ERSK55_7

TASMANIA DEPARTMENT OF MINES

1977

GEOLOGICAL SURVEY EXPLANATORY REPORT

GEOLOGICAL ATLAS 1:250 000 SERIES

SHEET SK-55/7

PORT DAVEY

by P.R. WILLIAMS, B.Sc.(Hons)
and E.B. CORBETT, B.Sc.(Hons)

T.J. HUGHES, GOVERNMENT PRINTER, HOBART, TASMANIA

ISBN 0 7246 0473 1

TASMANIA DEPARTMENT OF MINES

1977

GEOLOGICAL SURVEY EXPLANATORY REPORT

GEOLOGICAL ATLAS 1:250 000 SERIES

SHEET SK-55/7

PORT DAVEY

by P.R. WILLIAMS, B.Sc. (Hons)
and E.B. CORBETT, B.Sc. (Hons)

ISSUED UNDER THE AUTHORITY OF THE HONOURABLE
G. D. CHISHOLM, M.H.A.
MINISTER FOR RESOURCES AND ENERGY

DEPARTMENT OF MINES, GPO BOX 124B, HOBART, TASMANIA 7001

OS-D366

WILLIAMS, P.R.; CORBETT, E.B. 1977. Geological atlas 1:250 000 series.
Sheet SK-55/7. Port Davey. *Explan.Rep.geol.Surv.Tasm.*

ISBN 0 7246 0473 1

PREFACE

This explanatory report gives a brief outline of the area of the Port Davey 1:250 000 sheet. This sheet is one of a new series of geological maps which will provide a complete coverage of the State.

The geological information is derived from both departmental and external sources.

The list of selected references at the end of the report will serve as a guide to the more important geological publications which deal with the area.

J.G. SYMONS, Director of Mines

PHYSIOGRAPHY

The physiography of south-western Tasmania is largely controlled by the distribution of the major rock units. The most common rock sequence consists of interlayered quartzite and phyllite, which extends from the south coast to the northern boundary of the Sheet. The quartzite units generally form elongate northerly-trending ridges, although the Frankland Range [DN2047], west of Lake Pedder, swings eastward to form a continuity of trend with the Arthur Range [DN4122]. Lowland areas are generally underlain by phyllite and schist units. The highlands of the north-eastern part of the Sheet are capped by dolerite (*e.g.* Mt Anne, DN5345) or are conglomerate ridges (*e.g.* Saw Back Range, DN4764).

West of the Frankland Range, a syncline with Silurian to Devonian rocks in its core is flanked to the west by Ordovician limestone and sandstone. A major valley has formed along this structure and the drainage pattern is now controlled by limestone distribution. The valley is flanked to the west by small hills and ridges of quartzite, while further to the west, Cambrian acid and intermediate volcanic rocks form a generally low lying region falling away to the coast north of Elliott Bay [CN8340].

The effects of Pleistocene glaciation are evidenced by erosional and depositional features around the higher ranges and peaks. Port Davey and Bathurst Harbour in the south-west of the Sheet are drowned river valleys (Baker and Ahmad, 1959) formed during a post-Pleistocene rise in sea level. Minor beach gravels and raised sea caves around the shoreline suggest former higher sea levels.

PRECAMBRIAN

Metamorphosed rocks of Precambrian age are flanked by Cambrian rocks at the Wedge River [DN3755] to the east, and at Elliott Bay [CN8340] to the west. Ordovician, Silurian and Devonian sequences formed in basins within the metamorphosed rocks at the Olga [DN0260], Hardwood [DN1341] and Giblin [CN9839] Rivers and at Mt Rugby [DN2802]. Relatively unmetamorphosed rocks of probable Precambrian age occur at Scotts Peak [DN4138] and Bathurst Harbour [DN3301] and sequences of possible Precambrian age occur at the Ironbound Range [DM5984] and in the Davey River-Badger Creek area.

