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REPORT

ON

BALFOUR, TASMANIA - PROSPECTING

1963-1964

W.S. Chesnut

AMG REFERENCE POINTS ADDED

Melbourne

May, 1964

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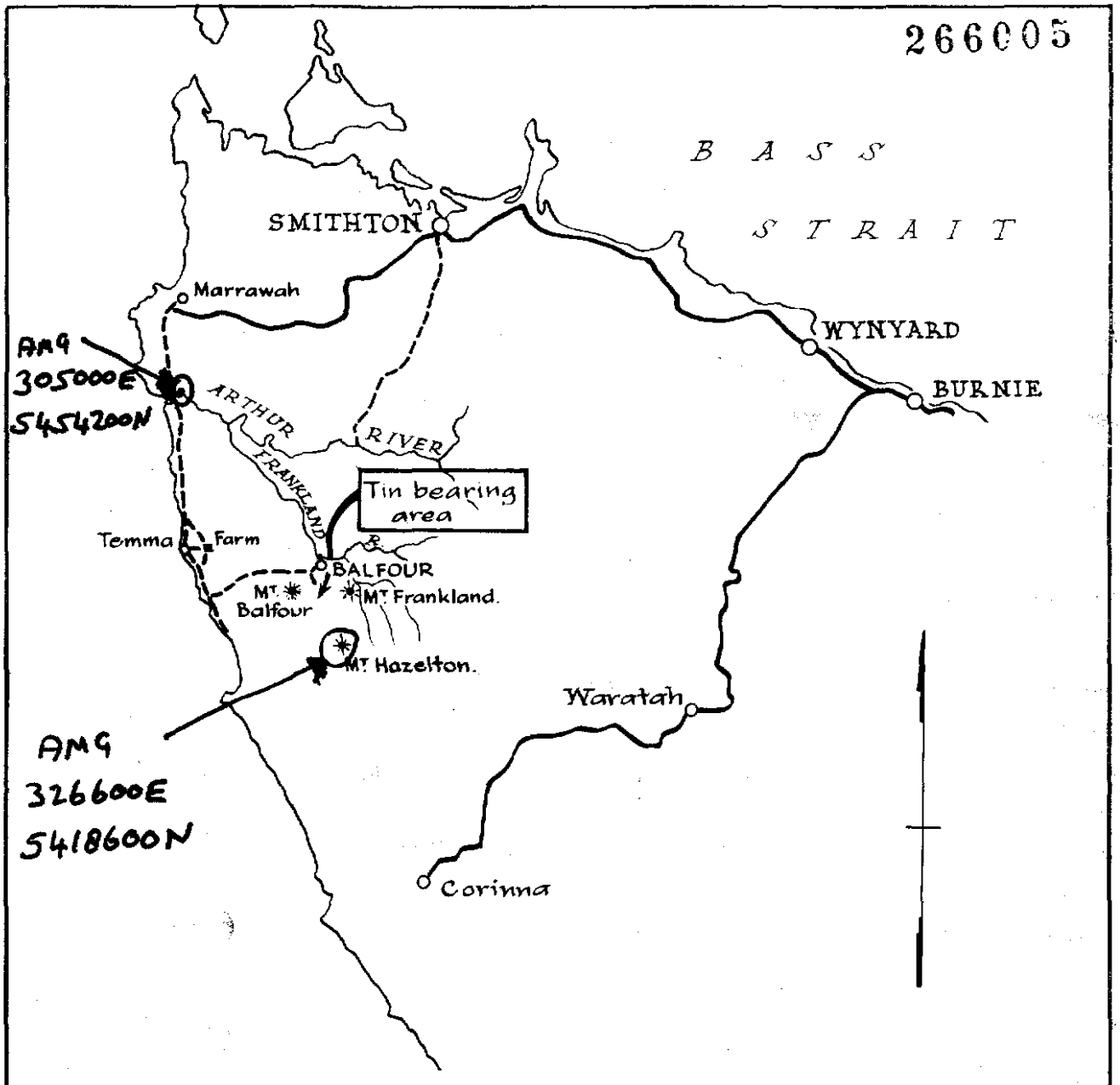

AMG REFERENCE POINTS ADDED

PLAN SHOWING LOCATION BALFOUR TIN AREA TASMANIA

Scale : 1 inch = 15 miles

SUMMARY

An area of 320 acres covering Specimen Hill is held under option to purchase from Mr. G. Force acting as agent for the Balfour Mining Syndicate. The initial six month option period has been extended for twelve months until October 1964.

For most of the period, from April 1963 to May 1964, an average of six persons including a geologist have been engaged on the project.

A plane table survey of most of the option area was carried out and a series of access tracks constructed by bulldozer. Approximately 170 pre-existing pits on a 2 chain grid over Specimen Hill were cleaned to bedrock and separate samples taken of the surface peat and subsurface eluvial material - "gravel". These peat and gravel samples were respectively panned for a field estimate and crushed and assayed in Launceston or Newcastle, so as to define the surface areas in which "tin" mineralization appeared strongest.

On the basis of the results of this "soil" tin distribution survey, a series of seven costeans totalling about 7,600 feet were cut by bulldozer. Cleaning and sampling of the bedrock exposed in these costeans was commenced but later discontinued as the difficulties involved - depth of weathering, and uncertainty as to the reliability of the samples - became clear.

An initial programme of scout diamond drilling based on available surface information has been carried out.

The first hole (DDB1, coordinates S7.8, W6.2) was drilled to 290.7 feet and overall assays were not encouraging, though

one section 6.3 ft. thick at a depth of 160 feet was calculated to average 0.54% Sn. This section is based almost entirely on a vein 0.3 ft. thick which assayed 10.12% Sn.

The second hole (DDB2 coordinates S4.7, W9.2) was drilled to 240.0 feet and again overall and vein assays were very poor.

The third hole (DDB3 coordinates S9.6, W9.0) was drilled to 100.5 feet to intersect a relatively major vein about 8 inches thick which was known to outcrop on the western side of Specimen Hill. The bore intersected a vein 0.85 ft. thick which assayed 1.41% Sn.

The final hole (DDB.4 coordinates S13.4 W5.2) was drilled to 549.5 ft. to intersect the same (?) vein at depth, to test the possibility of increase in grades and thickness with depth. The core from this bore has yet to be sampled and assayed but visual estimation indicates that tin values are low.

Results from all holes are not encouraging when considering assay results.

Examination of the core shows that both sharply defined quartz veins up to 15 inches thick and minor zones of disperse silicification exist, both generally carrying variable proportions of the following minerals - abundant pyrite and arsenopyrite and much less abundant cassiterite, wolframite, chalcopyrite, siderite and pyrrhotite.

While it is not yet apparent to the writer just what forms of control of the mineralization are involved, it seems likely that the faulted structure mapped on and around Specimen Hill is a primary controlling feature, with other as yet undiscovered controls.

It appears that further mapping and geophysical traverses south and north of Specimen Hill are required to determine

whether additional drilling is likely to be of assistance in locating probable deeply buried ore.

Such work would in part fall outside the limit of the area currently held under option agreement.

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A. INTRODUCTION.

This report covers the activities of the small prospecting party based at Balfour, on the west coast of Tasmania, during 1963/4.

The area was introduced to the company through Messrs. Hughes and Symons of the Tasmanian Mines Department, acting for a group of prospectors.

The activities were centered on the initial stages of evaluation of the "tin" bearing area of Specimen Hill - some half mile south west of the old township of Balfour.

The major activities included :

i) Construction of a permanent all weather base camp.

ii) The plane table surveying of Specimen Hill and some of the nearby areas.

iii) The cleaning out of an existing network of pits on a 2 chain grid to allow soil (geochemical) sampling.

iv) The channel sampling and reduction of the samples of peat and eluvial fragmenta.

v) The cutting by bulldozer of a number of long costeans over the surface of the hill and their final hand cleaning to bedrock for sampling.

vi) Channel sampling (not completed) of one of these costeans for evaluation of soil sample results.

vii) Preparation of drill sites and access tracks by bulldozer.

viii) A programme of four scout diamond drill holes totalling 1,180.7 feet.

The assay results of the drill core from three of the bores are not encouraging. Assay results of the fourth bore are also not expected to be encouraging. However, geological information being obtained from the cores may allow better selection of any future drilling targets.

The graphic log and assay section of the drill holes are appended to this report.

No ore reserves have been calculated at this stage.

In view of the limited extent of present knowledge, the series of recommendations listed are intended to be guides for current and future prospecting activities.

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B. LOCATION AND ACCESS.

The old Township of Balfour lies about 30 air miles SSW of Smithton, on the northern end of the west coast of Tasmania, about 11 miles inland, Fig. 1.

There is no airstrip and at present access at all times is by road to the Arthur River thence by a generally rough track using landrovers; a total distance of 70 road miles from Smithton via the Arthur River Punt. The punt has a load limit of seven tons and is closed for short periods when the river floods.

The weather during the period covered by this report indicates that the rainfall of about 66 inches falls throughout the year but is more consistent in the winter. Temperatures range down to below freezing, (overnight minimums). Winds are variable but generally cool and moist from the south west.

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C. TITLES.

Two persons acting for a syndicate of Smithton (Tasmania) Businessmen hold two adjoining Special Prospectors Licences covering a total of 50 square miles of the Mt. Balfour Mineral field.

Within the area covered by these licences, a square of four leases totalling 320 acres, covering Specimen Hill and environs, was taken out by a member of the syndicate. These leases were later amalgamated for purposes of Labour conditions.

The Company negotiated an option agreement over this lease covering Specimen Hill with the Balfour Mining Syndicate on the following terms :

i) Six months option for £600
ii) Twelve months option for £2,000
iii) Further twelve months option for £2,000
iv) Purchase price to be £45,000 including above payments
v) The results of our testing to be made available to the leaseholder if the option is not exercised.

