Zone.

1987: Falconbridge Ltd. dropped the option on the property which was subsequently optioned by International Platinum Corporation.

SELECTED REFERENCES

Parker 1986, O.G.S., in M.P. 128, p. 30-40.

Parker and Schienbein 1988, O.G.S. Maps P.3111 and P.3112.

Thomson 1917, O.B.M. Vol. 26, pt. 1, p. 183.

Kidd Creek Mines Ltd., Assessment Files, Resident Geologist's Office, Kenora.

Voyager Explorations Ltd., Assessment Files, Resident Geologist's Office, Kenora.

## NEW KLONDIKE PROSPECT

NTS 52F/9SW

## LOCATION AND ACCESS

The New Klondike Prospect (mining locations S.V. 254 and S.V. 263) is located on lots 3, 4, and 5, Concession III, Melgund Township. The property is accessible from a narrow bush road which branches east from the Sandy Point Road, about 1.4 km south of its intersection with Highway 17 at Borups Corners.

## DESCRIPTION

Geology: The New Klondike Prospect is underlain by mafic, massive, pillowed, vesicular, porphyritic, and amygdaloidal metavolcanic flows intruded by felsic and mafic dikes and small dioritic plugs. The metavolcanics host a major northeast-trending shear zone which extends through the prospect.

Mineralization: The New Klondike Prospect consists of a large stripped area with numerous small test pits. A 60 m (or more) wide shear zone trending 060°-070°/80°-90° NW hosts gold-bearing quartz veins. Mafic metavolcanic flows and conformable quartz-feldspar porphyry dikes are intensely sheared, fissile, chloritized, intensely carbonatized and sericitized. The mafic metavolcanics contain up to 15% disseminated pyrite. Lineations (slickensides) within the shear zone plunge 062°-075° to the northeast. Movement along the shear zone is interpreted to have a dextral horizontal component based on detailed mapping by Silver Lake Resources (Assessment Files, Resident Geologist's Office, Kenora), indicated by right-hand sense of displacement of felsic dikes and mappable rock units in the vicinity of the shear.

The shear zone hosts several sets of quartz veins. Boudinaged quartz veins striking 062°-075° are hosted by the shear zone, however, a second set of fracture-hosted veins, striking 175°, crosscuts the first set. Another set of veins, striking between 112° and 116°, are tightly Z-folded and plunge vertically or steeply to the northeast.

The quartz veins contain pyrite, minor chalcopyrite, black tourmaline, carbonate, and flakes of visible gold.

## ASSAYS OF MINERALIZATION

Sampling done by Silver Lake Resources (Assessment Files, Resident Geologist's Office, Kenora) indicates that gold values from the quartz veins range from trace to 36.22 ounces gold per ton.

Wall rocks are not known to host gold mineralization.

## DEVELOPMENT HISTORY

1900's: First discovered near the turn of the century.

1946: E.L. Pidgeon staked mining location S.V. 254 and conducted stripping and sampling. Sampling by R. Thomson, Resident Geologist, yielded assays ranging between 0.01 and 0.55 ounce gold per ton.

1953: E.L. Pidgeon staked more claims in the area.

1956: E.L. Pidgeon staked mining location S.V. 263.

1959: G.L. Pidgeon drilled three holes, totalling 410 ft., on the property and blasted test pits along a strike length of 1200 ft.

1983: Patented claims acquired by A. Glatz.

1984: Property optioned to Silver Lake Resources who removed a 700 lb. bulk sample from mining location S.V. 254. The sample assayed 0.319 ounce gold per ton. Two drill holes intersected mineralized quartz veins at a vertical depth of 100 ft. One drill intersection assayed 0.105 ounce gold per ton across 4 ft. Silver Lake Resources established a grid, and conducted stripping, and geological and geophysical surveys, and sampling.

1985: Silver Lake Resources conducted more stripping, channel sampling, and diamond drilling. The company subsequently dropped the option on the property.

SELECTED REFERENCES

Satterly 1960, O.D.M. Vol. 69, pt. 6, p. 26.

Pidgeon, G.L., Assessment Files, Resident Geologist's Office, Kenora.

Silver Lake Resources Ltd., Assessment Files, Resident Geologist's Office, Kenora.

Thomson, R., 1947, Assessment Files, Resident Geologist's Office, Kenora.

NIEMI OCCURRENCE

NTS 52F/9NW

LOCATION AND ACCESS

The Niemi Occurrence is located in Concession III, lot 6, of Southworth Township and is approximately 3 km southeast of Dinorwic. The occurrence and main trench are situated in a swampy ditch on the north side of a concession road, about 1.2 km east of its intersection with Highway 17, approximately 2.3 km south of Dinorwic.

DESCRIPTION

Geology: The area around the occurrence is underlain by mafic metavolcanic flows intruded by gabbro stocks and a massive diabase dike. The metavolcanics are commonly sheared, chloritic, and intensely carbonatized.

Mineralization: The Niemi Occurrence consists of a 15 m wide shear zone striking 040°/50° SE for at least 75 m, in coarse-grained, intensely altered mafic rocks, with massive fine-grained mafic metavolcanic flows to the west. The strike of shearing changes abruptly to 070°-078°/65° S about 30 m north of the main trench. The shear zone is crosscut by irregular wide stockworks of quartz-iron carbonate veins, hosting tourmaline, massive tetrahedrite, chalcopyrite, azurite, malachite and pyrite, with associated gold and silver mineralization. The country rock is intensely sheared, sericitic, chloritic, bleached, and variably altered by iron carbonate. Small (2 mm-4 mm) dark green clots of chlorite occur throughout the rock, as well as variable amounts of [ <1-3%] disseminated pyrite and acicular crystals of arsenopyrite. A dark green, chloritic, gabbro outcrop, with moderate calcium carbonate alteration occurs immediately north of the occurrence. The gabbro is similar to, but less altered than, the sheared, altered rock at the trench, and contains the same chlorite clots described above, suggesting that the rock at the trench is highly altered gabbro or a coarse-grained mafic flow. North of the occurrence, the sheared country rock is intensely brecciated with angular fragments embedded in mineralized quartz. The fragments are bleached and carbonatized with dark chlorite rims and apple-green cores, possibly due to the presence of fuchsite. They also contain dark green chlorite clots, coarse needles of arsenopyrite, and finely disseminated pyrite. Medium-grained, dark green, chloritic, pyritic, and carbonatized mafic metavolcanics occur immediately west of the Niemi Occurrence. The author has interpreted an approximate north-south contact between the metavolcanics and the gabbro.

The main trench is approximately 15 m x 10 m and is located in a ditch north of the concession road. Three smaller, shallow trenches are situated towards the north end of the occurrence. All the trenches are full of water and mud. The main occurrence is fairly well stripped, however, exposure elsewhere is poor.

ASSAYS OF MINERALIZATION

Grab samples of the mineralized quartz taken from the main trench, by the author, assayed from 0.05 ounce gold per ton to 0.58 ounce silver per ton and were anomalous in arsenic, copper, and antimony with values as high as 1.55% arsenic, 1.13% copper and 1640 ppm antimony. Grab samples taken by Rio Canadian Explorations Limited assayed up to 0.45 ounce gold per ton and 2.8

ounces silver per ton, while a chip sample assayed 0.10 ounce gold per ton (Thomson 1957).

DEVELOPMENT HISTORY

1956: Surface trenching, stripping, sampling, diamond drilling, and electromagnetic and self-potential geophysical surveys were conducted on the Niemi Property by Rio Canadian Explorations Limited.

SELECTED REFERENCES

Parker 1985, O.G.S. Miscellaneous Paper 122, p. 25-26.

Thomson 1957, O.D.M. M.R.C. No. 2, p. 20.

## NO. 3 VEIN OCCURRENCE

NTS 52F/9SE

### LOCATION AND ACCESS

The No. 3 Vein Occurrence was located on claim K.594454 (formerly claim K.7141) in Hyndman Township. The occurrence is approximately 800 m northeast of the Dumond Occurrence.

### DESCRIPTION

Geology: The occurrence is underlain by amphibolitized, mafic, metavolcanic flows and is situated within a northwest-trending shear zone.

Mineralization: Thirteen large, northwest-trending trenches on the west slope of a large outcrop ridge next to a wide swamp, have been sunk on intensely sheared (307°-337°), amphibolitized, mafic metavolcanics intruded by northwest-trending feldspar porphyry dikes and quartz vein stockworks. The stockworks are 0.6 m to 0.9 m wide within chloritized and carbonatized mafic wall rocks. The quartz veins also occur within and along the contacts of the sheared felsic dikes. The quartz veins are milk-white with some rusty-red staining. The majority of the quartz veins and wall rocks contain very few sulphides, however, quartz veins in a trench at the southeast end of the occurrence contain $\leq$ 1% pyrite and 1-2% chalcopyrite.

### ASSAYS OF MINERALIZATION

Samples of the chalcopyrite-bearing quartz veins taken by G.C. McCartney from the southwest trench, were reported to assay 0.75 ounce gold per ton. McCartney also reported that "good pannings of fine and coarse gold" were obtained from the quartz veins (Assessment Files, Resident Geologist's Office, Kenora).

Grab samples of the chalcopyrite-bearing quartz veins in the southeast trench, taken by the author, assayed trace and 1790 ppb gold.

### DEVELOPMENT HISTORY

1936: Discovered by prospectors working for the Dumond Mining and Exploration Company. Limited surface work conducted.

1982: Staked by A. Glatz.

1983: Transferred to Teck Explorations Limited who conducted geological mapping and geophysical surveys.

1984: Transferred to A. Glatz.

### SELECTED REFERENCES

Dumond Property, Assessment Files, Resident Geologist's Office, Kenora.

NORTH TWIN ISLAND OCCURRENCE

NTS 52F/11NW

LOCATION AND ACCESS

The occurrence is located on claim K.882548 on the east side of a small bay near the northwest end of North Twin Island of Eagle Lake in the Garnet Bay Area. The property is accessible by boat.

DESCRIPTION

Geology: The occurrence is situated immediately north of the contact between the Atikwa Batholith and metavolcanic pyroclastics and flows of the Lower Wabigoon Volcanics.

Mineralization: The north shore of the island consists of intermediate to felsic, gray-green, lapilli-tuff and tuff-breccia, sheared 040° to 078°, dipping steeply to the northwest. Massive, gray, medium-to coarse-grained, biotite-hornblende granitic rocks occur immediately south of the metavolcanics and contain large metavolcanic xenoliths. Shallow trenches have been sunk on narrow (0.3 m), linear, shear zones striking 080°/80° NW within the granite and along the granite/metavolcanic contacts. The shear zones host narrow stockworks of milk-white quartz veins containing biotite, dark green chlorite, finely disseminated pyrite [ $\leq$ 1%] and variable amounts of chalcopyrite. The sheared granitic wall rock is typically sericitic, chloritic, and variably pyritic [ $\leq$ 3%] with narrow alteration halos around the veins. Test pits within a mafic metavolcanic xenolith have been sunk on a strong shear zone which hosts disseminated pyrite, pyrrhotite, and minor chalcopyrite in the wall rocks. Narrow (0.3 m), white quartz veins occur throughout the shear zone. The host rocks, in a few of the trenches, are interbedded cherts and tuffs. A few fine-grained, siliceous, gray, quartz-feldspar porphyry dikes intrude the granitic and metavolcanic rocks.

ASSAYS OF MINERALIZATION

A grab sample, taken by the author, of carbonatized, sheared granite containing 3% disseminated pyrite assayed 70 ppb gold, while a grab sample from a quartz vein containing 1-3% chalcopyrite and pyrite assayed 5450 ppb gold.

An 18 inch wide chip sample taken across a quartz vein at the R. Longe Occurrence at the northeast end of North Twin Island assayed 0.40 ounce gold per ton (Assessment Files, Resident Geologist's Office, Kenora). This assay has been confused with the North Twin Island Occurrence in past published literature.

DEVELOPMENT HISTORY

History of this occurrence is unknown, but Moorhouse (1941) indicates the presence of the trenches on his Eagle Lake map. Last staked in 1987.

SELECTED REFERENCES

Moorhouse 1941, O.D.M. Vol. 48, pt. 4.

R. Longe Claim - Buchan Bay, Assessment Files, Resident Geologist's Office, Kenora.

## OLD SHOWING OCCURRENCE

NTS 52F/9SE

### LOCATION AND ACCESS

The Old Showing Occurrence is located north of the Trans Canada Highway in Hyndman Township at the northwest corner of claim K. 589454. The property is accessible by a narrow gravel road which branches east from the Basket Lake Road, approximately 7.3 km north of its intersection with the Trans Canada Highway.

### DESCRIPTION

Geology: The occurrence is underlain by amphibolitized, massive, mafic, metavolcanic flows approximately 400 m east of the contact between the dioritic rocks of the Revell Batholith and mafic metavolcanics.

Mineralization: Numerous trenches have been sunk along a shear zone striking 310°/88°°-90° SW for at least 113 m. The shear zone hosts a 7.6 m to 9.1 m wide quartz vein interbanded with 0.3 m to 0.6 m wide sections of wall rock. The quartz vein is milk-white with gray, pink, red, and rusty brown sections, and generally contains $\leq$ 1% disseminated pyrite with local concentrations up to 10%. The wall rock is fissile, rusty, chloritic, pyritic [ <1%-15%] and moderately carbonatized with some sericitization and silicification. The vein was traced to the northwest where it terminates in a large swampy area, but could not be traced to the southeast.

