SUMMARY

A geomagnetic survey has traced the course of a band of interbedded lavas and sediments including iron formation for a distance of 7400 feet across the property.

Sulphide mineralization already uncovered on the property occurs in association with a pronounced change in width and in the strike of the band which suggest structural deformation. Mineralization of iron formation in other gold areas has been observed to occur usually where such bands have been fractured during folding. In the present case, therefore, favourable prospecting areas might be expected where deformation of the iron band has occurred. Three such areas are indicated in the limited area surveyed and diamond drill cross-sections have been proposed to explore two of them. Additional magnetic surveying is suggested to detail the third area (which was crossed by one reconnaissance line only) and to explore the configuration of the iron formation south of the areas in which drilling has been recommended.

Two diabase dikes cross the property but should not interfere with exploratory drilling since their courses have been established by the magnetic survey.
CONTENTS

SUMMARY - - - - - - - - - - - - - - - - 1A
INTRODUCTION - - - - - - - - - - - - - - 1
ACCESS - - - - - - - - - - - - - - - - 1
LAND SURVEY - - - - - - - - - - - - - - 1 - 2
GEOMAGNETIC SURVEY - - - - - - - - - - 2
GEOLGY OF THE AREA - - - - - - - - - - 2 - 3 - 4
GEOMAGNETIC SURVEY - - - - - - - - - - 4 - 5
DISCUSSION - - - - - - - - - - - - - - 4 - 5
ANOMALIES - - - - - - - - - - - - - - - 5
INTERPRETATION - - - - - - - - - - - - - 5 - 6 - 7
DIABASE DIKE - - - - - - - - - - - - - 5 - 6
IRON FORMATION - - - - - - - - - - - - - 6
STRUCTURE - - - - - - - - - - - - - - - 6 - 7
ECONOMIC SIGNIFICANCE AND RECOMMENDATIONS 7 - 8 - 9
DRILLING - - - - - - - - - - - - - - - 8 - 9
2.

24W, 36W and 48W were extended northward for 1400 feet and lines 60W and 72W were cut completely across the property in order to provide more data for interpretation and for reconnaissance purposes. The direction of the picket lines was designed to intersect both the northwest trending regional structure and the north-south diabase dikes at the most advantageous angle.

The survey was not extended as far south as originally planned in one section, due to some confusion in claim boundaries. Apparently the claims, as staked, do not agree with the locations and sizes recorded on the claim map, claim No. 31883 comprising about 70 instead of 40 acres. These discrepancies are shown in boundaries marked on the accompanying geomagnetic map (map No. 1).

**GEOMAGNETIC SURVEY**

Observations of the vertical component of magnetic intensity were made at 100 foot intervals along all lines with many additional intermediate observations in regions of disturbed magnetic conditions in order to define anomaly patterns more accurately. All readings were corrected for diurnal variations of the earth's field and converted to gammas, the unit of magnetic intensity. Magnetic profiles were plotted for each line from which the final geomagnetic contour map was compiled.

**GEOLoGY OF THE AREA**

The geology of Price and Thornloe Townships is imperfectly known due to the prevailing cover of overburden in this part of the west Porcupine area, by which observations are restricted to small widely scattered outcrops. This precludes any reliable generalization and determination of the structural conditions.
REPORT ON A GEOMAGNETIC SURVEY OF
PART OF THE PROPERTY OF GOLDALE
MINES LIMITED – PRICE TWP. ONT.

INTRODUCTION

The Price Township property of Goldale Mines Limited comprises 22 claims situated in the west central part of that Township. The claim group is bounded on the west by the Thornloe-Price Township line and on the east by the Grassy River. Claims included are:

TRP 31878 to 31886 inclusive
TRP 31890 to 31898 "
TRP 31901 to 31903 "

Of this block only the central claims were surveyed in detail but several reconnaissance magnetometer lines were run to determine the extent of the interesting horizon beyond the limits of the detail survey and provide the additional information required for proper interpretation of the results.

ACCESS

The claims can be reached from Wawaitin Falls on the Mattagami River via a wagon road which leads to Stibbard's Camp, a distance of 7 miles to the south. Wawaitin is connected by wagon road with the city of Timmins about 20 miles distant to the northeast. In summer there is a daily boat service on the Mattagami River connecting Timmins and Wawaitin.

