



42B01NE0115 63.898 PENHORWOOD

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General Statement:

The Jehann Fringe group comprises nine claims (S-97107, and S-97131 to S-97138 inclusive) which lie scattered along the western margin of the Jehann Lake group. S-97107 lies by itself, straddling the Nat River at a point about 2½ miles due south of the Warren Lake highway bridge over the Nat. The next four claims form a group south and west of the big easterly bend of the Nat, with its centre at about 2,500 feet south of S-97107. The last four claims form an isolated compact group along the west side of the upper Nat, its northern boundary being some 1,500 feet south of the other group.

The group was surveyed, between the period June 24th to July 3rd, 1957, by a group comprising P. V. Freeman, J. Mercure and I. Katofsky. Headquarters for the survey was the old drill camp on the upper Nat River, which was currently being used by a geomagnetic team (G. Adams and G. Cobby).

Previous Work:

The claims of the Jehann Fringe Group do not appear to have been surveyed geologically before. The Jehann Lake Group to the west has been mapped previously.

Geomagnetic (Sharpe's dip needle) surveying is being carried out in the group at the time of writing.

Topography:

The area to the south and west of the Nat River, in which the Fringe group claims lie, shows relatively varied relief, having a marked north-south grain. Thus, especially in the south, there is a succession of ridges and hollows or valleys. Some of the ridges are due to outcrops, others are apparently of glacial origin. The maximum relief encountered was estimated at 100 feet. In the west is the narrow, rather shallow valley of the upper Nat River. From the south of the claims group until about 70+000 this river has a fairly marked gradient and has quite a swift current with rapids in places. North of 70+000 its

current is checked and it meanders along a flat, swampy flood plain covered with dense alders. West of the Nat the land rises to a broad, open ridge rising to perhaps 100 feet above the river, especially in the northern half of the group. This ridge shows very few outcrops and is covered by a mixed growth of poplar, spruce and pine. Its continuity north-south is interrupted in two places. At about 94+00S the river makes a sharp bend to the west, before resuming its natural north-south course and here cuts across this western ridge. Also at about 64+00S a SW-trending swampy valley breaks across the ridge. West of this ridge is generally a broad north-south belt of swamp, supporting spruce, alders, cedar and tamarack of varying density. This area is, as would be expected, free from outcrops. In the northern third of the area, the swampy belt opens out into a general area of swamp so that west of claim S-97136 and all of S-97135 and S-97107 are free from outcrop.

West of the swamp belt the topography is a series of, at times, quite sharp north-south trending ridges with intervening valleys, the latter often swampy. As can be seen from the map, the strike of the rocks is everywhere about NE-SW, so that the topographical 'grain' cuts the geological 'grain' at a 45° angle. One is therefore inclined to ascribe the topography to glacial agencies rather than to any differing hardnesses in the rocks.

Apart from the Nat River, there is no surface drainage in the claim group area. The water in the swamps appears quite stagnant.

Accessibility:

For the purpose of this survey the area was entered by canoe from the Warren Lake highway at Nat River bridge. Paddling time to the old drill camp, approximately two hours. From this camp the four southerly claims were entered by an old drill road, reaching base line on the Nat River at 98+00S. Fallen logs provided a bridge across the Nat. For the northerly part of the survey, access was by means of canoe up the Nat River to 54+00S at about 10+00W. Claim S-97107 was visited separately by means of canoe.

The old drill camp can also be reached by a now overgrown bulldozed road which leaves the Warren Lake highway at a point $1\frac{1}{2}$ miles east of the Nat River bridge.

General Geology:

Formations:

Pleistocene and Recent

Diabase (dolerite) dyke (Matachewan?)
Intrusive contact

Serpentinite (originally pyroxenite?)
Granular ultrabasics including actinolite-fels.
Rocks of apparent volcanic origin
Plagioclase - hornblende/mica gneiss
Gabbro, massive and schistose

The rocks other than the diabase are tabulated in their apparent order of succession. There is no evidence to indicate whether or not this is a stratigraphical succession.

The origin and true nature of some of the rocks encountered is very puzzling in the field and must await results of thin section studies, if these can be carried out.

Gabbroic Rocks:

The main area of outcrop of these rocks is in the extreme south-east of the claims group, in parts of claims S-97134 and S-97131. Generally it appears to be a medium to coarse-grained, dark green, hornblende-plagioclase rock. There may be considerable original pyroxene present, but the rock appears to have been, at least partly, made over mineralogically during metamorphism in the amphibolite facies. Though mostly massive and equigranular, it not infrequently shows a weak schistose structure which is conformable with that in the layered formations to the north-west (see map). Jointing is well developed in this rock.

