
32D12SW0171 63.364 GARRISON

63.364

# MAGNETOMETER REPORT

## INTRODUCTION

At the request of Mr. P. Ginn, who is in charge of field exploration for Mr. S. J. Bird, there was carried out during the months of September, October, and November, 1952, a magnetometer survey on 11 unpatented mining claims held by Mr. S. J. Bird in Garrison Twp., Larder Lake Mining Division, Northern Ontario.

The general area of Garrison Twp. which includes these claims, has in the past been the locus of considerable mining exploration which revealed a number of important gold discoveries, while more recently a signifigant asbestos deposit has been disclosed on Canadian Johns Manville claims adjoining the Bird property to the north. This asbestos deposit lies in a band of block faulted serpentinized ultra-basic rocks which are almost completely drift covered.

The magnetometer survey described in this report was undertaken to determine whether or not any part of this ultra basic sill had been signifigantly shifted through faulting, onto the Bird claims or whether a subsidiary parallel sill through the Bird claims might be expected. At the same time it was desired to generally determine the course of these cross faults through the Bird property, since similar structures have in the past proved to be the locus for mineralization in this area.

## SUMMARY

The magnetometer survey on the Bird claims indicated no outstanding magnetic relief except for anomalous rim effects at two points on the north boundary of the claim area. These effects are considered to indicate the close approach of the altra-basic sill of peridotite and dunite lying just north of the claim area.

A general system of cross faulting known to strike to-wards these claims, has been picked up magnetically and projected through the map area, and it is suggested that some or all of these faults may continue on southerly to an intersection with the Munro fault, which lies to the south of these claims. Such in many instances is the case to the east of here where long cross-faults angle south to intersect the Destor Porcupine fault.

Since these faults frequently have associated mineralization which could have an economic importance, it is recommended that an initial diamond drill hole to consist of 750 feet, be drilled to test one of the faulted sections, and appraise both the actual fault location and its economic signifigance.

## LOCATION, ACCESSIBILITY and PROPERTY EXTENT

The mining claims referred to in this report, are all in one continuous group, in the north-western part of Garrison Twp., Larder Lake Mining Division, northern Ontario. The claims have a

staggered outline, with the upper or "B" group consisting of two claims and extending from the western Garrison Twp. boundary for about ½ mile east, while the lower or "A" group consisting of nine claims, adjoins the south-east corner of "B" group and extends on eastwards for an additional mile. Generally, the entire group lies north of highway 101, and in the Twin Lakes depression.

The claims are about 20 miles east of the town of Matheson, a station on the Ontario Northland Railroad. From Matheson, highway 101 is followed easterly for a distance of 18 miles to a point where a recent logging road (impossible for vehicles) may be followed northerly for about 1 mile to the south boundary of "B" group. By continuing for an additional 2 miles on highway 101 beyond its juncture with this logging road, a second road branching north may be followed for about 1000 feet to the south east corner of "A" group. This second road is of sand and gravel and suitable for all vehicles.

The complete list according to claim numbers, of the mining claims that have been covered by this survey, is given in the Appendix to this report.

GENERAL GEOLOGY

The geology of Garrison Twp. in the vicinity of the claims under discussion, is shown on the Ont. Dept. of Mines geological map number 1949-1 for Garrison Twp. This map shows the claims to lie in a belt of basic to intermediate volcanics which are traversed about 3000 feet south of the claim area by the Munro Fault in an east-west direction, and intruded immediately to the North of the claim area by an east-west trending sill of serpentinized ultra-basic rocks which have been extensively block faulted.

LOCAL GEOLOGY

The claim group under consideration is almost completely drift covered, and only a few outcrops of basic volcanics on "B" group were encountered; such outcrops, together with several just off the west boundary of the claim area, have been included onto the final magnetic map which accompanys this report. No evidence of previous surface or other work on these claims was observed throughout the survey.

RESULTS OF THE SURVEY

All the field measurements for the magnetic survey are plotted on the accompaning magnetic map which is drawn to a scale of one inch equals two hundred feet. Contours of equal vertical magnetic intensity have been drawn at intervals of 100 gammas to the 1500 gamma value, thence every 500 gammas to the 3000 gamma value. Beside each measurement station the magnetic value is shown in relation to the base station located at 42W-20S in "A" group. This station has been designated as "Base Station A", and has an arbitrarily chosen value of 1485 gammas.

