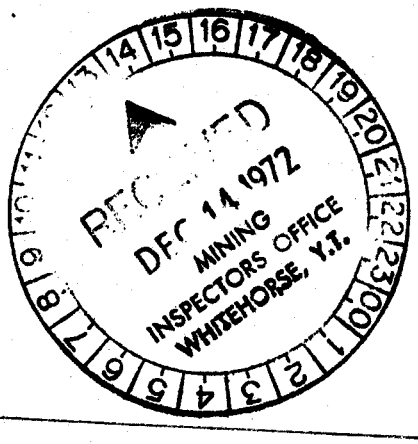


ANVIL PROJECT - 1972 SEASON

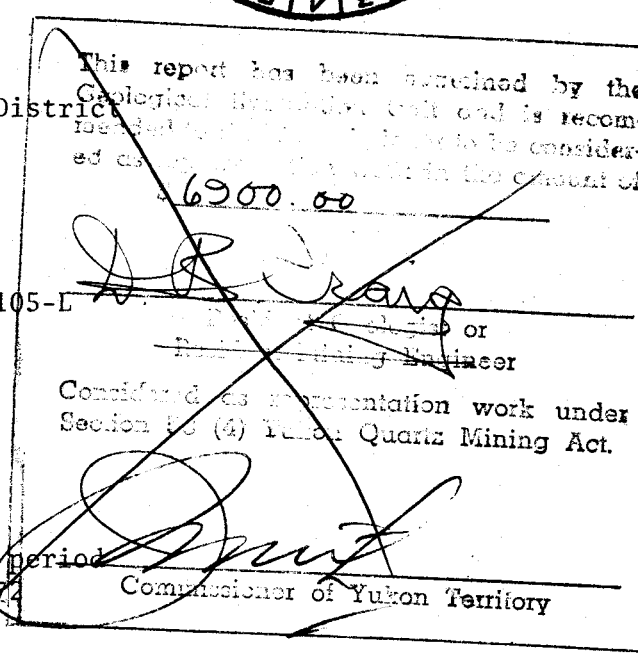
Anvil Range Area

Whitehorse Mining District

Yukon Territory

6950

N.T.S. 105-K 105-L



Field work done in period
June to August, 1972

for

Canadian Reserve Oil & Gas Ltd.
Occidental Minerals Corp. of Canada Ltd.
Aquitaine Co. of Canada, Ltd.
Husky Oil, Ltd.
Canada Southern Petroleum Ltd.
Overland Exploration Services (1969) Ltd.

12,000

By:

T.J. Adams

October, 1972

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of $ 19,600

D R Craig

Resident Geologist or
~~Resident Mining Engineer~~

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

Commissioner ~~of~~ Yukon Territory

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LIST OF CLAIMS

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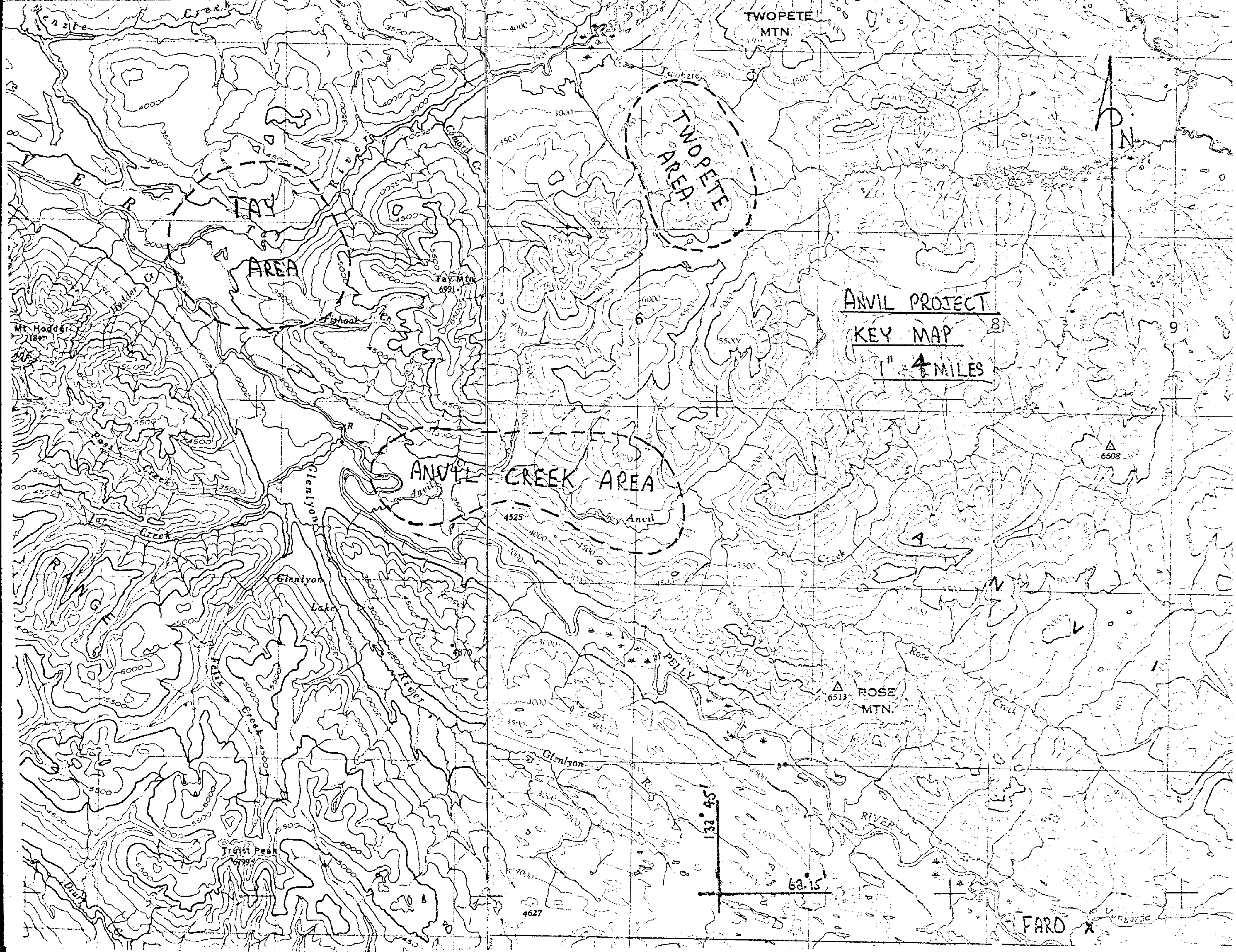
TAY RIVER AREA			
	ARROW	1-50	105-L-9
ANVIL CREEK AREA			
	MARK	1-130	105-K-5, 105-L-B
	LEE	1-8	
TWOPETE AREA			
	ALTA	1-26	105-K-12
	KING	1-27	
	COLT	1-14	
	BLUE	1-64	


ANVIL PROJECT
KEY MAP
1" = 4 MILES
TWOPETE AREA
TAY AREA
ANVIL CREEK AREA
TWOPETE MTN.
Tay Mtn 6991
Mt Hodder 7184
Truitt Peak 6799
ROSE MTN. 6513
6608
4525
4870
4627
Glenlyon Lake
Glenlyon R.
PELLY RIVER
Rose Creek
Anvil Creek
Fishhook Cr.
Hodder Cr.
Tay Creek
Pass Creek
Felix Creek
River
VERITY
RANGE
ANVI
N
132° 45'
62° 15'
FARO

ANVIL PROJECT - 1972 SEASON
REPORT ON FIELD WORK

INTRODUCTION

This report covers field work carried out during the 1972 field season, in the Anvil Range area, Yukon Territory, by personnel of Canadian Reserve Oil and Gas Ltd., on behalf of the "Anvil Project" group.

The 1972 program was the third year of an initially proposed three year project. The work completed during the first two years of the project was supervised and carried out by personnel of Overland Exploration Services (1969) Ltd.

The work of the first two years of the project consisted mainly of regional scale reconnaissance gravity surveying, followed up with limited geological mapping, prospecting, geochemical sampling, and diamond drilling.

The objectives of the 1972 program were to evaluate, by geological, geochemical and geophysical techniques, a number of gravity and geochemical targets on which further work had been recommended.

The 1972 field work was carried out in the period June to August. A crew of three men, consisting of a geologist and two geochemical samplers was employed. Two I.P. surveys were conducted, on a contract basis, by Peter E. Walcott and Associates Ltd.

Camp moves and supply flights were made using Bell model 47G helicopters that were available for casual charter in Faro, Y.T. During the

I.P. surveys, a Bell 206 Jet Ranger helicopter was used for mobilization. All groceries and other supplies were purchased in the town of Faro.

LOCATION AND ACCESS (see key map)

The project area is located in the Anvil Mountain Range, north of the Tintina Trench, in central Yukon. The claim groups on which work was done lie on N.T.S. map sheets 105-K-5, 12 and 105-L-8,9. Access is by road to the town of Faro, and thence by helicopter to the various claim groups. All the claims on which work was done are within 40 miles of the town of Faro. The various claim groups are located in three areas

: Tay Area (Arrow claims); along the Tay River, a few miles upstream from its junction with the Pelly River.

: Anvil Creek Area (Mark,Lee claims); straddle Anvil Creek, between the Rose Creek junction upstream, and the Pelly River downstream.

: Twopete Area (Colt, Alta, King, Blue claims); immediately south of Twopete Creek.

REGIONAL GEOLOGY

The Anvil metamorphic belt, containing a number of known lead-zinc deposits (Faro, Vangorda, Swim Lake) is about 10 miles wide and 40 miles long and trends northwesterly. The metamorphic rocks in this area are Lower-Upper Cambrian in age, and can be divided generally into biotite and sericite schists, quartz phyllites, often graphitic, and greenstones. This sequence is intruded to the north-east by the Anvil Batholith which ranges in composition from muscovite-biotite granodiorite to biotite quartz monzonite. The dominant foliation in the metamorphic rocks is close to paralleling the original bedding, strikes to the north-west and dips gently to the south-west. Of the metamorphic rocks, the

mica quartz schists are the oldest. Where these schists contact the granitic batholith, they are often altered to skarn. The schists are overlain by a section of often graphitic quartz phyllites. Higher in the phyllite, thick lenticular bodies of greenstone are abundant. All the major known mineral deposits are found in the quartz phyllite unit, near its contact with the mica schists.

Of the claim blocks on which work was done this year, only those claims in the Tay Area (Arrow claims) and the upstream block of Mark claims in the Anvil Creek area, are underlain by Anvil belt metamorphic rocks. The Lower Anvil Creek claims are underlain by Pennsylvanian and/or Permian schistose meta-andesite. The Twopete area is underlain by Upper Devonian-Permian ?? sediments and minor volcanics. This area has been mapped by Dr. D. Tempelman-Kluit (G.S.C.) as Pennsylvanian and/or Permian andesitic volcanics. However, the predominant rock types found in the area are graphitic shales and argillites, grey to black cherts, quartzites and limestones, and minor andesitic volcanics.

Table of Geologic Formations

(after Tempelman Kluit)

Cretaceous

12 Muscovite biotite granodiorite, biotite quartz monzonite.

Permian or Younger

11 Cobble and pebble conglomerate

10 Serpentine

Pennsylvanian and/or Permian

9a Andesitic volcanics

9b Chert, shale, argillite, quartzite

Upper Devonian and Mississippian

8 Limy slate and argillaceous chert

Middle Devonian

7 Limestone

Ordovician ? and Silurian

5 Black graphitic graptolitic slate.

Middle and Upper Cambian?