The agreement came into force from the 16th April 1963; after the first six month period expired, the option was renewed for a year, and is current until 16th October 1964.

The area nominated by the Company as being required was marked on an aerial photograph, the scale of which was not accurately known. The writers subsequent plane table survey provided an accurate scale for this photograph and as a result the "area" involved in the 320 acre block is larger than was initially marked. The Syndicate was disturbed over this as the new definition of the area encroached upon the old copper

workings. In subsequent correspondence the company has agreed that should the option be exercised the copper workings on the eastern side of the area will be excluded.

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D. HISTORY.

Alluvial "tin" was first found in the Balfour area in the early 1880's and had been worked on a minor scale for quite a number of years prior to the discovery of copper mineralization in Tin Creek, in about 1900.

During the next few years little tin mining was carried out in the area, but extensive prospecting and development mining of the copper orebodies occurred. This line of copper mineralization lies about ½ mile to the east of Specimen Hill.

The main copper mine - Murrays Reward - reached its peak production during the period 1912 to 1917, high grade concentrates being shipped abroad. The copper mining rapidly declined in extent and value of output and some revival of alluvial tin working occurred for a short period.

The records of production of both metals from the area are very vague but it seems likely that while no really substantial quantities were produced, copper production was the greater, both in tonnage and value.

The available Mines Department records of tin production are listed below :

Year	Tons of concentrates	Tons of metallic tin	Value
1907	45		£5,094
1908	3		280
1909	3		278
1910	nil		--
1911	"		--
1912	"	116.9	--
1913	29.15		3,873
1914	30.5		3,074
1915	4.5		506
1916	26.93		3,310
1917	6.98		1,132
1918	11.71		2,535
1919	6.25		1,526

Year	Tons of concentrates	Tons of metallic tin	Value
1920	—	2.52	675
1921	—	0.60	103
1922	—	2.41	364
1923	—	1.00	202
1929	—	1.22	243
1930	—	0.88	121
1931	—	0.30	32
1942	—	0.044	11
Totals:	167.0	125.8	£23,359

The old township, built on a basalt remnant just east of Murrays Reward Copper mine, is reported to have had a peak population of about 300 people, but for the last 15-20 years the town has been all but deserted. One "hut" remains, due to the efforts of the Syndicate.

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E. GENERAL.

1. Camp Construction:

Initially a single cyclone building (20' x 30') was erected on two "blocks" of the old proclaimed townsite. This building was lined in part and included messing and sleeping quarters with office space, for a party of six to eight persons. During later stages, as the need arose, a sample shed and a garage-store shed and small sleeping hut were erected close to the main building, using bush timber frames.

2. Roads:

At various times during the year, as the bulldozer was required at Balfour for specific purposes, the opportunity was taken to carry out limited dozing of the old track. Generally this work entailed widening the cut through the peat surface, draining this cut, and in places forming and draining boggy patches between Temma Harbour and Balfour.

In addition to this, the road constructing authority for the area (PWD) carried out some road formation work and reconstruction of a number of bridges between the Arthur River and Balfour.

3. Surveying:

A plane table survey of almost the entire option area was carried out during the year. This enabled the compilation of a detailed topographic plan showing old workings and the extensive grid systems of surface pits and survey pegs which

the syndicate claims to have pegged and had dug, Fig. 4

Drill hole sites are being surveyed as necessary.

4. Pit Sampling:

A soil sampling programme was carried out to determine the surface distribution of residual cassiterite and whether this would define areas in which sub-surface "tin" mineralization was strongest. That is, the survey was designed essentially on a geochemical basis.

Samples were taken from points falling on a basic 2 chain grid over the area of Specimen Hill itself. The samples were reduced and treated and the resultant values plotted to give soil "tin" distribution patterns. The results are discussed later.

5. Costeans:

A number of long parallel costeans were cut more or less to bedrock over the hill to enable interpretation of the results of the soil sampling programme.

These costeans were cut by a bulldozer with the aim of exposing the bedrock and allowing mapping of the veins and channel sampling of the bedrock. However, the small machine (Allis Chalmers HD6) was not capable of cutting the partly cemented eluvial fragments, which in places was three to four feet deep.

Hence hand cleaning using jackhammers was generally necessary. This resulted in an extremely tedious procedure - especially when the scale of bed rock surface irregularities became apparent. The costean "cleaning" was abandoned after part of one cleaned costean was channel sampled. Some results are discussed later.

6. Drilling:

A programme of four scout diamond drill holes totalling 1,180 feet and using an E1000 machine was carried out during the latter part of the period under review.

Details of these drill holes are -

Drillhole:	Coordinates:	Total Depth:
DDB.1	S7.8 W6.2	290.7
DDB.2	S4.7 W9.2	240.0
DDB.3	S9.6 W9.0	100.5
DDB.4	S13.4 W5.2	549.5
		1,180.7 ft.

The initial aim of the company's investigations was to test the open cut potential of Specimen Hill. The first two bores DDB1 and DDB2 were drilled on Specimen Hill in areas which showed the maximum surface development of "tin" bearing quartz veins. The assay results from these two holes showed that it seemed unlikely that open cut grade material existed on the "Hill".

Hence it was decided to test the possibility of enrichment and increase in thickness of veins with depth. Thus holes DDB3 and DDB4 were drilled down dip on the postulated extension of a vein about 6" to 10" thick which was known to outcrop on the western slope of Specimen Hill. Once again results were not encouraging.

Overall drilling results are discussed later.

7. Geological Mapping:

At various times during the period geologists Dr. A. Barco and Mr. M. Foster were also stationed at Balfour for Geological Mapping.

The writer made a detailed examination of the veins

exposed in the various old workings and in some of the costeans.

Dr. Barco mapped the detailed lithology of the option area and elucidated the probable structure - a minor plunging anticline probably resulting from drag folding or faulting.

Mr. Foster commenced the regional mapping of the area to determine the nature of any major structural feature which may be responsible, in part, for the copper and tin mineralization. This work was hampered by limited outcrop and the intricacies of the minor structural features.

The various geological maps are discussed later.

8. Geophysical:

When it became evident towards the end of the period that aids were required to assist in the selection of drilling targets to test for mineralization at depth, a small number of east west geophysical traverses over Specimen Hill and the southern environs was carried out by members of the company's geophysical section.

These traverses involved simultaneous gravity and magnetic readings on selected lines, which were level surveyed.

The results are the subject of a separate report by Mr. C.P. Taylor dated March 1964.

To add regional information on the magnetic variations in the area, an approach was made to the Bureau of Mineral Resources for some aerial magnetometer traverses. These were flown in early May 1964 and are the subject of a separate report which is not yet available.

The results of the geophysical work in relation to the geological and drilling information available at Balfour is discussed later.

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F. GENERAL GEOLOGY.

The tin mineralization occurring on and around Specimen Hill near Balfour takes the form of a stockwork of quartz veins intruded with apparently random attitude and orientation into a series of sandstones, siltstones and shales.

These quartz veins are generally of minor thickness, $\frac{1}{8}$" to 2", with occasional veins up to eight inches; they have sharp boundaries and in places carry mixed mineralization. (See Photograph Appendix "D"). This mineralization is possibly a result of emanations from an inferred granitic source at depth and includes abundant pyrite and arsenopyrite with minor cassiterite, wolframite, chalcopyrite, siderite and a light coloured mica. These minerals are generally deposited on the margins of the veins, adjacent to the host rock, and near the surface all but the cassiterite weathers and is leached out. Hence in outcrop the veins contain porous milky quartz with residual cassiterite and wolframite in places. Their numerical abundance in surface exposures is generally not great.

The host rocks for this mineralization are believed to be of Precambrian age (specimens containing suspected fossil impressions are at present being examined) and consist of sandstones, frequently massive, and in places silicified to quartzites, with interbedded banded light and dark grey siltstones showing abundant current and injection structures and finely banded mottled-grey slatey siltstones frequently with highly contorted and irregular bedding. In a number of isolated places dark grey to black, unbanded and apparently indurated shales occur. This entire sequence has been folded and faulted and generally exhibits dips of between 45 and 60°.

The regional strike is north south with dips to the east.

The copper mineralization occurring on the ridge line about half a mile east of Specimen Hill appears to be of a more complex form. It consists of a patchy development of sulphides with quartz and minor carbonate material, along some structural line which extends for perhaps three miles to both the south and north. The sulphide mineralization consists predominantly of pyrite and arsenopyrite with various copper sulphides and possibly a trace of tin.

This mineralization appears to take the form of a series of more or less en-echelon "lobes", developed by replacement or injection, in steeply dipping shales and siltstones which in part show colour banding. These rock types are only slightly different to the units occurring on Specimen Hill and possibly conformably overlie them. They have a uniform north south strike with an east dip.

Further detailed appraisal of the copper mineralization has been undertaken by Mr. A. McKenzie and forms the subject of a separate report.

The nearest known outcrop of granitic rocks is at Sandy Cape, some 15 miles to the south west of Balfour. This is the northern limit of a belt of granite which has tungsten and tin mineralization associated with it in the Interview River area, some 15 miles south of Sandy Cape. It is considered, by most workers, that an apophysis of this granitic belt must be inferred as occurring at depth in the Balfour area to account for the mineralization.

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G. APPRAISAL OF RESULTS.

1. Geological Mapping:

During the period under review field mapping has been carried out by Messrs. A. Barco, W. Chesnut, M. Foster with supervision by Mr. A. McKenzie. Generally these workers have been engaged on different aspects of mapping and these are discussed below.

a) Regional Mapping:

Some brief reconnaissance mapping of the area was carried out by Mr. M. Foster during early 1964 with the aim of extending the known stratigraphic information from the area north of the Frankland River to cover the area near Mt. Balfour and Mt. Frankland.