LAND SURVEY

The number 2 post of claim TRP 31892 was chosen as the point of origin of the land survey. From this point a baseline was surveyed by transit westward for 7200 feet and eastward 1200 feet. To the south of the baseline between 800 feet east and 5000 feet west, picket lines were cut at 200 feet intervals in a direction S 25° W. In addition, lines 0-0, 12W,
formation is uninterrupted to the west between the area mapped as Temiskaming and the area mapped as Keewatin.

The chief interest in the Goldale property centres on a band of iron-formation which has been traced by trenching and outcrops for several hundred feet in a direction N 35° W across the southwest corner of Claim TRP 31894 and the northeast corner of TRP 31897. The iron formation bands are composed of thin beds of impure magnetite, silica and greywacke, enclosed in impure quartzites and greywackes. It is heavily mineralized in places with pyrite, chalcopyrite and arsenopyrite. Attitude determinations on the bedding of sediments showed that, while dips are consistently to the north, there is a pronounced change of strike near the northeast corner of claim TRP 31897, the area in which mineralization occurs. West of claim TRP 31894 the rocks strike N 60° W but across TRP 31894 and 31897 the strike is about N 35° W.

**DISCUSSION:**

The iron formation band with which sulphide mineralization is associated could be traced for only a few hundred feet by ordinary prospecting methods but extends under overburden at both ends. The object of the magnetic survey, therefore, was to delineate the iron band, determine its lateral extent and any peculiarities with which mineralization might be associated.

A secondary objective was the detection and tracing of diabase dikes, the extent of which is difficult to determine by the scattered outcrops which appear on the property.
3.

The Goldale property is underlain by a band of interbedded lavas and sediments (including iron formation) which extends northward from about the centre of the south boundary of Price Township between the Grassy River and the west branch of Split Rock Creek. For about 2 miles north of the township line the rocks strike north or slightly west of north then change rather abruptly to the east-west or northwest strike which prevails on the Goldale property. To the west, isolated outcrops of granite suggest that the belt may be interrupted by a large intrusive body hidden, for the most part, by the extensive sand plain which covers much of southern Thornloe Township, but may connect to the west with a greenstone band, outcrops of which appear along the Tatachikapika River in western Thornloe.

On the Goldale property, Harding and Berry* map two outcrops of sediments, including iron formation, as Temiskaming and distinct from the Keewatin interbedded lavas and sediments which surround them. This interpretation requires assumption of extreme faulting or folding, and while there is some evidence of north-south faults in the area, particularly along the west branch of Split Rock Creek near the south boundary of Price where wide serpentine bands occur, and perhaps along the north-south valley of the Grassy River, the magnetic work and examination of the rocks on the property suggest that the sediments more likely belong to the band of Keewatin sediments and volcanics since lavas as well as sediments were found associated with the iron formation in the vicinity of those outcrops and since the iron formation

cuit all other rocks in the area. The westernmost of the two
dikes appears to branch near the middle of the west side of
Claim 31883 with two short offshoots extending southwest and
southeast from the main dike. In this area, the normal
direction of these dikes is north to a few degrees west of
north but short east-west dikes are known and branching dikes
have been observed in Bristol Township to the North.

IRON FORMATION:

The trend and extreme intensity of the major
anomaly zone identify it as the indication of a band of
sediments containing much iron formation, outcrops of which
have been found in Claims TRP 31894 and 31897. The known
extent of the iron formation within the property limits has,
therefore, been increased by some 7000 feet.

The short anomaly observed in claim TRP 31883
likewise from its trend and intensity suggests a lenticular
band of iron formation of very local extent.

STRUCTURE:

Determination of the structure from the magnetic
results is, to a certain extent, hampered by lack of knowledge
of the magnetic conditions obtaining in the southern part of the
property, which was outside the limits of the survey. Certain
tentative opinions may be expressed, however.

The main iron band is not uniform in width or
trend and it is apparent that structural deformation has taken
place particularly in Claims TRP 31894, 31897 and 31898. In the
southwestern corner of 31894 the anomaly zone has a width of
500 feet but is interrupted on line 20W by two zones of low
5.

Although of no direct economic importance, these dikes can prove troublesome in exploration work, and a knowledge of their location can minimize such interference.

**ANOMALIES:**

The results of the survey are shown on the geomagnetic contour map which accompanies this report and their geological interpretation is shown superimposed on the contours in map number 2. The maps show a zone of high and irregular magnetic intensity extending in a direction roughly N 60° W from the south boundary of claim TRP 31898 to the north boundary of the property in claim TRP 31878, a distance of some 7400 feet. In width, the zone varies from 300 feet to more than 600 feet and relative magnetic intensities rise to over 20,000 gammas.

