

MAGNETOMETER REPORTINTRODUCTION

During the summer of 1951, a magnetometer survey was carried out for B.W. Lang, Toronto, Ontario, on 57 mining claims in Argyle, Baden, Robertson and McNeil townships in the Matachewan area, Ontario. Forty-three of these claims were under option from Hugh and Sam Kell, Matachewan Ontario and the remaining 14 claims were owned by B.W. Lang. The magnetometer survey described in this report was undertaken to trace and delineate an altered chloritic basic dike which was known from two surface localities to carry disseminated sulphides and at least one small lens of massive sulphides. The small lens of sulphides had given high grade assays of copper nickel, platinum and palladium, while the disseminated sulphide mineralization in the basic dike had given in a sample taken across 40 feet low values in copper, nickel, platinum and palladium.

Field tests made on material from the high grade sulphide lens, the altered chloritic basic dike and the host rock showed that the magnetic susceptibility of the massive sulphides and basic dike was sufficiently higher than the host rock to warrant consideration of a magnetometer survey to outline the limits of the basic dike and also to prospect the area for similar basic dikes.

SUMMARY

The magnetic survey of the 57 mining claims revealed a number of anomalies that are considered to represent two different types of intrusive rocks. Starting at a point 1,400' northwest of Kell's camp the altered chloritic basic dike was traced (discontinuously in several places) to the southwest from the pit at the high grade sulphide lens for a distance of approximately 4,000' showing varying dike widths up to 200'. On the magnetic map this distance is represented by anomalies A, B, C, and D. To the immediate north of Kell's camp and on the eastern half of the area surveyed two small anomalies E and F and two very large magnetic anomalies G and H (whose magnetic susceptibility was of a much lower order of intensity than the anomalies caused by the basic dike rock) were outlined and found to be caused by granite and related quartz porphyry. Zinc, gold and silver mineralization was found either along the margins or within the limits of these anomalies in granite or in sheared volcanic rocks close to the granite contact.

A diamond drilling program to consist of seven drill holes totaling 5,000' has been recommended to appraise anomalies A, B, C, and D which are interpreted to represent the limits of the basic chloritic dike bearing the copper, nickel and platinum mineralization.

No work is recommended at this time for the zinc, gold and silver mineralization within or near the contact of the magnetic anomalies in the granite and porphyry outcrop areas on the eastern part of the property.

No exploratory diamond drilling has ever been carried out on this property .

LOCATION, ACCESSIBILITY AND EXTENT OF PROPERTY

The mining claims are all located in Argyle, Baden, McNeil and Robertson townships in the Matachewan area, Ontario.

The Kell property located about 15 miles northwest of the town of Matachewan is accessible from Matachewan by boat up the Montreal River to the head of Matachewan Lake, where a good bush trail is followed 4 miles westward to Hugh Kell's camp in the centre of the property.

A complete list of the mining claims covered by the survey is given in the appendix of this report.

#### GENERAL GEOLOGY

The mining claims are considered to be in an area underlain by volcanic rocks. The volcanic rocks on the eastern part of the property have been intruded by a large dike of granite extending southwest into Argyle township from a large granite batholith to the northeast in Robertson township.

The rock types found in outcrops on the claims include andesite, dacite, granite, porphyry, and altered basic and lamprophyre dikes. Fractures and shears noted on the property are as follows:

1. Fractures and shears striking northeast.
2. Fractures and shears striking northwest.
3. Fractures and shears striking north.

#### LOCAL GEOLOGY

There are on the property in the vicinity of Kell's camp a large number of surface pits and trenches and during the course of the magnetometer survey a geological map and report of the property was prepared by O.L. Backman which covers in detail the structural and economic geology of the main Kell property.

#### RESULTS OF THE SURVEY

All the field measurements for the magnetic survey are plotted on the accompanying map drawn on a scale of 1 inch equals 200 feet. Contours of equal vertical magnetic intensity have been drawn at intervals of 1,000, 500, 300, 200, 150, 100, 50, 0, and - 100 gammas. Beside each measurement station the magnetic value is shown in relation to the base station located just to the east of Kell's camp whose magnetic value was arbitrarily chosen as 170 gammas.

