000 BUREAU DE RECHERCHES GEOLOGIQUES ET MINIERES

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FOLLOW-UP STREAM SEDIMENT

GEOCHEMICAL SAMPLING SURVEY

OF

E. L. 5/77

BY

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79/SYD/08

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FIGURES

PLATE

Not received.

1. INTRODUCTION

During July 1978, an orientation stream sediment sampling survey was carried out on EL 5/77. As the results of the survey were inconclusive, a follow-up survey was made in February 1979. In the follow-up survey 56 samples were collected from the 6 major creeks draining the area. Each sample was sieved to -80#, +80-20#, +20#, and each fraction was analysed for W, Sn, As, Bi, Mo, Pb, Cu.

The results of the survey were treated statistically by the accepted Lepeltier (1969) method, and an anomaly map produced (Plate 1, enclosure). The aim of the survey was to locate unknown mineralized wolframite bearing veins within the EL. Studies on the Oakleigh Creek vein have shown that a vein at least 300-400 metres long, average width of 30cm, with a vein grade of 3-4% wolframite is required before a vein can be considered of economic importance in this area. If such a vein is present then the drainage pattern in the valley is likely to pick up indications of its presence.

2. LOCATION AND ACCESS (FIGURE 1)

EL 5/77 is situated on the eastern side of the upper Forth River valley, in rugged, mountainous, isolated terrain. To the west, on the opposite side of the Forth River, is located the Cradle Mountain - Lake St. Clair National Park, having the river as its boundary. The Forth River flows north, discharging into the Bass Strait near Devonport.

The EL can be reached from Devonport by sealed road as far as the Lemonthyme Power Station, which is 20 km from the EL via a gravel road.

3. GEOLOGICAL SETTING

In the Forth Valley the rock types include quartzite, mica schist and quartz mica schist of the Fisher Group with a general strike slightly east of north and dips of between 15° and 30° to the south-east (Macleod, 1961). At the Oakleigh Creek mine the strike varies from 082° to 108° magnetic and dips from 15° to 27° in a northerly direction. The metasediments are abundantly veined by white quartz and locally sheared along planes trending north-north-west. These shear planes served as structural controls in the localization of copper and wolfram mineralization in the Forth Valley.

Most of the rocks in the Fisher Group have been derived from ortho-quartzite and siltstone and metamorphosed to greenschist facies.

Two small granitic intrusions (adamellite of mid-Devonian age) occur within the EL, the Birthday and Lone Pine Granites, both of which outcrop on Patons Track. They are the source of the wolfram, tin and copper mineralization in the district. The granite is discordantly intrusive into the Precambrean Fisher Group. The granite contains biotite and muscovite (with the latter predominating in some exposures), pinkish white feldspar and coarse quartz. Tourmaline, molybdenite and arsenopyrite have been noted. Near its contact the granite commonly develops large phenocrysts of feldspar and abundant biotite.

Quartz veins associated with the granites cut both the intrusives and Precambrian sediments. Of the veins observed, only the Birthday Granite Prospect and the Oakleigh Creek Wolfram Prospect are mineralized and they contain wolframite, pyrite, cassiterite and rare molybdenite. The Lone Pine Prospect adjacent to the granite intrusive consists of a single very narrow vein of arsenopyrite with only traces of wolframite. The vein within the Lone Pine granite was barren wherever it outcropped.

On the more gradual slopes encountered on the lower parts of the valley, there is deep dolerite scree, with little or no outcrop of the Precambrian sediments. The drainage in this area is diffuse, most of it being by seepage through the dolerite scree and into the Glacial gravels filling the valley floor. The major structure in the Precambrian is a series of subparallel east-west folds. The folds are open and assymetrical with their axial planes dipping to the north. Minorstructure in many places is intense, with the less competent schists being strongly distorted between the more competent quartzites.

4. STREAM SEDIMENT SURVEY (PLATE 1)

A follow-up stream sediment survey of the six major creeks draining the EL into the Forth River was carried out following the inconclusive results obtained in the earlier reconnaissance survey.

In the survey a total of 56 samples was collected at 50 m intervals from all the creeks traversed (see Plate 1). Each sample was sieved to -80#, +80-20#, +20#, and analysed for W, Sn, As, Bi, Mo, Pb, Cu. The three size fractions were examined to determine which one gave the best response. All the elements determined occur in varying quantities in the known mineralized veins. W and Sn being transported mechanically should give a response close to their source, while the other elements are transported chemically and should be traceable at greater distances from the source. It should be noted that As, Bi, Mo, Pb, Cu are likely to be transported mechanically in the +20# and possibly the +80 -20# fractions.

5. GEOCHEMISTRY RESULTS AND DISCUSSION

A full tabulation of all the sample results is included as Table 1. Results from each of the elements were treated statistically by the Lepeltier (1969) method and cumulative frequency distribution diagrammes constructed. From the diagrammes, it is possible to determine the background or mean value (50% abscissa) as well as the threshold value (2.5% abscissa - twice standard deviation) for each of the elements. The cumulative frequency distribution curves were plotted using 95% confidence limits to aid in the interpretation of the curves, as a population of 56 samples is barely enough to give a statistically reliable result.

Results for each of the elements are discussed separately.

E.L. 5/77

Stream Sediment Geochemical Raw Data.

879006 Table 1

Location		Sample	W (ppm) +20	W (ppm) -20+80	W (ppm) -80	Sn (ppm) +20	Sn (ppm) -20+80	Sn (ppm) -80	As (ppm) +20	As (ppm) -20+80	As (ppm) -80	Bi (ppm) +20	Bi (ppm) -20+80	Bi (ppm) -80	Mo (ppm) +20	Mo (ppm) -20+80	Mo (ppm) -80	Pb (ppm) +20	Pb (ppm) -20+80	Pb (ppm) -80	Cu (ppm) +20	Cu (ppm) -20+80	Cu (ppm) -80
eid Creek	3	1805	15	30	45	25	55	100	60	40	70	10	10	10	-2	2	-2	20	20	20	10	10	10
"	4	04	15	80	65	30	105	60	40	145	135	5	20	15	-2	2	2	20	30	30	5	15	15
"	5	03	35	595	280	600	260	70	130	155	135	5	25	20	2	-2	-2	10	30	30	10	20	20
"	6	02	15	40	40	20	55	55	30	150	130	-5	10	10	2	2	2	10	20	20	5	20	20
"	7	1801	185	70	75	35	210	120	95	190	160	10	10	15	5	2	2	15	30	20	15	20	20
"	8	1806	25	120	60	225	480	300	45	130	120	-5	10	15	-2	5	5	15	30	25	10	15	40
"	9	07	10	25	45	50	135	115	45	130	120	-5	10	10	2	-2	2	15	45	40	10	20	35
"	10	08	5	50	10	65	310	95	55	85	45	5	-5	-5	2	2	2	20	50	50	10	20	15
"	11	09	10	35	20	250	295	100	60	1200	450	-5	40	30	5	2	2	20	40	50	10	20	40
"	12	1810	5	15	10	20	170	100	65	45	40	5	5	5	-2	2	2	20	50	50	10	20	25
leigh creek	2	1816	10	40	15	20	220	85	60	80	70	10	10	15	2	2	-2	10	10	10	20	30	30
"	3	15	10	-5	20	40	85	85	70	110	100	5	15	15	5	-2	-2	10	15	15	30	40	40
"	4	14	10	90	15	55	150	100	40	105	100	10	10	10	-2	5	5	10	10	20	20	35	40
"	5	13	10	55	30	115	325	105	35	100	90	5	10	15	-2	2	-2	10	20	20	15	40	50
"	6	12	20	75	25	65	390	140	65	90	70	10	10	20	-2	-2	-2	10	15	20	20	35	40
"	7	1811	15	50	25	25	310	130	130	105	80	10	20	15	2	-2	-2	10	15	15	20	35	40
"	8	1817	15	20	15	15	85	70	25	105	90	10	15	15	2	2	-2	10	15	15	20	40	40
"	9	18	10	55	20	30	180	125	40	100	80	5	10	15	2	5	5	10	10	20	20	40	40
"	10	19	10	20	25	890	80	65	40	100	90	10	10	20	5	2	5	10	15	15	20	40	55
"	11	1820	10	75	40	40	480	285	35	120	80	10	20	20	2	2	2	10	10	10	20	35	40
"	12	21	15	35	25	25	350	90	40	120	80	10	20	15	2	2	5	10	15	20	20	35	55
"	13	22	10	20	10	25	125	110	40	100	80	10	15	20	2	2	2	10	15	20	15	40	35
"	14	23	15	105	25	50	585	160	95	105	80	10	35	15	5	5	5	10	15	20	15	40	40
"	15	1824	15	110	25	105	620	140	160	100	90	15	25	15	2	5	5	10	15	20	25	35	45
ak Creek	5	1827	20	30	25	35	60	100	90	80	60	20	20	20	-2	2	-2	10	10	10	35	35	40
	6	26	15	110	45	45	245	70	60	80	80	20	50	25	-2	5	-2	10	10	10	20	30	40
	7	1825	15	50	25	40	115	95	70	80	80	30	30	30	-2	-2	-2	10	10	15	35	35	35
	8	1828	15	40	35	30	50	35	65	85	70	20	20	30	-2	2	5	10	15	15	20	40	45
	9	29	20	35	45	25	35	70	60	80	80	25	20	25	2	5	5	10	15	15	20	30	45
	10	1830	20	35	50	25	30	40	60	80	90	20	30	30	2	5	5	10	10	20	20	30	50
	11	31	30	80	50	30	85	70	70	110	160	25	30	45	5	2	2	10	15	20	25	35	60
	12	1832	35	35	25	20	30	45	55	100	120	35	20	35	5	10	2	10	10	20	20	40	65

