REPORT ON THE GEOLOGICAL MAPPING
AND MAGNETIC SURVEYS ON THE
MOUNTAIN GROVE PROPERTY.
NW 1/4 LOT 8, CON. VI OLDEN TWP.
CLAIM ED 966494

RECEIVED
FEB 9 1989
MINING LANDS SECTION

M.J. Taylor
TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUMMARY</td>
<td>1</td>
</tr>
<tr>
<td>PROPERTY, LOCATION AND OWNERSHIP</td>
<td>2</td>
</tr>
<tr>
<td>EXPLORATION HISTORY</td>
<td>3</td>
</tr>
<tr>
<td>GEOLOGY</td>
<td>4</td>
</tr>
<tr>
<td>Geology</td>
<td></td>
</tr>
<tr>
<td>Regional</td>
<td>4</td>
</tr>
<tr>
<td>Property</td>
<td>4</td>
</tr>
<tr>
<td>GEOPHYSICS</td>
<td>6</td>
</tr>
<tr>
<td>CONCLUSIONS AND RECOMMENDATIONS</td>
<td>7</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>8</td>
</tr>
</tbody>
</table>
SUMMARY

During November, 1988, the total field magnetics were surveyed and the surface geology mapped on claim E0 966494, the Mountain Grove property of Mr. M.J.Taylor.

A grid was cut paralleling the claim boundaries, with cross-lines at 100m or 50m separation and stations at 25m or 12.5m intervals. Both the magnetic and geological surveys used this grid for control.

The geological mapping showed the property to be underlain by two principal rock types, gabbros of the Mtn. Grove Intrusion and granitic rocks of the McLean Pluton. Minor amounts of sulphides (pyrite) were locally noted.

The magnetic survey showed insufficient contrast to define the contact between the gabbros and granites but did detect several isolated magnetic highs that may indicate areas of greater differentiation in the gabbroic rocks and hence better potential for platinum group mineralization.

A VLF-EM survey should be carried out over the property to check for zones of shearing and/or sulphide mineralization, and anomalies from this survey should be sampled for PGE mineralization together with the magnetic anomaly areas.
PROPERTY, LOCATION AND OWNERSHIP.

The Mountain Grove property consists of a single claim in the southwest part of Olden Township, Frontenac County, Ontario. This claim, no. ED 966494, comprises the NW1/4 of Lot 8, Concession V1, Olden Twp. and covers an area of approximately 70 acres. The property is approximately 70 km north-northwest of the city of Kingston, Ontario and 5.6 km east-southeast of the village of Mountain Grove (Fig. 1).

The Frontenac Road bisects the property in a NW-SE direction. This gravel-surfaced township road runs north to Hwy. 7 and south to the Long Lake Road which joins Hwy. 38 at Parham.

Mining Claim ED 966494 is held by M.J. Taylor of Toronto, who also owns the surface rights of that part of the property to the west of the Frontenac Road.
EXPLORATION HISTORY.

Exploration in the vicinity of the Mountain Grove property has largely focussed on two types of mineralization. Of principal economic interest has been the zinc mineralization found within the carbonate metasediments included in the Mountain Grove mafic intrusion (e.g. the Long Lake zinc mine). Of lesser importance is sulphide mineralization containing low-grade nickel-copper values found, for example, at the O'Reilly Lake prospect about 600m north of the property.

Recorded previous exploration work on the Mountain Grove property itself is restricted to three shallow diamond drill holes, sunk by H.S. Quinn and S.R. McEwen in 1956/7. The three holes totalled 40m of drilling, one being in gabbro with trace nickel and copper values and the other two in granitic rocks with some pyrite. These holes were drilled near the southern edge of the present property but no evidence of the collars was found during the recent work.

The geology of the area was mapped for the Ontario Department of Mines by W.D. Harding in 1947 (ODM Vol 51 pt 4 p51-74) and by J.M. Wolff for the Ontario Geological Survey in 1978 (OGS Report 216).
GEOLOGY

Regional

Southwestern Olden Township lies within the Central Metasedimentary Belt of the Grenville Province, specifically the Frontenac Axis segment of the Belt. The area is underlain by Proterozoic metavolcanics and metasediments of the Grenville Supergroup that are intruded by late Proterozoic felsic and mafic intrusives.