4 Calcareous and phyllitic siltstone

3 Quartz chlorite phyllite, biotite quartz schist, minor greenstone.

Lower Cambian

2 Biotite-garnet-quartz skarn, marble

1 Muscovite quartz schist and micaceous quartzite.

TAY AREA

Camps were established and work was carried out in two areas of interest on the Tay (Arrow) claims:

: Tay "A" area - in the vicinity of the Tay "A" anomaly

: Tay "Mo" area - in the vicinity of the molybdenite showings on the Arrow claims south of the Tay River.

A. TAY "A" AREA

The camp was established at the site of an old Overland Exploration Services camp on L5, 9N. Geological mapping (1":400') was carried out, using the grid for topographic control, in the vicinity of the "A" gravity anomaly. Soil sampling was carried out on grid lines in this area (200' stations, lines 5,6,7,8,9, north of base line 1-A). All drainages flowing into the north side of the Tay River, for a few miles east and west of the Tay "A" area were silt sampled. During the period June 25-27, an I.P. survey was carried out by Peter Walcott and Associates Ltd., on lines 5,6 and 7, from base line 1-A to 30N.

GEOLOGY (see fig. 1)

The Tay "A" area is underlain by a relatively gently dipping sequence of quartz biotite schist and quartz sericite schist. Some minor sections are rich in chlorite and/or hornblende. One very narrow fine grained granitic dyke was seen in outcrop. Some minor granitic rubble was seen in the north-eastern grid area but this may be glacially transported. Some thin sections of schist contain minor pyrite or pyrrhotite and are very rusty weathering. These sulfides occur both

as fine grained disseminations within the schists and also as small lenses associated with quartz segregations. No other sulfides could be found in the Tay "A" area.

It was noted that the Tay "A" gravity anomaly is closely coincident with a ridge of outcrop that is bordered for the most part by areas of relatively deep overburden.

GEOPHYSICS

For a complete discussion of the results of the I.P. survey in the Tay "A" area, the reader is referred to the report by Peter E. Walcott, dated July, 1972. His main conclusions with regard to the results of the work in this area are as follows:

> "No I.P. anomalies, with associated resistivity lows, of the type expected from an Anvil type deposit, were obtained over the gravity anomaly on the Arrow claims. In fact, resistivity highs and topographic highs occur over the location of the gravity highs on lines 6 and 7. As a result, the writer concludes that the gravity anomaly is most probably due to bedrock relief."

GEOCHEMISTRY

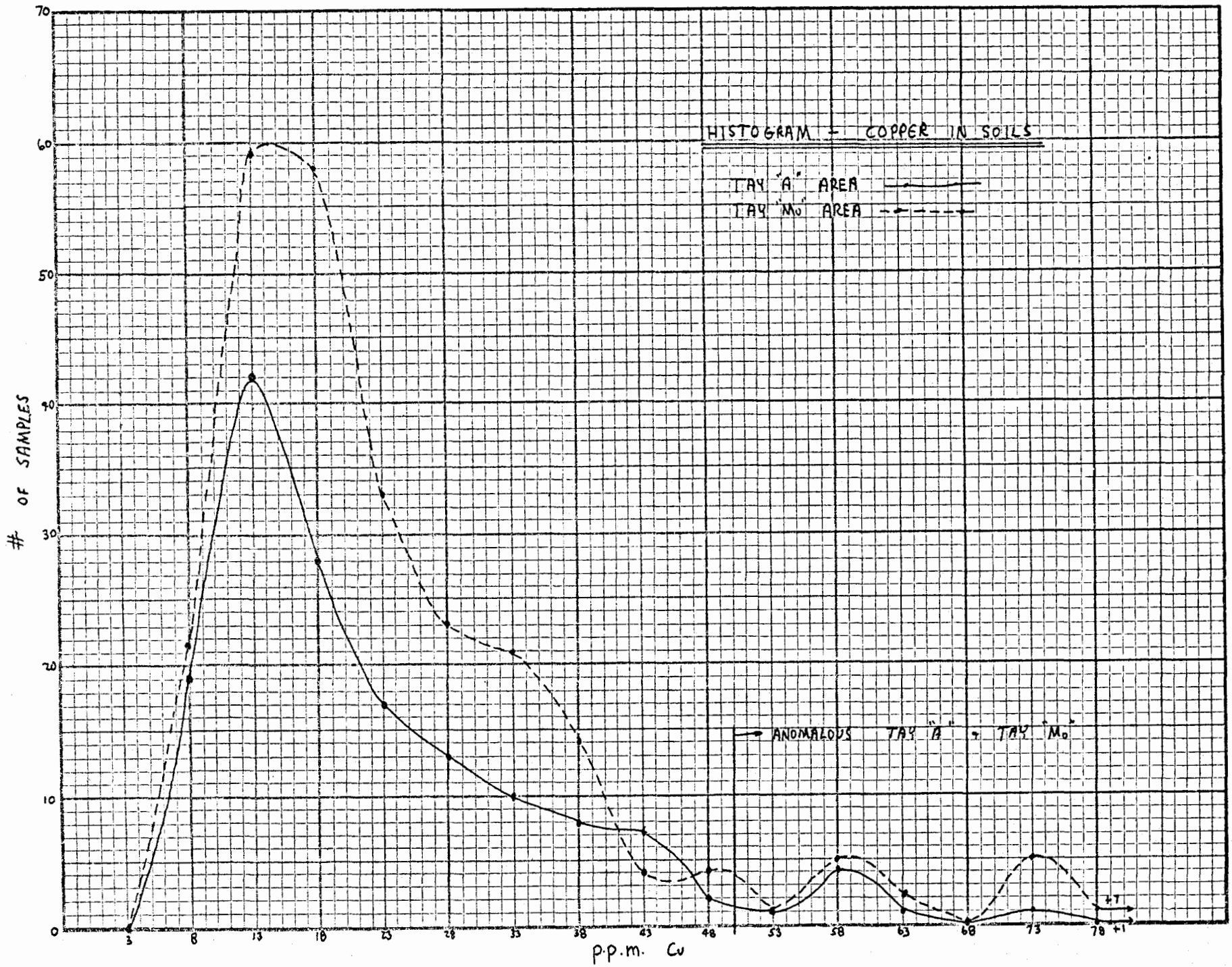
For all the Anvil Project areas, all geochemical samples (soils, silts, rocks) were analyzed for copper, lead and zinc. In some areas, analyses were also made for molybdenum. Metal content determinations were made by atomic absorption methods after digestion in hot perchloric acid (a total extraction technique). All geochemical determinations were

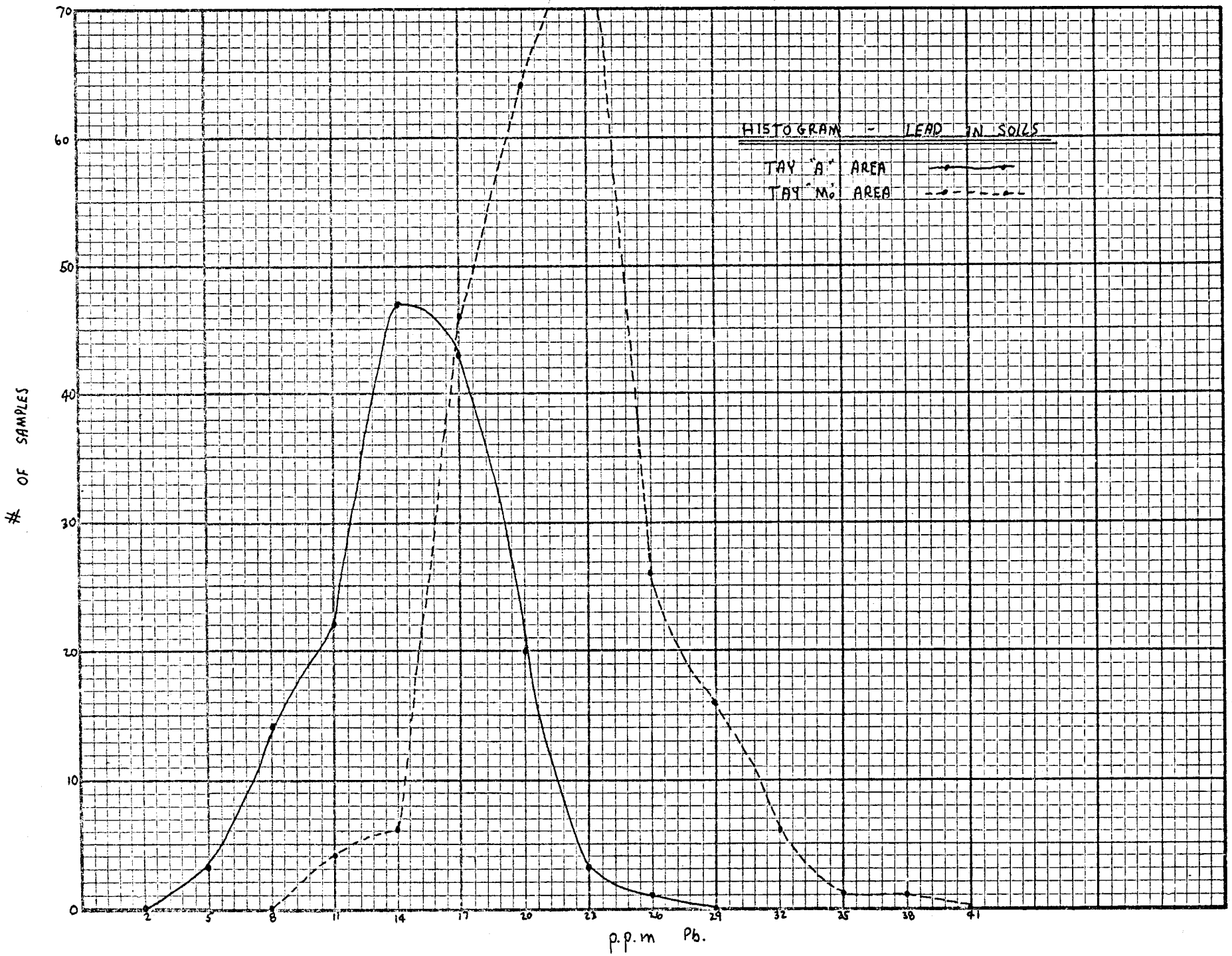
made by Barringer Research Ltd. in their Whitehorse, Yukon, geochemical laboratory.

The soil sample results were plotted on 1":400' base maps and the silt sample results were plotted on 1":1/2 mile base maps. Histograms were plotted of the geochemical results from each area, from which the thresholds of anomalous values for each element were usually determined.

In the Tay "A" area, for copper in soils, the threshold was established to be about 50 p.p.m. (fig 2(a)). Approximately 5% of the copper values are above this level. However, the anomalous values are very randomly distributed throughout the grid area, and in no cases are two or more anomalous copper sites adjacent (fig. 3). The plot of the lead results from the Tay "A" soils (fig. 26) shows a very symmetrical strongly peaked curve with virtually no anomalous values. The threshold value for zinc was determined to be about 160 p.p.m. (fig. 2c). This leaves about 8% of the results above this level. Most anomalous zinc results, like copper, occur at isolated sample sites. (fig. 3). Three adjacent marginally anomalous zinc results occur on line 6, 15-17N. In the Tay "A" grid area anomalous copper and zinc values are coincident from only two widely separated, isolated sample sites.

Some silt sampling was carried out in minor drainages within the grid area and from other drainages flowing into the north side of the Tay River for a few miles east and west of the Tay "A" anomaly (fig.4). The geochemical analyses from these samples, for copper, lead and zinc, are consistently low and uniform.


