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AQUITAINE AUSTRALIA MINERALS PTY. LTD.

OAKLEIGH CREEK MINE PROJECT

RESERVES ESTIMATE

MICROFILMED

Distribution:

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1.0

GENERAL SETTING

In the heavily timbered and rough upper valley of the Forth River, Tasmania, a system of quartz veins intersects Precambrian quartzites.

The Oakleigh Creek Mine project relates to one of these veins called the "main lode", recognized from early times as the most important one and mined for tungsten prior to 1919.

Serem (Australia) Pty. Ltd., operating on behalf of the Joint Venture with Triako Mines N.L. and Buka Minerals N.L., started the study of this deposit in 1977 to assess economic potential. Serem performed underground workings (2 adits and 1 raise), treatment tests, prefeasibility and all related studies.

2.0 CHARACTERISTICS OF THE "MAIN LODE"

2.1 General

Where observed, the vein intersects clearly dark quartzites with attitude:

Strike 98°
Dip 25° N.

The vein itself has:

Strike 170 - 175°
Dip 75° E.

The contact between vein and quartzites is sometimes marked by tourmaline and mica. The quartz filling consists of large crystals of milky quartz which display facets in scarce geodes.

Mineral paragenesis is:

wolframite; cassiterite; arsenopyrite;
chalcopyrite; fluorite.

2.2 Vein Morphology

2.2.1 Disposition

The vein may be unique, but also splits in places into veinlets that rejoin several times along the drifts. Sometimes also, veinlets are in relay. Nowhere was the vein observed to be absent in traverse section.

2.2.2 Continuity

The vein appears continuously along:

UG workings
surface trench (opened in 1951)
surface showings where some earth stripping
was done, and in holes MP1, MP2 and MP3.

In the drift at the 240 m level, at 238 m advance, a transverse fault affects the vein, but with very small apparent displacement.

2.2.3 Thickness

Thickness was measured systematically in drifts, totalling all veins and veinlets in the mine openings. Sometimes, one veinlet can disappear into a wall leading to discontinuity in thickness (e.g. at 185 m from portal in 240 m level drift, the main veinlet enters the hanging wall).

The thickness recorded is highly variable at small scale, but within a range of 10 cms: variability is greater where the vein divides into veinlets (see Figures 1 & 2).

No clear trend can be seen in the distribution of thickness. From empirical analysis, we can observe the following variations.

240 m level

- 0 - 85 m: increase from 32.5 to 37.5 cm
- 85 - 100 m: plateau around 47.5 cm
- 105 - 155 m: plateau around 42.5 cm
- 155 - 185 m: variable around 47.5 cm
- 185 - 218 m: increase from 32.5 to 40 cm

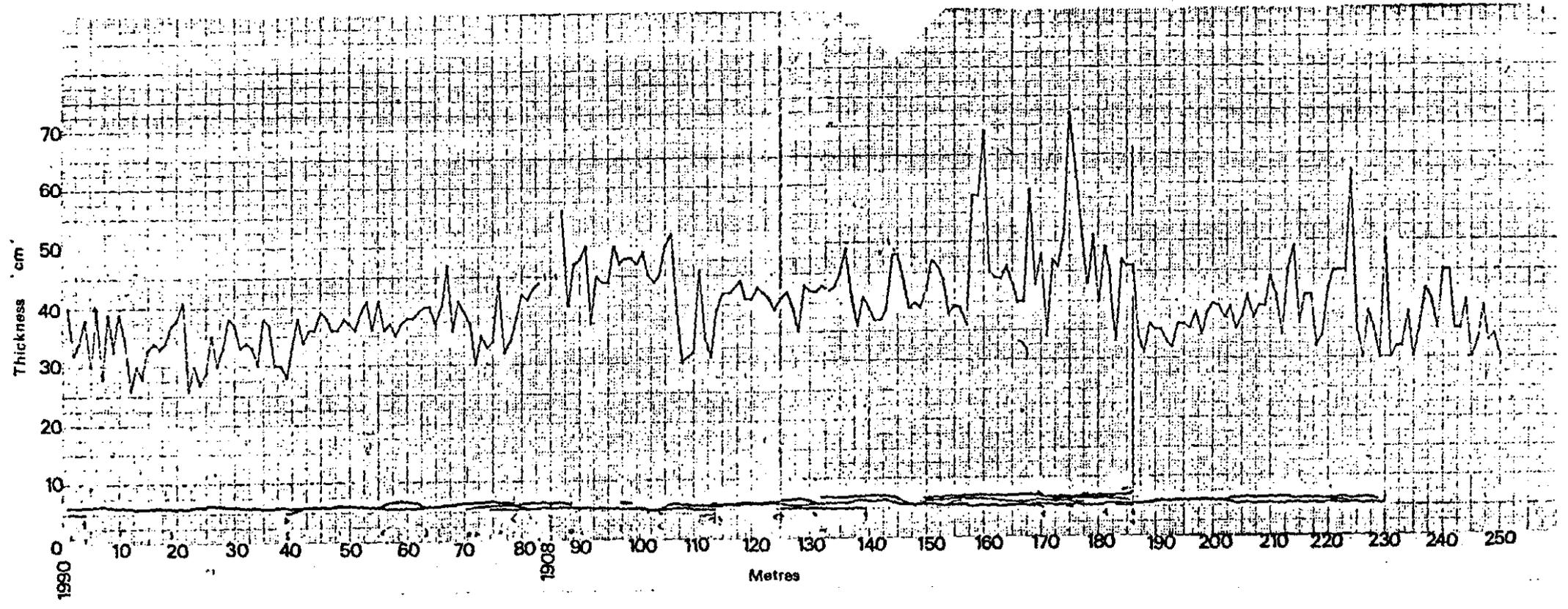
The rapid change at 185 m is due to loss of a large veinlet in the hanging wall.

- 215 - 250 m: variable around 35 cm

Average thickness over the whole drift is: 39.2 cm

at the 240 m level, at 238 m advance, with affects the vein, but with very displacement.

typically in drifts, in the mine openings, a wall leading 95 m from portal 5 m the hanging



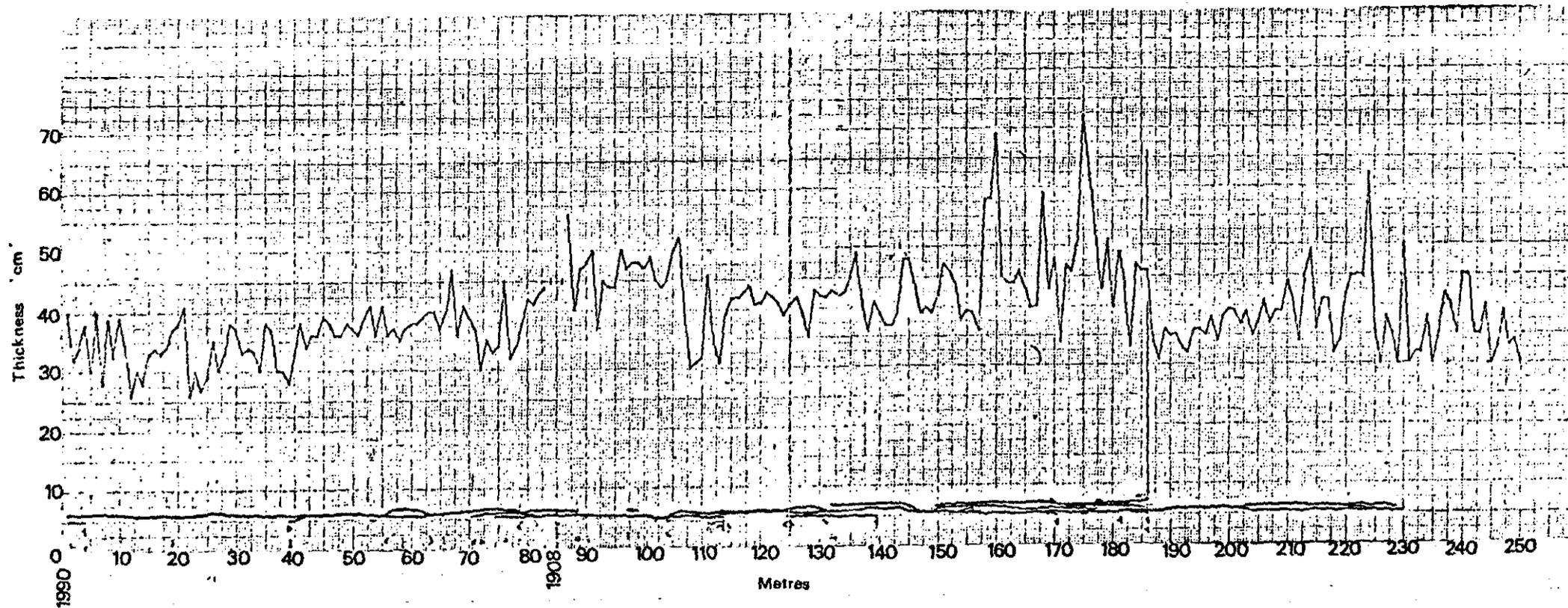
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Casey 78 / SYD / 13 (appendix)

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Thickness of Vein

240 Level



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Fig 1

Fig 2

Averaging over 30 m of length, we see some general changes:

	<u>Average, cm</u>	
1 - 30	33.75	
31 - 60	34.73	
61 - 90	38.02	Ayling (July, 1978)
91 - 120	41.02	
121 - 150	41.57	
151 - 180	47.51	
180 - 210	37.83	Casey (August, 1978)
211 - 240	38.97	

A variogram of the thickness is given in Figure 3.
280 m level

The thickness is highly variable around 50 cms.
Average thickness over 89 m is: 51.96 cm.

This zone corresponds vertically to the 85 - 185 zone at the 240 level where the greatest thicknesses were recorded.

Drill holes

MP 1:	20 cm	1 vein	no mineralization
MP 2:	48 cm	1 vein	mineralization
MP 3:	71 cm	2 veinlets	mineralization

Thickness in MP 3 is high; such a high value was found only once in the 240 level drift.

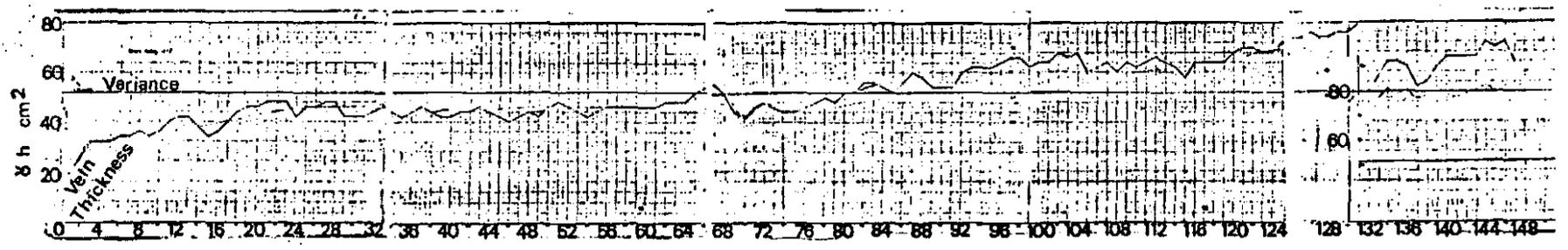
Thickness in MP 1 is low; silicification around the vein made thickness measurement difficult and the result is not reliable.

At the present time we cannot interpret these results in terms of potential variation in average thickness.

Casey 77 / SYD / 13 (appendix)

Variogram of Thickness

240 Level



Trench

Thickness is highly variable with wider range than is observed in the drifts; 16.5 cm to 50.8 cm.

Raise

Due to a small section of the work missing part of the veinlets, variations cannot be considered as significant.

To find out if some peculiar distribution of thickness exists along the 240 level drift, a variogram was made using Casey's 1977 data. (Figure 3). The morphology of the variogram displays good continuity of the thickness throughout the whole section without any apparent rhythmic distribution; average 39.8 cm, variance: 51.8 cm².

2.3 Wolframite Mineralization

2.3.1 Nature

Two major economic minerals were found in old workings: cassiterite and wolframite.

Cassiterite is apparent mainly as small individual crystals on quartz crystals in geodes at the surface, but very scarce in the vein in UG workings.

Wolframite is omnipresent in the vein, and appears as the only mineral of economic importance.

2.3.2 Morphology

Woframite appears mainly in patches of 10 - 20 cm diameter, built up of large individual elongated crystals developed roughly radially from the walls of the vein.

Woframite can occur also in small amounts as fine crystals throughout the quartz filling of the vein.

2.3.3 Distribution of Patches

The distribution of patches in the vein looks at first sight highly erratic.

The main tool used by Serem for sampling is a point-count procedure performed systematically across the vein every metre.

The original recorded data led directly to grade by applying weighting factors. The most effective parameter to be considered (because non-relative) is the quantity of wolframite encountered at each sampling location: this is called either metal factor or accumulation obtained by:

Thickness x grade; and expressed in m x %.

The direct plot of this parameter on graph versus vein direction (Figures 4 & 5) displays erratic distribution. The variogram built on this data (Figure 6) is of the perfect random type: values oscillate around the general variance.

Basically, the line along which point counting is applied intersects the natural distribution randomly. Therefore, information relates only to the line and cannot be applied locally, i.e. for local estimate. The lines cross the patches randomly with the same probability in any plane parallel to the transverse direction.

From the point counting data we can note the presence or absence of patches at any location.

