

REG No 18

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LYELL E.Z. EXPLORATIONS

Queenstown

Report on

SUMMARY OF PRECAMBRIAN OF S.W. TASMANIA

59-292

REPORT ON SUMMARY OF
PRECAMBRIAN OF SW TASMANIA
LYELL EZ OPERATIONS

Copy 1 of 2

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Summary of Precambrian of
S.W. Tas

L.E.G. 18/9/59.

Report No G 102

Sept. '59

350E

18th September, 9

To: Mr. G.F. Hudspeth.

Attached is a summary of the information and source which is available regarding the Precambrian of S.W. Tasmania.



Chief Geologist, L.E.E.

29th July,

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SUMMARY OF PRECAMBRIAN OF S.W. TASMANIAAS IN L.E.E. REPORTS1. Andrew River (G3)

"Contorted chloritic, sericitic and micaceous schists striking 340° and dipping 60 to 70° to the west."

2. Nicholls Range (G5)

"Resistant hard grey and white quartzite and quartz schists. The strike is roughly meridional and dip about $60-70^{\circ}$ to the east, but intense contortion, and in places, overfolding occur. Softer, more micaceous quartz schists occur on the eastern flank of Nicholls Range." "The Nicholls Range consists of highly contorted Precambrian quartzites, quartz schists and quartz mica schists."

A photograph in this report shows drag folding which indicates that the beds are upside down, with axial plane dipping to the east. (B.S.)

3. Eagle Creek (G6)

"Medium to coarse grained (up to $\frac{1}{4}$ " diameter flakes of mica) dark grey-blue schists, 2" bands of quartzite occur within these dark schists. Golden yellow (oxidised) biotite schists consisting almost entirely of $\frac{1}{2}$ " diameter flakes of mica."

4. Sprent River (G10)

"The succession consists of hard, massive, white quartzites with interbedded softer quartzites which, by the addition of white mica, grade with grey-buff coloured mica schists. The hard quartzites (which form the ridges) usually have a distinct lineation which directly plunges northwards."

"Current bedding and drag folds indicate that the succession is the right way up."

"The central axis of the fold is marked by a wide (1-2 mile) valley and Mt. Lewis is situated on the eastern side of this valley on the easterly dipping limb of the anticline." "The fold plunges northwards and immediately to the north of the Sprent River Owen Conglomerate unconformably overlies the Precambrian."

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5. Eagle Creek (G12)

"Contorted graphitic and chloritic schist striking 290° and dipping north at approximately 50° the rocks here are micaceous schists but within the fault zone they are chloritic and graphitic."

6. Edwards Gulch (G14)

"Sheared quartz-mica schists and metaquartzites which have been highly sheared. The schistosity trends 325° with a steep dip to the west (70-90°). The thin bands of metaquartzite have been attenuated and broken, drag folds and fracture cleavage are prominent....."

7. Hamilton Range (G16)

"..... consists of isoclinally folded Precambrian metaquartzites and garnet mica schists striking 340-355°, dipping 70-80° to the east with drag folds plunging 0 to 10°N. The main ridge is an anticline of quartzite with a syncline to the west and another syncline and anticline to the east....."

"The Prince of Wales Range appears to be the northern continuation of the western anticline."

The drag folds indicate overturning to the west, axial plane dipping to the east. (B.S.)

8. Coastal Traverse (G20)

Elliott Point "is again quartzites. These contain crumpled zones but, in general, there is a rolling strike with a flat dip of about 10° to the west."

"Quartzites and schists and, in places, slates."

"Black calcareous schists similar to those seen north of Birthday Bay."

North End of Giblein Beach "a belt of about 100 yards of garnet schists and then siliceous micaceous schists....." "Very contorted quartzites underlie the north end of Giblein Bay and probably the whole of the sand dunes on Giblein Beach." (N.B. Giblein Bay is more correctly called Nye Bay.)