HISTOGRAM - COPPER IN SOILS
TAY "A" AREA
TAY "Mo" AREA
ANOMALOUS TAY "A" + TAY "Mo"
OF SAMPLES
p.p.m. Cu
0
10
20
30
40
50
60
70
3
8
13
18
23
28
33
38
43
48
53
58
63
68
73
78
+1


HISTOGRAM - LEAD IN SOILS
TAY "A" AREA
TAY "M₀" AREA
OF SAMPLES
p.p.m Pb.
0
10
20
30
40
50
60
70
2
5
8
11
14
17
20
23
26
29
32
35
38
41

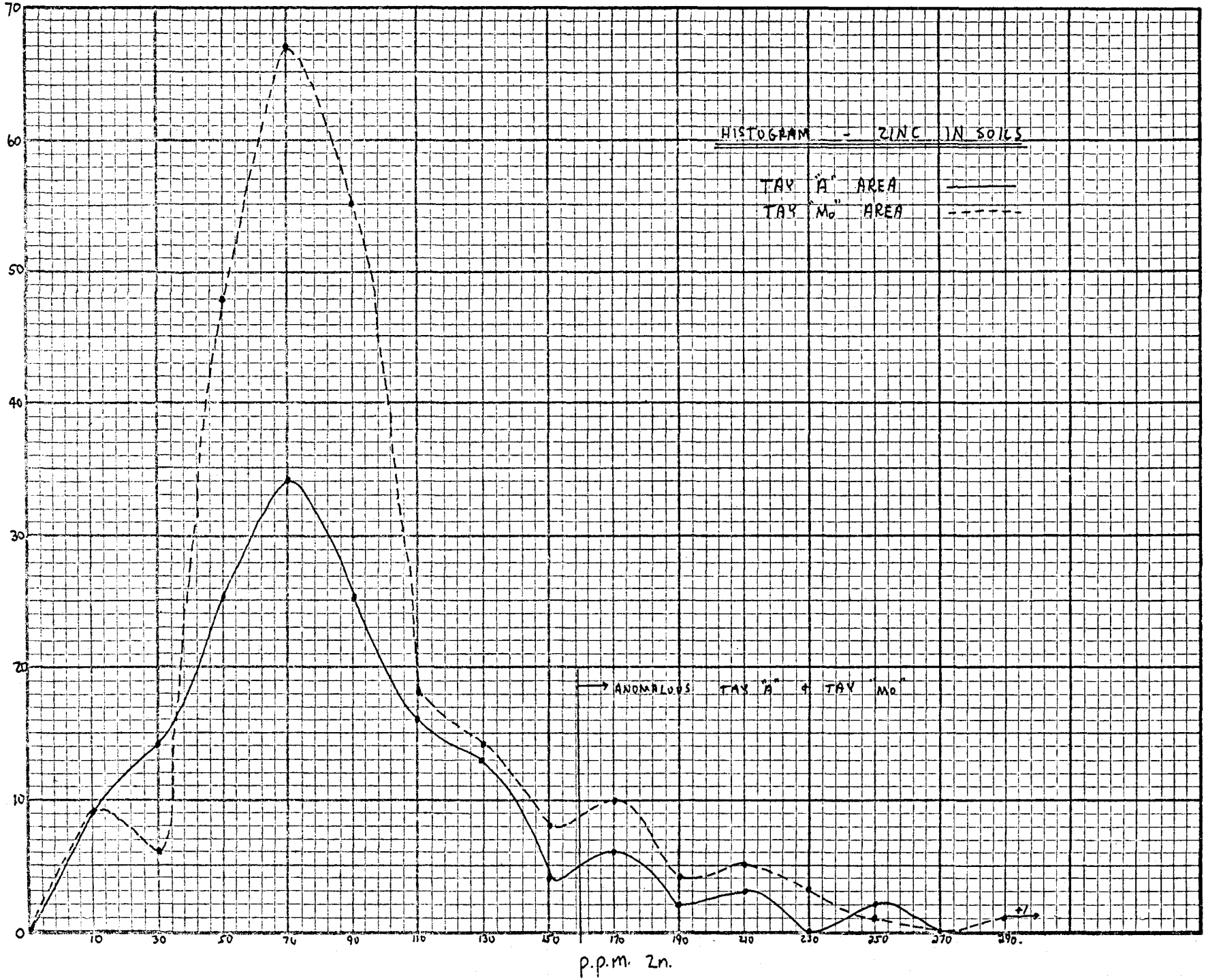

HISTOGRAM - ZINC IN SOILS
TAY "A" AREA
TAY "Mo" AREA
ANOMALOUS TAY "A" & TAY "Mo"
OF SAMPLES
p.p.m. Zn.
0
10
20
30
40
50
60
70
10
30
50
70
90
110
130
150
170
190
210
230
250
270
290
+

Fig 2(c)

B. TAY "Mo" AREA

The camp was established at the south-west end of the small lake in this portion of the Arrow claims, at a grid location of about L13, 12N. The area in which work was done was generally between L5-L14, from B.L.-2 to the Tay River. The object of the program of work in this area was to evaluate the molybdenite mineralization discovered in 1971, to prospect for more sulfide mineralization, and to try to define causative sources for the gravity anomalie outlined in this area. The work included mapping and prospecting, and soil sampling.

GEOLOGY (fig. 1)

The Tay "Mo" area is underlain by schists, similar to those in the Tay "A" area, that have been intruded by a generally east-west trending body of quartz rich porphyritic granodiorite (large quartz "eyes" and large phenocrysts of white plagioclase feldspar). The intrusive is somewhat leucocratic, but near the contact contains many small rounded inclusions of schist. In addition to the molybdenite showings found during the 1971 field season, numerous other molybdenite occurances were found this year. The molybdenite mineralization is restricted to small quartz veins (½"-12" thick) in steeply dipping 030 and 060 joints in the intrusive. No molybdenite was found within the granodiorite itself. The intrusive is generally very fresh and unaltered. Although molybdenite mineralization appears to be fairly widespread, the veins are narrow, widely spaced, and of very low grade. Most quartz veins found in the area are barren. No mineralization of any economic interest was seen.

GEOCHEMISTRY

Soil sampling was carried out on the grid lines in the Tay "Mo" area. These samples were analyzed for copper, lead, zinc, and molybdenum. The results were plotted on a 1":400' base map (fig. 3). Histograms were plotted for copper, lead and zinc, from which threshold values were determined. The range of Molybdenum values in the soils is very narrow (2p.p.m.-7p.p.m). Any value of 4 p.p.m. or higher is anomalous.

The histograms for copper and zinc were very similar to those from the Tay "A" area, and for each area, the same threshold values were used. That is, 50 p.p.m. for copper and 160 p.p.m. for zinc (fig. 2(a)(b)(c). The histogram of the lead values from the Tay "Mo" area was, like the Tay "A" plot, very symmetrical and strongly peaked, with only one sample value that could be said to be slightly anomalous. However, the general magnitude of lead values is substantially higher in the Tay "Mo" area than it is in the Tay "A" area (mode value of 23 p.p.m. vs. 14 p.p.m.)

Anomalous molybdenum results in soil are generally restricted to the grid area underlain by the granodirite, or closely adjacent to the intrusive-schist contact, while the copper, lead, and zinc results are restricted, almost entirely to the areas underlain by schists.

The anomalous molybdenum results accurately reflect the areas in which molybdenite mineralization has been found. In every case, the mineralization is much too sparse and low grade to be of any economic interest. A few of the anomalous molybdenum soil results are unexplained.

However, both the extent and magnitude of these anomalies is such that they are of little interest.

The anomalous copper and zinc soil results are scattered throughout the schist areas, in most cases as isolated samples. With only two exceptions, anomalous copper and zinc results are not coincident at any one sample site. The soil sampling provided no favourable follow-up targets.

A number of silt samples were taken from minor drainages within the Tay "Mo" grid area. Only background values, for all elements, were obtained from these samples.

GEOPHYSICS

No definitive explanations were arrived at for the two gravity anomalies ("C" and "D") in the Tay "Mo" area.

The "C" anomaly reflects an area of bedrock exposure or generally thin overburden. The north-east margin of this anomaly coincides quite closely with a sharp break-in-slope, down to the Tay River. Overburden appears quite deep and outcrop is rare on this slope. The south-west side of this anomaly is bordered, in part, by a swampy depression trending south-east from the south-east end of the lake in the grid area. The "C" anomaly is underlain both by schists and by granodiorite. The writer believes it is reasonable to assume that this anomaly is a result of topographic and overburden factors.

The cause of the "D" gravity anomaly is less clear. This anomaly is

underlain entirely by the schist unit. The anomaly trends along a subtle line of topographic highs.

C. TAY AREA - Regional Silt Sampling (fig. 4)

Silt sampling was carried out in three major drainage basins in the Tay area:

: Fishook Creek, from its headwaters to the Pelly River.

: Rob Creek, a northwest flowing tributary of the Tay River, joining the Tay River opposite the Tay "A" area.

: Camp Creek, a large northwest flowing tributary system of the Tay River, upstream from Rob Creek.

All silt samples from the above drainages were analyzed for copper, lead, zinc and molybdenum. The Rob Creek and Camp Creek drainages are underlain by quartz-biotite and quartz-sericite schists. The silt results from these two drainages are generally low and uniform. One isolated sample in Camp Creek is anomalous in copper, and a single sample from Rob Creek was slightly anomalous in molybdenum.

Silt sampling in Fishook Creek revealed that the headwaters of this creek were very anomalous in copper, zinc and molybdenum, and to a lesser extent in lead. The initial sampling went to the upper limit of the south-fork of the upper part of Fishook Creek, but only extended for three samples up the north fork of the creek. A fly camp was established from which to investigate the source of the original anomalous results and to extend the silt sampling to all other drainages in the immediate area.

The headwaters of Fishook Creek are underlain by Anvil unit mica and chlorite schists, meta-volcanics, and very graphitic schists (fig. 5).

A number of small lenses of grey limestone were also observed. The area under investigation is well above timberline. Outcrop and in-place rubble are abundant. The rocks in the area are folded about northwest-southeast trending axes. The south fork of Fishook Creek follows closely an anticlimal axis. Exposed in this creek bed and on the lower banks is a very graphitic argillite to schist member, often containing minor very fine grained disseminated pyrite. This graphitic schist is very contorted, sheared, and broken up, as are, to a lesser degree, immediately overlying mica-chlorite schists and meta-volcanics. Numerous irregular quartz veins, from 1/8" to 1' wide are found cross-cutting all the rock units along this creek bed. In places, these quartz veins also contain minor arsenopyrite, but no other sulfides could be found. Some rock geochemical analyses of arsenopyrite mineralized quartz vein material are as follows (locations plotted on map):

	Cu	Pb	Zn	Mo
R-1	275	290	30	2
R-2	1850	1500	45	3
R-3	1450	645	33	2

Rusty staining of boulders is evident for the entire length of the south fork of Fishook Creek. A number of gossans are developed at groundwater seepages along the creek. Geochemical analyses of samples of these gossans gave the following results, (locations plotted on map):

	Cu	Pb	Zn	Mo
Gossan 1	64	63	455	13
2	105	55	690	9
3	39	69	44	3
4	160	67	295	34

A number of rock samples were collected from this area for geochemical analyses, giving the following results, in p.p.m. (locations plotted on map):

	Cu	Pb	Zn	Mo	Description
R-4	57	39	94	2	mica chlorite schist, very crenulated, not rusty, not graphitic
R-5	81	41	65	28	very graphitic argillite, slightly rusty weathering
R-6	29	35	37	17	very graphitic schist, very broken, quartz stringers
R-7	77	49	275	5	quartz biotite schists, not graphitic, very minor dissem. pyrite.
R-8	97	29	89	50	graphitic quartz biotite schist, not rusty weathering
R-9	37	31	71	15	graphitic chlorite schist, rusty.
R-10	11	33	14	36	graphitic very crenulated schist, above north fork
R-11	28	28	160	3	mica-chlorite-quartz schist, not graphitic, slightly rusty weathering.

