



GEOLOGICAL, GEOCHEMICAL, GEOPHYSICAL REPORT

on the

CAN 1 - 56

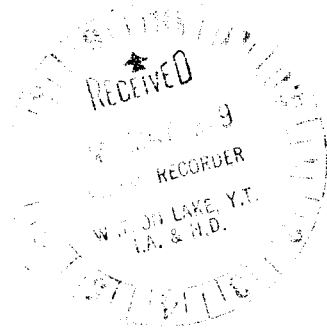
YA 21333 - 21388

MINERAL CLAIMS

MAP SHEET 105B/4

LAT. 60°13'N; LONG. 131°32'W

WATSON LAKE M.D. YUKON



by

J.C. STEPHEN

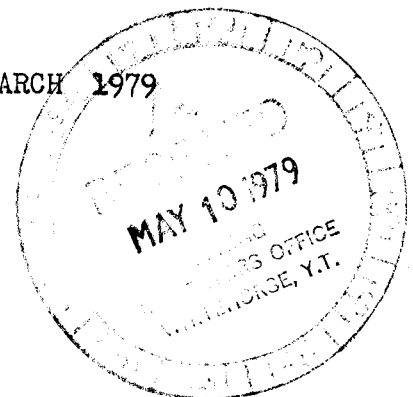
090460

WORK DONE: Between July 15 and Aug. 4, 1978

BY: J.C. Stephen Explorations Ltd.

FUNDED BY: D.C. Syndicate

MARCH 1979



This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work to the amount of \$5,100.00

[Handwritten Signature] 7 June 1979
~~Resident Geologist or
Resident Mining Engineer~~

Considered as representation work under Section 53 (4) Yukon Quartz Mining Act.

[Handwritten Signature]
B. R. BAXTER
Supervising Mining Recorder

[Handwritten Initials]
Commissioner of Yukon Territory

TABLE OF CONTENTS

	<u>Page</u>
SUMMARY	1
LOCATION AND ACCESS	3
REGISTER OF CLAIMS	3
GEOLOGY	
ROCK TYPES	6
MINERALIZATION	9
STRUCTURE	11
GEOCHEMISTRY	
SILT SAMPLING AND PANNING	13
SOIL SAMPLING	14
GEOPHYSICS	
MAGNETOMETER SURVEY	15
CONCLUSIONS	17
STATEMENT OF EXPENDITURES	18
STATEMENT OF QUALIFICATIONS	20

LIST OF ILLUSTRATIONS

MAPS

I	CAN CLAIM GROUP GEOLOGY AND GEOCHEMISTRY	In Pocket
II	CAN CLAIM GROUP SOIL SAMPLE & MAGNETOMETER SURVEY	In Pocket

FIGURES

I	LOCATION MAP	Page 4
II	GROUP SKETCH	5

PHOTOS

1.	WEST END CAN GROUP	Page 2
2.	CAN GROUP Location of Magnetometer and Soil Sample Grid	12

GEOLOGICAL, GEOCHEMICAL, GEOPHYSICAL REPORT

ON THE

CAN 1-56 MINERAL CLAIMS

SUMMARY

1976 silt samples were analyzed early in 1978 for tin as part of a check on silt samples in the Seagull batholith region. Several samples were anomalous with one value of 200 ppm tin being among the highest in the district.

During the 1978 season stream sediments were panned and examined for cassiterite and scheelite. Panned concentrate samples were analyzed for Cu; Zn; W; Sn. Geological mapping was conducted with considerable attention being paid to a search for greisen type zones in the granite.

A local grid was cut in the magnetite skarn area located during 1977 and a magnetometer, soil sample program was conducted.

Several areas were re-examined by the writer when the above program failed to find a source for the tin geochemistry. A series of rock specimens were analyzed geochemically and it has been shown that tin is present in significant quantity in the skarn zones at the west end of the property.

Additional sampling and assaying together with detailed geological mapping are justified to further investigate the tin bearing skarns. The majority of the claims can be allowed to lapse.



PHOTO 1. West end CAN Group. Facing west to Tin Bearing Skarns.

LOCATION AND ACCESS

The claims are located at latitude 60°13'N, and longitude 131°32 W; approximately 18 miles northwest of Swift River, Y.T.

