Geol Report

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CONTENTS

43.262

Report of Geological Work
on
Dominion Gulf Company Claims Group II in Thackeray Township, Ont.
(during 1951)

INTRODUCTION

This is a report of work done on the Group II property claims in Thackeray Township during the season of 1951. The property consists of the following claims -

L 56951 to L 56965 inclusive
L 57059 to L 57063 inclusive
L 57788 to L 57796 inclusive
L 56975

Location

This group of 30 claims is located principally in Concession III of Thackeray Township, Ontario. One claim in the north-west is in Concession IV.

Thackeray Township is not subdivided and only the outer boundaries have been surveyed. A steel survey post was located at the 3-mile post on the Barnet-Thackeray boundary. One mile south of this steel post, along the boundary between Barnet and Thackeray townships, a group of old claim posts apparently marks the position of the 2-mile post but the steel post was not found.

The south boundary of the property runs due east from these posts for 1½ miles, then offsets to the north one claim-length and then runs east along the crest of a very high ridge for another 1½ miles. In the eastern extension the group is two-claims-wide, narrowing to one claim at the far east end.

The claims in the west end of the property form a 20-claim block, 5-claims-wide north and south. Two claims in the northeast of this block are open.

Access

There are no navigable streams on, or near, the property nor are there any lakes large enough for landing aircraft. Thus the only means of access is by road. A passable road leaves highway 101 about 19 miles east of Matheson and runs southeast and south 13 miles to a campsite about 1/4-mile north of the easterly end of the property. From this camp foot-trails lead to all parts of the property.

Topography

A large plateau occupies the central portion of the property (and extends northwestward across that portion of the property mapped in 1950). Many deep ravines dissect the plateau. The level of the plateau is about 200' above the surrounding country with occasional hills rising to 250'. A very high ridge along the south boundary of the property probably exceeds 300' in elevation above the country to the south, west and east. A range of sand hills extends down to the plateau from far to the north. These hills cover most of the rock on the northeast side of the plateau except the top 100' of the hills.

The plateau forms the height of land between streams draining west to the Pike River and Cochenour Creek which drains to the east but eventually turns westward through a prominent valley about ½-mile south of the property.

A heavy forest of birch and moose maple covers all the plateau. Bare rock is only exposed along the walls of the ravines and occasionally on the highest hilltops. Even there a thick cover of clay, sand, moss and lichen makes it necessary to strip every exposure. Because of rapid local changes in the nature of the rock, stripping must be quite extensive to ensure that the real nature of the rock has been disclosed.

A conspicuous topographic feature is a basin-like depression in the west end of the property. Except for a low spot on the west side this basin, which covers nine claims or more, is surrounded on all sides by high rocky hills. There are no outcrops within the basin. The mixed birch and jackpine forest on the rest of the property gives way, within the basin, to thick spruce with a cedar swamp along the north side.

Surface Work Done

Two geologists, two student assistants, and from three to five other workmen were on the property from May 15th to September 15th.

A magnetometer crew, and line-cutters, made a magnetometer survey of part of the property in December 1950 and January 1951 until severe ice storms caused the work to be stopped. Many of the cut lines had to be re-cut two or more times because of the weight of ice forcing the trees down and obliterating the cutting.

The magnetometer work was resumed and completed in June 1951, except for the 9 claims staked in 1951.

6 miles of base line and 28 miles of picket line were cut, chained and surveyed with the magnetometer. This work covers the property with a grid of lines approximately 400' apart. A large number of old workings were made by former operators and these, being in most cases completely overgrown, were cleaned out and the sides stripped. In addition, 40,000 square feet of rock was stripped and about 1,000 cubic feet of trenching done.

Geological Mapping

The picket lines 400 feet apart were used as a control for mapping. Two-man groups worked along the lines with one of the men searching, in the thick underbrush, for 200' on either side and the other tying in any outcrops found by pacing from the measured line.

Because of the very heavy underbrush it was impossible to see outcrops at even a few feet and they had to be laboriously hunted down. In many cases an additional man was required with each party in order that one of the party could be stripping outcrops to obtain samples while the others were tying in the outcrops just previously stripped.

On the attached map many large outcrop areas are shown but in most cases these actually consist of scattered small exposures of rock, with occasional steep bare cliffs, which have been extended, by digging. Experience

showed that most of the high ground consists of rock although often with a deep cover of sand and clay. The boundaries of the outcrop areas are often indistinct as the rock gradually becomes covered with a thicker cover of sand or boulder.

In general the north sides of the hills have the best rock exposures and the southern sides are covered by boulder slopes, sloping gently and not influenced to any extent by the shape of the bedrock.

In the central part of the plateau a wide area of boulder moraine covers all of the rock. These boulders appear to be more rounded than those on the boulder slopes and apparently are not of local origin. Most of the boulders in the slopes appear to be of local origin. Some are very large and it is not improbable that some of the small outcrops, in the more drift-covered areas, may be huge boulders.

Rock Types

(a) Flows

With the exception of several rather small intrusive bodies, all of the exposed rock on the property is a massive lava of basaltic composition. The flows appear to be thick and isoclinally folded into a vertical position. Well-developed pillows occur at widely-scattered points but with enough frequency to indicate that all of the rock is extrusive lava.

In a few places agglomerate facies were seen but because of the heavy overburden these could not be followed any distance and the scattered occurrences do not align very well in any definite pattern.

Regarding tops of flows, the evidence is that the tops are south and that the property is on the south limb of an anticline.

(b) Intrusives

There are two bodies of rhyolite on the property (A and B). They appear conformable, generally, with the strike of the flows and thus are sill-like, but the wide gradational zone around them and the absence of any observable intrusive characteristic suggests that they are neither inter-flows nor sills but are more correctly to be considered as replacement bodies.

There appear to be two plugs of syenitic-to-dioritic intrusive on the property (C and D), but they are so poorly exposed that it is quite possible for the appearance of a plug-like body to have been created by the accidental stripping of a number of the numerous syenite dikes which are widely distributed throughout the area. If, by chance, the few scattered places where rock can be located through the overburden, happen to be all or mostly syenite, then the impression is that quite a large area is composed of syenite. Assuming that this is not the case, two small plugs are located as shown on the map. No contacts were found for either.