In places the gabbro had a small magnetite content, and the exposed surfaces were sometimes rust-coloured due to the weathering of this mineral and, perhaps of minute amounts of sulphides.

No noteworthy mineralization was encountered in the gabbro exposures in this south-east area.

Coarse-grained hornblende rocks, of apparently gabbroic origin, were observed in other parts of the claims group. In the north-east corner of claim S-97137, and along the strike north-east of here, there occur isolated outcrops of green, medium-grained, blocky hornblende-gabbro. Due to the isolated nature of these outcrops, their relations to the other rocks in the area cannot be deduced. They do, however, occur in a massif of apparently ultrabasic rocks and could be considered as being local, slightly more acid, facies within this massif.

In the extreme north-west of the area surveyed, in the north-west corner of S-97138 and in the claim to the north (S-93436, not U.J.M.'s) there is a NE-SW striking band of very schistose, medium to coarse-grained hornblende-plagioclase rocks which seem to represent sheared and amphibolitized gabbro. The belt has been affected by later mineralization and carries veins and pegmatitic bodies of quartz, calcite and other unidentified minerals associated with arsenopyrite(?) -(see below). In places a blue-white opalescent quartz has been developed as small 'eyes' or patches within the body of the rock. This quartz may also be related to the same mineralization.

Plagioclase-hornblende/mica gneiss:

This rock type occupies a NE-SW trending belt, about 400 - 500 feet wide, north-west of the main gabbro area, in claims S-97133, S-97134 and S-97131. It overlies, structurally, the gabbro and appears to be conformable. Nowhere was the contact between the two rock types seen.

The rock consists of large, augen-like individuals of feldspar, set in a schistose matrix of dark green to black hornblende and/or mica. It is quite coarse-grained, the feldspar augen reaching dimensions of about one-half inch. The rock is strongly lineated, with the lineation generally plunging in the direction of full dip.

This rock type could possibly be a sheared granite or syenite or even feldspar-porphyry. It appears to show a silt-like form in relation to the other rocks.

No mineralization was seen associated with this rock type.

Rocks of apparent volcanic origin:

These form the most abundant rock type of the claims group, occupying most of claim S-97133 and all of S-97132, and part of S-97131. Local variants of them also occur in parts of S-97138 and S-93436.

In the southernmost group of claims the rock type is fairly constant, comprises a grey or light-grey, quite fine-grained, granular rock, with either original flow banding or lightly imposed schistosity. Constituent minerals are difficult to determine due to the fine grain, but the rock is highly carbonated. Pure white calcite occurs abundantly as irregular veins and other bodies, and carbonate is also present in large quantities in the body of the rock, accounting for the fine granular (sugary) texture.

Apparently interbanded with the grey types are thin layers of dark green, more schistose rocks, which seem to represent more basic variants. These are very minor in quantity, except in the extreme north-west corner of the surveyed area in claim S-93436. In this area trenching has been carried out in the past, apparently in connection with gold exploration.

In the north-west corner of claim S-97131 a band of the darker schist carries large bodies of barren vein quartz.

Otherwise no mineralization was noted in this rock group.

Granular ultrabasics:

This division has been made on the basis of a megascopic examination of the rocks and should be considered tentative until thin section work can be done.

Apparently ultrabasic rocks, including serpentinite, occupy a large area in the north-east of the claims group, in claims S-97132, S-97136 and

the east of these. They are apparently cut off from the rocks to the west by a thrust plane.

The main rock type is a light grey-green granular, often schistose rock showing no light minerals. In the absence of microscopic determination the exact identity of the feneic mineral cannot be stated. It is most probably a pyroxene of the enstatite-hypersthene group.

Just above the outcrop of the thrust-plane, along line 64+003 at about 27+50W, actinolite has developed in the rock in long, fibrous needles, sometimes with a radiating structure, but showing no preferred orientation. Its development here may be due to stress-chemical conditions, producing the transition Fe-Mg pyroxene -- Fe-Mg amphibole.

In any event the whole block of rocks here are characterized by the association Fe-Mg and must be regarded as parts of one ultrabasic body. It was probably overthrust westward as a single mass.

Serpentinite:

As part of this ultrabasic mass there occurs a limited outcrop of black, serpentinized rock (pyroxenite?) in the extreme north-east of the surveyed area, just east of the easterly boundary of claim S-97136. On fracture this rock shows the typical apple-green subconchoidal flakes of serpentine. No asbestos was observed in the outcrop, though brittle, fibrous veins of picrolite were seen which might be taken as a favourable sign of the possible presence of fibre.