The claim group trends northwest along a large valley which the claims encompass. The valley floor is at 3800' elevation at the south end of the group. The ridges on opposite sides of the valley, as well as at the northwest end of the valley, all reach a maximum elevation of approximately 5700' within the area of the claims.

The claim group is accessible only by helicopter at a distance of 18 miles northwest of Swift River. Location of the claims is shown on Figure 1 and in more detail in Figure II.

REGISTER OF CLAIMS

<u>NAME</u>	<u>RECORD NUMBER</u>	<u>RECORD DATE</u>	<u>WORK FILED</u>	<u>EXPIRY DATE</u>
CAN 1-56	YA 21333 - YA21388	July 15/77	1 YR	July 15/79.
<u>ASSESSMENT WORK TO BE APPLIED TO:</u>				
CAN 13-22	YA 21345 - 21354	Two years work.		
CAN 29-34	YA 21361 - 21366	One years work.		
35-40	YA 21367 - 21372	Two years work.		
CAN 45-56	YA 21377 - 21388	One years work.		



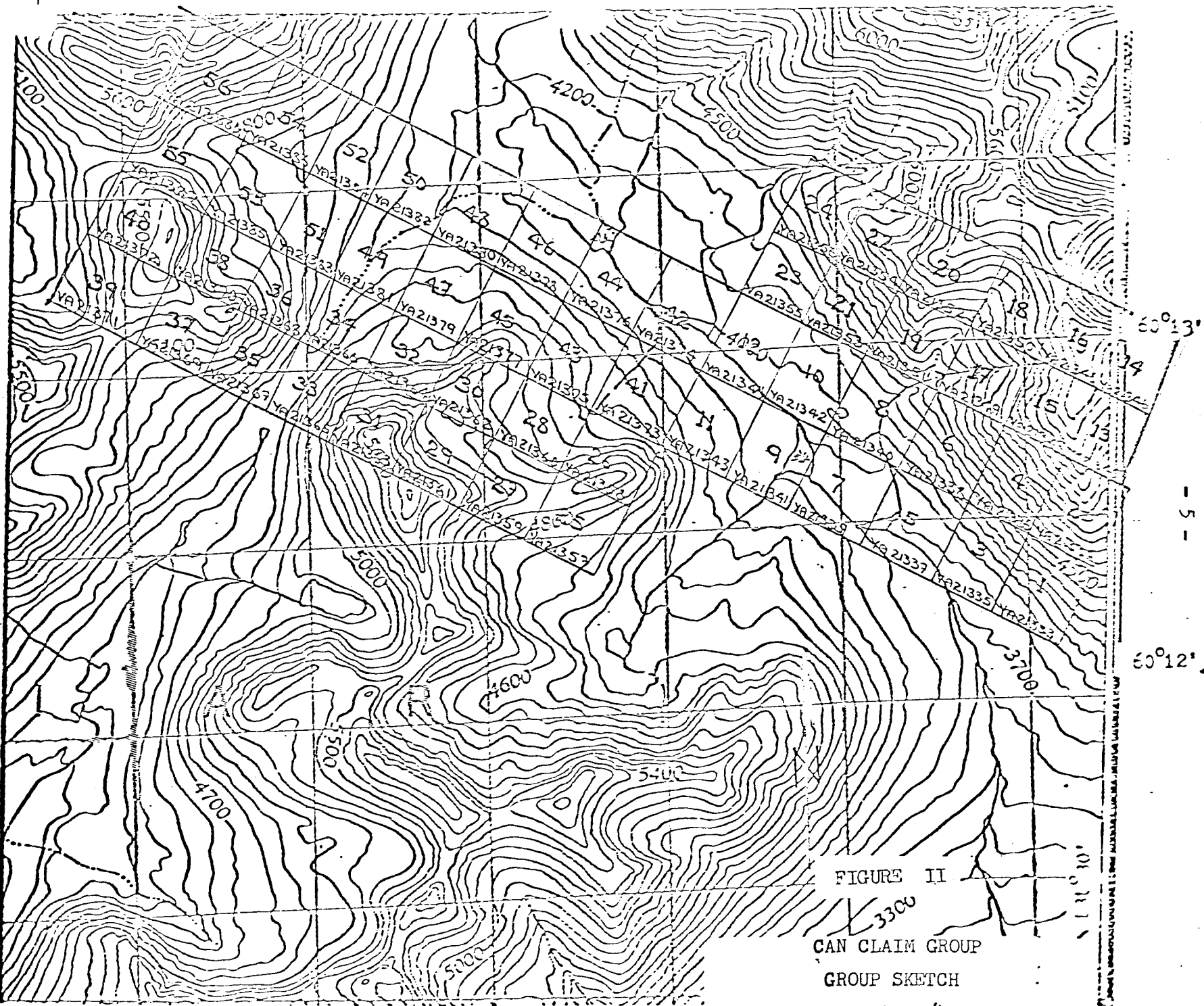


FIGURE II

3300
 CAN CLAIM GROUP
 GROUP SKETCH
 MAP 105B/4

1" - 1/2 mile

1978

GEOLOGY MAP I

The CAN claims lie along the north contact of the Seagull Batholith which intrudes a series of Upper Devonian - Lower Mississippian sediments (GSC Map 10-1960). Skarn zones have developed in limey horizons in close proximity to the intrusive contact. Mineralization consisting of scheelite, bornite, chalcopyrite, unidentified tin minerals, magnetite, hematite and fluorite occurs in various parts of these skarn zones.

ROCK TYPES

(1) Meta Sediments

Argillite, quartzite and graywacke with minor chert and carbonates occur over large areas in the north portion of the claim group. No detailed measurements have been made of sections in this rock type.

Several areas of these rocks cap the batholith south of the claim group at elevations of 5200 to 5600 feet. Close to the contact these sediments are altered and gneissic in appearance.

At the west end of the property these quartzitic sediments occur above the limestone - skarn horizon, as well as below, very similar to the situation on the JC Group to the south west.

(2) Limestone

There are several outcrops of limestone on the claim group. These are relatively isolated but appear to be parts of the same horizon broken by faulting or partially destroyed by intrusion of the Seagull batholith.

Much of the limestone is sparry and white, weathering to dark grey. In places it is massive crystalline and marble like in appearance.