Paralleling the main zone and about 400 feet south of it in claim TRP 31883 a short but pronounced anomaly appears. This anomaly extends only across lines 44W, 46W and 48W a distance of about 400 feet. It does not appear on line 50W nor on 42W, where, however, the presence of a strong north-south anomaly may prevent recognition of its eastern extension.

Two other anomalies, entirely unrelated to the north-westerly zone were revealed trending in a direction slightly west of north. The first of these extends through the eastern portion of claims TRP 31895 and 31898, the second through TRP 31893 and 31886 near the east boundaries of these claims.

**INTERPRETATION**

**DIABASE DIKE:**

The north-south anomalies described above indicate the position of two dikes of Matachewan quartz diabase which
intensity. To the west of line 20W the zone strikes N 60° W but east of line 20W the strike is N 35° W and the zone narrows to a width of 300 feet. It would appear from the widening and from the change in trend of the magnetic zone that folding has taken place in the vicinity of line 20W.

In claim TRP 31897 the magnetic zone appears to have been offset about 200 feet, the east side having moved northward. This apparent offset is accompanied by a marked change in the direction of the magnetic contours on line 12W. This suggests that a fault lies between line 12W and 10° and striking about N 25° E.

In the southwestern corner of TRP 31898 a complex zone was revealed by the magnetic survey. Here again the width of the zone is over 600 feet and two areas of low intensity appear in the zone suggesting that the iron formation band has been sharply folded and may double back to the southwest.

A third area of deformation is suggested by the width of the anomaly on reconnaissance line 60W where the anomaly appears to be duplicated possibly by a large drag fold.

Additional closely spaced lines would be required on either side of line 60W to verify the existence of such a fold.

**ECONOMIC SIGNIFICANCE AND RECOMMENDATIONS**

It has been noted that sulphide mineralization exposed on the property to the date of the survey occurs in claims TRP 31894 and 31897, that is, in the region where the magnetic survey shows an abrupt change in strike and a change in width of the band. Such a change in attitude is probably due to structural deformation long after consolidation of the sediments and perhaps related to the intrusion of the granite masses which lie to the
south and west of the property. In other areas, for instance, the Red Lake area, it has been noted that mineralization associated with iron formation occurs where the iron band has been fractured near the apices or troughs of minor folds. The iron formation acts, apparently, as a favourable host rock which, due to its competency and brittle nature, yields by fracturing when involved in folding and provides favourable structure for circulation of mineralizing solutions.

The most likely areas for mineralization, therefore, is where the iron formation has been deformed. The magnetic survey has indicated at least three areas of disturbance which warrant further investigation as possible loci of mineralization:

(1) In the southwestern corner of Claim TRP 31898.
(2) In the southwestern corner of Claim TRP 31894, and the northwestern corner of Claim TRP 31897.
(3) In Claim TRP 31879, if additional magnetic surveying substantiates the theory that a fold exists in that vicinity.

**DRILLING:**

Three diamond drill cross-sections are proposed to investigate the first two of these areas as follows:
<table>
<thead>
<tr>
<th>Section No.</th>
<th>Location</th>
<th>Bearing (Azimuths)</th>
<th>Angle to Picket line</th>
<th>Dip</th>
<th>Slope length of drilling</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>885' S on line 18W to 1240' S line 22W.</td>
<td>N 120° W (240°)</td>
<td>S 35° W</td>
<td>45°</td>
<td>850 feet</td>
</tr>
<tr>
<td>2</td>
<td>70' East of 1160' S line 16W to 30' East of 1370' S Line 20W.</td>
<td>N 108° W (252°)</td>
<td>S 47° W</td>
<td>45°</td>
<td>770 feet</td>
</tr>
<tr>
<td>3</td>
<td>50' West of 1990' S line 2W to 1210' East of 2055'S line 0-0</td>
<td>Due South (180°)</td>
<td>S 25° E</td>
<td>45°</td>
<td>1200 feet</td>
</tr>
</tbody>
</table>

Vertical projections of these diamond drill holes are shown on the geological map which accompanies this report.

* "East" or "West" - at right angles to direction of picket lines.
* Magnetic attraction near the iron band makes compass readings very unreliable and directions of holes would be best determined by turning off the necessary angle (as shown in the second column) from the picket lines which run N 25° E.

Respectfully submitted,

John H. Low
Geologist and Geophysicist.

N. B. Keevil
Consulting Geophysicist.

Toronto,
November 27, 1945.