Headland on South Side of Nye Bay "there is a repetition of the garnet mica schist which can be seen directly north across the bay. From here to the main point about 1½ miles south there are quartzites and sheared siliceous sediments....." "The coast now cuts back to the south-east and there is a repetition of rock types seen on the north side of the point."

Half a Mile West of North End of Mulcahy Beach to this Beach "quartzite cliffs."

Inland "Mulcahy Hill is composed of quartzite as is also Isolated Hill and the western spur of Mt. Gaffney. The eastern part of Mt. Gaffney is composed of quartzitic schists. These are largely composed of quartz and felspar."

"Half a mile west of the Mulcahy River (on the coast) there is a prominent low scarp of about 25-30 feet which can be traced towards the Lawson Range. This may mark a major fault as it seems to mark the eastern limit of the heavily sheared schists and garnet mica rock. This fault marks the western limit of the pure white quartzites which show large scale folding."

Immediately South of Mulcahy Beach "a coastal strip of siliceous, poorly sorted conglomerate with boulders up to 2 feet in diameter..."

"Most of the pebbles are quartzite, either white or chocolate - but a few are cherty....." "This rock was seen in several places inland, including many floaters near the mouth of the Little Rocky River."

"siliceous schists with garnets and mica"

"Bedding generally strikes N-S with westerly dips varying from 35° to 75°."

1 1/2 Miles South of Alec Rivulet "a zone of higher metamorphism in which there are granitic gneisses."

North Part of Svenor Bay "a boundary between the garnet mica schists and the quartzites. The latter are laminated and heavily contorted. They are interbedded with siliceous schists. General strike and dip is approximately N-S/80°W."

South of Svenor Beach "various quartzites and siliceous schists...." "The point immediately south is cut by two lamprophyre dykes."

Green Island "contorted quartzites - the outer reef having N-S strike and dipping about 50°W."

BASIC INTRUSIONS

1 1/2 Miles South of Alec Rivulet and 1/2 Mile Inland "a mass of pyroxenite."

Half a Mile West of the Ciblin River "a rounded mass of amphibolite (?). This is bounded by augen gneiss on the eastern side and on the west side there is a fine-grained border."

9. Moore's Lookout - View Hill Area (G25)

"Precambrian quartzites and schists with a north-south trend in the

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northern part and an E-W trend in the southern part." "One band of graphitic schist was found just west of the Olga River....."

10. Traverse along Gordon River from Splits to Pyramid Island (G24)

Near the Split "Precambrian garnetiferous schist shows S- drag folding....." "The quartzites to the west of here show an S- drag fold....." "indicate an overturned western limb of an antiform."

11. Port Davey - Bathurst Harbour - S.W. Cape Area (G34)

A. Anomaly 5S/6 - Payne Bay

"Black graphitic schists....." "tightly folded and sheared producing strikes from N-S to E-W and dips from 10°S to 50°E. However the general strike of the schist appears to be 340 to 350° and cleavage dipping 40 to 60°E."

"A lamprophyre dyke..... following the schist cleavage, was found....."

B. Anomaly 7S/4 - Bathurst Harbour

"Black graphitic schists..... dips vary from 80°W to vertical." "Swan Island was found to be composed of smokey sericite schists....."

C. Anomaly 5S/4, Settlement Point

"Black graphitic schists faulted against quartzite....." "weathered magnetite octahedra were found in a white, fine grained, sericite schist." They strike 150-160° and dip steeply to the east or vertical.

D. Anomaly 7S/2, Long Bay

"..... black schists with some dark shale bands striking at 350° and dipping 80°E to 80°W and banded on the east and west by quartzite and conglomerate."

E. Anomaly 9S/2, Any Harbour

"The anomaly seems to have been caused by magnetite disseminated through a chlorite sheared zone at the junction of schist with a quartzite ridge....." "On the east side of the quartzite point (facing Ketchem Bay) basic intrusives have been introduced as sills....."