The widely-distributed syenite dikes vary from those of nearly pure felspar, which have no contact effect on the intruded rocks, to otherwise similar dikes which have assimilated a great deal of the host rock and have a wide band of dioritic or amphibolitic material developed along the boundaries. Other dikes have fine-grained or chilled borders, and still others are composed of quite long laths of felspar - the typical 'lath porphyry' in which the felspar

phenocrysts make up almost the entire dike and tend to be systematically arranged with their long axes parallel to the dike walls. It appears very unlikely that the phenocrysts were transported into position at their present stage of development but rather more likely that they formed in situ by some geological factor working on them after they were implaced.

From the observation of other areas outside of the property it does not appear that there are many more dikes, per unit of area, on the property than there generally are throughout the Lightning River area.

It further seems indicated that there are several ages of syenite dikes.

Alteration

In addition to the rhyolite bodies previously mentioned there are many places, especially along the faults, irrespective of their age or orientation, where considerable silicification has taken place and rhyolitic-appearing rock has been produced. Several of the large outcrop areas consist of coarse diabasic cores with silicification along the faults which form the boundaries of the faults on all sides. From this it would appear that the silicification is post faulting.

There are several irregular patches of carbonated rock (E, F and G). Some of these are associated with silicified areas and others are quite free of quartz in association.

Texture, within the flows, varies from very fine-grained to very coarse material both diabasic and gabbroic. The fact that well-developed pillow structures are preserved in some of the coarse diabasic material indicates that the coarse phases represent recrystallization of the original basaltic flows. The development of felspars in the rocks may indicate the addition of calcic or sodic material but that must await thin-section work for confirmation.

Some of the coarser rocks are free of felspars and are apparently amphibolites. These form a minor amount of the recrystallized rocks. Over fifty percent of all the flow rocks exposed, are coarsely recrystallized.

Mineralization

Pyrite is widely distributed, especially a brassy type which may be primary or at least formed during recrystallization.

Generally associated with the silicification and carbonate zones, but occasionally as disseminations in comparatively unaltered basalt, there is a less brassy type of pyrite. This occurs both as extremely fine disseminations and as well-developed cubes. Both types locally make up as much as 20% of the rock.

A comprehensive program of sampling was instituted with samples taken for assay from every place where appreciable sulphides were located.

It quickly became evident that the brassy pyrite was barren, but some modest values in gold were obtained from both the finely disseminated sulphides and the cubic sulphides. The manner in which two samples from the same pit, both quite heavy in sulphides, would one carry values and the other be barren, and the facts that in one spot it would be the cubic pyrite which would run while in other places the finely-disseminated would run, and that

often out of four or five samples of apparently equal merit only one would run, suggests that the gold is present as free gold, in such minute quantities as not to be visible anywhere. These factors also suggest that the gold is not associated with any particular type of sulphide, if it is connected with sulphides at all.

The manner in which the sulphides change in crystal form even within the same outcrop suggests that there are probably three, and maybe more, ages of sulphide mineralization, or at least that three different sets of conditions have arisen which have modified, in different ways, the original or introduced sulphides.

At the extreme south central part of the property there is a formation which has been shown as a carbonatized zone. It is poorly exposed but follows a conspicuous valley in which there are two beaver ponds and a creek. Where the rock is exposed it consists of a sheared lava in which there are large veins of coarse massive calcite, with some lesser amount of white quartz. Scattered through the calcite in coarse irregular patches there is a considerable amount of chalcopyrite. The whole vein would probably run 2% or 3% copper.

Where not covered by beaver pond much of the zone is covered by the boulder moraine. It may be only coincidence then that the two places where the rock is exposed, within the valley, consist largely of the calcite vein material in a host rock of sheared basalt.

It is considered that this zone is a zone of tension and adjustment between a north-south fault, which bounds it on the east, and a north-west fault which apparently cuts it off on the west.

No extensive quartz veins were developed on the property but occasionally the silicification is so intense that the rock is completely replaced. Such occurrences are usually laced with a fine network of late quartz veinlets, which may be the result of some of the siliceous material being mobilized by heat, pressure or deformation at a later date.

North of the camp, at the northern edge of the plateau, and off the property, there is an east-west band in which there are a large number of white quartz veins (H). They are quite barren and only one age of quartz appears to be present. Very sparingly, an odd fleck of galena occurs in the quartz, and there are a few specks of pyrite finely disseminated in some patches of the wall rock but certainly not in worthwhile quantity.

Structure

(a) Folding

There is evidence, from scattered occurrences of pillowed lava, and from some poorly exposed agglomeratic and amygdoloidal flow tops, that the lava flows face south and are folded into a vertical position. There is very little evidence of lateral folding other than a gradual change, over the three-mile length of the property, from a strike of about 80° at the east end to about 95° at the west end.

Some pillow lava determinations just east of the basin-like depression suggest strikes there of about 45° to 60° but these determinations are not too certain.

(b) Faulting

Faulting is much more important, structurally, in the area than folding (after the initial isoclinal folding). At least three systems of faulting are present. Two of these, in which the faults strike north-south and east-west, may be complementary. The third, in which the faults strike north-west, seems unrelated and later than the other two.

Some fault displacements were noted but the major component of displacement seems to have been vertical, i. e. normal or block faulting.

The basaltic flows seem to have resisted shearing and to have failed with a sharp fracture, thus fault zones, along which there has apparently been quite a bit of movement, are still sharp and narrow. The only formation which could be called a shear zone occurs in a small exposure on the east side of the basin which is mostly syenite although both the syenite and host rock are sheared. The shear strikes north-west.

The east-west faults generally correspond in position to flow tops although these are poorly defined and it is difficult to assess how much of the alteration, which invariably occurs in these areas, is due to faulting, flow-top conditions, or subsequent unrelated hydrothermal alteration.

(c) Brecciation

True breccias are found only in two places (J and K) both associated with north-south faults. In case (J) a breccia of sheared diabasic or dioritic basalt has been sealed by calcite, and in the other case a breccia in silicified basalt has apparently been repeatedly reopened and cemented with quartz, the last phase being a strikingly red jasper. Some low values were found in this latter breccia.

Both breccia zones are very small and cannot be shown on the scale of the accompanying map.

Ground Magnetics

The ground magnetic chart shows a prominent area of low magnetic intensity occupying a position roughly that of the basin-like depression in the west end of the property.

From this large area of magnetic lows, two arms of about equally low magnetic intensity extend eastward across the property.