Magnetic anomalies A, B, C, D, E, F, G, and H have been marked on the accompanying map.

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

#### DISCUSSION OF RESULTS

On the western part of the property four anomalies - A, B, C, and D (each rising in magnetic intensity to over 1,000 gammas) were disclosed by the survey and these anomalies are thought to represent a rather discontinuous altered chloritic basic dike or sill intruding volcanic rocks. These anomalies would indicate that the dike or sill is of a rather shallow nature in the central part and dips vary from vertical to steeply south. Within the anomalies it was not possible to ascertain whether or not any particular high intensity areas were related to massive sulphide lenses which from field tests were found to be highly magnetic.

On the eastern part of the property and also to the north of Kell's

camp four anomalies E, F, G, and H (with magnetic intensity rarely exceeding 500 gammas) were outlined by the survey and these anomalies are interpreted to represent dikes of granite and porphyry intruding the andesitic and dacitic lavas.

At the east end of anomaly E, a sixty foot trench has exposed a small fracture zone which carries high values in zinc, gold and silver.

Towards the south edge of anomaly F, south of Kell's camp, several tight fracture zones carry low values in zinc, gold and silver in the volcanics near a quartz porphyry mass.

At several locations along anomaly G, (which is interpreted to represent a long tongue or dike of granite) are found trenches and pits both within and close to the edge of the anomaly that carry zinc, gold and silver values in tight fractures and shears.

On anomaly H, also interpreted as being a phase of the granite, no zinc, gold or silver mineralization was observed although several pits had been sunk in the granite outcrops.

#### RECOMMENDATIONS

Anomalies A, B, C, and D are considered from an economic viewpoint to represent the best exploration bet on this property as together they give an approximate 4,000' length of favourable chloritic basic dike rock in which a drilling program could outline tonnages of copper, nickel, platinum ore.

The recommendation is therefore made that an exploratory diamond drilling program consisting of 7 drill holes totalling 5,000', be carried out to appraise the copper, nickel, platinum content of the basic dike as outlined on the Kell property.

These drill holes have been plotted on a map, which does not accompany this report. The map on which the holes have been spotted is a compilation map of magnetic, electromagnetic and self potential survey results.

At some future date a further investigation should be made of the zinc, gold and silver showings observed in the trenches and pits within or close to anomalies E, F, and G.

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-APPENDIX

TECHNICAL DETAILS OF THE MAGNETOMETER SURVEY

1. AREA SURVEYED

The complete magnetic survey of the Kell Copper Nickel Prospect and adjoining claims, included 57 mining claims in Argyle, Baden, Robertson, and McNeil townships in the Matachewan area, Ontario. An area of approximately 2,280 acres was covered by the survey and 43 of the mining claims were under option from Hugh and Sam Kell, Matachewan, Ontario and the remaining 14 claims in McNeil and Argyle townships were owned by B.W.Lang of Toronto, Ontario. Mining claim M.R.-17086, also under option from Sam Kell in Baden township was not included in the survey.

In McNeil township the magnetic survey covered all of mining claims P-34171, P-38950, P-38951, P-38982 and P-38953.

In Robertson township the survey covered all or part of mining claims P-32542, P-32543, P-32544, P-32545, P-36272, P-36273 and P-36274.

In Baden township the survey covered all or part of mining claims M.R.-14533, -4, M.R.-15240, M.R.-17625, M.R.-18557 and M.R.-18628, -29, 30, 31.

In Argyle township the survey covered all or part of mining claims M.R.-16584, M.R.-16581, -52, -53, -54, -55, -56, -57, -58, M.R.-18042, -43, -44, -45, -46, -47, -48, -49, -50, -M.R.-18296, -18297, -98, -99, -M.R.-18367, -68, -M.R.-18372, -73, M.R.-18451, -52, -53, M.R.-18718 and M.R.-19366, -67, -68, -69, 70, 71.

*57  
Claims  
Geophysical  
Only*

2. PERIOD OF SURVEY

The geophysical survey commenced on the Hugh Kell claims on May 2, 1951 and field measurements were taken at varying periods during May, June, July and August and the survey was completed on September 1, 1951.