Magnetic anomalies "A" and "B" have been marked on the accompaning map, and their signifigance in respect of geology is later discussed in this report.

Technical details regarding the procedure followed in performing the survey will be found in the appendix to this report.

## DISCUSSION OF RESULTS

Two anomalous sections, "A" and "B", have been indicated, and both are considered to be rim effects of a discontinuous ultra-basic sill of serpentinzed peridotite and dunite which lies in a general east west direction immediately to the north of these claims. Although sufficient data for a complete analysis of this sill is not provided by this survey, it is suspected that the sill dips to the north at a flat angle in the region of anomally "A", while in the region of anomaly "B", the angle of dip although still to the north is rather steeper. There is no conclusive evidence that the south serpentine contact traverses these claims, but the indication is that it must approach extremely close in the region of anomaly "A".

The whole of the claim area is considered to be underlain by volcanics which have been faulted in a general north-east, south-west patern. As no outcrop is present to exactly position these faults, recourse was had not only to the location and strike of those faults indicated several thousand feet to the north of the map area by serpentine-volcanic marker horizons, but also to such other displacements postulated in the magnetic survey performed by Canadian Johns Manville on their claims adjoining the map area on the north. The procedure followed was to attempt to continue and project these features on through the map area where magnetic indication was present, and to ignore them where insufficient or inconclusive data was the case. Nevertheless the course of several faults as here postulated is an arbitrary one, especially in the southern and central portions of "A" group, and they have been submitted as one solution for the problem. While most of the faults over "A" group appear definite in the upper part of the their course, a vagueness of trend is apparent in the general region south of "A" base line due to a persistent flatness of the magnetics. A discontinuity therefore in a north-west, south-east direction through here should not be overlooked.

Some diabase outcrop has been mapped just off the northwest corner of the map area, however there is insufficient magnetic data at this point to definitely indicate a particular course for these dikes and so the original geological description as shown on the Garrison Twp. 1949-1 map has been preserved.

## RECOMMENDATIONS

As an aid to the interpretation and for further assessment work purposes, it is suggested that a diamond drill hole be drilled as shown on the accompanying map. Such hole would confirm the location of several faults, one of which appears to be rather strong and could

continue on south to the major munro Fault. This hole would also test for any mineralization associated with these faults since it is known that frequently such cross faults from major faults in this area are mineralized.

As indicated on the accompaning map, this drill hole would be collared at the 3 N picket on line 21W of "A" group and drill south easterly at a dip of-45° and for a length of 750 feet.

# APPENDIX

## Technical Details of The Magnetometer Survey

### 1. AREA SURVEYED

The complete magnetic survey of the S. J. Bird mining claims included in total 11 claims located in the North-West section of Garrison Twp., Larder Lake Mining Division, northern Ontario. An area of approximately 592 acres was covered by the survey.

The mining claim numbers for the claims surveyed are as follows: L58559, L58560, L58561, L58562, L58563, L58564, L58565, L58566, L58567, L58557, L58558.

### 2. PERIOD OF SURVEY

The geophysical survey commenced on the Bird claims on Sept. 9, 1952 and all field measurements were completed by Nov. 28, 1952. Calculations, plotting, drafting and report were completed in Toronto during the period Jan. 5 to Jan. 20, 1953.

### 3. PERSONNEL

All magnetic field measurements were taken by R. A. Geisler who was ably assisted by O. M. Lydon. O. M. Lydon acted as chief line cutter and was assisted by D. Laronde, in the cutting and chaining of all picket lines.

### 4. PICKET LINE MILEAGE

During the course of the survey 20.1 miles of picket line were cut and chained. In the greater part of "B" group line cutting was rather slowed down by reason of an almost impenetrable intergrowth of ground cedar in a partially flooded swamp. In turn, this section also somewhat reduced the speed of instrument work.

### 5. TOPOGRAPHY

The claim area proper is almost enitrely covered by a vast swamp and muskeg which in the south east section of "B" group is very wet and covered with a thick intergrowth of swamp cedar.