12. Svenor Beach - Giblin River Area (G35)

A. Anomaly 4S/4, approximately 1 mile north of Svenor Creek

The basic rock which causes the anomaly outcrops within an area 500' x 500'. The basic rock is medium grained and composed of dark equiangular amphibole subhedra studded with abundant pink garnet grains. Accessory amounts of dull feldspar and glassy assimilated quartz are also present.

A small outcrop of basic, identical in appearance to that found in anomaly 4S/4, occurs on the south side of Svenor Creek, approximately $\frac{1}{2}$ mile from Svenor Beach.

Two lamprophyre dykes were found on Svenor Beach which contained fine pyrite and abundant black biotite flakes.

B. Anomaly 4S/6, 1 Mile south of Svenor Creek

"sheared garnet mica schist" on the coast.

"small basic plugs 5000' south of the anomaly area". "the rock is a fine grained felspar garnet amphibole rock..... ranging from 200 to 10,000 square feet."

C. Anomaly 2S, $\frac{1}{2}$ mile east of mouth of Giblin River

"Quartzite containing varying amounts of muscovite and quite schistose in parts outcrops around the anomaly."

13. Boomerang Area (G47)

"..... a traverse produced the following succession of some 8000 feet of west dipping Precambrian sediments, which is set out in the order oldest to youngest."

The succession consists of garnet-mica schist, quartz chlorite mica schist, quartzite, quartz mica graphite schist, white quartzite conglomerate (Max. pebbles $2\frac{1}{2}$ ").

14. 'Y' Area (G48)

The succession eastwards consists of white quartzite, quartz mica schist, micaceous quartzites, felspathic sandstone, Dundas lava??, dark grey-black shale, quartz-mica graphite schist, quartz chlorite mica schist.

15. Moore's Lookout - Frederick Hill (G55)

"..... low grade metamorphics, quartz-mica-chlorite schists and apparently pure metaquartzites. Normally the bedding coincides with schistosity."

16. Anomaly 24/1, Hudson River (G82)

"quartz mica schists and metaquartzites" "Bedding is approximately parallel to schistosity, but has a slightly different dip." Graphitic schist is also present.

17. Anomaly 21/12, Jean Valley

"..... hard white metaquartzites, softer quartz mica schists and puggy micaceous clays."

18. Anomaly 9/4, Birthday Bay

"The general inferred Carbine sequence in the grid area is from oldest to youngest (or west to east): quartzite, siltstone, grey shale, black shale" (graphitic schist in some areas). Dolomitic slate also occurs.

19. Coastal Traverse - (M.S.) Albina to Modder River

Black shales, quartzite, calcareous shales, limestone (?).

20. Port Davey (B.S.)

Metaquartzites, black schist, quartz/graphite schists (834-837), quartz sericite schists.

Chief Geologist, L.E.E.

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SUMMARY OF REPORTS ON THE PRECAMBRIAN OF S.W. TASMANIA

APART FROM L.E.E.

21.A - NORTH END OF DENISON RANGE - SPIRES (Twelvetrees, 1908)
(W. H. Twelvetrees, Dept. of Lands & Surveys Ann.Rept.Tasm.1908 p.25)

Twelvetrees walked westwards from the Valley of the Rasselas to the Spires. He noted (p.30) that "About a mile west of where the schist country is entered the general strike of the strata now alters. Previously it was west of north; now it is east of north, and this was a stable character as far west as we went" (to the Prince of Wales Range). "There is then a strong unconformity between the Precambrian and the Cambrian strata". These are now known to be Precambrian and Owen Conglomerate.

"At the junction of the systems.....is a..... breccia of large angular stones of quartz and quartz schist, which is situated between the upper members of the schist and the basal sandstones of the conglomerate series" (i.e. Jukes Breccia?)

Walking westwards to the Spires he observed "quartzite schist" "pale green sericite schists", "argillaceous schists", "greenish slaty looking schist", "siliceous micaceous schist", "crystalline purplish quartzite", "Ordovician limestone" (now Jane Dolomite) was noted in the Denison River.