From the above, it is suggested that a probable source for the high molybdenum values in silts in this area are graphitic members of the schist sequence. The high copper and lead values in silts could be a result of minor sulfide mineralization found in quartz veins in this area. Some very high zinc values are found in three gossans and in a number of silts scattered throughout the area. The highest zinc values from rock sample analyses were from non-graphitic, rusty weathering micaceous schists, but these values do not compare to the highest silt values (i.e. maximum 275 p.p.m.in rocks vs. 900 p.p.m. maximum in silts). Prospecting in the

Fishook Creek basin did not reveal any sulfide mineralization, either in place, as rubble, or as float, of any economic interest.

ANVIL CREEK AREA

Work in the Anvil Creek area was carried out, on the Mark claims, from two camps on Anvil Creek, one beyond the south end of L10 and the other on the base line at L47.

The work in the Anvil Creek area involved an investigation of the area surrounding gravity anomalies "S" and "W" in the eastern grid area, and of the areas in the vicinity of the gravity anomalies between L37 and L54. in the western grid area. Work done included mapping and prospecting, soil and silt sampling, and a magnetometer survey.

GEOLOGY

Outcrop is very sparse on the lower slopes in the vicinity of the "S" and "W" gravity anomalies (fig. 6). Upslope, north of the gravity anomalies, and beyond the grid, outcrop of quartz monzonite is abundant. On the grid, there is no outcrop on lines 1-11 inclusive. From line 12- line 20, scattered outcrops of quartz monzonite are found beyond 15-18 north. Quartz-biotite phyllite, usually graphitic, outcrops in the Anvil Creek tributary downstream from line 22 at the base line, and also along Anvil Creek itself beyond the south ends of lines 13-16. From the above, it is seen that the long axis of the "S" and "W" anomalies is probably very closely coincident with the intrusive-phyllite contact. The "S" anomaly is at least partially underlain by quartz monzonite. The long axis of the "S" and "N" anomalies is also closely coincident with a

topographic break-in slope, with a relatively level, deep-overburden-covered flat south of this line, and with a steady uphill rise and thinning overburden to the north of this line. No sulfide mineralization of any kind was encountered in the eastern grid area.

Outcrop is much more abundant in the western grid area in the vicinity of those gravity anomalies (L37-54)(fig. 7). The gravity anomalies in this area generally reflect subtle topographic "highs" over which overburden is thin and outcrop widespread, adjacent to areas of deeper overburden. A foliated meta-andesite (or basalt?) trending about 135/30S is by far the predominant rock type in this area of the Anvil Creek grid. In places this volcanic is amygdaloidal. Two small exposures of phyllite were observed, at L41, 4S and at L51, 1N. Interbedded quartzite and black chert was seen in Anvil Creek around L44, 7S.

No significant sulfide mineralization could be found in the western grid area.

GEOCHEMISTRY (fig. 6)

Soil and silt samples taken in the Anvil Creek area were analyzed by the same techniques described previously. Analyses were made for copper, lead, and zinc. Histograms were plotted using the soil sample results, from which threshold values were determined. The threshold values used in this area are as follows:

: Copper - 56 p.p.m.

: Lead 40 p.p.m.

: Zinc - 200 p.p.m.

In the eastern grid area ("S" and "W" gravity anomalies area), silt samples were taken from all minor drainages. The results of these samples are all within the background range for all three elements tested.

A line of "base-of-slope" soil and seepage samples was taken along the base of the first bench north of Anvil Creek. Two seepages that were sampled, near the western edge of the map sheet, were very limonitic. No anomalous results were detected in any of the samples along this line.

Soil samples were collected at 200' intervals on grid lines 5-21 inclusive. Over most of this area, overburden appears to be quite deep. Anomalous results, for all three elements, are restricted to the section of the grid bounded by line 5 and L12. There are no anomalous results whatsoever, between line 13 and line 21, in the area of gravity anomaly "S". The general magnitude of copper and zinc results is distinctly higher to the east of line 13. Although, taking all samples as a whole, 200 p.p.m. was used as the threshold value for zinc, it is seen that virtually all samples in the 100-200 p.p.m. range are found east of line 13. Similarly, all copper values in the upper section of the background range (say 45-55 p.p.m.) are restricted to line 5 - line 12 inclusive. Within the line 5 -

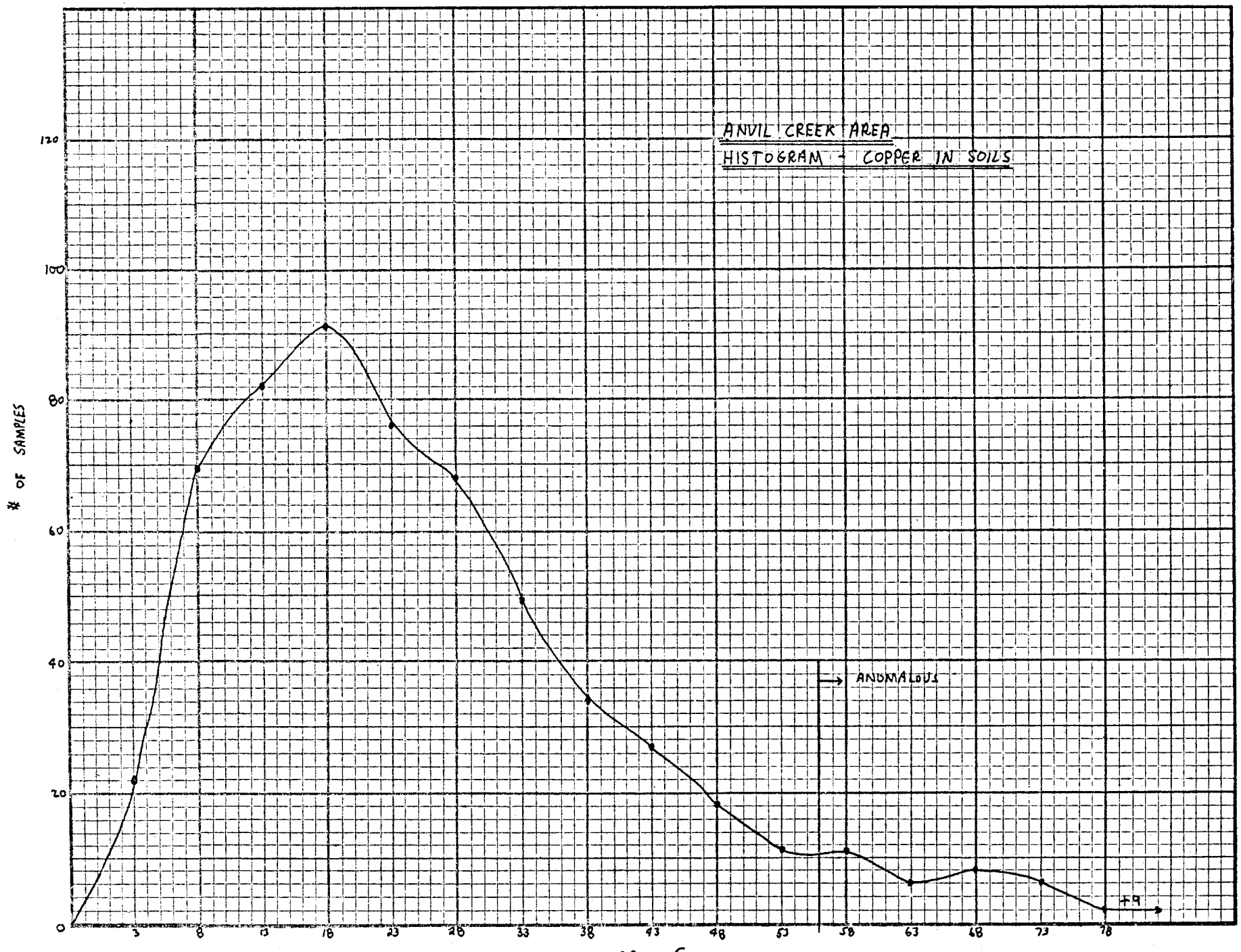

ANVIL CREEK AREA
HISTOGRAM - COPPER IN SOILS
OF SAMPLES
0
20
40
60
80
100
120
3
8
13
18
23
28
33
38
43
48
53
58
63
68
73
78
+9
ANOMALOUS
ppm Cu

Fig 8(a)

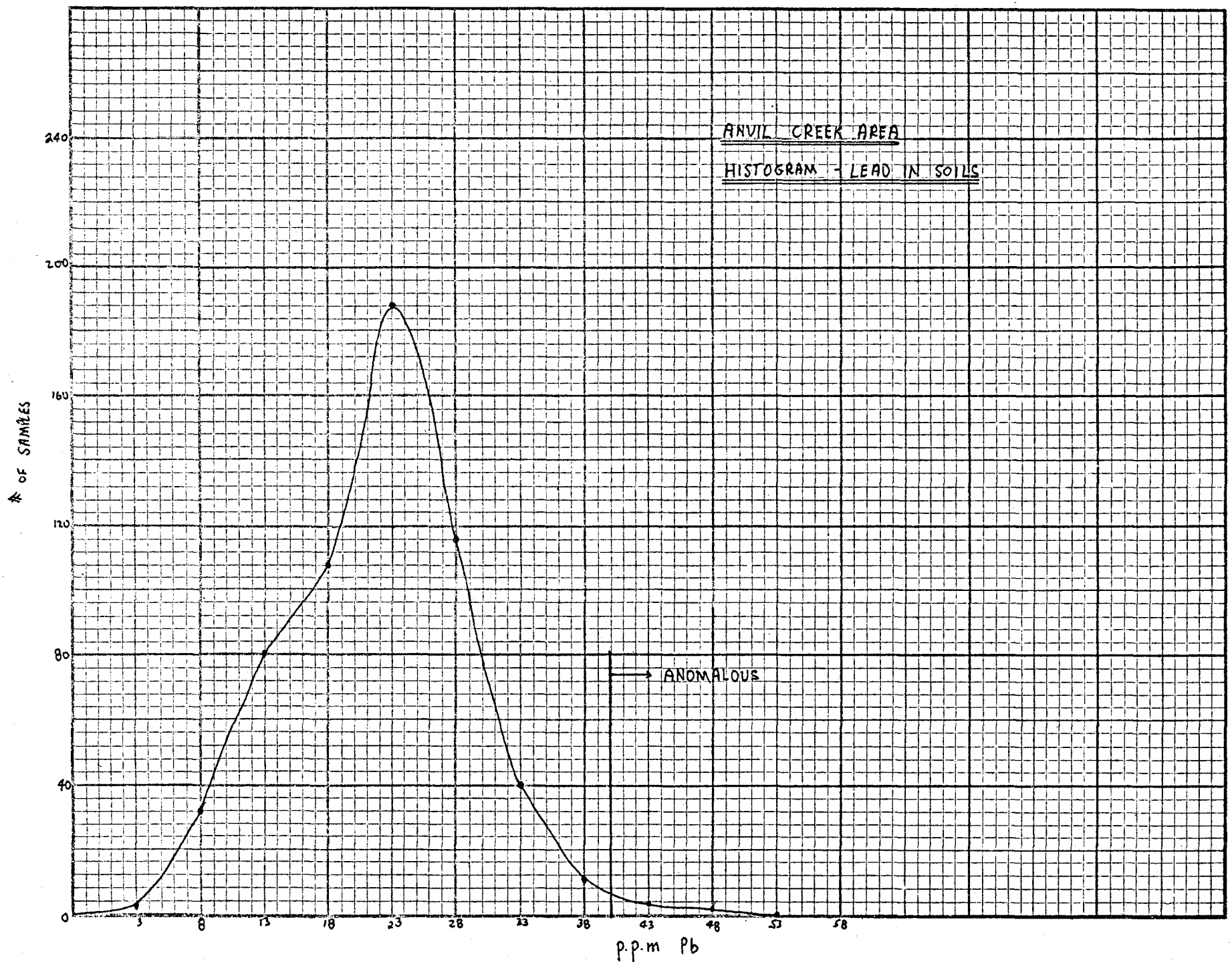

ANVIL CREEK AREA
HISTOGRAM - LEAD IN SOILS
OF SAMPLES
240
200
160
120
80
40
0
ANOMALOUS
3
8
13
18
23
28
33
38
43
48
53
58
p.p.m Pb