Through the center of "B" group, and in a north east south west direction is a broad sand and gravel ridge with some volcanic outcrops. However its relief is never greater than 10 to 15 feet above the lower lying areas.

Along the southern and eastern borders of "A" group are further sand and gravel ridges, with similar relief although in the north east corner of claim L.58565 these ridges form very pronounced ravines which in some places dip for 30 feet.

The whole of the area is covered with short second growth spruce, except for the sand ridges where there is considerable large spruce and poplar.

## 6. NETWORK OF MEASUREMENT STATIONS

The network of stations for the survey consisted in a series of numbered pickets spaced 100 feet apart, along parallel picket lines spaced 300 feet apart and running at right angles to two staggered east-west base lines. Garrison Twp. is an unsurveyed township in the sense that no internal lot and concession lines were ever established. The following procedure in respect of laying out a grid system was therefore followed. From the number one claim post for claim L.58566 a line was run westerly and designated "A" base line. From this, parallel grid lines were turned off at right angles every 300 feet and continued to the north and south property boundaries. On line 48W for this group, and at a point 492 feet north of "A" base line which point was directly west of the south east corner for "B" group, a second line - "B" base line - was cut westerly to the western boundary of Garrison Twp. and from this second base line, parallel grid lines were projected over "B" group of claims. All grid lines were tied in at their northern ends to allow for any deviations in direction. In the case of "A" group, all picket numbering was referred to the east end of "A" base line which for this survey was given a co-ordinate center of 0-0 feet, while for "B" group all picket numbering is referred to the eastern end of "B" base line which was given the co-ordinate center of 0-0 feet. All chainages are northerly and southerly from the respective base lines.

For locational purposes "A" base line was continued through to the west Garrison boundary, although this continuation does not appear on the accompanying map.

## 7. CLASSIFICATION OF MAGNETIC MEASUREMENTS

| | |
|---|---|
| Base Stations | 1 |
| Stations of Main Network | 1,038 |
| Check Measurements on Bases | 37 |
| Check Measurements on Independent Field Stations | 18 |
| Total Measurements performed. | 1,094 |

## 8. MAGNETOMETER SURVEY

Field readings were taken with a Sharpe vertical magnetic force magnetometer, measuring the variations of the vertical component of the earth's magnetic field. A scale constant of 21.2 gammas per scale division (from calibrations of the instrument before and after survey) was used throughout the survey.

All plotted gamma values for the individual stations were referred to an arbitrarily chosen magnetic base station located at 42W - 20S and known as Base Station "A", with the arbitrary value of 1485 gammas to which all field measurements were tied.

