

000

MELBOURNE OFFICE

65-397.

242001

REPORT

ON

GREAT PYRAMID TIN PROSPECT

UPPER SCAMANDER, EAST TASMANIA

1964-1965

W. S. Chesnut

MICROFILMED

Melbourne

June, 1965.

AMG REFERENCE POINTS ADDED

SUMMARY

An area of about two square miles was held under option to purchase from Messrs. L. Price and R. Palmer. The Company terminated the option at the end of the initial twelve months period on 1st June, 1965.

For most of the period an average of six persons, including a geologist and driller, was engaged on the project.

A plane table survey of the area was carried out together with some regional and local surface and underground geological mapping.

A ground magnetometer survey was carried out to define a known aeromagnetic anomaly.

An extensive series of drill hole access tracks were constructed by bulldozer, in places with use of explosives.

A single diamond drill hole, depressed at 45° was drilled to 798.3 feet to test ore development deep within the hill.

Twenty-six vertical percussion bores were drilled on the hill to test the open cut potential of mineralisation encountered in a series of old adits and shafts.

The assay results of the drilling confirmed the existing knowledge of the nature of the tin mineralisation - i. e. low grade mineralisation associated with generally strongly silicified sandstone beds of a shale/sandstone sequence, which appear to be dipping steeply.

Appraisal of the results indicates that the prospect has little potential for large scale open cut operations.

. . . .

TABLE OF CONTENTS

	<u>PAGE NO.</u>
LOCALITY SKETCH	
SUMMARY	1
A. INTRODUCTION	2
B. LOCATION AND ACCESS	4
C. TITLES	5
D. HISTORY	6
E. GENERAL:	8
1. BUILDINGS	8
2. ROADS	8
3. SURVEYING	8
4. GEOLOGICAL MAPPING	8
5. GEOPHYSICAL	8
6. DIAMOND DRILLING	9
7. PERCUSSION DRILLING	9
F. GEOLOGY	10
G. APPRAISAL OF RESULTS:	12
1. GEOLOGICAL MAPPING	12
2. GEOPHYSICAL	12
3. DIAMOND DRILLING	13
4. PERCUSSION DRILLING	13
TABLE SHOWING PERCUSSION BORE RESULTS	15

TABLE OF CONTENTS (CONT.)

	<u>PAGE NO.</u>
H. CONCLUSIONS	17
I. RECOMMENDATIONS	19

LIST OF PLANS

- FIG. 1 LOCALITY MAP
- FIG. 2 GENERAL PLAN SHOWING DRILLING AND LIMITED GEOLOGY
- FIG. 3 CROSS SECTION ALONG LINE OF DIAMOND DRILL HOLE
- FIG. 4 MAGNETIC CONTOUR MAP OF GREAT PYRAMID PROSPECT
SHOWING LOCATION OF DRILL HOLES
- FIG. 5 GRAPHIC ASSAY SECTION OF DDS. 1.

APPENDIX

ASSAY SECTIONS OF PERCUSSION DRILL HOLES P. D. U. S. 1 TO 26.

...

A. - INTRODUCTION

This report covers the prospecting activities carried out at the old Great Pyramid Mine, near Upper Scamander on the East Coast of Tasmania, during 1964/1965.

The area was introduced to the Company by Mr. W. Manson of the Tasmanian Mines Department on behalf of a local prospector.

Activities were centred on the testing of the tin bearing potential of the old Great Pyramid Tin Mining Company's property and included:

- (a) Plane table survey of the Pyramid hill, "picking up" the topography and all old workings.
- (b) Geological mapping of outcrops and the walls of the old workings.
- (c) Construction by bulldozer of an extensive series of roads for drill site access.
- (d) Construction of small storage sheds at the old mine site.
- (e) Ground magnetometer survey of the mine area and environs.
- (f) A single diamond drill hole depressed at 45° was drilled to 798.3 ft. into the Pyramid Hill.
- (g) A programme of 24 vertical percussion drill holes totalling 2815.6 ft. were drilled on the Pyramid Hill and a further two holes totalling 196 ft. were drilled on the ridge between the Pyramid and the Pinnacles.

The assay results of the drill hole cuttings indicated that relatively small low grade ore sections could probably be defined with further detailed prospecting.

The graphic log of the diamond drill hole and the assay sections of the percussion drill holes are attached to this report.