The area might be more intensively prospected, especially if the results of the present geo-magnetic survey are favourable.

Diabase (dolerite) dyke (?Matachewan):

Outcrops of a fresh porphyritic doleritic dyke rock occur at three places on the claims group in such a way as to suggest they are all part of a single dyke, trending about north, north-west. This is undoubtedly one of the younger diabase dykes of the region, usually ascribed to the Matachewan.

Quaternary and Recent:

The overburden in the area consists of glacial or fluvioglacial deposits of sand, sand and gravel or bouldery gravel (possible moraine). They are arranged in long north-south trending ridges, with intervening valleys filled with swamp vegetation.

No direct measurement of glacial striae were made in the area, but there is every reason to suppose that ice transport took place from slightly east of north to west of south as in the rest of the area.

Structural Geology:

The structural trend of the area is remarkably constant between NE-SW over practically the whole area. This is in accordance with the regional structures in this part of the Township.

Folds:

No folds were observed on the claims group or have been deduced from observations. There are no variations in strike which may be attributed to folding. In general lower dips occur in the south-east of the area, where the plagioclase-hornblende gneiss, in particular shows dips as low as 45° to the north-west. Such low dips were, however, recorded in other rock types and, predominantly, these were also to the north-west. Thus as a generalization one can say the rocks in the area strike NE-SW and dip to the north-west at values between about 70° and 45° .

Small scale, or drag folding was not at all noticeable in the observed outcrops, and lineation was not prominent except in the plagioclase gneiss where it was to the north-west, plunging down the full dip of the beds.

In general the rocks seem comparatively little affected by the regional metamorphism. Imposed schistosity is not very marked and in many cases the original layering has been preserved, especially in the volcanics.

Faulting:

One fault has been deduced from consideration of outcrops. It occurs

the south-east part of the area, crossing the mutual boundary of claims 8-97131 and 8-97134. It strikes NW-SE, i.e. at right angles to the strike of the beds and appears to offset the contact between the gabbro and the gneiss some 300 feet horizontally. The movement is sinistral.

Direct evidence of a low-angle fault, or thrust, was observed on line 64+00S at 27+50W. Here a markedly sheared, schistose zone about 5 feet thick, striking 125° and dipping 35° to the north-east, was observed underlying the massif of ultrabasic rocks to the east. The probably thrust plane is therefore cutting almost at right angles the structural directions of the rocks here. It would appear that the massif of ultrabasic has been thrust up and to the west over the green schistose rocks to the west. The continuations of the thrust plane are not easy to deduce. To the north-west the probable continuation is covered by swamp. To the south there is first a block of unsurveyed ground and no direct indications of thrusting can be picked up in the four southernmost claims. However, along line 66+00S, at about 15+00W, is an extremely brecciated and sheared rock type which may be an expression of the thrusting.

Economic Geology:

General Statement: For its area, the Jehann Fringe group shows a fair promise of yielding deposits of possible economic value. The possibilities are tabulated below:-

- A. Asbestos: As already mentioned, serpentized peridotite occurs in the north-west of the area as part of a larger body of ultrabasics. Fibrous picrolite occurs in seams and veins. Although the rocks appear to be highly carbonated (usually regarded as a bad sign for fibre), it seems a closer exploration of this area is warranted. This conclusion would be backed up if high magnetic anomalies are revealed by the present geo-magnetic survey.
- B. Sulphides: On claim 8-93436 there is an old shaft, about 10 feet by 7 feet and about 25 feet deep. Spoil from this shaft is heavily mineralized in parts

with a sulpharsenide which appears to be arsenopyrite. The shaft has presumably been sunk in a search for gold values - the association of gold with FeAsS is a well known one. Since the claim is not one of C. J. M's it is not known what values, if any, were found there.

There is also the possibility that the mineral could be one of the many nickel or cobalt minerals which megascopically resemble arsenopyrite. Chip samples were taken of the richer mineralisation in the spoil heap and it is strongly recommended that these be analysed for nickel, cobalt and copper and that a gold assay be carried out on them.

Although lying outside C. J. M's claims, the strike of the mineralized zone will carry it into claim S-97136 at about 600 feet north-west of the above mentioned shaft. If the analysis prove at all interesting, steps could then be taken to prospect for the zone beneath the swamp over on claim S-97136.

C. Quartz veins: Along the northern boundary of claim S-97131, on line 86+00S at about 20+00 to 21+00S there are exposed large bodies of vein quartz, up to several feet across. Trenches in the neighbourhood point to their having been prospected for gold. It is not considered worthwhile investigating these quartz bodies any further.

