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COMSTAFF PROPRIETARY LIMITED

REVIEW OF 1969 - 1970 EXPLORATION PROGRAMME

MT. BISCHOFF -7AP/AM

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THE MOUNT BISCHOFF MINE AREA.

1. INTRODUCTION:

An intensive programme of surveying, geological mapping and sampling over the past year has now been completed, conclusions have been reached and a drilling programme is being considered. The potential tin ore bodies have been divided into four different types, flat lying very sulphide rich dolomite ore, a low grade porphyry ore body containing sulphides, a higher grade porphyry ore body containing sulphides, and a massive ore body in "rheomorphic" rocks.

2. METHOD OF EXPLORATION:

Surveying -

A compass and tape grid was laid over the mine area, the grid was then checked and tied into the Tasmanian state grid by a series of theodolite traverses. It is now known that the theodolite survey is inaccurate, resulting in errors of up to 70 feet in the position of some line-pegs with respect to the Tasmanian state grid. A contour map was produced from the results of the corrected compass and tape survey.

All sampled adits were surveyed by means of compass and tape and tied into the mine area grid. The main tunnel however is tied into the Tasmanian state grid.

Geology -

All geological mapping was plotted in relation to the compass and tape grid. The main tunnel geology is plotted in relation to the Tasmanian grid.

Sampling -

The main tunnel and other adits of possible economic significance were chip and channel sampled.

Several surface outcrops of ore have also been channel or chip sampled to gain some indication of grade. A random sampling programme of outcrops of rheomorphic rocks was also undertaken.

3. GEOLOGY: (See plan 2H-21)

A steep sided monadnock of probably Cambrian sediments, minor volcanics and a series of porphyry dykes is flanked to the south by a basalt plateau. The sediments include a dolomite, with which much of the tin mineralisation is associated. This dolomite has a maximum thickness of 230 feet calculated from drill intersections.

The rocks described above have been intruded by a series of quartz and quartz feldspar porphyry dykes, some of which contain tin mineralisation. They are typically steeply dipping with north-south or east-west (Magnetic) strikes. The near symmetric relationship of these dykes to the major fold plunge may have a structural significance. Sill forms are a minor development.

Structure -

For the most part the dolomite dips gently to the south at approximately 15° . The bottom surface of the dolomite and the rocks beneath are gently flexured, whereas the top surface of the dolomite and the rocks above are generally complexly folded, steep dips being common; refolded hinges have also been observed. This disharmonic relationship is thought to be due to a decollement at the top surface of the dolomite.

The rocks beneath the dolomite exhibit fairly intense flow folding with flat axial planes, a number of examples of drag folds (asymmetric folds) and one example of cleavage flatter than bedding suggesting that these rocks may be part of the inverted limb of a major recumbent structure whose nose is to the north west. The major fold plunge in the mine area is approximately $20/248^{\circ}$ (magnetic). These folds have been flexured by a later period or phase of folding.

Stratigraphy -

Much of the rock sequence is characterised by rapid facies changes and boudinage which, together with the universal absence of fossils, has made accurate stratigraphic interpretation very difficult. However, certain broad stratigraphic relationships are apparent :-

Igneous	(Black Shale (Sequence	Porphyry Dykes Grey to black shales, siltstones and argillites.
Sediments	(Dolomite Sequence (Grey Shale (Sequence	Dolomite and dolomitic argillite. Grey shales argillites, siltstones and quartzites.

The relationship between the Black Shale Sequence and the Dolomite Sequence can be observed at the east and south sides of Happy Valley, where the steeply dipping Black Shale Sequence is seen overlying the flat lying Dolomite. The contact is very irregular owing to the décollement at the top surface of the dolomite.

The Dolomite and Grey Shale Sequence contact can be observed in the main tunnel. It can be seen that the Dolomite Sequence apparently overlies the Grey Shale Sequence conformably.