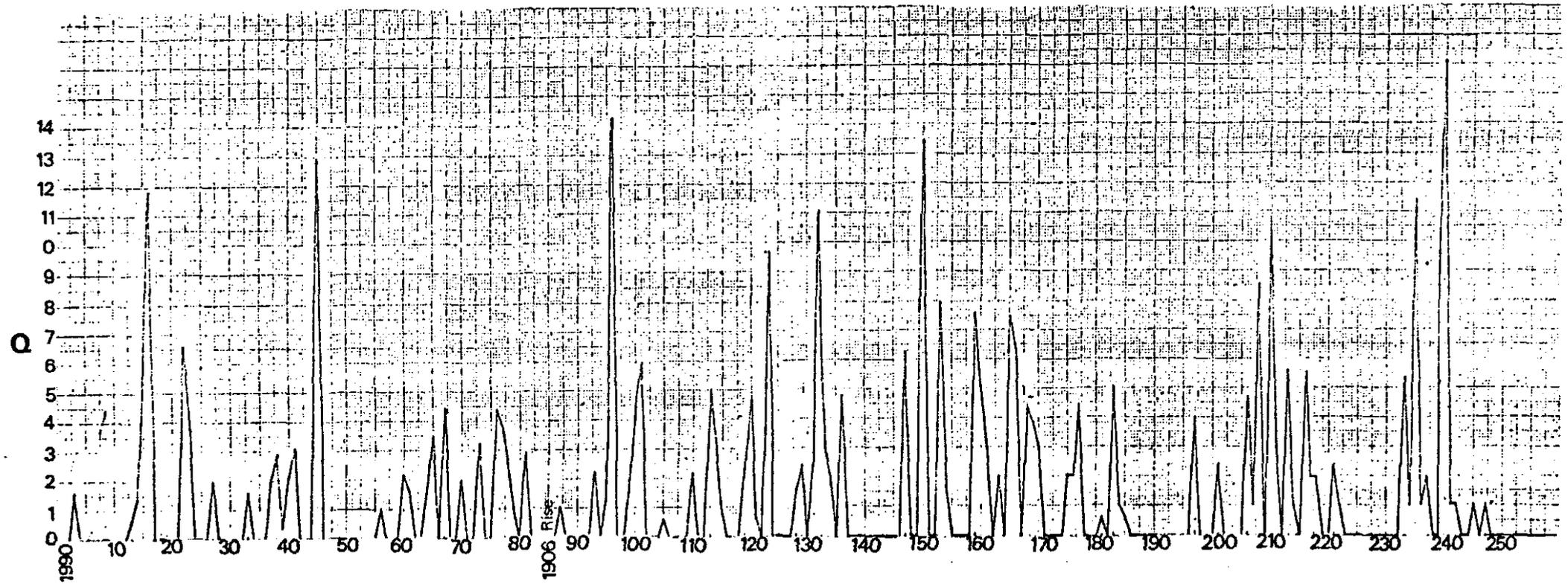
Casey 78 / SYD / 13 (appendix)

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Accumulation

240 Level

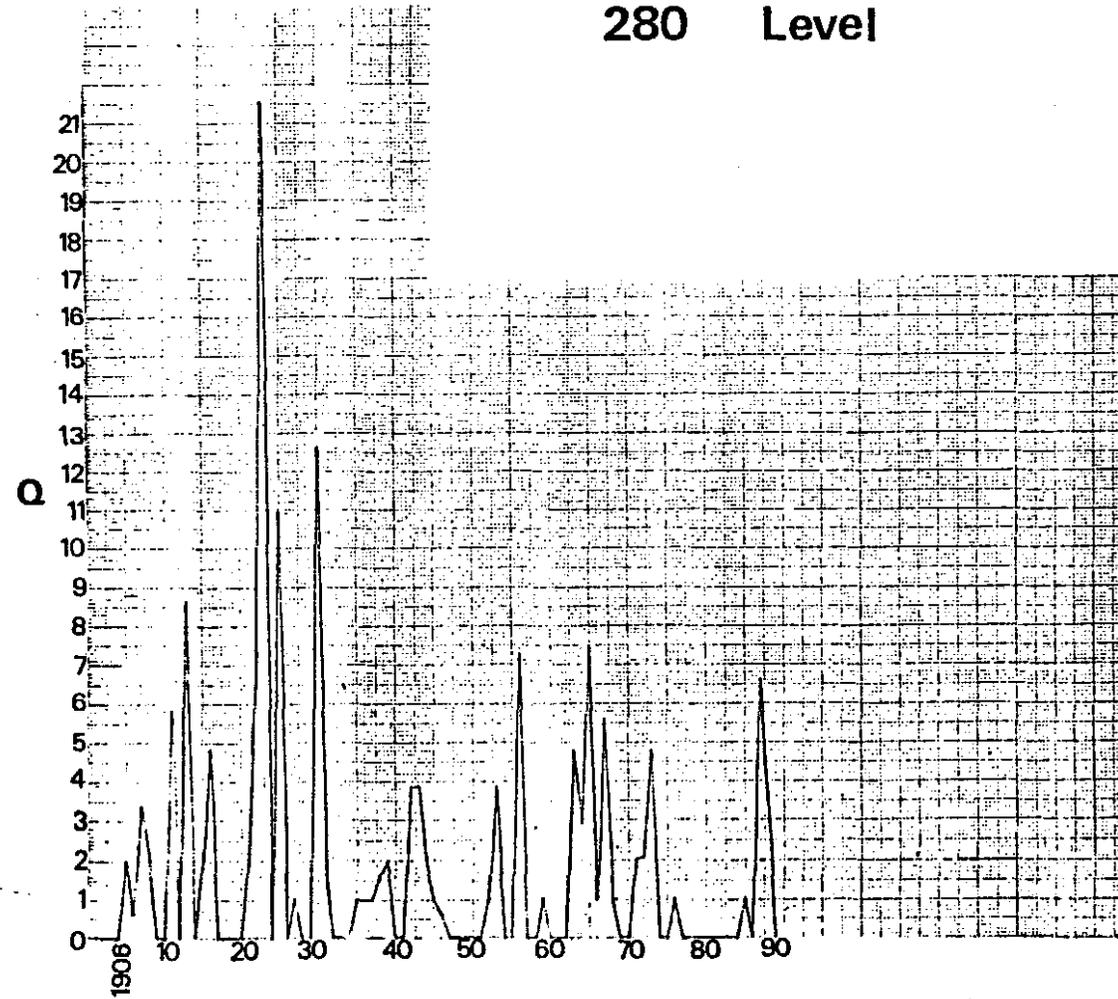
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Accumulation

280 Level



By designating the value "1" to locations where a patch of wolframite is intersected by the point count traverse and the value "0" to locations where only quartz is intersected, it is possible to study the distribution of patches by analysing the distribution law of "0" and "1" values.

This was tested on data from Casey over the whole 240 level (0 - 250 m).

Using, firstly, a sampling distance of 1 m, the data was divided into three groups:-

- (i) "1 - 1" - sample lengths beginning and ending in traverses which encountered patches of wolframite.
- (ii) "0 - 0" - sample lengths beginning and ending in traverses which encountered no patches.
- (iii) "1-0 or 0-1" - sample lengths which either began (1-0) or ended (0-1) in a traverse which intersected wolframite patches.

The proportion of each of these three groups was noted.

This procedure was repeated using sampling distances 1 m, 2 m, 3 m, on up to 250 m, noting the proportion of "1 - 1", "0 - 0" and "1-0 or 0-1" groups for each sampling distance. These proportions are plotted on Figure 7.

The relative frequency of "1 - 1" occurrences displays high frequency variations without any periodicity. The increase for spacings less than 10 m indicates a

Casey 77 / SYD / 13 (appendix)

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Variogram of Accumulation

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240 Level

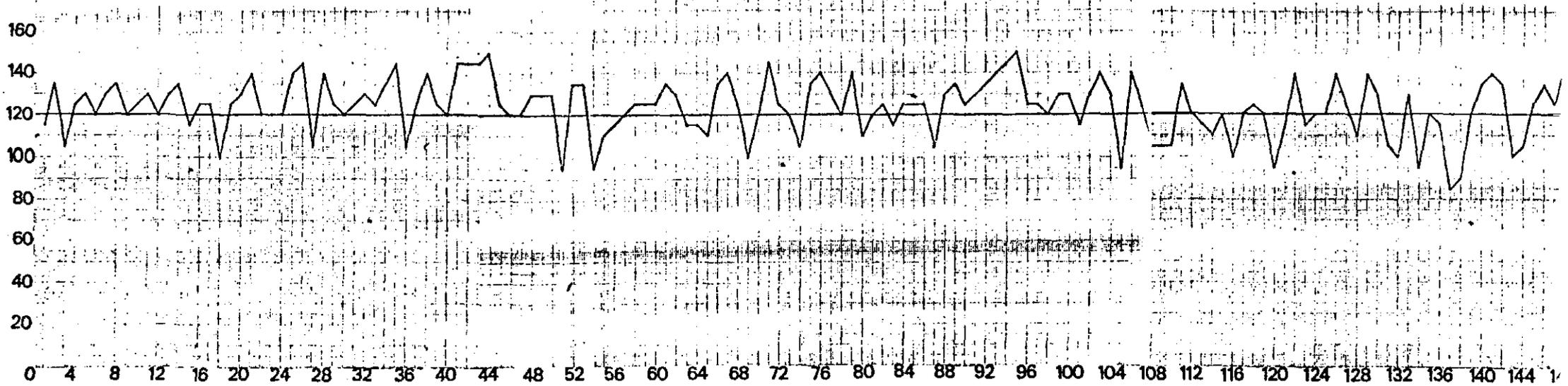


FIGURE 7:

FREQUENCY DISTRIBUTION ALONG 240m LEVEL OF WOLFRAMITE PATCHES.

1 = ORE PATCH INTERSECTED BY POINT COUNTING.

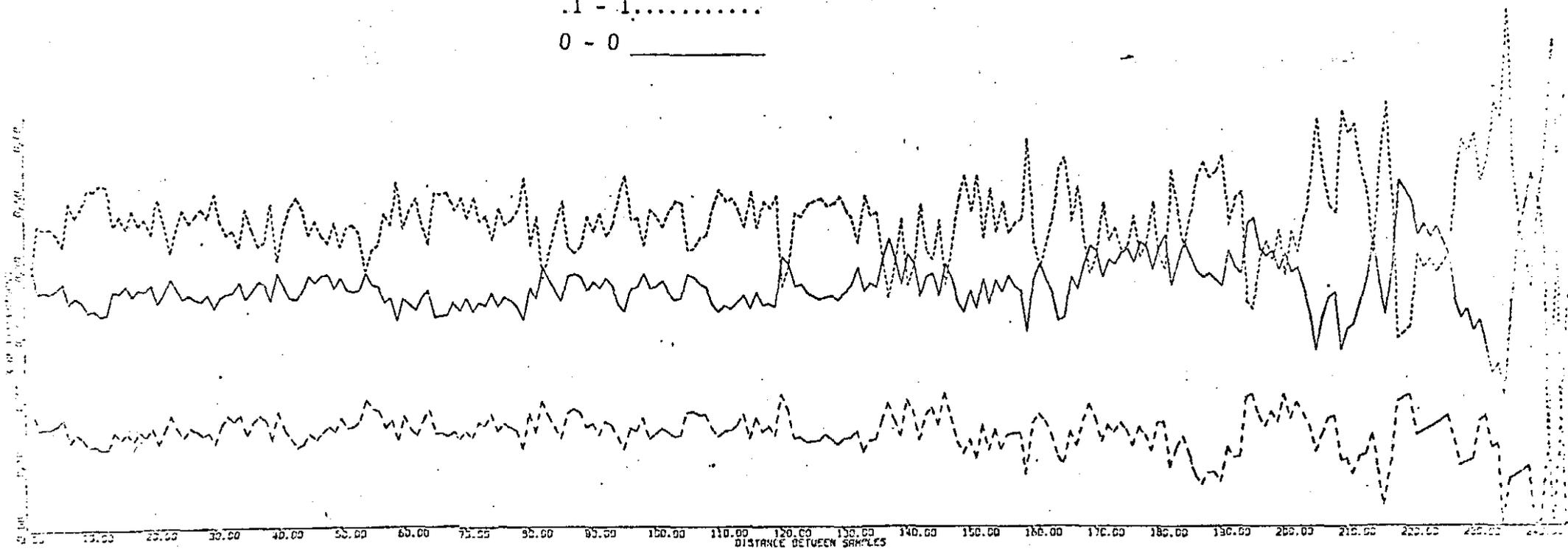
0 = BARREN

RELATIVE FREQUENCY OF COUPLES:

1 - 1 - - - - -

.1 - 1
.....

0 - 0 _____



certain short term influence: the patches have a limited tendency to lie in clusters.

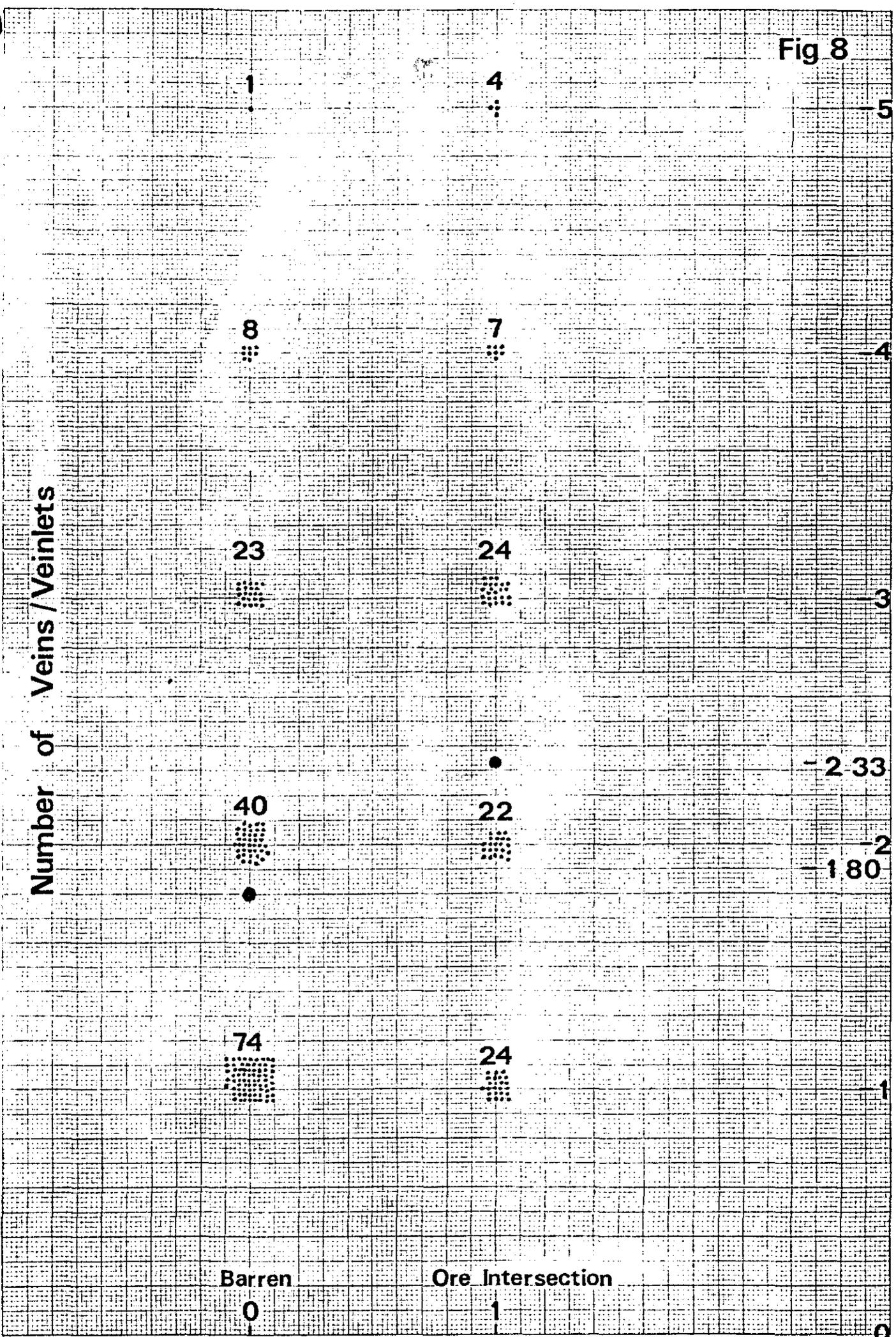
On Figure 8 we can see also a slight tendency to have more patches of ore evident - when the vein is divided into veinlets.