The mafic metavolcanic flows at the occurrence are pillowed, amygdaloidal, variolitic, amphibolitized, and intruded by feldspar porphyry and granitic dikes striking in all directions.

### ASSAYS OF MINERALIZATION

Grab samples of the quartz vein, taken by the author, assayed 9 ppb gold, 28 ppb gold, and 675 ppb gold. A grab sample of the quartz vein, taken by C.E. Blackburn, assayed 4.38 ounces gold per ton and 0.26 ounce silver per ton.

### DEVELOPMENT HISTORY

1981: Staked by A. Glatz.

1983-1984: Transferred to Teck Explorations Limited who conducted stripping, sampling, geological mapping, and geophysical surveys.

1984: Transferred to A. Glatz.

1986: Claim cancelled.

### SELECTED REFERENCES

Parker 1987, O.G.S. Miscellaneous Paper 134, p. 18-20.

R.J. Wright, Assessment Files, Resident Geologist's Office, Kenora.

OXFORD PROSPECT (ROBIN HOOD GOLD MINE)

NTS 52F/7NE

LOCATION AND ACCESS

The Oxford Prospect is located at the southeast corner of mining claim K.740289 (former mining location S.V. 129) in the Boyer Lake area, immediately south of Sharp Lake, northwest of the old Goldrock townsite, and approximately 2 km north of Trafalgar Bay on Upper Manitou Lake. The property is accessible by a number of overgrown trails.

DESCRIPTION

Geology: The prospect is situated within northeast facing massive and pillowed mafic metavolcanic flows of the Pincher Lake Group, on the northwest limb of the Manitou Anticline.

Mineralization: The Oxford Prospect is underlain by strongly sheared, sericitized, chloritic, weakly to moderately carbonatized (calcite and iron carbonate), mafic flows and intermediate tuffs containing variable amounts of fine-grained, disseminated, magnetite and pyrite. The shear zone is 30 m to 46 m wide and strikes northeast for approximately 150 m. The sheared rocks have variable strikes and dips within the main shear zone. The shear zone controls a 2.1 m wide stockwork of white quartz veins containing black tourmaline, chlorite stringers, iron carbonate, pyrite [ <1-4%], and chalcopyrite. A 2.1 m x 3.6 m x 30 m deep shaft has been sunk on t he quartz veins, as well as four trenches southwest of the shaft. Quartz veins are 2 cm to 10 cm wide in the trenches and 0.9 m to 1.5 m wide in the shaft.

ASSAYS OF MINERALIZATION

Two grab samples, taken by the author, of quartz vein material and altered wall rock assayed 130 ppb gold and 185 ppb gold respectively. Grab samples taken from the dump by St. Joe Canada Incorporated, assayed consistent anomalous gold values ranging between 30 ppb gold and 795 ppb gold. Sampling at the 77 ft. level of the shaft, conducted by the Robin Hood Mining Syndicate, gave assays as high as 0.67 ounce gold per ton, and abundant visible gold was observed and panned from the vein (Assessment Files, Resident Geologist's Office, Kenora).

DEVELOPMENT HISTORY

1899: A 77 ft. shaft with 24 ft. of crosscutting was developed on mining location S.V. 129 which was part of a group of four mining locations (S.V. 128, 129, 131, and 166).

1936: Robin Hood Mining Syndicate acquired the four patented claims, as well as twelve additional claims, and conducted trenching and diamond drilling.

1983: Staked by M. Woitowicz.

1984: Transferred to St. Joe Canada Incorporated who conducted geological mapping and sampling over the shaft area.

1986: Transferred from M. Woitowicz to Falconbridge Limited.

1987: Falconbridge Ltd. dropped the option on the property.

SELECTED REFERENCES

Beard and Garratt 1976, M.D.C. 16, p. 32.

Bow 1899, O.B.M. Vol. 9, p. 61.

Young 1937, O.B.M. Vol. 46, p. 25.

Robin Hood Mining Syndicate, Assessment Files, Resident Geologist's Office, Kenora.

St. Joe Canada Incorporated, Assessment Files, Resident Geologist's Office, Kenora.

PATHFINDER PROSPECT

NTS 52 F/9 SW

LOCATION AND ACCESS

The Pathfinder Prospect is located on claims K.735068, K.777190 and K.850268 (former mining locations A.D.68, A.D.72, A.D.89) in Concession 1, Lots 9 and 10, Melgund Township. The property is accessible by the Melgund 8C gravel road which branches west from the Sandy Point Road, 5.3 km south of its intersection with Highway 17 at Borups Corners. A very rough, narrow, bush road branches north from the Melgund 8C road, 1.3 km west of its intersection with the Sandy Point Road. The bush road continues north for about 1.5 km and leads directly to the property.

DESCRIPTION

Geology: The Pathfinder Prospect is underlain by massive, fine- to medium-grained, chloritic, mafic, metavolcanic flows intercalated with intermediate and felsic tuff, and lapilli-tuff and intruded by felsic dikes. Two shallow shafts and several trenches have been sunk on quartz veins in intensely sheared and altered mafic rocks.

The prospect is 4 km west of the contact between the Revell Batholith and the metavolcanic rocks.

Mineralization:

1Shaft No. 10

Shaft No. 1 is located immediately next to a large mud flat and has been sunk on a shear zone striking 038°-042°/75° SE and hosting a 0.3 m wide quartz vein containing iron carbonate and variable amounts [ <1%-5%] of pyrite. Mafic metavolcanic wall rocks are intensely iron carbonatized and contain abundant coarse-grained, pale green fuchsite. The metavolcanics near the shaft consist entirely of fuchsite and iron carbonate. The shear zone has been intruded by massive, intensely altered felsic dikes which have not been sheared. The orientation of the shear zone changes to 084°-088° in a test pit approximately 9 m north of the shaft. Although alteration is very intense, it is not extensive, and consists of a 30 m to 46 m wide zone.

1Shaft No. 20

Shaft No. 2 is situated north of shaft No. 1 and has been sunk on a shear zone striking 048° and hosting a boudinaged, milk white quartz vein with a maximum width of 0.6 m. The host rock is a small gabbro intrusion or coarse-grained flow which has been chloritized, carbonatized (calcite), and contains abundant disseminated magnetite, and specular hematite on fracture surfaces. The gabbro has intruded fine-grained mafic tuffs and flows. The quartz vein and wall rocks contain <1% pyrite. Alteration is confined to the immediate sheared wall rocks and is not as intense as the alteration at shaft No. 1.

ASSAYS OF MINERALIZATION

Sulpetro Minerals Limited sampled the prospect and obtained low anomalous gold values with some erratic high grade values (Assessment Files, Resident

Geologist's Office, Kenora).

Twelve grab samples taken from the property by the Pathfinder Syndicate assayed between 0.10 ounce gold per ton and 1.24 ounces gold per ton with consistent high values. A chip sample reportedly assayed 1.14 ounces gold per ton across 3 ft. The Pathfinder Syndicate also drilled twelve holes on the property (Assessment Files, Resident Geologist's Office, Kenora).

DEVELOPMENT HISTORY

1945: Pathfinder Syndicate sampled the property and conducted diamond drilling. Shafts were sunk on the property prior to 1945.

1984: Staked by A. Glatz.

1985: Transferred to Sulpetro Minerals Ltd., who conducted sampling, geological mapping, and diamond drilling.

1986: Transferred to A. Glatz.

SELECTED REFERENCES


Parker 1987, O.G.S. Miscellaneous Paper 13f4, p. 18-20.

Satterly 1960, O.D.M. Vol. 69, pt. 6, p.25.

Glatz, A., Assessment Files, Resident Geologist's Office, Kenora.

Pathfinder Syndicate, Assessment Files, Resident Geologist's Office, Kenora.

Sulpetro Minerals Ltd., Assessment Files, Resident Geologist's Office, Kenora.

Field Notes by R. Thomson, Pathfinder Occurrence, Mineral Deposit Files, Resident Geologist's Office, Kenora.

## PENINSULA ZONE OCCURRENCE

NTS 52 F/7 NW

### LOCATION AND ACCESS

The Peninsula Zone Occurrence is located on claim K.729701 (former mining location H.P.404) in the Harper Lake area, on the extreme north shore of Upper Manitou Lake. The occurrence is in a narrow bay northeast of Red Rock Narrows and is accessible by boat.

### DESCRIPTION

Geology: The occurrence is situated within intercalated massive, mafic, metavolcanic flows and intermediate lapilli-tuff and tuff-breccia intruded by felsite dikes, at the contact between the Upper Manitou Lake Group and the Pincher Lake Group. The occurrence is located on the northwest limb of the Manitou Anticline.

Mineralization: The Peninsula Zone consists of an intense 4.6 m to 6.0 m wide, northeast-trending shear/breccia zone extending through intensely sheared and altered intermediate lapilli-tuff intruded by a sericitized, and iron carbonatized, wide, felsite dike. The dike weathers buff white and contains finely disseminated pyrite (1-5%) and large clots of fuchsite. The dike strikes 060°-080° and dips northwest. The orientation of shearing within the shear zone varies between 048°-090° with steep, variable dips. The sheared and brecciated dike hosts a massive stockwork of milk-white quartz veins containing a small amount of disseminated pyrite. The Peninsula Zone is on strike with the Fuchsite Zone Occurrence to the southwest.

### ASSAYS OF MINERALIZATION

A grab sample of the pyritic, felsite dike, taken by the author, assayed 410 ppb gold, while channel samples across the zone, taken by St. Joe Canada Incorporated, assayed 130 ppb gold across 2 m, 220 ppb gold across 3 m, 350 ppb gold across 3.0 m, and 400 ppb gold across 4.8 m.

### DEVELOPMENT HISTORY

?: No record of work prior to 1984 but the occurrence was formerly encompassed by patented claim H.P. 404.

1983: Staked by M. Woitowicz

1984: Transferred to St. Joe Canada Incorporated who conducted geophysics, geological mapping, and sampling over the claim.

1985: Transferred to M. Woitowicz

1986: Transferred to Falconbridge Limited

### SELECTED REFERENCES

St. Joe Canada Incorporated, Assessment Files, Resident Geologist's Office, Kenora.

PIDGEON-AVERY TOWNSHIP PROSPECT (L. PIDGEON GOLD OCCURRENCE)

NTS 52 F/9 NW

LOCATION AND ACCESS

The Pidgeon-Avery Township Prospect, is located on claim K.733147 (formerly K.417453), approximately 10 km northeast of Dinorwic. The prospect is accessible by a narrow bush road branching north from a gravel road, 9 km east of its intersection with Highway 72 at Dinorwic. The main trenches are immediately west of the bush road, 1 km north of its intersection with the gravel road.

DESCRIPTION

Geology: The prospect is situated within dominantly mafic, massive and pillowed, metavolcanic flows intruded by gabbro stocks and felsic dikes.

Mineralization: The prospect consists of a 40 m wide, strong, shear zone striking 040°-042° and extending through pillowed and massive mafic metavolcanic flows. Pillowed, amygdaloidal, mafic flows occur south of the shear zone, porphyritic flows occur within the immediate vicinity of the zone, and massive mafic flows occur north of the shear zone. The metavolcanics are moderately to strongly carbonatized (calcium carbonate) with intense iron carbonate alteration restricted to the shear zone. The sheared metavolcanics are moderately chloritized and variably pyritic [<1-5%] with stockworks of narrow, discontinuous, quartz-carbonate fracture-hosted veinlets crosscutting the shear.

The shear zone hosts a sheared and fractured northeast-trending quartz-feldspar porphyry dike and two northeast-trending, carbonatized breccia zones. The breccia zones consist of very fine-grained, angular fragments of host rock embedded in a pyritic (1-2%) quartz-carbonate matrix. The fragments have been intensely carbonatized, variably bleached to buff brown and white, contain <1% disseminated pyrite, and host narrow quartz veinlets. Narrow fracture-hosted quartz-carbonate veinlets extend from the breccia zones into the sheared metavolcanics, forming a stockwork of intersecting calcite and iron-carbonate rich veinlets.

The quartz-feldspar porphyry dike hosts <1% finely disseminated pyrite and narrow quartz veinlets. The dike has been sheared and brecciated with abundant criss-crossing open fractures, but does not appear to have the "healed" breccia texture of the breccia zones. Iron carbonate alteration is pervasive but quartz-carbonate veining is relatively minor. Some narrow fractures, perpendicular and parallel to the strike of the dike, are filled with white-gray quartz and minor carbonate. These veinlets are quartz-rich and lack sulphides, while the veinlets in the breccia zones and metavolcanics contain abundant carbonate and sulphides. Small amounts of bright green mica occur throughout the dike.

ASSAYS OF MINERALIZATION

Gold mineralization is erratic and occurs within the sheared metavolcanics and breccia zones. Grab samples from the trenches, taken by Kerr Addison Mines Limited, assayed 0.5 ounce gold per ton with one sample containing visible gold assaying 2.0 ounces gold per ton (Beard and Rivett 1976). Grab samples taken by Mr. A. Glatz, gave assay values from the dikes and mafic metavolcanics ranging from trace to 0.325 ounce gold per ton, with the best assays obtained from the breccia zones and quartz-carbonate veinlets. Assays from three grab samples taken by the author were 0.08 ounce gold per ton in the mafic metavolcanics, and 0.09 ounce gold per ton and 0.10 ounce gold per ton from the breccia zones. Grab samples from the zone, taken by B. Berger et al. (1987) assayed 3060 ppb gold from a quartz-carbonate breccia and stringers with pyrite, 980 ppb gold from a quartz-carbonate breccia and stringers without pyrite, 635 ppb gold from a silica-carbonate breccia, and 5 ppb gold from pervasively carbonate-altered wall rock. More assays have been reported by Selco Mining Corporation Limited and Noranda Exploration Company, Limited (see Development History).