The stratigraphic relationships of the sedimentary sequences would be reversed should the mine area rocks be part of the inverted limb of a major recumbent fold.

4. THE ORE BODIES:

The following potential Ore bodies and Extensions will be described :-

Dolomitic Ore -

1. Greisen Face - Gossan Face - Pig Flat "Ore body".
Possible Northern Extensions.
Possible Western Extensions.
2. The South West Dolomite.
3. Happy Valley - White Face "Ore body".
Possible Eastern Extension.
4. Slaughteryard Face "Ore body".
5. Brown Face "Ore body".

Porphyry Ore -

1. White Face Dyke.
2. Stanhope Dyke - White Face Dyke Block.

Rheomorphic Ore -

1. The Summit Area Rheomorphic Rocks.

4.1. Dolomitic Ore - (See Plan 2H-22)

4.1.1 Greisen Face - Gossan Face - Pig Flat "Ore body".

This ore occurs within the dolomite and in the most part is gently flexured, however at its northern end the dip increases culminating in an overfold as shown in plan No.2H-23.

The ore is typically a massive pyrrhotite-talc rock containing cassiterite and probably minor stannite (quantity unknown). It usually occurs towards the base of the dolomite and varies in thickness from 5-115 feet. Overburden is variable between 0 and 180 feet.

Northern Extension to Greisen Face -

As already illustrated it is thought that the dolomite in greisen face is limited northward by an overturned fold. If the fold does not exist one might expect that the dolomite merely lenses out towards the north.

Western Extension of Greisen Face -

Surface geology and the interpreted attitude of the dolomite to the south west of the mine area indicates the possibility of a steep north west dipping limb of dolomite on the west side of Greisen Face. Previously, the abrupt edge to the dolomite outcrop at surface was interpreted as a fault and not a fold.

It should be noted that the structural interpretation illustrated in plan 2H-23 does not conform to the structure described above.

4.1.2 The South West Dolomite.

Three diamond drill holes (B 15, 18, 19) intersected dolomite to the south west of the main dolomite body. These deeper intersections can be interpreted as a steep west-south-west dipping limb of dolomite.

4.1.3 Happy Valley - White Face "Ore body".

This dolomite is thought to be continuous with that of the Greisen Face - Gossan Face - Pig Flat area and to be within the same major structure. The overturned fold described in Greisen Face is also thought to be present in White Face, though no dolomite is expected north of this area.

The attitude of the "Ore body" is probably similar to that of the Greisen Face Block since both are within the same structure. Several diamond drill holes have been drilled within the Happy Valley - White Face "Ore body" but core recoveries have been too poor to make sensible estimates of grade.

Possible Eastern Extensions of the Happy Valley Dolomite and "Ore".

On the east side of Happy Valley the black shale sequence is seen in contact with the dolomite. Observations of this contact show that it is steeply dipping and has a strike of $0 - 035^{\circ}$ magnetic. The black shale at the contact is comminuted and sheared suggesting the presence of a fault. If this fault exists it is likely that it is downthrown to the east carrying the dolomite below the surface. The evidence for this is two-fold, firstly a minor fault observed on the south side of Happy Valley has a downthrow to the east and secondly, the Black shale sequence is thought to overlie the dolomite.

It is possible however that the contact is only an expression of the irregular top surface of the dolomite, in which case a steep east south east dipping limb of dolomite would be expected.

4.1.4 Slaughteryard Face "Ore body".

A southerly dipping dolomite and dolomitic argillite have been partly replaced by talc pyrrhotite ore. The inferred dip of this ore body is approximately 60° at its northern end flattening out to $0 - 25^{\circ}$ at its southern end. To the south it abuts against a steeply dipping east-west porphyry dyke. The surface extent of the ore body is small, but its vertical and

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down dip extensions are not known.

4.1.5. Brown Face "Ore body"

This rich dolomitic ore body is almost entirely mined out. Small quantities of highly pyritic ore remain but surface sampling indicates a low tin content.