The limestone contains interbeds of silicified limestone and argillite with minor skarns at the contacts of these argillite beds.

(3) Lapilli Tuff

Tuffaceous beds were located in 1977 near the east end of the property where it is a dark, sometimes dark green rock, generally massive with small subhedral lapilli and traces of flow banding.

In the south central portion of the property rocks included in this unit are thin beds of lapilli tuff and fine tuffaceous beds which grade into argillite.

Similar volcanic material occurs to the east on the GULL claims, on the MUN group, and in several other localities. Usually the volcanics appear to lie below the limestone but on the CAN group it has not been possible so far to be sure of the stratigraphic position.

There are probably several beds of tuffaceous and volcanic material so far undifferentiated in the areas classed as metasediments.

(5) Skarn

The original discovery on the property was a narrow magnetite skarn with scheelite mineralization on CAN 19. Other zones were located to the south on CAN 26, 32, 37 and 39.

The most westerly skarn had been reported as a narrow persistent band and had been discounted as a source of the tin geochemistry because of its assumed small size. These skarns are, however, probably the most important on the property.

The west skarns are generally dark green in color, iron rich, with zones of banded hematite and considerable magnetite. Both reddish and dark green lustrous garnets occur.

There are several skarn beds which probably average ten feet in thickness. Thickness varies from an inch or so, along a single bed, to over ten feet and it is apparent the purer limestones were not replaced but that some type of impure interbedded sediment has produced the skarn.

(4) Monzonite - Seagull Batholith

Most of the intrusive seen by the writer is a medium to coarse grained biotite quartz monzonite, generally massive and blocky. In the vicinity of the skarns at the west end of the property there are several coarsely porphyritic phases which have not been mapped separately. These may be younger phases of the intrusive.

Where contacts have been observed there are very few dykes of monzonite entering the sediments and as a result there are very few xenolithic blocks of material within the intrusive.

Some areas weather distinctly rusty. Some of these appear more intensely jointed and there may be some increase in biotite content. No mineralization was observed but some rock geochemistry might be in order.