DEVELOPMENT HISTORY

1974: Discovered, staked, and trenched by G. L. Pidgeon following logging operations by the Dryden Paper Company.

1975: Kerr Addison Mines Limited optioned the property and conducted geological mapping, a magnetometer survey, and surface sampling, followed by four diamond drill holes totalling 1326 ft. Drilling results failed to confirm high gold assays obtained at surface, but two narrow drill intersections assayed 0.26 ounce gold per ton over 3 feet and 0.10 ounce gold per ton over 5 feet (Assessment Files, Resident Geologist's Office, Kenora).

1980: Selco Mining Corporation Limited drilled eleven holes totalling 850 ft. Results from the drill program returned no gold values greater than trace, however, low grade silver values ranging as high as 0.26 ounce silver per ton were encountered in the drilling (Assessment Files, Resident Geologist's Office, Kenora).

1983: A. Glatz restaked the property and conducted sampling, stripping, and extensive trenching. The property was sampled and mapped by T. S. Joliffe in August, 1983. A. Glatz accumulated a stockpile of approximately 80 tons of blasted rock, with an average assay of 0.16 to 0.20 ounce gold per ton (A. Glatz, prospector, Dryden, personal communication, 1985).

1985-1986: Transferred to Noranda Exploration Company, Limited who conducted geological mapping, stripping, channel sampling, and geophysical and geochemical surveys. Noranda obtained numerous gold values ranging as high as 17.0 grams gold per ton from grab and channel samples taken from various carbonate and breccia zones (Assessment Files, Resident Geologist's Office, Kenora).

SELECTED REFERENCES

Beard and Scott 1975, O.D.M. Miscellaneous Paper 64, p. 6.

Beard and Rivett 1976, O.D.M. Miscellaneous Paper, p. 6.

Berger et al. 1987, O.G.S. Map P. 3070.

Parker 1985, O.G.S. Miscellaneous Paper 122, p. 25-26.

Glatz, A., Assessment Files, Resident Geologist's Office, Kenora.

Kerr Addison Mines Limited, Assessment Files, Resident Geologist's Office, Kenora.

Noranda Exploration Company, Limited, Assessment Files, Resident Geologist's Office, Kenora.

Selco Mining Corporation Limited (Pidgeon Option), Assessment Files, Resident Geologist's Office, Kenora.

## PIDGEON-BOB LAKE OCCURRENCE

NTS 52 F/10 NW

### LOCATION AND ACCESS

The occurrence is located on the extreme southwest shore of Bob Lake on patented claim K.33346. It is accessible by boat or from an overgrown trail which branches east from Highway 502.

### DESCRIPTION

Geology: The occurrence is situated within massive and pillowed mafic metavolcanic flows of the Lower Wabigoon Volcanics which are intruded by numerous felsic dikes.

Mineralization: The occurrence consists of a 30 m wide, quartz-feldspar porphyry dike, or two subparallel dikes, intruding massive mafic metavolcanic flows and trending 086°, dipping steeply to the south. A 23 m long trench has been sunk along a narrow "wedge" of mafic metavolcanics which occurs between the two dikes or is a xenolith within one dike. A narrow quartz vein is hosted by the sheared "wedge" of metavolcanics at the contact between the quartz-feldspar porphyry dike and the metavolcanics. The shear zone and quartz vein strike 086°/75° S. The porphyry dike is foliated between 120° and 150°, dipping steeply to the southwest. The quartz vein contains abundant chalcopyrite and pyrite as well as small altered xenoliths of the wall rock. The mafic metavolcanics are weakly magnetic, variably pyritic [ <1-5%], chloritic, sericitic, and weakly carbonatized (calcite). The felsic dike is sericitized and weakly carbonatized.

### ASSAYS OF MINERALIZATION

No samples were taken by the author. Drilling by Newconex Limited did intersect gold values such as 2.09 ounce gold per ton across 5 inches, 0.10 ounce gold per ton across 1 ft., 0.04 ounce gold per ton across 1.6 ft., and 0.03 ounce gold per ton across 2 ft.

### DEVELOPMENT HISTORY

Early 1960's: Staked and trenched by G. L. Pidgeon.

1962: Optioned to Newconex Limited who drilled four holes on the property.

### SELECTED REFERENCES

Parker and Schienbein 1988, O.G.S. Maps P.3111 and P.3112.

Pidgeon Property (Newconex Option), Assessment Files, Resident Geologist's Office, Kenora.

PIDGEON-HYNDMAN TOWNSHIP OCCURRENCE

NTS 52F/9SW

LOCATION AND ACCESS

The Pidgeon-Hyndman Township Occurrence is located north of Highway 17, in Hyndman Township, on claim K.533290 (former mining location H.W. 534). The property is accessible by a narrow gravel road which branches east from the Basket Lake Road, 7.3 km north of its intersection with Highway 17. A narrow bush road branches south from the gravel road, about 3.2 km east of its intersection with the Basket Lake Road, and continues for 4 km to a foot path which leads to the occurrence.

DESCRIPTION

Geology: The Pidgeon-Hyndman Township Occurrence is situated within granodioritic rocks of the Revell Batholith at its contact with surrounding mafic metavolcanic rocks.

Mineralization: The Pidgeon-Hyndman Township Occurrence consists of a large stripped area approximately 1500 ft. long, striking northwest. Numerous test pits have been sunk along the strike of the stripped area.

Test pits have been sunk on quartz veins located in a dominantly northwest-trending shear zone hosted by fine- to medium-grained granodiorite. The granodiorite is typically gray on fresh surfaces and contains xenoliths of the mafic metavolcanic rocks.

The shear zone, which hosts the quartz veins, is 1.5 m to 2.4 m wide and strikes 325° to 335°. The orientation of the shear zone changes to 020° at the southeast end of the zone. The granodiorite is strongly sheared and fissile at the northwest end of the zone, but is less sheared at the southeasst end, where it is only strongly foliated.

Stockworks of quartz veins and stringers are located in the shear zone and are intimately interlayered and mixed with the sheared granodiorite. Many of the larger quartz veins are boudinaged. Quartz veins contain fragments of sheared wall rock, iron carbonate, minor pyrite, [ $\leq$ 1%] chalcopyrite, and rusty gossan and malachite staining. A breccia zone is present at the southeast end of the occurrence where angular, sheared, and altered fragments of diorite are embedded in a quartz-iron carbonate matrix. The breccia zone contains up to 5% combined pyrite and chalcopyrite.

The sheared granodiorite wall rocks are weakly carbonatized, chloritized, sericitized, and contain abundant (up to 10%), disseminated pyrite. The pyrite is commonly concentrated in haloes which extend for about 7 cm on either side of the quartz veins.

ASSAYS OF MINERALIZAION

A grab sample taken by the author from the breccia zone at the southeast end of the occurrence assayed 2325 ppb gold and contained large clots of chalcopyrite and pyrite. A grab sample taken by the author from a quartz vein in a pit at the extreme northwest end of the occurrence assayed 620 ppb gold. A few other samples from the wall rocks and the quartz veins assayed trace amounts of gold.

Grab samples taken by J. Satterly assayed between 0.01 and 0.08 ounce gold per ton.

A grab sample taken by C.E. Blackburn from a quartz vein on the property assayed 0.52 ounce gold per ton.

DEVELOPMENT HISTORY

1934-1936: G. Pidgeon staked mining location H.W. 534 and trenched and stripped a 1500 ft. zone on the claim. He also stripped a parallel zone 190 ft. north of the main zone.

1946: Robert Thomson, Resident Geologist, visited the property. He reported that erratic and low gold values did not warrant further work.

1980: A. Glatz staked claim K.533290.

1981-1983: A. Glatz conducted stripping on the property.

1983: Optioned to Teck Explorations Ltd.

1984: Teck conducted ground geophysics and geological mapping on the property as well as diamond drilling. Teck subsequently dropped the option.

1987: Claim was cancelled and restaked by A. Glatz (K.976631).

SELECTED REFERENCES

Satterly 1960, O.D.M. Vol. 69, pt. 6, p. 27.

Glatz, A., Assessment Files, Resident Geologist's Office, Kenora.

Pidgeon, G.L., Assessment Files, Resident Geologist's Office, Kenora.

Wright, R.J., Assessment Files, Resident Geologist's Office, Kenora.

PIDGEON-TRAP LAKE OCCURRENCE

NTS 52F/10NW

LOCATION AND ACCESS

The occurrence is located on claim K.882549 (formerly claim K.14474) and is 1.5 km east of Trap Lake at the west edge of a large swampy area 700 m west of Vetch Lake. The author found the occurrence by walking east along a high diabase ridge which terminates at the swamp. The occurrence is immediately south of the dike.

DESCRIPTION

Geology: The occurrence is situated within dioritic rocks of the Atikwa Batholith approximately 600 m south of its contact with mafic metavolcanics of the Eagle Lake Volcanics. The batholith is intruded by a wide west-northwest-trending diabase dike immediately north of the occurrence.

Mineralization: A deep test pit has been sunk on a 1.5 m to 1.8 m wide quartz vein striking 142°/82° SW within fine-grained, massive, gray, quartz-hornblende diorite. The diorite is relatively unaltered with very weak carbonatization and sericitization, and strong chloritization, in proximity to the quartz vein, with epidote along hairline fractures. The wall rocks next to the vein contain ≤ 1% disseminated pyrite and chalcopyrite. The diorite contains abundant small [ <1 mm] elliptical, blue quartz "eyes" which may be a cataclastic texture. The quartz vein consists of white and gray quartz containing xenoliths of dark green chlorite and large, abundant, massive, "blobs" of pyrite and chalcopyrite with malachite and azurite. Narrow quartz veins occur subparallel to the main vein. The diorite is not pervasively sheared but hosts subparallel, narrow, shears generally striking 120°-140° and dipping steeply southwest. Quartz veins are controlled by tension fractures. Some veins appear to have shallow dips and variable strikes but exposure was too poor to determine their orientations.

ASSAYS OF MINERALIZATION

An average of three channel samples, taken by G. L. Pidgeon and A. Lantz, assayed 0.11 ounce gold per ton, 1.02 ounces silver per ton, and 2.31% copper across an average width of 4 ft. Assays up to 0.08% nickel and 0.05% cobalt were also obtained. Another chip sample assayed 0.03 ounce gold per ton, 0.57 ounce silver per ton, and 3.03% copper (Thomson 1954, 1957; Shklanka 1969).

Three grab samples of the sulphide-rich quartz vein, taken by the author, assayed 1355 ppb gold, 55 ppm silver, 6.9% copper, 490 ppm nickel and 92 ppm cobalt; 530 ppb gold, 30 ppm silver, 4.05% copper, 170 ppm nickel and 180 ppm cobalt; and 0.27 ounce gold per ton, 26 ppm silver, 1.78% copper, 100 ppm nickel and 234 ppm cobalt. A grab sample of the wall rock assayed 27 ppb gold and 130 ppm copper.

DEVELOPMENT HISTORY

1952: Staked by G. L. Pidgeon and A. Lantz who conducted 160 ft. of trenching, sampling, and drilled two holes.

1955: Optioned to Preston East Dome Mines Limited who conducted 1300 ft. of diamond drilling and chip sampling.

1986: Staked by J. Harrison.

SELECTED REFERENCES

Satterly 1960, O.D.M. Vol. 69, pt. 6.

Shklanka 1969, O.D.M. M.R.C. 12, p. 165-166.

Thomson 1954, O.D.M. M.R.C. 1, p. 12.

Thomson 1957, O.D.M. M.R.C. 2, p. 21.

Pidgeon Property, Assessment Files, Resident Geologist's Office, Kenora.

PIDGEON-WABIGOON LAKE OCCURRENCE (I.R. 27 OCCURRENCE)

NTS 52F/10NE

LOCATION AND ACCESS

The Pidgeon-Wabigoon Lake Occurrence is located on claim K.824976 (previously K.13698) on the western shore of the extreme southeast bay of Wabigoon Lake, at the northwestern corner of Indian Reserve No. 27. The occurrence is accessible by boat.

DESCRIPTION

Geology: The occurrence is situated within pillowed and brecciated mafic metavolcanic flows of the Lower Wabigoon Volcanics.

Mineralization: The property consists of sheared, massive, pillowed and brecciated, fine-grained mafic flows intruded by irregular stockworks of quartz-iron carbonate stringers and veins. The metavolcanics contain 2% to 10% disseminated euhedral pyrite and are variably altered by iron carbonate, chlorite, and sericite. The wall rocks are commonly silicified, pale green to buff brown, and contain abundant pyrite and fuchsite. The metavolcanics are sheared in two directions, a strong shear striking 014° and dipping 37° E, intersected by an east-trending shear. The quartz veins crosscut the shearing at all angles, and are composed of vitreous white quartz, extremely abundant black tourmaline, pale brown and orange iron carbonate, calcite, and $\leq$ 3% fine-grained, disseminated pyrite. The pyrite is associated with iron carbonate or angular fragments of brecciated host rock within the quartz veins. The author observed small flakes and blebs of visible gold intimately associated with pyrite, in the wall rock, along the edge of a quartz vein. Arsenopyrite has also been found at the occurrence (R. Fairservice, prospector, Kenora, personal communication, 1985) but none was observed by the author.