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Location		Sample	W (ppm) +20	W (ppm) -20 +80	W (ppm) -80	Sn (ppm) +20	Sn (ppm) -20 +80	Sn (ppm) -80	As (ppm) +20	As (ppm) -20 +80	As (ppm) -80	Bi (ppm) +20	Bi (ppm) -20+80	Bi (ppm) -80	Mo (ppm) +20	Mo (ppm) -20 +80	Mo (ppm) -80	Pb (ppm) +20	Pb (ppm) -20 +80	Pb (ppm) -80	Cu (ppm) +20	Cu (ppm) -20+80	Cu (ppm) -80
Evil Creek	7	1839	10	10	5	30	85	80	50	110	80	-5	10	-5	2	2	2	10	35	30	30	40	60
"	8	40	10	20	5	10	30	65	25	125	90	-5	10	-5	-2	2	2	10	30	30	15	45	65
"	9	41	-5	20	10	45	160	100	40	130	95	-5	10	5	5	5	5	20	30	25	15	35	45
"	10	42	-5	10	10	105	125	115	55	145	110	5	5	-5	2	5	2	15	25	15	15	40	30
"	11	1843	15	10	5	55	180	150	25	110	85	-5	10	5	5	2	-2	15	20	20	10	30	20
"	12	1838	10	20	70	65	150	65	25	75	60	-5	5	5	-2	5	5	10	30	30	10	30	30
"	13	37	10	20	-5	35	165	35	35	80	60	-5	-5	5	5	2	5	15	30	35	10	20	40
"	14	36	10	10	10	20	80	80	25	80	60	10	10	10	-2	2	5	10	40	35	10	25	35
"	15	1835	10	15	5	55	100	35	25	95	70	10	15	20	-2	-2	-2	15	40	40	10	35	50
Lone Pine Creek	6	1833	35	50	25	130	500	330	115	435	350	75	90	85	2	-2	-2	10	30	35	15	50	65
"	7	1834	15	20	20	75	270	195	155	420	350	35	90	95	-2	2	2	15	35	35	15	55	60
"	8	1844	10	45	20	185	420	20	105	455	380	30	120	110	-2	2	2	10	40	40	15	70	70
"	9	1845	10	30	20	40	335	135	105	425	330	25	95	100	2	2	2	10	40	40	10	50	60
"	10	1846	45	50	25	110	445	170	125	470	410	25	95	90	2	5	2	10	40	35	10	60	45
Bend Creek	1	1847	50	10	5	15	50	25	45	25	50	5	10	15	2	-2	2	10	20	35	10	5	10
"	2	48	10	15	-5	5	70	10	5	10	5	5	5	10	-2	2	5	10	10	20	-2	10	20
"	3	49	-5	5	10	5	60	50	-5	10	20	5	10	-5	2	-2	-2	10	15	15	5	5	20
"	4	1850	-5	5	5	5	90	60	5	10	20	-5	-5	-5	-2	2	2	10	10	20	2	10	20
"	5	51	-5	10	5	10	50	55	-5	15	20	5	-5	10	2	-2	-2	5	10	20	2	10	15
"	6	52	5	10	5	-5	110	50	-5	10	20	-5	-5	10	2	2	2	5	10	20	2	10	15
"	7	53	-5	10	-5	5	30	50	5	15	20	-5	-5	5	5	5	5	5	10	20	2	5	15
"	8	54	-5	10	-5	-5	70	65	-5	20	30	-5	[illegible]	10	2	10	5	5	20	25	2	10	20
"	9	55	10	10	5	35	125	35	-5	15	25	-5	5	5	-2	2	2	5	15	20	2	5	20
(c lt 18/69/34)	10	1856	10	10	10	-5	50	65	-5	15	25	-5	-5	10	-2	2	5	5	10	20	2	5	45

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5.1 Tungsten (Figure 1)

Cumulative frequency distribution curves for the three size fractions shown in Figure 1 clearly demonstrate that the range of W values is different for each. The -20 + 80# fraction gives the highest response with a background value of 28 ppm and a threshold value of 140 ppm, compared to the +20# fraction which gives a background value of 13 ppm and a threshold value of 40 ppm.

Tungsten, in the form of wolframite, is chemically inert and so will be transported mechanically. This means that its distribution within the drainage pattern will be erratic.

Examination of the results shows only one sample to be anomalous for each of the size fractions. This occurs in Reid Creek adjacent to the Oakleigh Creek Vein. The -20 +80# and -80# fractions show values approaching the threshold occurring in Oakleigh and Freak Creeks. These values probably reflect the presence of the nearby Birthday Granite veins which occur on the ridge separating the two creek systems, and are known to be wolframite bearing. None of the other creeks traversed is anomalous in tungsten.

5.2 Tin (Figure 2)

Cumulative frequency distribution curves for the three size fractions are shown in Figure 2. As for tungsten these show three distinctly different ranges of values for each fraction. Again, the -20+80# fraction gives the highest response with a background value of 130 ppm and a threshold value of 460 ppm. The lowest response was in the +20# fraction with a background value of 35 ppm and threshold value of 195 ppm.

Tin is found in the form of cassiterite in the known mineralized veins. As for wolframite, cassiterite is mechanically transported and its distribution in the drainage system will also be erratic.

