

Region REG No 20

348001

# LYELL E.Z. EXPLORATIONS

Queenstown

Report on

PRECAMBRIAN OF S.W. TASMANIA

59-294

REPORT ON PRE-CAMBRIAN OS  
SW TASMANIA  
LYELL EZ OPERATIONS

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Precambrian of S.W. Tas.

L.E.E. 18/9/59

Report No G104

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Sept. '59

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18th September,

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To: Mr. G.F. Hudspeth

Attached is the report on the Precambrian of S.W. Tasmania forwarded to the Convener of the Editorial sub-committee of the Geological Society of Australia, Tasmanian Division.



Chief Geologist, L.E.E.

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PRECAMBRIAN OF S.W. TASMANIA

In the course of the exploration of south west Tasmania, the Precambrian of the Port Davey - Elliott Range areas was investigated on a regional basis, with isolated investigations on the north shore of Bathurst Channel, Nicholls Range, Hamilton Range, Point Hibbs to Cape Sorell and along the Lyell Highway from Bubbs Hill to the Inkerman River. The last area is discussed elsewhere by Spry.

The Precambrian area west of 410,000 yards east (Zone 7 grid) and south of Queenstown, with selected areas east of this line, have been covered by an airborne magnetic survey. All of the Precambrian has either been geologically mapped by one authority or another or has been the subject of a photo-geological interpretation.

The rocks are considered to be Precambrian on the basis of the Tyennan Unconformity exposed or inferred at Sprent River, Elliott Range, Andrew River, Mt. Fincham, Tim Shea and eight other localities in south west Tasmania. In the extreme west, at Modder River, a Stichtan Unconformity can be inferred and similarly at Adamsfield and on the east side of Prion Bay at Rocky Boat Harbour.

Port Davey - Elliott Range

The Precambrian has a general north-south strike and can be divided into two groups.

The central axis of the area is made up of a series of massive quartzites, quartz mica schists and phyllites. These rocks are particularly well exposed immediately south of the Sprent River, where current bedding and at least one distinct lineation on the bedding plane plunging gently (zero to five degrees) to the north can be seen. Quartz/pebble cobble conglomerate bands occasionally occur, the quartz schist at the north end of the DeWitt Range (Mt. Gaffney) has an appreciable feldspar content. The rocks are not unduly sheared or contorted and bedding is usually readily apparent with dips commonly less than 45 degrees and in several instances (i.e. at Elliott Point) as low as 10 degrees. This group of sediments has been folded into a broad anticline which has a horizontal or a gentle plunge of a few degrees to the north, the west limb forms the De Witt - Lawson Ranges and the east limb is found in the Propsting Range. The Massive, white quartzites form the prominent hills, including Mt. Lewis, View Hill, Moore's Lookout and those mentioned above.

This centrally placed siliceous group is bounded on the east and west by a group of schists, phyllites, slates and quartzite. The schists etc. are usually severely crumpled and deformed with steep dips of plus 45 degrees to vertical and a pronounced schistosity which parallels the bedding. The east and west divisions structurally form part of the broad anticline described above and presumably the siliceous group lies below these schists. However, where the contact has been seen it has always been a faulted one. The eastern division consists of black shales, phyllites and mica schists of a very low metamorphic grade. They are well exposed along the western shore of Payne Bay and extend northwards to at least the DeWitt River. Similar rocks are exposed on the eastern side of the Bay which also appears to be the position of major synclinal axis. Further to the east similar rocks are exposed at Long Bay and Bathurst Harbour. The western division consists primarily of garnet mica schists with thin bands of quartzite which are well exposed at Nye Bay. This division has not been seen north of this Bay. Three varieties of basic intrusion have been recognised; thin lamprophyre dykes which are identical to those seen further to the north in the Dundas Group, amphibolite and a basic rock composed of prominent amphibole and pink garnet subhedra with accessory amounts of feldspar and glassy quartz. The latter two varieties appear to occur as small plugs up to 500 feet in diameter placed along major north-south trending faults. They are readily apparent on the airborne magnetic charts.