The northernmost of these extensions of the low area seems to conform quite closely to the belt of rhyolite across the property but no such rhyolite occurs with the southern, and larger, belt of low. Pending the result of thin-section analysis of the many specimens collected over this 'low' area it can only be considered at present as the product of a non-magnetic flow. It is peculiar that the rhyolite body (A) in the east end of the property, does not correlate with the magnetic low but lies immediately south of it.

Regarding the large area of magnetic low, some of it probably corresponds to the extension of the rhyolite band and the south end apparently consists of the projection of the non-magnetic flow (shown in light green on the map). There is however no explanation, from examination of the outcrops, for the much greater extent of the low in the western part of the property. It is obviously much more extensive than can be attributed to either the rhyolite band or the non-magnetic flow.

Economic Possibilities

If there had been no values at all in the many samples collected and sent for assay there would be no hesitation in recommending that the property be dropped, even though about half of the property is covered with overburden.

When some low values, although non-commercial, were obtained, it is an indication that potential ore-bearing solutions have been introduced into the area. If places can be found where these solutions have been introduced in greater quantity then greater concentrations of ore minerals may occur. The detailed mapping indicates that such a concentration does not occur within the outcrop area. The ground magnetics indicate that the area within the basin is different, at least magnetically, from the outcrop areas. The only possibility of an economic concentration is within this magnetically different area.

RECOMMENDATIONS

No further mapping or surface work is recommended. The possibility of deriving any further pertinent information, from examination of the outcrops, has been exhausted.

Any further work on the property must consist of drilling within the basin-like depression.

"R. W. Johns"

jC

Oct. 15, 1951

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October 26, 1951

Report on Ground Magnetometer Survey Barnet-Thackeray Claims Group II

A ground magnetometer survey of 23 claims was conducted to provide detailed information for use in studying areas of local interest within the claim group. The complexity of aeromagnetics and scattered geological information was found to be insufficient for detailed interpretation and it was expected that the ground magnetics would assist in developing a structural map of the claims.

The survey was begun in December 1950 by a Dominion Gulf Company magnetometer party consisting of Messrs. W. E. Whitford and R. Jutras. The survey was discontinued in January 1951 to wait for more favourable weather conditions. A second Dominion Gulf Company magnetometer party consisting of Messrs. R. Hodgins and R. McDonald completed the survey during May and June of 1951. Both these parties were directed and supervised by Mr. B. M. Middleton, Geophysicist, assisted by Mr. R. W. Johns, Geologist.

Magnetometer observations were made at intervals of 100 feet along picket lines generally spaced 400 feet apart. In areas of extreme gradient or complex magnetics the station intervals were reduced and additional lines cut for greater detail. A total of 2047 observations were made along 32.4 miles of profile.

The measurements were made with a Schmidt Balance-Type Askania Magnetometer having a sensitivity setting of approximately 20 gammas per scale division.

The contoured ground magnetic data is presented on a map of the claim area at a scale of 400 feet per inch. This map was prepared in the Toronto office of Dominion Gulf Company.

The contoured ground magnetic data were used by Mr. Johns as guides in mapping the geology on the claim group, and they will be used in developing a structural map from the surface geology that was mapped. No other interpretation of these data has been made.

D. Torrens

D. Torrens

63.262

December 28th., 1951

BARNET THACKERAY TWP. CLAIMS

GROUP 2

APPENDIX - M

Magnetic Interpretation

The contoured ground magnetic data is presented on the attached semi-transparent map which is intended as an overlay to the geological map and should be so positioned before any attempt is made to understand this interpretation.

The claim block is divided magnetically into two areas comprising roughly the eastern and western halves of the property.

The eastern half of the claim block is characterized by complex magnetics. Many localized highs and lows of large amplitude are superimposed on a larger series of highs and lows also of large amplitude.

The localized condition, where highs and lows of large amplitude follow each other very rapidly, is due to surface concentrations of magnetite in local "pods". Because of the magnetic phenomena " bottom effect " see figures 6 and 7, the highs which may be off scale in amplitude are followed by lows of similar magnitude which are definitely negative magnetically and extend below the regional magnetic level. As mentioned above this is due to a localized surface concentration of magnetite.

There are two areas of this type of complex magnetics on the map.

(1) The southern belt, between the eastern half of claim L56961 and the south western corner of claim L 57062.
(2) The central belt, in claim L 56952 and the western part of claim L 56953.

Plotting a profile across the property shows the rapid local variation which is superimposed on larger anomalies which also are of large amplitude. (Fig. 1 scale 400' = 1 inch) Fig. 2. shows these larger anomalies across the portion of Barnet Thackeray Group II surveyed in 1950 and the tie line connecting with the survey of 1951, which is also plotted.

It can be seen that there is a series of highs and lows of large amplitude again superimposed on a regional magnetic high. The ground magnetic survey has not been extended far enough south to cover the southern end of the regional high anomaly but it has been shown dotted as indicated by the aeromagnetics.

Two problems are included in the interpretation of these larger anomalies.
(i) What causes the large hgh and low anomalies?
(ii) What causes the regiona magnetic high?