Examination of the results shows that tin reaches anomalous proportions in Reid, Oakleigh and Lone Pine Creeks. All of these creeks are adjacent to known mineralized veins or granitic intrusions. None of the other creeks traversed shows anomalous tin values. In the coursest fraction, +20#, anomalous values (> 195 ppm) are found only in Reid and Oakleigh Creeks indicating a nearby source. This is confirmed by the presence of the Cliff and Waterfall lodes which outcrop in and adjacent to Reid Creek and the

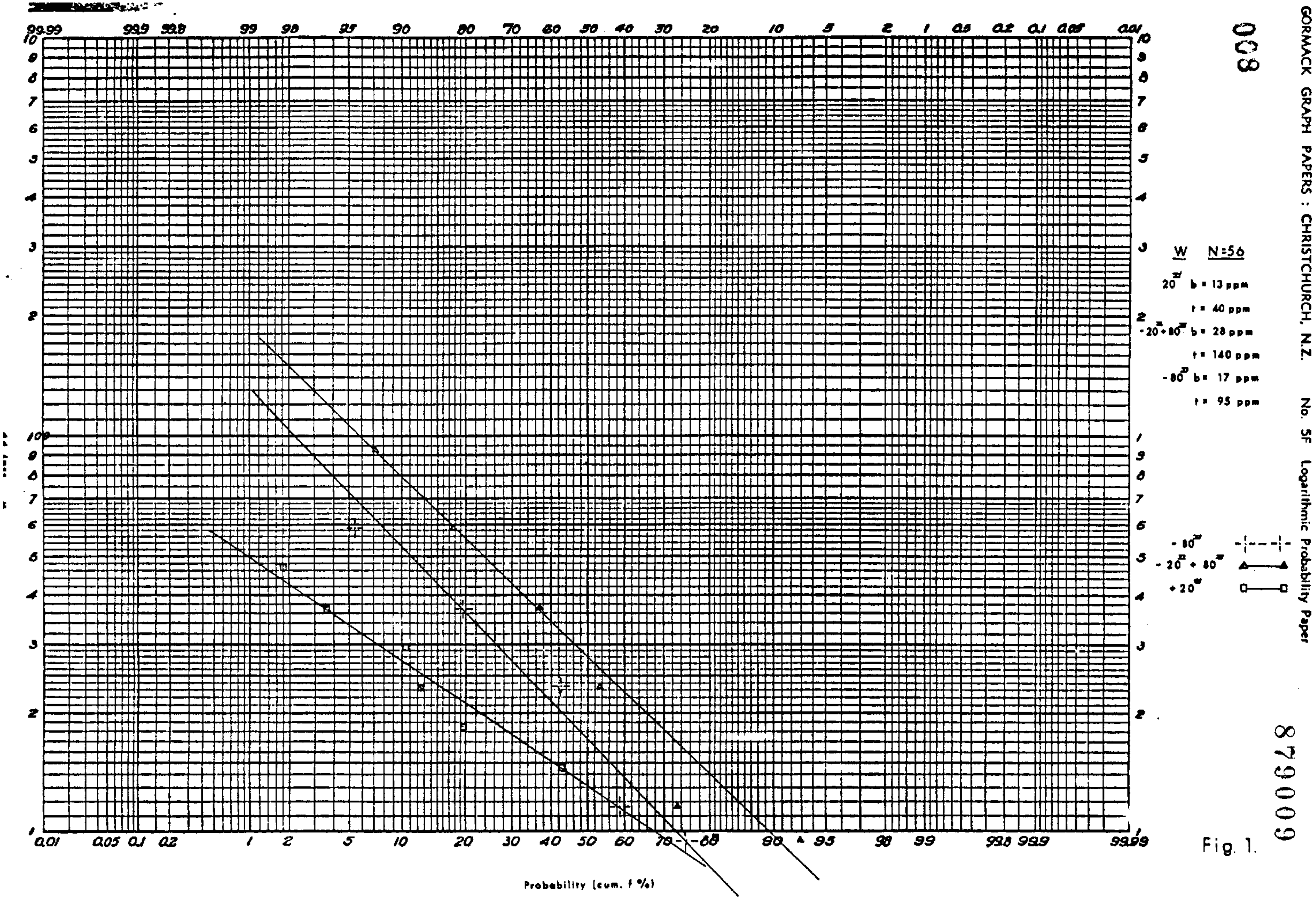
GORMACK GRAPH PAPERS : CHRISTCHURCH, N.Z.
No. 5F Logarithmic Probability Paper
W N=56
20 b = 13 ppm
t = 40 ppm
-20+80 b = 28 ppm
t = 140 ppm
-80 b = 17 ppm
t = 95 ppm
-80
-20 + 80
+20
Probability (cum. f %)

Fig. 1.

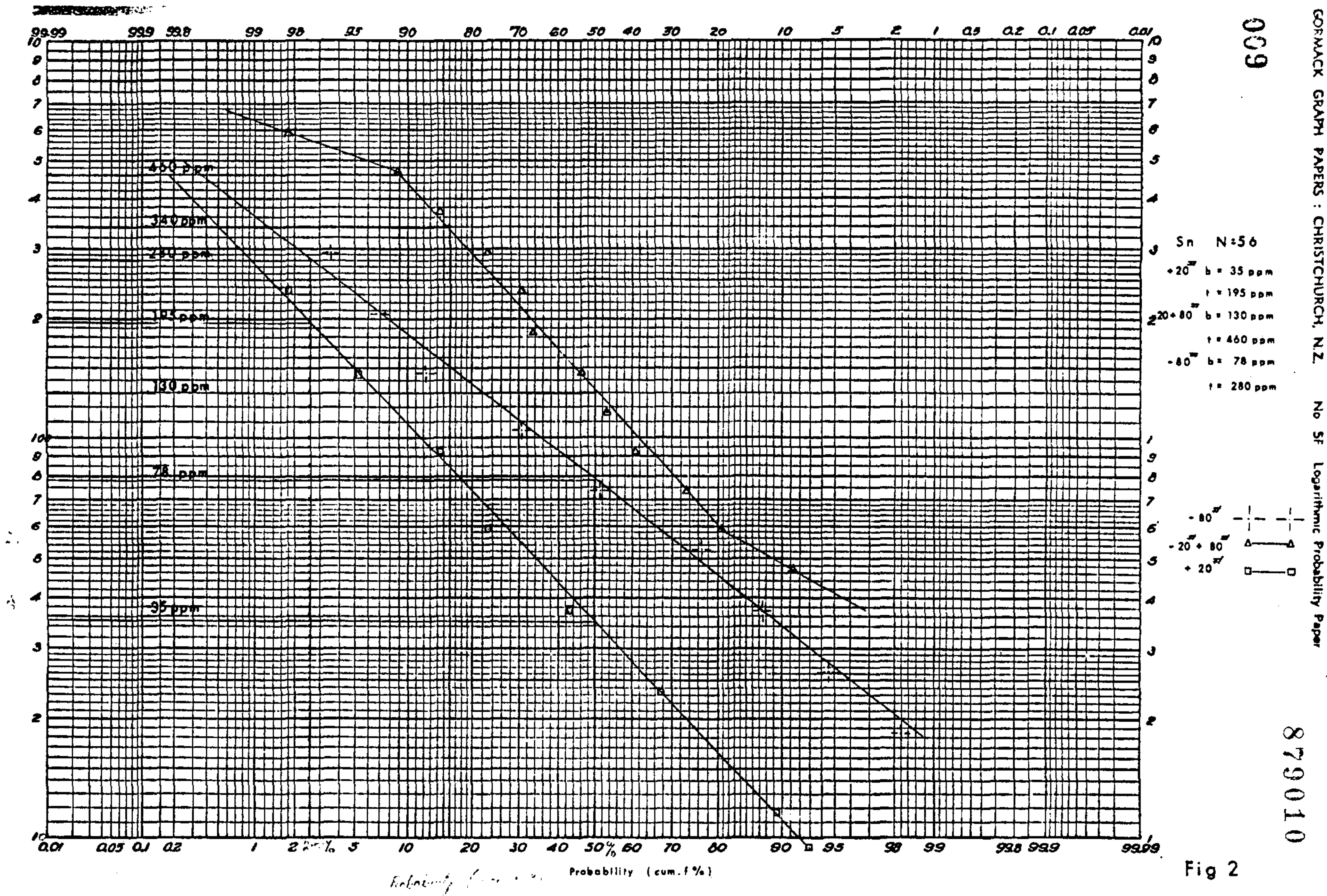
Sn N=56
+20# b = 35 ppm
t = 195 ppm
-20+80# b = 130 ppm
t = 460 ppm
-80# b = 78 ppm
t = 280 ppm
-80#
-20#+80#
+20#
460 ppm
340 ppm
280 ppm
195 ppm
130 ppm
78 ppm
35 ppm
Probability (cum. f %)
GOFMACK GRAPH PAPERS : CHRISTCHURCH, N.Z.
No SF Logarithmic Probability Paper

