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MAGN.INTRODUCTION

During the month of October 1960 a vertical field magnetic survey was performed on a gold prospect consisting of claim L.72877 in Garrison Township Ontario. This claim lies astride the Destor Porcupine fault zone which has long been considered an important control structure for gold deposits. The location of the claim is particularly attractive in that it is $\frac{1}{2}$ mile from a section of the fault in which the most outstanding gold intersections recorded for the district were obtained. The entire property is covered by overburden however, and its geology has been inferred from nearby drilling. Some of these holes have shown very great depths of overburden.

The survey discussed in this report was performed as a preliminary step for a drilling program. Its object was to provide information which might aid in locating sub surface structure plus those portions of bedrock which approached closest to surface. The latter would be of interest as sites to collar drill holes.

SUMMARY

Both the Destor Porcupine fault zone and an off-setting cross fault were delineated. In addition, several minor changes in the original geology were suggested, and three locations were found where bedrock may approach relatively close to surface.

Two 700 foot sections have been recommended for drilling.

LOCATION, ACCESSIBILITY AND EXTENT OF PROPERTY

The property is former surveyed claim L.42904. It has the approximate longitude and latitude of $79^{\circ} 58'$ and $48^{\circ} 30'$ respectively, and is located in the west central portion of Garrison Township about one mile south east of Twin Lakes. Garrison Township is situated 20 miles east of the town of Matheson Ontario.

Highway 101 extends eastward from Matheson and on through Garrison Township. It is paved to the Garrison border. A wagon road branches southward from the highway one mile east of Twin Lakes, and continues for $\frac{1}{2}$ of a mile to within a few hundred feet of the northeast corner of claim L.27260. The eastern boundary of this claim provides a final $\frac{1}{4}$ mile trail to the property.

An outline of the property is shown on the Key Map accompanying this report. Claim numbers, together with the area examined by the survey, will be found in the Appendix to this report.

GENERAL GEOLOGY

Garrison Township has been mapped to the scale 1000 feet to 1 inch by the Ontario Department of Mines, and is described in their report part 4, 1949.

The township contains a relatively small number of isolated outcrops, and is for the most part covered by a thick mantle of drift, frequently

reaching depths of 300 feet. All of the underlying rocks are considered to be of Precambrian age. They include acid to basic volcanics, sediments, basic and ultrabasic dikes and sills, and granitic intrusives. There is evidence to suggest some folding together with a widespread complex fault pattern.

The dominant feature is the Destor Porcupine fault zone which trends a few degrees north of east across the upper portion of the township. It varies from some 400 to 1500 feet in width, is characterized by alternating bands of chlorite schist, green carbonate felsite, porphyry and remnants of volcanics and sediments, and has been traced for over 100 miles from Timmins Ontario through the town of Beattie Quebec. It is considered to have acted as a main channel-way for gold solutions.

Garrison township has been a main locus for gold exploration in the East Porcupine area of Ontario, and a number of small medium grade ore shoots have been found. A considerable amount of drilling was conducted along the Destor Porcupine fault during 1946, and the most encouraging results were obtained in a section of the fault on the Newfield property $\frac{1}{2}$ mile east of claim L.72877. A 100 foot section of one Newfield drill hole is reputed to have assayed 1 oz. in gold.

LOCAL GEOLOGY

No outcrop was found during the survey. A large poorly rounded basic lava float some 15 feet in diameter was observed a few hundred feet above the centre of the south boundary, and may have been derived from bedrock, which at this location is considered to be basic volcanics. A drill hole is recorded just inside the east boundary, and an old set-up found near the north east corner is assumed to be the collar of this hole.

Data from this hole plus others nearby, indicate the property is traversed north easterly (from a point 100 feet above the southwest corner) by the Destor Porcupine fault which is some 450 wide. The fault is flanked by sediments on the north and basic lavas on the south. It is offset on the east boundary by a north easterly trending cross fault which continues through an asbestos ore-body (Johns-Manville) two miles to the north. A 50 foot wide diabase dike lies within the Destor Porcupine fault and is known to persist for several miles.

The north west edge of a granite and syenite stock occupying the central portion of the township, lies 1500 feet below the property.