21.B - Twelvetrees also traversed south of Mt. Mueller across the headwater of the Styx and Weld Rivers to Mt. Bowes. The Tim Shea area is also described (also in 1909).

22. - WEST OF ADAMSFIELD (Twelvetrees, 1909)
(W. H. Twelvetrees, Dept. of Lands & Surveys Ann.Rept.Tasm.1909 p.25)

A - BETWEEN RAGGED RANGE AND BOYD RIVER

Appears to consist of quartzite, yellow sandstone and slate (n.b. this may belong to the Dundas Group).

B - BOYD RIVER TO MT. WEDGE

Yellow slate and soft friable sandstone. On Observation Hill (a small hill south of the track by about 100 yards) dense white quartzite striking 180° dipping steeply to the south (Dundas Group?)

C - WEDGE RIVER TO McPARTLAND PASS

Soft yellow sandstone, black slate (Dundas Group?)

D - McPARTLAND PASS

Soft sericitic schists, slightly greenish. Sericite-quartz schists striking 345°/SW.

E - HERMIT VALLEY

Schists trending 345°/NE.

23. - NORWAY CREEK - ALGONKIAN RIVULET (Upper Jane River, Blake, 1936)
(F. Blake, 1936. District between Jane River and Prince of Wales Range. Tas. Dept. of Mines Unpublished Rept.)

The rocks consist of dolomites, dolomitic limestones, quartzites, quartz breccias, slates, argillaceous schists, quartz sericite schists and quartzitic schists. In general the planes of schistosity are developed parallel to the bedding.

Black, purple, and grey slates are mentioned. The argillaceous schists and slates are developed to their greatest extent along the ridges and low hills from Gum Ridge to the west side of Jane River.

The quartzites and quartzitic schists are very fine grained, extremely siliceous and white in colour. They generally occur as massive beds of great thickness overlying the argillaceous schist and slate series. These (siliceous) rocks comprise the largest part of the Prince of Wales Range where quartz sericite schist also occurs.

On the southern bank of Algonkian Rivulet at half a mile above the junction with the Jane River dolomitic limestone, conformably underlying slates, has assumed a schistose structure, but elsewhere schistosity is absent. In the bed of Norway Creek an unusual dark red variety of magnesium limestone occurs overlying massive purple and grey slates (contains 2.37% Fe₂O₃). Low angles of dip averaging 40° are the rule, and a series of comparatively gentle folds with axes trending NNE and SSW are indicated.

24. - BUBBS HILL - MT. ARROWSMITH - JANE RIVER

In 1908 L. K. Ward traversed from Queenstown to Mt. Arrowsmith along the route now followed by the Lyell Highway. In 1909 L. K. Ward traversed from the Franklin River near Mt. Mullens southwards to the Loddon River, Calder Pass and the Jane River.

Ward, L.K., Tas. Dept. of Lands & Surveys Ann.Rept. for 1908 & 1909 P.33 and 31 respectively.