ASSAYS OF MINERALIZATION

Random grab samples of the altered, pyritic, mafic metavolcanics, taken by the author, assayed 300 ppb Au, 210 ppb Au, and 605 Au, with arsenic assays of 80 ppm, 185 ppm, and 42 ppm respectively. Grab samples taken from two of the quartz veins by the author assayed 120 ppb Au and 2050 ppb Au, with arsenic assays of 30 ppm and 290 ppm respectively.

DEVELOPMENT HISTORY

The occurrence was discovered by Mr. G. L. Pidgeon in 1950, who stripped, trenched, sampled, and diamond drilled three short holes totaling 176 ft. One hole intersected mineralized quartz between 1 ft. to 10 ft. assaying up to 0.19 ounce gold per ton, with a second intersection of mineralized quartz and host rock between 42 ft. and 60 ft. assaying up to 0.29 ounce gold per ton. The occurrence is presently held by Mr. R. Fairservice, who staked the ground in 1980. He optioned it to Royex Sturgex Mining Limited, who conducted horizontal loop E.M. and magnetometer surveys over the property in 1983. The surveys outlined two E.M. conductors, one of which flanks a magnetic anomaly with an arcuate form. Tanqueray Resources Limited optioned the property from Mr. Fairservice in 1986 and diamond drilled five holes on the occurrence in 1987 with favourable results. One drill hole intersected 0.172 ounce gold per ton across 6.7 ft., which included a section assaying

0.23 ounce gold per ton across 4.7 ft., in a zone which consisted of mafic metavolcanics containing carbonate, quartz, tourmaline, fuchsite, and 5% to 50% pyrite.

SELECTED REFERENCES

Beard and Garratt 1975, O.D.M., M.D.C. 16, p. 22.

Parker 1986, O.G.S., Miscellaneous Paper 128, p. 21-22.

Pidgeon Claim, Assessment Files, Resident Geologist's Office, Kenora.

Fairservice, Robert, Assessment Files, Resident Geologist's Office, Kenora.

George Cross News Letter, No. 43, March 3, 1987, p. 3.

PIONEER ISLAND PROSPECT

NTS 52F/11NW

LOCATION AND ACCESS

The Pioneer Island Prospect is situated near the center of Pioneer Island at the southwest corner of Eagle Lake in the Garnet Bay area, on claim K.590014 (former mining location M.H.248). The property is accessible by boat.

DESCRIPTION

Geology: The prospect is situated at the sheared contact between mafic and underlying intermediate metavolcanic rocks of the Lower Wabigoon Volcanics and is immediately north of the contact between the metavolcanics and the granitic rocks of the Atikwa Batholith.

Mineralization: Massive sulphide mineralization consisting of coarse-grained pyrite, pyrrhotite, minor chalcopyrite, and magnetite occurs at the sheared contact between massive and pillowed mafic flows and intermediate pyroclastics. The metavolcanics are intruded by felsite, feldspar, and quartz-feldspar porphyry dikes striking between 014° and 050°. Wallrock alteration consists of sericitization, chloritization, carbonatization, and minor silicification. The outcrops around the shaft are stained with gossan and small sulphide-rich zones can be observed north of the shaft. Although quartz can be found amongst the massive sulphide mineralization, no quartz veins were observed on the property.
The metavolcanic rocks on Pioneer Island are in contact with granite rocks at the south end of the island. The contact is intensely sheared (056°/74° NW), rusty, and narrow [ <0.9 m]. Other shear zones in the vicinity of the island strike northeast.

ASSAYS OF MINERALIZATION

Grab samples taken by the author from the massive sulphide mineralization assayed only trace amounts of gold with anomalous copper and nickel values, although the sulphides have been reported to have panned gold (Carter 1905).

DEVELOPMENT HISTORY

1904: 20 ft. shaft sunk.

1905: Shaft deepened to 80 ft. by Northern Light Mines Company.

SELECTED REFERENCES

Carter 1905, O.B.M., Vol. 14, pt. 1, p. 48-49.

Corkill 1906, O.B.M., Vol. 15, pt. 1, p.54.

Moorhouse 1941, O.D.M., Vol. 48, pt. 4, p. 24.

## R. 544 OCCURRENCE

NTS 52F/10NW

### LOCATION AND ACCESS

The R. 544 Occurrence is located at the southeast corner of mining location R. 544 in lot 12, Concession I, Van Horne Township. The shaft and test pits are approximately 300 m north of Flambeau Lake, and occur along the west side of a large outcrop on the east edge of a large swampy area.

### DESCRIPTION

Geology: The occurrence is situated within a fine- to medium-grained gabbro/diorite stock, at its northern contact with intermediate to felsic autoclastic flows of the Lower Wabigoon Volcanics.

Mineralization: The R. 544 Occurrence consists of a shaft, or very deep test pit, about 12 m deep, a rock dump, and numerous shallow test pits sunk on intensely altered, fine-grained diorite which has been sheared (065°), sericitized, and carbonatized. Numerous en echelon, northwest-trending (136°), tension fractures within the shear zone host pyritic [ <1-3%], hematite, quartz veins containing iron carbonate and tourmaline. The altered wall rock contains up to 5% disseminated pyrite.

### ASSAYS OF MINERALIZATION

A grab sample of altered, pyritic, diorite containing quartz veinlets, taken by the author from the dump, assayed 2950 ppb gold, while a sample of altered, pyritic, diorite assayed 1180 ppb gold. Two samples of quartz vein material taken from the dump assayed 0.41 ounce gold per ton, and 1430 ppb gold. A grab sample from a quartz vein, in the outcrop east of the shaft, assayed 10 ppb gold.

### DEVELOPMENT HISTORY

1917: A test pit was sunk at the north end of mining location R. 544.

1986: Mining location R. 544 purchased by Falconbridge Ltd. (R. Band, Geologist, Falconbridge Ltd., personal communication, 1986).

1987: Shaft drilled by Van Horne Gold Exploration Incorporated in a joint venture agreement with Falconbridge Ltd. (S. Roach, Geologist, Van Horne Gold Exploration Inc., personal communication, 1987).

### SELECTED REFERENCES

Parker and Schienbein 1988, O.G.S. Maps P.3111 and P.3112.

Thomson 1917, O.B.M. Vol. 26, pt. 1, p. 183.

R. 545 OCCURRENCE

NTS 52F/10NW

LOCATION AND ACCESS

The R. 545 Occurrence is located at the extreme southwest corner of mining location R. 545 in lot 12, Concession I, Van Horne Township. The occurrence consists of a trench on the east side of a bush trail, which extends from Pritchard Lake to Guy Lake. A test pit is situated east of the trench and about 30 m east of the bush trail. It is uncertain if the pit and trench occur on mining location R. 545 due to the uncertainity of the location of the patented claim lines.

DESCRIPTION

Geology: The occurrence is located within intensely altered and sheared intermediate to felsic, autoclastic flows of the Lower Wabigoon Volcanics. A small diorite plug is situated south of the occurrence.

Mineralization: A 4.5 m deep test pit has been sunk on a stockwork of fracture-hosted quartz veins trending 136°. The quartz veins crosscut a shear zone striking 090° through intensely sheared, sericitized, and carbonatized felsic metavolcanic flows.

The quartz veins contain iron carbonate, tourmaline, and <1% disseminated pyrite. The metavolcanic wall rocks contain ≤ 1% pyrite.

An 18 m long trench has been sunk on intensely sheared (090°) intermediate to felsic flows, hosting a 45 cm wide quartz vein striking between 103° and 108°. The vein contains hematite, pyrite, tourmaline, and minor galena. The wall rocks are carbonatized and sericitized.

ASSAYS OF MINERALIZATION

A grab sample of quartz vein material taken from the test pit by the author assayed 150 ppb gold and 4 ppb silver, while two grab samples from the quartz vein in the trench assayed 4740 ppb gold and 6 ppb silver, and 2500 ppb gold and <2 ppb silver.

DEVELOPMENT HISTORY

1911: Test pit sunk on mining location R. 545.

1986: Mining location R. 545 purchased by Falconbridge Ltd. (R. Band, Geologist, Falconbridge Ltd., personal communication, 1986).

SELECTED REFERENCES

Parker and Schienbein 1988, O.G.S. Maps P.311 and P.3112.

Parsons 1911, O.B.M. Vol. 20, pt. 1, p. 192.

## REDEEMER MINE (HERMANN AND LARSON MINE)

NTS 52F/10NW

### LOCATION AND ACCESS

The Redeemer Mine is located on claim K.558584 in lot 6, Concession I, Van Horne Township, west of Larson Bay of Wabigoon Lake and 640 m south of the Bonanza Mine. The property is accessible by a narrow gravel road which branches south from the Wabigoon Lake Road. The gravel road terminates at a beaver dam where it is overgrown. The road continues for about 240 m from the dam to the Redeemer Mine shaft.

### DESCRIPTION

Geology: The Redeemer Mine is underlain by intermediate autoclastic flows and pyroclastics north of the shaft, and dominantly intermediate to mafic tuff, lapilli-tuff, and tuff-breccia intercalated with massive, mafic, amygdaloidal flows east, west, and south of the shaft. Thin units of intermediate to felsic interflow tuffs are situated east of the shaft. Bedding strikes 075°/78° N with tops to the north based on graded beds and scour channels. Bedded tuffs striking 102° overlying mafic flows with flow banding also striking 102° occur south of the shaft at the edge of the rock dump.

Mineralization: The shaft has been sunk on a 3.0 m wide shear zone striking 106°-110°/85° N and hosting a 2.5 m wide stockwork of quartz-iron carbonate-tourmaline veins and stringers containing ≤ 1% disseminated pyrite. The host rock is a massive, dark green, mafic metavolcanic rock. Locally the rock is intensely sheared, chloritized, and carbonatized. Rocks in the general vicinity of the shaft appear relatively unaltered. Alteration is strictly confined to the wall rocks at the shaft. A 15.0 cm wide, aphanitic, olive green-gray, siliceous, and rusty felsite dike parallels the quartz vein stockwork on the south side of the shaft. The dike is fractured and hosts some narrow veins.

### ASSAYS OF MINERALIZATION

Grab samples taken by the author from pyritic quartz vein material on the dump assayed 0.02 and 0.28 ounce gold per ton, while a grab sample of the felsic dike assayed 8 ppb gold.

### DEVELOPMENT HISTORY

Originally owned by A.B. Hermann of Chicago and G. Larson of Dryden.

1900: Optioned to the Redeemer Gold Mining and Milling Company of Windsor, Ontario and managed by G. Larson.

1901: A 6 ft. by 9 ft. vertical shaft was sunk to a depth of 66 ft. on a 8 ft. wide vein at surface (widening to 10.5 ft. at the bottom of the shaft).

1903: Shaft was deepened to 130 ft. with a pump level cut at 60 ft. Timbering was completed to 60 ft. Surface stripping of the vein was conducted for about 500 ft.

1904: A 10-stamp mill, thawing house and tram-way were erected. The shaft was sunk to 235 ft. with no lateral work. 300 tons were mined of which 100 tons were milled with gold production valued at $2,400.

1905: 100 ft. of drifting was completed on the first level with 350 tons of ore being mined and milled. The gold production was valued at $1,750.

1906: 400 ft. of crosscutting on the second level had been completed to reach a second vein. 50 ft. of drifting was done on the "old" vein. 550 tons were milled producing $2,790 worth of gold. Timbering of the shaft from the first to the second level was required.

1907: Some drifting but the mine was relatively idle.

1911: The mine was pumped out for reexamination.

1918: 200 tons of ore were mined and produced 8 ounces of gold.

1919, 1922: The mine was dewatered and resampled by the Contact Bay Mining Company.

1926: Acquired by Bonanza United Mines Limited.

1947: Acquired by C. Ettles and Baden R. Smith. Stripping and trenching done. Ettles and Smith attempted to option the property to Sylvanite Gold Mines Limited.

1980-1981: Van Horne Gold Exploration Inc. conducted geophysical surveys and drilled 11 holes targeted on the Redeemer Vein.

1983: Van Horne Gold Exploration Inc. conducted geological mapping and sampling.

SELECTED REFERENCES

Carter 1902, O.B.M. Vol. 11, p. 244-245.

Carter 1904, O.B.M. Vol. 13, pt. 1, p. 66.

Carter 1905, O.B.M. Vol. 14, pt. 1, p. 49.

Corkill 1906, O.B.M. Vol. 15, pt. 1, p. 55.

Corkill 1907, O.B.M. Vol. 16, pt. 1, p. 59.

Gibson 1919, O.B.M. Vol. 28, pt. 1, p. 9-11.

Hopkins 1922, O.B.M. Vol. 30, pt. 2, p. 49.

Parker and Schienbein 1988, O.G.S. Maps P.3111 and P.3112.

Parsons 1911, O.B.M. Vol. 20, pt. 1, p. 190-191.

Parsons 1912, O.B.M. Vol. 21, pt. 1, p. 186.

Satterly 1943, O.B.M. Vol. 50, pt. 2, p. 48-50.

Sutherland 1924, O.B.M. Vo. 32, pt. 6, p. 19.

Redeemer Mine - Contact Bay, Assessment Files, Resident Geologist's Office, Kenora.