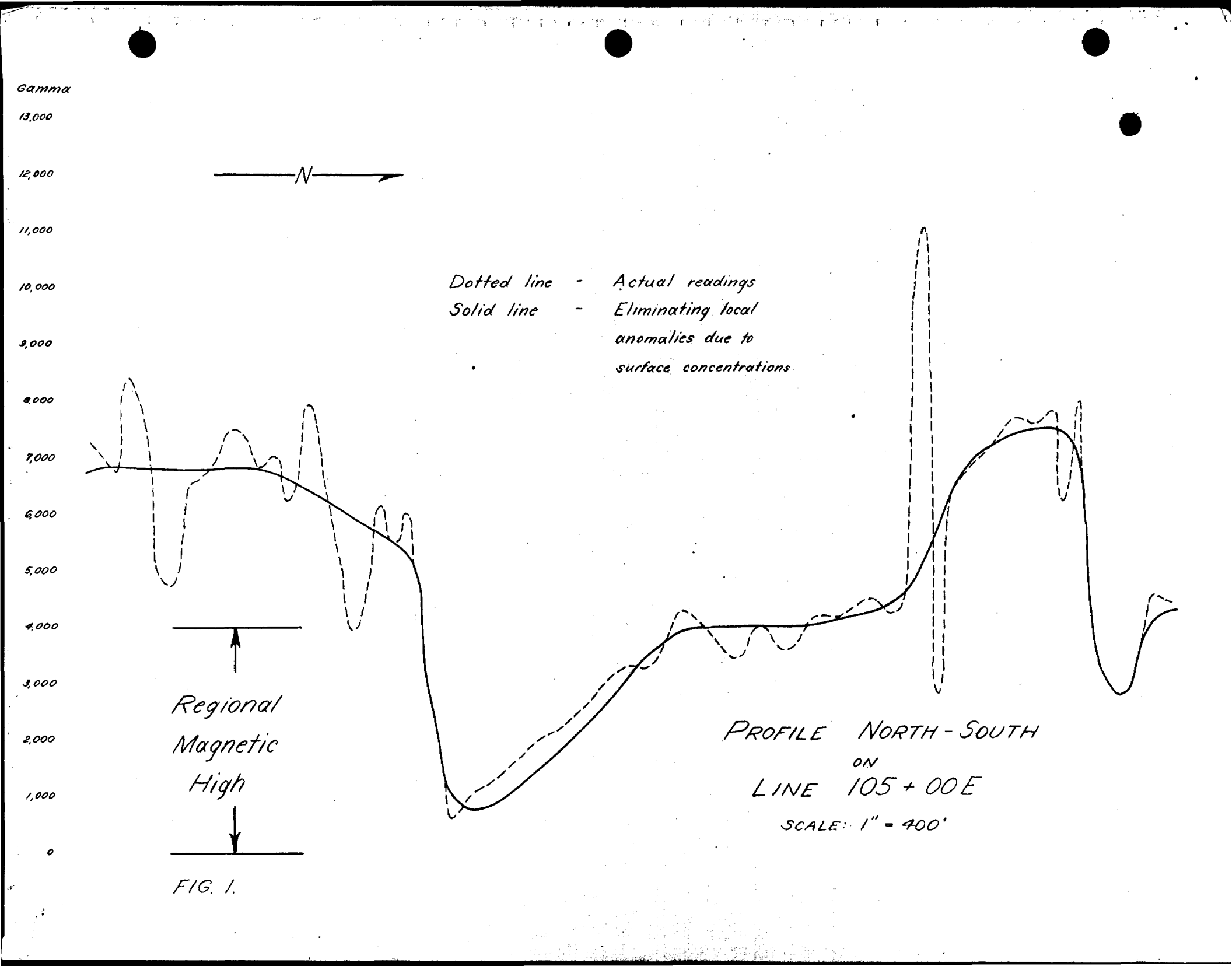

Gamma
13,000
12,000
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
N
Dotted line - Actual readings
Solid line - Eliminating local anomalies due to surface concentrations
Regional Magnetic High
PROFILE NORTH - SOUTH
ON
LINE 105 + 00E
SCALE: 1" = 400'

FIG. 1.

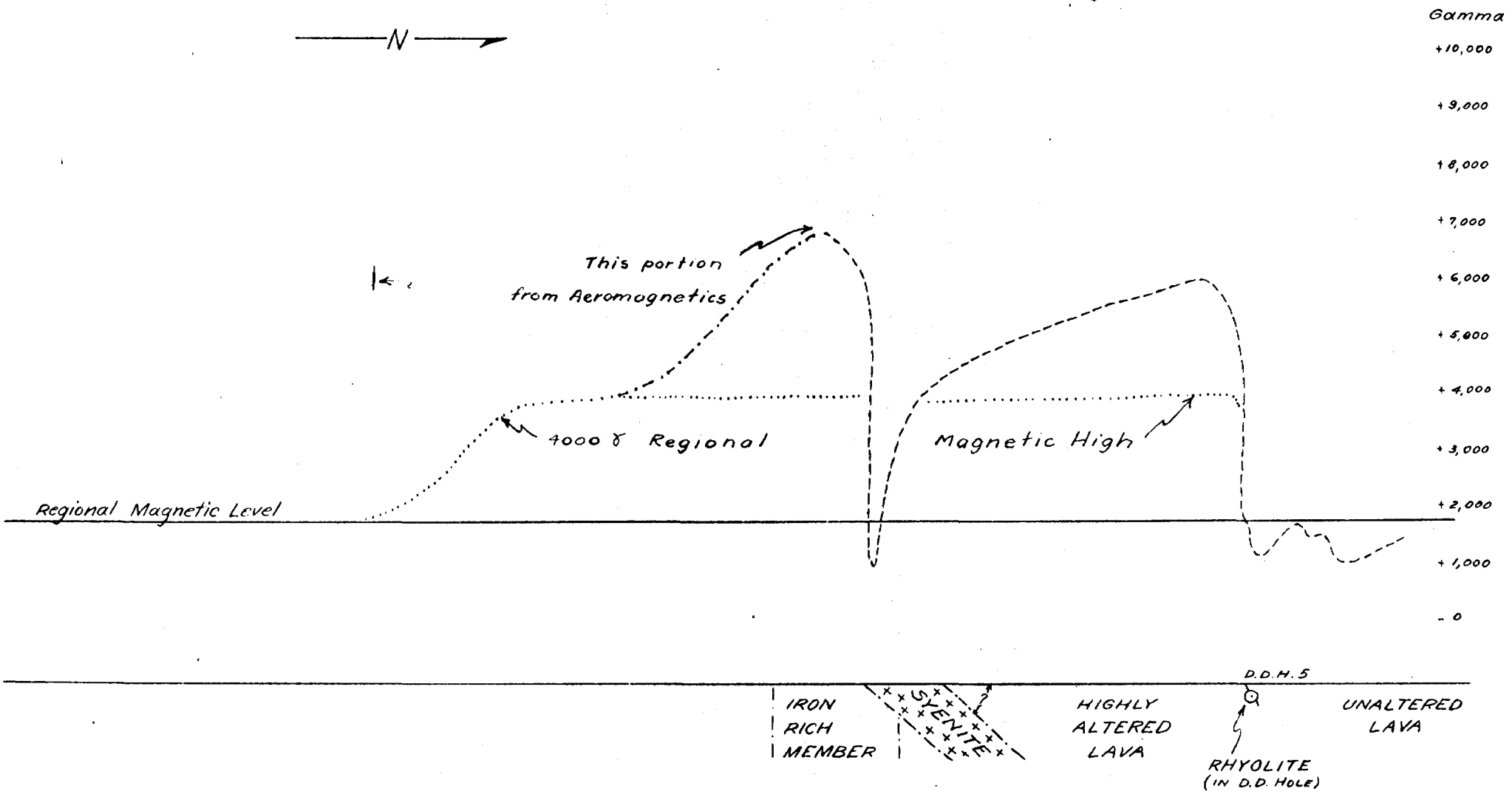


FIG. 2.

