



42B01NE0060 63.440 REEVES

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GEOLOGICAL REPORT ON PART OF BROMLEY OPTION
REEVES TOWNSHIP, ONTARIO.

INTRODUCTION:

The property under discussion lies 35 miles southwest of the Town of Timmins and can be reached most easily by air from the Town of South Porcupine. The prospect can also be reached by leaving the C.N.R. Transcontinental line at Kukatush, a depot of the Spruce Falls Pulp & Paper Company, and from which a fair lumber road goes north. The five mile tractor road leaves the Spruce Falls road at Mile VI and goes south and east, crosses the Nat River and two bad cedar swamps before continuing on high ground to the camp.

Picket lines 200' apart were cut over the interesting ground in late winter. Detailed geological mapping was done over this area in May and June of 1952 with the purpose of outlining the asbestos bearing serpentine bodies.

The report accompanies the recently completed map of the area - scale 1" to 200'.

Previous reports on the area are as follows:

"Preliminary Report on Bromley Asbestos Prospect, Reeves Township" - H.K. Conn, November 1951.

"Preliminary Report on Asbestos Prospects in Reeves and Penhorwood Townships, Ontario".
- R.W. Phendler, February 1952.

Invaluable assistance was given to the writer by G. Montambeault and D. J. Straw.

The mapping programme was carried out in conjunction with an exploratory drilling plan. The drilling is continuing. Mapping outside the serpentine area is progressing according to schedule.

SUMMARY AND CONCLUSIONS:

The area mapped by the Johns-Manville Exploration crew in Reeves Township during May and June of 1952 covered three separate serpentine bodies. The smallest two were barren of fibre and it is not believed they should be investigated further, except in the case of assessment work on the claims. The southwest protrusion is a barren light serpentine and a drill hole should be put down to make sure that the surface exposure is not just a barren section. (See Map).

GEOGRAPHY:

The relief is relatively low with the highest hill extending about 150' above the lake level. This hill is the one on which the asbestos prospect is located. Drainage in the area is to the north through the West Crawford River and farther west the Nat River. Chub Lake, 1-1/2 miles east of the showing is the largest in the immediate vicinity, being 2,400' long and is the one used at the present time for the airlift. The ground between camp and lake is composed of low, rolling sand hills and consequently a good tractor road has been built. Immediately west of the camps the topography makes an abrupt change to a much rougher terrain - extensive swamps, low hills with clay soil with consequent numerous, almost impassable windfall areas. The prospect is located in an area such as this. The danger of forest fire is high throughout the summer months.

Temperature throughout the year has varied from 60° below zero to 85° above.

Outcrops are fairly abundant in the north part of the area mapped but towards the south they become scarcer.

Good timber is scarce with the camps in the best stand in the vicinity.

STRATIGRAPHY AND PETROGRAPHY:

The area mapped is underlain by four rock types or map units; Greenstone, Diorite-Gabbro, Serpentine, Diabase. They will be discussed in this order, the oldest first.

The greenstones are predominant in the area extending across the J-M. claims to Chub Lake and in all directions for some distance (according to Dr. Dodds reconnaissance geological map of 1927). In general, the strike of these volcanics is slightly north of east with the dip consistently being steeply to the north. They are highly sheared in places with some mineralization (pyrite, pyrrhotite) being seen. The rock itself is green in colour, quite fine grained and almost andesitic in places. There is a distinct lack of quartz veins throughout the volcanics but a network of ladder veins of blue grey quartz was encountered at the east end of the main hill, fairly close to the serpentine-greenstone contact. Stripping and blasting had been done by J. C. Bromley (a prospector) with no success.

The acid volcanics are carbonated as are the ultrabasic peridotites east of the diabase dyke. This rock has a stony texture, is quite soft and has not stood up to weathering as has the uncontaminated greenstones.

The diorite-gabbro mass is found in the southern section and extends outside the area well below the Township line, although narrowing somewhat. It is a medium-grained quartz diorite on the north, grading to a slightly more basic coarser-grained variety on the south; almost a gabbro. Contact phenomena definitely places the diorite-gabbro younger than the

volcanics. The diorite is pale grey on fresh surfaces but weathers to a slightly darker grey.