P. V. Freeman per J.F.C.

P. V. Freeman,
Geologist.

July 14th, 1957.

Magnetometer Survey:

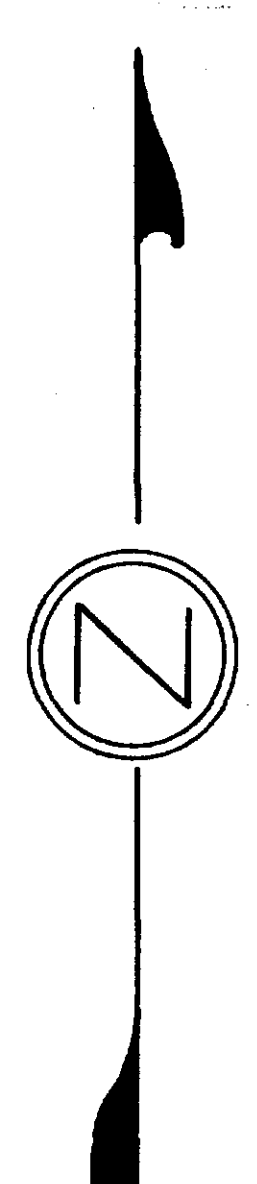
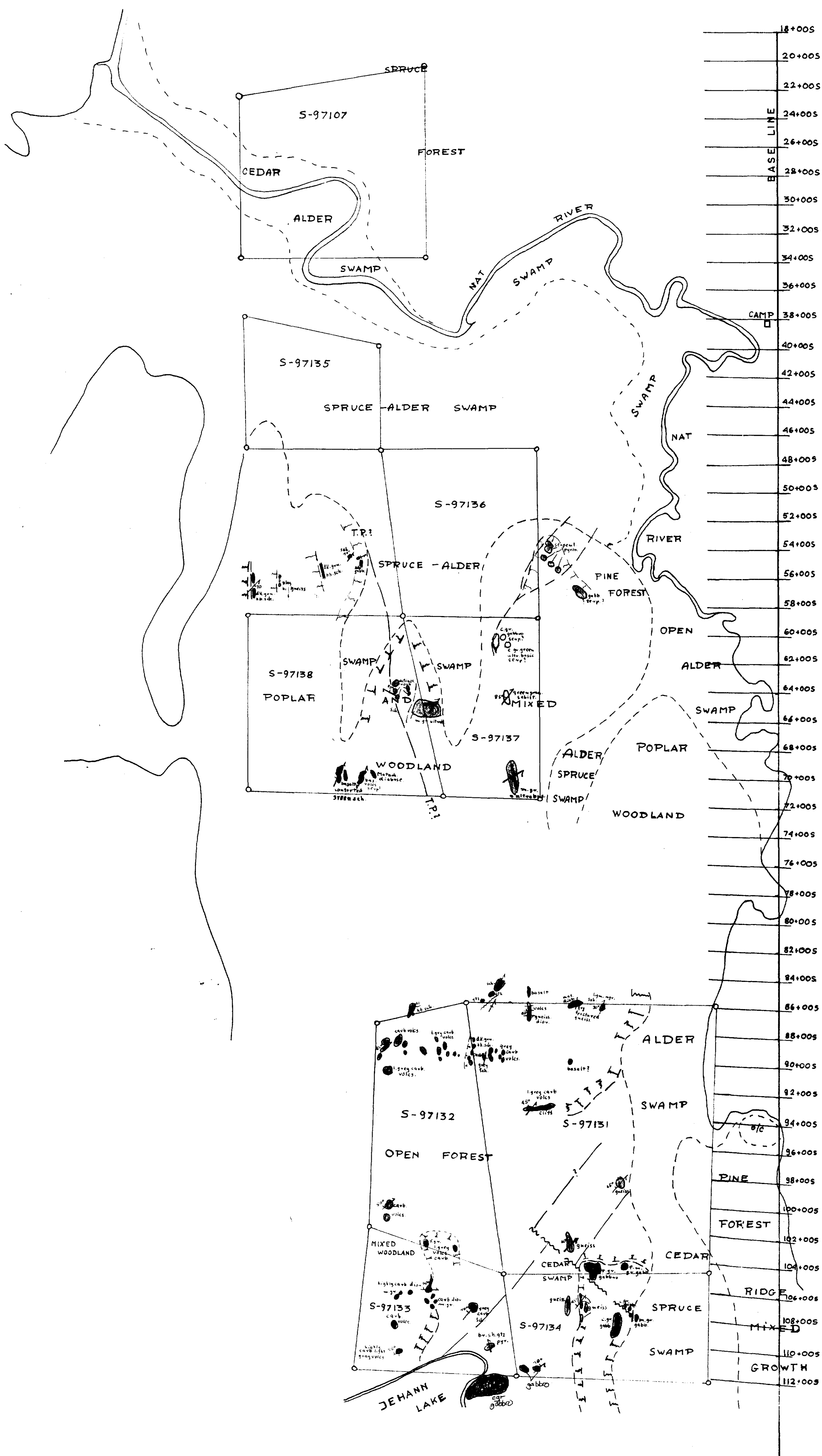
The magnetometer survey on the Jehann Fringe claims is part of a large program which covers the Jehann Group (33 claims) located to the east. This survey was conducted by G. Adams and P. Broughton with the assistance of G. Cobby during the period May 20th to June 28th, 1957, using a Sharp's D-1-M type magnetometer. Magnetic base and control stations were established on the Jehann Group proper and consequently none are shown on the accompanying plan. Readings were recorded on a control station at least four times per day as a check on the working condition of the instrument and the daily diurnal variation. The results of this work are shown on the accompanying plan on a scale of 1 inch equals 400 feet.

