



42A105W0140 63.5 STOCK

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PRELIMINARY REPORT
ON THE
GEOMAGNETIC SURVEY OF WEST STOCK PROPERTIES
STOCK TOWNSHIP, ONTARIO

INTRODUCTION

A geomagnetic survey of the West Stock property of Broulan-Porcupine Mines Limited was made during the summer of 1944. The area comprises four and one-half square miles in the southwest corner of Stock Township lying north of provincial highway 67A, and bounded on the west by the Stock-German township line.

Following a geomagnetic survey of 18 miles of lines in neighboring Macklem Township, 39 traverse lines with a total length of 75 miles were surveyed in Stock Township. Ten miles of line across Reid Lake remain to be done when weather conditions permit.

GENERAL GEOLOGY

The whole of the property, in fact, the region for miles around, is covered by a heavy mantle of glacial drift, which effectively masks the geology, and renders any program of exploration directly by diamond drilling extremely difficult and costly.

The nearest rock exposures occur in Clergue Township some three and one-half miles to the north, and consist of Keewatin volcanics. About one-half mile to the west, in German and Machlem Townships, a half-mile section is known from earlier diamond drilling. In this section, Keewatin andesites and their schistose derivatives were encountered. Several granitic dikes

up to 125 feet in width, some of which are of porphyritic textures, penetrate the volcanics and just south of the German-Macklem boundary, a serpentine zone 150 feet wide was intersected.

OBJECT OF SURVEY

Due to the lack of information to date it has not been possible to predict with any reliability the eastward extension of the Porcupine belt of sediments and volcanics or the economically important Porcupine "breaks". It has been held by many, however, that the Porcupine structure does extend to the east as indicated by M.E. Hurst on Ontario map 1931a, but the problem of establishing within the limits of economical drilling, where the "breaks" occur is beyond the scope of normal geological methods.

Resort was had therefore, to geophysical methods in an effort to narrow the field of search.

FIELD PROCEDURE

Observations were made by F.J. Wank and J.H. Low with Askania vertical magnetometers, (sensitivities 14 to 22 gammas per scale division) at intervals of 200 feet along north-south picket lines spaced 400 feet apart. The rather wide interval of 200 feet was found satisfactory in areas of low magnetic relief due the damping effect of 100 to 400 feet of overburden. On anomalies however, observations were always spaced more closely, down to 25 feet in order to detail the smallest significant changes

in intensity of the magnetic field.

Six to eight observations at base stations were taken daily in order to correct for diurnal variations in the magnetic field, and numerous interchecks between traverse lines were made.

Results were plotted on scales of 500 gammas and 100 gammas to the inch, and lines of equal magnetic intensity are to be contoured on maps of scale 200 feet to the inch and 600 feet to the inch supplied by Broulan Engineering Department.

DISCUSSION OF RESULTS

Two major anomalies were outlined in the southeastern quarter of the property in concessions I and II, both trending roughly in the same direction but showing a tendency to converge to the east and west. These anomalies are 4000 feet apart at the widest point. Between them lies a zone in which intensities are considerably higher than the normal values north and south of the anomalies.

A third anomaly of much lower intensity was outlined to the north striking east-west across the southern halves of claims 42979, 42984, 42956, 42951. The probable extension of this anomaly was encountered again in claims 41942, 41945, 42141, where it trends approximately N. 70 degrees E.

The southeastern anomaly was traced between the south and east boundaries of the property for some 1600 feet in a direction approximately N. 55 degrees E. in the eastern portion, but approaching

An east-west strike near the Stock-Bond township line. It obviously extends to the east and west beyond the limits of the survey. Midway along this anomaly the trend of the contours suggests a warped structure.

From the east shore of Reid Lake an anomaly of lower intensity strikes about N. 70 degrees E. to claim 42975, where it strikes east-west and continues eastward as though converging towards the southern anomaly. As in the latter anomaly, a warped or perhaps thrust-faulted structure is suggested by the trend of contours in claim 42997.

Toward the west also, the two major anomalies appear to converge forming the wide and very pronounced anomaly observed in the northeastern corner of Macklem Township. This however, cannot be verified until the lines across Reid Lake have been surveyed.