Fig. 8(b)

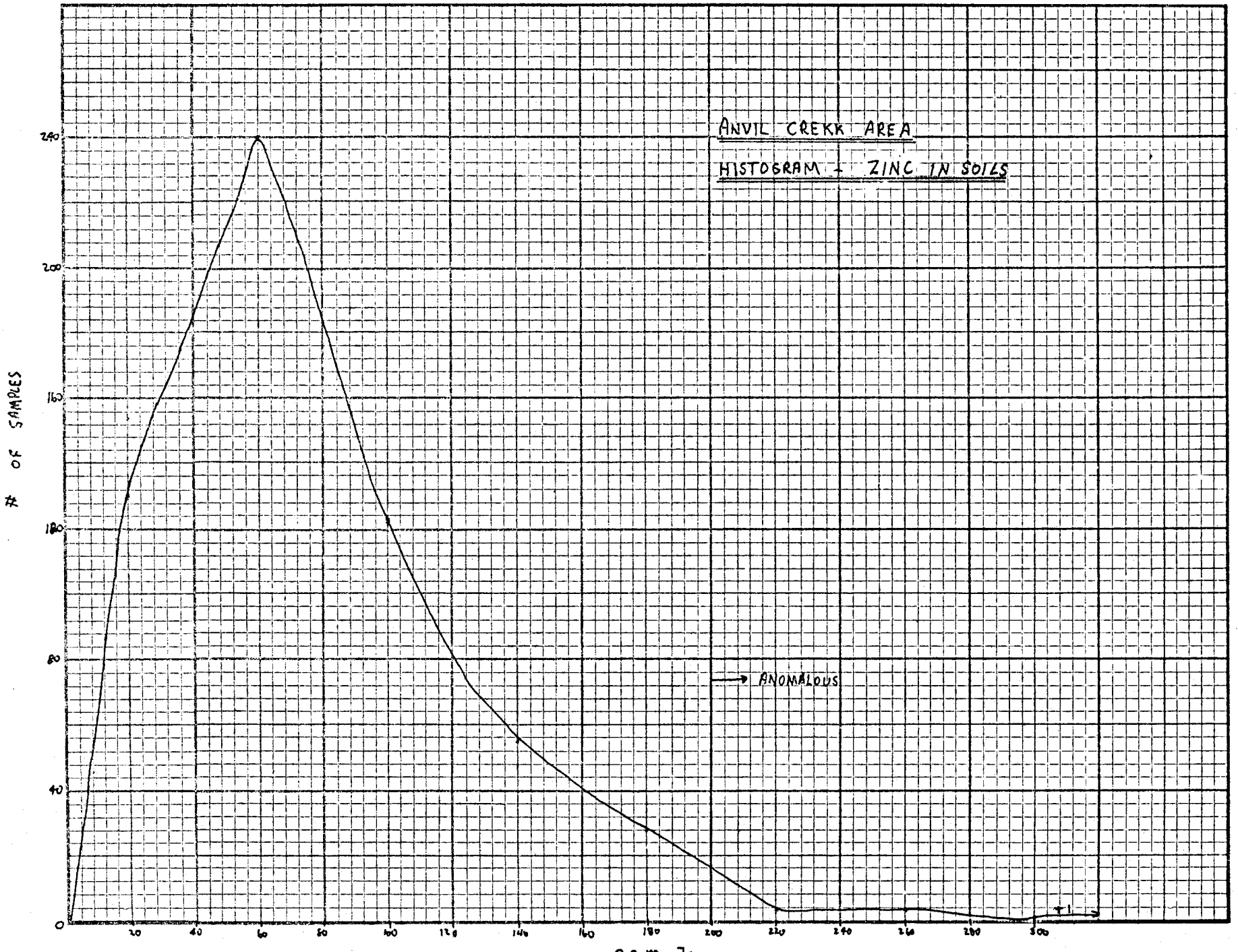

ANVIL CREEK AREA
HISTOGRAM - ZINC IN SOILS
OF SAMPLES
240
200
160
120
80
40
0
ANOMALOUS
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
+1
p.p.m Zn

fig 8(c)

-line 12 area, anomalous results for all elements are very randomly distributed. In summary, it can be said that although no well defined anomalies were outlined, the "W" gravity anomaly is within an area of higher copper and zinc values in soils than were detected elsewhere on the Mark claims.

In the western grid area, soil samples were collected over the best gravity targets between line 41 and line 54. All lead and zinc results from these samples are within the background range. A number of copper results above the threshold value were found scattered throughout this area. However, most of these results are in areas of relatively abundant bedrock exposure (generally meta-andesites, some amygdaloidal). No significant sulfide mineralization was found anywhere in this area.

GEOPHYSICS

A magnetic survey was conducted over line 5 - 21 inclusive in the eastern grid area (fig. 9). A Sharpe MF-1 fluxgate magnetometer was used for this survey.

The profiles along each line are very flat and smooth with no features that can be correllated with the gravity anomalies or with geological contacts. There is, however, a sharp break in the magnitude of values between line 12 and line 13, with higher values to the west and lower values to the east. The nature of this break suggests a survey error. However, the results were rechecked in the field. The cause of this change in values is puzzling and not explained. It is interesting to note that the magnetic break coincides with the break in geochemical

soil values as noted in the previous section. The sharp change in geochemical and magnetic responses suggests a change in the underlying rock type between line 12 and line 13 (northeast trending faulting?). However, identical quartz monzonite occurs on the north ends of lines 12 and 13, and no evidence of faulting could be found in this area.

TWOPETE MOUNTAIN AREA

Reconnaissance prospecting and mapping were carried out in the area of interest. Silt samples were also collected from most drainages in the area. Outcrop is abundant in the vicinity of most of the gravity anomalies. No mineral showings of economic interest were found during the course of the field work in the Twopete Area. Soil sampling was conducted, on grid lines, over some overburden covered gravity anomalies. A number of rock samples were collected for geochemical analyses in an attempt to explain some silt and soil geochemical responses.

GEOLOGY (fig. 10)

The area under investigation is bounded on the east and south by a Cretaceous, coarse to medium grained, porphyritic (white plagioclase phenocrysts) granodiorite. This granodiorite is, in all areas where it was examined, massive, blocky, fresh and unaltered.

West and north of the granodiorite contact, the predominant rock types are Pennsylvanian and/or Permian ? black graphitic shales and argillites, black to grey quartzite, minor platy black to grey limestone, black chert, and andesite. Throughout the area, all these rock types are thinly and randomly interbedded, with usually a number of different rock types in

any hundred feet of section. Mapping of individual members is impossible on a reconnaissance scale (1" to ½mile in this case).

A zone of hornfels alteration, of varying width, borders the granodiorite mass. Black andalusite and sillimanite hornfels are common in this zone. Rusty weathering of the shales, argillites, and cherts is common in the contact zone.

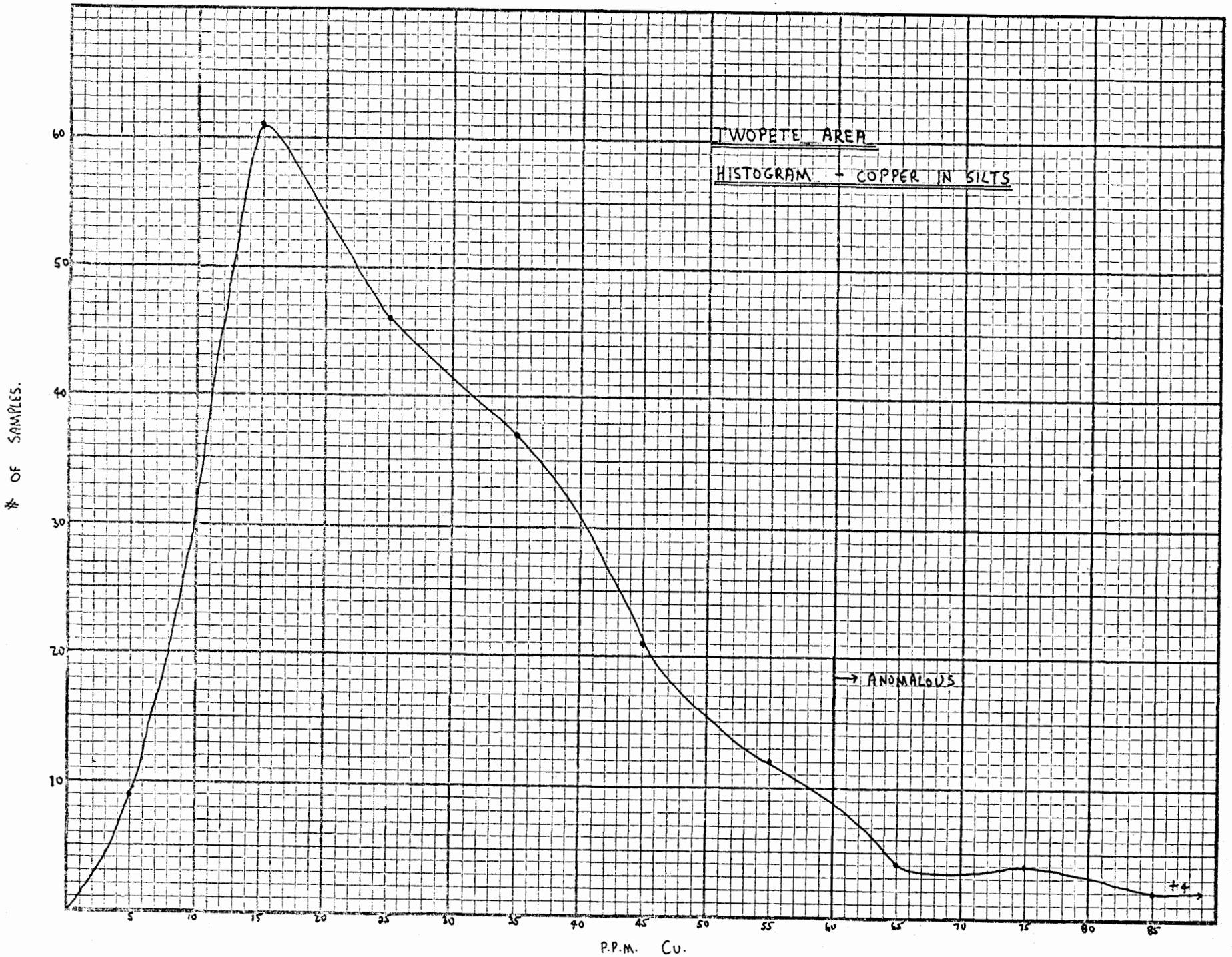
GEOCHEMISTRY

Silt samples were collected from most drainages within the area under investigation. These samples were all analyzed for copper, lead and zinc, and some of the samples were analyzed for molybdenum. Silt results, in p.p.m. are plotted on a 1" to ½mile base map. Histograms were plotted from which the following values were established (fig. 11(a)(b)(c))

	Threshold (p.p.m.)	1st Order Anomaly (p.p.m.)
Copper	60	80
Lead	35	
Zinc	225	400
Molybdenum	5	

On the basis of the silt sampling, a number of anomalous areas were outlined (number I-V on fig. 12), and these areas were carefully prospected.