The coarse porphyritic rocks exhibit large feldspar crystals, quite fresh in appearance. These phases should be compared to similar coarse porphyries in the anomalous Cu Mo W portion of the RAM stock.

(6) Rhyolite

Distinctly younger crosscutting rhyolite dykes intrude the Seagull batholith and older sediments, including skarn, at the west end of the property.

The rock weathers pale buff to white, is fine grained with quartz eyes, and breaks up on the weathered surface into small flaggy pieces.

MINERALIZATION

Prospecting in 1977 located a magnetite skarn, up to 10 feet wide, on CAN 19. This skarn carried disseminated scheelite.

Chip samples assayed (1977)

<u>Sample</u>	<u>Width</u>	<u>Assay</u>	
CAN W No. 1	2'	140 ppm Zn	40 ppm W
CAN W No. 2	2.5'	2.26% Zn	< 0.01% WO ₃
CAN E 0-2'	2'	0.01% Zn	0.03% WO ₃
2-4	2'	0.03% Zn	0.20% WO ₃
4-6	2'	0.02% Zn	0.16% WO ₃

Cominco reported 20,000 ppm tin from a specimen of magnetite presumably from this showing. A random specimen of mixed garnetiferous and magnetite skarn ran 400 ppm Zn, >800 ppm W, 1700 ppm Sn.

On CAN 26 bornite chalcopyrite and coarse scheelite were found associated with the skarn and limestone. Quantities were apparently insignificant.

At the west end of the property skarn zones are interbedded with limestone. Magnetite, hematite, chalcopyrite, malachite azurite, green and purple fluorite, very minor scheelite and, as yet unidentified, tin minerals occur in these skarns. On CAN 32 and 37 samples ran as follows:-

<u>Sample No.</u>	<u>Description</u>	<u>Sn</u>	<u>W</u>	<u>Cu</u>	<u>Zn</u>	<u>Pb</u>	<u>Ag</u>
66506	Composite sample of skarn	180	15	-	1645	-	-
66507	Altered granite	1	-	-	-	-	-
66508	Granite with tourmaline on joints	22	-	-	-	-	-
66509	Random fragments lapilli tuff, minor skarn	90	-	-	144	-	-
66512	Magnetite Garnet skarn	635	-	-	-	-	-
66513	Diopside, hematite, magnetite skarn	145	-	-	-	-	-
66514	Dark green garnets in epidote and calcite	300	-	-	-	-	-
66515	Banded magnetite hematite skarn	>1000	-	-	-	-	-
66516	Light green epidote skarn	95	-	-	-	-	-
66517	Magnetite skarn, minor chalcopyrite	200	-	>4000	>4000	>4000	>20
66518	Magnetite skarn below limestone	48	-	-	-	-	-

The skarns are relatively well exposed in places and should be chip sampled at fairly close intervals to determine grades.

The dark green garnets are relatively large and well formed. They are concentrically zoned and fit Mulligans description of tin bearing garnet from Ash Mountain area to the south east (p 81

Economic Geology Report No. 28 "Geology of Canadian Tin Occurrences").

Larry Dick reports examination by micro probe on green garnets from CAN group reveals tin but in quantities less than 1% and probably not enough to account for the stream geochemistry.

In several places, a series of joints and fractures are filled with fine black mineralization which is probably primarily tourmaline. This fracture filling is most noticeable in the intrusive because of its jet black color. It appears as very thin coating on joints and where more intense it becomes progressively thicker on joint planes, coats thin fractures, fills wider fractures up to perhaps two inches thick and is then often accompanied by white quartz and by fragments of wall rock.

Where this alteration enters gneissic sediments it tends to spread out from the fracture along gneissic or bedding planes.

Sample 66508 running 22 ppm Sn was a fragment of quartz monzonite with a relatively well developed tourmaline filled fracture.

It is thought this type of alteration is related to tin mineralization but no direct connection has been demonstrated.

STRUCTURE

The skarn zones and sediments examined in the central and eastern part of the claim group are generally nearly vertical dipping but at the west end the sediments dip south at moderate angles.

The position of the lapilli tuff on claims CAN 13, 15 and 30, assuming the tuffs underlie the limestone, suggest an anticlinal structure but this has not been demonstrated by any other evidence.