2.3.4 Relation to Parameters of the Vein

As expected, there is no correlation between accumulation and thickness in Casey as in Ayling records ($r = 0.05$).

Fig 8

Number of Veins / Veinlets



Barren 0 Ore Intersection 1

3.0 RESERVES ESTIMATE

3.1 Domain and Principles

The considered domain is delimited by available information on the presence of the vein.

We have seen that:

The presence of the vein is a continuous phenomenon.

From what is known, it is not possible to predict any trend in major variation relating to the disappearance of the vein over a short distance.

There is always wolframite where the vein is present.

From these considerations, we can separate the reserve estimate in two different estimates:

tonnage estimate

grade estimate

Nevertheless, because reconnaissance is highly heterogenous, we can consider two zones based on density of information: (Fig.9)

Zone A : where reserves are reasonably assured.
(inside full line)

Zone B : probable reserves (inside dashed line)

3.2 Tonnage Estimate

Supposing that the vein exists throughout the domain, the problem of tonnage is simple because the vein is always thinner than any mining width, the tonnage depends only on mining width.

Assuming stope dimensions will be 70 m long

40 m high between levels

1.2 m wide

Using specific gravity of 2.65 (quartz and quartzites)
and coefficient for dip 75°.

We have : (Fig. 9) as reserves in place.

Zone A :	76,116.75
Zone B :	<u>106,187.24</u>
TOTAL :	<u><u>182,303.99</u></u>

Actual mineable reserves could differ from in place reserves
by the size of abandoned pillars along drifts and raises.

3.3 Grade Estimate

3.3.1 Basic Aspects

The method of sampling a random distribution by
systematic counting is theoretically the one least
affected by bias. It, nevertheless, allows a pos-
sibility of local bias due to the operator, when
counting along defined lines crossing irregular shapes.

This bias can be appreciated by comparing two sets of
data collected at the same location by two different
operators.

In 1978, Ayling and Casey completed point counts
independently, over 168 m in the 240 level adit, using
the same sample locations.

	Ayling	Casey
Thickness Mean : m	0.3998	0.3939
σ : m	0.0958	0.0667
Accumulation Mean : m%	1.6346	1.5167
σ : m%	2.9764	3.0084

The coefficient of correlation between the two populations for accumulations ($r = 0.87$), indicates good correlation.

In order to establish if means are significantly different, or could be explained by the general variability of the data, we performed the Student-Fisher t-test.

	(degrees of freedom)	Probability
Thickness : 1.036	164	0.30
Accumulation: 1.1564	164	0.247

The results can be interpreted as meaning that differences between the two countings are mainly due to the high variance of the data, and therefore a bias is unlikely.

3.3.2 Average Grade

The best estimates of a population randomly distributed is the mean of data collected by the same operator with a systematic method.

For Zone A, we used the data from Casey who sampled the 280 and 240 levels (data from the raise have not been used).

	240 level 1 - 168	240 level/ 280 level 169 - 39
Number of samples	165	169
Average accumulation m%	1.5167	1.6999
Standard deviation m%	3.008	3.1689

The average accumulation for the whole population is:

$$\begin{array}{r} 1.6999 \times 169 = 287.28 \\ 1.5167 \times 165 = 250.26 \\ \hline 334 \quad \quad 537.54 \text{ m\%} \end{array}$$

for a width of 1.2 m \rightarrow $W_{O_3}\% = 1.34$

Using a standard deviation of 3 m % for the whole population, the standard deviation for the mean accumulation is:

$$\sigma = \sqrt{\frac{(3)^2}{334}} = 0.16 \text{ m\%}$$

that is for 1.2 m width = 0.14

Therefore, we can conclude that for a probability of 95% the average grade is:

$$W_{O_3} = 1.34 \pm 0.28$$

or lies in the range - 1.06% to 1.62%

This grade applies to coarsely crystalline wolframite occurring in patches. An additional grade quantity could come from wolframite disseminated in quartz.

If we assume the grade of quartz is 0.2% (Serem oral communication) and quartz vein thickness is about 35 cm, then the additional grade over a 1.2 m width would be 0.06% W_{O_3} .

From present information, there is no better estimate for Zone B than that for Zone A.

REMARKS

1. To calibrate the point counting method, Serem carried out some bulk sampling tests. Although results are not very different from those obtained by point counting when comparing averages over a given length, a precise calibration cannot be done for a number of reasons:

- * The cut by blasting did not always cover all veinlets.
- * The method used for measuring relative quantities of quartz and country rock, and for dividing could lead to operating errors.
- * Low amount of data.

2. In reserves calculations, we assume the SG is 2.65. The actual density of quartzites and quartz filling of the vein could be different.

Measurements will be performed in the near future. If the results are different from the figure we used, both average grade and tonnage will be modified, but the quantity of wolframite will stay unchanged.

APPENDIX I

OAKLEIGH CREEK MINE PROJECT

SAMPLING DATA

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TECHNICAL NOTES

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OAKLEIGH CREEK MINE PROJECTSAMPLING DATACONTENTS

		<u>PAGE</u>
1.	<u>240 LEVEL ADIT</u>	1
	a) D.J. Casey (77/SYD/13)	1
	b) D.J. Casey (77/SYD/13)	3
	c) Casey and Ayling (78/SYD/01)	4
	d) W.P. Ayling - July 1978 (78/SYD/13)	7
	e) D.J. Casey - August 1978 (78/SYD/13)	9
	f) Relf - 1971 (77/SYD/11) Appendices)	10
2.	<u>RISE</u>	11
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3.	<u>280 LEVEL ADIT</u>	12
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4.	<u>TRENCH</u>	14
	Ha11 & Relf - 12/6/70 (77/SYD/11)	14
5.	<u>DRILL HOLES</u>	15
	D.J. Casey & W.P. Ayling (78/SYD/01)	15

1. 240 LEVEL ADIT

a) D.J. Casey (77/SYD/13)

Type of Sampling - point counting.

Description - One metre intervals were measured along the vein and marked with paint. Point counting was then carried out at right angles to the strike of the vein. Where the vein had split, both segments were counted. In places, the vein was present in the wall rather than the back and no reliable measurements could be taken.

Location - The sample location numbers MP 1 to MP 147 (plotted on Plate 1) commenced at 8 m. from the old portal and occur at 1 m. intervals along the adit roof.

Results - Table 1 contains the following data:

1. The sample location numbers (as defined above).
2. The aggregate width (cm.) of wolframite along the line across the vein.
3. The remaining width of barren quartz along the same section of vein.
4. The % wolframite, calculated by comparing masses of the two constituent minerals using the widths obtained, unit length and depth, and the chosen S.G.s (Wolframite - 7.25; Quartz - 2.65)
5. The % WO_3 was calculated using the fact that wolframite contains 76% WO_3 (Reid, 1919)

The average vein width over the 154 m. was 35.3 cm.

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Dimensions of the Adit The dimensions of
the adit at the time of this survey were:-

From the portal to the winze:- 1.8 m high x 1.2 m wide

From the winze to the working face:-

2.1 m high x 2.1 m wide

SAMPLE NO. & POSITION	VEIN WIDTH (cm)	WOLFRAMITE WIDTH (cm)	QUARTZ WIDTH (cm)	% WOLFRAMITE	% WO ₃
1	30	-	-	-	-
2	35	-	-	-	-
3	25	-	-	-	-
4	31	1.2	29.9	8.77/87.94=9.89	7.52
5	30	0.1	29.9	0.73/79.97=0.91	0.69
6	24.5	-	-	-	-
7	31	-	-	-	-
8	21	0.2	20.8	1.45/56.57=2.56	1.95
9	23	-	-	-	-
10	* 8+	-	-	-	-
11	* 12+	-	-	-	-
12	* 18+	-	-	-	-
13	# 35	3.7	31.3	26.83/109.78=24.44	18.58
14	19	-	-	-	-
15	16	-	-	-	-
16	23	0.2	22.8	1.45/61.87=2.34	1.78
17	23	-	-	-	-
18	27	-	-	-	-
19	26	1.7	24.3	12.33/76.73=16.07	12.21
20	28	-	-	-	-
21	27	-	-	-	-
22	24	-	-	-	-
23	29.5	0.2	29.3	1.45/79.1=1.83	1.39
24	30	-	-	-	-
25	33	0.5	32.5	3.63/89.76=4.04	3.07
26	30.5	0.5	30.0	3.63/83.13=4.36	3.31
27	29.5	-	-	-	-
28	32	-	-	-	-
29	32	-	-	-	-
30	* in wall	-	-	-	-
31	25	-	-	-	-
32	25	-	-	-	-
33	28	-	-	-	-
34	26	2.5	23.5	8.13/80.41=22.55	17.14
35	34	0.5	33.4	3.63/92.41=3.93	2.99
36	30	-	-	-	-
37	31	-	-	-	-
38	32	-	-	-	-
39	35	3.0	32.0	21.75/106.55=20.41	15.51

* not used in calculations

2 veins included in width; not used in determining average width.

SAMPLE NO. & POSITION	VEIN WIDTH (cm)	WOLFRAMITE WIDTH (cm)	QUARTZ WIDTH (cm)	% WOLFRAMITE	% WO ₃
40	26	1.0	25.0	7.25/ 73.5=9.86	7.50
41	37	0.3	36.7	2.18/ 99.44=2.19	1.67
42	33	1.0	32.0	7.25/ 92.05=7.88	5.99
43	30	0.2	29.8	1.45/ 80.42=1.80	1.37
44	37	-	-	-	-
45	39	-	-	-	-
46	43	0.5	42.5	3.63/ 116.26=3.12	2.37
47	30	-	-	-	-
48	30	0.5	29.5	3.63/ 81.81=4.44	3.37
49	30	0.5	29.5	3.63/ 81.81=4.44	3.37
50	31	3.0	28.0	21.75/ 95.25=22.67	17.23
51	37	-	-	-	-
52	37	-	-	-	-
53	38	0.2	37.8	1.45/ 101.62=1.43	1.08
54	39	2.5	36.5	18.13/ 114.86=15.79	12.00
55	33.5	-	-	-	-
56	39	1.5	38.5	10.88/ 112.91=9.64	7.32
57	30	-	-	-	-
58	# 31	-	-	-	-
59	36	1.0	35.0	7.25/ 100.00=7.25	5.51
60	36	-	-	-	-
61	37	-	-	-	-
62	39	-	-	-	-
63	29	0.2	28.8	1.45/ 77.77=1.86	1.42
64	39	-	-	-	-
65	39	-	-	-	-
66	38	-	-	-	-
67	40	1.0	39.0	7.25/ 110.6=6.56	4.99
68	33	-	-	-	-
69	31	-	-	-	-
70	29.5	-	-	-	-
71	24.5	-	-	-	-
72	27	-	-	-	-
73	# 31	-	-	-	-
74	30	-	-	-	-
75	30	-	-	-	-
76	25	-	-	-	-
77	26	0.5	25.5	3.63/ 71.21=5.10	3.87
78	26	0.5	25.5	3.63/ 71.21=5.10	3.87

2 veins included in width; not used in determining average width.

RECONNAISSANCE SAMPLING - POINT COUNTING

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SAMPLE NO. & POSITION	VEIN WIDTH (cm)	WOLFRAMITE WIDTH (cm)	QUARTZ WIDTH (cm)	% WOLFRAMITE	% WO ₃
79	24	-	-	-	-
80	18.5	2.1	16.4	$\frac{15.23}{58.69} = 25.95$	19.72
81	* 17.5+	-	-	-	-
82	* 16.5+	-	-	-	-
83	# 44.5	1.5	43.0	$\frac{10.88}{124.83} = 8.72$	6.62
84	41	-	-	-	-
85	40	0.5	39.5	$\frac{3.63}{108.3} = 3.35$	2.55
86	52	-	-	-	-
87	43	0.5	42.5	$\frac{3.63}{116.26} = 3.12$	2.37
88	40	8.0	32.0	$\frac{58}{142.8} = 40.62$	30.87
89	39	-	-	-	-
90	31	0.5	30.5	$\frac{3.63}{84.46} = 4.30$	3.27
91	41	6.0	35.0	$\frac{43.8}{36.25} = 31.93$	24.26
92	36	0.5	35.5	$\frac{3.63}{97.71} = 3.72$	2.82
93	41	0.5	40.5	$\frac{3.63}{110.96} = 3.27$	2.49
94	46	1.0	45.0	$\frac{1.25}{126.5} = 5.73$	4.36
95	45	0.2	44.8	$\frac{1.45}{120.17} = 1.21$	0.92
96	40	-	-	-	-
97	49	0.2	48.8	$\frac{1.45}{130.77} = 1.11$	0.84
98	43	0.1	42.9	$\frac{0.73}{114.42} = 0.64$	0.49
99	49	0.5	48.5	$\frac{3.63}{132.15} = 2.74$	2.08
100	45	-	-	-	-
101	42	-	-	-	-
102	43	2.5	40.5	$\frac{18.13}{125.46} = 14.45$	10.98
103	40	0.5	39.5	$\frac{3.63}{108.31} = 3.35$	2.55
104	27	-	-	-	-
105	49	-	-	-	-
106	32	-	-	-	-
107	* 33+	-	-	-	-
108	40	0.5	39.5	$\frac{3.63}{108.31} = 3.35$	2.55
109	39	-	-	-	-
110	31	-	-	-	-
111	39	-	-	-	-
112	35	0.2	34.8	$\frac{1.45}{93.67} = 1.55$	1.18
113	26	-	-	-	-
114	37	-	-	-	-
115	40	-	-	-	-
116	38	0.5	37.5	$\frac{3.63}{103.00} = 3.52$	2.68
117	40	-	-	-	-

* not used in calculations

2 veins included in width; not used in determining average width.