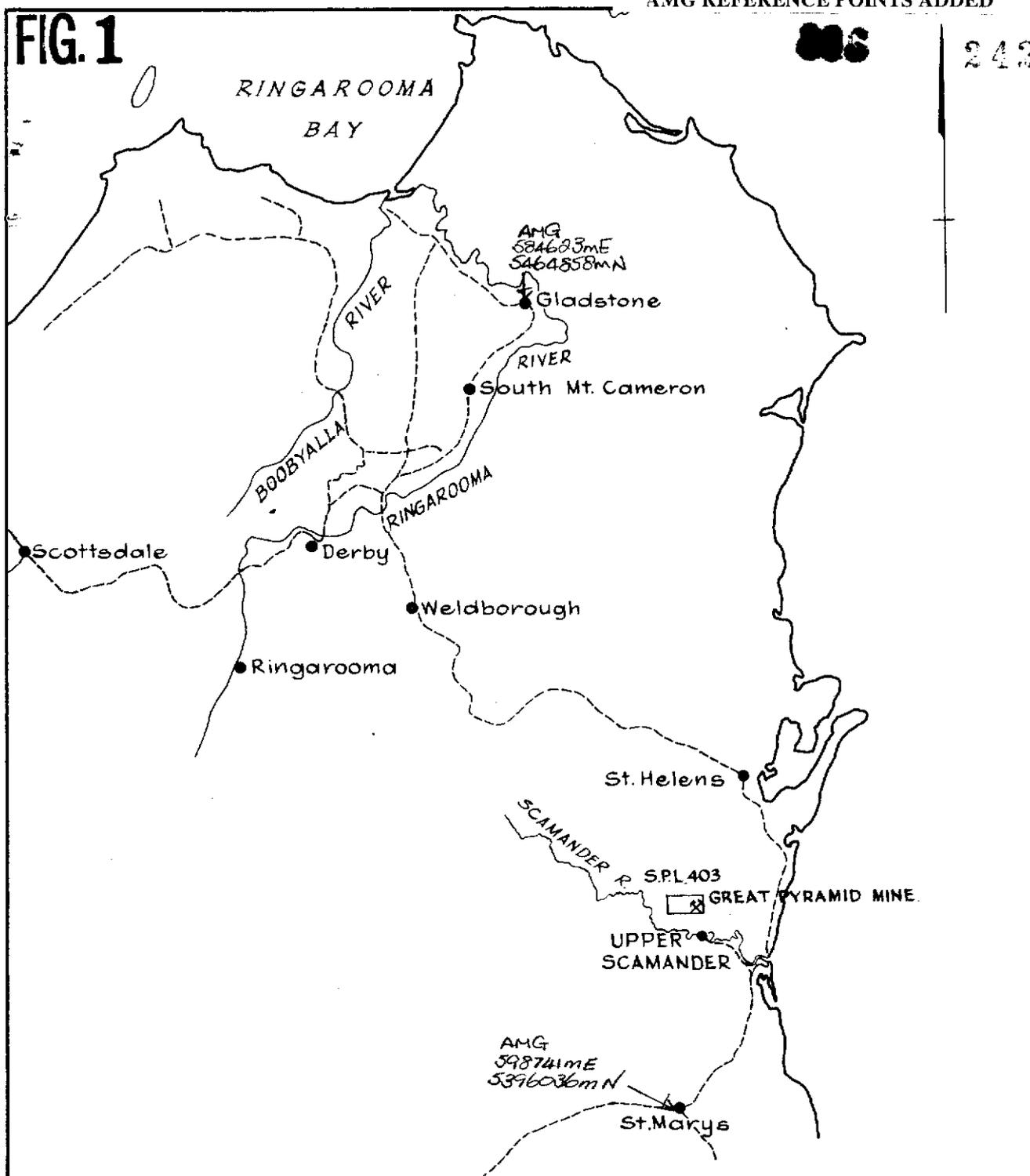
No ore reserves have been calculated since it is apparent that the prospect is not of economic proportions on present indications.

The recommendations listed are intended as a guide for any future prospecting.

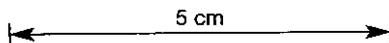
. . . .

FIG. 1

242007



LOCALITY MAP
PYRAMID TIN PROSPECT
EAST TASMANIA
 SCALE :- 1 INCH = 8 MILES



B. - LOCATION AND ACCESS.

The old Great Pyramid Tin Mine lies about seven miles from Scamander on the central east coast of Tasmania - see Fig. 1.