GROUND MAGNETIC PROFILE

OVER EAST END OF HIGH ANOMALY P.L. 105+00E.

SCALE: 1" = 1,000' APPROX.

Considering first the regional magnetic high it appears from the examination of the rocks that this increase in magnetite is due to recrystallization of the rocks which has been accomanied by a release of magnetite apparently when ferromagnesian minerals are recrystallized to feldspars. Local segregations of this released magnetite produces the localized magnetic complexity previously discussed.

Thus the regional magnetic high and the local complexity can be explained by recrystallization.

The cause of the recrystallization may be either heating or metasomatism, or both resulting from hydrothermal activity. Indications are that it is hydrothermal alteration which has caused the recrystallization.

Still to be explained are those large high and low anomalies which occur in the regional high.

At first sight it would appear that the alternating high and low could be produced by a non-magnetic member enclosed within the magnetic flows. The high-low anomaly would be produced by:

(a) the non-magnetic nature of the enclosed member.
(b) contact phenomena at the north and south contact of the non-magnetic member.
(c) a "polarity" low due to the inclination of the earths magnetic field to the vertical attitude of the isoclinally folded beds.

Figures 4 and 5 show a theoretical attack on the problem. The curves shown, while of the right shape, are of much smaller amplitude even though the effect of a concentration of magnetite at the contact has been included in Fig. 5. (In order to illustrate the resulting curves the vertical scale has had to be greatly magnified)

In order to approach the amplitude of the actual curve some additional effect is required. There are two possibilities of producing this extra amplitude.

(a) the formations dip to the south and the added effect is due to a magnetic formation dipping towards the south, thus cutting the earths field at a higher angle than would be the case if the formation were vertical. As the geological evidence indicates that the formations are vertical or if dipping, they dip steeply to the north, this possibility must be ruled out.

(b) There is a concentration of magnetite near surface producing a similar effect to localized pods but on a much larger scale. Figures 6 and 7 illustrate the magnetic effect produced by such a concentration.

Figure 8 shows the effect of such a concentration being added at the contact of a non-magnetic member and a member with a moderate amount of magnetite.

Figure 9 shows one practical possibility for the production of such a condition. There is evidence from previous drilling that some rhyolite -