032

SAMPLE NO. & POSITION	VEIN WIDTH (cm)	WOLFRAMITE WIDTH (cm)	QUARTZ WIDTH (cm)	% WOLFRAMITE	% WO ₃
118	30	1.0	29.0	$\frac{7.25}{84.1} = 8.62$	6.55
119	40	-	-	-	-
120	42	3.0	39.0	$\frac{21.75}{125.1} = 17.39$	13.21
121	38	-	-	-	-
122	41	0.5	40.5	$\frac{3.63}{110.96} = 3.27$	2.49
123	38.5	-	-	-	-
124	48	0.5	47.5	$\frac{3.63}{129.51} = 2.80$	2.13
125	35	1.0	34.0	$\frac{7.25}{97.35} = 7.45$	5.66
126	52	-	-	-	-
127	37	2.0	35.0	$\frac{14.5}{107.25} = 13.29$	10.10
128	# 33	1.0	32.0	$\frac{7.25}{92.05} = 7.88$	5.99
129	45	4.7	40.3	$\frac{34.08}{140.87} = 24.19$	18.38
130	39	1.0	38.0	$\frac{7.25}{107.95} = 6.72$	5.10
131	48	2.5	45.5	$\frac{18.13}{138.71} = 13.07$	9.93
132	44	1.5	42.5	$\frac{10.88}{123.51} = 8.81$	6.70
133	23	-	-	-	-
134	42	-	-	-	-
135	40	-	-	-	-
136	40	0.2	39.8	$\frac{1.45}{106.92} = 1.36$	1.03
137	43	0.5	42.5	$\frac{3.63}{116.26} = 3.12$	2.37
138	34	0.2	33.8	$\frac{1.45}{91.02} = 1.59$	1.21
139	46	-	-	-	-
140	47	-	-	-	-
141	52	5.0	47.0	$\frac{36.25}{160.8} = 22.54$	17.13
142	57	-	-	-	-
143	# 44	0.5	43.5	$\frac{3.63}{118.91} = 3.05$	2.32
144	44	-	-	-	-
145	50	-	-	-	-
146	52	1.0	51.0	$\frac{7.25}{142.4} = 5.09$	3.87
147	35	-	-	-	-

2 veins included in width; not used in determining average width.

S.G. quartz = 2.65

d_q = vein width of quartz

S.G. wolframite = 7.25

d_w = vein width of wolframite

Wolframite = 76% WO₃

$$\% \text{ Wolframite} = \frac{(S.G.w \times d_w)}{(S.G_q \times d_q) + (S.G_w \times d_w)}$$

240 LEVEL ADIT (continued)

b) D.J. Casey (77/SYD/13)

Type of Sampling - Channel sampling and subsequent point counting.

Description: - Channel samples were taken every 5 m. using a scutch chisel with a 5 cm. blade perpendicular to the strike of the vein. The channel was cut the width of the blade and 2.5 cm. deep. Following the channel sampling, a point count along the channel was made for comparison with the assay results from the samples.

Location - The samples were taken usually every 5 m. along the adit. The sample location numbers are given in Table 2. They are also plotted on Plate 1.

Results - The results of this study are presented in Table 2.

Dimensions of the Adit: The dimensions of the adit at the time of this survey were:-

From the portal to winze:- 1.8 m high x 1.2 m wide

From the winze to the working face:-

2.1 m high x 2.1 m wide

NOTE:

Casey and Ayling (Pers. Comm 27/11/78) state that many difficulties were encountered during the channel sampling and that the channels cut were very irregular. They state that the data from the channel sampling is highly unreliable and should be disregarded.

COMPARISON, POINT COUNT AND ASSAY METHODS.

SAMPLE NO.	% WO ₃ ASSAY	% WO ₃ POINT COUNTING
MP3	0.19	0
8	0.04	1.85
13	3.9	17.78
18	0.07	0
23	0.16	1.33
28	0.35	0
33	0.10	0
38	0.53	0
43	0.07	1.30
46	0.40	2.25
53	0.11	1.02
58	0.05	0
63	0.02	1.35
68	0.01	0
73	0.02	0
77	0.47	3.40
83	0.16	6.33
88	6.4	29.9
93	1.1	2.4
98	0.54	0.45
103	0.18	2.42
108	0.02	2.43
113	0.03	0
118	0.82	6.2
123	0.02	0
128	5.2	5.7
133	0.01	0
138	0.16	1.16
143	0.01	3.56
147	0.09	0

Average:

0.72

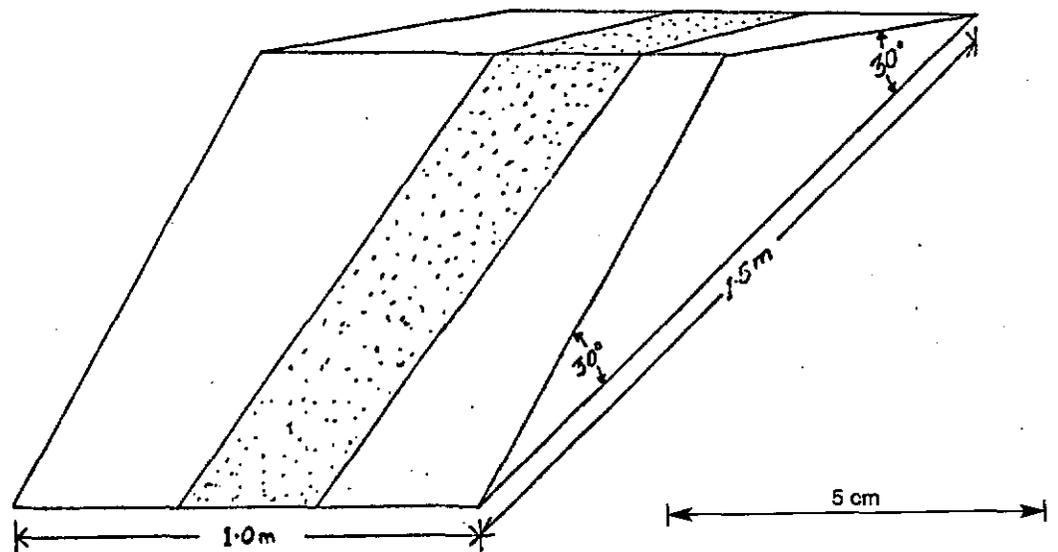
3.03

240 LEVEL ADIT (continued)

c) Casey and Ayling (78/SYD/01)

Type of Sampling - Bulk sampling.

Description - The samples were excavated by drilling 4 off 32 mm holes in 2 pairs 1.5 m. apart along the adit, with 1 m. between the holes across the adit. The holes were drilled at 30° to the horizontal with the intention of producing a wedge shaped sample. The holes were drilled approximately parallel to the vein (Ayling, Pers. Comm. 28/11/78).

IDEALIZED GEOMETRY OF BULK SAMPLES.

(Stippled area represents quartz-wolframite vein)
- Assuming dip of vein is 70° .

The samples were caught on steel plates placed below the sample point on the floor of the adit; the broken material loaded into 200 litre drums labelled with the sample number and moved to the adit portal. It was intended to estimate the volume of vein quartz in each sample from the geometry of the hole which had been excavated and then to calculate the grade of WO_3 in each

sample from the assay results. However, the excavations were generally irregular, probably largely due to the effect of the bedding of the country rock. The 200 litre drums containing the samples were transported to Brambles Quarry in Burnie, the material put through a Jaques crusher, sample by sample and reduced to 38 mm size. The crushed samples were transported to trucks by conveyor belt. Each was thoroughly mixed and a 200 kg. sample was taken from each sample by selective shovelling; bagged, and despatched to AMDEL for assay.

AMDEL carried out the following programme on the 200 kg samples:- each sample was crushed to 12.7 mm and riffled in two; one half retained. The second half was crushed to 9.5 mm and two 15 kg. sub-samples cut out for assay.

To determine the amount of vein quartz in each sample, a small sample as representative as possible, was taken from the 200 kg samples. These were separated into vein quartz and country rock by hand. Ayling (Pers. Comm. 29/11/78) stated that fines were not included. The volume of vein quartz (Q) calculated by volumetric displacement in a graduated container, as was the volume of country rock (R).

The volume % quartz in the sample was calculated by the equation:-

$$\frac{Q}{Q+R} \times 100\%$$

The AMDEL assays for the bulk samples were multiplied by (100/Vol.% Quartz) to estimate the % WO_3 in the vein. This calculation is presented in Table 4.

Location - The location of the samples are indicated on Plate 1 of Report No. 78/SYD/01 and on Plate 1 (enclosed).

They are located 5 m. apart, starting at sample location MP 15 through to MP 145.

Results - The results are indicated in Table 3 (i.e. Table 3 of Report 78/SYD/01). The average grade calculated is 3.15% WO_3 . Table 4 indicates the calculations of % WO_3 in the quartz vein.

Dimensions of the Adit The dimensions of the adit at the time of this survey were:-

From portal to winze:- 1.8 m high x 1.2 m wide.

From winze to working face:-2.1 m high x 2.1 m wide

TABLE 3,
ASSAY RESULTS IN BULK SAMPLING

Sample Station	Sample No.	Vein Width Sampled (cm)	% WO ₃ in Qtz Assay	% WO ₃ for in mining width	% WO ₃ Point Count in Qtz	Remarks
MP 15	3	16	4.92	0.74	-	vein split ore, part only sampled
MP 20	4	28	0.59	0.17	-	smaller sample than usual taken about 0.70 tonne
MP 25	5	33	1.23	0.41	3.07	
MP 30	6	20	0.84	0.17	-	one vein in wall not sampled
MP 35	7	34	2.18	0.74	2.99	
MP 40	8	26	9.28	2.41	7.50	
MP 45	9	39	3.57	1.39	-	
MP 52	10	37	9.45	3.50	-	
MP 55	11	33.5	3.95	1.32	-	
MP 60	12	36	3.11	1.12	-	some contamination by country rock from walls
MP 65	13	39	2.50	0.98	-	some contamination by country rock from walls
MP 70	14	31	3.52	1.09	-	
MP 75	15	27	0.76	0.21	-	2 veins; one not fully sampled
MP 80	16	18.5	9.30	1.72	19.72	2 veins; one not sampled
MP 85	17	40	1.79	0.72	2.55	some mineralisation in vein not fully sampled
MP 90	18	31	1.20	0.37	3.27	
MP 95	19	45	2.98	1.34	0.92	
MP100	20	45	1.03	0.46	-	
MP105	21	49	0.63	0.31	-	
MP110	22	31	1.09	0.34	-	
MP115	23	40	0.60	0.24	-	
MP120	24	42	3.45	1.45	13.21	sampled about 30% larger than average

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GEOLOGICAL AUSTRALIA

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TABLE 3 (CONTINUED)
ASSAY RESULTS IN BULK SAMPLING

Sample Station	Sample No.	Vein Width Sampled (cm)	% WO ₃ in Qtz Assay	% WO ₃ for 1m mining width	% WO ₃ Point Count in Qtz	Remarks
MP125	25	35	0.37	0.13	5.66	
MP130	26	39	13.86	5.41	5.10	
MP135	27	40	0.36	0.14	-	samples about 30% larger than average
MP140	28	47	0.36	0.17	-	samples about 60% larger than average
MP145	29	50	2.31	1.15	-	samples about twice average
			[Av. 3.15%]	[Av. 1.04%]*	[Av. 2.37%]	Average all samples point count 2.96%

* If a mining width of 1.3m were used, average grade drops to 0.80%.

TABLE 4
CALCULATIONS OF % NO_3 IN QUARTZ VEIN.

Sample Station	Sample No.	% Qtz in adit sample	Amel % Assay	% NO_3 in Qtz Assay
15	3	24	1.2	4.92
20	4	24	0.145	0.59
25	5	18	0.225	1.23
30	6	24	0.205	0.84
35	7	38	0.840	2.18
40	8	31	2.90	9.28
45	9	41	1.49	3.57
52	10	21	1.97	9.45
55	11	26	1.04	3.95
60	12	12	0.375	3.11
65	13	20	0.500	2.50
70	14	28	0.980	3.52
75	15	25	0.190	0.76
80	16	16	1.50	9.30
85	17	38	0.690	1.79
90	18	30	0.365	1.20
95	19	26	0.785	2.98
100	20	39	0.415	1.03
105	21	24	0.155	0.63
110	22	28	0.305	1.09
115	23	37	0.225	0.60
120	24	37	1.28	3.45
125	25	39	0.150	0.37
130	26	28	3.85	13.86
135	27	33	0.120	0.36
140	28	19	0.075	0.36
145	29	14	0.325	2.31

041

073042

240 LEVEL ADIT (continued)

d) W.P. Ayling July 1978 (78/SYD/13)

240 adit - 2.1 m. x 2.1 m.

Type of Sampling - point counting.

Description - Commencing at a point 10.4 m. from the new portal, one metre intervals were measured along the footwall of the adit (Plate 1 - 78/SYD/13) and marked with paint. Point counting was carried out at right angles to the strike of veins. Where more than one vein occurred, all veins were counted. (Table 1 - 78/SYD/13 lists all point counting data for each one metre sample point.) Data in Table 5:

- The aggregate width (cm.) of wolframite observed along the sample location marker line through the vein (S.G. = 7.25 for wolframite (Dana, 1966).)
- The remaining width (cm.) of barren quartz, along the same section of the vein (S.G. 2.65)
- The % wolframite, calculated by comparing the two constituent minerals present using the widths obtained, unit, length and depth, and chosen S.G.'s.