Soil sampling was carried out over gravity anomalies "A", "D", "E", and "M".


TWOPETE AREA
HISTOGRAM - COPPER IN SILTS
→ ANOMALOUS
OF SAMPLES.
P.P.M. Cu.
10
20
30
40
50
60
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
+4

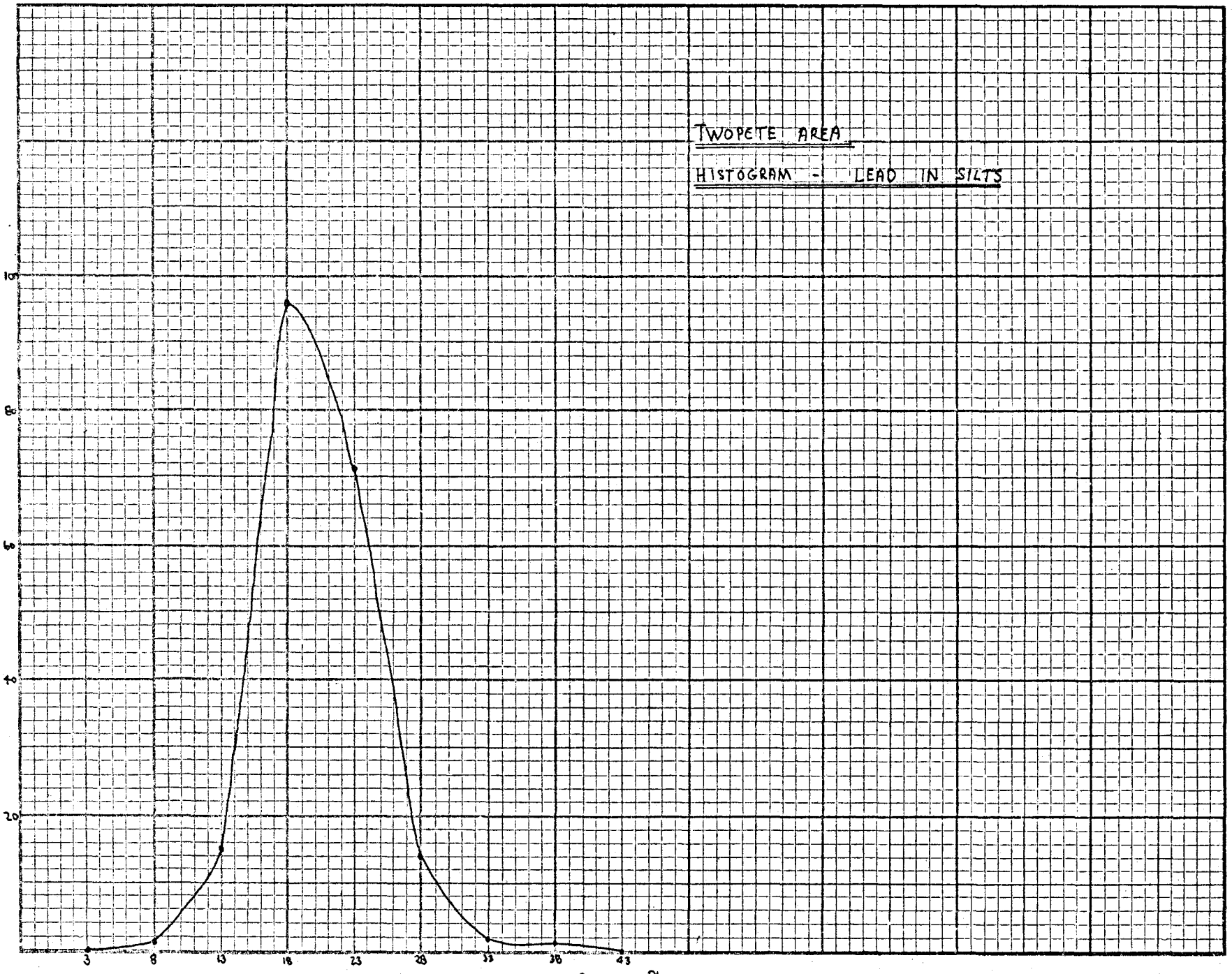

TWOPETE AREA
HISTOGRAM - LEAD IN SILTS
OF SAMPLES
5
10
15
20
3
8
13
18
23
28
33
38
43
P.P.M Pb.

Fig. 11(b)

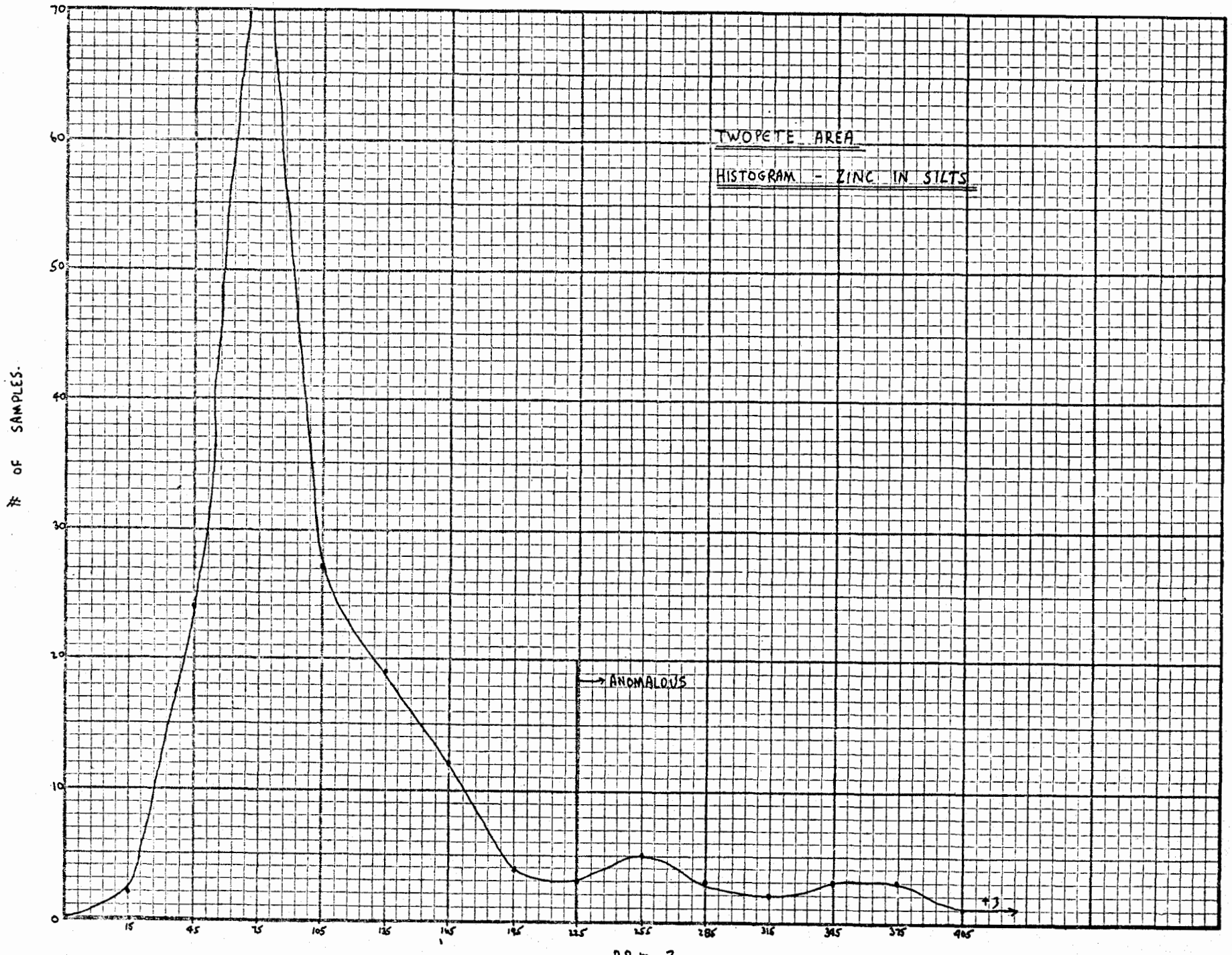

TWOPETE AREA
HISTOGRAM - ZINC IN SILTS
→ ANOMALOUS
+3
OF SAMPLES.
P.P.m Zn.
0
10
20
30
40
50
60
70
15
45
75
105
135
165
195
225
255
285
315
345
375
405

Fig 11(c)

Outcrop is very abundant in anomalous silt areas I and II. Both areas have anomalous copper, zinc and molybdenum results. The source of anomalous values, in both cases, are rusty weathering, pyritic hornfelsed sediments, adjacent to the granodiorite contact. In area II, in the vicinity of the very anomalous silt result, a number of small shear zones had some minor malachite stain, although no copper sulfide mineralization could be found. The source areas of anomalous silt values in area I and II are not related to any gravity anomalies.

Silt anomaly area III includes gravity anomalies "A" and "E". Strong copper values are the most significant. Soil samples were collected over most of gravity anomalies "A" and "E". (fig. 13). A number of anomalous copper and copper-zinc values were detected. Prospecting in this area revealed that the anomalous areas were underlain by or closely associated with a distinctive amygdaloidal pyritic andesite unit. Geochemical analyses of samples of this volcanic unit and of samples of other sediments found in the area revealed that the probable source of the high copper values in silts and soils is the andesitic volcanic unit. The peaks of gravity anomalies "A" and "E" appear to be underlain by volcanics. A breakdown of the copper rock geochemical analyses from this area is as follows:

	Number of samples	Range (p.p.m.)	Mean (p.p.m.)
Volcanic(andesite)	7	55-195	97
Sediments (shale, argillite, quartzite)	14	5-52	23

Prospecting and rock analyses did not explain the scattered anomalous zinc results in soils and silts from this area.

Soil samples were collected on Lines 103, 104, 105 and 106, over gravity anomalies "D" and "G". No anomalous values whatsoever were obtained from samples within the bounderies of the "G" anomaly. There are scattered outcrops of interbedded sediments throughout this area. A number of anomalous zinc and copper-zinc responses were obtained on L 104 over gravity anomaly "G". In the vicinity of these results, intermediate soil lines were run to the east and west of L 104. The anomalous zinc results on L 104, 54-55 N did not extend to the adjacent lines. These anomalous samples are underlain by graphitic andalusite shales and black quartzites. Anomalous zinc and copper-zinc results were obtained from L 104, 58-59 N, and at 57 N on the intermediate line east of L 104. These anomalous sample sites are immediately overlying the intrusive-sediment contact. The area was carefully prospected, but no sulfide mineralization could be found. No anomalous results, for any element, were detected from samples collected on L 103, L 105 or L 106.