Fig 2

Birthday veins outcropping within 100 m of Oakleigh Creek.

5.3 Arsenic (Figure 3)

Cumulative frequency distribution curves for the three size fractions are shown in Figure 3. The three size fractions show distinctly different ranges of values. The -20+80# fraction gives the highest response with a background of 100 ppm and a threshold value (2.5% abscissa) of 210 ppm. A possitive break from lognormality of the 16% abscissa level indicates an excess of high values greater than 145 ppm. This is a favourable feature to look for in a cululative frequency distribution curve. In this case 145 ppm will be taken as the threshold value.

A similar positive break in lognormality is shown for the -80# fraction at the 105 ppm level. Background for this fraction at 50% abscissa is 78 ppm.

The +20# fraction shows a simple lognormal curve with a background of 46 ppm and threshold of 145 ppm.

Examination of the results shows anomalous values of arsenic occurring in Reid and Lone Pine Creeks. The source of these anomalous values is the known mineralized veins. None of the other creeks traversed shows anomalous values; however some values from Oakleigh Creek appraoch anomalism.

5.4 Bismuth (Figure 4)

Cumulative frequency distribution curves for the three size fractions are shown in Figure 4. The -80# fraction shows a positive break in lognormality at the 35 ppm indicating an excess of high values. As pointed out above, this is a favourable feature of a cumulative frequency distribution curve. In this case 35 ppm will be taken as threshold.

The -20 + 80# and +20# curves show simple lognormality. For the -20 + 80# fraction the background value is 13 ppm and the threshold value is taken as 96 ppm, while for the +20# fraction, the background is 10 ppm and threshold is 52 ppm.

An examination of the results shows anomalous values for the -20+80# and +20# occur only in the Lone Pine Creek (using thresholds of 96 ppm and 52 ppm respectively). However, the -80# fraction shows anomalous values (> 35 ppm) occuring in Freak Creek and Lone Pine Creek. The anomalous values in the Lone Pine Creek are more than twice those occurring in Freak Creek.