The majority of the serpentinite is the light weathering variety - medium grained and fairly massive.

Magnetite is finely disseminated throughout the serpentinite and magnetite veins up to 1/2" were seen. Under the microscope, a typical specimen shows secondary fracturing with minute veinlets of antigorite or chrysotile. The rock is composed of 93% antigorite, 5% olivine, 2% pyroxene and magnetite.

Magnetite ex-solution particles surround a few former pyroxene crystals. Rounded pseudomorphs of antigorite after olivine are present, some with cores of unaltered olivine. The latter shows a yellowish-brown alteration. This rock may be termed a highly serpentinitized dunite.

A strongly persistent diabase dyke strikes slightly west of north across the map area, dipping 75° - 80° to the west. True thickness is approximately 80'. The rock is fine grained, dark grey, massive on the edges and grades to a medium grained rock towards the centre. To the south, the dyke is somewhat lensy, but farther north it can be followed as a parallel-walled intrusive.

Microscopic study by J. C. Gill revealed essential minerals - plagioclase 40% (AN 48), augite 25%, alteration products - uralite 10%, biotite 5%, chlorite 4%, epidote - clinozoisite 4%, and 2% accessory magnetite ex-solution.

Considerable alteration of augite and feldspar is apparent.

GEOLOGICAL HISTORY:

This region is underlain by Kewatin and Early Pre-cambrian acid volcanics that are practically vertical and strike a few degrees north of east. The diorite-gabbro intrusion came in from the south and the magma differentiated into the diorite on the north part of the plug and to the gabbroic rock farther south.

The north-south break probably appeared for the first time at this stage, although probably quite near the peridotites were the next intrusives, and are possibly an ultrabasic phase of the earlier diorite-gabbro intrusion.

It has not been ascertained whether the serpentinization of the peridotites took place before or after the intrusion of the diabase dyke but there are indications, in the contact zones seen in the diamond drill core, that suggest the serpentinization took place after the intrusion.

In general, a rock as easily weathered and eroded as serpentine is found in the low lying areas but in this case the serpentine plug has been protected by the more resistant and baked volcanics surrounding it.

It is believed that continental glaciation has eroded much of the fibre bearing rock but strangely enough there is a distinct lack of serpentine boulders to the south.

A 150' high esker can be followed for a number of miles running north-south between Chub Lake and the asbestos showing. This could possibly be utilized as a source of gravel for road construction in the area.



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GEOLOGICAL INTERPRETATION OF MAGNETOMETER
SURVEY
IN
REEVES TOWNSHIP - SUDBURY MINING DIVISION.

INTRODUCTION:

A geological interpretation of detailed magnetic data and geological information, covering claims S-58866 - 68 in Reeves Township, Ontario, is presented herewith.

The magnetic survey was carried out by measuring the vertical component of the earth's magnetic field, at stations located 100' apart or less, along control lines at 200' intervals. A Watts Magnetometer was used in this work. The scale constant was 23.6 gammas per scale division.

The survey is not tied into an O. D. M. base station, due to the isolated location of the claims.

The interpretation is indicated on the accompanying detailed map on a scale of 1" to 200'; also shown are surface features, picket lines and stations, base line, magnetic readings and contours, and geological data.

Magnetic profiles were drawn to assent the interpretation.

The geology is taken from a private report on this property by R. W. Phendler, and from diamond drilling for Canadian Johns-Manville Company, Limited.

GENERAL GEOLOGY:

The area is underlain by rocks of Precambrian age, as indicated by outcrops on the accompanying map. Glacial and recent deposits of clay, till and muskeg are prevalent. The major rocks are:

Oldest: - Keewatin type; Volcanics.

Haileyburian type; Serpentinized peridotite and dunite (Serpentinite) with diorite - gabbro.

Youngest:- Keeweenawan; Diabase.

The volcanics strike east-west and dip steeply. They are intruded by an irregular basic - ultrabasic stock ranging in composition from diorite to serpentinized dunite. This intrusive may be conveniently divided into an ultrabasic facies of serpentinite, and a basic facies of diorite - gabbro. A north-south diabase dyke is the youngest rock type in the area and can be observed intruding all other rocks.

Faulting and shearing are prevalent; schistosity is well developed in the volcanic rocks.