Van Horne Gold Exploration Inc., Assessment Files, Resident Geologist's Office, Kenora.

ROGNON MINE

NTS 52F/10NW

LOCATION AND ACCESS

The Rognon shaft is located on mining claim K.911484 (formerly claims K.706195 and K.635), approximately 400 m west of Contact Bay, at the southwest end of Wabigoon Lake. The property is accessible by boat from a landing on the south shore of Contact Bay which is accessible by a gravel road extending east from Highway 502, 18 km south of its intersection with Highway 594.

DESCRIPTION

Geology: The Rognon Prospect is situated within intercalated mafic, intermediate, and felsic metavolcanic flows and pyroclastics of the Lower Wabigoon Volcanics. The metavolcanics are intruded by numerous felsic dikes and gabbro intrusions. The prospect is situated 600 m north of the contact between the Atikwa Batholith and metavolcanic rocks. The property is underlain by fine-grained, gray-green intermediate to mafic metavolcanics, intruded by east-trending felsic dikes and a gabbro stock at the southwest corner of the claim.

Mineralization: Gold occurs along the "Main Vein" which strikes 108°-115° and which is controlled by a 0.5 m to 1 m wide shear zone. The vein has a strike length of approximately 1 km with the strike changing to 120° on the Wachman property to the west-northwest. The vein consists of red and rusty brown quartz containing abundant hematite, dark green chlorite, and minor magnetite and pyrite. The vein varies in width from 4 cm to 1 m, pinching and swelling along its strike length, and splitting into narrow discontinuous stringers. The extension of the vein on the Wachman property is commonly discontinuous, narrow and difficult to trace. The wall rock is chloritic, biotitic, variably silicified, carbonatized, and generally poor in sulphides. The vein has been extensively trenched along its entire strike length with pits 6 m apart and 1 m to 3 m deep. The Rognon shaft is located near the northwest corner of the claim. It is a dry shaft which has partially collapsed, with a raise opening approximately 20 m directly northwest of the shaft along the strike of the vein.

About 25 m east of the Rognon shaft the vein narrows to <0.5 m. The wall rocks are sheared and silicified with pervasive red hematite staining and carbonate alteration (calcite). Minor amounts [ <1%] of disseminated euhedral pyrite and magnetite can be found in the vein and wall rock. The vein is intensely hematitic, approximately 5 m west of the raise, where specks of visible gold were observed within the vein. W. Sovereign obtained an assay of 0.42 ounce gold per ton from this location. About 10 m west of the raise the quartz vein terminates and reappears 10 m further along strike. From this point onwards the vein is very thin and discontinuous. Fractures and narrow shears splay off from the main shear zone at low angles at the west end of the property. A felsite dike striking 140° and dipping west crosscuts the main vein at the northwest corner of the claim. The dike is 0.5 m wide and hosts numerous small red quartz veins with no sulphides or significant alteration. From this point the vein extends on to adjacent claims which encompass the Wachman Prospect.

ASSAYS OF MINERALIZATION

Assays from W. Sovereign's channel and chip sampling along the length of the vein indicate that gold and silver mineralization occurs intermittently over a strike length of 240 m in the vicinity of the shaft: assay results range from trace amounts of gold to 2.57 ounces gold per ton, and 0.01 to 0.55 silver per ton, over an average width of 32 cm.

DEVELOPMENT HISTORY

1916-1917: Shaft sunk to 23 ft. and 6 ounces of gold from 1 ton of ore was milled in 1916.

1917: 600 tons of ore was rumoured to have been shipped to the Redeemer mill for treatment, but this does not agree with production data and returns for the year at the Redeemer Mine. The shaft was sunk to 69 ft. with 60 ft. of drifting and the development of a 50 ft. raise. 200 tons of ore was mined. Production in 1917 was 14 ounces of gold from 40 tons milled.

1918-1919: Acquired by Contact Bay Mines Limited. Production in 1918 was 2.21 ounces of gold from 8 tons milled, although 40 tons were mined.

1919: A two-compartment shaft was deepened to 106 ft., 65 ft. of drifting was done on the 50 ft. level, and 191 ft. of drifting was done on the 100 ft. level.

1926: Bonanza United Mines Limited acquired the properties and assets of Contact Bay Mines Limited.

1936: Acquired by Northern Mines Incorporated.

1983: Staked by W. Sovereign who conducted sampling and stripping.

1986: Staked by S. Johnson.

SELECTED REFERENCES

Gibson 1919, O.B.M. Vol. 28, pt. 1, p. 9.

Gibson, Sutherland 1918, O.B.M. Vol. 27, pt. 1, p. 7, 68.

Parker 1985, O.G.S., Miscellaneous Paper 122, p. 24-25.

Satterly 1943, O.D.M. Vol. 50, pt. 2, p. 46-51.

Sinclair 1936, O.B.M. Vol. 45, pt. 1, p. 145.

Sutherland 1920, O.B.M. Vol. 29, pt. 1, p. 66,67.

Sutherland 1921, O.B.M. Vol. 30, pt. 1, p. 63

Thomson 1917, O.B.M. Vol. 26, pt. 1, p. 180-186.

Sovereign, W., Assessment Files, Resident Geologist's Office, Kenora.

## SOVEREIGN-PEAK LAKE PROSPECT

NTS 52F/10SE

### LOCATION AND ACCESS

The Sovereign Peak Lake Prospect, in the Turtlepond Lake area, is located north of Sasakwei Lake and west of Peak Lake, approximately 40 km southeast of Dryden. The Sovereign Property is situated northeast of the former Goldrock mining camp. The prospect is accessible by overgrown drill roads which branch east from Highway 502.

### DESCRIPTION

Geology: The prospect is situated within imtimately intercalated felsic, intermediate, and mafic metavolcanic flows and pyroclastics of the Pincher Lake Group Volcanics. The metavolcanics are intruded by northeast-trending felsic dikes. The property is northwest of the fold axis of the Manitou Anticline.

Mineralization: The Sovereign and the newer "LT", "L" and "New" showings are located on claims K.589052 and K.657624, which are underlain by mafic metavolcanic rocks crosscut by wide shear zones and irregular quartz veins.

The Sovereign showing consists of a mineralized, 0.5 to 1.0 m wide, milk-white quartz vein, which dips steeply to the east and strikes 350° across a 10 m wide shear zone. Narrow east-trending quartz veinlets extend for several metres from the main vein. The vein terminates abruptly at its southeastern extremity, whereas at the northwestern end it becomes increasingly irregular and narrow. The shear zone strikes east and dips steeply north within medium-grained, chloritic metabasalts. The sheared rock is sericitic with intense iron carbonate alteration, hematite staining, and fine disseminated pyrite. Alteration drops off abruptly to the northwest. The quartz vein contains fragments of chloritic mafic rock and disseminated tourmaline, pyrite, chalcopyrite, and malachite. The chalcopyrite is most abundant at the northwestern end of the vein and is associated with gold. A grab sample from the vein, taken by the author, assayed 12.46 ounces gold per ton and 0.74% copper. Chip samples taken by Asamera Incorporated indicate that gold mineralization occurs intermittently along the length of the vein. Asamera's assays ranged from trace to 2.13 ounces gold per ton over a 40 cm width, and 3.43 ounces gold per ton over a 35 cm width.

The "LT" showing consists of medium-grained, variably sheared metabasalts, with strong iron carbonate alteration, bleaching, chloritization, and minor silicification. A 0.5 to 1.5 m wide, irregular quartz vein strikes 340° to 350° through the sheared rock, dipping steeply to the west. Narrow quartz veins extend from the main vein or occur subparallel to it. Disseminated pyrite [ <3%] occurs in the host rock close to the quartz veins. The veins do not carry pyrite, but do contain minor tourmaline and small clots of chlorite. A grab sample taken by the author from the vein assayed 0.06 ounce gold per ton, and a chip sample across the vein taken by W. Sovereign assayed 0.09 ounce gold per ton (W. Sovereign, prospector, personal communication, 1984).

The "New" and "L" showings consist of strongly altered metabasalts, crosscut by northeast-striking shear zones hosting irregular quartz veins. The veins at both showings contain tourmaline and chlorite, and minor amounts [ <1%] of pyrite and chalcopyrite occur in the veins at the "New" showing. Grab samples taken by the author from veins at both showings assayed trace amounts of gold.

DEVELOPMENT HISTORY

1982: W. Sovereign staked over and around an old mining claim (K.624) and conducted stripping, lithogeochemical sampling, and humus sampling.

1983: Asamera Incorporated optioned the property and conducted humus sampling, lithogeochemical sampling, geological mapping, magnetometer and V.L.F.- E.M. ground geophysical surveys, and diamond drilling.

1984: Asamera Inc. terminated the option agreement.

1984: W. Sovereign continued prospecting, sampling, and stripping and discovered 3 new gold occurrences.

SELECTED REFERENCES

Parker 1985, O.G.S., Miscellaneous Paper 122, p. 26.

Sovereign, W., Assessment Files, Resident Geologist's Office, Kenora.

Asamera Incorporated, Assessment Files, Resident Geologist's Office, Kenora.

S.V. 372 OCCURRENCE (LARSON OCCURRENCE)

NTS 52F/10NW

LOCATION AND ACCESS

The S.V. 372 Occurrence is located at the northwest corner of claim K.558588 (former mining location claim S.V. 372), in the Contact Bay area, approximately 300 m south of the Redeemer Mine shaft. The property is accessible by an overgrown trail which branches west and then south from a north-south bush road. The property is immediately south of the Van Horne Township line.

DESCRIPTION

Geology: The occurrence is situated within intercalated mafic to intermediate north-facing metavolcanic flows and pyroclastics of the Lower Wabigoon Volcanics.

Mineralization: The S.V. 372 Occurrence consists of a deep shaft and 5 trenches (west of the shaft) sunk on a 0.3-0.9 m wide, linear shear zone striking 080° and hosting narrow discontinuous quartz-iron carbonate veins containing <1-2% pyrite and minor hematite. The host rock consists of medium- to fine-grained, gray-green, chloritic, massive, intermediate metavolcanic flows. The sheared wall rock is intensely sericitic, variably pyritic (1-5%), rusty, chloritic, and carbonatized (calcite) with minor iron carbonate.

ASSAYS OF MINERALIZATION

Two grab samples of the sericitic wall rock, taken by the author, that carried 1-2% pyrite assayed 460 ppb gold and 1820 ppb gold. Grab samples from the trenches and dump taken by Van Horne Gold Exploration Incorporated assayed 0.04, 0.18, and 0.02 ounce gold per ton. Van Horne Gold Exploration also diamond drilled one hole beneath the shaft, but intersected minimal amounts of quartz veins with no gold assays.

DEVELOPMENT HISTORY

1913: Shaft was sunk to 40 ft. Vein reported to be mineralized with pyrite, chalcopyrite, galena, and sphalerite.

1917: Shaft was sunk to 60 ft. and two mill tests of the ore were made in 1913 and 1914.

1980: Acquired by H. Hodge.

1981-1983: Van Horne Gold Exploration Incorporated conducted geological mapping, sampling, and geophysical surveys over the property.

1987: Van Horne Gold Exploration Incorporated diamond drilled one 296 ft. hole beneath the shaft.

SELECTED REFERENCES

Parker 1986, O.G.S. Miscellaneous Paper 128, p. 37-38.

Parker and Schienbein 1988, O.G.S. Maps P.3111 and P.3112.

Parsons 1913, O.B.M. Vol. 22, pt. 1, p. 227.

Thomson 1917, O.B.M. Vol. 26, pt. 1, p. 186.

TRAFALGAR BAY ZONE OCCURRENCE

NTS 52F/7NE

LOCATION AND ACCESS

The Trafalgar Bay Zone Occurrence is located in the Boyer Lake area on mining claim K.740281 on the northwest shore of Trafalgar Bay at the northeast end of Upper Manitou Lake. The property is accessible by boat.

DESCRIPTION

Geology: The occurrence is situated within intermediate pyroclastics of the Upper Manitou Lake Group immediately northwest of the fold axis of the Manitou Anticline, and 2.4 km northwest of the Manitou Straits Fault.

Mineralization: The Trafalgar Bay Zone Occurrence consists of a 12 m wide, northeast-trending shear/breccia zone extending for approximately 50 m through intermediate lapilli-tuff. The wall rocks are chloritic, intensely iron carbonatized, and contain <1-2% disseminated pyrite. A wide breccia zone consisting of angular, altered fragments of the wall rock embedded in a quartz carbonate-tourmaline matrix can be observed in the trenches. Quartz veins and stringers contain minor amounts of disseminated pyrite. Three old trenches and two test pits have been sunk on the shear/breccia zone.

ASSAYS OF MINERALIZATION

A grab sample, taken by the author, of the wall rock and quartz vein assayed 870 ppb gold while channel and grab samples, taken by St. Joe Canada Incorporated, assayed consistent low grade and anomalous gold values such as 0.10 ounce gold per ton across 1.0 m.

DEVELOPMENT HISTORY

?: No record of work prior to 1984.

1984: Claim K.7409281 transferred from M. Woitowicz to St. Joe Canada Incorporated, who conducted sampling and geological mapping over the claim.

1985: Transferred to M. Woitowicz.

1986: Transferred to Falconbridge Limited from M. Woitowicz.

1987: Falconbridge Limited conducted diamond drilling on the zone.