The northern anomaly while of low intensity compared with those discussed above, shows good continuity. Unfortunately, the area in which the change in strike from N. 70 degrees E. to east-west occurs is not within the limits of the property and was not surveyed. It is perhaps significant that the extension of a line joining the warped structures evident in the major anomalies crosses the area in which the change of strike of the minor anomaly occurs.

TENTATIVE INTERPRETATION OF GEOMAGNETIC RESULTS

Greenstone sediments contact

Until the survey across Reid Lake is completed and a detailed study can be made of all results, the interpretations which follow must be considered as tentative.

In consideration of the uniform value and continuities of the relatively low northern anomaly, together with relative magnetic intensities and geological probabilities, it is believed that the northern anomaly is the expression of the contact between Temiskaming sediments to the north and Keewatin volcanics to the south.

Major anomalies

It can be said with some certainty that the two large anomalies represent serpentized sheared Keewatin volcanics. The zone between the two major anomalies probably represents a region where the volcanics have been sheared, altered and carbonated, and in places serpentized, but to a lesser extent than along the main shear zones.

Drag - folding

The warped structures revealed by the two major anomalies, and the change in strike of the northernmost anomaly at the sedimentary contact are probably structurally related.

It seems unlikely that all three structures are the result of offsetting by a single fault striking N. 50 degrees W. as might be suspected at first; in the central anomaly the structure suggests an overthrust drag fold with a fault plane striking about east-west

rather than a normal fault.

A plausible explanation is that incompetent serpentine bands were drag-folded by post-serpentine deformation, a pre-existing irregularity in the sedimentary contact perhaps being responsible for the resolution of regional forces to yield the observed pattern. The deformation may be associated with the intrusion of acidic rocks, but it is also possible that these intrusives, known to occur in the region, may have followed the period of major deformation following the zones of weakness produced by earlier folding and faulting. In any case the zones indicated geomagnetically to contain these structures, may be of some economic significance, and additional work is planned to further clarify their nature and origin.

Frank J. Wank
Frank J. Wank

John H. Low
John H. Low

Respectfully submitted

N. B. Keevil

N. B. Keevil
Consultant

Dec. 27, 1944



42A10SW0140 63.5 STOCK

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SUPPLEMENTARY REPORT
ON
GEOMAGNETIC SURVEY OF WEST STOCK PROPERTY
REID LAKE

INTRODUCTION

Since the report of December 27th was written, a geomagnetic survey of Reid Lake including claims 42100, 42101, 42102, 42103, 42104 and parts of claims 42099, 42105 and 42106 has been completed. A total of $5\frac{1}{2}$ miles of lines was surveyed following the southern extensions of picket lines previously cut at 400 foot intervals. Measurements were made at 170 stations over Reid Lake, with frequent checks on diurnal variations, and duplicate readings on stations used in the previous survey for purposes of tie-in.

GEOMAGNETIC MAP

The results of this supplementary survey have been incorporated on the revised "Geomagnetic Contour Map of West Stock Properties," which accompanied this report of December 27th.

DISCUSSION OF RESULTS

The geomagnetic results over Reid Lake do not alter the tentative interpretation previously submitted. The contours have a continuity in strike with the anomaly in claims 42995, 42997, and 42975, and at their western ex-

tremity trend towards the anomaly of high magnetic intensity in the northeast corner of Macklem Township. It is reasonably certain, therefore, that these anomalies are due to one continuous band of serpentized lavas. The most interesting section along this belt appears to be in claim 42997 where the geomagnetic data suggest that the underlying rocks have been severely contorted.

Respectfully submitted,



N. B. Keevil
Consultant

January 26, 1945

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BROULAN PORCUPINE MINES, LIMITED

NO PERSONAL LIABILITY

1705 STERLING TOWER - 372 BAY STREET

TORONTO, ONTARIO

February 2, 1945.

The Department of Mines,
Parliament Buildings,
TORONTO 2, Ontario.

Dear Sirs:

We wish to submit reports and results of a geophysical survey made of a group of claims in Stock Township by Dr. N. B. Keevil. The surveying, cutting and chaining of lines was done by employees of this company.