Using the formula:

$$\% \text{ wolframite} = \frac{\text{S.G.}_w \times d_w}{(\text{S.G.}_q \times d_q) + (\text{S.G.}_w \times d_w)}$$

- The % WO_3 calculated using the fact that wolframite contains about 76% WO_3 (Reid, 1919).

cont....

042

073043

Location: - The sample locations commence 10.4 m from the new portal, and then continue at 1 m. intervals along the adit.

Ayling (Pers. Comm. 20/11/78) states that:- "Survey point MP 2 from Casey's 1977 survey now corresponds to the new survey point 1990. Old point MP 8 was identified during the 1978 survey and was very nearly the new point 1984."

Using this information, the survey points 1990 to 1823 (i.e. 1 - 168 m.) are plotted on Plate 1.

Results: - The results of the point count are indicated in Table 5 (See Table 1 of 78/SYD/13).

Average vein width	=	39.96 cm.
Average ore grade	=	5.4% wolframite
	=	4.11% WO_3

Dimensions of the Adit Ayling (Pers. Comm 28/11/78) indicated that the dimensions of the adit are as follows:

0 - 150 m	3.05 m high x	2.74 m wide
150 - 190 m	2.44 m high x	2.74 m wide
190 - 250 m	2.44 m high x	2.28 m wide

The sample locations 1 - 168 lie within this range.

043

1

Sample No.	Vein Width (cm)	Wolframite width (cm)	Quartz width (cm)	Wolframite %	WO ₃ %
1990	38	-	-	-	-
1989	32	-	-	-	-
1988	34	0.8	33.2	6.19	4.70
1987	38	-	-	-	-
1986	30	-	-	-	-
1985	30	-	-	-	-
1984	30	-	-	-	-
1983	39	-	-	-	-
1982	32.5	-	-	-	-
1981	39	-	-	-	-
1980	34	-	-	-	-
1979	37	-	-	-	-
1978	34	0.3	33.7	2.38	1.81
1977	33	0.7	32.3	5.60	4.26
1976	32	1.1	30.9	8.88	6.75
1975	36	7.2	28.8	40.62	30.87
1974	33	-	-	-	-
1973	31	-	-	-	-
1972	37	-	-	-	-
1971	37	-	-	-	-
1970	41	-	-	-	-
1969	30	2.0	28.0	16.35	12.42
1968	30	4.0	26.0	29.62	22.51
1967	27	-	-	-	-
1966	33	-	-	-	-
1965	35	-	-	-	-
1964	34	3.0	31.0	20.93	15.91
1963	36	-	-	-	-
1962	37	-	-	-	-
1961	33	-	-	-	-
1960	33	-	-	-	-
1959	33	-	-	-	-
1958	34	1.2	32.8	9.10	6.92
1957	34	-	-	-	-
1956	37	-	-	-	-

Sample No.	Vein Width (cm)	Wolframite width (cm)	Quartz width (cm)	Wolframite %	WO ₃ %
1955	35	-	-	-	-
1954	30	1.5	28.5	12.59	9.57
1953	30	2.5	27.5	19.92	15.14
1952	23	2.0	21.0	20.67	15.71
1951	33	2.5	30.5	18.32	13.92
1950	39.5	0.6	38.9	4.05	3.08
1949	37.5	0.5	37.0	3.57	2.71
1948	31	-	-	-	-
1947	38	-	-	-	-
1946	40	10.0	30.0	47.70	36.25
1945	36	-	-	-	-
1944	36	-	-	-	-
1943	36	-	-	-	-
1942	37	-	-	-	-
1941	36	-	-	-	-
1940	36	-	-	-	-
1939	35	-	-	-	-
1938	35	-	-	-	-
1937	35	-	-	-	-
1936	32	-	-	-	-
1935	36.5	0.8	35.7	5.78	4.39
1934	36	-	-	-	-
1933	36	-	-	-	-
1932	33.5	-	-	-	-
1931	38	0.6	37.4	4.21	3.20
1930	37	1.4	35.6	9.71	7.38
1929	40	-	-	-	-
1928	40	-	-	-	-
1927	38	1.2	36.8	8.19	6.23
1926	37	3.5	33.5	22.23	16.90
1925	40	-	-	-	-
1924	41	1.5	39.5	9.42	7.16
1923	34	-	-	-	-
1922	30	-	-	-	-
1921	29	1.0	28.0	8.90	6.76

Sample No.	Vein Width (cm)	Wolframite width (cm)	Quartz width (cm)	Wolframite %	WO ₃ %
1920	34.5	-	-	-	-
1919	31	-	-	-	-
1918	32	2.0	30.0	15.43	11.72
1917	32.5	-	-	-	-
1916	33.5	-	-	-	-
1915	46	2.4	43.6	13.09	9.95
1914	38	2.0	36.0	13.19	10.03
1913	33.5	2.0	31.5	14.80	11.25
1912	33	0.5	32.5	4.04	3.07
1911	39	-	-	-	-
1910	30.5	1.4	29.1	11.63	8.84
1909	44.5	-	-	-	-
1908	46.0	-	-	-	-
1907 *					
1906 *					
1905 *					
1904	52.5	1.0	51.5	5.04	3.83
1903	42	-	-	-	-
1902	47.5	-	-	-	-
1901	44.5	-	-	-	-
1900	42	-	-	-	-
1899	34	-	-	-	-
1898	46	1.0	45.0	5.73	4.36
1897	44	0.5	43.5	3.05	2.32
1896	45	0.8	44.2	4.72	3.59
1895	45	10.0	35.0	43.87	33.34
1894	48	-	-	-	-
1893	63	-	-	-	-
1892	47	1.0	46.0	5.61	4.27
1891	47	2.3	44.7	12.34	9.38
1890	49	7.0	42.0	31.32	23.80
1889	44	0.5	43.5	3.05	2.32
1888	40	-	-	-	-
1887	43	-	-	-	-
1886	49	1.5	47.5	7.96	6.05

* Inclined Rise

047

POINT COUNTING DATA

073047

Sample No.	Vein Width (cm)	Wolframite width (cm)	Quartz width (cm)	Wolframite %	W ₃ %
1885	43	-	-	-	-
1884	27	-	-	-	-
1883	30	-	-	-	-
1882	31	-	-	-	-
1881	32	1.0	31.0	8.11	6.16
1880	38.5	-	-	-	-
1879	34	-	-	-	-
1878	30.5	4.0	26.5	29.23	22.21
1877	40.5	2.0	38.5	12.44	9.46
1876	39.5	-	-	-	-
1875	40	-	-	-	-
1874	30.5	-	-	-	-
1873	43	0.5	42.5	3.12	2.37
1872	42	3.0	39.0	17.39	13.21
1871	43	4.5	38.5	24.23	18.42
1870	46.5	-	-	-	-
1869	40	-	-	-	-
1868	41	5.5	35.5	29.77	22.63
1867	40	-	-	-	-
1866	38	-	-	-	-
1865	41.5	-	-	-	-
1864	32	-	-	-	-
1863	32.5	0.4	32.1	3.30	2.51
1862	36	-	-	-	-
1861	35	-	-	-	-
1860	38	-	-	-	-
1859	50	5.5	44.5	25.27	19.21
1858	44	0.2	43.8	1.23	0.94
1857	46	1.0	45.0	5.73	4.36
1856	48	-	-	-	-
1855	45	2.4	42.6	13.36	10.15
1854	42	-	-	-	-
1853	34	0.9	33.1	6.93	5.27
1852	42.5	-	-	-	-
1851	48	-	-	-	-

240 LEVEL ADIT (continued)

e) D.J. Casey August 1978 (Appendices 78/SYD/13)

Type of Sampling - Point counting.

Description - Sample points 1 - 168 were remeasured by Casey in August 1978, using the same method as Ayling in July, 1978. This sampling was extended to 203 m in August 1978 and to 250 m. in November 1978 in the same way.

Locations - The location of samples 1 - 168 (i.e. 1990 to 1823) are as indicated for Ayling July 1978. The extensions to samples 1822 - 1788 and subsequently to 1741 were again at 1 m. intervals. The locations are indicated on Plate 1.

Results - The results are tabulated in Table 6 (from Appendix 1 of 77/SYD/13). In the extension of the adit from 168 m. to 203 m the average grade is 2.05% and the average vein width is 41.8 cm.

Dimensions of the Adit Ayling (Pers. Comm 28/11/78) indicated that the dimensions of the adit are as follows:

0 - 150 m	3.05 m high x 2.74 m wide.
150 - 190 m	2.44 m high x 2.74 m wide.
190 - 250 m	2.44 m high x 2.28 m wide.

Sample No.	Vein Width (cm)	Wolframite width (cm)	Quartz width (cm)	Wolframite %	WO ₃ %
1990	40				
1989	32				
1988	34	0.8	33.2	6.19	4.70
1987	38				
1986	30				
1985	40				
1984	28				
1983	39				
1982	32.5				
1981	39				
1980	34				
1979	26				
1978	30	0.3	29.7	2.71	2.05
1977	28	0.7	27.3	6.56	4.98
1976	33	3.0	30.0	21.48	16.33
1975	34	8.0	26.0	45.71	34.74
1974	33				
1973	34				
1972	37				
1971	38				
1970	41				
1969	26	4.0	22.0	33.22	25.25
1968	30	2.0	28.0	16.35	12.42
1967	27				
1966	29				
1965	35				
1964	30	1.0	29.0	8.62	6.55
1963	33				
1962	38				
1961	37				
1960	33				
1959	34				
1958	33	0.8	32.2	6.36	4.83
1957	30				
1956	38				

Sample No.	Vein Width (cm)	Wolframite width (cm)	Quartz width (cm)	Wolframite %	W ₃ %
1955	37				
1954	30	1.0	29	8.62	6.55
1953	30	1.5	28.5	12.59	9.56
1952	28	0.2	27.8	1.93	1.47
1951	33	1.0	32.0	7.88	5.99
1950	38	1.6	36.4	10.73	8.16
1949	34				
1948	36				
1947	36				
1946	39	8.6	30.4	43.63	33.15
1945	38				
1944	36				
1943	36				
1942	38				
1941	37				
1940	36				
1939	39				
1938	41				
1937	36				
1936	41				
1935	36	0.5	35.5	3.71	2.82
1934	37				
1933	35				
1932	37				
1931	38	1.1	36.9	7.53	5.73
1930	38	0.8	37.2	5.57	4.22
1929	39				
1928	40				
1927	40	1.1	38.9	5.33	4.05
1926	37	1.8	35.2	12.27	9.33
1925	40				
1924	47	2.3	44.7	12.34	9.38
1923	36				
1922	41				
1921	39	1.0	38.0	6.71	5.10

052

073052

Sample No.	Vein Width (cm)	Wolframite width (cm)	Quartz width (cm)	Wolframite %	WO ₃ %
1920	37				
1919	30				
1918	35	1.7	33.3	12.26	9.31
1917	33				
1916	34				
1915	45	2.3	42.7	12.84	9.76
1914	32	2.0	30.0	15.43	11.72
1913	34	1.3	32.7	9.80	7.45
1912	38	0.5	37.5	3.51	2.67
1911	42				
1910	41	1.5	39.5	9.41	7.15
1909	43				
1908	44				
1907	*				
1906	*				
1905	*				
1904	56	0.5	55.5	2.41	1.83
1903	41				
1902	47				
1901	48				
1900	50				
1899	37				
1898	45	1.1	43.9	6.42	4.88
1897	44				
1896	44	0.6	43.4	3.64	2.77
1895	50	9.0	41.0	37.52	28.52
1894	47				
1893	48				
1892	48	0.8	47.2	4.43	3.37
1891	47	2.3	44.7	12.34	9.38
1890	49	3.2	45.8	16.05	12.20
1889	45				
1888	44				
1887	45				
1886	50	0.3	49.7	1.57	1.19

Sample No.	Vein Width (cm)	Wolframite width (cm)	Quartz width (cm)	Wolframite %	WO ₃ %
1885	52				
1884	39				
1883	30				
1882	31				
1881	32	1.1	30.9	8.88	6.74
1880	46				
1879	34				
1878	31	2.8	28.2	21.36	16.23
1877	39	1.6	37.4	10.48	7.96
1876	42	0.5	41.5	3.19	2.42
1875	42				
1874	43				
1873	44				
1872	41	1.2	39.8	7.62	5.79
1871	41	2.7	38.3	14.93	11.35
1870	43	0.3	42.7	1.89	1.43
1869	42				
1868	41	5.8	35.2	31.07	23.61
1867	39				
1866	41				
1865	42				
1864	39				
1863	35	0.8	34.2	6.01	4.57
1862	43	1.2	41.8	7.28	5.53
1861	42				
1860	42	1.2	40.8	7.48	5.66
1859	43	6.8	36.2	33.9	25.80
1858	42	1.5	40.5	9.20	6.99
1857	43	1.0	42.0	6.12	4.65
1856	45				
1855	49	2.5	46.5	12.82	9.74
1854	41				
1853	36				
1852	41				
1851	39				

Sample No.	Vein Width (cm)	Wolframite width (cm)	Quartz width (cm)	Wolframite %	WO ₃ %
1850	37				
1849	37				
1848	39				
1847	48				
1846	48				
1845	44				
1844	39	3.5	35.5	21.24	16.14
1843	40				
1842	39				
1841	42	8.8	33.2	42.03	31.95
1840	47				
1839	46				
1838	44	4.5	39.5	23.76	18.06
1837	38	0.8	37.2	5.57	4.22
1836	39.3				
1835	39				
1834	36				
1833	58				
1832	58	4.1	53.9	17.23	13.09
1831	69	2.6	66.4	9.68	7.35
1830	45	1.5	43.5	8.62	6.55
1829	44				
1828	44	1.0	43	5.98	4.55
1827	46				
1826	43	4.2	38.8	22.85	17.36
1825	40	3.5	36.5	20.78	15.80
1824	40				
1823	59	2.2	56.8	9.58	7.28
1822	43	2.0	41	11.78	8.95
1821	48	1.5	46.5	8.11	6.16
1820	34				
1819	47				
1818	46				
1817	52				
1816	72	1.0	71	3.71	2.82