Access is by good gravel road to Upper Scamander, thence by a bulldozed track with steep grades for about a mile to the mine workings. Access can be cut for short periods during heavy rain when the Scamander river floods the bridge at Upper Scamander.

The mine workings occur on a steep-sided hill between 400 and 700 feet above sea level.

Rainfall in the area is approximately 20 - 25 inches per annum. Early morning frosts occur in winter.

. . . .

C. - TITLES.

The Company negotiated an option with Messrs. L. Price and R. D. L. Palmer of Ilfraville West Tamar, covering their Special Prospecting Licence No. 403, and their two mineral leases 23M/62 and 33M/62. The two leases total 28 acres in area and are enclosed by the boundaries of their two square mile Special Prospecting Licence.

The Special Prospecting Licence held in the name of L. Price was issued on 20th April, 1964, for six months. Subsequent renewals were obtained on the 20th October, 1964 and 20th April, 1965.

The terms of the option to the Company were:

- (1) Right to prospect for twelve months on payment of £600.
- (2) Right of renewal for further twelve months on payment of £2,000.
- (3) Purchase price £6,000 excluding initial payment of £600.

The Agreement came into force on the 1st June, 1964 and was terminated by the Company on the expiry of the first twelve month period.

.

D. - HISTORY.

The earliest detailed mention of prospecting at the Great Pyramid is made by W. H. Twelvetrees, 1911, in his Bulletin on the Scamander Mineral Field.

The Great Pyramid Tin Mining Company is believed to have carried out the early exploratory tunnelling and shaft sinking during the period 1909-1910. All the workings were sampled during this exploration and the generally low grade results caused a halt in development work.

The Troy Tin Syndicate resampled the existing workings during 1914 and may have carried out some further minor development driving of crosscuts. Apparently their assay results were discouraging since no further work was carried out.

During the period 1925 to 1936, some actual mining and milling operations were carried out as evidenced by records of production in the annual reports of the Mines Department as under:

<u>Year</u>	<u>Tons of Ore</u>	<u>Tons of Concentrate</u>	<u>Calculated Recovery Grade</u>
1928	55	0.65	.74% Sn
1933	103	1.359	.75
1934	152	3.00	.99
1936	<u>21</u>	<u>.37</u>	1.17
	<u>331</u>	<u>5.379</u>	

The calculated average recovery grade of .88% Sn indicates that the feed grade would be of the order of 1.25 to 1.5% Sn.

There is no trace of the old milling plant - 5 head stamp and tables.

Further sampling of the richer sections of the old workings was carried out by the Department of Mines in 1957 and 1963.

010

MELBOURNE OFFICE
242011

The present title holders have apparently not carried out any testing operations.

• • • •

E. - GENERAL

1. BUILDINGS:

All personnel lived at the Hotel in Scamander during the prospecting campaign. Three galvanised iron sheds were erected at the mine site for storage of equipment, drill core and percussion bore cuttings.

2. ROADS:

To provide sites for diamond and percussion drill sites, an extensive pattern of access roads was bulldozed on the Pyramid Hill and the ridge between the Pyramid and the Pinnacles. These roads, in places, provided exposures of in situ rock units.

3. SURVEYING:

A base plane table survey of the hill was carried out by Mr. M. J. Foster during the early stages of the prospecting programme. Additional infill and extension surveying was carried out by Messrs. G. Pun and J. Short.

This survey work provided the base map on which the Workings and Geology were plotted as shown on Fig. 2.

4. GEOLOGICAL MAPPING:

Mapping of the walls of the old workings was carried out by Mr. Foster while Mr. A. McKenzie carried out some regional and mine surface mapping. The latter was hampered by the lack of outcrop, despite the cutting of selected costeans and available road cuttings.

5. GEOPHYSICAL:

A ground magnetometer survey of the mine area was carried out by the Company geophysical team to define the ground position of the aeromagnetic anomaly detected by the earlier Lyell - E. Z. survey. Some minor additional

012

traverses were made over areas of possible mineralisation. Full details of this survey form the subject of a separate report by Mr. C. P. Taylor.

6. DIAMOND DRILLING:

Two diamond drill holes were programmed to test the higher grade sections evident in the old adits, viz. North and No. 1 S. L. L. adits.