The ore body is synclinal in aspect with a steep southerly dipping limb on its north side and a more complex but generally gentler northerly dipping limb on its southern side. One drag fold on the southerly dipping limb suggests that the structure may be inverted.

4.2. The Porphyry Ore Bodies -

4.2.1 White Face Dyke

This dyke is composed of both quartz porphyry and quartz feldspar porphyry and has an average width of approximately 80 feet. The more southerly part of the dyke dips at approximately 20°- 30° to the north west; down dip the dip increases to near vertical and the strike changes to approximately east-west.

4.2.2 Stanhope Dyke - White Face Dyke Block

The more northerly and steeply dipping ($\pm 60^\circ$) parts of White Face dyke were found to contain higher grade ore. This area was drilled by Mines Exploration in 1966.

4.3. Rheomorphic Ore -

The Summit Area Rheomorphic Rocks and "Ore"

These rocks consist of a series of grey shaly, argillites, siltstones and quartzites, which have undergone fairly intense flow folding (hence the term rheomorphic) which produced recumbent structures. Tourmalinization of these rocks has been quite severe and was associated with cassiterite mineralisation; the latter can be observed on bedding planes. Younger, prominent and very consistent joints (average dip and strike 68/155 W) are often filled with cassiterite forming veins which vary in width from 1/32" to + 1/4".

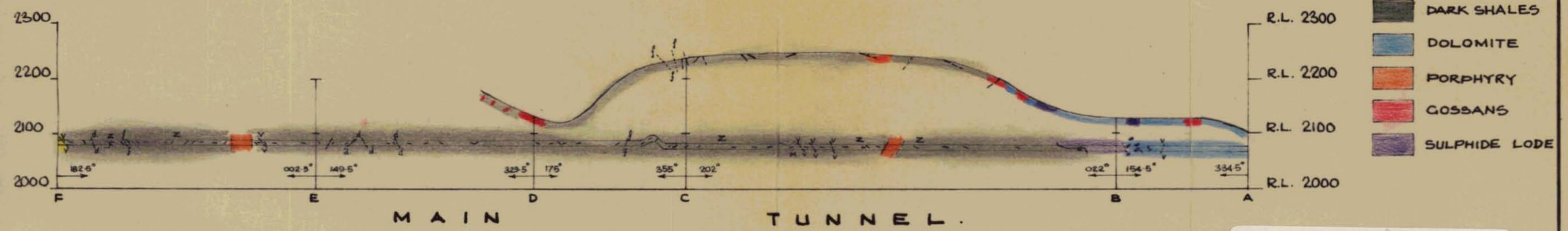
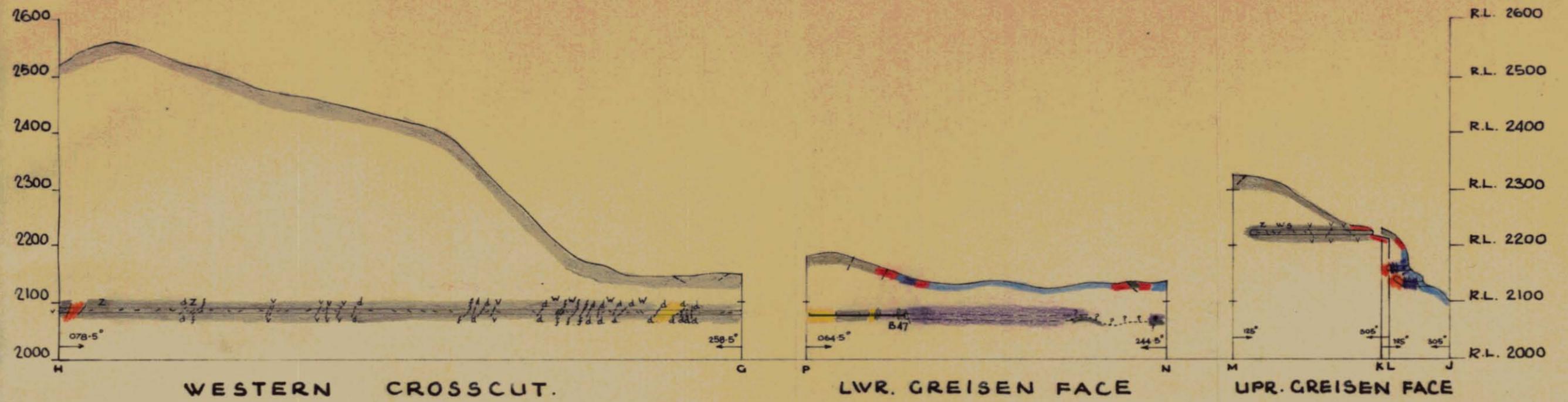
The tin is almost entirely free of sulphide impurities.