The oldest rocks in the area are considered to be the mafic to intermediate metavolcanics and the mafic to felsic gneiss that outcrop to the south and northeast of Mountain Grove and south of Long Lake, respectively.

The metasediments are limited in occurrence in the immediate area, and are largely confined to the Clare River Synform or the Kaladar-Dalhousie Trough further west. Quartzofeldspathic gneisses outcrop in small areas near O'Reilly, Bass, Carnahan and Little Beaver Lakes. Carbonates, essentially calcite-dolomite marbles, are the most abundant metasediments.

The intrusives in this part of Olden Two. are all described by Wolff (1982) as late tectonic. The oldest of these is the Mountain Grove Mafic Intrusion, a well-differentiated gabbro-anorthositesyenite body that lacks well-defined layering. The Long Lake Zinc Mine lies within a carbonate metasediment inclusion in these gabbroic rocks. This mafic body is intruded by the McLean Granitic Pluton, which is generally massive and ranges in composition from trondhjemite to granite.

The rocks in this area have undergone regional metamorphism in the late Proterozoic, mostly of low to medium temperature and medium grade. A major NE/SW shear zone passes through Mountain Grove village with local development of mylonitic rocks. To the east of this zone the structural geometry is of domal intrusions within a broad east-plunging synform.

Property

The Mountain Grove property is underlain by rocks of the Mtn. Grove Mafic Intrusion and the McLean Pluton, the contact between the two cutting at approximately 025° through the centre of the property. Small areas of outcrop are scattered throughout the property, averaging about 20% exposure. Mapping of these rocks was done on the 19th and 20th of November, 1988 using the pre-existing magnetometer grid (of lines at 100m separation with 25m stations) for control.
Traverses were run along each line and outcrop in the intervening areas was examined and tied to the nearest line. Rock units described below and shown on the geological map (Fig. 2) are those used by Wolff (1982).

The western half of the property, essentially west of L4+00E, is underlain by gabbric rocks of the Mountain Grove Intrusion. Individual outcrops tend to be small and massive. No igneous banding or layering was noted and only rarely was more than one phase present in any one outcrop.

The most common rock-type is a massive, coarse-to-medium-grained gabbro, dark green to black on fresh surface and weathering to dark green to olive-green. Paler anorthositic gabbro is less common, the most notable outcrop occurring just east of the collapsed barn, at 3+75E/0+60N. Finer-grained varieties of the above units were occasionally noted. Sulphides were rarely observed though some outcrops contained areas with 1-2% pyrite, and a rusty-weathering skin on some flat outcrops may be partly due to contained sulphides.

The eastern half of the property is largely underlain by granitic rocks of the McLean Pluton. These rocks were termed the Leggat Lake Granite by Harding (1947) but were grouped with the McLean Pluton by Wolff (1982). The most common units are biotite granites to quartz-monzonites, largely pink in colour. Where biotite is >10% the rocks are medium-grained, while those with biotite <10% are medium-to-coarse-grained. The granitic rocks are mostly massive, with local foliated exposures (foliation ~030). Locally, including adjacent to the #2 post of the claim, a medium to fine-grained leucocratic granite was observed.

The contact between the two intrusives is not sharply defined, as the granitic rocks commonly finger into the gabbros. Most probably, the contact zone trends about 025° through BL3+75E.

Minor dyke-like intrusions of granitic rocks occur throughout the western part of the property, and occasional xenoliths of gabbro were noted in the granites. Occurring in both major rock-types are xenoliths of biotite-quartzofeldspathic gneisses, presumably of OGS rock unit #3 (Wolff, 1982).
**Legend**

**McCLean Granitic Pluton and Related Pegmatitic Rocks**

- **1a** Fine to medium grained, massive to subparallel, biotite granite, quartz monzonite (biotite > 10%).
- **1b** Medium to coarse grained, massive biotite granite, quartz monzonite (biotite < 10%).
- **1c** Biotite granite.
- **1d** Biotite mafic granite.
- **1e** Leucocratic granite.
- **1f** Monzonite.
- **1g** Syenite.
- **1h** Porphyritic (quartz or feldspar phenocrysts) varieties of 1a, b.