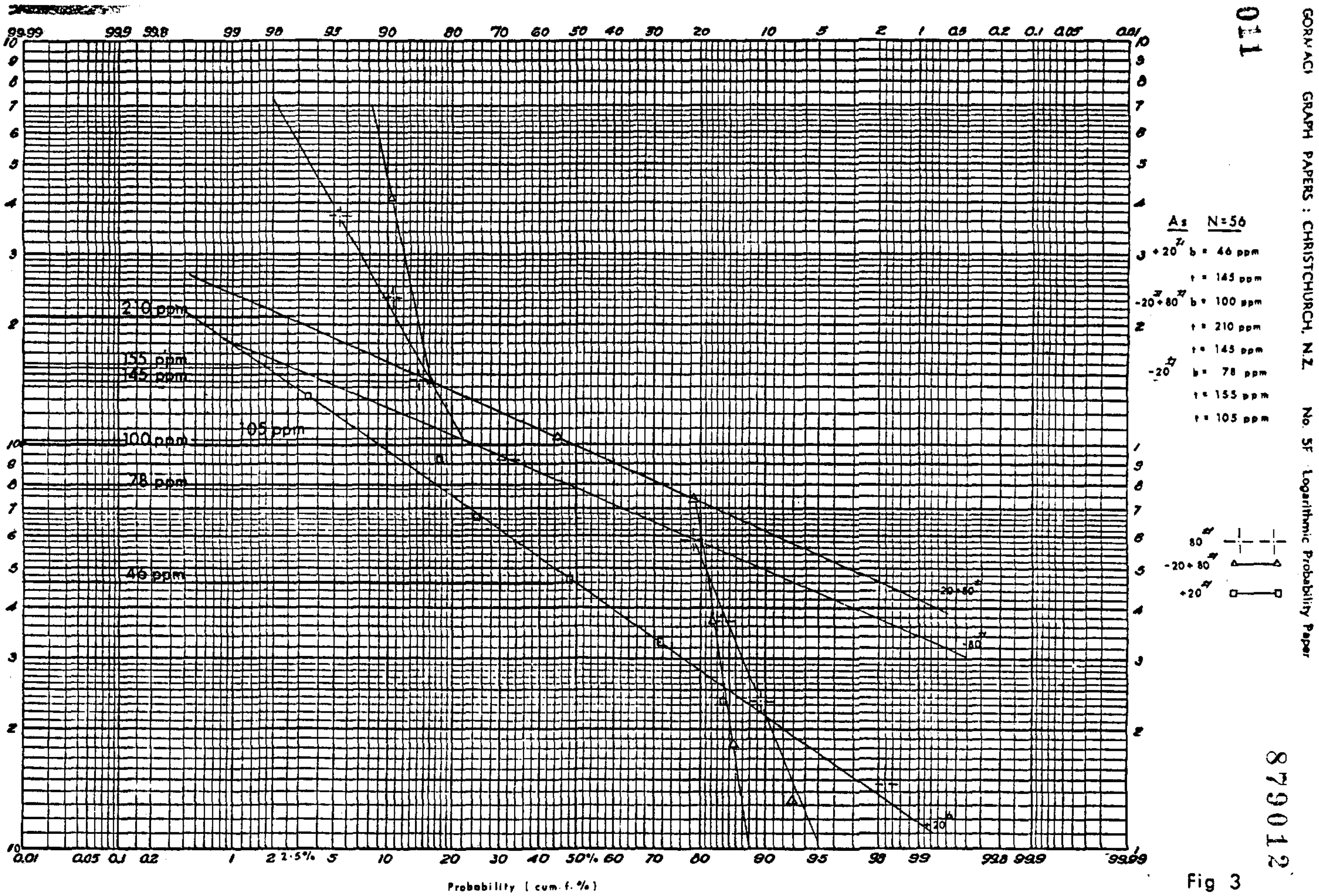

Fig 3

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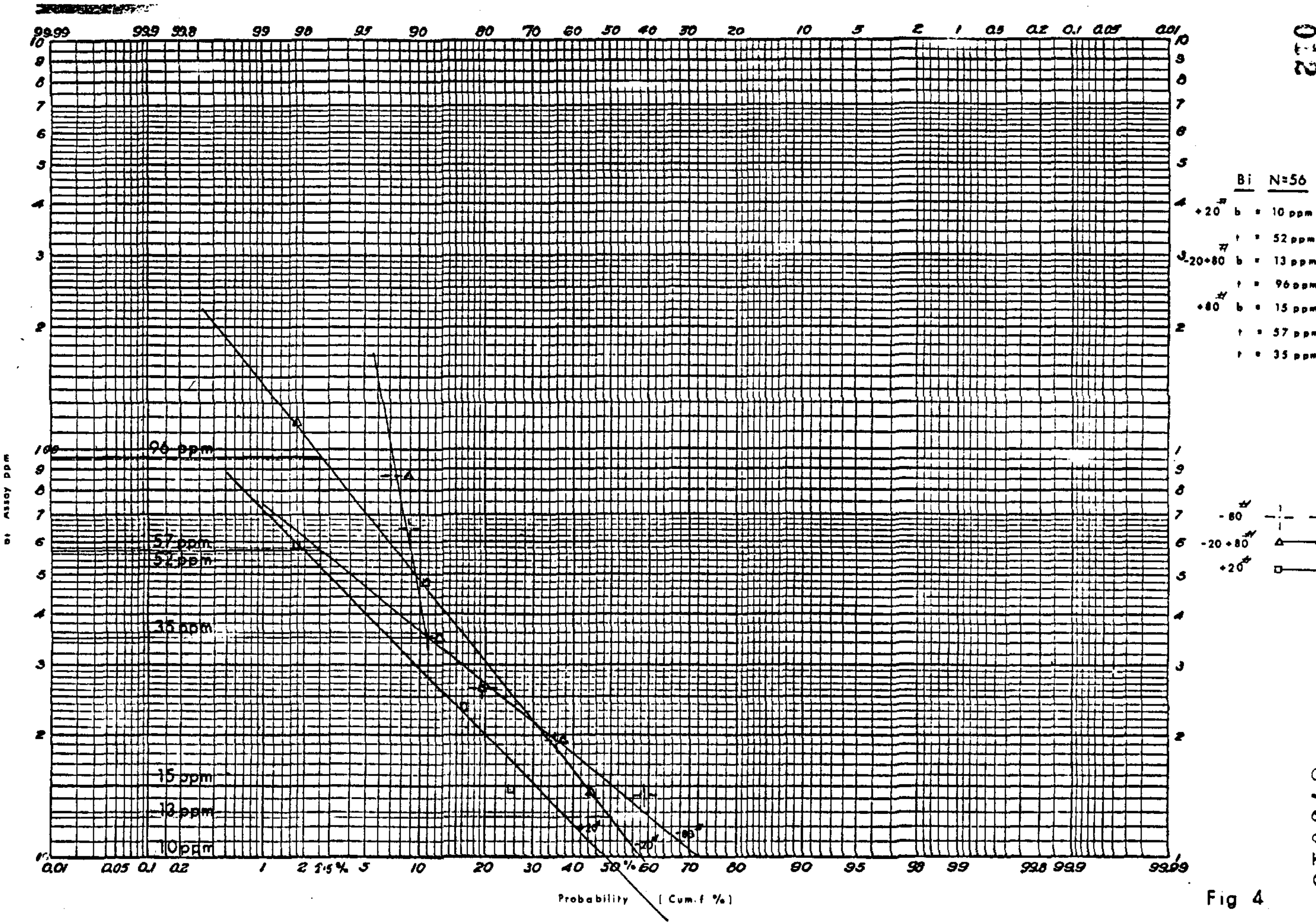

Fig 4

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The anomalous Bismuth values occuring in the Lone Pine Creek can be explained by the adjacent mineralized vein and outcropping granite.

5.5 Molybdenum

No cumulative frequency distribution curves were plotted for molybdenum as the range of values encountered barely exceed detection limits. No reliable curves could be constructed from the data. It is considered that Molybdenum is of no value as a pathfinder for tungsten bearing vein deposits in this district.

5.6 Lead (Figure 5)

Cumulative frequency distribution curves for the three size fractions are shown in Figure 5. Simple lognormal curves for the three fractions using 95% confidence limits are produced from the data.

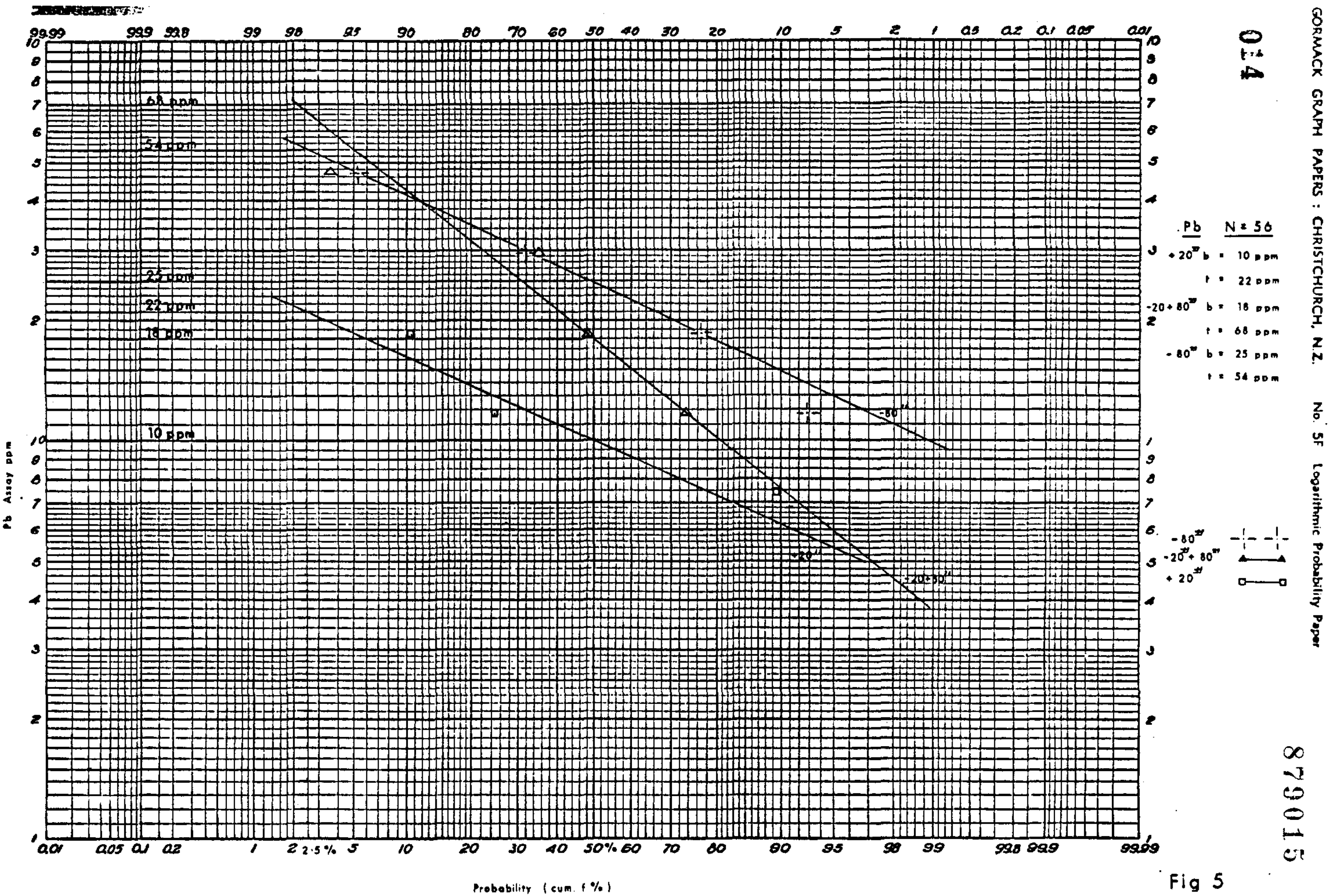
The +20# fraction has a background of 10 ppm and threshold value of 22 ppm. The -20 + 80# fraction has a background of 18 ppm and threshold value of 68 ppm, while the -80# fraction has a background of 25 ppm and threshold of 54 ppm. Because of the small population (56 samples) and short range of values, the cumulative distribution curves are not considered as statistically reliable, however, they show that none of the size fractions have any anomolous values.