Pt. Hibbs - Cape Sorell

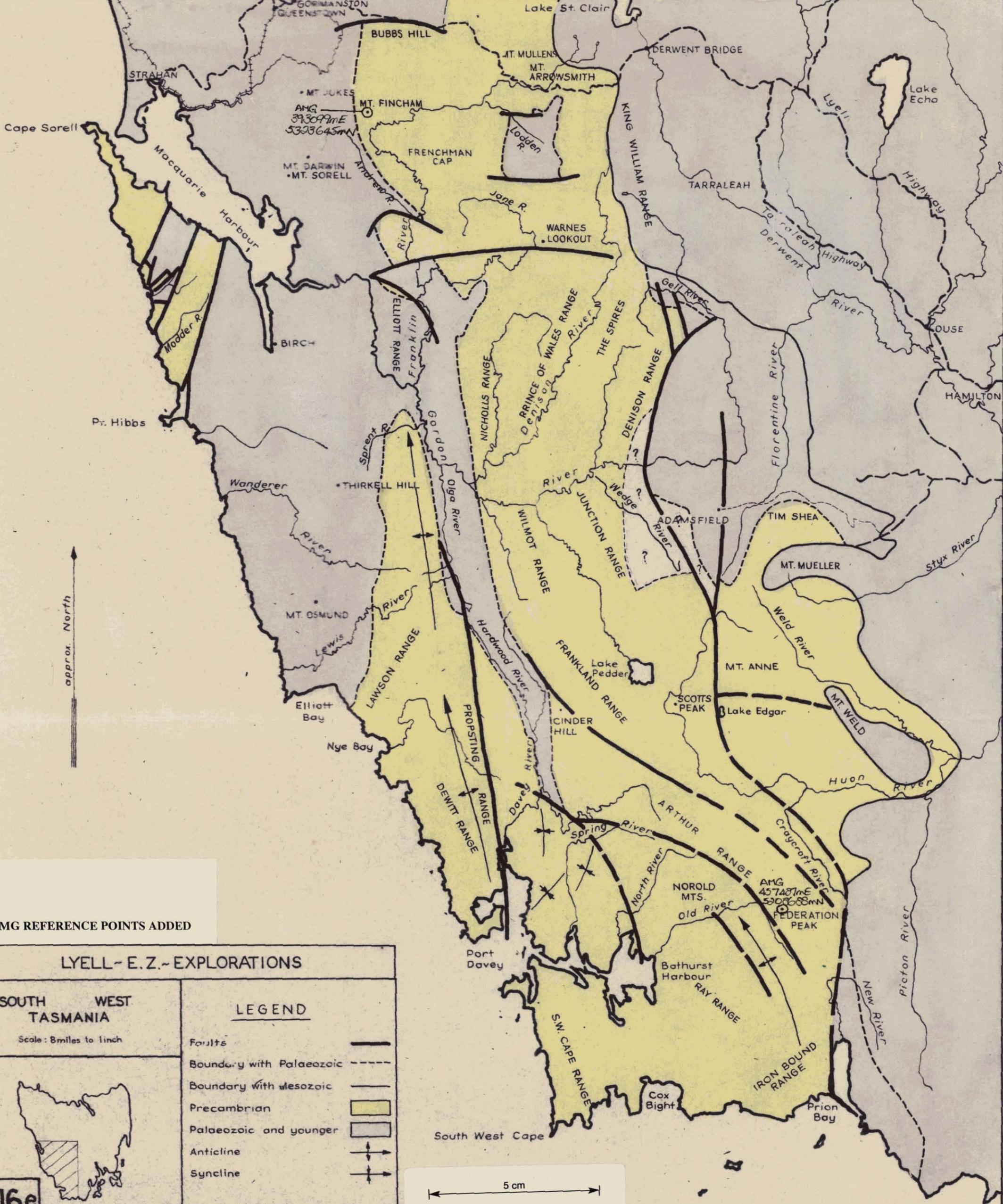
These rocks were originally described by Waller (1902) and Hills (1914). Waller described the rocks as "consisting of ancient sandstones, quartzites, slates, claystones and dolomites" and these are exposed at Birthday Bay. Some of the slates or shales are calcareous and the only analysis carried out in the carbonate rocks showed it to be a magnesian limestone (analysis from Modder River locality showed 30.5% calcium, 1.8% magnesium and 15.0% silica). The rocks are strongly crumpled and deformed with steep dips and isoclinal folding apparent. The regional trend is north-north-east. An interesting problem occurs in this area: undoubted Dundas Group occurs at Double Cove on Macquarie Harbour. The consistent N.W.E. strike is apparent in this Group here and it can be readily traced to the S.S.W. on the aerial photographs. This direction trends into Birthday Bay which contains the sediments already described and which are identical to those north and south of the Bay. These sediments on the present basis are called Precambrian. Faults can be inferred to exist between these two lithological groups but it is not a satisfactory solution.

Nicholls - Hamilton Range

The two Ranges consist of alternating bands of garnet mica schist, metaquartzite and quartz mica schist, with a prominent north-south strike which swings to north east towards a line drawn from the lower part of the Gordon River eastwards to the Gell River. The rocks are strongly crumpled and deformed with isoclinal folding readily apparent and they dip steeply (plus 60 degrees) and consistently to the east. Drag folding at three localities indicates that the beds on the west limb of the folds are overturned, with axial planes dipping to the east. The folds plunge at a small angle (less than 10 degrees) to the north or south. The thick bands of metaquartzite, which form such hills as the Prince of Wales Range, Hamilton Range and Nicholls Range, appear to lie beneath the intervening bands of schist. In these intervening synclinal areas dolomite has been reported by Twelvetrees (1908, p.31) from the Denison River valley and by piners from Strahan in the Maxwell River valley.

QUEENSTOWN, 17th AUGUST, 1959.B. SCOTT.REFERENCES

- |                   |      |  |
|-------------------|------|--|
| Hills, C.L.       | 1914 | Geological Reconnaissance of the Country between Cape Sorell and Point Hibbs.<br><u>Tas. Dept. Mines Geol. Bulltn. No. 18.</u> |
| Twelvetrees, W.H. | 1908 | Report in <u>Tas. Dept. of Lands &amp; Surveys</u><br><u>1907 - 1908. p.25</u>   |
| Waller, G.A.      | 1902 | Report on Some Discoveries of Copper Ore in the Vicinity of Point Hibbs.<br><u>Tas. Dept. of Mines Secty. Rept. 1901-1902</u>  |



AMG REFERENCE POINTS ADDED

LYELL - E. Z. - EXPLORATIONS

SOUTH WEST TASMANIA

Scale: 8 miles to 1 inch

LEGEND

- Faults
- Boundary with Palaeozoic
- Boundary with Mesozoic
- Precambrian
- Palaeozoic and younger
- Anticline
- Syncline



5 cm

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