Interpretation has been based upon the magnetometer contour plan, geological mapping, regional geology and aerial photographs.

The northern section of the map area lies along the western contact of a northerly trending sill-like body of ultrabasic rocks. Magnetic readings over these ultrabasics range in value from 1000 gammas over highly carbonated sections to 8000 gammas over highly serpentinized magnetite-rich sections. The remainder of the claims group is underlain by intermediate to basic volcanics, gabbroic intrusives and a narrow band of granite gneiss. Magnetic readings over these rock types range in value from 1000 to 2500 gammas.

It should be noted that a detailed interpretation will be completed on this area when the data from the Jehann Group is compiled.


F. J. Evelagh,
Sr. Geologist.

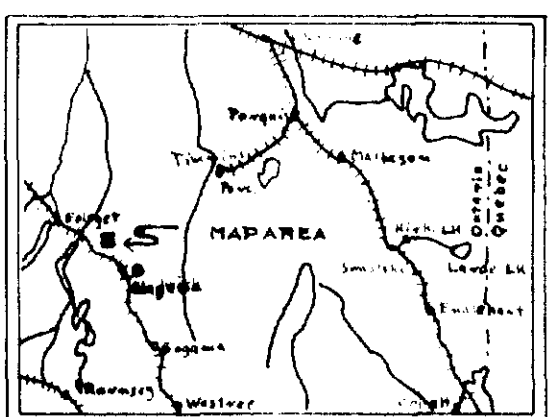


SYMBOLS

- Strike - Dip
- Fault
- Outline of high ground

LEGEND

- Serpentinite (serpentinised pyroxenite)
- Granular ultrabasics, incl. actinolite fels.
- Gabbro, in part serpentinised
- Mafichawan? diabase
- dark green schistose hb.
- light grey carbonated volc. sch.
- plag-hb? gneiss
- c.gr. gabbro & basalt
- Bodies of vein qtz.



LOCATION SKETCH
Scale: 1" = 50 miles

CANADIAN JOHNS-MANVILLE COMPANY LTD.		
MATHESON MUNRO MINE ONTARIO		
GEOLOGIC and TOPOGRAPHIC PLAN		
JEHANN FRINGE GROUP		
SCALE 1" = 400'	DATE July 57	
DRAWN E.M.V. & P.F.	PENHORWOOD	
TRACED H.J.R.	TWP	
APPROVED F.J.E.	P. Freeman	