Due to the presence of Galena in the Oakleigh Creek vein and because of its low mobility, it was considered that lead would be an ideal pathfinder for similar veins. Values obtained from Reid Creek are not anomalous, although some samples do approach the threshold values for the -20 + 80# fractions. More basic data is required to determine reliable threshold limits.

5.7 Copper (Figure 6)

Cumulative frequency distribution curves for the three fractions are shown in Figure 6. Simple lognormal curves for the -80# and +20# fractions are produced. However a negative break in lognormality occurs in the -20+80# fraction at the 47 ppm level indicating a deficiency of high values. Anomalous values greater than 47 ppm are found only in Lone Pine Creek. The -80# and the +20# fractions show no anomalous values in any of the creeks.

Similar observations as those made for lead apply for the copper data.



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No. 5F Logarithmic Probability Paper
68 ppm
54 ppm
25 ppm
22 ppm
18 ppm
10 ppm
-80"
+20"
+20+80"
Pb N = 56
+20" b = 10 ppm
t = 22 ppm
-20+80" b = 18 ppm
t = 68 ppm
-80" b = 25 ppm
t = 54 ppm
-80"
-20"+80"
+20"
Pb Assay ppm
2.5%
50%
Probability (cum. f %)
879015

Fig 5

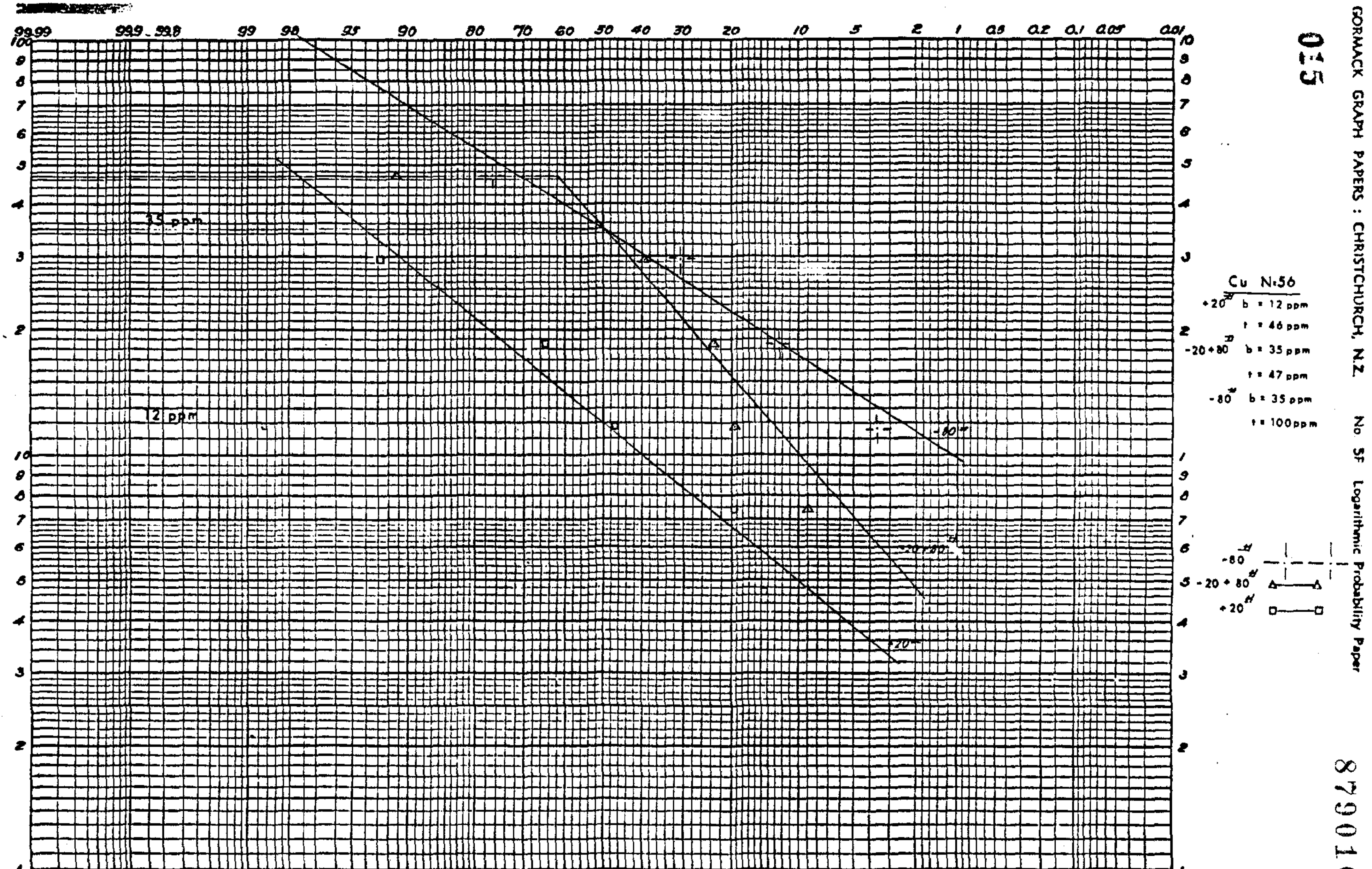
Cu N:56
+20# b = 12 ppm
t = 46 ppm
-20+80# b = 35 ppm
t = 47 ppm
-80# b = 35 ppm
t = 100ppm
35 ppm
12 ppm
-80#
-20+80#
+20#
-80#
-20 + 80#
+20#
Probability (Cum. f %)
GORMACK GRAPH PAPERS : CHRISTCHURCH, N.Z.
No 5F Logarithmic Probability Paper
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Fig 6

5.8 Discussion

Lead, copper and molybdenum were not used in producing an anomaly map.

Tungsten, tin, arsenic and bismuth were anomalous in the stream sediments. Correlation diagrammes were constructed for these elements to determine their relationship with tungsten. The coefficient of correlation, ρ, is determined from the simple correlation (or cloud) diagramme (see Figures 7, 8, 9). In the case of geochemical prospecting, ρ measures the degree of dependancy of two lognormal variables namely the tenors of two elements in a sample population (Lepeltier 1969). The coefficient ρ always falls between -1 and +1. ρ = 0 means a complete independence between the two elements, $\rho = \pm 1$ indicates a functional relationship, direct or inverse, between them. The correlation diagramme shows whether two elements are spatially associated and if one may be used as a pathfinder for the other.

Sn and W (Figure 7) shows a positive correlation (ρ= +0.43) which means the Sn is related to the W, but spatially the Sn anomalies are separated from the W anomalies.

There is a stronger correlation (ρ +0.53) between As and W (Figure 8) which indicates a similar source for As and W. However, an examination of Figure 8 shows the anomalous As values correspond to the background W and anomalous W correspond to As values between background and threshold. Thus, spatially As anomalies are separated from the W anomalies.

Bi and W (Figure 9) show a very strong positive correlation (ρ =+0.90). However the correlation diagramme shows the anomalous Bi grouped around the background W level and so Bi anomalies will be spatially separate from the W anomalies.

This means that neither Sn, As or Bi can be used independently as a pathfinder for W, but must be used in conjunction with each other. The most important anomalies will be those that show multi-element anomalies in the one creek.