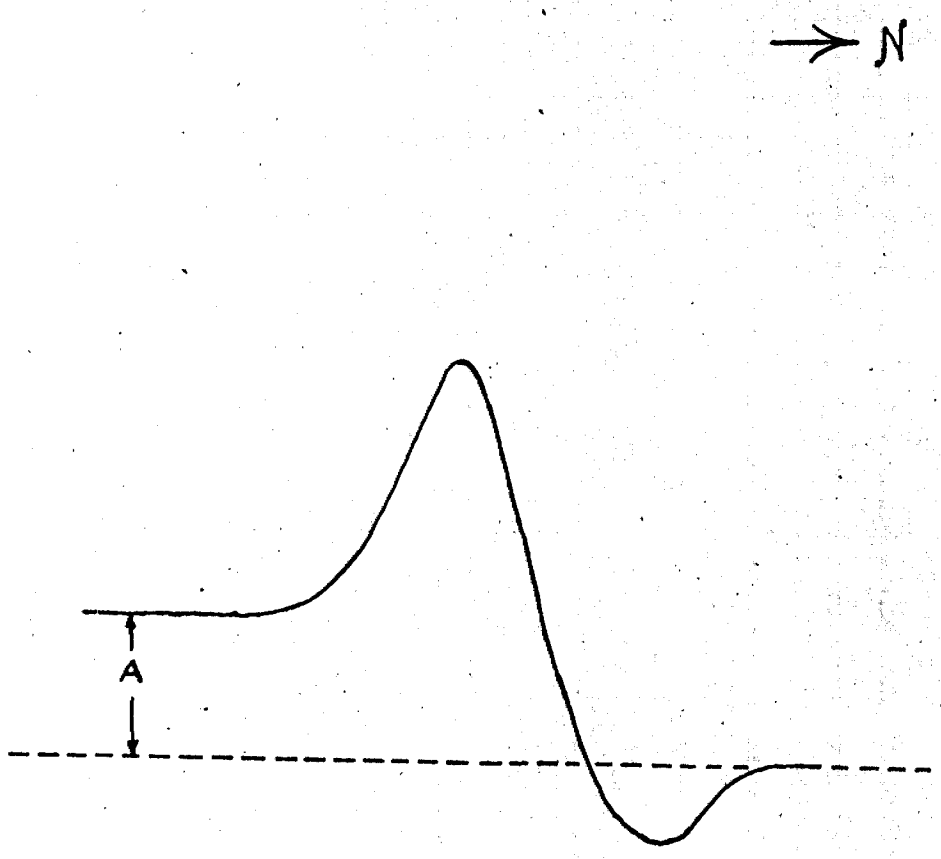


FIG. 4

APPARENT RESIDUAL ANOMALY, CONTACT BETWEEN MATERIAL PRODUCING MAGNETIC EFFECT "A" AND NON-MAGNETIC MATERIAL TO NORTH

FIG. 4

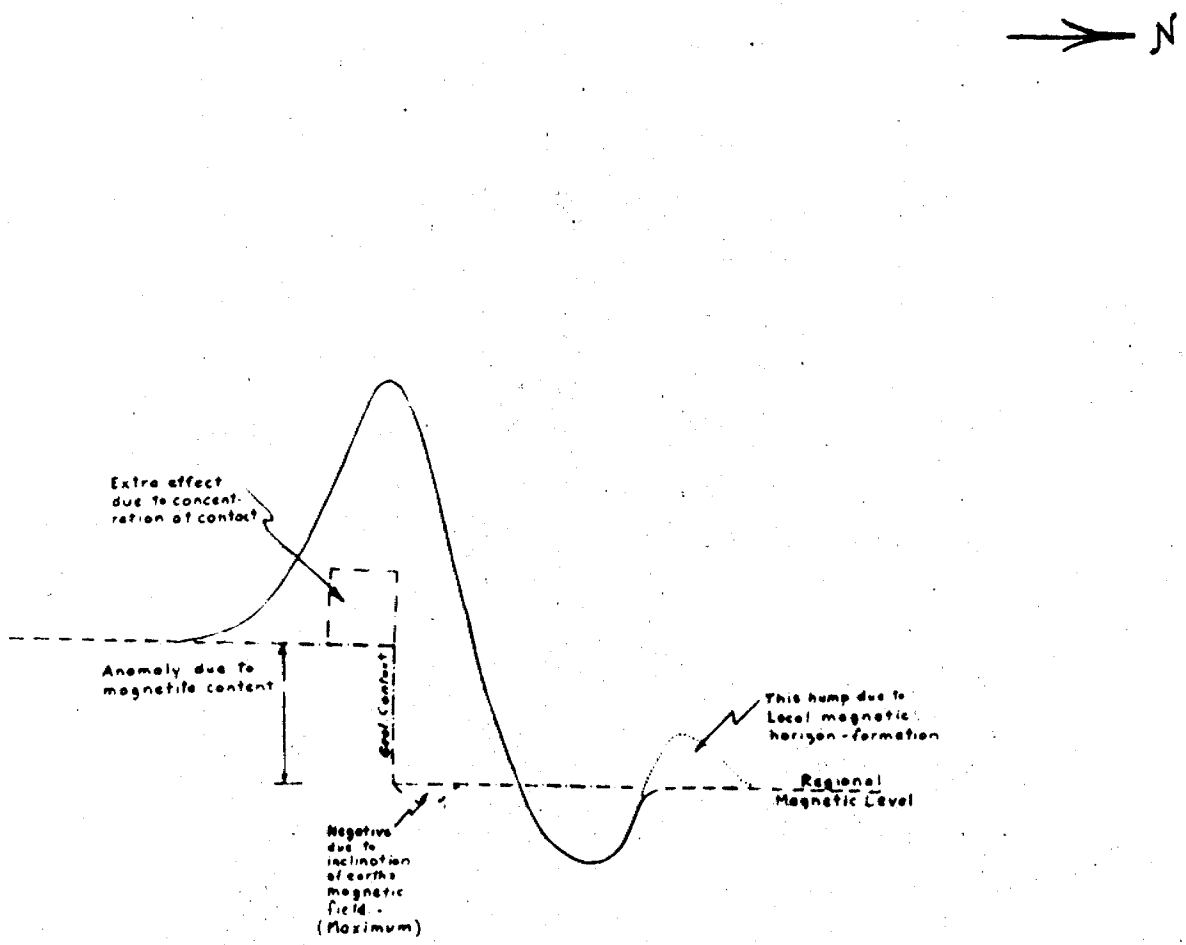


FIG. 5 SHOWING ATTEMPT TO REPRODUCE THE ACTUAL CURVE BY SIMPLE ARRANGEMENT. SOME EFFECT, SIMILAR TO FIG. 6&7, IS REQUIRED TO COMPLETE THE RECONSTRUCTION.

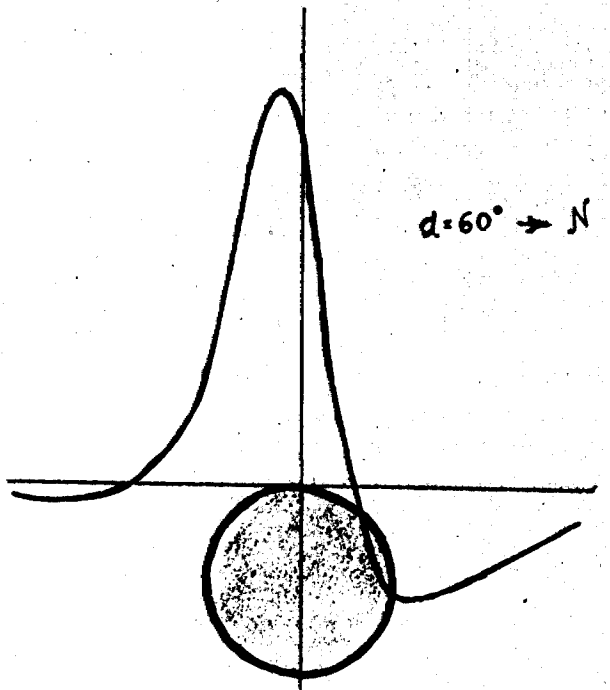
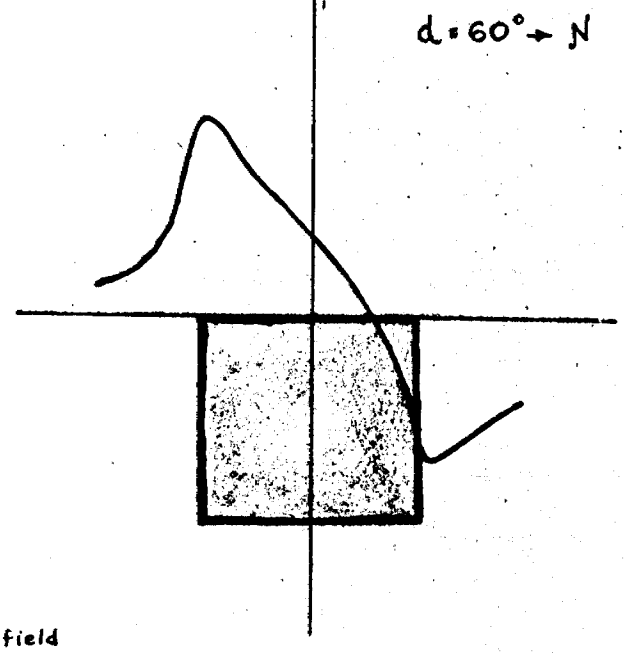


FIG. 6



d = dip of earth's field

FIG. 7

CYLINDER AND BLOCK, WITH FINITE DEPTH.

