MAGNETOMETER REPORT

INTRODUCTION

During the months of July and August 1954, a magnetometer survey was carried out for Continental Copper Mines Limited, over 14 claims of a total group of 24, held by this Company in Cargill Township, Sudbury Mining District, Ontario.

Previous dip needle work in this area had suggested the presence of a large magnetic anomaly, but there was insufficient geological data to decide the configuration or kind of structure from which this arose.

The magnetometer survey discussed in this report was performed as a method to help differentiate the local drift-covered geology, and thereby aid in assessing the mineral possibilities of these claims.

SUMMARY

A broad series of basic rocks was indicated in an arcuate form through the property. The suggestion is that these rocks approach surface very closely, and have been intruded by diabase dikes and later faulted.

It has been recommended that these claims be surveyed electromagnetically to localize any associated massive sulphides; that all outcrop and rubble be analysed spectroscopically, and that further prospecting be done to help verify the cause of the remaining unexplained magnetic anomalies.

In view of the fact that the rocks on these claims appear to be a small portion of a larger mass which could have geological importance, it has been further recommended that the extent of these rocks be traced with an electromagnetic survey.

LOCATION, ACCESSIBILITY AND EXTENT OF PROPERTY

The property consists of one continuous group of 24 mining claims in the northwestern part of Cargill Township, Sudbury Mining District, Ontario. The claims lie on the east side of the Lost River and three-quarters of a mile south of Cargill Lake. An outline of the whole property, together with an inner configuration of the area surveyed, is included on the Key Map accompanying this report.

Cargill Township is located 14 miles south-west of Kapuskasing, and is 94 miles north-west of South Porcupine, both of which may be reached by highway or railway.

The best means of access to the area is by air from South Porcupine to Cargill Lake. From the lower end of this lake, either a trail or the Lost River may be followed south for three-quarters of a mile to the property.

Cargill Lake may also be reached by travelling 20 miles up the Lost River from a point where it crosses the Trans-Canada Highway, 8-1/4 miles west of Kapuskasing. This route is made difficult by a 1/4 mile stretch of rapids midway along the river.

For the purposes of this survey, all or part of only 14 claims were investigated, and their combined area and list by number will be found in the Appendix to this report.

GENERAL GEOLOGY

The geology for this area is shown on the Geological Survey of Canada, Map 411A of the Hearst-Kapuskasing Area, published in 1936. This information is of general nature, and shows the underlying rocks to be mostly basic volcanics and altered sediments, which have been intruded by extensive masses of granite and younger basic rocks. All the rocks are thought to be of early Precambrian age (Archean) and are considerably metamorphosed.

More recently, a reconnaissance of part of Fenton Township, 24 miles south-east of here, was published by the Ontario Department of Mines, (P.R. 1948-1). This report suggests a considerable amount of amphibolitised greenstones and amphibolite, in the area investigated.

A widespread mantle of glacial drift plus small relief have precluded extensive outcrops and consequent prospecting, so that to date there have been no important mineral discoveries made in this area.

LOCAL GEOLOGY

There is no extensive bedrock to be seen on the claims, and such outcrop as was observed during the course of the survey, has been included on the map accompanying this report. With the exception of one sample of granite, these outcroppings reveal a series of dark, fine to coarse grained basic rocks, including diabase, pyroxenite amphibolite, basic volcanics and possibly gabbro. Most of the rocks are characterised by alteration and a high magnetite content. In some, there is present

or suggested, a minor amount of sulphides.

Overburden is thought to be of the order of a few tens of feet over most of the property and outcrop areas are marked by a relief of a few feet or by an absence of bush. Dip needle work and outcrop examinations indicate a local northerly strike as against the regional north-easterly trend of rocks.

There is no record of previous work having been done in this area, except for a recent examination of a sulphide showing on the Lost River, at a point 7 miles north-east of here.

RESULTS OF THE SURVEY

All the field measurements for the magnetic survey are plotted on the accompanying map drawn to a scale of 1 inch equals 200 feet. Contours of equal vertical magnetic intensity have been drawn for 0 and 500 gammas, thence each 1000 gammas to intensities of 10,000 gammas, and thereafter each 5,000 gammas.