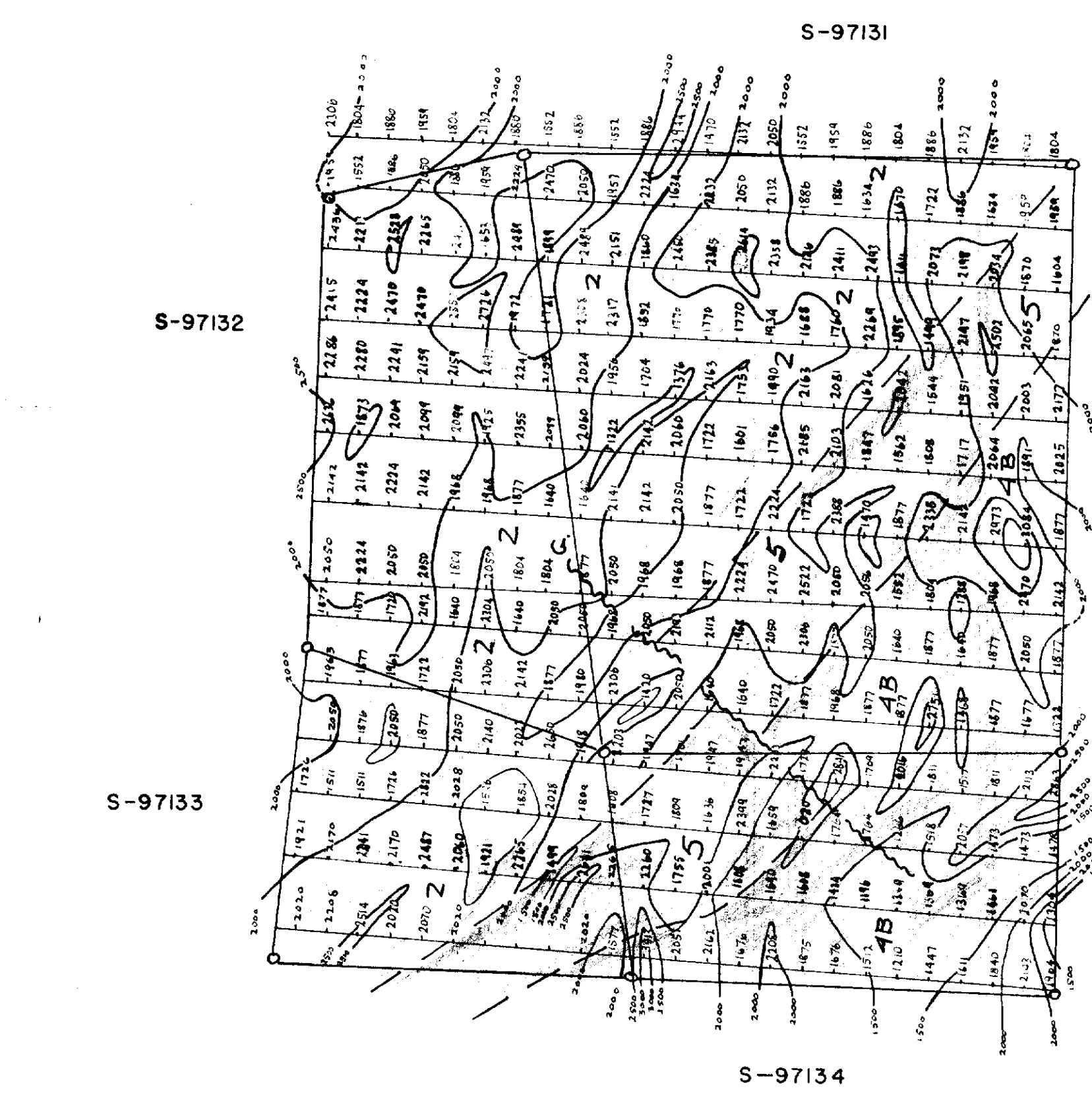
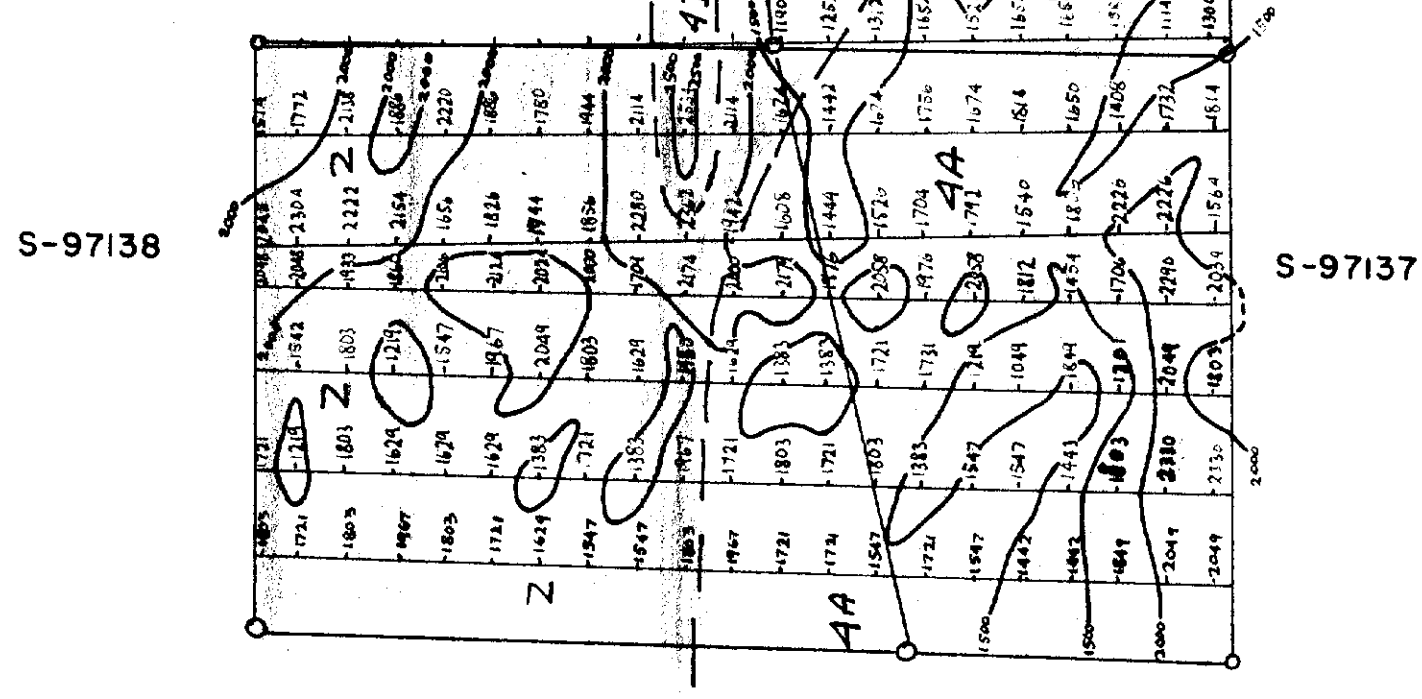
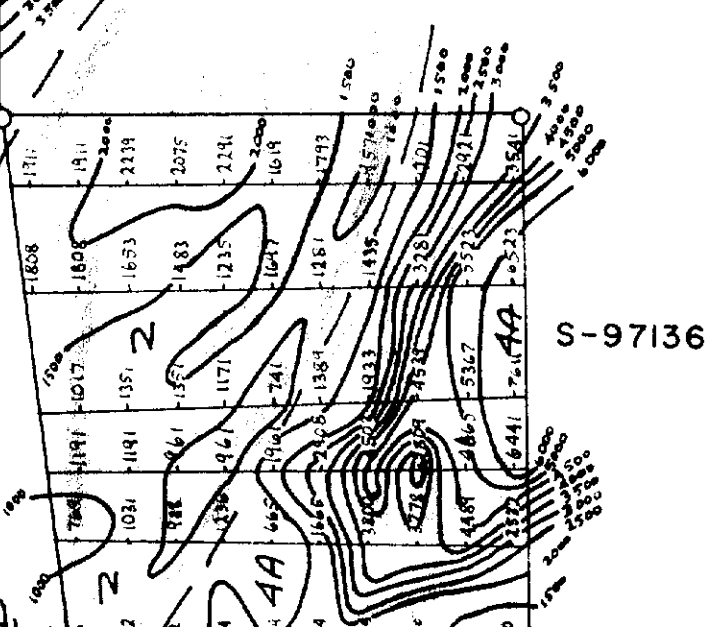