RESULTS OF THE SURVEY

All of the results are plotted on the accompanying map numbered 1961-2 drawn to the scale 100 feet to 1 inch. Beside each reading station is shown the vertical component of the earth's magnetic field in gammas relative to a control value arbitrarily assigned to a base station established on the upper boundary 100 feet west of its eastern end.

The magnetic intensity values have been contoured each 100 gammas. Certain anomalous features have been marked by "A" "B" and "C" and are later discussed.

Details of the magnetic survey are given in the Appendix to the report.

DISCUSSION OF RESULTS

Field intensities vary from 130 to 850 gammas. Background is of the order of 200 gammas. The general magnetic trend is north easterly with a belt of low intensity over the Destor Porcupine fault zone, and increasingly greater intensities off to each side. The lower zone of increasing intensity marked "A" reaches 850 gammas on the south east corner of the property. Two lenticular shaped anomalies marked "B" and "C" and rising to 738 and 457 gammas respectively occur in the north eastern and north western portions of the property.

Zone "A" is thought to reflect a band of basic volcanics striking north easterly across the lower right corner of the property. The persistent increase in strength of this zone south easterly suggest that either there are no sediments in this corner of the property as had hitherto been assumed, or that the rocks here approach extremely close to surface.

The contact of the volcanics with the Destor Porcupine fault zone is approximated by the lower 200 gamma contour line and is suggested to have been slightly displaced northwards near the east property boundary. This displacement coincides with the eastern member of the north easterly trending offset fault.

The low intensity belt between both 200 gamma contour lines above "A" coincides closely with the Destor Porcupine fault zone, and is believed to fairly accurately trace its course. The southward swing of the upper 200 gamma contour between lines 8W and 4W is thought to reflect local remnants of volcanics in the fault. There is no distinctive response over the assumed location of the diabase dike in the fault.

All of the underlying rocks north of the fault zone are believed to be sediments, with anomalies "B" and "C" reflecting those portion which approach closest to surface. The embayment in the 300 gamma contour line near 7S or 4W may reflect the western member of the offsetting fault.

RECOMMENDATIONS

The most important target area on this property is the Destor Porcupine fault zone, especially in the vicinity of the cross faults at its eastern end.

Two sections are recommended for drilling, - from 5S to 12S on line 6W, and from 5S to 11S on line 10W. The former will test the main fault zone in an area of disturbance, and will also test the cross fault; the latter will test an entirely unknown portion of the main fault zone.

Both drill holes should bear southwards along the picket lines.

The latter hole might be collared within anomaly "C" to take advantage of the possibility of shallow overburden.

APPENDIX

TECHNICAL DETAILS OF THE MAGNETIC SURVEY

1. AREA INVESTIGATED

The survey covered an area of 40 acres contained by claim L.72877, Garrison Township, Ontario.

2. PERIOD OF SURVEY

The necessary picket lines were cut and chained during the period October 13 to 14, 1960.

Instrument readings were taken on October 15, 1960.

3. PERSONNEL

Picket lines were cut and chained by T. Broathen and B. Carlson of Kirkland Lake, Ontario. Magnetic readings were taken by R. A. Geisler assisted by B. Carlson. Calculations plotting and report were by R. A. Geisler.

4. PICKET LINE MILEAGE

A total of 2½ miles of picket lines were cut, chained and read with the magnetometer.

5. TOPOGRAPHY

The property is gently rolling with maximum relief of possibly 25 feet. The northern portion consists of sand plains and jack-pine. The southern portion is more heavily wooded with both jack-pine and spruce, all second growth.

6. NETWORK OF MEASUREMENT STATIONS

The system of reading stations employed consisted of a series of pickets placed each 100 feet apart along parallel lines cut 200 feet apart in a south easterly direction across the property. The general geological strike is north easterly.

A Base Line was cut and chained along the north boundary of the property, and the grid lines turned off at right angles to this. Picket co-ordinates are with respect to the east end of the Base Line (north east corner of the property) which was designated 0-0. The Base Line has been chained westward from here, and the picket lines southward from the Base Line. A tie-line was cut and chained along each remaining claim boundary to afford control.

The boundaries of this claim were previously surveyed, and an iron survey post exists at each corner.