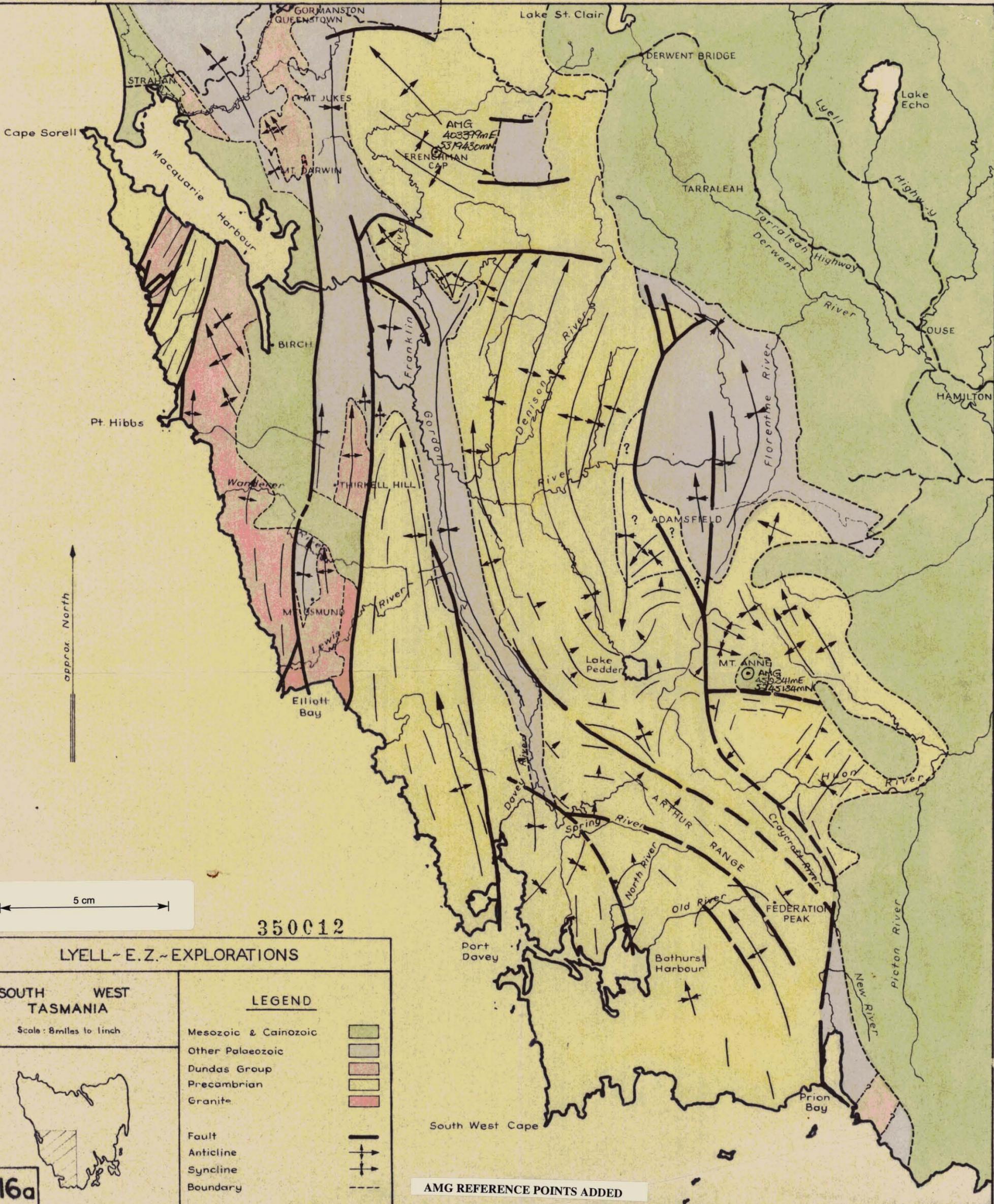
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QUEENSTOWN, 17th August, 1959.

B. SCOTT



approx. North

5 cm

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LYELL - E. Z. - EXPLORATIONS