Sample No.	Vein Width (cm)	Wolframite width (cm)	Quartz width (cm)	Wolframite %	WO ₃ %	Vein Width x %WO ₃
1787	35					
1786	37					
1785	41	2.5	38.5	15.08	11.46	470
1784	37	2.5	36.5	3.61	2.74	101
1783	39	5.0	34.0	28.69	21.80	850
1782	39					
1781	44	6.0	38	30.17	22.93	1009
1780	41	1.5	39.5	9.41	7.15	293
1779	34					
1778	45	3.0	42.0	16.35	12.43	559
1777	49	0.5	48.5	2.74	2.08	102
1776	36					
1775	41	3.2	38	17.76	13.50	553
1774	41	1.0	40	6.40	4.86	199
1773	32	1.0	31	2.10	6.16	197
1772	34					
1771	42					
1770	45	1.0	44	6.98	5.30	239
1769	45	0.5	44.5	2.98	2.26	102
1768	45					
1767	62					
1766	35					
1765	30					
1764	38					
1763	35					
1762	30					
1761	50					
1760	30					
1759	32					
1758	32	3.0	39	22.05	16.76	536
1757	38	0.5	37.5	3.52	2.68	102
1756	30	8.0	22.0	49.87	37.90	1137
1755	35	0.5	34.5	3.81	2.89	101
1754	42	1.0	41.0	6.20	4.71	198
1753	40					

240 LEVEL ADIT (continued)

f) Relf, 1971 (Notes from 77/SYD/11)

In a "Scamander" letter to Forster (26/11/1971) Relf stated, "the values visually estimated at 3% (W_{O3}). Drive samples calculated over 7 feet (2.12 m.) width of adit ore:-

	<u>W_{O3}</u>
A. Bulk sample at 200 ft.- 61 m. 11350 lb - 5141.55 kg.	1.03%
B. Bulk sample at 220 ft.- 67 m. 150 lb. - 67.95 kg.	0.56%
C. Grid samples at 220 ft.- 270 ft. 67 m. - 82.3 m.	0.62%
D. " " " 270 ft.- 300 ft. 82.3 m. - 91.4 m.	0.59%
E. " " " 300 ft.- 360 ft. 91.4 m. - 109.7 m.	0.64%
<hr/>	
<u>Average</u> of 220 ft.- 360 ft. 67 m. - 109.7 m.	0.69%

The samples are located on Plate 1.

Casey (1977) states that the interval 220 to 360 feet corresponds to 67 to 109 m in the 1977 survey.

Dimensions of the Adit The dimensions of the adit at the time of this survey were:-

From portal to winze:- 1.8 m high x 1.2 m wide

From winze to working face:-2.1 m high x 2.1 m wide

2. RISE

W.P. Ayling July 1978 78/SYD/13

Type of sampling - Point counting.

Description - The rise is situated approximately 96 m. from the portal of the 240 level adit (as indicated on Plate 1.)

Commencing at a point approximately level with the back of the adit, one metre intervals were measured up the northern wall of the rise and marked with paint. Point counting was then carried out at right angles to the veins.

The aggregate of all veins occurring at each sample point was measured and point counted.

Location - The locations of the samples are indicated in Figure 1. The sampling commences at a point approximately level with the back of the adit.

Results - The results of the point sampling are presented in Table 7. (Table 4 of the Report 78/SYD/13)

Dimensions of the Rise

From foot to hanging wall: 1.52 m
Width of rise (looking east): 1.83 m

MT. PELION

Cross Section of the
- Looking North

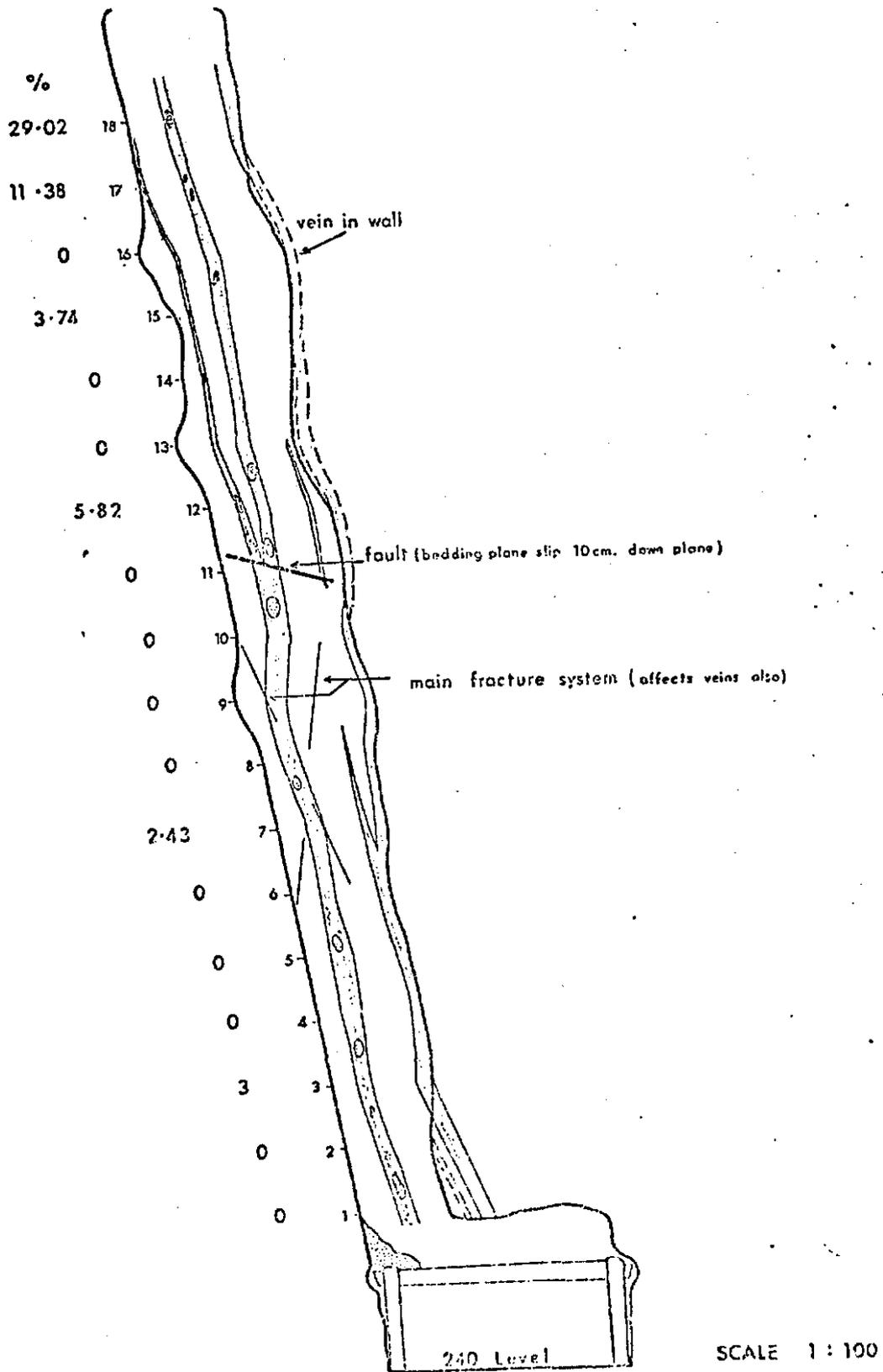


Figure 1

3. 280 LEVEL ADIT

D.J. Casey (78/SYD/13) August & November, 1978)

Type of Sampling - Point counting.

Description - The sampling was carried out at 1 m intervals along the 280 level adit. At each location, point counting was completed at right angles to the strike of the vein. Wolframite and barren quartz were calculated and the % WO_3 in the vein was calculated by the same method as used in the 240 level adit. The July survey was completed to 32 m and this was extended to 89 m in November.

Location - The samples are located at 1 m intervals along the 280 level adit. A.P. Ayling (Pers. Comm. 24/11/78) stated that the old sample number '3' is located at grid point 1908 m and sample number '89' is located at grid point 1822. The other sample numbers can be located by interpolation. The locations are indicated on Plate 1.

Results - The results of the point counting are presented in Table 8 (from 78/SYD/13). For the first stage of the counting from 1 - 32 m, the average grade of the vein is 5.09% and the average width, 53.5 cm.

The following table indicates the average values over 30 m intervals along the adit.

280 LEVEL STATISTICS

<u>Interval</u>	<u>Av.Vein Width</u>	<u>Av.Vein Grade</u>
1 - 30	53.39	5.34
31 - 60	48.67	2.34
61 - 89	53.89	2.80
<u>Av. for total</u>	<u>51.96 cm</u>	<u>3.54%</u>

063

073063

Dimensions of the Adit

From portal to working face: 2.44 m high x 2.28 m wide

Sample No.	Vein Width (cm)	Wolframite width (cm)	Quartz width (cm)	Wolframite %	WO ₃ %
1	not accessible				
2	not accessible				
3	56	1.3 Sn	54.7		
4	53				
5	45	1.0	44	5.85	4.45
6	42	0.3	41.7	1.93	1.47
7	50	1.7	48.3	8.78	6.67
8	53	1.0	52	5.00	3.80
9	48				
10	47				
11	60	3.0	57	12.59	9.57
12	55				
13	42	5.0	37	26.99	20.51
14	47				
15	47	1.0	46	5.61	4.27
16	55	2.5	52.5	11.53	8.76
17	54				
18	56				
19	58				
20	56				
21	39	1.0	38	6.71	5.10
22	54	4.0	50	17.96	13.65
23	58	15.0	43	48.83	37.11
24	56	0.2 Sn			
25	62	6.2	55.8	23.31	17.72
26	56	0.2 Sn			
27	57	0.5	56.5	2.36	1.80
28	59				
29	58				
30	72	7.5	64.5	23.06	17.53
31	61	1.0	60	4.36	3.31
32	58	0.5 Sn			

Sample No.	Vein Width (cm)	Wolframite width (cm)	Quartz width (cm)	Wolframite %	WO ₃ %	Vein Width x %WO ₃
33	53					
34	48					
35	50	0.5	49.5	2.69	2.04	100
36	50	0.5	49.5	2.69	2.04	100
37	47	0.5	46.5	2.86	2.17	102
38	45	0.8	44.2	4.77	3.59	162
39	45	1.0	44.0	5.85	4.45	200
40	46					
41	50					
42	46	2.0	44.0	11.06	8.41	387
43	50	2.0	48.0	10.23	7.77	388
44	56	1.0	55.0	4.74	3.60	202
45	45	0.5	44.5	2.98	2.26	102
46	43	0.3	42.7	1.87	1.42	61
47	50					
48	53					
49	44					
50	42					
51	45					
52	40	0.5	39.5	3.34	2.54	102
53	45	2.0	43.0	11.29	8.58	386
54	45					
55	45					
56	48	4.0	44.0	19.92	15.14	727
57	45					
58	50					
59	60	0.5	59.5	2.24	1.70	102
60	65					
61	56					
62	50					
63	51	2.5	48.5	12.36	9.39	479
64	50	1.5	48.5	7.80	5.93	296
65	61	3.0	43.0	16.02	12.18	743
66	40	0.5	39.5	3.35	2.55	102
67	45	3.0	42.0	16.34	12.41	559

4. TRENCH

Hall and Relf 12/6/70 (aslo, 77/SYD/01)

Type of sampling - Bulk sampling.

Description - Samples were taken at 6 m. intervals along the trench. It is assumed that the vein width given is the width sampled and the maximum sampled length given indicates the length of vein sampled at each sample location. (M.S.L.)

Location - It is assumed that sampling commenced close to the portal of the 240 level adit, and sampling was completed at 6 m. intervals along the trench (See Plate 1).

Results - The results of analyses are given in Table 9 and metric conversions are given in Table 10.

Five of the samples assayed by the Department of Mines, Tasmania were re-assayed by AMDEL and it was found that the Department's results were too high and the Department agreed with this finding.

AMDEL's results for the five checked samples were 75.5% of the Department's.

TABLE 9.

Sampling No.	Coordinates	Description	Weight (lb)	ASSAY VALUES			
				T.M.D#	ANDEL#		
				% WO ₃	% Sn	% WO ₃	% Sn
1	00	Vein width 13". Some leached sulphides along hanging wall. Wolfram (W) has preference for hanging wall (HW). Estimated grade (EG) 1%. Maximum sampled length (MSL) 30". Wallrock (WR) Quartzite.	104	0.73	Trace		
2	20	Vein width 12". Iron stained crumbly quartz. Good W on both walls and through vein. Some sulphides end 1%. MSL 28". WR Quartzite. Sampled at and of underhand stoping.	117	1.40	0.26		
3	40	Vein width 14-15". Crumbly iron stained quartz carrying good W on HW and through vein. Probably some tin. In underhand stoped portion. EG 1% MSL 30". WR Quartzite.	116	2.50	0.66		
4	60	Vein width 13-14". Crumbly iron stained quartz. Good vug with tin bearing crystal quartz and much granular W. Possibly at top of shoot. Vugs near HW. EG 1%-1.5% WO ₃ , 2% Sn MSL 33". WR Quartzite. Underhand stoped.	115	0.61	0.32	0.41	0.36
5	80	Vein width 15". Buck quartz. Some tin bearing vugs in quartz but mostly massive. Some WR silification. EG 0.5% WO ₃ , 0.5% Sn MSL 30". WR Quartzite. Very little W.	77	0.00	0.37		