Calculations, plotting, drafting and report was completed in Toronto Ontario during the period September 3, 1951 to October 25, 1951.

3. PERSONNEL

All magnetic field measurements were taken by H.L. Banting with J.L.C. Jenner acting as assistant. Bert Carlson, chief line cutter also acted as an assistant for a short period during the early part of the survey.

4. PICKET LINE MILEAGE

During the course of the magnetic survey in the summer of 1951, 56 miles of picket lines were cut and chained. Excessive swamp floodings by beaver dams in Argyle and Baden townships greatly reduced the speed of the line cutting and many magnetometer readings were taken knee deep in water.

5. TOPOGRAPHY

The topography was extremely flat with extensive jackpine and cedar swamps in Argyle, McNeil and Baden townships. At the northeast corner of the surveyed area the large granite intrusive did not produce any rugged hills.

*57  
12/45*

NETWORK OF MEASUREMENT STATIONS

The network of stations for the survey consisted in a series of numbered pickets placed 100' apart along picket lines running north and south at 100', 200', 400' or 800' intervals, which lines were at right angles to the east-west township base line between McNeil and Argyle townships. All picket numbering was referred to the northeast corner of Argyle township which for this survey was given a co-ordinate centre of 50,000' - 50,000'.

7. CLASSIFICATION OF MAGNETIC MEASUREMENTS

Base Stations	3
Stations of main network	3,023
Check measurements on bases	190
Check measurements on independent field stations	65
Total measurements performed	<u>3,281</u>

8. CLASSIFICATION IN DAYS OF FIELD WORK

<u>Name</u>	<u>Type of Work</u>	<u>Working Period</u>	<u>Total Days</u>	
B. Carlson	Chief line cutter	May 2/51--Sept.1/51	151	} 423
C. Wall	Line cutter	May 2/51--Aug.19/51	105	
O. Wegen	Line cutter	May 13/51--Sept.1/51	82	
H. Nilson	Line cutter	May 30/51--July 16/51	45	
V. Millen	Line cutter	May 2/51--May 22/51	19	
G. Sunialoe	Line cutter	July 18/51--Sept.1/51	41	} 129
H. Banting	Instrument operator	May 13/51--Sept.1/51	99	
J. Jenner	Assistant operator	July 22/51--Aug.14/51	31	
H. Banting	Completion of maps and report at Toronto, Ontario.	Sept.3/51--Oct.25/51	29	} 29
		Total	<u>581</u>	<u>581</u>

Thus, for 57 mining claims assessment work credit =  $\frac{581}{57} \times 4 = 41$  days per claim.

9. MAGNETOMETER SURVEY

Field readings were taken with a Vertical Magnetic Force Variometer (Watt), measuring the variations of the vertical component of the earth's magnetic field. A scale constant of 23.7  $\gamma$  per scale division was used throughout the survey.

All plotted gamma values for the individual stations were referred to an arbitrarily chosen magnetic base station located about 150' east of Kell's camp on mining claim M.R.-18042, with the arbitrary value of 178  $\gamma$  to which all field measurements were tied.

Diurnal magnetic variations were reduced to a minimum by re-reading a magnetic base station approximately every two hours and the average error calculated from the 65 check measurements on independent field stations showed the survey to be accurate within  $\pm 9\gamma$ .

Toronto, Ontario,  
October 25, 1951.