Only the drill hole near the north adit was drilled - at a depression of 45° to a depth of 798.3 feet. The hole was surveyed for azimuth and dip prior to completion - see Fig. 3.

The hole was drilled by a Company owned FD. 20 drill rig, largely in "A" size.

7. PERCUSSION DRILLING:

The programme of vertical percussion drilling was intended as a rapid method of determining the potential of the prospect - primarily with a view to open cut potential. The holes were intended to be located on a basic 200 ft. grid, but the difficult terrain prevented close adherence to this grid.

Of the 24 holes drilled on the Pyramid, only holes 24, 25 and 26 were sited to test magnetic features, see Fig. 4. The other holes were more or less drilled on the grid basis.

Two other holes, Nos. 22 and 23 were drilled on minor magnetic highs on the ridge between the Pyramid and Pinnacles.

The holes were all drilled by a Company owned Halco Stenuick (down the hole hammer) percussion drill using $4\frac{1}{2}$ " bits.

. . . .

F. - GEOLOGY.

The very poor outcrop on the surface of the Pyramid Hill has made interpretation of the geological structure almost impossible. It is even almost impossible to trace the intrusive dyke over any appreciable distance despite the known position of the magnetic anomaly associated with it.

The task of determining subsurface structure is made difficult by the fact that the various adits, which provide subsurface structural information are at different levels, hence it is not valid to compile "level" plans of the workings for structural correlation since there are insufficient adits at a given level to allow correlation.

The predominant features which have become apparent are that the sequence of interbedded shales and generally silicified sandstones have a general steep dip to the southwest. Thickness of the individual units varies from fractions of an inch to 20 feet in places. All units have undergone low grade regional metamorphism with the resultant fracturing etc. being more apparent in the brittle silicified sandstone units.

Superimposed on this regional (?) structure are a number of features which result in variable dips and prevent detailed correlation. The lack of suitable outcrop has prevented interpretation of the nature of the structural features which give rise to the variations in dip evident, e. g. No. 3 S. L. L. and North adits.

It is apparent that the low grade tin mineralisation is restricted to the sandstone units, especially those that show strong silicification. However, it is not yet apparent whether the mineralisation occurs in part as a relatively fine grained dissemination throughout a unit, or entirely as discrete veins and joint facings, within a unit. It was hoped that the

information from core drilling and adit mapping would have clarified this feature, however the field geologists engaged on these aspects of the project are not available and the information is not indicated in their written records.

The actual mineralisation appears to be basically a quartz-sulphide host with cassiterite. Sulphides include pyrite, galena, sphalerite and chalcopyrite in highly variable proportions. A carbonate gangue calcite or siderite is also sometimes present.

While there is no granite outcrop within three miles of the Pyramid, it is inferred that granite occurs at depth and that the weak regional metamorphism and mineralisation is related to the premise that this area forms part of a large roof pendant.

The time and mineralogical relationship of the doleritic dyke with the host sediments is not known.

. . . .

G. - APPRAISAL OF RESULTS1. GEOLOGICAL MAPPING:

The mass of disconnected geological detail available as a result of the adit and surface mapping together with drill hole intersections is difficult to assess without the use of a three dimensional model to overcome problems related to relative levels of mapped sections and dip variations.

In view of the relatively low grade intersections obtained from drillholes, which confirm the results of the old adit sampling, the writer has not made a detailed appraisal of the available geological mapping.

2. GEOPHYSICAL:

The results of the ground magnetometer survey of the Pyramid area are discussed in a separate report by Mr. Taylor. The resultant magnetic anomaly plan is shown as Fig. 4 of this report.

The basic feature arising from interpretation of the results is the lineal feature striking NE - SW apparently with dip of 65° to the north. This is related to an intrusive dyke which has only been exposed in one place - No. 1 N. L. L. adit.? N^o1 S. L. L. ADIT.

Associated with this lineal feature are a number of less definite isolated highs of lower intensity. The cause of these minor anomalies and their relationship to the dyke are unknown, since percussion drill holes sited to test a number of them have not intersected formations which appear likely to produce anomalies.

3. DIAMOND DRILLING:

The graphic assay section of the diamond drill hole is shown as Fig. 5. The cross section, Fig. 3, more or less along the plane of the hole shows the spatial relationships of adjacent percussion holes and adits, while the plan projection of the hole is shown on Fig. 2.