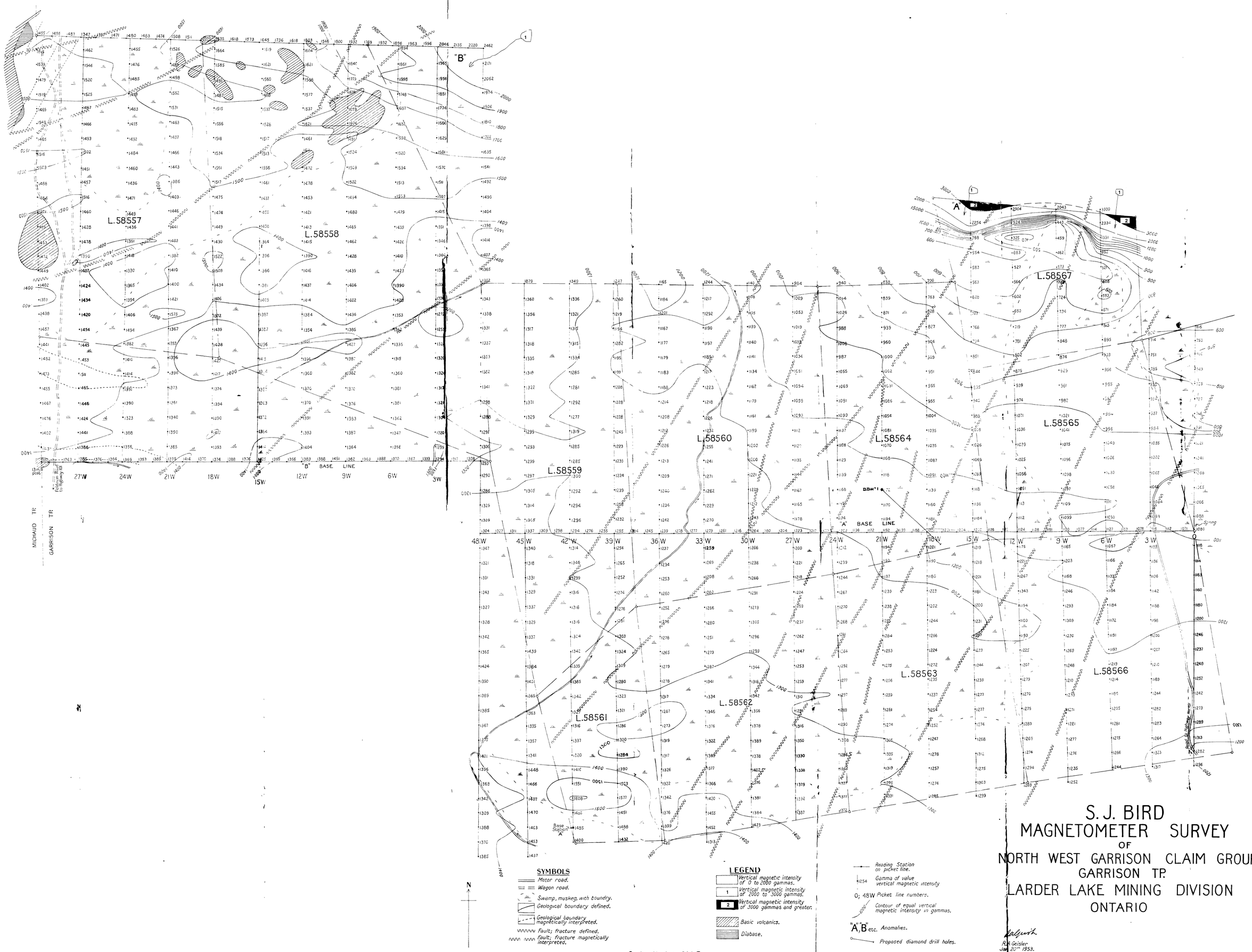
All readings have been brought to the same magnetic level as that of the magnetic survey performed by Canadian John Manville on their claims immediately to the north, in order that in any comparison between their work and this survey, a direct continuity of the magnetics might be preserved.

Diurnal magnetic variations were reduced to a minimum by re-reading a magnetic base station approximately every 2 hours and the average error calculated from 18 check measurements on independent field stations showed the survey to be accurate to with\~ ± 15 gammas.

The base station "A" for this survey was tied in with the Ont. Dept. of Mines magnetic station in the south-east corner of Munro Twp., which station gave a value of 1629 gammas and has an official absolute value of 57,945 ± 15 gammas.

Respectfully submitted,

R. A. Geisler,
January 20, 1953.




**SYMBOLS**

- Motor road.
- Wagon road.
- Swamp, muskeg, with boundry.
- Geological boundary defined.
- Geological boundary magnetically interpreted.
- Fault; fracture defined.
- Fault; fracture magnetically interpreted.

**LEGEND**

- Vertical magnetic intensity of 0 to 2000 gammas.
- 1 Vertical magnetic intensity of 2000 to 3000 gammas.
- 2 Vertical magnetic intensity of 3000 gammas and greater.
- Basic volcanics.
- Diabase.

- Reading Station on picket line.
- 1254 Gamma of value vertical magnetic intensity
- 0; 48W Picket line numbers.
- 2000 Contour of equal vertical magnetic intensity in gammas.
- "A","B" etc. Anomalies.
- Proposed diamond drill holes.

N

Scale, 1 inch to 200 Feet

# S. J. BIRD
# MAGNETOMETER SURVEY
## OF
## NORTH WEST GARRISON CLAIM GROUP
## GARRISON TP.
## LARDER LAKE MINING DIVISION
## ONTARIO

R.A. Geisler
Jan 20th 1953.