Sampling No.	Coordinates	Description	Weight (lb)	ASSAY VALUES			
				T.M.D.*		AMDEL#	
				% WO ₃	% Sn	% WO ₃	% Sn
6	100	Vein width 13-14". Similar to Sampling No. 5. Some sulphides small amounts of W and crystal tin. EG 0.5% WO ₃ , 0.5% Sn. MSL 28". WR Quartzite.	93	0.66	Trace		
7	120	Vein width. 6 1/2" HW 6 1/2 FW 7. Split into 2 branches. Hard buck quartz. Metal mainly on HW, very little on FW. Small tourmaline bearing quartz leaders in WR. EG ? MSL 23". WR Quartzite.	102	0.50	0.15		
8	140	Vein width 9 1/2". Very little metal in essentially buck quartz. Some metal on H.W. EG 0.5% MSL 34". WR Quartz muscovite schist.	92	0.51	Trace	0.13	0.01
9	160	Vein width 15-16". Part buck & part vuggy quartz. Little metal. Some vugs with sulphide staining. EG 1%. MSL 32" - 28" WR Quartzite.	95	0.75	Trace		
10	180	Vein width 20". Crystal vug. Quartz. Sample at bottom of underhand stoping. Sericite filled vug with crystal cassiterite. Good blade W through vein and on both walls. May be on top of ore shoot. EG 1.0 - 2.0% WO ₃ , 1% Sn. MSL 38". WR Quartzite.	89	1.40	0.33		
11	200	Vein width 14 1/2". Very high grade W in solid quartz without vugs. Sericite and sulphides for 2" on HW. EG 6% WO ₃ . Sn 0.5%. MSL 32". WR Quartzite.	87	2.60	1.19		
12	220	Vein width 18-19". Low grade buck quartz. Some W. Sample across full width. EG <0.5%. MSL 30". WR Siltstone. Some iron stains.	92	0.70	Trace	0.37	0.02
13	240	Vein width 14". Low grade buck quartz. Some W in FW. Some iron staining EG <0.5%. MSL 26". WR Quartzite.	98	0.50	NIL		

070

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Sampling No.	Coordinates	Description	Weight (lb)	ASSAY VALUES			
				T.M.D.*		ANDEL#	
				% WO ₃	% Sn	% WO ₃	% Sn
14	260	Vein width 12". Hard buck quartz with sulphides on HW. Very little W in this pit. EG 0.5%. MSL 30" x 12" WR. Quartzite and some schist	96	0.49	0.13		
15	280	Vein width 14". Good grade W in iron stained quartz. Not much material taken from HW. Could have been low graded. Crumbly quartz. EG 1.0-1.5% MSL 30" WR Quartzite.	93	6.20	Trace		
16	300	NO SAMPLE - due to overburden stacked in trench.					
17	320	Vein width 9". Other parts are 3" and 7". Splits and rejoins. 9" section has high grade W in iron stained quartz. Blade W scattered throughout vein. EG 6% MSL 32". WR Quartzite.	99	3.60	0.13		
18	340	Vein width 11-12". High grade W bearing quartz. Should assay high. Coarse bladed W scattered through vugs. Iron staining and fresh sulphides near HW. Some silicification. EG 10-20% WO ₃ . Very high. MSL 43". WR Quartzite	103	7.80	Trace		
19	360	Vein width 12-13". Part buck and part crumbly vug quartz. Some good W. Sulphides near HW. EG 0.5-1%. MSL 42". WR Quartzite	87	1.70	0.27		
20	380	Vein width 12-13". Good quartz with some good W near HW. Above sample area vein splits and rejoins in vugs. Some vug portions. EG 0.5-1% MSL 39". WR Hard Quartzite.	92	1.20	0.53		
21	400	Vein width 8-9". Heavily contaminated with pyrite. Good crumbly quartz. Sulphides along HW. Not much W. EG 0.5-1%. Sericite vug may have tin. MSL 28". WR Grey quartzite.	107	1.00	NIL		
		Average Width of Quartz Vein 13 inches.		Mean WO ₃ = 1.74%			
				Mean Sn = 0.217%			

* Analyses performed by the Department of Mines, Tasmania (Launceston) 25.5.1970.
 # Check assays ANDEL.

Source: HALL RELPH & ASSOCIATES PTY. LTD. June 12, 1970. "Progress Report on the Mt. Pelion Wolfram Mine, Forth Valley, Tasmania.

TRENCHSAMPLES - TASMANIAN GOVERNMENT

	<u>Vein Width (cm.)</u>	<u>Max. sampled length</u>	<u>Weight (kgs)</u>	<u>% WO₃</u>	<u>% Sn</u>
1.	33.02	76.20	47.11	0.73	tr
2.	30.48	71.12	53.00	1.40	0.26
3.	35.56	76.20	52.5	2.50	0.66
4.	34.29	83.88	52.10	0.61	0.32
5.	38.10	76.20	34.88	0.00	0.37
6.	34.29	71.12	42.13	0.66	tr
7.	16.51	58.42	46.21	0.50	0.10
8.	24.13	86.36	41.68	0.51	tr
9.	39.37	76.20	43.04	0.75	tr
10.	50.80	96.52	40.32	1.40	0.33
11.	36.83	81.28	39.41	2.60	1.19
12.	46.99	76.20	41.68	0.70	tr
13.	35.56	66.04	44.39	0.50	tr
14.	30.48	76.20	43.49	0.49	0.13
15.	35.56	76.20	42.13	6.20	tr
16.	No sample-----				
17.	22.86	81.28	44.85	3.60	0.13
18.	29.21	109.22	46.66	7.80	tr
19.	31.75	106.68	39.41	1.70	0.27
20.	31.75	99.06	41.68	1.20	0.53
21.	21.59	71.12	48.47	1.00	NIL

Mean WO₃ = 1.74%

Mean Sn = 0.217%

5. DRILL HOLES

D.J. Casey & W.P. Ayling January, 1978 (78/SYD/01)

Type of sampling - Diamond drilling.

Description - Holes were precollared in HQ and then drilled in NQ and BQ to completion. Core recovery was always better than 95%.

Hole MP 4 was abandoned at 31 m. before the vein was reached.

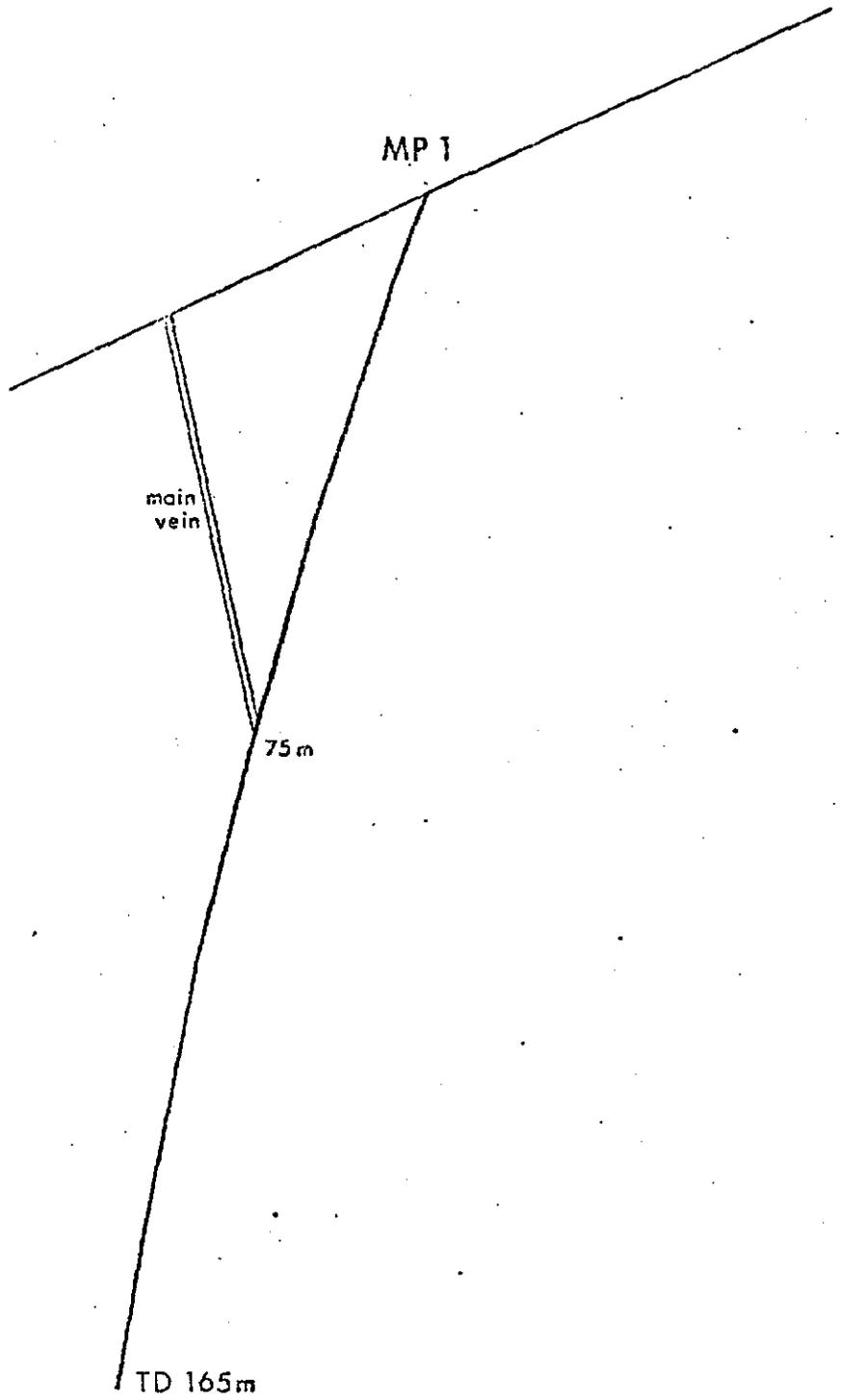
The vein was reached in the other three holes and the true thickness of the veins were calculated.

Location - The drill holes are located on Plate 2 of report, number 78/SYD/01. Figures 2, 3 and 4 contain sections of these holes (See Plate 1 for locations).

Results - Table 11 contains the results of the drill hole programme.

TABLE 11.

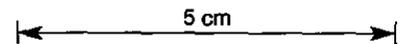
HOLE NO.	DEPTH VEIN	TRUE THICKNESS	MINERALISATION
MP1	74.94-75.39	0.20m	pyrite, minor arsenopyrite
MP2	116.12-117.15	0.48m	good wolframite in basal 0.20m
MP3	48.40-49.00	0.45m] 0.71m	minor pyrite
	49.47-49.37	0.26m]	rare SnO ₂ , wolframite
MP4	not reached		



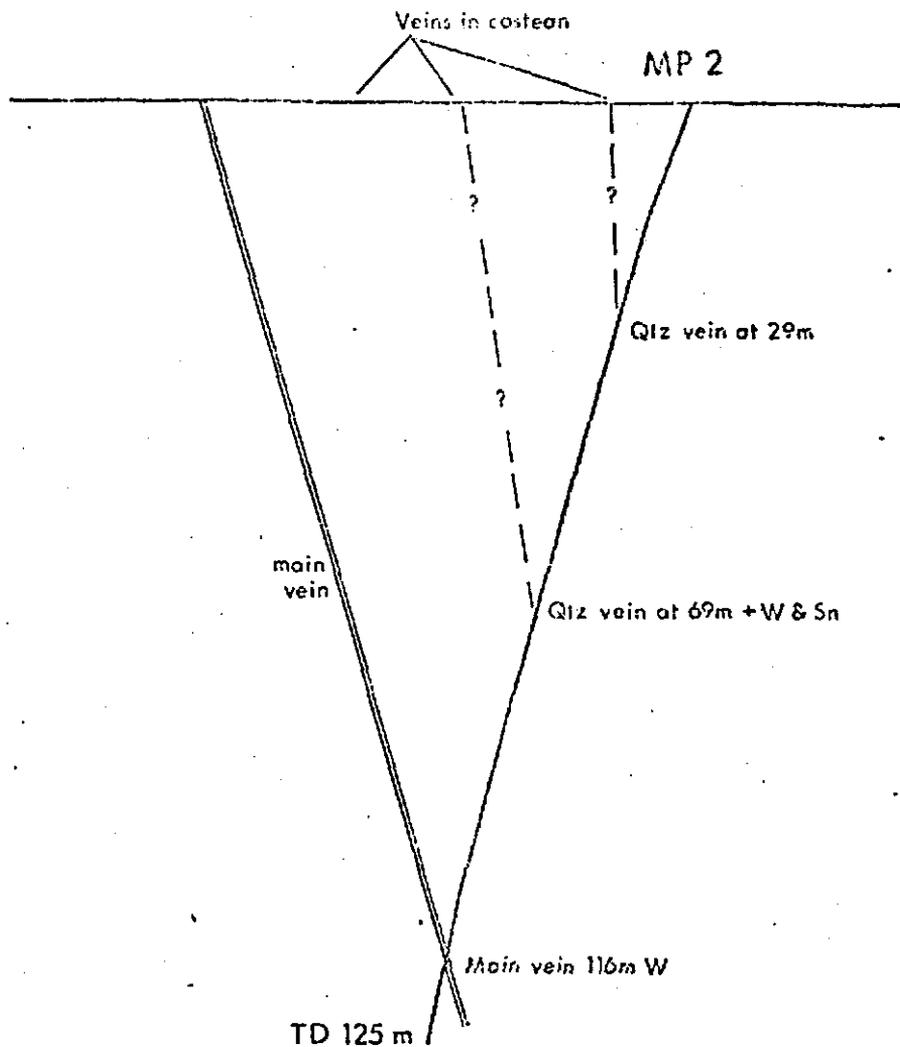
SCALE 
1:1000

ACID TUBE SURVEYS

	meas.	corr.
0		70°
30m	76°	72°
60m	78°	74.5°
90m	79°	76°
120m	82°	79.5°
165m	84°	81°