From these plans it can be seen that the drill hole penetrated a fairly complete section of the hill.

Examination of the core revealed only one surprising feature - the high zinc content of the 1.1 ft. thick section of massive sulphide mineralisation at 665.7 feet. Assay results of this vein showed a tin content of 1.33% and a zinc (as sphalerite) content of 38.3%, with 1.23% copper.

Generally the core consisted of heavily fractured and jointed shales and fine grained sandstones, in part strongly silicified, with minor veins up to $\frac{1}{2}$ inch thick carrying quartz, cassiterite and sulphides, especially pyrite. The best averaged core assay results revealed medium low grade sections as under:

Depth - Ft.		Thickness	Averaged Sn Assay
From	To		
119.2	131.2	12.0	0.29%
390.3	404.8	14.5	0.37%
715.6	727.6	12.0	0.39%

Full assay results are shown on the Graphic Log Fig. 5.

4. PERCUSSION DRILLING:

The assay logs of the 23 percussion bores drilled on the Pyramid Hill and the three bores drilled to the west of the Pyramid area (see Fig. 2) are filed in folios kept in the Geological Section. The tabulation on page 15

017

summarises the main details of these holes.

It can be seen that while no high grade sections were intersected a number of medium low grade sections in the range 0.3 to 0.5% Sn can be defined over limited thicknesses. Since the attitude of the zones carrying these values (presumably individual sandstone beds) is unknown it is not possible to effectively evaluate the potential of the sections defined - since a vertical bore through a bed 2 feet thick and dipping steeply could yield an apparent intersection of between 4 and 10 feet.

Hence it becomes apparent that a precise geological basis is required on which to evaluate the percussion drill hole results, before it is possible to define tin bearing zones.

. . .

SUMMARISED PERCUSSION BORE RESULTS

Bore No.	Total Depth Ft.	Best assay sections showing interval in feet and averaged assay. % Sn
PDUS.		
1	204.8	38-44 0.26%; 92-110 0.40%; 116-128 .17%; 164-170 .22%
2	127.8	0-20 0.26%; 32-50 .24%; 80-86 .28%; 98-104 .25%.
3	200	128-134 .22%.
4	200	Barren
5	200	32-44 .22%; 50-56 .24%; 62-68 .28%; 98-104 .47%
6	200	38-62 .18%; 86-98 .46%; 182-188 .26%; 194-200 .19%.
7	200	14-26 .33%; 38-62 .30%; 74-116 .43%.
8	150	68-74 .22%; 80-98 .28%.
9	50	Barren
10	50	20-26 .22%.
11	74	0-26 .40%; 32-38 .23%; 50-56 .24%
12	50	Barren
13	50	14-44 .27%
14	200	32-56 .19%; 68-92 .22%; 104-116 .24%; 134-146 .26%. 176-182 .24%.
15	98	0-20 .37%; 56-68 .35%; 92-98 .36%.
16	50	Barren
17	50	Barren
18	50	Barren
19	50	44-50 .14%
20	152	32-128 .40% (38-92 .56%)
21	50	Barren

019

MELBOURNE OFFICE 16.
242020

Bore No.	Total Depth Ft.	Best assay sections showing interval in feet and averaged assay. % Sn
22	146	Barren)
23	50	Barren) Ridge to west of Pyramid Hill.
24	50	Barren)
25	151	85-97 .38%
26	158	38-134 .18% (50-68 .25%; 74-80 .24%; 110-134 .22%)

H. - CONCLUSIONS.

The main features to become apparent as a result of the prospecting programme are:

- (1) The aeromagnetic anomaly is associated with an intrusive doleritic dyke whose mineralogical and time relationship to the structure and mineralisation of the area, is unknown.
- (2) The poor outcrop prevents detailed structural mapping. However, it is apparent that there are a number of structural complications to the general steep dip, to the southwest, displayed by the sediments.
- (3) Mineralisation is almost entirely low grade, consisting of cassiterite with sulphides, associated with strongly silicified sandstone horizons. Whether the mineralisation is entirely as veins or partly as fine grained disseminations is not as yet apparent.
- (4) While drilling on a grid basis can be considered suitable for the location of sporadic or weak mineralisation, the conditions at the Great Pyramid prospect indicate that any future drilling may yield best results if holes are sited to locate specific targets and are inclined to intersect the inferred dipping mineralised horizons, rather than grid drilling on a close pattern.
- (5) The detailed geological information available from surface mapping, old workings and drilling can only be effectively interpreted by use of a three dimensional model, so as to overcome the correlation problems arising from relative level and dip variations.
- (6) Drilling has confirmed the various old workings sampling results - viz. that there are few high grade sections and the bulk of the mineralised material is fairly low grade. Further it is evident

that the mineralised material is only of limited development in the hill mass.