The information obtained from this field mapping together with some aerial photographic interpretation is shown on Fig. 2. This plan also has shown on it some of the pertinent information from the map published by Messrs. R.D. McNeil, W.L. Matthews and M.J. Longman in Tasmanian Technical Report No.6 of 1961.

A number of problems in this mapping made interpretation of the structure difficult, viz. the poor outcrop in much of the area, the short time available for field mapping, and the abundant minor (?) structural features and lithologic changes which became evident during mapping.

It was hoped that regional stratigraphic mapping would indicate whether a major structural feature existed which could account in part for the tin mineralization on Specimen Hill (and also the line of copper mineralization). To date the existance of such a major structural control has not been proved and further mapping in the general area between the

copper mine ridge and the edge of the high plain, both to the north and south of Specimen Hill is required to fully elucidate the structure.

b) Option Area:

The area held under option has been almost entirely mapped in detail by Dr. A. Barco, who elucidated the lithologic variations and numerous minor structures, while the writer mapped the vein exposures in the old workings. The geologic information gathered is shown on Fig. 3.

Dr. Barco's mapping of the quartzitic and siltstone lithologic units on Specimen Hill shows that a minor flexure occurs in the form of a plunging anticline which is superimposed on one limb of a major fold. This minor flexure is almost certainly a result of drag folding and faulting. The regional mapping has not revealed whether the major structure is an anticline, a syncline or a monocline.

The detailed mapping of the veins exposed in the old workings was intended as the basis for an interpretation of the predominant vein attitude and orientation. This mapping is not yet complete but it appears on preliminary inspection that the few (mapped) major veins have a shallow dip, 10° - 20°, but no fixed orientation. The minor veins have random attitude and orientation. It is also apparent that the valuable mineral content of these quartz veins varies erratically - a vein followed in outcrop may change from barren to carrying mineralization very abruptly. It also appears that individual veins do not maintain thickness or dip within close tolerances, while it is not clear whether the veins have much linear continuity.

From this detailed mapping it seems likely that the structural flexure is one of the controls for mineralization; such a control possibly being a function of the faulting or joining induced during folding, but its exact form is not

yet apparent from the preliminary vein mapping.

2. Soil (Geochemical) Sampling:

The initial surface sampling on Specimen Hill comprised a programme of soil loaming on a two chain grid. This virtual geochemical survey was designed to indicate whether a zone existed in which the surface "tin" distribution was concentrated; it being inferred that a zonal concentration of residual "tin" in the surface soil profile would indicate a probable zonal concentration of primary tin in the subsurface bedrock.

The soil profile on Specimen Hill consists of two units: a surface layer of peaty material up to about 18 inches thick underlain by a layer of coarse angular eluvial fragments with some fine sand admixed. This fragments is derived from the in-situ break up of the sandstone and quartzite rock members and may be as much as 6 feet thick.

Hence in the sampling programme it was felt necessary to cut separate samples of the "peat" and "gravel". The results of this soil sampling are discussed below, while the details of the sampling methods are listed in Appendix B of this report.

a) "Peat" Loaming:

An inspection of Fig. 4 shows that the distribution of residual cassiterite has no really definite zone. The areas of anomalous high tin content are generally distinct but show a greater abundance on the northwestern portion of Specimen Hill. The areas of anomalous low (or background) tin content are also distinct and encompass the greater part of the hill.

b) "Gravel" Sampling:

The results of this sampling are shown on Fig. 5 as a series of isolated anomaly areas. As would be expected the areas of low tin content are more abundant, but the scattered small isolated areas of anomalous high tin content show a

greater frequency on the north western portion of the hill.

Comparison of Figs. 4 and 5 indicates that a general similarity exists between the positions of anomalous "highs" in the "peat" and underlying "gravel". Field examination of the sample locations showed that anomalous high values are attributable to tin bearing quartz floater which are more or less in-situ residuals of veins. Thus, as would be expected, proximity of a sampling point to a well developed tin bearing vein controls the residual tin content of the soil profile. It is interesting to note that despite the steep slopes on parts of Specimen Hill, there does not appear to have been very much migration of tin values, even in the peat soil. This lack of migration could be confirmed by sampling of the bedrock at the same points as soil profile samples were taken.

3. Costean Sampling:

When it became apparent from the soil sampling results that no really definable zone of enrichment appeared likely, a series of seven parallel costeans were cut to bedrock over Specimen Hill - See Fig. 6.

It was intended that channel samples of the bedrock be taken from these costeans as a further check on any zonal distribution and as a means of testing the frequency of veins. They were also laid out with a view to possible future use as lines along which close spaced percussion drilling could be carried out.

However, during cutting of the costeans it was evident that sampling of the bedrock was going to be very difficult. This arose from a number of factors including: the partial cementation of some of the fragments; the variation in thickness of the fragments; the deep weathering of the soft interbedded silty and shaly rock members which gives rise to an extremely irregular bedrock surface on to which the

unsupported sandstone and quartzite units collapse.

Some parts of costeans 1, 4, 5 and 6 were cleaned to bedrock using jackhammers etc., but only part of costean 1 was channel sampled - over a length of 210 feet in 10 ft. intervals. From this meagre information it is not possible to make any interpretations, though it appears that some similarity with the "gravel" anomaly plan could be expected.

4. Geophysical Survey:

At least three separate geophysical surveys have been carried out in the area during the past decade.

The first survey was an airborne magnetic survey flown in the 1950's as part of the Rio Tinto (Aust.) exploration programme. The plan showing the results of this survey was inspected by the writer at the Tasmanian Mines Department. From the plan it is evident that a definite but not very intense line or ridge type anomaly exists in the region of Specimen Hill. This anomaly is not continuous but can be traced in a north south direction for a distance of some miles.

The second survey consisted of a series of ground magnetometer and gravimeter traverses carried out early this year by members of the Company's Geophysical section and the results of this work form a separate report by Mr. C.P. Taylor.

The writer's personal assessment of the results of Mr. Taylor's gravity traverses indicates a rather vague series of irregularly trending axes of highs and lows which are marked on Fig. 8. These are not readily apparent on the original contour plan shown in Mr. Taylor's report. The reason for such a pattern of highs and lows is not apparent at this stage.

The results of the magnetometer traverses indicate that the line type anomaly evident from the regional aerial survey discussed above can be traced readily on the ground. The

discontinuous nature of the anomaly is confirmed, and further traverses are required to define the centres of the two anomalous highs shown on the plan in Mr. Taylor's report and Fig. 9 of this report. There is no readily apparent reason for this magnetic anomaly but it may reflect the structural flexure and faulting revealed by the mapping of Specimen Hill.

The third survey consisted of a number of airborne proton magnetometer traverse lines flown by the Bureau of Mineral Resources at the Company's request, to give a slightly wider regional coverage on which to base further ground traverses.

The survey covered the area from the coast to near the Lindsay River (east of Balfour), a distance of about twelve miles, with four parallel east-west lines spaced about one-third of a mile apart, to cover the environs of Specimen Hill. The final results of this survey are not yet available, but the basic anomaly patterns are shown on Fig. 10.

5. Diamond Drilling:

A programme of four vertical scout diamond drill holes have been drilled at Balfour during the period under review. The locations of these holes are shown on Fig.7.

Initial drilling was intended to test the open cut potential of Specimen Hill and hence the drilling program was sited to test what appeared to be the richest part of Specimen Hill - the north western side. This area was selected through a number of factors: the soil sampling indicated "richer" values in this area; veins carrying tin were more abundant in this area; drill holes in this area would intersect good thicknesses of suspected ore material. Accordingly a programme of five holes was proposed and authorized, three of these holes having subsequently been drilled.

After these three holes had been drilled it was decided to test a possible theory concerning the increased development

of major veins with depth (down dip) and hence a drill hole was sited to the south of the area initially being tested.

The geological results of these drill holes are discussed below while the technical details of the drilling operations are listed in Appendix "A" of this report.

a) DDB1:

This hole was drilled to a depth of 290.7 ft. and was the first hole drilled on Specimen Hill. It was designed to test the possibility of the existence of open cut grade ore in the bulk rock of the hill. The graphic log with assay results is shown on Fig. 14 of this report.

The drill hole intersected a steeply dipping series of quartzitic sandstones, shales and banded siltstones in part faulted and carrying a rather sparse distribution of quartz veins with random attitude and orientation. The core intersected was interesting in that it showed the development of apparently valueless disperse sulphide blebs and veinlets throughout the sequence - a feature which was not evident in surface outcrops where leaching had been active.

Based largely on intersections of rich veins of small thickness a number of grade sections were calculated as under.

Depth	Thickness	Grade
163.2 - 163.5	0.3 ft.	10.12% Sn
157.9 - 164.2	6.3 ft.	0.54% Sn
146.1 - 164.2	18.1 ft.	0.226% Sn
135.9 - 164.2	28.3 ft.	0.167% Sn
120.3 - 164.2	43.9 ft.	0.122% Sn
238.0 - 239.45	1.45 ft.	4.11% W
237.0 - 243.0	6.0 ft.	1.002% W

While these sections by themselves could not be classed as economic they are of interest in that they demonstrate the possibility of being able to define economic working thicknesses

based on thin high grade intersections - provided that the reliability and continuity of the thin high grade section can be confirmed.