 5 cm

 **FIGURE 2**



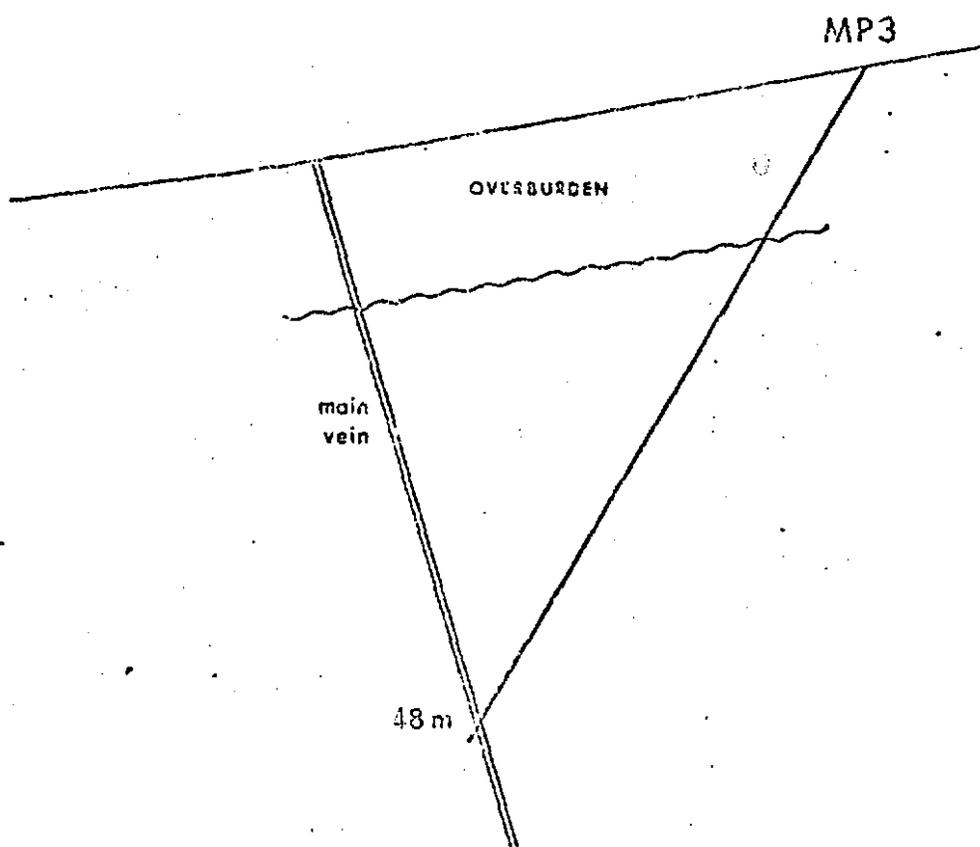
SCALE
1:1000

ACID TUBE SURVEYS

	meas. corr.	
0	70°	
30m	77°	74°
60m	79°	76°
120m	81°	78.5°

5 cm

RM FIGURE 3



SCALE 1:500

ACID TUBE SURVEYS

	corr.
0	60°
30 m	60°
60 m	60°

5 cm



FIGURE 4

COMPARISON OF RESULTS OF SURVEYS
OF
OAKLEIGH CREEK MINE PROJECT

C O N T E N T S

1. MURPHY (July 1971)
Summary and comparison of data to that time.
2. D.J. CASEY (77/Syd./13)
 - (a) Comparison of assays from channel samples and point counting along the channels.
 - (b) Comparison of 1m. interval point counting with previous survey - Relf in a Scamander survey (1971).
 - (b) Comparison of point counting of 30 samples at 5m. intervals, with that of 140 samples at 1m. intervals.
3. D.J. CASEY & W.P. AYLING (78/Syd.01)
Comparison of bulk sampling with the point count study of Casey (77/Syd./13).
4. W.P. AYLING (78/Syd./13)
 - (a) Comparison of data of point counting at 1m. intervals with that of 30m. intervals (all data from this study).
 - (b) Comparison of results of Ayling (July '78) with previous surveys (i.e. Relf, 1971, and Casey, 1977).
5. D.J. CASEY (78/Syd./13): ADDENDUM
Comparison of results of Casey, August 1978, with those of Ayling, July 1978.

1. MURPHY (July 1971) : summarises and compares earlier data. B.R.G.M. report 77/Syd./11 relates this summary:-

Hall - Ralph's report of June, 1970, gave the assays for 20 samples from the surface trench, done by the Tasmanian Mines Department, with an arithmetic average of 1.74% WO_3 (and 0.217% Sn) over an average vein width of 33.02cm.

Murphy calculated weighted averages, weighted on both weight of sample and area of sample, and obtained the result 1.765% WO_3 over 33.02cm. A check assay was made by Amdel of 5 of the 20 samples assayed by the Mines Department and it was found that the Department's results were too high and the Department agreed with this finding. Amdel's results for the 5 checked samples were 75.5% of the Department's. Consequently, Murphy reduced his weighted average (1.765% WO_3) by this ratio to obtain a value of 1.56% WO_3 for the exposed surface of the vein.

The Mines Department bulked equal weights of the 20 samples for research and the composite assay was 1.53% WO_3 (and 0.15% Sn).

A 5141.55 kg. sample was taken from the 61m. point (Point A on Plate 1) and the Mines Department's assay from this sample was 1.03% WO_3 (and 0.04% Sn) over the drive face width of 2.13m.

The vein was said to be 38.10cm. wide at this point. This requires a value of 5.08% WO_3 over the 38.10cm. Murphy states that this appears very high and there could be slight doubt about the sampling procedure. However, he states on the other hand, Hall-Relf's section shows that a high value at this point ties in reasonably well, allowing for some pitch, with the high values 15, 16 and 17 in the surface trench.

M. Rubenach obtained an assay for the vein at 71m. in the adit of 1.73% WO_3 by point counting and over 12.19m. from 57.91 to 70.10m. a value of 1.5% WO_3 .

At a point where the very high result was obtained for the Mines Department test, Rubenach had a 2.6% value for the vein.

A 67.95 kg. sample from the 67m. point, resulted in 0.56% which would give a vein assay of 2.50% W_3 according to Murphy.

2. D.J. CASEY (77/Syd./13)

(a) Comparison of assays from channel samples and point-counting along the channels.

Channel sampling was carried out at 5m. intervals and point counting was then carried out along the channels. Table 1 contains the results of both surveys. Casey states that there is very little agreement between the two sets of values.

(b) Comparison of 1m. interval point counting with previous survey - Relf in a Scamander survey 1971.

In 1971 a point count survey was carried out by Scamander (i.e. Relf) between 67m. and 109m. No details were given of the interval between points. The average grade over the adit width was 0.68% which is equivalent to the grade in the vein of 4.39% W_3 .

Grade in the vein from the Casey (1977) study was 3.88% W_3 which is 88% of the value obtained from the 1971 work. Casey states that given the different sampling intervals and the fact that no line would have been sampled in both programmes, the reasonable agreement between the two gives some confidence in the method. He also states, on the other hand, assay results from samples taken every 5m., give an average of 0.9% W_3 .

(c) Table 2 is a comparison of results of point counts using 30 samples at 5m. intervals, with results using 140 samples at 1m. intervals (all data from D.J. Casey 77/Syd./13).

TABLE 1
COMPARISON, POINT COUNT AND ASSAY METHODS

SAMPLE NO.	% WO ₃ ASSAY	% WO ₃ POINT COUNTING
3	0.19	0
8	0.04	1.85
13	3.9	17.78
18	0.07	0
23	0.16	1.33
28	0.35	0
33	0.10	0
38	0.53	0
43	0.07	1.30
46	0.40	2.25
53	0.11	1.02
58	0.05	0
63	0.02	1.35
68	0.01	0
73	0.02	0
77	0.47	3.40
83	0.16	6.33
88	6.4	29.9
93	1.1	2.4
98	0.54	0.45
103	0.18	2.42
108	0.02	2.43
113	0.03	0
118	0.82	6.2
123	0.02	0
128	5.2	5.7
133	0.01	0
138	0.16	1.16
143	0.01	3.56
147	0.09	0

Average:

0.72

3.03

TABLE 2
SUMMARY OF RESULTS

(77/Syd./13)

Vein width (30 samples, 5m. interval)	33.42cm.
Vein width (140 samples, 1m. interval) - ignored 7 samples, as vein in wall.	35.30cm.
Vein width (134 samples, 1m. interval) - as above, but also ignored 6 others as they were aggregate of 2 veins.	35.33cm.
Average Ore Grade (30 samples, 5m. interval) 4.46% wolframite	3.39% W ₃ O ₈
Average Ore Grade (140 samples, 1m. interval) 3.90% wolframite	2.96% W ₃ O ₈

3. D.F. CASEY AND W.P. AYLING (78/Syd./01)

Comparison of bulk sampling (this study) with the point-count study of Casey (77/Syd./13).

The ore grade calculated in the point count survey (77/Syd./13) from 140 samples was 2.96% WO_3 which was considered a little high and there were doubts that point counting was an accurate technique. However, the average grade calculated from the bulk sampling is in fact slightly higher, at 3.15%.

Casey states that, it should be noted that the method of bulk sampling was not ideal and that the samples taken for calculation of the percentage of quartz may also have not been precise. In spite of these factors, according to Casey, the close agreement of the two results tends to give some confidence in their reliability.

4. W.P. AYLING (78/Syd./13)

(a) Comparison of data at 1m. intervals with that of 30m. intervals.

Table 3 contains a summary of the results of the point-counting programme carried out by Ayling in July 1978.

He has calculated values over 30m. intervals from the point counting data for comparison.

Table 4 contains these values and Ayling states that this shows a general increase in grade and vein width from portal to working face.

TABLE 3

(B.R.G.M. 78/Syd./13)

SUMMARY OF RESULTS - 240 LEVEL ADIT

Average Vein Width: (aggregate of all veins at each sample point) 39.96cm.		
Average Ore Grade : 5.41% wolframite	=	4.11% WO ₃
Wolframite contains		76.0 % WO ₃

Table 4 is a comparison of results for 30 metre intervals along the adit. This shows a general increase in grade and vein width from portal to working face.

TABLE 4

COMPARISON OF RESULTS OVER 30m. INTERVALS - 240 LEVEL ADIT

SAMPLE INTERVAL	AVERAGE VEIN WIDTH	AVERAGE GRADE
1 - 30	33.75cm.	3.24% WO ₃
31 - 60	34.73cm.	3.60% WO ₃
61 - 90*	38.02cm.	3.69% WO ₃
91 - 120	41.02cm.	5.59% WO ₃
121 - 150	41.57cm.	3.52% WO ₃
151 - 168	57.48cm.	4.86% WO ₃

* 27 sample points as 3 under rise.

(b) Comparison of results of Ayling (July '78) with previous surveys (i.e. Relf, 1971, and Casey, 1977).

In 1971 a point counting survey (grid samples) was carried out by Scamander (Relf) between 67m. and 109m. The average grade of the vein in that survey was 4.39% W_3 . Grade of the vein from the B.R.G.M. survey of Casey (1977) was 3.88%, while this survey - Ayling (July '78) - gave a result of 4.61% W_3 in the vein. Ayling states that, given the different sampling points in the three surveys, the reasonable agreement between the results gives some confidence in the method.

Table 5 compares results obtained from B.R.G.M. surveys in 1977 and 1978 with assays of samples taken for metallurgical testing in 1977 for B.R.G.M. for the section of the adit from the portal to 154m.

TABLE 5 (from B.R.G.M. 78/Syd./13)

COMPARISON OF RESULTS FOR OLD SECTION OF ADIT 240 LEVEL (to 154m.)

SURVEY	AVERAGE GRADE	AVERAGE WIDTH	% DIFFERENCE FROM BULK SAMPLES
Bulk Sample Assay	3.17% W_3	-	-
Casey, 1977	2.96% W_3	35.33cm.	7% low
Ayling, 1978 (July)	3.76% W_3	37.77cm.	19% high

In the survey of Ayling, 1978, all veins, regardless of how small, were measured and point counted. Ayling states that this, together with the fact that fresh surfaces had been exposed prior to that survey, can explain some of the differences in the results. Also different sampling points were used in the two surveys. Despite these differences, a reasonable agreement between the results is shown.

5. D.J. CASEY (78/Syd./13): ADDENDUM

Comparison of results of Casey, August 1978, with 240 level adit with those of Ayling, July 1978.

Sample points 1 - 168 (i.e. 1990 - 1823) were re-measured by Casey (August 1978). The results of both surveys are summarised in Table 6.

TABLE 6

SURVEY	VEIN AVERAGE WIDTH CM.	VEIN AVERAGE GRADE % WO ₃
Ayling, July '78	39.96	4.11
Casey, Aug. '78	39.45	3.75

Casey states that an excellent agreement is found between the average widths of the vein, while Casey obtained a grade 8.8% lower than Ayling.

Table 7 indicates a comparison of results by 30m. intervals for these two surveys (from 78/Syd./13). The bulk sample results are included for comparison (Casey & Ayling 78/Syd./01).

Casey compares these results:-

Both sets of data give 91% agreement with each other. A closer agreement than this would be very unlikely due to personal bias on measurements. While individual readings can vary greatly, an average of a large number (say at least 30) tend to give close agreement (Table 7).

The discrepancy in vein width for the interval 151 - 168 is believed to arise from the presence of a chloritic vein which has indefinite boundaries and so is subject to individual interpretation.

Casey also states that both point-counting surveys gave a higher grade than the bulk sampling (3.17% WO_3) (Casey and Ayling, 78/Syd./01) and until more bulk sampling is carried out, this figure should be used as a conservative grade of the vein. It is concluded that the point-counting method can give errors of up to 15% due to personal bias; however, there is no way of knowing what an accurate figure might be without doing a very large bulk sample to compare the point-counting.

Table 8 contains the data on completion of extension of the 240 level adit to 1741 (i.e. 250m.) and subsequent point-counting (Casey, 1978 (78/Syd./13)) carried out in November 1978.

TABLE 7

(78/Syd./13)

SAMPLE INTERVAL	AV. VEIN WIDTH (CM.)		AV. VEIN GRADE (%WO ₃)		BULK SAMPLE AV. GRADE
	AYLING	CASEY	AYLING	CASEY	
1 - 30	33.75	33.50	3.24	3.29	1.93
31 - 60	34.73	35.33	3.60	2.62	5.29
61 - 90	38.02	39.89	3.69	2.97	3.20
91 - 120	41.02	42.60	5.59	3.80	1.65
121 - 150	41.57	41.37	3.52	4.61	3.44
151 - 168	57.48	47.50	4.86	5.42	

TABLE 8

DATA ON COMPLETION OF GRAUE & KIDD DEVELOPMENT CONTRACT240 LEVEL STATISTICS

INTERVAL	AV. VEIN WIDTH		AV. VEIN GRADE		BULK SAMPLE
	AYLING	CASEY	AYLING	CASEY	
1990 1961	33.75	33.50	3.24	3.29	1.93
1960 1931	34.73	35.33	3.60	2.62	5.29
1930 1901	38.02	39.89	3.69	2.97	3.20
1900 1871	41.02	42.60	5.59	3.80	1.65
1870 1841	41.57	41.37	3.52	4.61	3.44
1840 1811		47.51		4.25	
1810 1781		38.17		3.32	
1780 1751		38.97		5.84	
1750 1741		35.40		1.15	

Average for Total 39.50cm. 3.78%