GEOLOGICAL INTERPRETATION OF MAGNETIC DATA:

This claim group contains numerous rock outcrops, which together with several drill holes provide the basis for reasonably accurate interpretation.

A major complication is introduced by the flat dipping contacts between the intrusives and the volcanics, between the gabbro and the peridotite, and the irregular carbonatization and/or talcification of the serpentinite.

Volcanics:

Volcanic rocks in the area located several thousand feet north-west of the map sheet and distant from the ultrabasic rocks, show magnetic readings of the order of 2300 - 2400 gammas, with occasional readings up to 3000 gammas over local magnetite concentrations in outcrops. The volcanics within the map sheet, which form an east-west band in the centre of S-58867, and an irregular mass in the north-east part of S-58866, have a background of 3600 - 4000 gammas, on the average. This abrupt increase of some 1000 - 1700 gammas in volcanics of similar if not identical origin to those to the north-west of the map, suggests that serpentinite may underlie these outcrops at relatively shallow depth. (see section under Serpentinized Peridotite.)

The exception to this general statement is the area along line 45/00 N, 17/00 E. Here a low reading area from 1200 - 3000 gammas is present. The small serpentinite outcrops shown in this area are believed to be mainly composed of large pieces of talus which migrated downslope from a steep, south-facing ridge of serpentinite, situated along line 47/00 N, and immediately north of the "low". This interpretation was later confirmed by D.D.H. No. BR-14 drilled south beneath the large serpentinite outcrop above-noted on line 47/00 N 14/00 E. The drill hole encountered volcanics beneath the serpentinite outcrops.

The extreme "low" of 1159 gammas is believed due to the lower pole effect of a dipole caused by the north-dipping peridotite mass at its eastward termination.

The moderate "low" shown on lines 29/00 N and 31/00 N, 15/00 E, is covered by overburden, and may be caused by remnants of volcanic rocks in an area predominantly underlain by serpentinite.

Serpentinized Peridotite and Dunite (Serpentinite):

This ultrabasic body, conveniently termed serpentinite, underlies the major portion of the map sheet, and is of potential economic interest.

The magnetic background for serpentinite in this section is extremely variable, due to the considerable magnetite content (average about 5%) and its erratic distribution in veinlets and disseminated masses. Hence readings on rock outcrops have extreme variation, from 5000 to 8600 gammas. The varying depth of overburden, covering the serpentinite, causes a marked decline in the readings to a low of some 4000 gammas.

Areas of extreme carbonatization and/or talcification may also cause abrupt reductions in the "normal" spread of the readings. This is believed to be caused by the partial, and in some cases, nearly complete replacement of the magnetite (and other constituent minerals) by carbonate and/or talc. The lower readings in the section along line 41/00 N and 10/00 E may be due to this effect. Similar alteration is found in the upper sections of both D.D.H. No. BR-74 and BR-75.

No major zones of faulting or shearing in the serpentinite were noted, probably due to the fact that highly sheared peridotite ("fish scale") is very readily eroded. Some cross faulting in the vicinity of lines 23/00 N to 29/00 N, 12/00 E is suggested by geological mapping and magnetic interpretation; however, other geological solutions are equally tenable.

The most pronounced structural feature is the moderate dip of the serpentinite masses to the north-east and east. This is confirmed by D.D.H. No. 14 abovementioned, and the suggested dip of the contact is

about 45° N. The abrupt termination of the serpentinite contact (magnetically speaking) against the diorite - gabbro, and the location of the basic - ultrabasic contact in D.D.H. No. BR-74, further supports this contention. The magnetic readings noted under the section on volcanics indicate that the serpentinite underlies the volcanics in the north-east part of Claim S-58866 and the eastern part of Claim S-58868. Heavy overburden in the latter area precludes immediate confirmation of this interpretation. Some roof pendants of volcanic rocks may also be present in the latter area.

Diorite - Gabbro:

This rock type adjoins the serpentinite on the south and south-west, in the south-west portion of Claim S-58868. The background readings are of the order of 2400 - 2700 gammas, and the magnetic field is typically featureless. The major structural feature of interest is the moderate north dipping contact between the diorite-gabbro and serpentinite, as previously mentioned, in D.D.H. No. BR-74.