The assays of sludge samples collected from the drilling waters show a reasonable similarity to the bulk of the core assays and indicate that a percussive drilling technique would give satisfactory results if the sample interval were kept to about 5 feet.

b) DDB2:

This hole was also designed to test the open cut potential of the north western ridge of Specimen Hill. It was drilled to a depth of 240.0 feet and intersected a sequence similar to that encountered in DDB1. A number of minor veins were encountered, but these did not contain values approaching those listed above. The highest grade vein intersection occurred between 145.9 - 146.8 feet, i.e., 0.9 ft. and assayed -

0.57% Sn
0.41% W
2.00% Cu
9.87% As

The graphic assay log is shown on Fig. 15 of this report.

c) DDB3:

This was the last bore to be drilled of the initial series of holes designed to test the northwestern side of Specimen Hill. It was stopped at a depth of 100.5 feet after having intersected a vein 0.85 ft. thick between 58.75 and 59.6 ft. This vein assayed 1.41% Sn, 1.19% W, 1.31% Cu and 12.6% As, and is believed to be correlatable with the "rich" vein encountered in DDB1, and the massive vein which outcrops about 200 feet up dip (to the north) from bore No.3, see Fig. 3.

The graphic assay section is shown on Fig. 16.

At this stage in the initial drilling programme it was decided to test the down dip development of this vein which had been encountered in bores 1 and 3 and was known to outcrop. Accordingly bore 4 was proposed as a deep hole some distance south of this previous drilling, See Fig. 7.

d) DDB4:

This hole was sited near the lowest point on the western side of Specimen Hill and was drilled to a depth of 549.5 ft. The bore intersected banded siltstones with some minor shaley sequences and very occasional quartzitic sandstones and passed through a major fault zone between 29.0 and 142.0 feet and a minor zone between 167.0 and 170.5 feet.

A major mineralized vein 1.6 ft. thick was encountered between 451.9 and 453.5 ft. This vein, and the core from the hole, has not yet been split and assayed. Visual examination indicates that the vein contains very little cassiterite, between 1% and 5% wolframite and perhaps 1% chalcopyrite.

A number of veins were intersected by the bore in the interval between 250 and 510 feet and it is not possible to state with any certainty whether the main vein can be correlated with that encountered in bores 1 and 3. Figs. 11, 12, and 13 show possible correlation sections between these bores. If the correlation inferred by the writer is correct then the vein has an average dip of 28° to the south-east between bores 1, 3 and 4, while the dip between the outcrop and bore 3 is about 20°.

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H. CONCLUSIONS

From the various investigations which have been undertaken at Balfour during the period under review, the following points stand out:

a) It appears valid to infer, on the results of Bores 1, 2, and 3, that the possibility of open cut grade tin ore occurring on the north western side of Specimen Hill is slight. When the soil residual tin distribution anomalies are considered, together with the drilling results, it seems that the probable lack of ore development on the western side of the hill can be extended to include the entire hill.

It must be borne in mind that any low grade mineralization is likely to be of a "patchy" nature, but it is felt by the writer, that the form of mineralization revealed by drilling is unlikely to lead to the development of large scale low grade ore bodies, but possibly may form smaller developments of higher grade ore material, requiring very close definition, which could be worked with careful quarry control as an open cut.

b) Interpretation of the geological mapping indicate that one of the possible controls, which must be inferred to account for the existence of the mineralization, is the faulted plunging anticline which is exposed on Specimen Hill. Just how this structural feature has controlled the emplacement of the mineralized veins is not evident, but it is possibly a function of either jointing, compression or tension cracks or minor shear planes. It would be necessary to carry out further detailed geological mapping and analytical studies of the fold and shear directions, and the vein attitudes

and orientations before proper assessment of the form of mineralizing control could be made.

c) The lack of any known outcrop of granite in the area suggests three possibilities -

i) Granite outcrop occurs in the unmapped area to the east of Balfour.

ii) The granitic source rock for the mineralization occurs at depth below Specimen Hill (or nearby).

iii) The mineralization is syngenetic - that is, it is a result of concentration and minor migration of metals occurring as traces in the original sediments. This possibility does not then require the existence of a granitic body.

It is considered that (i) is unlikely as photo interpretation of the area to the east (2 to 3 miles) seems to preclude the existence of granite outcrop. While (iii) appears highly unlikely and perhaps cannot be discountered, it is felt that (ii) is the most probable.

If such is the case (granite at depth) any prospecting for possible hidden ore bodies could involve relatively deep drilling, perhaps 1,000 to 2,000 ft., and hence careful selection of drill sites would be necessary.

d) The assay results of bores 1, 2 and 3 are not encouraging when considering grade and thickness requirements for open cut mining. The results of bore 4 are not yet available, but they are likely to be of the same pattern as the results from the other three drill holes. However, it must be remembered that bore 4 was not primarily intended to test for open cut ore.

The sampling and assaying of DDB4 in the immediate future is not expected to reveal any unexpected mineralization but it will enable complete assessment of drilling results.

It is doubtful whether further scout drilling at the present stage would reveal a markedly different pattern

of mineralization, but it appears reasonable to drill the two apparent minor magnetic anomalies in order to determine whether they are a function of structure, or mineralization of a more concentrated pattern than that at present inferred.

e) The results of the various geophysical surveys have not yet been sufficiently tested to determine what the anomaly patterns represent.

It does not appear possible to infer the cause for the minor gravity anomalies on present geological knowledge.

While bores 1 and 2 were drilled, near the southern and eastern margins of the northern magnetic anomaly, Fig. 9, it is not yet possible to state, with certainty, the cause of the magnetic anomalies. The two anomalies appear to have a trend parallel to the surface traces of the various minor (?) fault planes located on Specimen Hill. This may indicate that some form of mineralization, causing magnetic anomalies, may be associated with the axis of the plunging anticline. However, before this idea can be confirmed it will be necessary to correlate the ground traverses carried out by Mr. Taylor and the airborne traverses carried out by the Bureau of Mineral Resources when the results of the latter are available.

f) The results of the programme of soil loaming indicate that this technique is reliable as a means of locating surface enrichments. It has been shown that sampling even on a grid as large as 2 chains was sufficient to locate individual veins carrying cassiterite. There is no doubt that infill sampling, say to a 1 chain grid, would locate other smaller veins, but it is doubtful whether the initial sampling would have failed to detect any hidden major veins.

Comparison of the two plans showing peat and gravel residual tin contents, indicates that migration of the

tin values in the soil profile is not great - even on slopes such as exist on parts of Specimen Hill. It is mentioned that this lack of migration, could only be confirmed by a programme of sampling the bedrock at the same points as soil samples were taken - the problem of how large such a bed rock sample would have to be, would require initial investigation.

...

I. RECOMMENDATIONS

The prospecting activities at Balfour have not yielded any results which confirm the occurrence of economic tin mineralization in the area. However, the writer's geological appraisal of the potential for tin mineralization at depth in the vicinity of Specimen Hill indicates that further prospecting is warranted.

Hence the following programme of field mapping and specialized interpretation is recommended as a basis on which further drill sites can be selected.

1. Complete the detailed mapping of Specimen Hill with particular regard to veins. This involves completing the mapping of the costeans, where possible, together with the various sample pits.

2. Make an analytical study of the frequency of vein thickness, attitude, orientation and mineral content, in relation to possible stress and strain directions. Such a study could indicate a predominant vein pattern, which would assist in the elucidation of mineralization controls.

3. Correlate the ground magnetometer traverses carried out by Mr. C. P. Taylor, with the airborne magnetic traverses flown by the Bureau of Mineral Resources. The final compilation of the magnetic anomalies should be compared with the regional geology in order to ascertain whether the anomalies are a result of structural or hidden geological factors.

4. Secure prospecting rights for an area around that already held under option. This area could also conveniently include part of the line of copper mineralization.

5. Carry out further ground magnetometer traverses to locate the surface centres of any magnetic anomalies resulting from 3 above.

6. Geologically map in detail the area to the north and south of Specimen Hill in the areas covered by the magnetic anomalies. This is essential to determine whether a structural or hidden geological feature can be inferred as the cause for any of the anomalies. Some costeaning to expose bedrock may be necessary for this detail mapping.

7. Appraise the results of the foregoing with a view to selecting drill sites to test the northern and southern anomalies, possibly to a depth of 500 feet. It is mentioned that a depth of 500 feet is relatively shallow for underground metal mining. In this regard at least two drill sites appear necessary on current information:

   a) in the vicinity of a point N1, W13.
   b) in the vicinity, but perhaps further south, of a point W0, S26 (outside option area).

   A third drill hole in the vicinity of E2, S17 may be considered necessary to test mineralization along the axis of the fold, near the southern gravity anomaly.

...

APPENDIX "A"

DRILLING OPERATIONS

APPENDIX "A"
DRILLING OPERATIONS.

A. GENERAL:

Four bores totalling 1180.7 feet were drilled at Balfour during the latter half of the period under review. All drilling was carried out using a company owned Mindrill FD20 machine with a 10 ft. mast, and variously using standard N, B and A size coring equipment.

The machine was operated by company employees on a six day wage basis with a bonus for core recovery. A special feature of the core recovery bonus was the provision of high and low bonus rates of 3/- and 1/6 per foot based on the supervising geologists definition of broken or mineralized strata and normal coring strata - the bonus shared between the driller and offsider in the ratio 2 : 1.

Tabulated below are the main features of this drilling.

Bore	Total Depth Feet.	Core Recovered Feet.	% Recovery	Drilling Time	Drilling Rate ft./hr.	Delays Days	Remarks
1	290.7	251.6	86.5	25	1.253	8	Hole blocked
2	240.0	229.6	95.7	14	2.143	2	" clear
3	100.5	87.3	86.9	5½	2.284	½	" "
4	549.5	457.3	83.2	38	1.807	8	" "
Total:	1180.7	1025.8	86.9	82½ (days)	1.788	18½	

It has been previsionally estimated by the Drilling Superintendent that the actual drilling costs were of the order of £2 per foot, excluding overhead, siting and messing charges.