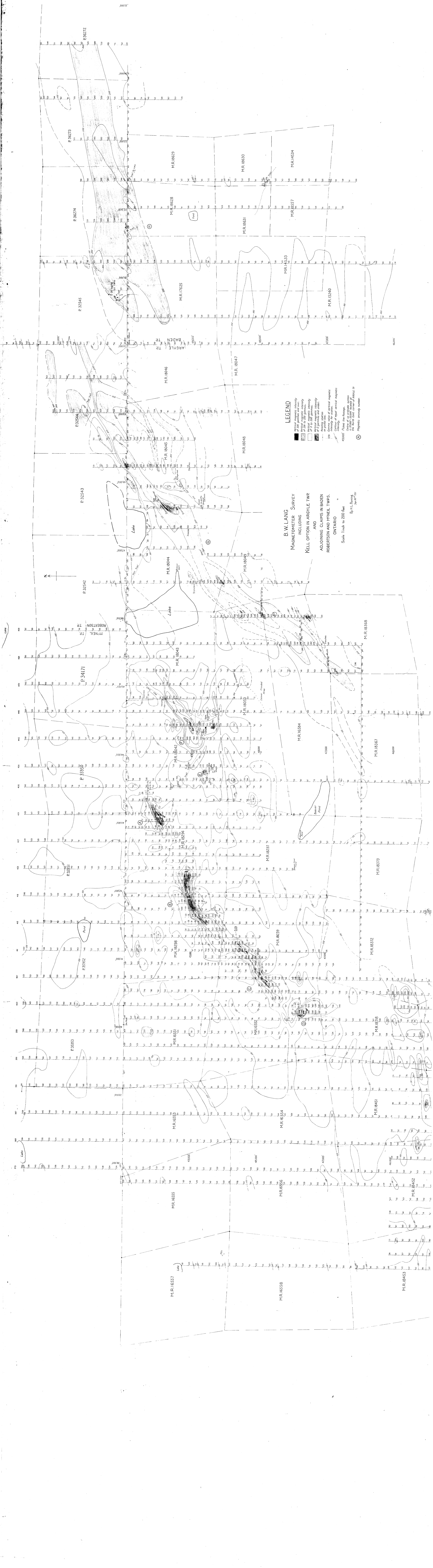
Respectfully submitted,  
Howard L. Banting  
Howard L. Banting, S.A.

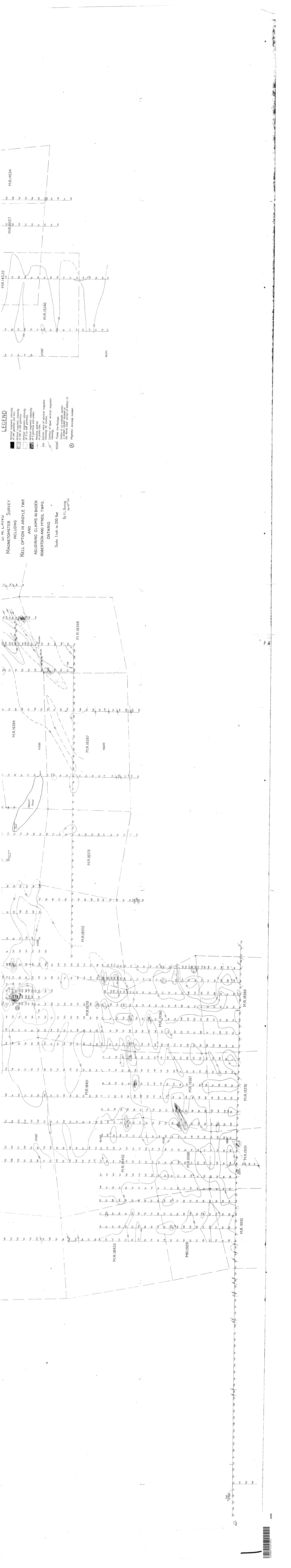
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**D. W. LAING**  
**MAGNETOMETER SURVEY**  
 INCLUDING  
**KELL OPTION IN ARGYLE TWP**  
 AND  
**ADJOINING CLAIMS IN BADEN**  
**ROBERTSON AND McNEIL TWP'S.**  
**ONTARIO**

Scale 1 inch to 200 feet  
 By H.L. Banning  
 Sep. 27, 1910

**LEGEND**  
 Vertical magnetic intensity  
 for 500 gamma and over  
 Vertical magnetic intensity  
 for 200 to 500 gamma  
 Vertical magnetic intensity  
 for 100 to 200 gamma  
 Vertical magnetic intensity  
 for 0 gamma and under  
 Rowing station  
 Gamma value of vertical magnetic  
 intensity for station  
 Contour of equal vertical magnetic  
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 48000' Fluke Air Battery  
 Centre of station  
 25,000'-50,000' bearing of  
 the North East corner of  
 Magnetic anomaly number

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