Beside each measurement station, the magnetic value is shown in relation to that of the Base Station "A" at 36N-0 on the Base Line, whose magnetic value was arbitrarily chosen as 585 gammas.

Anomalous areas have been generally marked by "A", "B", "C", "D" and "E" on the accompanying map and are later discussed.

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

DISCUSSION OF RESULTS

The unusually high magnetic intensities of "A", "B" and "E" are thought to reflect a close approach to surface of portions of a series of altered basic rocks which cover most of the claims in an arcuate form. Their strike appears to change from north-easterly at the bottom to roughly north at the top, and a west contact parallel to this direction is suggested through the center of the lake, on up to the neighborhood of 12S-7E where it swings north towards 24N-5E. There is no strong evidence for a definite direction of dip, but the suggestion is that this may be to the east.

Rock samples from outcroppings in the area, display a strong magnetism due to their considerable magnetite content, but they are so altered that it is not always possible to sub-divide them geologically. For this reason it is not known to what extent the weaker intensity areas reflect increased depths of overburden and/or

slightly different rock types. Such areas include that between "B" and "E", the gulley-like depressions separating "A" from its west limb, and the area of sporadic anomalies extending north from the upper end of "A".

Anomaly "D" is the largest low-intensity area, and may represent a tongue of relatively weaker magnetic rock, however, in the absence of any outcrop it is not possible to verify its cause.

Anomaly "C" is considered from outcrop along its strike, to mark the course of a diabase dike cutting the property in a north-easterly direction. It appears to have a small parallel limb extending from it midway along its west side, and to be offset for several hundred feet near its lower end. To account for this a north-easterly fault has been postulated across the lower part of the property.

There is some suggestion of a north-easterly fault through the origin of line 21N, an easterly one through the origin of line 18N, a north-south one along the creek inlet into the small lake, and a north-westerly one coinciding with the abrupt upper termination of "A" and "B". The latter two are corroborated to some extent by coincident lineation, however, much more magnetic information would be required to verify the presence of each.

RECOMMENDATIONS

It is possible that a base metal deposit could be associated with this kind of geology, and it is recommended therefore that an electromagnetic survey be done over these claims to localise a search for massive sulphides. The results of the magnetic work already done will show which portions of electrical conductors are magnetic and therefore most likely to be sulphides.

There should be consideration given to a thorough examination of all the known outcrop areas, and to prospecting those portions of claims where the survey leaves doubt about the geology. In this way a more accurate picture of the structure on the claims can be determined.

Since this is a relatively unknown area, it should be matter of course to examine all rock samples spectroscopically for whatever mineral content they may have.

In view of the fact that the rocks on these claims appear to be a small portion of a larger mass which could have geological importance, it is further recommended that the extent of these rocks

be traced with an aeromagnetic survey over parts of this and the adjoining township to the west.

LEGEND

36N; 0, 27S, Picket line numbers.

Measurement station on picket line.

Relative value vertical intensity of earth's magnetic field in gammas.

Magnetic control station.

Contour of equal vertical magnetic intensity in gammas.

A, B etc. Magnetic anomalies.

Vertical magnetic intensity of less than -10000 gammas.

Vertical magnetic intensity of -5000 to -10000 gammas.

Vertical magnetic intensity of 0 to -5000 gammas.

Vertical magnetic intensity of 0 to 5000 gammas.

Vertical magnetic intensity of 5000 to 10000 gammas.

Vertical magnetic intensity of 10000 to 15000 gammas.

Vertical magnetic intensity of 15000 to 20000 gammas.

Vertical magnetic intensity over 20000 gammas.

SYMBOLS

Swamp or marsh with boundary.

Higher ground.

Boundary of rock outcrop.

Fault as determined from geophysical data.

Trail, portage.

Claim posts located and assumed claim line.

R.A. Geisler
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63-996

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MAGNETOMETER SURVEY

OF PART OF

LOST RIVER CLAIM GROUP

CARGILL TWP.

SUDBURY MINING DIVISION

ONTARIO

Scale: 1 inch to 200 Feet