B. SLUDGE SAMPLES:

For purposes of a check on possible core loss it was decided to collect sludge samples of all drillholes where return of drilling waters made it possible. The return drilling waters were allowed to partially settle in a sludge trap and after approximately every 40 feet of drilling this sludge was collected, dried, divided and sent for assay. The amount of sludge collected depended on the % return of drilling water and the effectiveness of a baffle plate fitted to the top opening in the trap - a 44 gallon drum on its side with inlet at one end and outlet at the other, and an opened top section. Assay results of the sludge are comparable with the bulk average of the individual core assays.

...

APPENDIX "B"

Soil and Costean Sampling Techniques.

...

APPENDIX "B"

SAMPLING TECHNIQUES.

A. INTRODUCTION:

The various methods by which the soil samples and costean channel samples were taken at Balfour during the initial prospecting programme are set out below.

B. SOIL SAMPLING:

The samples in this programme, which was based on a geochemical leaming technique, were taken from pits located on a 2 chain grid spacing over Specimen Hill. Each pit was dug by hand to bedrock and a clean sampling face prepared. On these faces the soil profile was generally distinct and separate samples of the peat soil and the eluvial fragments were taken under geological supervision. The actual volume of the peat sample could be measured after cutting, together with the thickness of "gravel". In only isolated cases was the bedrock sampled.

Generally peat samples having a volume of one third of a cubic foot were taken and the weight of a gravel sample was usually about 10 lbs. per foot of thickness.

Subsequently the peat samples were broken down by water and hand screening, the oversize crushed to pass a 28 mesh screen and the whole panned by hand to give a concentrate. This concentrate was weighed, checked by magnet for iron fragments and assayed in Newcastle. The resulting values expressed in pounds of 70% Sn concentrate per cubic yard of insitu peat were plotted at the respective grid position to give a residual cassiterite anomaly pattern, Fig. 4.

The eluvial gravel samples were dried, crushed to pass a 10 mesh screen, divided, and a 3 to 5 lb. sample despatched to Launceston for assay. The actual assay values expressed to nearest 0.01% Sn were plotted on the respective grid position to give a residual cassiterite anomaly pattern, Fig. 5.

C. COSTEAN SAMPLING:

Seven costeans totalling 7,600 feet were cut by bulldozer over Specimen Hill to test the soil anomalies. The dozer used a 10 ft. blade and generally cut the peat and rolled it out of the way prior to cutting the gravel. Much of the gravel is exceedingly hard and partly cemented and hence frequently bed rock could not be exposed.

Hand cleaning of a sampling channel, down the centre of the costean, using jackhammers, picks and shovels proved extremely tedious and during times of wet weather was considered by the writer to be dangerous - banks of loose gravel up to 6 ft. high were not uncommon, and these collapsed without warning. Eventually after perhaps a quarter of the total length of costeans had been cleaned this work was abandoned.

Part of costean 1 was channel sampled along the floor of the cleaned sampling cut. Samples were cut over 10 ft. intervals, using a 4 inch wide stone chisel and cutting a channel about two inches deep on level bottoms - shallower channels were cut on sloping bottoms under geological supervision.

Thus about half a 12 gallon drum of material was collected for each 10 foot sample interval. This was crushed to pass a 10 mesh screen, divided, and a 3-5 lb. sample despatched to Launceston for assay. The actual assay results were plotted on a plan which was intended to provide a surface bedrock tin content anomaly pattern for comparison with the soil sample anomalies. The few results obtained are shown on Fig. 6.

APPENDIX "C"

Petrological Reports.

See also Report M11/64 by Sylvia Whitehead
April, 1964.

...

MELBOURNE OFFICE

PETROLOGICAL REPORT

SAMPLE OF PANNED CONCENTRATE FROM SOIL PROFILE :

Generally grains are less than 20 mesh.

MOUNTED SECTION :

Quartz: abundant angular grains

Cassiterite:
Angular to 0.5 MM crystals and crystalline aggregates showing prism and pyramid faces. Rare twins. Colour very variable and patchy.

Zircon:
Minor, generally very well rounded. Derived from sedimentary rock or metamorphosed sediments.

Tourmaline:
Very rare. Prismatic.

Opaque Grains:
Ilmenite etc. Some recrystallized Leuoxene. One grain chalcopyrite.

No corundum observed.

In test with zinc dish and HCL occasional grains of cassiterite showed no reaction and only very slight coating visible when dry.

...

APPENDIX "D"

Photographs of vein outcrop and
Drill Core.

...

Shows outcrop of 8 inch quartz vein near DDB3 (in old workings) - vein carries cassiterite and wolframite in places.

Showing intersection of vein in DDB3. Note sulphide margin and wolframite crystals and current structures in banded siltstones.

64-373

FIG. 2

266047 4188

GEOLOGICAL MAP

BALFOUR DISTRICT N.W. TAS.

Photo scale, approximately 1" = 2200'

GEOLOGY FROM LONGMAN MATTHEWS McNEIL (1961)

LOCALITY MAP

BALFOUR

LAUNCESTON

TASMANIA

145°

148°

41°

44°

Siltstones and greywacke.

Basalt tuffs breccia etc

Siltstones and quartzites.

Unassigned quartzite.

Smithton Dolomite.

Bryant Hill Quartzite.

PUBLISHED MAPPING OF LIMIT

NELSON RIVER

FRANKLAND RIVER

Tin Creek

Emmetts Ck.

OLD TRAMWAY

TEMMA - BALFOUR ROAD

BALFOUR CAMP

SPECIMEN HILL

MT BALFOUR

MT FRANKLAND

(OLD) Walking track to (TRAMWAY) Corinna

NORTON RIVER

LINDSAY RIVER

THORNTON R.

MT HAZELTON

M N

BHP (1963-64), Q34, No5.

LEGEND

	Basalt		Major quartz veins
	Conglomerate	75°	Bedding dip & strike
	Old conglomerate surface		Cleavage strike direction
Mt Frankland Beds.	Conglomerates sandstones & quartzites	F — F	Inferred faults (air photos)
Balfour Sequence.	Siltstones		Trend lines, air photos
	Carbonaceous shales		Shearing
	Quartzites (& sandstones) with interbedded siltstones		Adit

5 cm

27.5.64 GB

G4928

4189

W13 W9 W5 W1 E3 E7

N8 N4 00 S4 S8 S12 S16 S20 S24

To Balfour Townsite ½ mile.

To Temma

Creek

Tin

Melrose

DDB 1

DDB 2

DDB 3

DDB 4

SPECIMEN HILL

No 1

No 2

No 3

No 4

No 5

No 6

No 7

Marker shale bands

Grid North - 357° Mag

FIG. 3

4189

64-373

GEOLOGICAL MAP - SPECIMEN HILL

BALFOUR, TASMANIA

SCALE OF FEET

100 0 100 200 300

5 cm

266048

G4932

2·6 64

LEGEND

- Fine sandstones and quartzite.
- Finely banded contorted shales, banded light and dark grey siltstones.
- Peat soil cover.
- Road
- 480' Contour - 20' interval.
- 4" V / 1½", 5", Sn — Outcrop quartz veins with thickness, dip and mineral.
- 60° Bedding dip and strike.
- Fault.
- Trend line (structure).
- No. 7 Costean.
- Workings.

266049 FIG. 4

4190

PEAT SAMPLE ANOMALY MAP

SPECIMEN HILL – BALFOUR, TAS.

SCALE OF FEET
0 100 200 300 400 500

5 cm

Compiled from Plane Table Survey

- 0685 Existing pegged prt.
- ● 348 Existing pit - no peg
- ⊙ DDB Diamond Drill Hole
- Old shaft.
- Edge of old workings.
- Road.
- Costean.

ANOMALY CLASSIFICATION

Background	(< 0·1 lbs/cubyd.)
Low	(> 0·1 to < 0·3 ")
Medium	(> 0·3 to < 0·6 ")
High	(> 0·6 to < 1·0 ")
Very high	(> 1·0 lbs/cubyd)

Corner Peg ⊕ P27

Minor pyrite on dump

COSTEAN

TRAMWAY

DDB.1

DDB.2

DDB.3

DDB.4

Dam

Some alluvial workings.

Eastern edge of high plain.

Creek

Balfour formerly 3 mile

Old Stamp Battery

Extensive alluvial and eluvial workings.

Yellow brown clay.

Old loose peg

Shaft

Yellow clay

Mine dam

Drive

Cut Underlay Shaft
Vertical shaft
Pyrite & arsenopyrite on dump.

Pits

4·6·64· GB

G4934

266050 FIG. 5

4191

GRAVEL SAMPLE ANOMALY MAP

SPECIMEN HILL – BALFOUR, TAS.

SCALE OF FEET
0 100 200 300 400 500

5 cm

Compiled from Plane Table Survey

- 685 Existing pegged prt.
- 348 Existing pit - no peg
- DDB Diamond Drill Hole
- Old shaft.
- Edge of old workings.
- Road.
- Costean

ANOMALY CLASSIFICATION

Background	(< 0·02%)
Low	(>0·02% to <0·05%)
Medium	(>0·05% to <0·10%)
High	(>0·10%)

Corner Peg @ P27

Eastern edge of high plain.

Some alluvial workings.

Minor pyrite on dump

DDB 1

DDB 2

DDB 3

DDB 4

Dam

COSTEAN

OLD TRAMWAY

DATUM PEG

Balfour Township ½ mile

Creek

Old Stamp Battery

Extenseive alluvial and eluvial workings.