**Intrusive Contact**

**Mountain Grove Mafic Intrusion**

- **10a** Gabbro (colour index > 30).
- **10b** Northosite gabbro, gabbroic anorthosite (colour index 10-30).
- **10c** Anorthosite (colour index < 10).
- **10d** Quartz gabbro.
- **10e** Monzonite.
- **10f** Fine-grained varieties of 10a, b, c, d.
- **10g** Syenite.

**Mountain Grove Property Geology**

Scale 1:2500

M.J. Taylor

Feb. 1989

Fig. 2
A total-field magnetic survey was carried out over the property on November 5th and 6th, 1983. To control the survey, a baseline was cut along the southern boundary of the property and picketed at 25m intervals from 0+50W to 7+50E. Cross-lines were turned off at 90° to the baseline at 100m intervals (0, 1E, 2E, 3E, 4E, 5E, 6E, 7E), with intermediate lines at 3+50E, 4+50E and 5+50E. Line stations were marked at 25m intervals between the baseline and the northern boundary of the property or swamps, whichever came first.

Readings were taken on the cross-lines at 25m except where a high magnetic gradient made additional 12.5m stations appropriate. The baseline was read at 25m station intervals from 0+50W to 7+50E. A Scintrex MP-2 proton-precession magnetometer was used, and corrections for diurnal variation were made by running two lines as a closed loop returning to a station on the baseline. Including the baseline, 3.65 km of line were surveyed (Fig. 3).

The results of the survey showed that there was insufficient magnetic contrast between the gabbroic and granitic rocks to clearly delineate the contact. Several isolated magnetic highs occur and those centred on L1E/1+00N and L3E/2+75N may indicate local differentiation of the gabbroic rocks that could be a preferential site for platinum group mineralization. The high centred on BL 0+50E may indicate similar differentiation but could be biased by the adjacent power line.

Higher values recorded on lines 5E and 5+50E between 1+00N and 1+50N are believed to be due to gabbroic inclusions within the granitic rocks.
CONCLUSIONS AND RECOMMENDATIONS

The magnetic survey has indicated several isolated highs that may be indicative of more differentiated gabbroic rocks. These areas in particular should be sampled for PGE mineralization.

Several narrow linear magnetic features, both highs and lows, should also be sampled and, if overburden depth is suitable, stripped to bedrock.

As it is possible that sulphides may be partly responsible for the magnetic features and areas of iron oxide formation on outcrops, a 2-station VLF-EM survey should be run to check for conductive zones in the bedrock.

M. Taylor
REFERENCES


PERSONNEL INVOLVED IN SURVEYS

Martin J. Taylor #214-66 Pacific Ave., Toronto - Geologist

Dixie L. Szasz-Taylor same address - Geologist
**Report of Work**

**Geophysical, Geological, Geochemical and Expenditures**

**Type of Survey(s)**
- Geophysical, Geological, Geochemical

**Claim Holder(s)**
- Martin J. Taylor

**Address**
- 214-66 Pacific Ave, Toronto ON M6P 2P4

**Survey Company**
- M.Taylor

**Prospector's Licence No.**
- A46480

**Total Miles of line Cut**
- 1 km

**Credits Requested per Each Claim in Columns at right**

<table>
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<th>Mining Claim</th>
<th>Exp. Days Cr.</th>
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<td>E0</td>
<td>966494</td>
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**Mining Claims Traversed**

- In numerical sequence

**Expenditures (excludes power and fuel)**

**Type of Work Performed**
- Geological
- Geochemical
- Geophysical
- Electromagnetic
- Magnetometer
- Radiometric
- Other