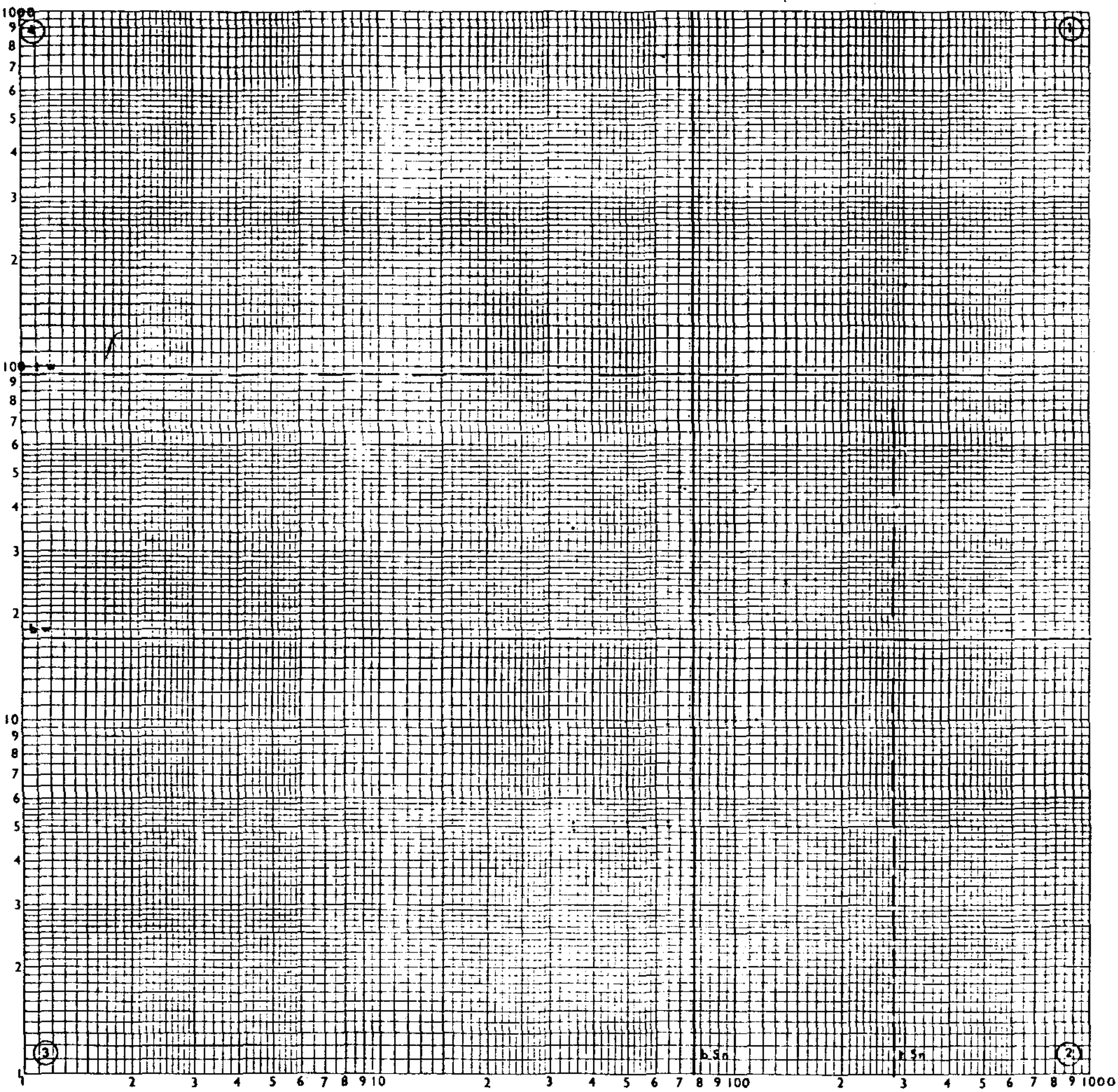
Plate 1 shows the locations of all the sample points in this survey. At each point W, Sn, Bi and As values are represented graphically where they are anomalous. Only the -20 + 80# values were used for this purpose, but a similar pattern would have occurred if the +20# or -80# values had been used.

Reid Creek is the only creek with anomalous W, from two samples, while adjacent samples are also anomalous in Sn and As. Not every sample from Reid Creek is anomalous in W and Sn due to their erratic distribution in the drainage system. However, the fact that a number of samples in one group are anomalous in three related elements, including W, is a good indication of the presence of a mineralized vein nearby. This is confirmed by the presence of the Oakleigh Creek vein on the ridge draining into Reid Creek. No other creek in the EL shows this pattern of anomalies.

Oakleigh Creek, adjacent to the Birthday Granite veins, is anomalous only in Sn. This could mean the other elements, W and As in particular, are not in high enough concentrations in the vein to be of economic importance, or, more likely, their transportation into Oakleigh Creek has diluted them to below threshold values.

The only other creek in the EL with a significant anomaly is the Lone Pine. This shows all samples to be anomalous in Sn, As and Bi but not W. Where observed, the Lone Pine vein consists essentially of arsenopyrite with only traces of wolframite.

No anomalies accur in Freak, Evil or Big Bend Creeks, however, some values in Freak Creek approach anomalism, reflecting the mineralization in the Birthday Granite veins.