Yellow brown clay

Approx. limit of outwash workings

Old lease peg

Shaft

Yellow clay

Old dam

Drive

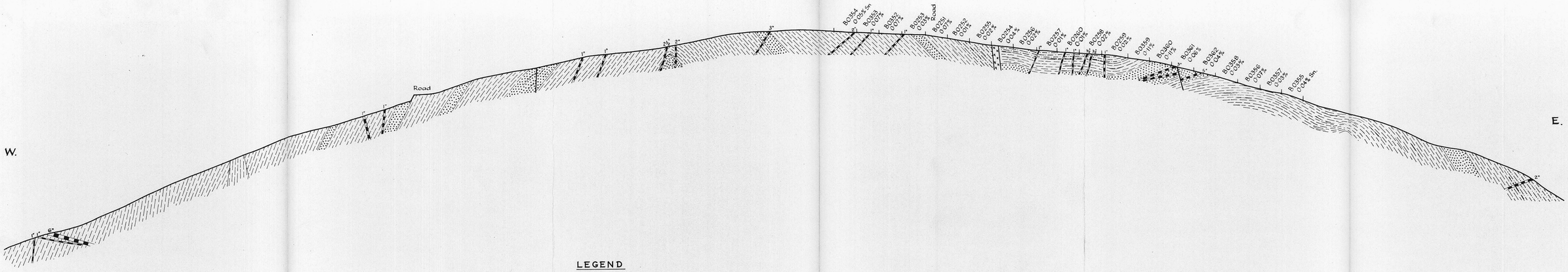
Cut

Underlay Shaft
Vertical shaft
Pyrite & arsenopyrite on dump.

Pits

4·6·64. GB

G4935



LEGEND

- Shale.
- Silicified shale.
- Massive quartzite.
- 3" Quartz vein & width.
- Faults.

SAMPLE SECTION - COSTEAN Nº 1
SPECIMEN HILL, BALFOUR, TAS.

NATURAL SCALE : 1" = 20'

4192

5 cm

4-8-64. GB.

G4936

266052 FIG. 7

4193

DRILLING

SPECIMEN HILL – BALFOUR. TAS.

SCALE OF FEET
0 100 200 300 400 500

Compiled from Plane Table Survey

- 0685 Existing pegged pit.
- 348 Existing pit - no peg
- DDB Diamond Drill Hole
- Old shaft.
- Edge of old workings.
- Road.
- Coastean.
- 1 Approximate vicinity proposed drill sites.
- Correlation section line.

5 cm

G4929

266053 FIG. 8

4194

BOUGUER GRAVITY CONTOUR MAP

SPECIMEN HILL – BALFOUR, TAS.

TRAVERSE Nº 1
TRAVERSE Nº 2
TRAVERSE Nº 3
TRAVERSE Nº 4
TRAVERSE Nº 5
TRAVERSE Nº 6
TRAVERSE Nº 7
TRAVERSE Nº 8
TRAVERSE Nº 9
TRAVERSE Nº 10

DDB 1
DDB 2
DDB 3
DDB 4

COSTEAN
OLD TRAMWAY
Creek
Dam
Old Stamp Battery
Balfour Township 1½ mile
Corner Peg ⊕ P927
Datum Peg
Old lease peg
Minor pyrite on dump
Some alluvial workings
Extensive alluvial and eluvial workings
Approx. limit of outcrop from old workings
Yellow brown clay
Yellow clay
Old dam
Shaft
Drive
Cut
Pits
Eastern edge of high plain

SCALE OF FEET
0 100 200 300 400 500

Compiled from Plane Table Survey.

- 0685 Existing pegged pit.
- •348 Existing pit - no peg.
- ⊙DDB Diamond Drill Hole.
- Old shaft.
- Edge of old workings.
- Road.
- Costean.
- Traverse and stations.
- Axes of Gravity Highs.
- " " " Lows.

Interpretation by W. Chestnut.

CONTOUR INTERVAL 0·1 MILLIGAL.

5 cm

25·5·64.

TCR 64-373

G4912A

266054 FIG. 9

4195

MAGNETIC CONTOUR MAP

SPECIMEN HILL – BALFOUR, TAS.

TRAVERSE Nº 1
TRAVERSE Nº 2
TRAVERSE Nº 3
TRAVERSE Nº 4
TRAVERSE Nº 5
TRAVERSE Nº 6
TRAVERSE Nº 7
TRAVERSE Nº 8
TRAVERSE Nº 9
TRAVERSE Nº 10
TRAVERSE Nº 11

Corner Peg @ P27
Balfour Connells ½ mile
Minor pyrite on dump
Old lease peg
TUB
COSTEAN
6TH COSTEAN
5TH COSTEAN
4TH COSTEAN
3RD COSTEAN
2ND COSTEAN
1ST COSTEAN
OLD TRAMWAY
DDB 1
DDB 2
DDB 3
DDB 4
DATUM PEG
Dam
Some alluvial workings
Eastern edge of high plain.
Creek
Approx. limit of outcrop from old workings
Old Stamp Battery
Extensive alluvial and eluvial workings
Yellow brown clay
Yellow clay
Shaft
Old dam
Drive
Cut
Underlay Shaft
Vertical shaft
Pyrite & arsenopyrite on dump
Pits
Old lease peg

SCALE OF FEET
0 100 200 300 400 500

Compiled from Plane Table Survey.

- ○685 Existing pegged pit.
- ●348 Existing pit - no peg.
- ⊙DDB Diamond Drill Hole.
- Old shaft.
- Edge of old workings.
- Road.
- Costean.
- Traverse and station.

CONTOUR INTERVAL 50 GAMMAS

5 cm

26.3.64.

G 4911

TEMMA FARM

TEMMA HARBOUR

OLD TRAMWAY

NELSON R.

FRANKLAND R.

NORTON R.

BALFOUR

Interbedded quartzites, mudstones and siltstones of Balfour type.

Bog iron ore.

MT BALFOUR

MT FRANKLAND

Interbedded quartzites, mudstones and siltstones of Balfour ? type.

Greens Ck

Daisy Ck

THORNTON R.

PEDDER R.

LINDSAY R.

LEIGH R.

MT HAZELTON

Approx North

TOTAL MAGNETIC FIELD RANGES

	< 800
	800 – 900
	900 – 1000
	1000 – 1100
	1100 – 1200
	> 1200

LEGEND

- Basaltic soils.
- Sand dunes.
- Granite.
- 900 — 850 — Contours of Total Magnetic Intensity.
- Airborne Proton Magnetometer Traverses flown by B.M.R.

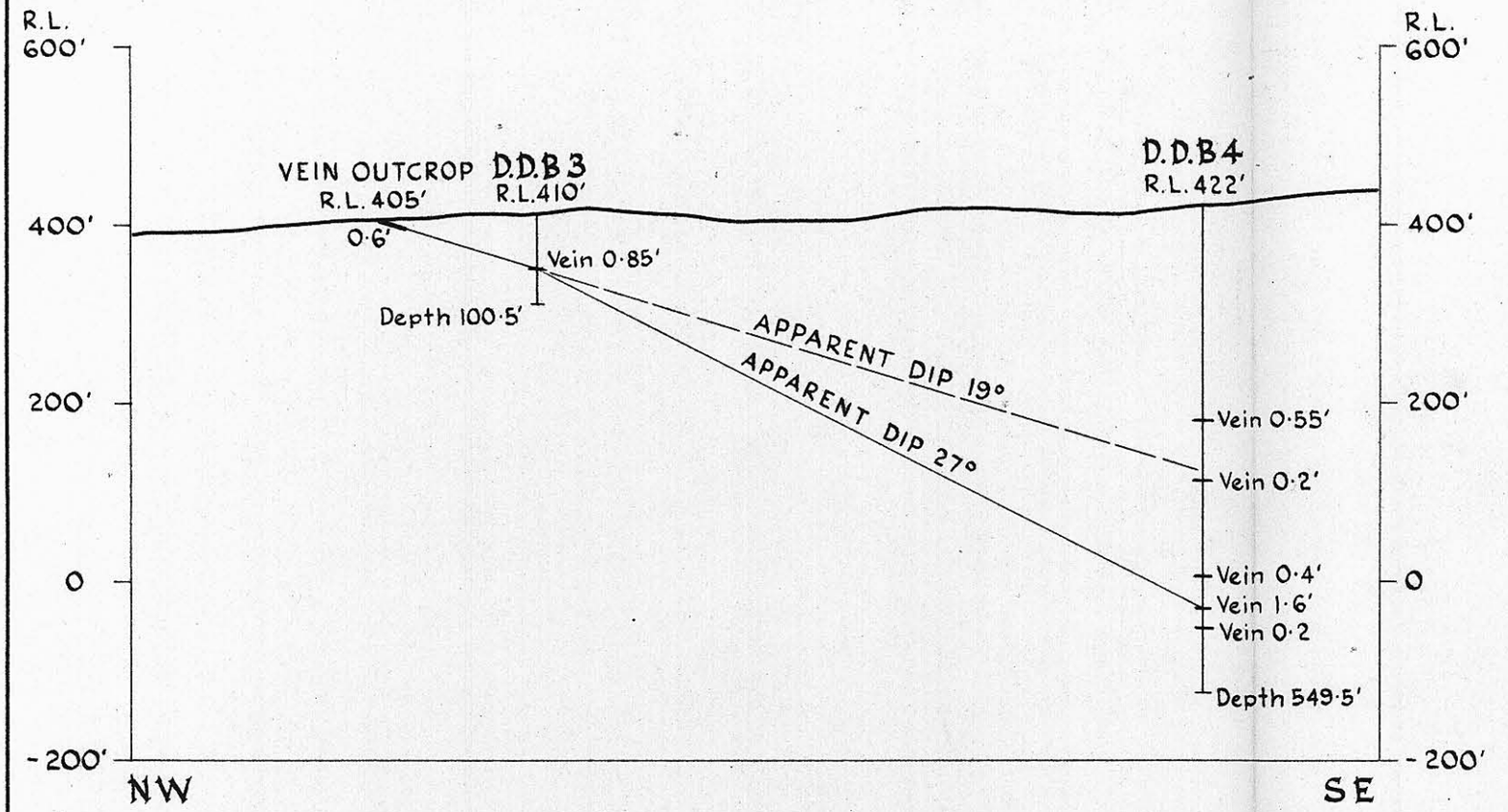
5 cm

MAGNETIC CONTOURS
TEMMA - BALFOUR AREA
WEST COAST OF TASMANIA

GEOLOGY AND BASE COMPILED FROM UNCONTROLLED AERIAL PHOTOGRAPHS

APPROX. SCALE : 1 INCH = 65 CHAINS

266056



CORRELATION SECTION BETWEEN BORES D.D.B 3 & D.D.B 4

SPECIMEN HILL BALFOUR-TAS.