5. PLANS

<u>Plan No.</u>	<u>Plan</u>
Tas. 2H-21-missing. not with this report	Geology Interpretation Plan
Tas. 2H-22	Underground Geology Interpretation
Tas. 2H-23	Sketch Section of Greisen Face.

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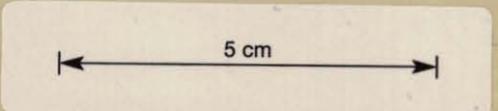
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- QUARTZITES
- GREY SHALES
- DARK SHALES
- DOLOMITE
- PORPHYRY
- GOSSANS
- SULPHIDE LODGE

- LITHOLOGICAL BOUNDARY
- DITTO INFERRED
- VEIN
- FAULT
- DISLOCATION OR MINOR FAULT.
- BEDDING - APPARENT DIP.
- Z, S, M FOLD TYPES
- W WARP

NOTE!
 SECTIONS A-B, B-C, C-D etc. ARE PROJECTIONS OF TUNNEL WALLS ON TO SECTION LINES, WITH MAGNETIC BEARINGS AS NOTED, AND THUS DO NOT SHOW TRUE HORIZONTAL LENGTH.



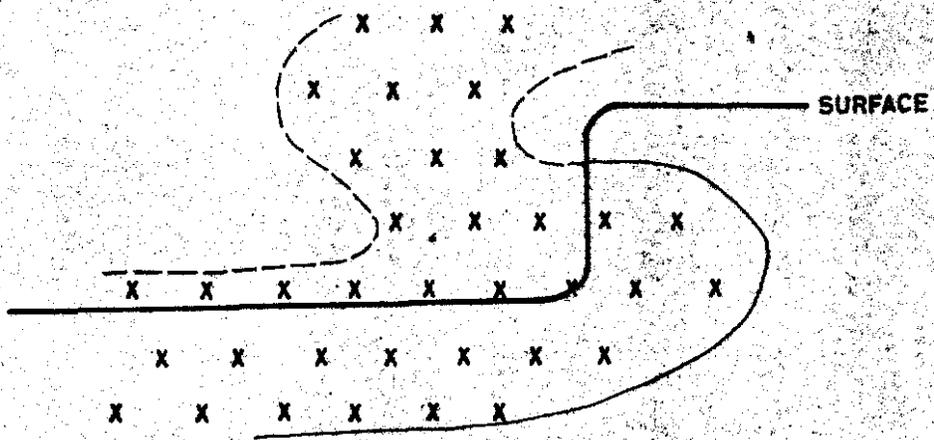
COMSTAFF PTY. LTD.
MT. BISCHOFF MINE AREA
U/G. GEOLOGY INTERPRETATION
 SCALE: 1 IN. TO 200 FT.

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LEGEND

X	DOLomite
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COMSTAFF PROPRIETARY LIMITED

"PIG FLAT" ORE BODIES MT. BISCHOFF
GREISEN FACE SECTION

DRAWN *J.P.*

SCALE
N.T.S.

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