... ..

... ..

... ..

... ..

... ..

... ..

... ..

I. - RECOMMENDATIONS

Since the size and grade of the prospect makes it of little interest to the Company, the following suggestions concerning future testing are placed on record. It being evident that any ore occurring at this prospect will be low grade and hence its extent and grade will have to be evaluated to within close limits prior to any mining.

- (1) Compile a three dimensional model on a natural scale of 1" = 100 ft. on which the problems of structural geology can be resolved.
- (2) Carry out necessary surface or underground mapping to complete correlations associated with above.
- (3) Interpret the percussion drilling results with respect to geology - e.g. attitude of mineralised horizons.
- (4) Site shallow inclined drill holes to intersect specific targets, e.g. inferred correlations of ore bearing horizons.

This programme, outlined above, is purely related to locating low grade ore minable by open cut means. There does not appear sufficient justification at present to warrant testing for underground potential.

.

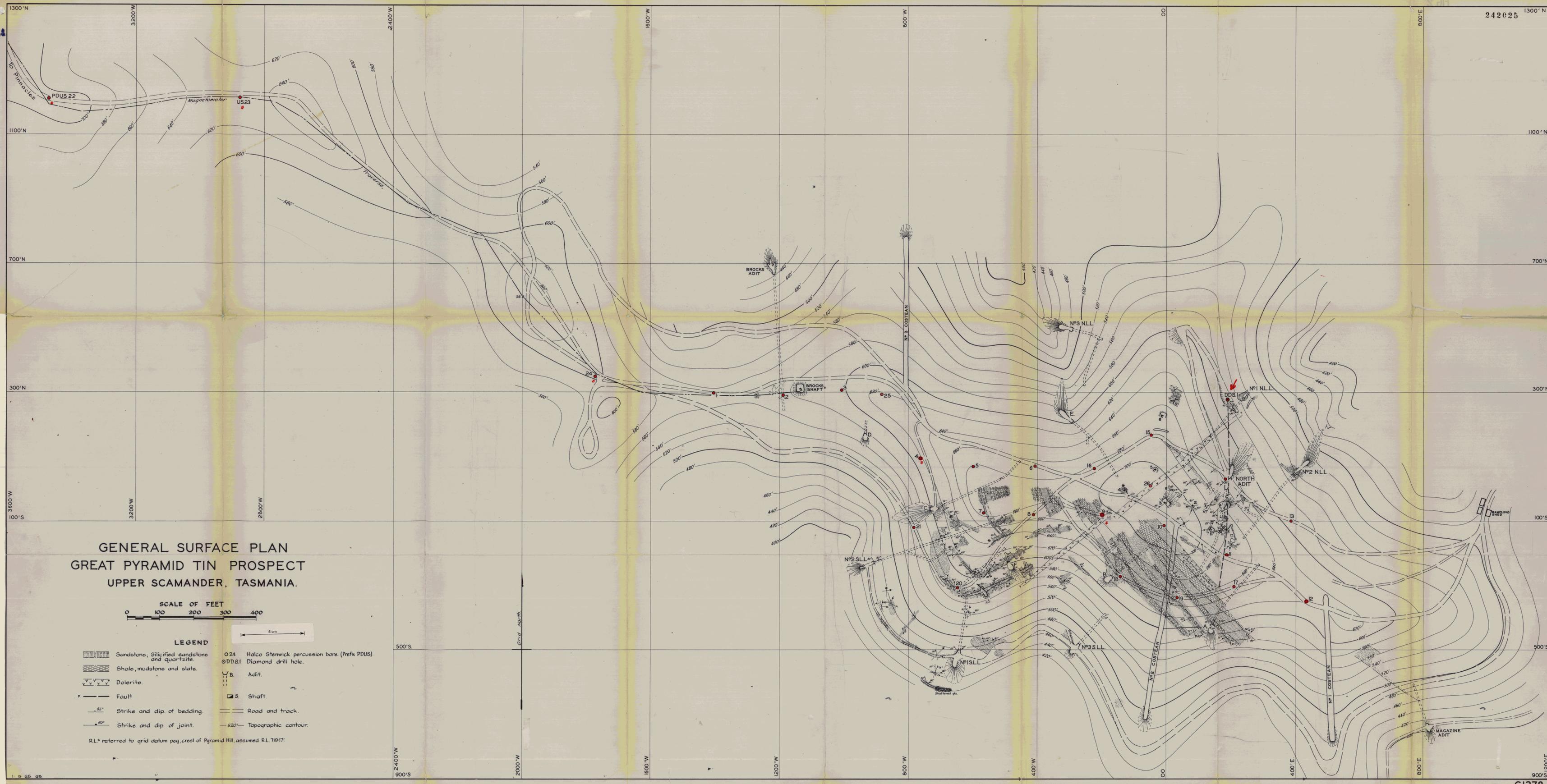
023

242024

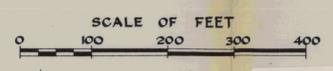
APPENDIX

ASSAY SECTIONS OF PERCUSSION DRILL HOLES

P. D. U. S. 1 TO 26



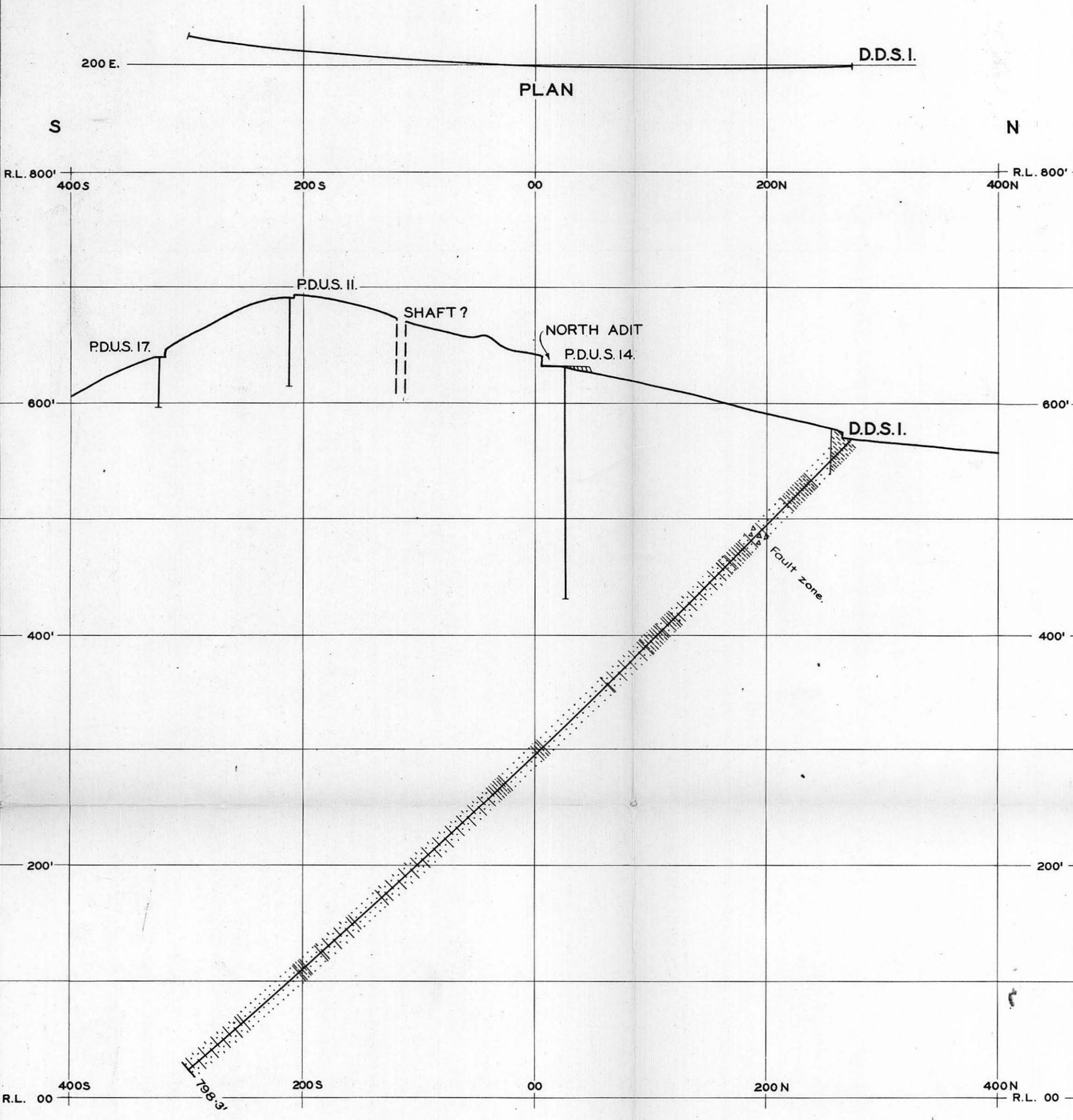
**GENERAL SURFACE PLAN
GREAT PYRAMID TIN PROSPECT
UPPER SCAMANDER, TASMANIA.**



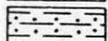
- LEGEND**
- Sandstone, Silicified sandstone and quartzite.
 - Shale, mudstone and slate.
 - Dolerite.
 - Fault
 - Strike and dip of bedding.
 - Strike and dip of joint.
 - O24 Halo Stenwick percussion bore. (Prefx PDUS)
 - ODDS1 Diamond drill hole.
 - B. Adit.
 - S. Shaft.