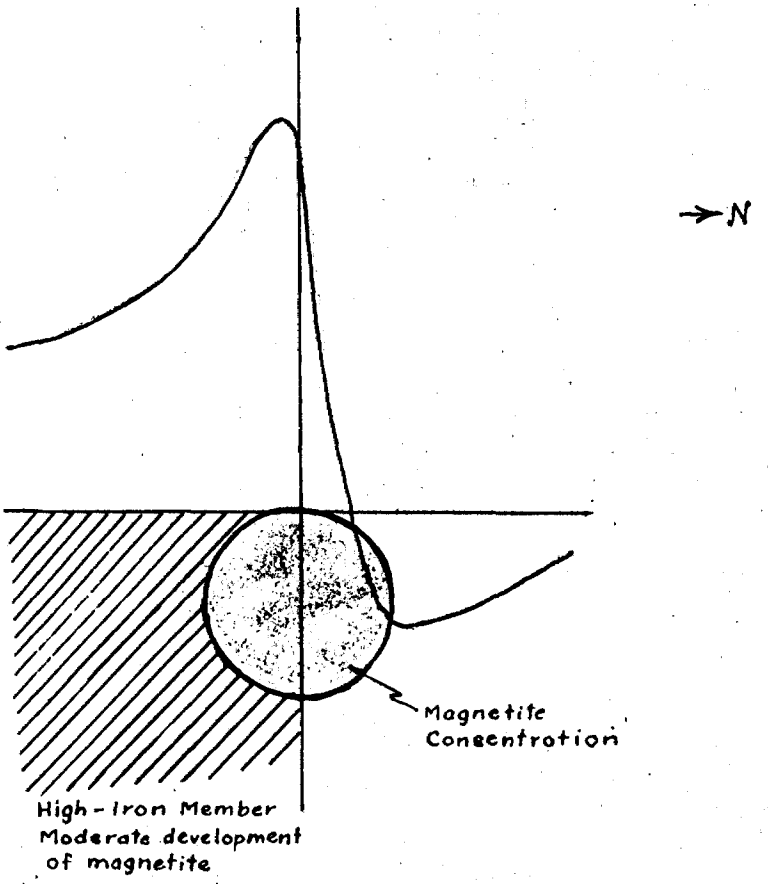


FIG. 8 THEORETICAL POSSIBILITY

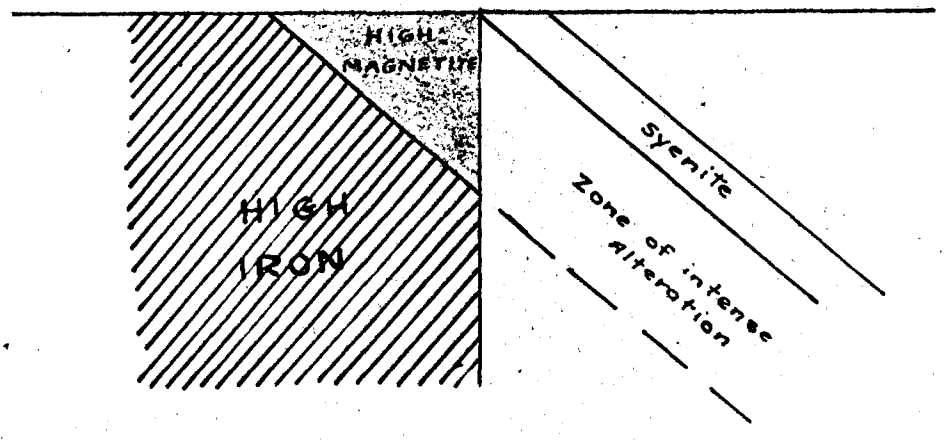


FIG. 9 PRACTICAL POSSIBILITY

Syenite bodies in the area do dip to the north at a flatter angle than the apparent dip of the flows.

This theoretical interpretation was made before the detailed geological mapping had been done. When the mapping commenced it was not surprising to find that a band of rhyolite corresponded closely with the northern band of magnetic low seeming to substantiate the theoretical interpretation.

Although the material is called rhyolite it is apparent that it is not extrusive material but is a rhyolite appearing rock produced by intense silicification and albitization along this band which may be a fault , a flow horizon or an interflow contact. The contacts of the rhyolite band are gradational into the basalt and no information on dip could be obtained. Exposures are poor on this band.

With the rhyolite tending at least in part, to substantiate the theoretical interpretation of Figure 9 along the north band of magnetic low it was surprising to find that the southern band of magnetic low, much the larger band, contained no silicification over a considerable portion of its length.

Near line 105 + 00E there are continuous outcrops across the band except for an interval of about 30 feet which marks a prominent East - west gully. The material on either side and for a long distance in either direction both north and south is, macroscopically, a uniform medium - to coarse-grained, diabasic, basalt flow.

There is no obvious reason, from examination of the outcrops, to explain the anomaly. However referring to Figure 9 it is possible that the effect of the syenite band (which is considered to confine the solutions) could be obtained if the solutions were confined to a fault. The fault would be less likely to rigidly confine the solutions, as the rhyolite could, thus a zone of leaching could extend on either side of the fault. The leaching effect could be largely confined to the magnetite. This seems the most likely explanation of the southern band of magnetic low.

The belts of complex local anomalies (1), (2), (3) listed in the early portion of this interpretation cut off very rapidly on the east and west. Comparison with the geological map indicates that this cut-off coincides closely with fault zones.

The southern belt (1) ends against a north south fault zone on the west and against a northwest trending fault on the east.

The central belt terminates on the east against the same north-south fault zone that cuts off the west end of the southern belt.

The abrupt reduction in magnetic level appears to be due to the action of faulting or some factor confined to the fault zone. Some silicification occurs along the faults but there is no evidence from macroscopic examination of the rock to explain the reduction in magnetite.

If the action of faulting is alone responsible for the reduction in magnetite, (by shearing the magnetite grains) then there is an indication

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The central belt terminates on the east against the same north-south fault zone that cuts off the west end of the southern belt.

The abrupt reduction in magnetic level appears to be due to the action of faulting or some factor confined to the fault zone. Some silicification occurs along the faults but there is no evidence from macroscopic examination of the rock to explain the reduction in magnetite.

If the action of faulting is alone responsible for the reduction in magnetite, (by shearing the magnetite grains) then there is an indication

that the north-south and northwest striking fault pattern is later in age than the hydrothermal alteration.