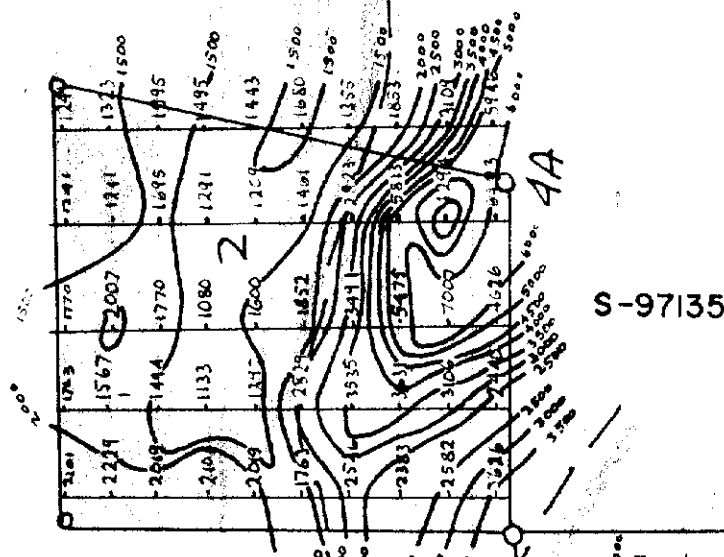
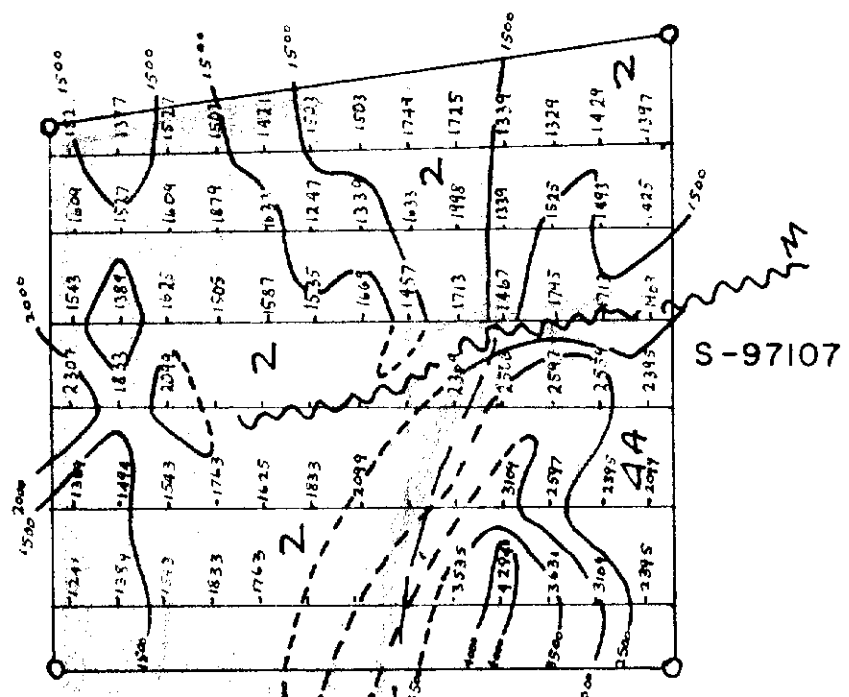
Geology Survey By P. Freeman