SELECTED REFERENCES

Blackburn 1981, G.R. 202.

St. Joe Canada Incorporated, Assessment Files, Resident Geologist's Office, Kenora.

VANLAS PROSPECT (GRIMSBY GOLD MINING COMPANY PROPERTY, GORDON OCCURRENCE, DRYDEN MINING COMPANY PROPERTY, OR CLEVELAND MINING COMPANY PROPERTY)

NTS 52F/10NW

LOCATION AND ACCESS

The Vanlas Prospect consists of two shafts located immediately east of Pritchard Lake in Concession I, lot 11, Van Horne Township. Shaft No. 1 (west shaft) is located on patented property owned by the Town of Dryden, while Shaft No. 2 (east shaft) is located on claim K.706027. The shafts are accessible by walking east from Pritchard Lake, 670 m to the first shaft and 1 km to the second shaft.

DESCRIPTION

Geology: The prospect is situated within intercalated intermediate to mafic metavolcanic flows and pyroclastics of the Lower Wabigoon Volcanics which are intruded by numerous felsic dikes and quartz veins.

Mineralization: The Vanlas property consists of two shafts, with the No. 2 shaft located 365 m northeast of the No. 1 shaft, and about 365 m of continuous and extensive trenching extending west towards Pritchard Lake from the No. 1 shaft. The two shafts and trenches occur within a broad zone of moderate to intense carbonate alteration associated with east-trending shearing and fracturing which extends east from Pritchard Lake within intermediate and mafic metavolcanic rocks. Numerous, pyritic, quartz veins occur throughout the zone, as well as east-trending felsic dikes commonly containing variable amounts of disseminated pyrite and magnetite and hosting quartz veins. This zone includes the Glatz-Pritchard Lake Occurrence, situated immediately east of Pritchard Lake.

SHAFT NO.1

Intensely sheared (080°) intermediate to mafic flows, lapilli-tuff and tuff-breccia, occurs west of shaft No. 1, where numerous trenches are situated. The metavolcanics are commonly pyritic, weakly to intensely carbonatized, and chloritic, hosting sheared, sericitized, and carbonatized, pink, fine-grained, pyritic quartz-feldspar porphyry dikes containing magnetite and tourmaline. The shearing consists of numerous subparallel shears (0.9 m - 3.0 m wide) striking between 067° and 102° with a predominant vertical dip. Grab samples from quartz veins in the trenches assayed 1300 ppb gold and 3150 ppb gold.

Shaft No. 1 is underlain by intensely sheared (075°/ dipping steeply north) intermediate to mafic tuffs and lapilli-tuff to the north, in contact with mafic flows to the south. Two trenches immediately west of the shaft are sunk on sheared metavolcanics hosting a quartz-feldspar porphyry dike with a 0.3 m wide quartz vein extending along the sheared contact of the dike. The shear zone, and quartz vein dike occur at the contact between the mafic flows and the overlying pyroclastics.

Rocks from the dump consist of quartz vein material containing iron carbonate, calcite, tourmaline and $\leq$ 1% disseminated pyrite, as well as chunks of very fine-grained, buff pink to gray, quartz-feldspar porphyry. The quartz-feldspar porphyry is sheared, sericitic, intensely carbonatized (iron carbonate), pyritic [ $\leq$ 1%] and magnetic [ $\leq$ 1-2% magnetite].

Sheared metavolcanic rocks on the dump and in outcrop are pyritic [ $\leq$ 1%], chloritic, and variably carbonatized. Grab samples of pyritic quartz vein material from the dump assayed 1110 ppb gold and 9700 ppb gold while a grab sample of the altered, pyritic [<1%] felsic dike assayed 450 ppb gold.

SHAFT NO. 2

The Vanlas No. 2 shaft is northeast of shaft No. 1 and is underlain by sheared and fractured (075°/90°) intermediate to felsic metavolcanic tuff and lapilli-tuff with much weaker carbonate alteration than at the No. 1 shaft. The metavolcanics host a weakly carbonatized, sericitic, pyritic [ $\leq$ 1%], magnetic, quartz-feldspar porphyry dike containing quartz-tourmaline veins striking 088° with $\leq$ 1% pyrite, calcite, and iron carbonate. The veins have filled fractures within the dike. Pieces of weakly magnetic gabbroic rock were found in the dump. A grab sample taken by the author from quartz vein material on the dump assayed 3730 ppb gold. A grab sample, taken by the author from the dump, of the magnetic, pyritic (2%), felsic dike, hosting some quartz veinlets assayed 1140 ppb gold. Sampling done by T.S. Joliffe of Van Horne Gold Exploration Inc., also indicates that anomalous gold mineralization occurs throughout the broad zone of carbonate alteration, fracturing, and shearing which encompasses the Vanlas shafts.

DEVELOPMENT HISTORY

1898: The Grimsby Gold Mining Company sunk a shaft to 36 ft. Quartz vein reported to give an average assay of 0.44 ounce gold per ton.

1911-1912: A 17 ft. shaft sunk by Mr. G. Gordon was purchased by the Dryden Mining Company who deepened the shaft to 70 ft. and conducted 100 ft. of stripping.

1913: No. 1 shaft sunk to 90 ft. and a No. 2 shaft sunk to 43 ft. The No. 2 shaft was described as being about 590 ft. east of the No. 1 shaft. 21 ft. and 18 ft. crosscuts and a 50 ft. drift were developed in the No. 1 shaft.

1917: Purchased by the Cleveland Mining Company.

1937: Purchased by Vanlas Gold Mining Limited. It was reported that $60,000 was spent on exploration on the property prior to 1937.

1938: Vanlas Gold Mining Limited conducted trenching, test-pitting, and sampling. 12 trenches were blasted across three mineralized zones.

1940: 500 ft. of diamond drilling conducted on the property.

1980-1983: Property in the vicinity of the Vanlas Prospect was acquired by Van Horne Gold Exploration Incorporated who conducted geological mapping, geophysical surveys, and sampling. The Vanlas No. 1 shaft is situated on patented ground owned by the Town of Dryden.

1987: Drilling at the Vanlas No. 1 shaft, conducted by Van Horne Gold Exploration Incorporated and Power Exploratons Inc., resulted in an intersection of 0.26 ounce gold per ton across 24.6 ft. including a smaller section of 0.71 ounce gold per ton across 8.7 ft. The patented ground, where the No. 1 shaft is located, was optioned from the Town of Dryden by Van Horne Gold Exploration Inc. During the summer of 1987, Van Horne Gold Exploration

Inc. initiated a 3000 m drill program to follow up on the previously drilled intersections. The company named the mineralized zone "the Kidd Zone". Drill intersections such as 0.23 ounce gold per ton across 43 ft., 0.33 ounce gold per ton across 7.9 ft., and 0.40 ounce gold per ton across 22 ft. were encountered during the summer drill program. However, further drilling failed to delineate a consistently mineralized zone.

1988: Van Horne Gold Exploration Inc./Power Explorations Inc. reported that the 1987 drill program had delineated a small mineralized zone of 100,000 tons with an average grade of 0.20 ounce gold per ton.

SELECTED REFERENCES


Bow 1898, O.B.M. Vol. 7, pt. 2, p. 125.

Corkill 1913, O.B.M. Vol. 22, pt. 1, p. 229.

Parker and Scheinbein 1988, O.G.S. Maps P.3111 and P.3112.

Parsons 1912, O.B.M. Vol. 21, pt. 1, p. 185.

Satterly 1941, O.D.M. Vol. 50, pt. 2, p. 51.

Thomson 1917, O.B.M. Vol. 26, pt. 1, p. 183.

The Northern Miner, May 11, 1937.

The Northern Miner, May 27, 1937.

The Northern Miner, April 20, 1987, p. 21.

The Northern Miner, May 18, 1987, p. 21.

The Northern Miner, June 29, 1987, p. 16.

The Dryden Observer, April 8, 1987, p. 1.

The Dryden Observer, April 15, 1987.

The Dryden Observer, August 5, 1987, p. 16.

The Dryden Observer, September 30, 1987, p. 14.

The Dryden Observer, February 3, 1988.

The Drdyen Observer, April 19, 1988, p. 8.

Van Horne Gold Exploration Incorporated, Assessment Files, Resident Geologist's Office, Kenora.

VIKING PROSPECT

NTS 52F/11NW

LOCATION AND ACCESS

The Viking Prospect is located on mining location S.446 on the north shore of Hut Island, immediately west of Net Island on Eagle Lake in the Garnet Bay area. The property is accessible by boat, and the dump can be observed from the lake, on the north side of the island.

DESCRIPTION

Geology: The Viking Prospect is situated within granitic rocks of the Atikwa Batholith immediately next to its contact with mafic metavolcanic flows of the Lower Wabigoon Volcanics.

Mineralization: A strong shear zone strikes 068°/80° SE through medium-grained, gray to pink, biotite-hornblende granitic rocks which host a sheared xenolith of mafic metavolcanic flows. The sheared granitic rocks are mylonitized and contain numerous blue quartz "eyes" embedded in a fine-grained groundmass. The granitic wall rocks are weakly to moderately carbonatized (calcite), sericitized, chloritized, and contain minor amounts of disseminated pyrite and molybdenite. A significant abundance of quartz in the granitic wall rocks may indicate some secondary silicification. The xenolith of mafic metavolcanics is 0.6 m wide and 7.5 m long and contains abundant orange-brown iron carbonate and chlorite. The sheared granite and metavolcanic rocks host thin, irregular, quartz-iron carbonate veins and stringers containing minor specular hematite and minor disseminated pyrite. Quartz veins also occur along the sheared metavolcanic/granite contact. A 3 m wide, massive, pink-gray, fine-grained, sheared and fractured quartz-feldspar porphyry dike extends along the north side of the shear zone and strikes 064° into the shaft. A deep, timbered shaft and several small test pits were located by the author.

ASSAYS OF MINERALIZATION

Although coarse visible gold was found by the author in quartz vein material on the dump near the shaft, random grab samples of the quartz veins and wall rocks taken by the author only assayed trace amounts of gold. Pyrite-rich gossan zones within the granitic rocks in the vicinity of the shaft were sampled by the author, but only assayed between 2 ppb gold and 15 ppb gold.

DEVELOPMENT HISTORY

1900: A shaft was sunk to a depth of 15 ft. and a few shallow test pits were blasted along the strike of the quartz veins.

1902: The shaft was deepened to 30 ft. and some stripping was conducted.

1903: The shaft was sunk to a depth of 80 ft.

SELECTED REFERENCES

Bow 1901, O.B.M. Vol. 10, pt. 1, p. 96.

Carter 1904, O.B.M. Vol. 13, pt. 1, p. 65.

Miller 1903, O.B.M. Vol. 12, pt. 1, p. 93.

## WACHMAN PROSPECT (WACHMAN MINE)

NTS 52F/10NW

### LOCATION AND ACCESS

The Wachman No. 1 and No. 2 shafts are located on patented claim K.646, approximately 800 m west of Contact Bay, at the southwest end of Wabigoon Lake. The property is accessible by boat from a landing on the south shore of Contact Bay which is accessible by a gravel road which extends east from Highway 502, 18 km south of its intersection with Highway 594.

### DESCRIPTION

Geology: The prospect is underlain by intercalated mafic, intermediate, and felsic metavolcanic flows and pyroclastics of the Lower Wabigoon Volcanics. The metavolcanics are intruded by numerous east-trending felsic dikes and gabbro intrusions. The prospect is situated 600 m north of the contact between the Atikwa Batholith and the metavolcanic rocks.

Mineralization: The property is underlain by fine-grained, gray-green, amphibotitized, intermediate to mafic metavolcanics. The "main vein" strikes 120° and occupies a relatively narrow shear zone, which is 0.5 m to 1.0 m wide. The vein varies in width from 4 cm to 30 cm and is commonly split into very narrow, discontinuous stringers. It consists predominantly of pink to red, rusty brown quartz, containing abundant pervasive hematite, dark green clots of chlorite, and minor amounts of euhedral pyrite and malachite. The wall rocks are chloritized, biotitic, and moderately carbonatized (calcite).

The Wachman No. 1 shaft is located in the southeast corner of patented claim K.646. The shaft is filled with water and has partially collapsed. The Wachman No. 2 shaft is approximately 150 m northwest of the No. 1 shaft and is on strike with the "main quartz vein". The No. 2 shaft is filled with water, and timbered. The quartz vein is very difficult to follow between the shafts due to its discontinuous nature. The geology is identical at the two shafts, except that the quartz vein at the No. 2 shaft is composed of sugary red to pink quartz containing minor blebs of chalcopyrite with abundant malachite staining.

The vein was traced approximately 50 m northwest from the No. 2 shaft.

### ASSAYS OF MINERALIZATION

The best assays from grab samples taken from around the shaft dumps by the author were <0.01 ounce gold per ton at the No. 1 shaft and 0.05 ounce gold per ton and 0.13 ounce silver per ton at the No. 2 shaft.

A report written for Wabigoon-Contact Bay Gold Mines Limited in 1923 by L.J. Browning, a mining engineer, contains assay data from quartz vein samples taken from the two shafts. Samples taken from the No. 1 shaft assayed between 0.84 ounce gold per ton and 12.8 ounces gold per ton, while samples from the No. 2 shaft assayed between 0.37 ounce gold per ton and 4.65 ounces gold per ton. Chip samples taken by Mr. Browning from quartz veins hosted by three separate "quartz-porphyry dikes" north of the shafts assayed 0.96 ounce gold per ton, 1.12 ounces gold per ton, and 0.13 ounce gold per ton across 5 ft.