SCALE: 1 INCH = 200 FEET

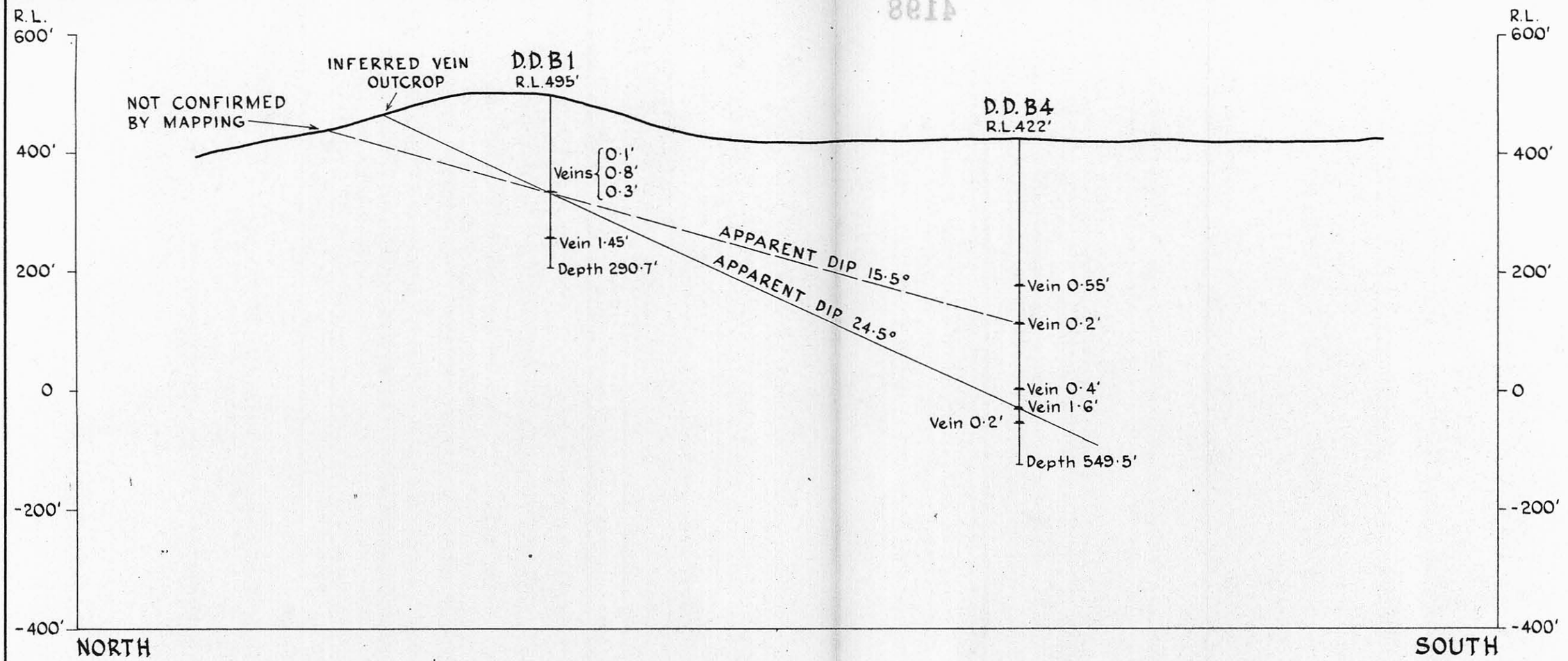
5 cm

4197

29·5·64

12

266057



CORRELATION SECTION BETWEEN BORES D.D.B1 & D.D.B4

SPECIMEN HILL BALFOUR - TAS.

SCALE: 1 INCH = 200 FEET

5 cm

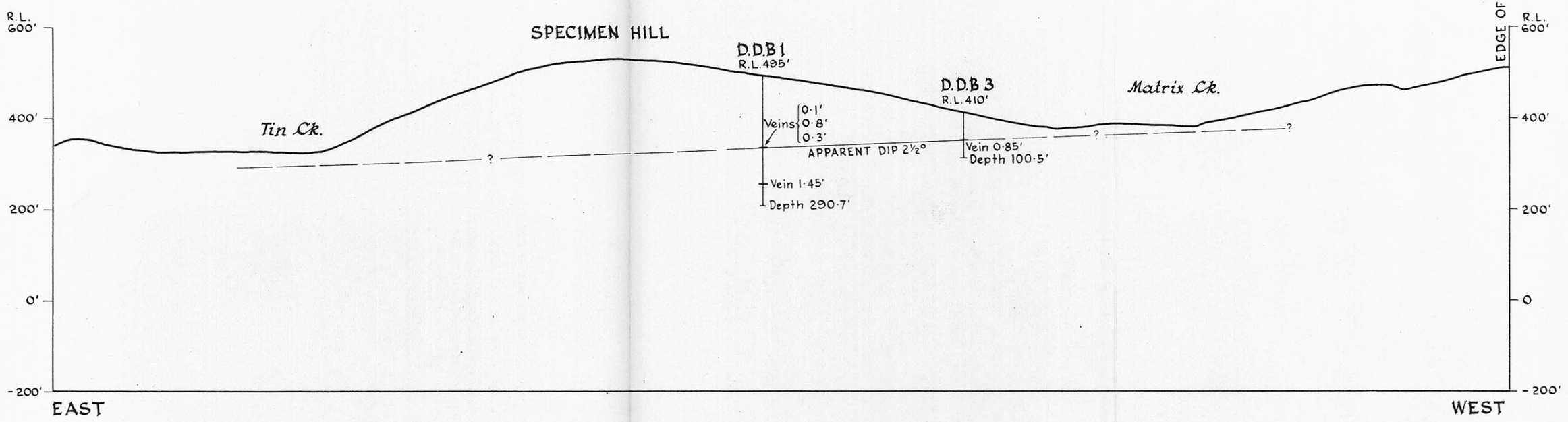
29·5·64

4198

266058

4199

FIG. 13



CORRELATION SECTION - HIGH PLAIN

D.D.B3 - D.D.B1 - TIN CREEK BALFOUR-TAS.

SCALE : 1 INCH = 200 FEET

5 cm

29·5·64

FIG. 14

266059

4201

GRAPHIC SECTION BALFOUR D.D.B. Nº. 1

DEPOSIT SPECIMEN HILL

LOGGED BY W. S. CHESNUT DATE DEC. 1963

SCALE:- 1 INCH = 20 FEET
A R L = 495'