Silt sampling in silt area IV verified the very high zinc results that were obtained during the 1971 program. The creek from which the highest zinc values were obtained follows the intrusive-sediment contact. Outcrop is abundant in this area. The area was carefully prospected with no encouraging results. The contact is very sharp. The granodiorite east of the contact is massive, blocky and fresh. A wide zone of hornfels alteration borders the intrusive in this location. Graphitic andalusite shales and argillites are the main rock types. No sulfide mineralization, except for some minor, disseminated, fine-grained pyrite in shales and cherts, and some very minor pyrite in a number of thin quartz veinlets,

could be found. A tabulation of results of the rock geochemical analyses from this area is as follows:

Description	Cu	Pb	Zn(p.p.m.)
Black chert, rusty weathering, minor fine-grained, dissem. pyrite	52	29	410
Graphitic argillite, minor andalusite, brecciated, quartz veinlets, no sulfides	7	23	245
Graphitic andalusite hornfels, platy, rusty, thin quartz veinlets with minor pyrite	13	49	200
Graphitic shales and argillites, varying amounts of andalusite, no veining, not rusty	5	51	21
	6	48	23
	4	40	15
	20	45	155
	12	24	35
	9	41	8
	10	23	27
	9	25	20
Black very fine grained quartzite	21	68	185
Quartzite, fine grained, color banded	14	133	53
Quartzite, fine grained, grey	44	98	45
Quartzite, rusty weathering, black, fine grained	4	29	9
Granodiorite, coarse grained, porphyritic, clean	12	37	37

The only high zinc results, from rock samples, were obtained from rocks that had visible sulfides (pyrite) or were cut by quartz veinlets. No zinc

results from rock samples were nearly as high as some of the silt results. All the other rock samples had concentrations of copper and zinc generally equivalent to the background values for soils and silts in the Twopete Area. The lead results from the rock samples are higher than the lead background for soils and silts in the area. Three quartzite samples, from separate locations, had very high and unexplained lead values.

Silt area V (fig. 12) is three anomalous zinc values on the north-west flank of gravity anomaly "H". Outcrop is widespread. The area is underlain by the usual interbedded sediments. The source of the anomalous results was not determined.

Soil sample lines were run over gravity anomaly "M" (fig. 14). There is no outcrop in this area. Anomaly "M" is located within the granodiorite unit. All the soil sample results from these samples are within the background range for all elements tested.

GEOPHYSICS

Four I.P. traverses were run across gravity anomaly "K", on L24, L25, L28, and L29. For a full discussion of the I.P. survey results, the reader is referred to the report of July, 1972, by Peter E. Walcott. Within the areas of the I.P. survey, the attitude of the rocks is generally striking east-west, and dipping 50-70 to the south. The rocks underlying L28 and L29 and extending further to the south are non-graphitic, interbedded quartzites, silicious argillites, shales, and limestone. Between L28 and L26, dark grey slightly graphitic shales predominate, with minor dark grey quartzite.

Underlying L25 and L24, and extending further north, are very graphitic shales, cherts and argillites. The shales and argillites show increasingly intense hornfels alteration towards the intrusive contact.

No I.P. anomalies with associated resistivity lows were detected on L28 and L29. These lines straddle a pronounced bedrock ridge with deep canyons on either side. The "K" gravity anomaly in this area is probably caused by the extreme nature of the topography. The very graphitic nature of the underlying bedrock on L24 and L25 resulted in very irregular high chargeability readings and very low resistivity readings. Because of the highly graphitic nature of the bedrock, the I.P. results are not conclusive in this area.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

In the Tay "A" area, the "A" gravity anomaly reflects a well-defined bedrock ridge. I.P. traverses across this anomaly, in an attempt to define the extend of sulfide mineralization encountered in the 1971 diamond drill hole on the Tay "A" anomaly, did not result in any anomalous I.P. responses. The Tay "A" area was carefully prospected, with no favourable results. Soil sampling and silt sampling did not define any targets for further work.

A number of new molybdenite showings were discovered in the Tay "Mo" area, but all are much too small to be of any economic interest. The gravity anomalies in this area again seem to reflect topographic features.

Reconnaissance silt sampling in the Tay area revealed a very anomalous

area near the headwaters of Fishook Creek. This area has a high percentage of bedrock exposure. Careful prospecting in the area did not result in the discovery of any significant mineralization. The results of rock geochemical analyses gave some probable sources for the high copper, lead, and molybdenum values found in soil and silt samples. A number of high zinc values in silts are unexplained.

In the Anvil Creek area, the "S" and "W" gravity anomalies are closely coincident to the intrusive-phyllite content, and also follow a pronounced topographic break-in-slope. All silt samples from this area gave only background values. Soil sample results revealed that the "W" anomaly is within an area of generally higher values for copper and zinc than were obtained elsewhere in the Anvil Creek area, although no well defined anomalies were outlined.

The Anvil Creek western grid area is underlain by meta-volcanics. The gravity anomalies seem to reflect topographic highs and areas of thin overburden cover. Prospecting and soil sampling did not result in any targets for further work.

In the Twopete Area, prospecting and mapping, and soil, silt, and rock geochemical sampling were carried out. Definitive explanations could not be found for most of the gravity anomalies in this area. There is a high percentage of bedrock exposure throughout the Twopete Area. The area of interest is underlain primarily by interbedded shales, argillites, cherts, and limestones, often graphitic. No evidence whatsoever of any mineralization of economic interest was found in the Twopete Area.

Further work is not warranted in any of the areas investigated during the 1972 field season.

Respectfully submitted,

T. J. Adamson

October, 1972

All of the work contained in this report was done under the direction and supervision of the undersigned.

December 11, 1972. Arthur W. Goring, P. Eng.

APPENDIX I

LIST OF PERSONNEL

T. J. ADAMSON	VANCOUVER, B.C.	Geologist
R. WOOD	VANCOUVER, B.C.	Geochemical sampler
R. WAGNER	VANCOUVER, B.C.	Geochemical sampler

CONTRACTOR - I.P. Survey

Peter E. Walcott & Associates Ltd.,
605 Rutland Crt.,
Coquitlam, B.C.

LEGEND

CRETACEOUS

12 MUSCOVITE BIOTITE GRANODIORITE

MIDDLE and UPPER CAMBRIAN

3 QUARTZ BIOTITE SERICITE SCHIST & PHYLLITES

SYMBOLS

- OUTCROP BOUNDARY
- GEOLOGICAL CONTACT
- FOLIATION
- MOLYBDENITE MINERALIZATION

Gd GRANODIORITE
Qtz QUARTZ
Sch SCHIST
Bi BIOTITE
Ser SERICITE
Chl CHLORITE
Hb HORNBLENDE
Py PYRITE

CANADIAN RESERVE OIL & GAS LTD.
ANVIL PROJECT

TAY "A" AND TAY "Mo" AREAS

GEOLOGY

DATE OCTOBER, 1972	SCALE: 1 inch = 400 feet
BY T. J. ADAMSON	FIGURE No. 1

CANADIAN RESERVE OIL & GAS LTD.
ANVIL PROJECT

TAY "A" AND TAY "Mo" AREAS

SOIL & SILT RESULTS

DATE: OCTOBER, 1972	SCALE: 1 inch = 400 feet
BY: T. J. ADAMSON	FIGURE No. 3

TAY RIVER

CAMP CREEK

ROB CREEK

FISHHOOK CREEK

PELLY RIVER

134° 00'

62° 30'

LEGEND

O SILT SAMPLE STATION

64, 47, 209.7, Cu., Pb., Zn., Mo., (in ppm.)

Cu. >60 ppm

Pb. >40 ppm

Zn. >200 ppm

Mo. > 4 ppm

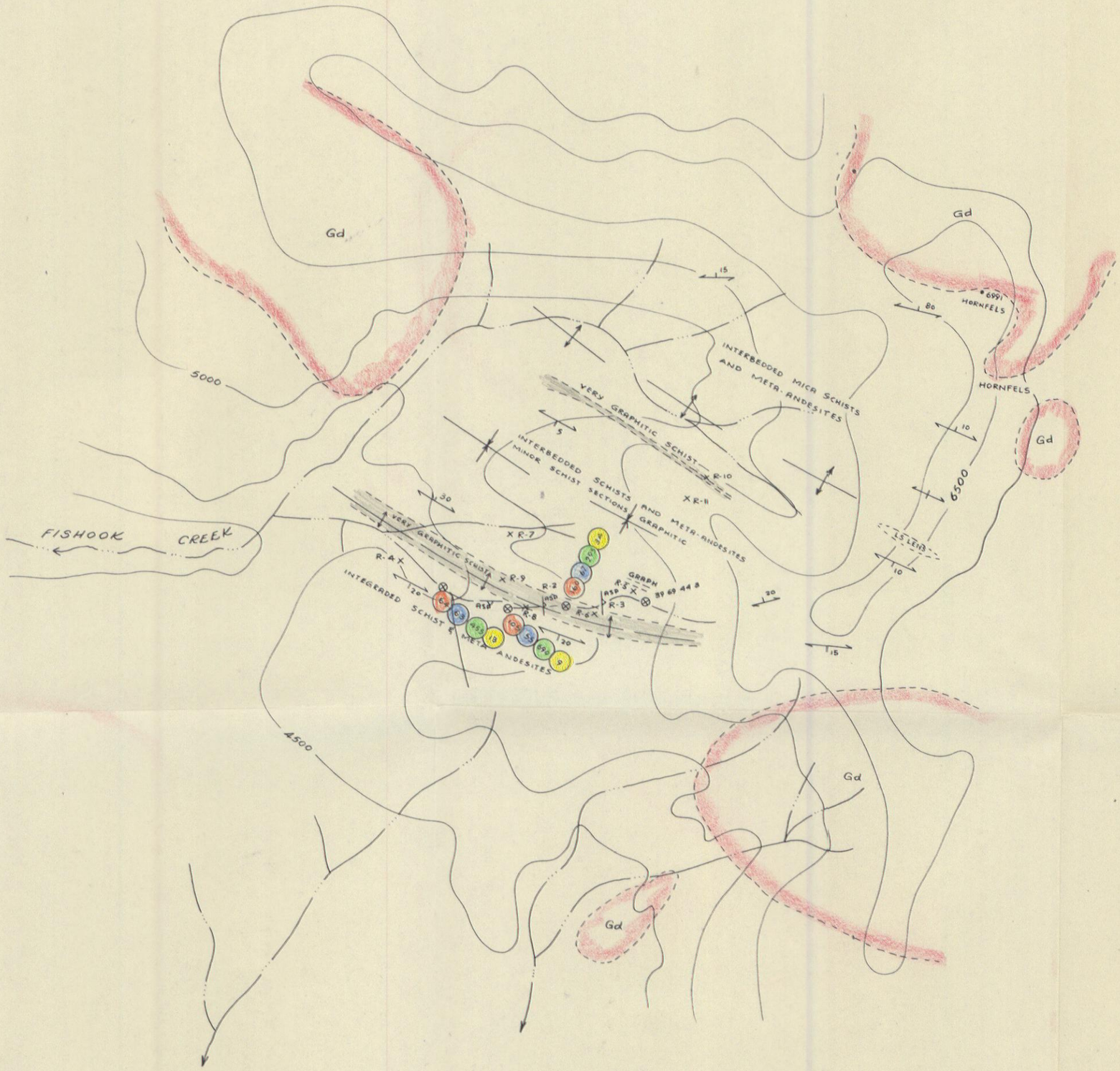
CANADIAN RESERVE OIL & GAS LTD.