DEVELOPMENT HISTORY

1919-1920: No. 1 shaft sunk to 31 ft. and No. 2 shaft sunk 100 ft. by Wachman Mining and Milling Company Limited.

1923: No. 1 shaft deepened to 63 ft. and 40 ft. of drifting conducted in the No. 2 shaft by Wabigoon Contact Bay Gold Mines Limited.

1925: No. 1 shaft sunk to 80 ft.

1929: It was reported that 34 tons of ore was milled producing 8 ounces of gold, 34 ounces of silver, and 200 lbs. of copper, but these values may actually be from the Lost Mine.

1935: Acquired by Northern Mines Incorporated who conducted dewatering of the shafts, sampling, and some surface work. A total of 5000 ft. of diamond drilling to a depth of 800 ft. was conducted on the vein during its history.

1987: Owned by Ms. J. Willing of Freeport, New York.

SELECTED REFERENCES

Bruce 1925, O.B.M. Vol. 34, pt. 6, p. 42.

Parker 1985, O.G.S. Miscellaneous Paper 122, p. 24-25.

Satterly 1943, O.D.M. Vol. 50, pt. 7, p. 52.

Sinclair 1936, O.D.M. Vol. 45, pt. 1, p. 145.

Sutherland 1920, O.B.M. Vol. 29, pt. 1, p. 67.

Sutherland 1921, O.B.M. Vol. 30, pt. 1, p. 63-64.

Sutherland 1924, O.B.M. Vol. 33, pt. 7, p. 19.

Wachman Prospect, Mineral Deposit Files, Resident Geologist's Office, Kenora.

## WEST ZONE, FLAMBEAU LAKE PROSPECT

NTS 52F/10NW

### LOCATION AND ACCESS

The West Zone at the Flambeau Lake Prospect, is located on claim K.590318 (formerly mining location R. 541), lot 2, Concession I, Aubrey Township. The zone is on the south side of the Ojibway Drive Road (visible from the road) about 800 m west of its intersection with Highway 502.

### DESCRIPTION

Geology: The West Zone is underlain by mafic metavolcanic flows intercalated with felsic flows and pyroclastics and intruded by mafic and felsic dikes. The West Zone is situated within the Lower Wabigoon Volcanics.

Mineralization: The West Zone consists of an intense, northeast-trending (020°-060°), shear/mylonite zone which extends through the mafic and felsic metavolcanics. The mafic, amygdaloidal, metavolcanic flows are moderately to intensely sheared. The intermediate to felsic metavolcanic flows display a penetrative, protomylonitic fabric where narrow, anastamosing, sericitic, shear planes envelope lenses of relatively undeformed rock. Intensely boudinaged quartz veins, appearing as rounded lenses of quartz, which have been rotated in a sinistral sense, are scattered throughout the felsic metavolcanic rocks. The shearing and protomylonite are intersected by northwest-trending (110°-120°) tension fracture-hosted quartz veins, a felsic quartz-feldspar porphyry dike striking 143°, and mafic and intermediate dikes striking between 230° and 260°.

A number of small test pits have been sunk on intensely sheared mafic metavolcanic flows at the northwest end of the zone near Ojibway Drive. The sheared metavolcanics are fissile, rusty, tourmalinized, and contain abundant disseminated pyrite. The shear zone is crosscut by narrow, fracture-hosted quartz-tourmaline-iron carbonate veins. At the extreme southeast end of the occurrence shallow test pits and trenches have been sunk on fracture-hosted quartz-tourmaline-iron carbonate veins in mafic metavolcanics. The quartz veins contain pyrite and chalcopyrite, and are stained with malachite.

The mafic metavolcanic host rocks are chloritized, variably pyritic, and iron carbonatized. No quartz veins occur within the mylonitized felsic metavolcanics which are weakly carbonatized and sericitized.

### ASSAYS OF MINERALIZATION

A grab sample taken by the author of sheared, pyritic, mafic flows from the pit at the northwest end of the West Zone assayed 495 ppb gold. A grab sample from a quartz vein in the same pit assayed 5360 ppb gold.

A grab sample taken by the author from a quartz vein containing <1% pyrite and chalcopyrite, in the test pit at the southeast end of the West Zone, assayed 1.52 ounces gold per ton and 56 ppm copper. A 16 ft. chip sample, taken by Voyager Explorations Ltd. in the vicinity of the test pits at the southeast end of the zone, assayed 0.249 ounce gold per ton.

### DEVELOPMENT HISTORY

1975: Gold discovered at the West Zone.

1980: Staked by A. Kozowy.

1981: Optioned by Denison Mines Ltd. who conducted mapping and sampling on the property.

1983-1984: Optioned to Voyager Explorations Ltd. who conducted sampling, stripping, geological and geophysical surveys and diamond drilling on the property.

1985: Optioned to Kidd Creek Mines Ltd. who conducted sampling and geological and geophysical surveys.

1986: Option transferred from Kidd Creek Mines Ltd. to Falconbridge Ltd. who conducted geophysical surveys over the property.

1987: Falconbridge Ltd. dropped the option on the property which was subsequently optioned to International Platinum Coporation.

SELECTED REFERENCES

Parker, O.G.S., M.P. 128, p. 30-40.

Parker and Schienbein 1988, O.G.S. Maps P.3111 and P.3112.

Kidd Creek Mines Ltd., Assessment Files, Resident Geologist's Office, Kenora.

Voyager Explorations Ltd., Assessment Files, Resident Geologist's Office, Kenora.

WIDOW'S SHOWING OCCURRENCE (A.L. 89 OCCURRENCE)

NTS 52F/10NW

LOCATION AND ACCESS

The Widow's Showing Occurrence is located on the south half of patented claim A.L. 89, lot 12, Concession I, Van Horne Township, northeast of Flambeau Lake. The occurrence is accessible by a skidder road which extends along the north shore of Flambeau Lake, or by a narrow bush trail extending between Pritchard and Guy Lakes.

DESCRIPTION

Geology: The occurrence is situated in a fine- to medium-grained, intensely altered gabbro stock at its northeastern contact with mafic metavolcanic flows of the Lower Wabigoon Volcanics. A gradational contact between the gabbro and adjacent mafic flows indicates that the gabbro is a subvolcanic intrusion and the source for some of the mafic flows in the area. The gabbro is intruded by a wide diabase dike, smaller diabase dikelets, and felsic dikes.

Mineralization: Two $\leq$ 0.3 m wide east-trending quartz veins located within very narrow shear zones are intersected by numerous, narrow, northwest-trending (310°-340°), tension fracture-hosted quartz veins. The magnetite-bearing gabbro wall rock, next to the veins, is pale green-gray, carbonatized, sericitized, and pyritic. The alteration is not extensive, but concentrated within haloes which envelope the quartz veins and extend for 5 cm to 10 cm from the veins. Pyritization in the wall rock is a result of sulphidation, where pyrite has replaced magnetite.

Quartz veins consist of milk-white, vitreous quartz containing black tourmaline, minor iron carbonate, and minor pyrite, with a few clots of chalcopyrite, sphalerite, and malachite staining. Altered, angular fragments of wall rock commonly occur within the quartz veins.

At a small stripped outcrop, west of the main stripped area, tension fracture-hosted quartz veins trending 335° occur within a fine-grained, intensely altered, felsic rock intruded by fine-grained diabase dikelets. Veins of dark green chlorite and magnetite, containing angular fragments of the wall rock, occur within the outcrop.

Mr. A. Kozowy discovered northwest-trending, tension fracture-hosted quartz veins in intermediate to felsic metavolcanic flows about 240 m east of the Widow's Showing occurrence. A few small shallow test pits were sunk on the pyritic and hematized quartz veins.

ASSAYS OF MINERALIZATION

Three grab samples of altered, pyritic, gabbro, taken by the author from a high outcrop about 80 m west-southwest of the Widow's Showing, assayed 0.01, 0.02, and 0.04 ounce gold per ton. Seven grab samples of quartz vein material, taken by the author from the small stripped outcrop west of the main Widow's Showing, assayed 155, 440, 440, 780, 1600, 5330, and 7640 ppb gold, while four samples taken by Mr. A. Kozowy assayed 0.5, 0.229, 0.06, and 0.08 ounce gold per ton (A. Kozowy, prospector, Dryden, personal communicaton, 1985).

Nine grab samples of quartz vein/wall rock material taken by the author from the main Widow's Showing assayed 50, 190, 430, 535, 2630, 2830, and 4200 ppb gold and 0.39 and 0.80 ounce gold per ton. A grab sample of altered, pyritic, wall rock assayed 1900 ppb gold.

Nine grab samples, taken by Mr. A. Kozowy, from the main Widow's Showing assayed 0.08, 0.12, 0.16, 0.22, 0.24, 0.32, 0.48, 0.50 and 1.48 ounces gold per ton (A. Kozowy, prospector, Dryden, personal communication, 1985).

Four grab samples of quartz vein material taken by the author from Mr. Kozowy's shallow test pits 240 m east of the Widow's Showing assayed 160, 1250, 1640 and 3380 ppb gold.

DEVELOPMENT HISTORY

1985-1986: Gold was discovered on mining location A.L. 89 which was purchased by Falconbridge Ltd. (R. Band, geologist, Falconbridge Ltd., personal communication, 1986). Falconbridge Ltd. conducted stripping, sampling, geophysical and geological surveys, and trenching.

1987: Van Horne Gold Exploration Inc. entered into a joint venture agreement with Falconbridge Ltd. on the A.L. 89 property and conducted diamond drilling at the occurrence.

SELECTED REFERENCES

Parker and Schienbein 1988, O.G.S. Maps P.3111 and P.3112.

## WILKINSON-BOB LAKE OCCURRENCE

NTS 52F/10NW

### LOCATION AND ACCESS

The Wilkinson-Bob Lake Occurrence, in the Contact Bay area, is located immediately south of Bob Lake at the northwestern corner of claim K.754711 (now cancelled), approximately 9 km southwest of Dryden. The property is accessible by a skidder road which branches east from Highway 502.

### DESCRIPTION

Geology: The occurrence is situated within dominantly northwest-facing mafic metavolcanic flows and pyroclastics at the transition between the Lower Wabigoon Volcanics and the underlying Eagle Lake Volcanics. The metavolcanics are intruded by numerous felsic dikes.

Mineralization: The property is underlain by pillowed basalts and mafic pyroclastic rocks metamorphosed to amphibolite grade intruded discordantly by a 3.0 to 5.0 m wide felsite dike striking 095° to 100° for at least 800 m. Gold mineralization occurs in the portion of the dike which intrudes the metabasalts. The dike is very fine-grained, pale green-grey and siliceous, with disseminated euhedral pyrite [ $\leq$ 2%] throughout. The dike is sericitic and weakly to moderately carbonatized whereas the surrounding mafic rocks are chloritized and moderately carbonatized. Two sets of quartz veins have filled fractures within the felsite dikes. The first set are milk-white, rusty veins containing small clots of chlorite, with minor pyrite and tourmaline. The veins are 2 to 10 cm wide, strike 140° and terminate at the intrusive contact. The second set of veins strike 040° and are composed of white quartz and iron carbonate, hosting blebs of sphalerite and chalcopyrite. There is no obvious shearing within the dike, but some of the quartz has filled Z-shaped tension gashes indicating late emplacement of the quartz.

Samples from the quartz vein set striking 140° assayed trace amounts of gold. Gold values of 0.20 ounce gold per ton were obtained from wall rocks in the middle of the dike, but values were found to decrease to trace amounts (0.02 ounce gold per ton) in samples collected towards the dike contacts (D. Wilkinson, prospector, personal communication, 1984). Mr. Wilkinson reported that a grab sample from the metabasalts assayed 8 ounces gold per ton, however, this assay could not be repeated with follow-up sampling.

Other wide felsite dikes striking 095° to 110° occur elsewhere on the property, south of the main occurrence. These dikes are similar to that at the main occurrence, but contain biotite, magnetite, pyrite, chalcopyrite, and pyrrhotite. Grab samples taken from the dikes by the author assayed trace amounts of gold.

### DEVELOPMENT HISTORY

1983-1984: Staked by Mr. G. Thompson and Mr. D. Wilkinsonwho conducted stripping, trenching, and sampling.

1985: Claim cancelled.

1986: Area restaked by Mr. G. Pidgeon.

1987: Claim cancelled and restaked by Mr. G. Pidgeon.

SELECTED REFERENCES

Parker 1985, O.G.S. Miscellaneous Paper 122, p. 24.

W. W. SMITH PROSPECT (MAGDALENA OR HARDROCK BAY OCCURRENCE)

NTS 52F/11NE

LOCATION AND ACCESS

The W. W. Smith Prospect is located on patented claims K.12180 and K.12185 inclusive, and K.12222, K.12223, and K.12196, along the north shore of Hardrock Bay of Eagle Lake in the Buchan Bay area. The property is accessible by boat.

DESCRIPTION

Geology: The prospect is underlain by massive and pillowed, mafic metavolcanic flows intercalated with discontinuous lense of interflow metasediments consisting of chert and siltstone. The mafic flows occur at the top of the Eagle Lake Volcanics immediately south of their contact with the overlying intermediate and felsic pyroclastics of the Lower Wabigoon Volcanics. An elliptical unit of vent breccia, interpreted to be volcanic center, is situated along the north shore of Hardrock Bay at the base of the Lower Wabigoon Volcanics.