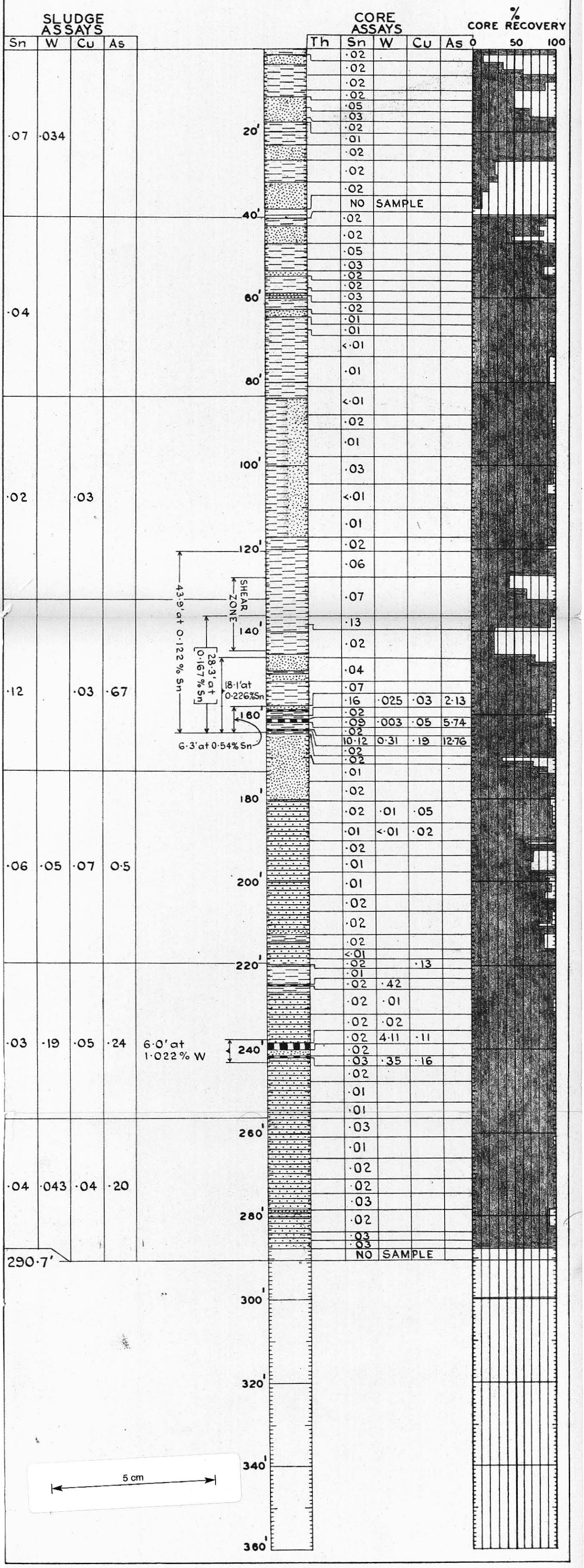


FIG. 15

266060

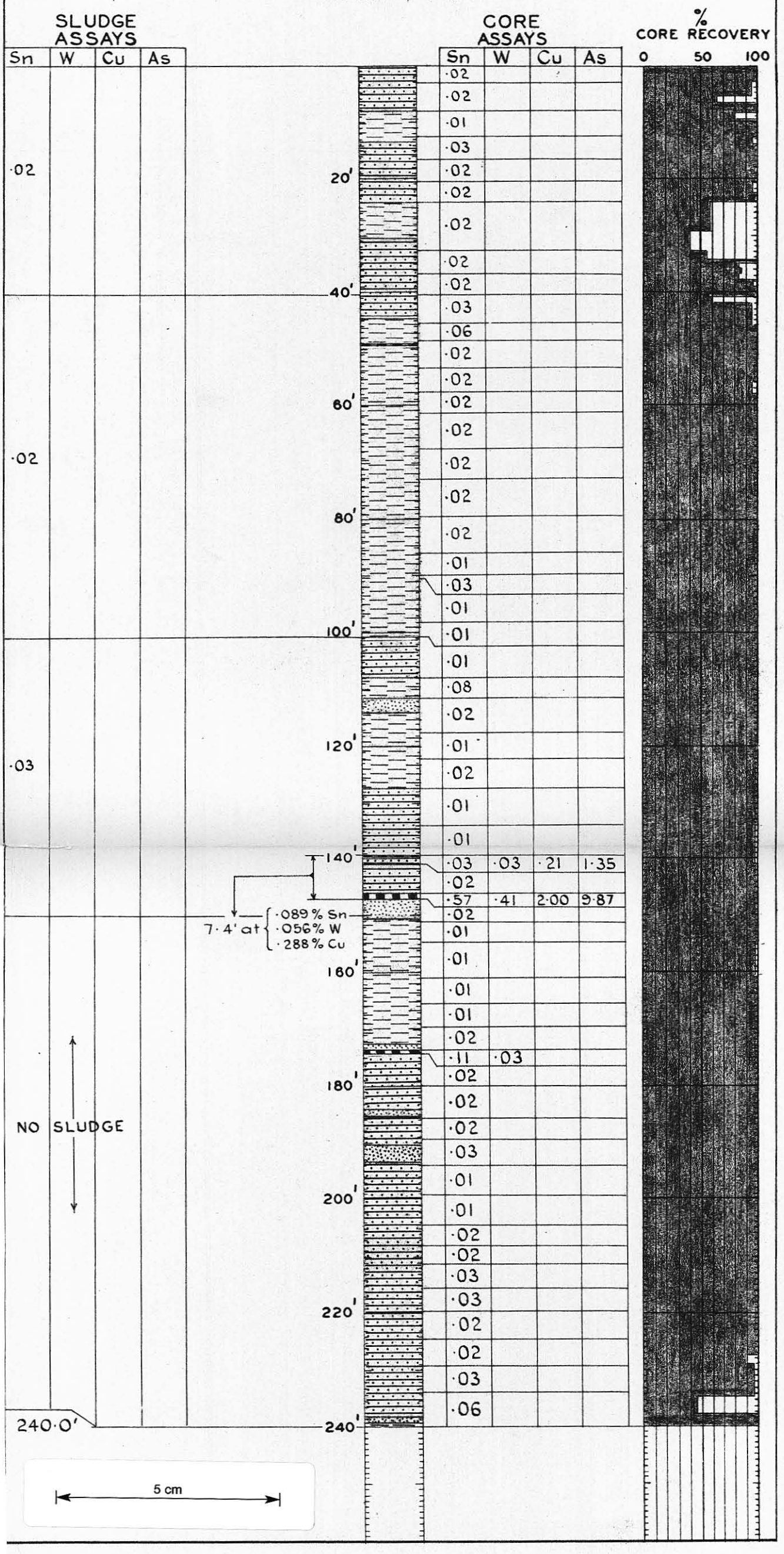
4202

GRAPHIC SECTION BALFOUR D.D.B. Nº. 2

DEPOSIT SPECIMEN HILL

LOGGED BY A. BARCO DATE JAN. 1964

SCALE:- 1 INCH = 20 FEET
A R L = 445'



16

266061 4203

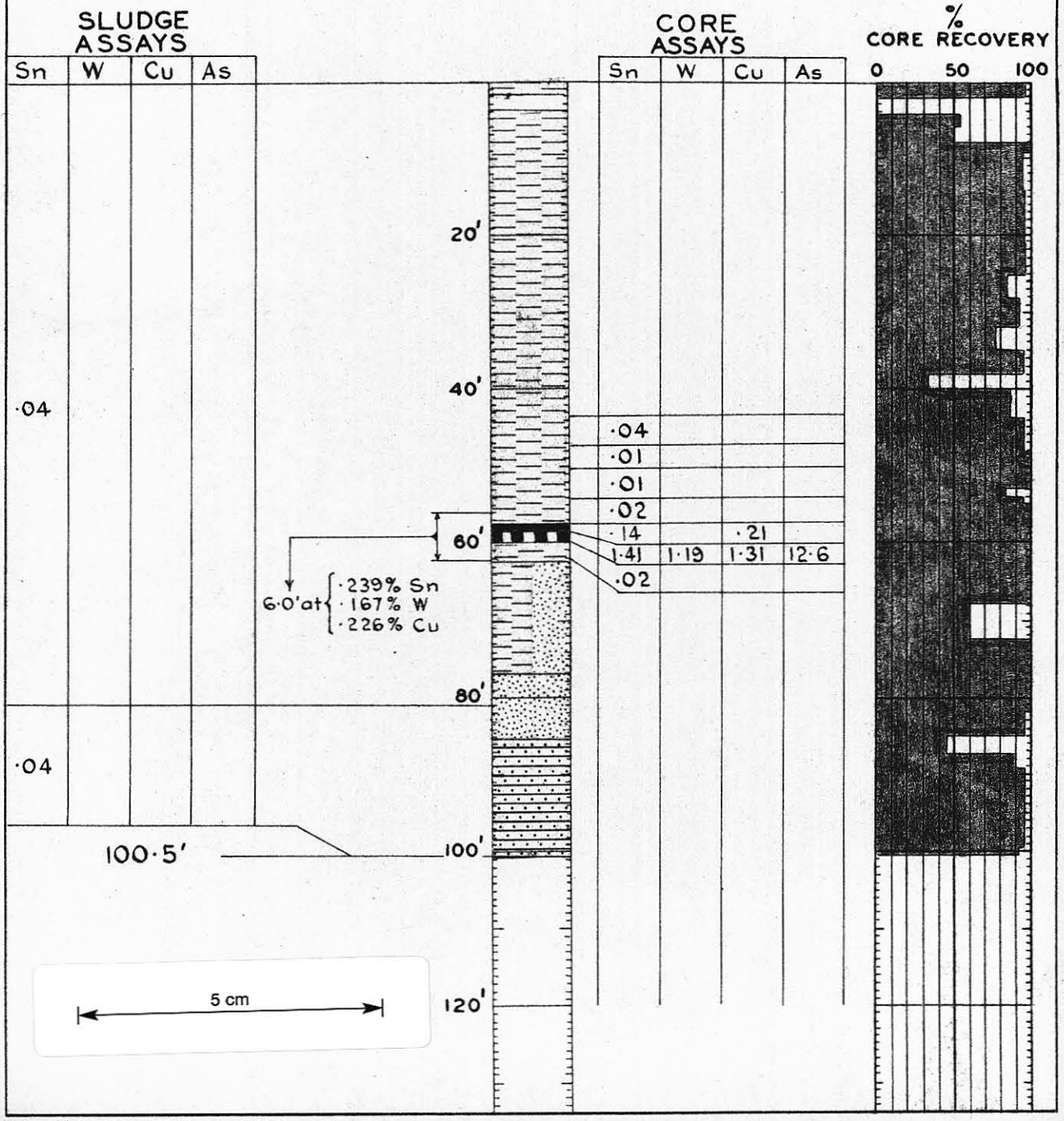
FIG. 16

GRAPHIC SECTION BALFOUR D.D.B. No. 3

DEPOSIT SPECIMEN HILL

LOGGED BY W. S. CHESNUT DATE MARCH 1964

SCALE:- 1 INCH = 20 FEET
ARL= 410'



17

266062

4204

FIG. 17

GRAPHIC SECTION BALFOUR D.D.B. No. 4

DEPOSIT SPECIMEN HILL

LOGGED BY W.S. CHESNUT DATE MARCH 1964

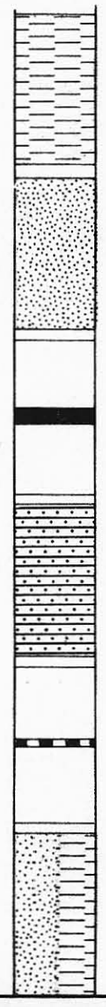
SCALE:- 1 INCH – 20 FEET
ARL = 422'

266063

LEGEND FOR

DIAMOND DRILL HOLE GRAPHIC SECTIONS

SPECIMEN HILL, BALFOUR - TAS.



Shale: finely banded, contorted mudstone, coloured shale, siltstone.

Sandstone: granular porous sandstone, quartzite.

Carbonaceous shale.

Silicified shales & siltstones with or without sulphides.

Veins.

Banded shales & sandstones - with intraformational structures.

4200