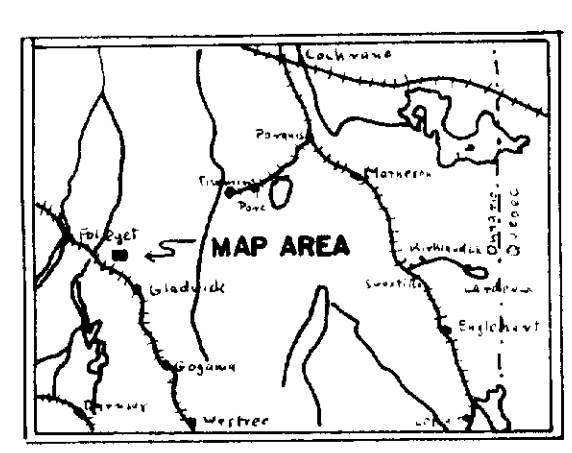
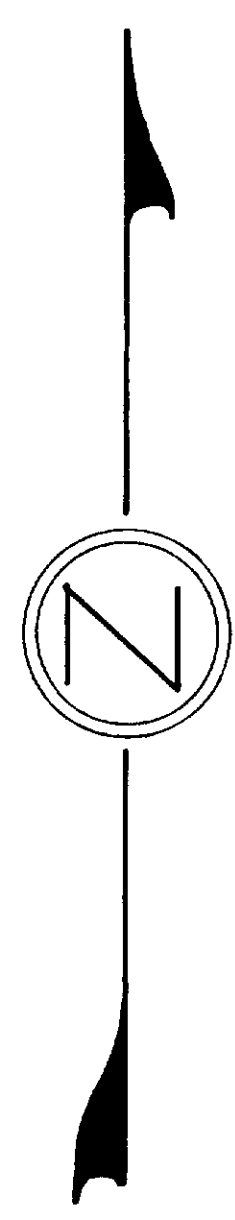
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File 63-898



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96+005
98+005
100+005
102+005
104+005
106+005
108+005
110+005
112+005



Scale: 1" = 50 miles

SYMBOLS

- MAGNETIC BASE & CONTROL STATIONS
- GEOLOGICAL CONTACTS
- FAULT & SHEAR ZONES
- MAGNETIC CONTOURS - 500gamma INTERVALS

LEGEND

- ULTRABASIC INTRUSIVES
- BASIC INTRUSIVES
- INTERMEDIATE-BASIC VOLCS.
- GNEISS

CANADIAN JOHNS-MANVILLE COMPANY LTD.
 MATHESON MÜNRO MINE ONTARIO
 GEOMAGNETIC CONTOUR PLAN

JEHANN FRINGE GROUP

SCALE 1" = 400' DATE July 57

DRAWN L.A.	PENHORWOOD TWP.
TRACED H.R.	
APPROVED F.J.E.	