The metavolcanics are relatively undeformed with the exception of a small anticlinal fold axis southeast of Iron Island on the mainland, and a few narrow northeast-trending shear zones, and hairline microfracturing in the metavolcanics and metasediments.

The metavolcanics and metasediments are intruded by mafic dikes, and by quartz porphyry, feldspar porphyry, and felsite dikes. Many of the felsic dikes have been emplaced into horizontal structures and are flat-lying or shallow-dipping to the north.

Mineralization: The gold mineralization at the W.W. Smith Prospect occrs within stratiform, sulphide-rich, mafic metavolcanic flows which extend east and west from Iron Island (a small gossan-stained island in Hardrock Bay) along the north shore of the bay. The flows are best exposed on Iron Island and have been extensively trenched along a 2000 ft. strike length on the mainland east and west of Iron Island.

Gold mineralization is associated with dark green, massive and pillowed, fine- to medium-grained, mafic, flows containing 5% to 50% disseminated pyrrhotite and chalcopyrite concentrated along hairline fractures. Pyrrhotite is also concentrated in pillow selvages, interpillow breccias, and amygdules. Pyrrhotite is the most abundant sulphide mineral, and combined with chalcopyrite, makes up 90% of the sulphides in the mafic metavolcanics. Minor amounts of pyrite, marcasite, and sphalerite have been identified under the microscope in polished sections of samples taken from Iron Island (Leaming 1948). The author observed small flakes of visible gold along quartz-filled hairline fractures [ <3 mm] within the sulphide-rich mafic flows, and small flakes of god intimately associated with the disseminated sulphides. Leaming (1948) observed gold associated with chalcopyrite, and isolated blebs of gold scattered amongst gangue minerals in polished sections of samples from Iron Island.

Alteration of the mafic metavolcanics consists of moderate to intense, widespread, and pervasive, epidotization, chloritization, and saussuritization of feldspars, with the presence of clinozoisite or zoisite, epidote, fibrous actinolite, and minor chlorite and carbonate. The pervasive epidotization has made the mafic metavolcanics extremely hard, and so that they fracture conchoidally when broken.

Anomalous gold mineralization is associated with interflow metasediments which occur immediately below the sulphide-rich mafic flows. Although pyrrhotite and chalcopyrite occur along hairline fractures in some of the metasediments, the higher gold values have been obtained from metasediments hosting very fine-grained, finely disseminated pyrite. Grab samples taken by the author have assayed up to 275 ppb gold.

Very few quartz veins were found at the prospect. A few narrow veins were observed in the trenches and drill core by the author.

Very large east-trending trenches and numerous test pits are situated 490 m northeast of Hardrock Bay. Exposure is very poor but it appears that the workings were sunk on fracture-hosted quartz veins and stringers in silicified, sericitized, felsic, pyroclastics. Previous workers have noted that the quartz veins are hosted by narrow, discontinuous shears and three sets of fractures trending north-south, northwest, and east-northeast (Moorhouse, 1941; Leaming 1948). The quartz veins contain pyrrhotite, chalcopyrite, marcasite, and sphalerite, and are also hosted by a narrow, felsic, quartz porphyry dike (Moorhouse 1941; Leaming 1948).

These trenches were considered to be part of the W.W. Smith Prospect by Birch Bay Gold Mines Limited and Magdalena Red Lake Gold Mines Limited. Birch Bay Gold Mines obtained a drill hole intersection of 1.46 ounces gold per ton across 5 feet in "rhyolite intruded by tiny quartz stringers" at this location. The trenches were drilled by Raleigh Resources Limited in 1983 as part of the Fornieri Bay Prospect.

ASSAYS OF MINERALIZATION

Drilling conducted by Birch Bay Gold Mines Ltd. in 1936 intersected 0.10 ounce gold per ton across 40 feet in a hole targeted on Iron Island (Assessment Files, Resident Geologist's Office, Kenora).

Two chip samples taken by Magdalena Red Lake Gold Mines Ltd. on Iron Island in 1948 assayed 0.145 ounce gold per ton across 60 feet and 0.146 ounce gold per ton across 40 feet. A chip sample taken from a large T-shaped trench on the mainland, east of Iron Island, assayed 0.146 ounce gold per ton across 25 feet (Assessment Files, Resident Geologist's Office, Kenora).

The best drill intersections from the drill program conducted by Magdalena Red Lake Gold Mines Ltd. in 1949 were 0.14 ounce gold per ton across 25 feet, 0.08 ounce gold per ton across 25 feet, and 0.08 ounce gold per ton across 20 feet (The Northern Mier, April 20, 1950).

Drilling conducted by Magdalena Red Lake Gold Mines Ltd. in 1951 intersected 0.14 ounce gold per ton across 30 feet, 0.14 ounce gold per ton across 35 feet, and 0.18 ounce gold per ton across 6 feet in three holes targeted on Iron Island. A fourth hole targeted on the T-shaped trench east of Iron Island intersected 0.12 ounce gold per ton across 3.4 feet (Rio Algom Inc., Assessment Files, Resident Geologist's Office, Kenora).

Holes drilled by Tasu Resources Ltd. in 1983 intersected 0.22 ounce gold per ton across 9.9 feet, 0.11 ounce gold per ton across 3.3 feet, 0.15 ounce gold per ton across 3.3 feet and 0.22 ounce gold per ton across 3.3 feet. The best drill intersection from a 3-hole drill program in 1984 was 0.17 ounce gold per ton across 5.3 feet (George Cross News Letter, March 20, 1984, p. 2).

The author has obtained numerous gold assays from grab samples taken at the W.W. Smith Prospect which range from trace to 1.28 ounces gold per ton (Parker et al. in preparation).

Numerous assay results from grab and chip sampling, conducted in the numerous trenches on the property, have been reported by Magdalena Red Lake Gold Mines Ltd. (Assessment Files, Resident Geologist's Office, Kenora) and S.F. Leaming (Leaming 1948).

DEVELOPMENT HISTORY

1936: W.W. Hardrock Smith staked several claims at Hardrock Bay and obtained "heavy pannings" from 300 feet of trenching he had completed on the north shore of the bay. The property was optioned by Birch Bay Gold Mines Ltd. who conducted geological mapping, trenching, and sampling.

1938: Birch Bay Gold Mines Ltd. drilled nine holes totalling 1768 feet.

1947-1948: The Hardrock Bay area was restaked and optioned to Magdalena Red Lake Gold Mines Ltd. who conducted stripping, trenching, sampling, geological mapping, ground magnetometer and S.P. (Self Potential) geophysical surveys.

1949: Nagdalena Red Lake Gold Mines Ltd. drilled six holes totalling 1551.2 feet.

1951: Magdalena Red Lake Gold Mines Ltd. drilled five holes totalling 1511.5 feet. Nine claims encompassing the W.W. Smith Prospect were surveyed and patented. The majority of holes drilled by Magdalena Red Lake Gold Mines Ltd. in 1949 and 1951 were drilled down dip.

1956: The nine patented mining claims were acquired by Pardee Amalgamated Mines Ltd. who conducted a vertical loop electromagnetic survey over the claims.

1961: Rio Algom Inc. acquired the nine patented claims from the Hirshhorn interests.

1972: Rio Algom drilled two holes totalling 1000 feet after reevaluation previous work completed on the property. Results from the drilling were discouraging.

1982: Tasu Resources Ltd. optioned the nine patented mining claims, staked an additional 24 claims, and conducted ground magnetometer and electromagnetic surveys over the claims.

1983: Tasu Resources Ltd. drilled six holes totalling 3133 feet.

1984: Tasu Resources Ltd. drilled three holes totalling 990.5 feet.

1985: Tasu Resources Ltd. dropped the option of the patented claims.

1987: The nine patented claims were optioned to Noranda Exploration Company, Limited who conducted some sampling and geophysical surveys.

SELECTED REFERENCES

Leaming, S.F. 1948, Gold Deposits on Eagle Lake, Ontario; M.Sc. Thesis, University of Toronto, p. 48 (on file in Resident Geologist's Office, Kenora).

Moorhouse 1941, O.D.M. Vol. 48, pt. 4, p. 22-23.

Parker et al. (map in preparation), Geology of the Fornieri Bay-Hardrock Bay Area.

Birch Bay Gold Mines Limited, Assessment Files, Resident Geologist's Office, Kenora.

Rio Algom Inc., Assessment Files, Resident Geologist's Office, Kenora.

Magdalena Red Lake Gold Mines Limited, Assessment Files, Resident Geologist's Office, Kenora.

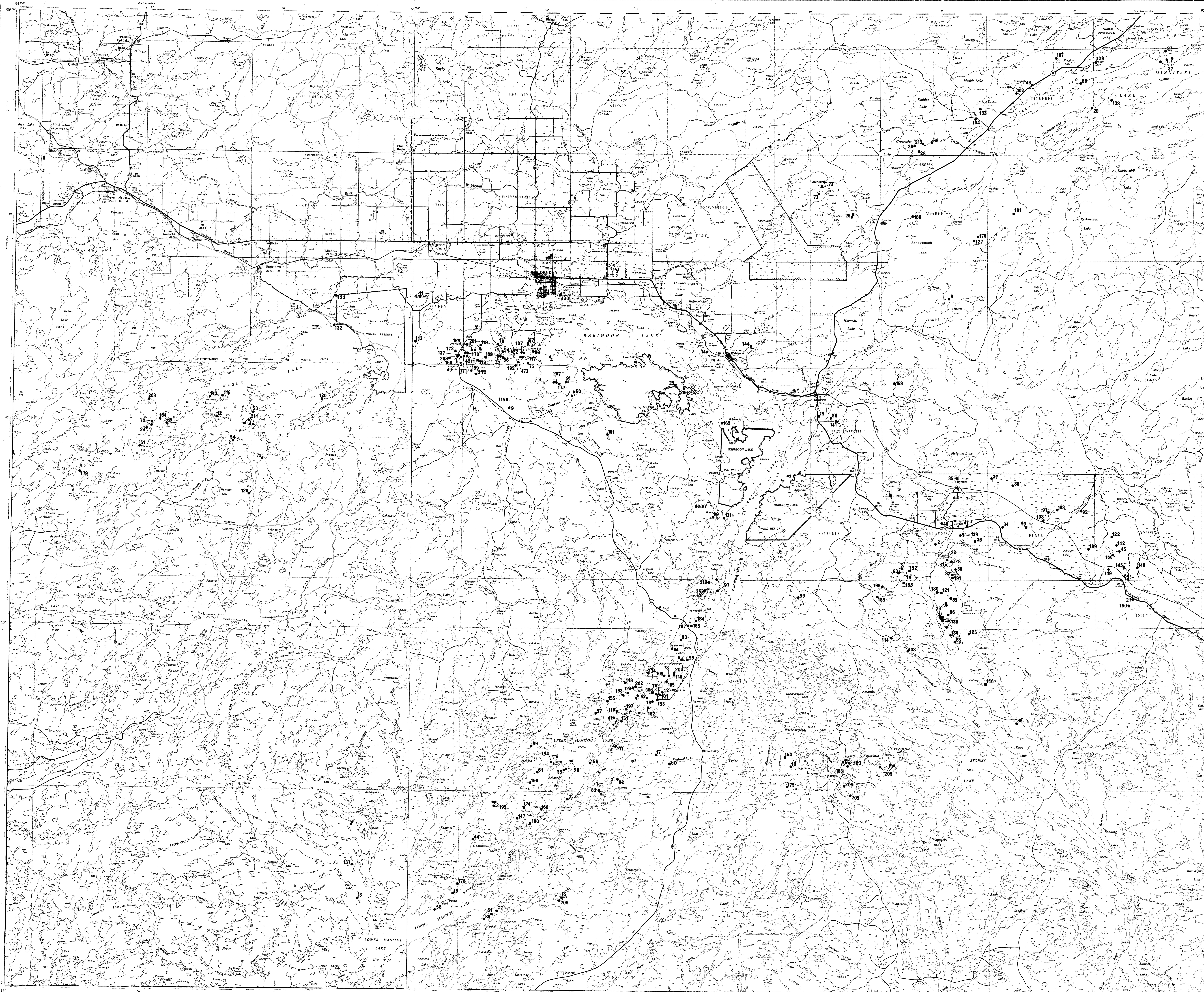
Tasu Resources Limited, Assessment Files, Resident Geologist's Office, Kenora.

The Northern Miner, April 20, 1950.

The George Cross News Letter No. 56, March 20, 1984, p.2.

# MAP A

## LOCATION MAP OF GOLD OCCURRENCES, PROSPECTS, AND PAST PRODUCING MINES IN THE DRYDEN–IGNACE AREA




1:100 000

King's Highway (surfaced)
Secondary Highway (surfaced)
All weather road (surfaced)
Dry weather road (un-surfaced)
Trail or portage
Railway
Airfield
Seaplane base
International boundary
Provincial boundary
County or District boundary
Township boundary
Municipal boundary
Park boundary
Reserve boundary
Horizontal control point
Bench mark in metres
Elevation in metres
Building
Post Office
Hospital or Red Cross outpost
Power transmission line
Electric generating station
Natural gas pipeline
Mine
Tower
Esker
Marsh or Swamp
Inundated land
Picnic or Camping site
Alienated surface rights and Indian lands

● 123 Location of Gold Deposit; number corresponds to deposit name in Appendix A