South west of the property along the east side of the JC Group examination of air photos has suggested a north-south linear which may represent a fault. It is suggested the skarn on CAN Group may be the easterly extension of the JC Group tin bearing skarn. More thorough examination of limey horizons in the extreme north west part of CAN Group should be done in search of tin bearing skarn in light of tin discoveries by Dupont-Duval north of JC Group.



Photo 2. CAN GROUP Location of Magnetometer and soil sample grid.

GEOCHEMISTRY

Silt Sampling and Panning

Crews were instructed to pan streams which had been indicated as anomalous for tin. No cassiterite was detected by panning though some traces of tungsten were found. Pan concentrates were collected, pulverized to - 200 mesh and analyzed for Cu Zn W and Sn. Comparisons can be made between results from normal silts and the panned concentrate from closely situated sample sites.

Panned Concentrate					Normal Silt				
Sample No.	Cu	Zn	W	Sn	Sample No.	Cu	Zn	W	Sn
JC 78M-2	24	160	20	170	V615	50	450	8	200
78M-3	26	360	30	500	V580	42	840	5	-
78M-1	24	120	30	370	V579	41	189	-	-
78M-9	36	140	10	160	V569	86	295	-	30
78M-10	56	142	6	100	V575	66	500	5	20
78M-6	46	270	4	125	V662	31	1080	10	-
78M-14	10	90	25	50	V661	6	86	-	20
78M-15	12	110	75	180	V653	8	500	12	20
78M-17	8	124	20	52					

This program did little but confirm the anomalous tin results. Experience on the JC Group indicates cassiterite in the skarn is extremely fine and it is likely it would collect, if present, in such fine state in the panned concentrate that it is not identifiable as such in the field.

Soil Sampling

Map II "Soil Sample and Magnetometer Survey" shows results of soil and talus sampling in the vicinity of the No. 1 showing on CAN 19.

Survey lines are 400 feet apart which is a considerable distance for this type of mineral showing. Samples and readings were taken at 100 foot intervals. Location of the grid is indicated on Map I "CAN Claim Group Geology and Geochemistry."

Moderately high tin geochemistry is indicated at the south side of the main magnetic anomaly. Values range from 5 to 85 ppm Sn. Associated with these values are "kicks" of 5 to 300 ppm W.

To the east a few sporadic tin values occur including one of 150 ppm Sn associated with 17 ppm W at the south end of Line 124 E.

In the north west corner of the grid a value of 251 ppm Sn is associated with 25 ppm W and lower, but anomalous, values occur to the north on line 100 E. No mineralization is known here but mapping is of a reconnaissance nature only and at least one limestone horizon exists to the north.

In the north east corner of the grid three values of 6, 14 and 30 ppm Sn also indicate there may be values associated with this more northerly limestone.

The tenor of results is relatively low and no further work is recommended unless good assay values are obtained in the skarns at the west end of the property.

GEOPHYSICS

MAGNETOMETER SURVEY

PURPOSE

A magnetometer survey was conducted in the vicinity of the magnetite skarn on CAN 19 in an effort to show continuity to the east to link up with diopside skarn near the contact on the east side of the cirque.

METHOD

A McPhar M-700 fluxgate magnetometer was used to take readings at 100 foot intervals on lines cut at intervals of 400 feet. The following is a description of the instrument taken from the manual provided with the instrument.

The field sensitivity of the M700 magnetometer originates in a flux gate element mounted so that its axis of maximum sensitivity is maintained in the vertical plane. The flux gate element contains an excitation winding and a detector winding. In addition there are auxiliary windings around the element which carry D.C. currents. With the auxiliary windings, a D.C. flux is created to cancel the earth's field. **Latitude adjust control and automatic cancelling.**

The flux gate element is continuously excited between saturation levels by an A.C. current. A detector winding consisting of differentially wound coils, picks up zero voltage when the resultant D.C. flux through the elements is zero.

When the external D.C. field changes in magnitude, a corresponding phase-reversible second harmonic output voltage is produced across the detector winding. The second harmonic output voltage is fed to a phase sensitive rectifier system and used to provide a cancelling D.C. current to oppose the external field attempting to unbalance the flux gate element.