A peculiar development occurs at the extreme east end of the property where a replacement body of rhyolite material occurs south of the sothern belt of magnetic low. There is an anomalous magnetic high south of the rhyolite again (anomaly A), Apparently the magnetic low in this area is a composite of reaction along the fault and that associated with the rhyolite.

The area of regional magnetite high (+ 4000 gammas) occupies most of the property but in the extreme north-east it drops off eastward to the regional magnetic level and all of the anomalies become unidentifiable in this area.

A more intensive interpretation of the anomalies in the eastern half of the property will have to await the results of thin-section petrographic examination of the large number of specimens collected from this area.

So far we have discussed the eastern half of the property which is distinguished by complex magnetics. Considering the western half of the property, the distinctive feature is the large magnetic low which is nearly circular and covers the area which would be occupied by the highly-magnetic rock if these flows continue to the west. There is no evidence from the geological mapping that these flows do not continue across the low in fact all the evidence is that they do. There isalso no evidence that an intrusive body occupies this position.

Outcrops are very scarce in the area of magnetic low on the western part of the property. Some of the magnetic low can be explained by the projection of the northern and southern belt of low across the area but there still remains the problem of why the central belt of complex magnetic high does not continue to the west also. It was pointed out that the three belts of complex magnetic high terminated against faults or fault zones. There is evidence that a north-south fault system and a northwest fault system both intersect in the western half of the property. This may wholly, or in part, explain the reduction in magnetite hence reduction in magnetic level. There is evidence that silicification also accompanies the two fault systems which intersect in the western part of the property. There thus seems to be a good possibility that the central part of the anomalous low may be due to intensive silicification.

Silicification is most intense on other parts of the property where either fault system encounters the east-west belts of magnetic low. It seems probable that silicification would be even more intense where <u>both</u> systems of faulting and the magnetic lows all coincide.

The large magnetic low is thus considered to be a composite resulting from:

(a) hydrothermal action along an east-west fault.
(b) hydrothermal action along a belt of rhyolite.
(c) faulting both north-south and northwest.
(d) extensive silicification.

R. W. Johns

R. W. JOHNS

Dec. 28/51
/dc

CON IV
CON III

BARNET TWP.

THACKERAY TWP.

LEGEND

1. BASALT; from fine grained to very coarse, diabasic or dioritic.
1. EXTENSION OF NON-MAGNETIC BASALTIC FLOW.
3a AGGLOMERITIC & AMYGDULOIDAL FLOW HORIZONS; may in part be due to hydrotheral effects. (dotted where porphyroblastic)
3b EXTENSION OF AGGLOMERATE (ASSUMED)
4 SYENITE
5a RHYOLITE; may be replacement or silicification.
6 SILICIFIED ZONES
7 CARBONATIZED ZONES The zone on the south side of the property consist of calcite veins in a shear. Other zones are carbonatized rock only.
4 SYENITE DIKE
5b PROBABLE EXTENSION OF RHYOLITE BAND.

Outcrop boundary well defined.
Outcrop boundary, gradational into swamp or sand.
Cliff.
× Isolated outcrop.
Fracturing.
Fault.
Pillow lava.
Shear zone.
Trail (and traverse outside of the area of line cutting.
Claim line.
Picket line.
Stripping and trenching.
Stream.
Steep slope.
Morraine.
Ⓐ Location mentioned in text.

CEDAR SWAMP
CEDAR SWAMP
L-56975
HIGH RIDGE
HEAVY BUSH AND DRIFT COVER
CEDAR WET
Low SWAMP
L-57788
CEDAR BOG
SPRUCE TAMARACK SWAMP
L-57791
MARSH
2474
BOULDER SLOPE TO SOUTH
L-56954
CEDAR SWAMP
SPRUCE SWAMP
L-57789
Low GROUND
SPRUCE SWAMP
L-57792
Low GROUND SWAMP WET
CEDAR SWAMP
L-57794
BOG
BASIN
L-56957
L-56951
WATERFALL
BOULDERS
Poplar Flat
HILL
L-57790
L-57793
L-57795
L-56961
L-56958
Boulders
Sand
Beaver Meadow
Shear Zone
L-56959
Beaver Pond
L-56962
L-56963
L-56964
L-56965
Trail
Poplar
L-57059
HIGH HILL
LARGE OUTCROP
LARGE OUTCROPS MASSIVE DIABASIC LAVA
HIGH RIDGE
LARGE OUTCROP

1

CON. IV
CON III
BARNET TWP.
THACKERAY TWP.
L-56949
L-56950
L-56975
L-56954
L-56957
L-56961
L-56962
L-56963
L-56964
L-56965
L-57059
L-56956
L-56959
L-56951
L-56952
L-56953
L-56955
L-56960
L-56958
L-57060
L-57061
L-57062
L-57063
NORTHERN
CENTRAL
SOUTHERN
COMPLEX
LOW
BELT
HIGH
ANOMALY
A
LEGEND
MAGNETIC CONTACT
ASSUMED PROJECTION OF MAGNETIC CONTACT
DOMINION GULF COMPANY
GROUND MAGNETOMETER SURVEY
BARNET - THACKERAY TWPS. CLAIMS
GROUP II
BARNET & THACKERAY TWPS. - PROV. OF ONT.
SCALE: 1" = 400'
DATE: OCT. 12, 1951.
CONTOUR INTERVAL 1000 GAMMA
CONTOURED BY H. RICKETTS

SAND

CEDAR SWAMP

LAKE

SAND HILLS

SAND

TERRACE

BOULDER

SAND

HIGH PLATEAU

PLATEAU

SAND PLAIN

SAND AND BOULDER

SLOPING EAST

HILL

WINDFALL

BOULDERS

L-56951

L-56952

L-56953

L-56955

L-57060

CEDAR

L-57063

Poplar Flat

HILL TOP

Boulder

BOULDER MORRAINE

L-56956

L-56960

L-56959

L-57061

Shear Zone

Beaver Meadow

Sand

Poplar

Pond

Beaver Pond

L-57059

HIGH HILL

L-57790

VERY HIGH RIDGE

BOULDER SLOPE TO SOUTH

63.262

DOMINION GULF COMPANY

GEOLOGICAL PLAN

BARNET - THACKERAY TWPS. CLAIMS

GROUP II

BARNET & THACKERAY TWPS. - ONTARIO.

SCALE: 1"=400' OCT. 19, 1951.

R.W.J.