Diabase:

A very persistent diabase dyke extends south south-east from No. 4 post of S-58866, to the vicinity of No. 3 post of S-58868.

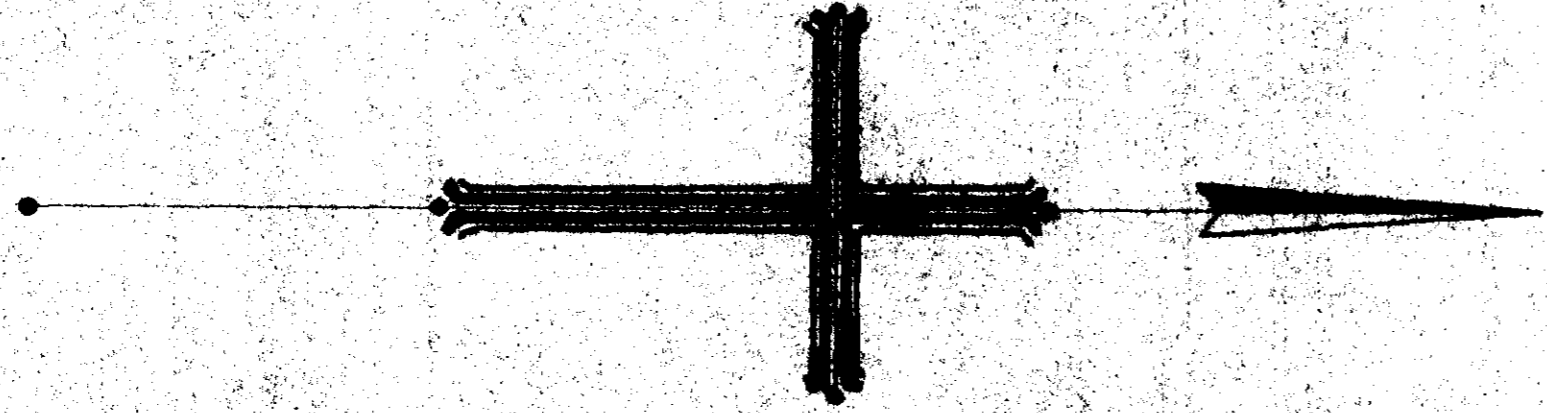
It may be traced magnetically with reasonable accuracy by a series of relative "lows" within the serpentinite. The dyke is too narrow (about 40 feet in width) with respect to the spacing of the magnetic readings (at 100 foot intervals) to provide an estimate for the average range of readings. Further the surrounding serpentinite masks the effect of the dyke unless the stations are fortuitously near the dyke centre, as suggested by the reading of 2903 gammas on line 29/00 N, 10/00 E. The extension of the dyke in the diorite - gabbro to the south of the map sheet tends to show slightly higher readings than the latter rock.

The dyke could be accurately located by reading stations at 10 foot intervals along its projected strike.

CONCLUSIONS:

The magnetometer provides an excellent tool to delineate rock types of moderate magnetic contrast, as is the situation in this area.

The results must be interpreted from a geological view point, and a reasonable amount of detailed geological mapping is a prerequisite for a useful interpretation.



PART OF BROMLEY OPTION





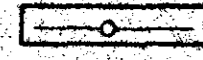
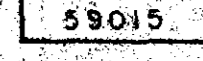
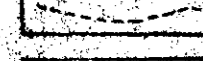

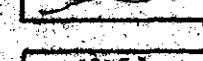
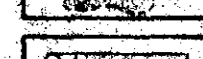
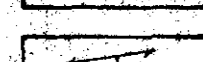

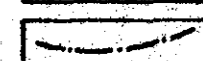



REEVES TWP.