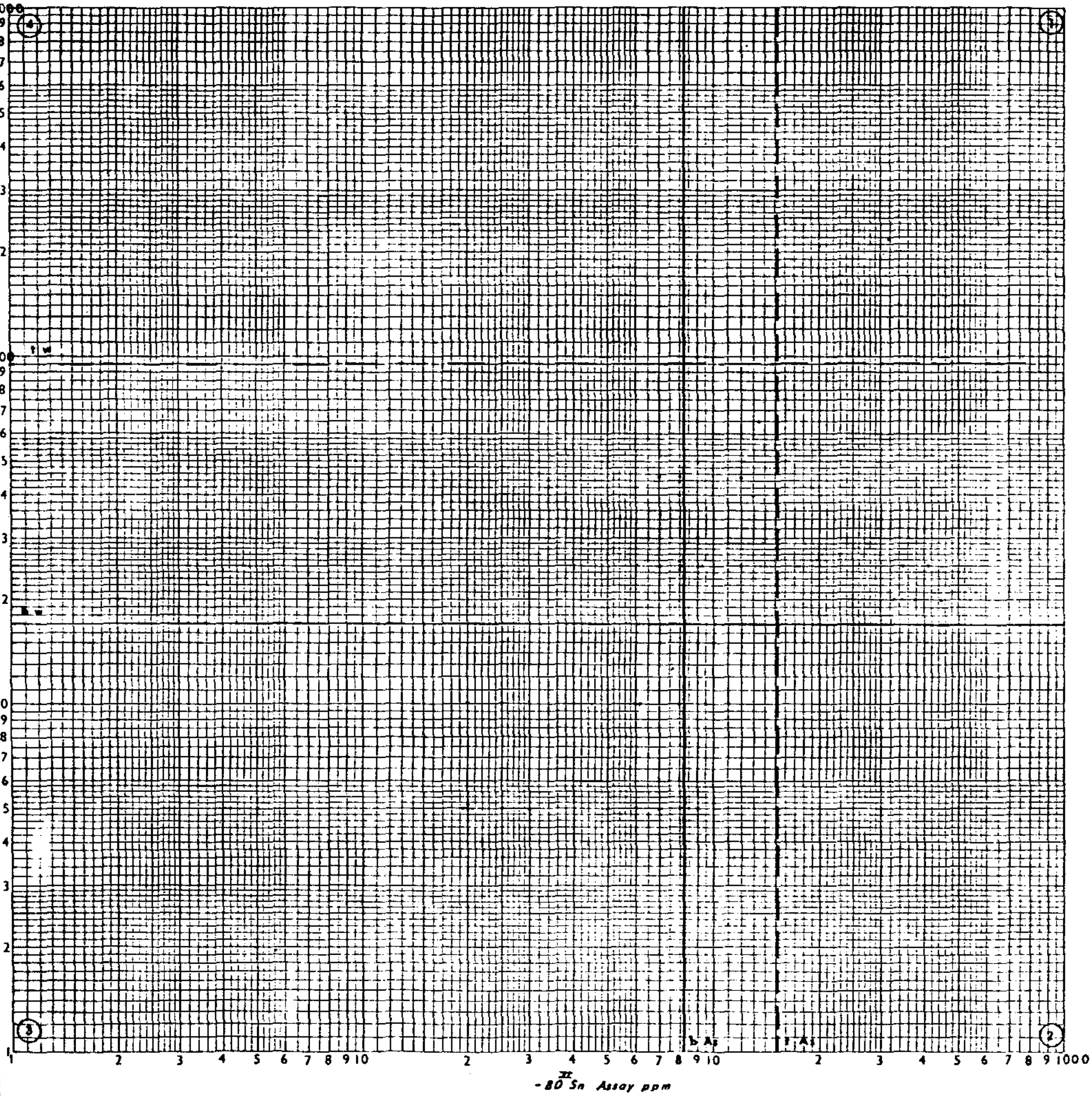


$$\left.\begin{array}{l} n_1 = 20 \\ n_2 = 9 \\ n_3 = 16 \\ n_4 = 11 \end{array}\right\} \quad \begin{array}{lll} N_1 & n_1 + n_3 & 36 \\ N_2 & n_2 + n_4 & 20 \end{array} \Bigg\} \quad p = \text{Sin}\left[\frac{\pi}{2} \quad \frac{N_1 - N_2}{N_1 + N_2}\right] = +0\cdot43$$

Fig : 7

879020

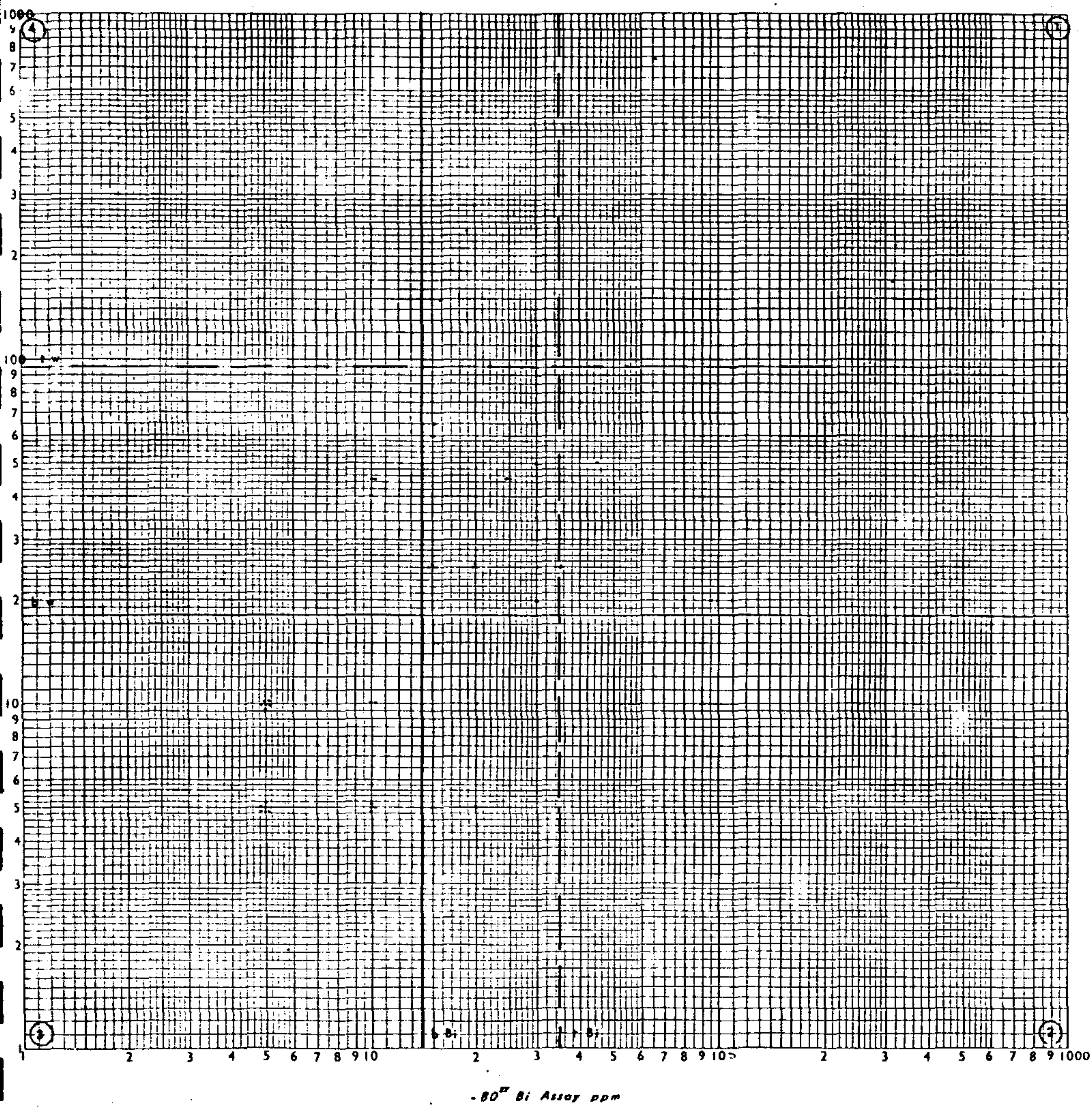
019



$$\left.\begin{array}{l} n_1 = 19 \\ n_2 = 6 \\ n_3 = 19 \\ n_4 = 12 \end{array}\right\} \quad \left.\begin{array}{lll} N_1 & n_1 + n_3 & 38 \\ N_2 & n_2 + n_4 & 38 \end{array}\right\} \quad p = \mathrm{Sin}\left[\frac{\Pi}{2} \; \frac{N_1 - N_2}{N_1 + N_2}\right] = +0 \cdot 53$$

Fig: 8

030 879021



$n_1 = 28$, $n_2 = 5$, $n_3 = 20$, $n_4 = 3$

$$N_1 = n_1 n_3 = 48 \qquad N_2 = n_2 n_4 = 8$$

$$p = \sin\left[\frac{11}{2}\;\frac{N_1 - N_2}{N_1 + N_2}\right] = +\,0 \cdot 90$$

Fig:9

6. CONCLUSIONS AND RECOMMENDATIONS

From this survey it is possible to come to the following conclusions.:

1. W, Sn, As, Bi are the most important elements analysed for; Sn, As and Bi show a positive correlation with W.

2. Sn, As and Bi anomalies are generally spatially separated from W anomalies but are related.

3. Multi-element anomalies of W, Sn, As and Bi are the most important.

4. Only Reid Creek shows a multi-element anomaly including W and is related to the known vein deposits.

5. Anomalies in Oakleigh and Lone Pine Creeks are associated with known vein deposits. These veins are untested and of unknown economic importance. Of the two, only the Birthday Granite veins adjacent to Oakleigh Creek are known to contain substantial wolframite.

6. No new anomalous areas were delineated by this survey.

It is concluded that this survey was successful in that it delineated the known mineralization, and that no further stream sediment sampling in the EL should be necessary. As no new anomalous areas were discovered, it is recommended that no further exploration be carried out on this EL because no other economic method of exploration for wolfram-bearing veins in this area can be used.