The system therefore is a self-cancell-

ing one and at all times approximates a condition of zero flux about the flux gate element.

The D.C. current fed back to maintain the zero flux condition is measured on the display meter and is directly proportional to the change in the earth's field. The meter, then, can be calibrated directly in gammas.

Five meter ranges are provided to permit the measurement of a change of field of up to 100,000 gammas. Because the field at any new measurement station may increase or decrease, a polarity reversal on the on-off switch is provided.

The main application of the instrument is for general ground surveying. Because of the lack of any set-up requirements and the rapid direct meter read out, it provides the fastest and most economical geophysical surveying available compared to any other type of instrument or technique.

With the accessory receptacle the M700 lends itself to many other applications. These are covered in Section 8, under Extended Applications.

RESULTS AND INTERPRETATION

Magnetometer readings are shown on Map II "Soil Sample and Magnetometer Survey". The general magnetic background is in the range of 200 to 250 gammas. The magnetite showing is at 85N on line 104E and is indicated by strongly positive readings. At about 86N on lines 108E, 112E and 116E highs of 580 to 730 gammas were obtained approximately on strike east of the magnetite showing. These appear as an echelon positive anomalies and probably indicate steeply dipping magnetite rich skarn zones over a distance of 1200 feet.

No similar magnetic highs were obtained on lines 124E and 128E although readings of up to 300 gammas are located at 88N and 90N in the vicinity of the skarn indications in that region.

A zone of relatively high readings occurs between 97N and 100N across the north portion of the grid with stronger readings over a larger area in the northeast corner of the grid. A few anomalous tungsten and tin values were obtained in this region and some further prospecting may be warranted.

The magnetic low at 92N, 104E is part of a generally low horizon trending east across the grid. No detailed geological information is available to explain this low.

If substantial tin values are obtained in the iron rich skarns at the west end of CAN group the main magnetic anomaly may constitute a reasonable diamond drill target.

CONCLUSIONS

Significant tin mineralization has been indicated in iron rich skarns at the west end of CAN Claim Group. This is evidently the source of tin geochemical anomalies in nearby creeks.

The similarity in attitude and mineralization to parts of the JC Group skarn suggests the separate showings are part of the same stratigraphic unit. Similar showings are reported on the PONT-SIN claims to the south east.

Rock chip sampling to determine assay values, together with detailed mapping and some prospecting to the north west are suggested. A soil sample and magnetometer survey should be conducted over these showings and their presumed down dip extension.

J.C. STEPHEN EXPLORATIONS LTD.

for D.C. SYNDICATE


J.C. Stephen Manager



LEGEND

UPPER CRETACEOUS or LOWER TERTIARY

- 6 RHYOLITE
- 5 SKARN: diopside, garnet, magnetite
- 4 SEAGULL BATHOLITH
- 3 MONZONITE: quartz, monzonite, quartz feldspar porphyry