**Calculation of Expenditure Days**

**Total Expenditures**

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**Certification Verifying Report of Work**

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

**Name and Address of Person Certifying**
- Martin J. Taylor

**Date**
- 12-12-1989

**Rating**
- 50

**For Office Use Only**

**Date Recorded**
- Dec, 1989

**Date Approved**
- 14-FEB-89

**Certified**
- M.Taylor

**Date Certified**
- 12-12-06

**Certified**
- M.Taylor
Type of Survey(s): Geophysical & Geological

Township or Area: Olden Township

Claim Holder(s): M. J. Taylor

Survey Company: M. J. Taylor

Author of Report: M. J. Taylor

Address of Author: 216-66 Pacific Ave, Toronto, ON

Covering Dates of Survey: Nov. 5/88 - Feb. 5/89

Total Miles of Line Cut: 3.65 km

SPECIAL PROVISIONS CREDITS REQUESTED

Geophysical

- Electromagnetic
- Magnetometer 40
- Radiometric
- Other

Geological 20

Geochemical

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer
Electromagnetic
Radiometric

(enter days per claim)

DATE: 8th Feb 1989

SIGNATURE: M. J. Taylor

Author of Report or Agent

Res. Geol. Qualifications: 2.125

Previous Surveys

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TOTAL CLAIMS: 1

MINING CLAIMS TRAVERSED

List numerically

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If space insufficient, attach list.
GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS — If more than one survey, specify data for each type of survey

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<td>Profile scale</td>
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<tr>
<td>Contour interval</td>
<td>1000 nt</td>
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| Instrument          | S.CITRED MP-2 proton precession Magnetometer     |
| Accuracy — Scale constant | 1 nt.                                      |
| Diurnal correction method | Closed loops to baseline + base station checks |
| Base Station check-in interval (hours) | 1 hour or less                                  |
| Base Station location and value | 54°25'NT                                      |

MAGNETIC

| Instrument          |                                              |
| Coil configuration  |                                              |
| Coil separation     |                                              |
| Accuracy            |                                              |
| Method:             | ☐ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line |
| Frequency           | (specify VLF station)                       |
| Parameters measured |                                              |

ELECTROMAGNETIC

| Instrument          |                                              |
| Scale constant      |                                              |
| Corrections made    |                                              |
| Base station value and location |                                              |
| Elevation accuracy  |                                              |

GRAVITY

| Instrument          |                                              |
| Scale constant      |                                              |
| Corrections made    |                                              |
| Base station value and location |                                              |
| Elevation accuracy  |                                              |

| Method | ☐ Time Domain ☐ Frequency Domain |

INDUCED POLARIZATION

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<td>Off time</td>
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Power

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### SELF POTENTIAL

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### RADIOMETRIC

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### OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

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<td>Additional information (for understanding results)</td>
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### AIRBORNE SURVEYS

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**GEOCHEMICAL SURVEY – PROCEDURE RECORD**

**Numbers of claims from which samples taken.**

Total Number of Samples.  
Type of Sample. (Nature of Material)  
Average Sample Weight.  
Method of Collection.  
Soil Horizon Sampled.  
Horizon Development.  
Sample Depth.  
Terrain.  
Drainage Development.  
Estimated Range of Overburden Thickness.  

**ANALYTICAL METHODS**

Values expressed in:  
- per cent ☐  
- p. p. m. ☐  
- p. p. b. ☐  

Cu, Pb, Zn, Ni, Co, Ag, Mo, As, (circle)  
Others.  
Field Analysis (_____________ tests)  
- Extraction Method.  
- Analytical Method.  
- Reagents Used.  
Field Laboratory Analysis  
- No. (_____________ tests)  
- Extraction Method.  
- Analytical Method.  
- Reagents Used.  
Commercial Laboratory (_____________ tests)  
- Name of Laboratory.  
- Extraction Method.  
- Analytical Method.  
- Reagents Used.  

**SAMPLE PREPARATION**

(Includes drying, screening, crushing, ashing)  
Mesh size of fraction used for analysis.  

General.  

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General.