ONTARIO

MAGNETIC & GEOLOGICAL SURVEY

SCALE: 1" = 200'

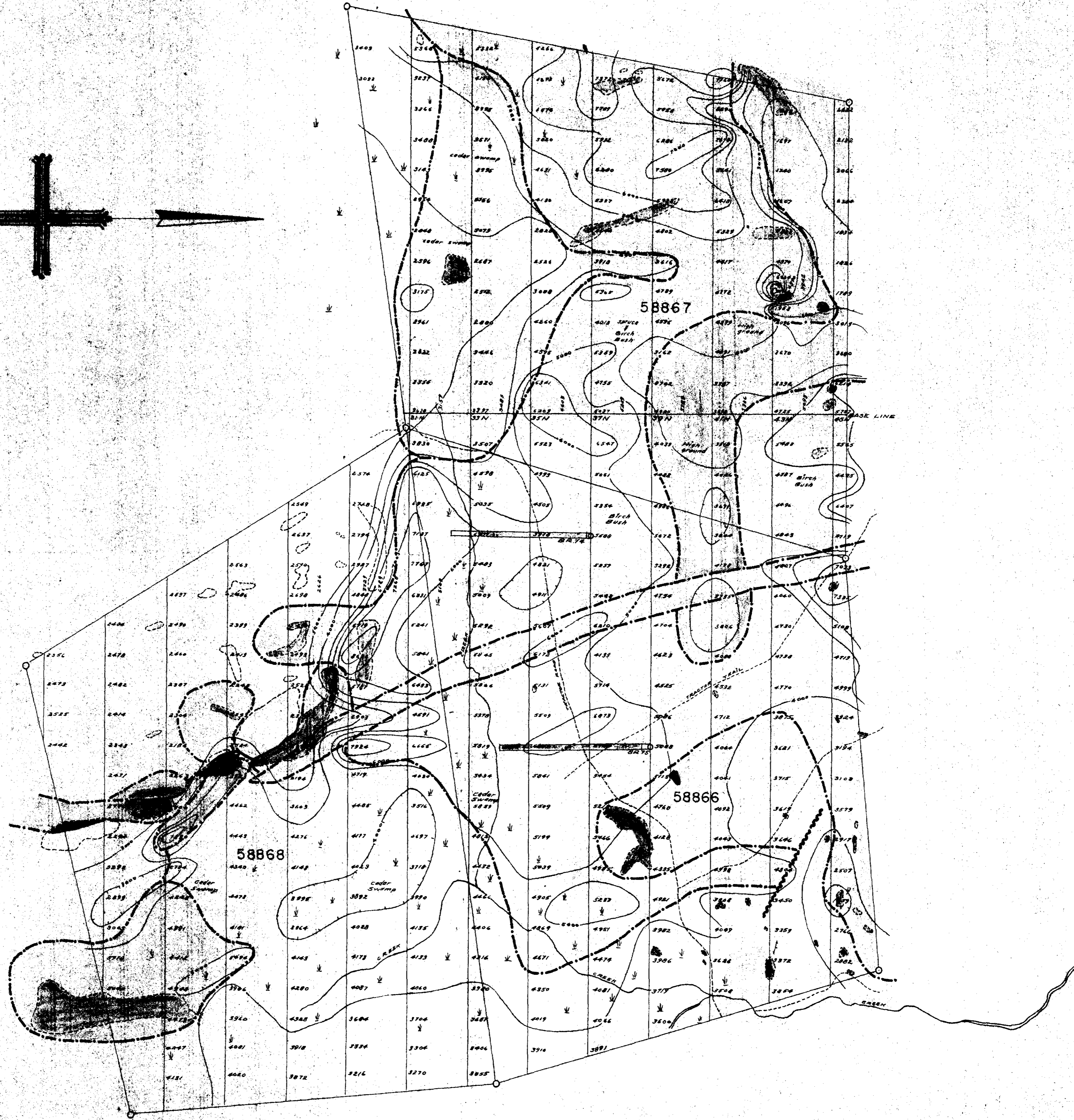
LEGEND

-  Diabase
-  Serpentine
-  Gabbro
-  Volcanics
-  Claim Lines and Posts
-  Claim Numbers
-  Tractor Road
-  Swamp
-  Creek
-  Rock Outcrop
-  Diamond Drill Holes
-  Strike and Dip
-  Geological Contact: Observed
-  Geological Contact: Assumed (Geomagnetic)
-  Magnetic values in gammas along picket lines
-  Magnetic Contours

Geological survey: May - June 1952 - Revised August 1952.

Magnetometer survey by K.G. HONEYMAN - March 23-30, 1952

To accompany report on interpretation of magnetic data by H. K. Coon, May 1954.



File 63-440



Certified true copy - H.K. Coon