SOUTH WEST TASMANIA

Scale: 8 miles to 1 inch

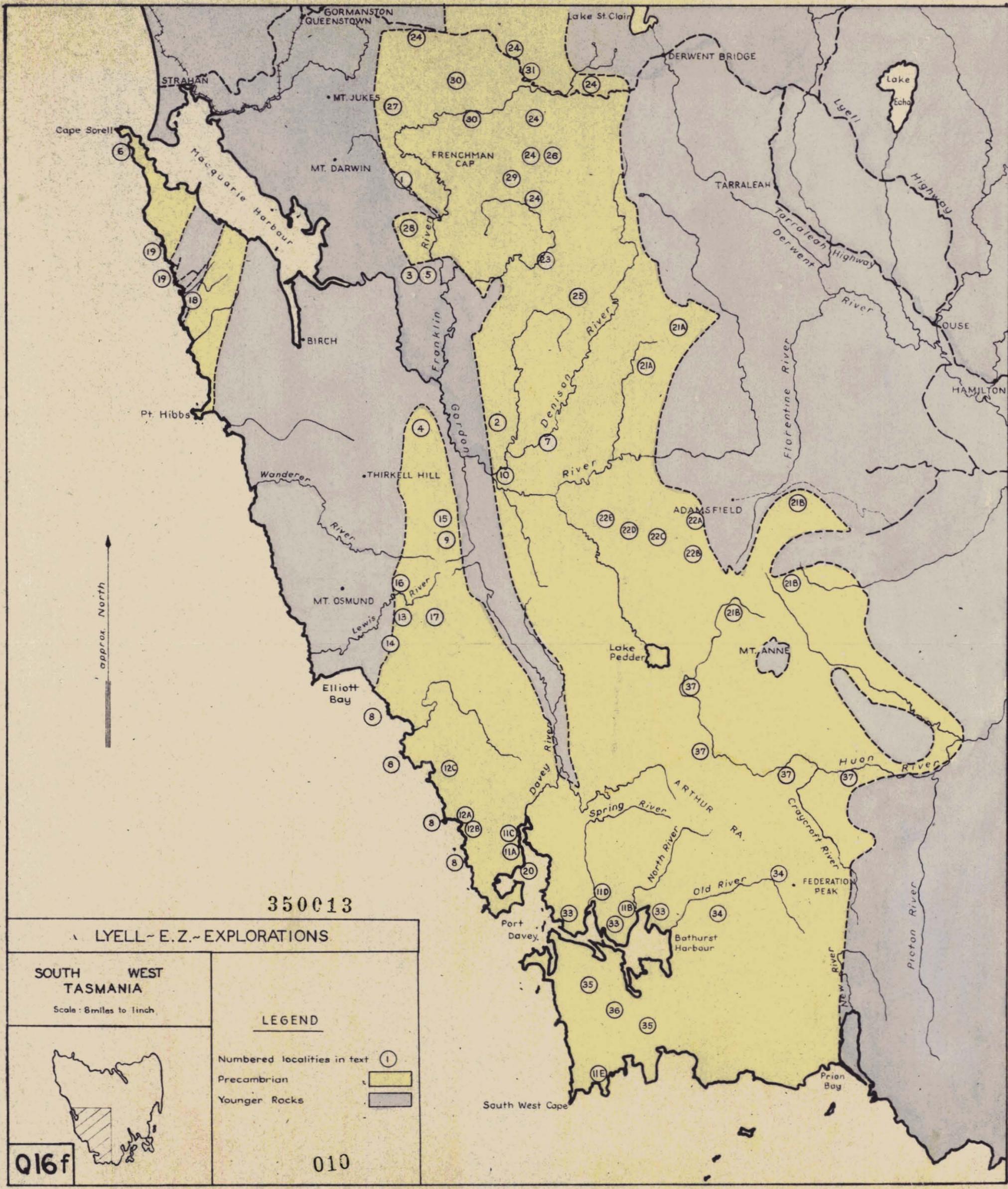


LEGEND

- Mesozoic & Cainozoic
- Other Palaeozoic
- Dundas Group
- Precambrian
- Granite
- Fault
- Anticline
- Syncline
- Boundary

Q16a

AMG REFERENCE POINTS ADDED

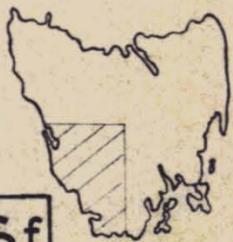


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LYELL - E. Z. - EXPLORATIONS

SOUTH WEST TASMANIA

Scale: 8 miles to 1 inch



Q16f

LEGEND

- Numbered localities in text (1)
- Precambrian (yellow box)
- Younger Rocks (grey box)

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