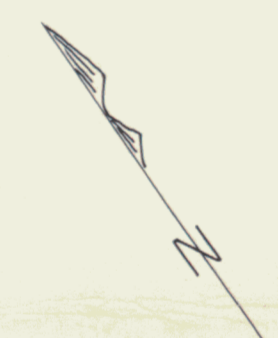
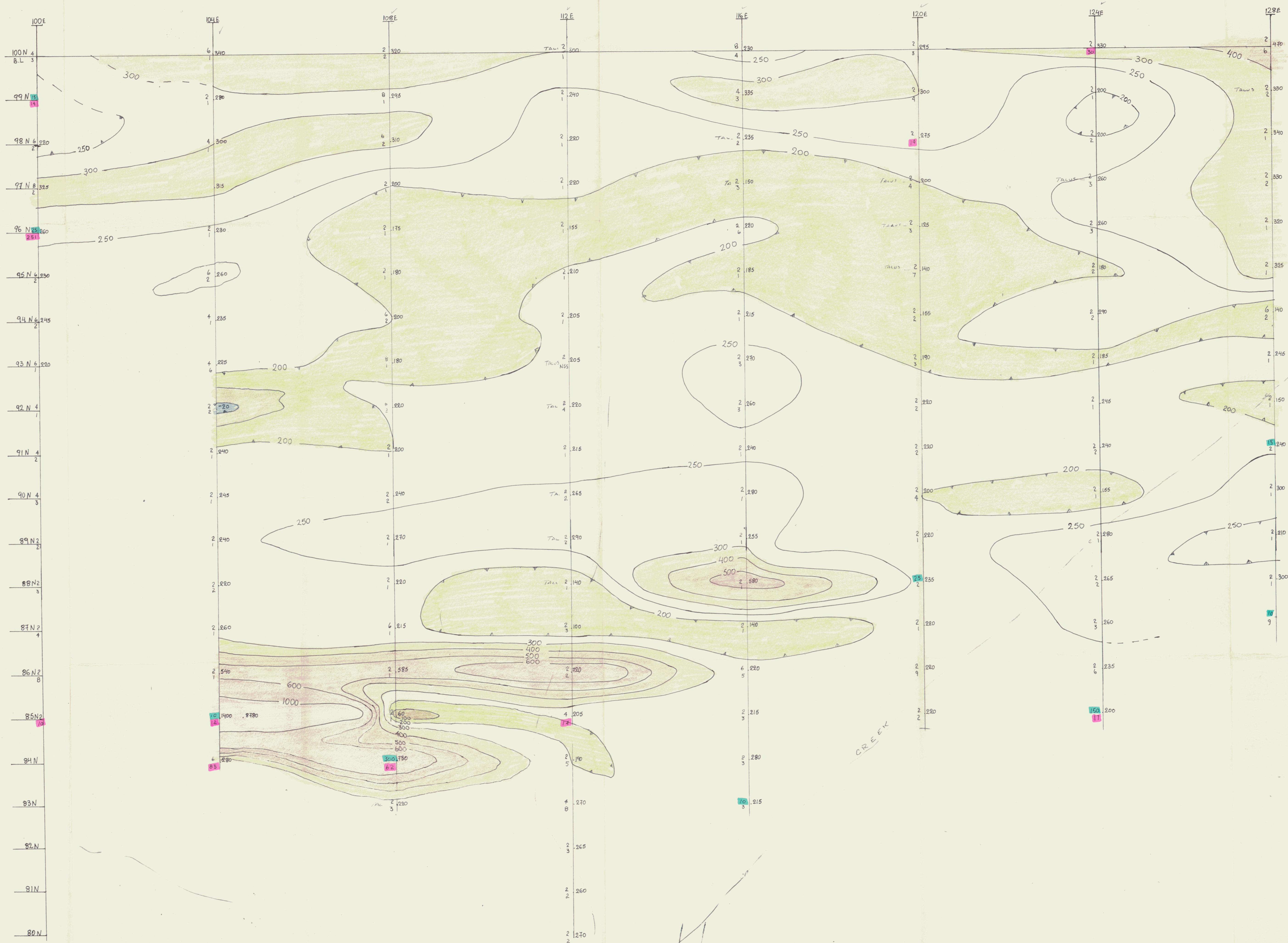
UPPER DEVONIAN - LOWER MISSISSIPPIAN

- 2 TUFF, LAPILLI TUFF
- 1 LIMESTONE: sparry, in part silicified
- 0 METASEDIMENTS: argillite, quartzite, greywacke, minor chert and carbonates

66509 Rock Geochem Sample 1978
 V626 13,200,4.12 Silt Sample Collected in 1976
 Cu, Zn, W, Sn
 CC 78 M-4 12,46,50,540 Silt Sample Collected, Panne6,
 in 1978
 Cu, Zn, W, Sn

J.C. STEPHEN EXPLORATION S. LTD.
 D. C. SYNDICATE
CAN CLAIM GROUP
GEOLOGY & GEOCHEMISTRY

SCALE 1" = 500
 NOVEMBER 1978
MAP I



LEGEND	
4	W Tungsten P.P.M.
.220 =	MAGNETOMETER READING
12	Sr Tin P.P.M.

J.C. STEPHEN EXPLORATIONS LTD.
 D.C. SYNDICATE
CAN CLAIM GROUP
 SOIL SAMPLE & MAGNETOMETER SURVEY

SCALE 1"=100' NOVEMBER 1978