 - Road and track.
 - Topographic contour.

RL* referred to grid datum peg, crest of Pyramid Hill, assumed RL 71917.

8.07

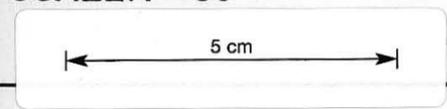


LEGEND:

-  Sandstone.
-  Shale.
-  Silicified shale and siltstone.

CROSS SECTION THROUGH D.D.S.I.
GREAT PYRAMID PROSPECT
UPPER SCAMANDER-TASMANIA

SCALE: 1"=80'



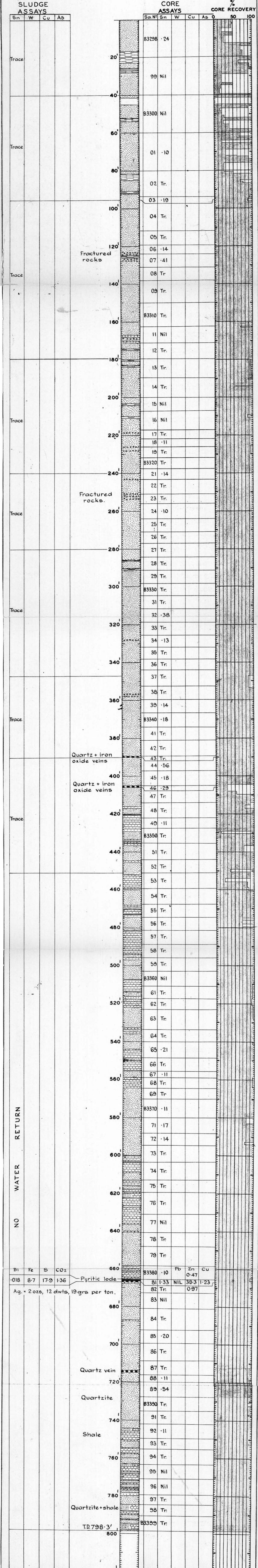
5 cm

GRAPHIC SECTION : UPPER SCAMANDER No 1

DEPOSIT : GREAT PYRAMID MINE

LOGGED BY A. BARCO, D. BARNET, G. PUNN, DATE DECEMBER 1964, FEBRUARY 1965

SCALE - 1 INCH - 20 FEET



RETURN
WATER
NO

Bi	Fe	S	CO ₂
.018	8.7	17.9	1.36

Ag. = 2 ozs, 12 dwts, 19 grs per ton.

Pb	Zn	Cu
NIL	38.3	1.23
	0.97	

PTL
Q41115
65-391

ASSAY SECTIONS
OF
PERCUSSION DRILL HOLES
P.D.U.S. 1-13 PART 1.

Q41115

02117
14-26
P. 2

14-26 | 3

ASSAY SECTIONS
OF
PERCUSSION DRILL HOLES
P. D. U. S. 14-26 PART 2