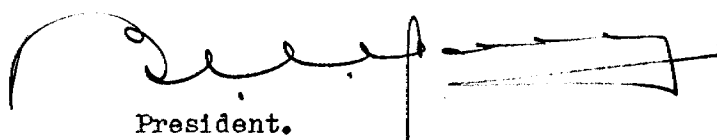
The greater part of this work was completed late in the Fall but it was necessary to hold up the submission of this report until the survey over Reid Lake was completed during January.

We will enclose with this letter the following in connection with this geophysical survey:

1. A sworn statement of costs totalling \$9,153.75. The accounts and costs in connection with the recent work on Reid Lake are not included in the statement but will be included in a supplementary report to be forwarded later. Receipts are enclosed for the two items of fees shown on the above-mentioned statement.
2. The attached contour map which was prepared on a scale of 1 inch to 600 feet prior to receiving instructions dated Nov. 25, 1944, shows the area covered by the survey and claim numbers. The lines and stations are not shown on this map but are specifically referred to in Dr. Keevil's report.
3. The contour map referred to in "2." shows the results of the survey.
4. The preliminary report by Dr. N. B. Keevil which is enclosed was prepared prior to making the survey over Reid Lake. A supplementary report covering the results of the survey over Reid Lake is attached to the preliminary report.

We trust that the items submitted with this letter are in such form as to meet with your approval.

Yours very truly,



President.

BWLang/m
att.

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IN THE MATTER OF THE MINING ACT R.S.O. 1937, CHAPTER 47,
SECTION 78, SUB-SECTION 11, AND OF UNPATENTED MINING
CLAIMS L 41940, etc. IN THE TOWNSHIP OF STOCK, IN THE
PORCUPINE MINING DIVISION

Affidavit verifying Report on the cost of Geophysical Survey

I, B. W. Lang, of the City of Toronto, in the Province of Ontario, in the County of York, make oath and say:

1. That I am president of Broulan Porcupine Mines, Limited (No Personal Liability) and have knowledge of the matters herein deposed.

2. That the Summary of Costs shown below represents expenditures made and charges applicable to the geophysical survey made by Dr. N. B. Keevil and covered by his report and map, submitted herewith, covering the results of such survey of West Stock properties including unpatented mining claims:

L 41940-41947, incl.	L 42995-42998, incl.
42099-42106 "	43002-43003 "
42141-42149 "	43222-43223 "
42949-42957 "	43652-43656 "
42974-42985 "	

3. The above-listed claims are recorded in the name of D. R. Michener who holds these claims as Trustee for Broulan Porcupine Mines, Limited and others.

4. That the following summary is made up of expenditures and charges by Broulan Porcupine Mines, Limited applicable to the making of the said geophysical survey:

Summary of Cost of Geophysical Survey of West Stock Properties.

Dr. N. B. Keevil, fees	\$ 2,220.00
Dr. L. Gilchrist, fees	900.00
Dr. N. B. Keevil's Expense Account	315.88
Assistants on instrument work	254.98
Board for crew	286.40
Cost of cutting, chaining and picketting lines	2,657.07
Engineering re Survey baseline and turning off lines	418.33
Camp building, repairs and sundry	750.87
Transportation of crew, engineer, supervisors and trucking rock and gravel for road to camp	738.35
Direction of work, including accounting	611.87
	<u>\$ 9,153.75</u>

Sworn before me at the City of Toronto in the Province of Ontario in the County of York, this 23rd day of January, A. D. 1945

[Handwritten Signature]
A Commissioner

[Handwritten Signature]
(Signature)

(Post Office Address)

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PRELIMINARY
GEOMAGNETIC CONTOUR MAP
 OF
WEST STOCK PROPERTIES
 STOCK TOWNSHIP, ONTARIO
 Scale ~ 1 inch = 600 ft.

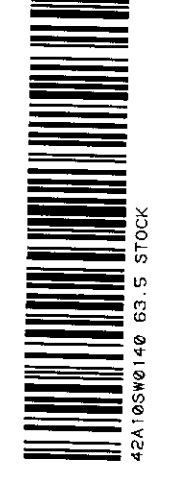
BOND

REID
LAKE

GERMAN

MACKLEM

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