7. CLASSIFICATION OF MAGNETIC MEASUREMENTS

Reading stations of Main Network	112
Independent Check Measurements	15
Base Stations	<u>1</u>
Total Readings	128

8. MAGNETIC SURVEY

The instrument used was a torsion magnetometer (Askania) reading the vertical component of the earth's magnetic field. Its scale constant was found by calibration before and after the survey to be 247.8 gammas per degree of twist. A Base Station was established at 100W on the Base Line and assigned the arbitrary value of 317 gammas to which each subsequent field station reading was referred. Diurnal magnetic variations were corrected for by re-reading the Base Station once every hour, and the accuracy of the survey was calculated on the basis of 15 independent check measurements to ± 15 gammas.

Respectfully submitted

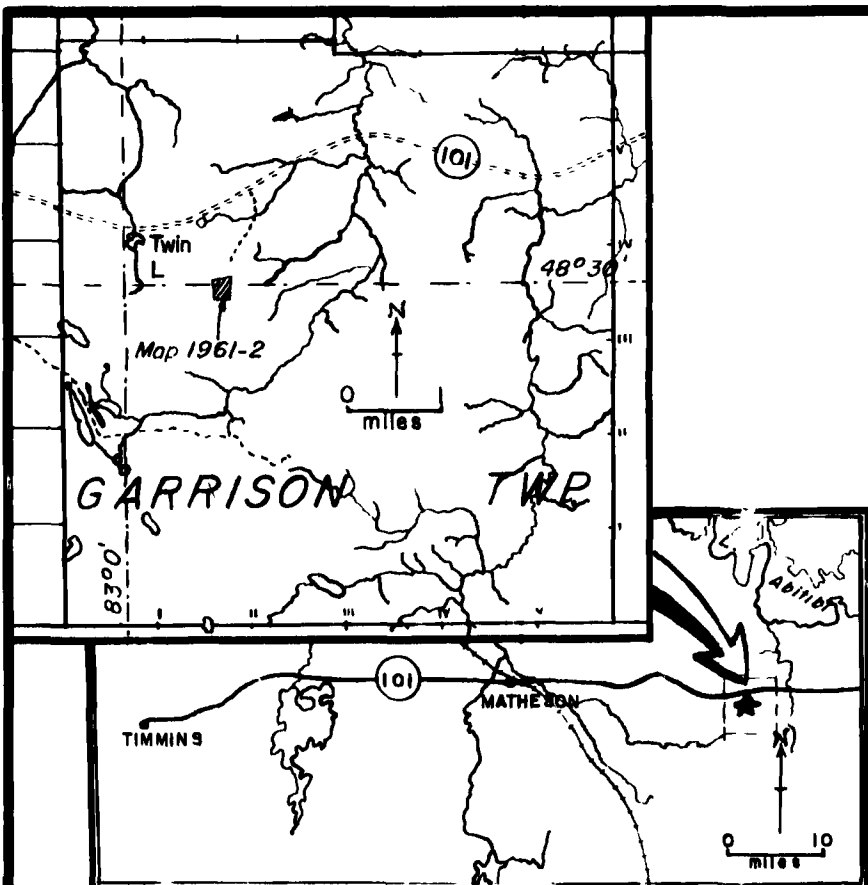


R. A. Geisler

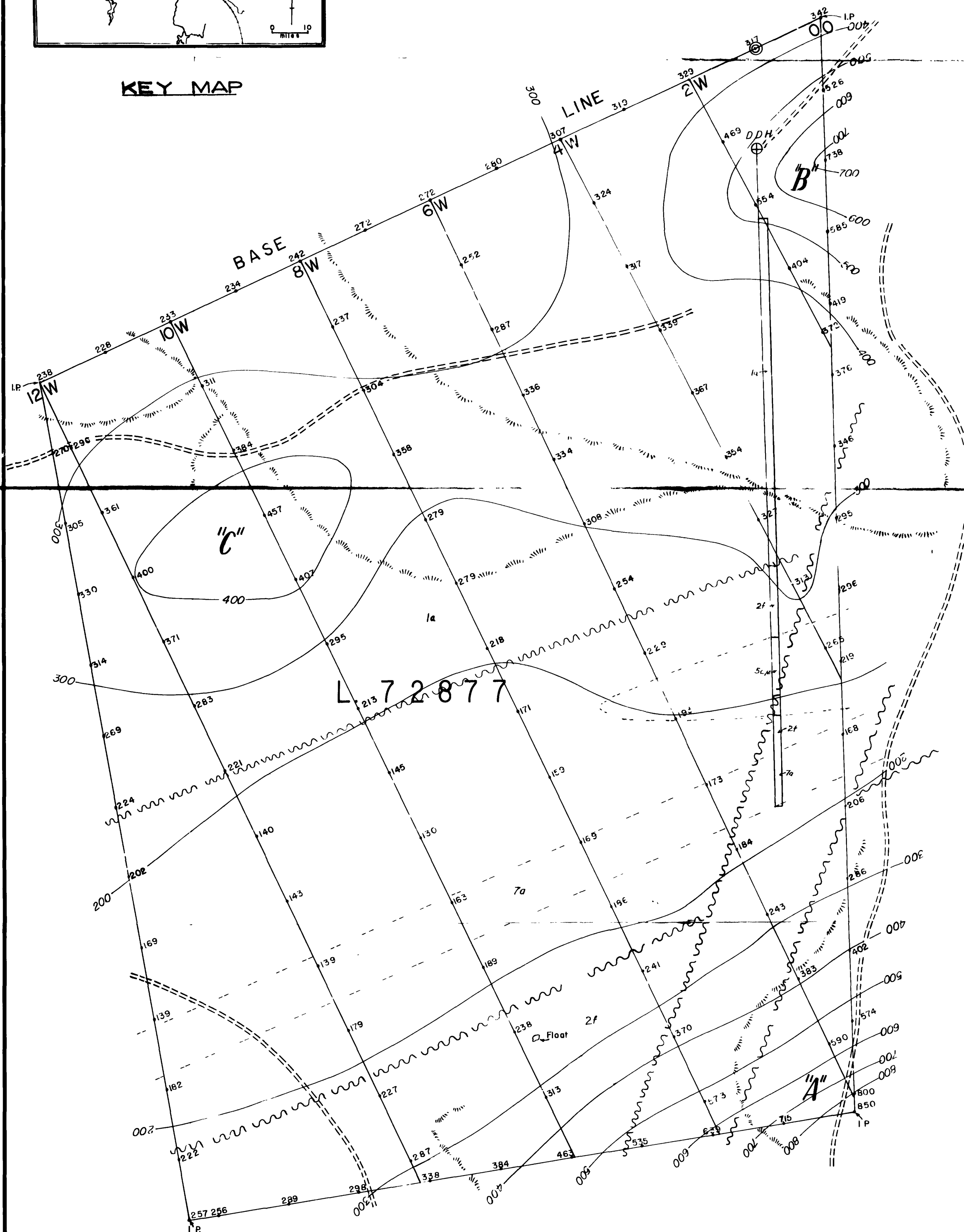
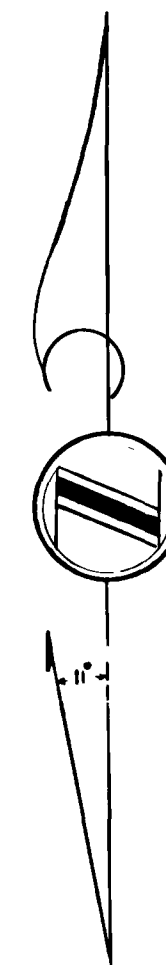
Toronto, Ontario
June 23rd, 1961

VERTICAL MAGNETIC INTENSITY SURVEY
 OF
CLAIM L. 72877
 GARRISON TOWNSHIP
 LARDER LAKE MINING DIVISION
 ONTARIO

Scale: 100 feet to 1 inch



KEY MAP



LEGEND

- 2W-12W, Picket line numbers.
- Static or picket line
- ⊙ Magnetic base station with arbitrary value of the vertical component of the earth's magnetic field in gauss
- 222 Reading station with value of vertical component of the earth's magnetic field in gauss relative to base station value
- 100 Contour of equal vertical magnetic intensity in gauss
- "A", "B", "C" Magnetic anomalies.

- 7 Quartz diorite (7a)
- 5 Syenite (5b), felsic porphy (5c), felsite (5d)
- 2 Talc chlorite schist (2f)
- 1 Greywacke (1a)

SYMBOLS

- Higher ground.
- Wagon road
- IF Iron survey post
- Geological boundary assumed
- Fault assumed
- DDH Diamond drill hole projected vertically to surface

R. A. Gaisler
 R. A. Gaisler
 June 23, 1961