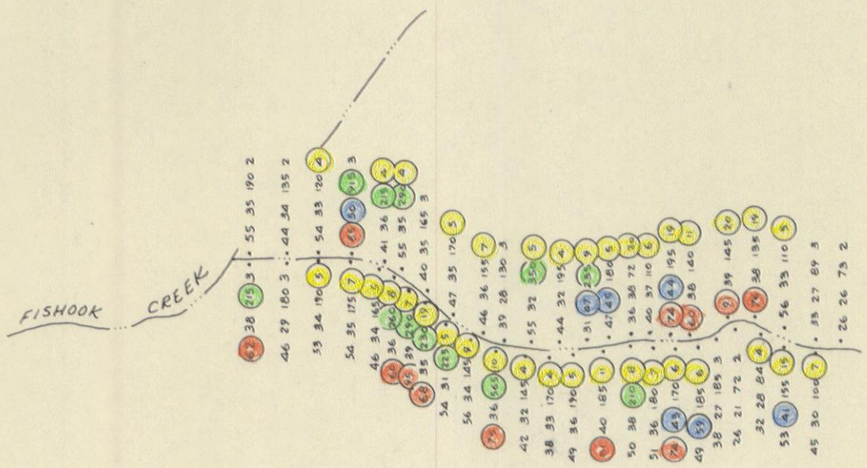
ANVIL PROJECT

TAY RIVER

SILT SAMPLE RESULTS

DATE: OCTOBER, 1972	SCALE: 1 inch = 1/2 mile
BY: T. J. ADAMSON	FIGURE No: 4





N

LEGEND

⊗ GOSSAN SAMPLE STATION

• SILT SAMPLE STATION

× R-2 ROCK GEOCHEM. SAMPLE STATION

50 30 200 4 - Cu, Pb, Zn, Mo (p.p.m.) GEOCHEM ANALYSES

Cu >60 p.p.m.

Pb >40 p.p.m.

Zn >200 p.p.m.

Mo >3 p.p.m.

ANTICLINE

SYNCLINE

FOLIATION

CANADIAN RESERVE OIL & GAS LTD.
ANVIL PROJECT

UPPER FISHOOK CREEK AREA

GEOLOGY
ROCK & GOSSAN SAMPLE SITES
SOIL VALUES

DATE: OCTOBER, 1972	SCALE: 1 inch = 1/2 mile
BY: T. J. ADAMSON	FIG. No. 5

L-26

L-25

L-24

L-23

L-20

L-17

L-16

L-15

L-14

L-13

L-12

L-11

L-10

L-9

L-8

L-7

L-6

L-5

L-4

L-3

L-2

L-1

L-21

L-19

S

W

Break in Slope

Rusty Seep

Rusty Seepage

ANVIL CREEK

BASE LINE

LEGEND

CRETACEOUS

12 — BIOTITE QUARTZ MONZONITE

MIDDLE and UPPER CAMBRIAN

3 — QUARTZ BIOTITE CHLORITE PHYLLITE, SOME GRAPHITIC

SYMBOLS

- OUTCROP
- FOLIATION
- GRAVITY CONTOUR
- SILT SAMPLE STATION
- x or + SOIL SAMPLE STATION
- 40 30 100 · Cu, Pb, Zn, (in ppm)
- Cu >56 ppm.
- Pb >40 ppm.
- Zn >200 ppm.

CANADIAN RESERVE OIL & GAS LTD.
ANVIL PROJECT

ANVIL CREEK - "S" & "W" GRAVITY ANOMALY AREA

GEOLOGY (OUTCROP MAP) & GEOCHEMICAL RESULTS (SOIL, SILT)

DATE: OCTOBER, 1972	SCALE: 1 inch = 400 feet
BY: T. J. ADAMSON	FIGURE No: 6

LEGEND

PEN. and/or PERMIAN

- Pg — ANDESITIC FOLIATED META VOLCANICS
- Pgb — GRAPHITIC CHERT, GREY QUARTZITE
- ? — QUARTZ BIOTITE PHYLLITE

SYMBOLS

- OUTCROP
- FOLIATION
- GRAVITY CONTOUR
- CONTACT
- 10, 20, 40 - Cu, Pb, Zn, (in ppm) SOIL SAMPLE RESULTS
  - Cu > 56 ppm
  - Pb > 40 ppm
  - Zn > 200 ppm
- 27 — MARK CLAIM #

Camp

BASELINE

Anvil Creek

SHARP RISE

SHARP BREAK IN SLOPE

PELLY RIVER

L-36 L-37 L-38 L-39 L-40 L-41 L-42 L-43 L-44 L-45 L-46 L-47 L-48 L-49 L-50 L-51 L-52 L-53 L-54

105 L-8

CANADIAN RESERVE OIL & GAS LTD.
ANVIL PROJECT

ANVIL CREEK AREA L36-L54
MARK CLAIMS
GEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL COMPOSITE MAP

DATE: OCTOBER, 1972	SCALE: 1 inch = 400 feet
BY: T. J. ADAMSON	FIGURE No: 7

L-26
L-25
L-24
L-23
L-20
L-17
L-21
L-19
L-16
L-15
L-14
L-13
L-11
L-10
L-9
L-8
L-7
L-6
L-5
L-4
L-3
L-2
L-1

N

ANVIL CREEK

BASE LINE

CANADIAN RESERVE OIL & GAS LTD.
ANVIL PROJECT

ANVIL CREEK - "S" & "W", GRAVITY ANOMALY AREA

MAGNETIC VALUES

DATE: OCTOBER, 1972	SCALE: 1 inch = 400 feet
BY: T. J. ADAMSON	FIGURE No: 9

N

LEGEND

CRETACEOUS

12 MUSCOVITE BIOTITE GRANODIORITE

PENN. AND/OR PERMIAN

9a ANDESITIC VOLCANICS.

9b CHERT, SHALE, ARGILLITE, QUARTZITE

SYMBOLS

GEOLOGIC CONTACT

A GRAVITY ANOMALY (0.0 mg. CONTOUR)

I.P. TRAVERSE

BEDDING

CANADIAN RESERVE OIL & GAS LTD.

ANVIL PROJECT

TWOPETE AREA

GEOLOGY

105-K-12

DATE: OCTOBER, 1972	SCALE: 1 inch = ½ mile
BY: T. J. ADAMSON	FIGURE No: 10

TAY R.

TWOPETE CR.

ANVIL LAKE

2500
3500
4000
4500
5000
5500
6000
6500
3000

I
II
III
IV
V

LEGEND

50 . 30 . 200 . 10 Cu, Pb, Zn, Mo (p.p.m)

- Cu > 60 p.p.m.
- Pb > 35 p.p.m.
- Zn > 225 p.p.m.
- Mo > 5 p.p.m.

CANADIAN RESERVE OIL & GAS LTD.

ANVIL PROJECT

TWOPETE AREA

SILT SAMPLE VALUES

105-K-12

DATE: OCTOBER, 1972	SCALE: 1 inch = ½ mile
BY: T. J. ADAMSON	FIGURE No: 12

BASE LINE 4

LINE 112

LINE 111

LINE 110

LINE 109

LINE 108

LINE 107

LINE 106

LINE 105

LINE 104

LINE 103

LINE 102

LINE 101

LINE 100

LINE 99

LINE 98

LINE 97

LINE 96

LINE 95

BASE LINE 5

TWOPETE CREEK

ANDESITE

INTERBEDDED GRAPHITIC SEDIMENTS

SEDIMENTS

A

D

E

G

LEGEND

Cu, Pb, Zn (p.p.m.)

- Cu >60 p.p.m.
- Pb >40 p.p.m.
- Zn >200 p.p.m.

SOIL

ROCK

CONTACT

BEDDING

GRAVITY ANOMALY

CANADIAN RESERVE OIL & GAS LTD.

ANVIL PROJECT

TWOPETE AREA

ROCK + SOIL SAMPLE ANALYSES

GRAVITY ANOMALY AREAS 'A', 'D', 'E', 'G'

DATE: OCTOBER, 1972	SCALE: 1 inch = 400 feet
BY: T.J. ADAMSON	FIGURE No. 13.

TWOPETE AREA

SOIL VALUES - GRAVITY ANOMALY "M" AREA

SCALE : 1" : 400'

105 K-12

20. 10. 200. 2 : Cu. Pb. Zn. Mo (p.p.m)

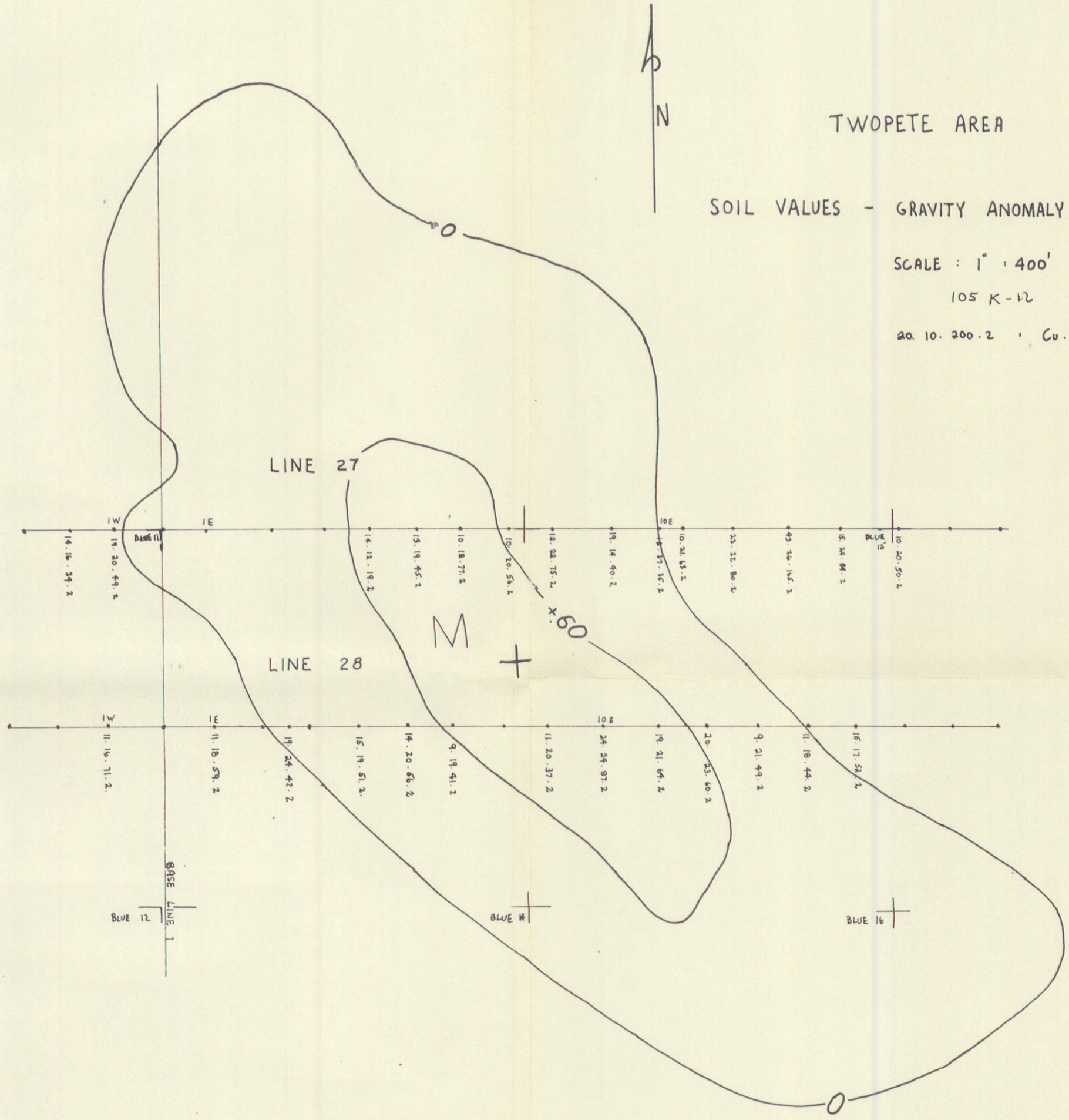


fig. 14