Metamorphosed rocks

The metamorphosed Precambrian rocks may be grouped into three assemblages: quartzite; quartz schist with phyllite and phyllite with garnet-albite-quartz-mica schist (Hall, 1966). The rocks have been derived from a sedimentary orthoquartzite-siltstone succession and sedimentary structures have been preserved in both quartzite and phyllite units (Boulter, 1974*b*; Hall, 1966). Some unusual rock types occur in the sequence; quartz-muscovite-epidote schist from Wilson Bight (DM2679], interpreted as a metamorphosed intermediate tuff (Hall, 1966); calcite-chlorite-phengite quartzite from the Gordon River area (Boulter and Råheim, 1974); actinolite-epidote-sphene schist, originally a carbonate bed, from the same area (Boulter, pers. comm.); and hornblende-plagioclase schist from Bond Bay (DN1110; Spry and Baker, 1965). A Precambrian meta-dolerite dyke occurs at Kathleen Island (DM1605; Williams, P.R. in press).

Coarse-grained metamorphic rocks, dominantly garnet-albite-biotite-quartz-chlorite schist, crop out on the west coast *e.g.* opposite Trumpeter Islet [DN0408]. The garnet and albite porphyroblasts are up to 20 mm long.

The garnet is zoned; two growth periods occurring prior to the second penetrative deformation. A later phase of garnet growth is associated with chlorite growth during the third deformation event (Williams, in prep.). MacLean (1974) described small garnet grains predating the second deformation. MacLean also described albite-bearing quartzite and inferred that the rocks were originally feldspathic sandstone. The albite grains increased in size pre- and syn-kinematically to the second deformation.

Deformation in the south-west of the region took place in three distinct phases (Williams, in prep.). The first phase produced isoclinal folds with a penetrative axial surface cleavage and a preferred orientation of quartz optic axes. Folds of this event are preserved as isolated and boudinaged fold cores or as large-scale stratigraphic reversals with fold hinges unrecognised. The second deformation produced the dominant layering observed in the quartz schist and phyllite assemblage, and large F_2 over-folds are symmetrical on north plunging hinges with axial surfaces dipping north. The half-wave length of these folds is approximately 0.5 km. Near isoclinal fold cores with a folded lineation around them have been observed (W.D.M. Hall, pers. comm.). The cleavage formed axial planar to the folds and is a crenulation cleavage in the core area. The third event produced upright folds which vary in plunge and trend from area to area. A crenulation cleavage is associated with these folds. Later events produced kink-bands and chevron folds. Some late open folds with an east-west trend have an associated spaced cleavage. At Bathurst Harbour and to the west local events occur between the main regional events.

A similar deformation sequence occurs in the Davey River area, 30 km north-west of Bathurst Harbour (MacLean and Bowen, 1971). The first deformation event is complex and possibly equivalent to the first and second events at Bathurst Harbour. The second event produced tight upright folds on variably plunging hinge lines. Later folding events in the Davey River area are of unknown age, although kink bands and fracture cleavage are ubiquitous throughout the metamorphosed Precambrian rocks.

On the Frankland Range in the northern part of the Sheet the earliest deformation event produced flattened flexural folds (Boulter, 1974*a*) and a well defined axial surface cleavage formed with quartz grain re-orientation. The isoclinal folds formed in this event are of 1.5 km amplitude and have a half-wave length of 0.5 km. The second event produced open asymmetrical and tightly appressed folds with similarities to large scale conjugate folds. A crenulation cleavage associated with this event occurs in phyllite. Two more major events have been recognised (C.A. Boulter, pers. comm.). The first of these events produced a cleavage in quartzite and flaggy quartzite units. Folds of this generation are moderately inclined and have a shallow plunge, when not rotated by the later events. The second of these events produced upright or steeply inclined folds which trend parallel to the Frankland Range. Folds of all four generations are generally co-axial. Only minor effects of later deformation events have been recognised.

Rocks of assumed Precambrian age in the Solly River area [DM5293] consist of pink quartzite overlain by greenschist and phyllite containing conglomerate bands up to 100 m thick (Hall, 1966). The rocks have a simple structure and dip steeply to the north-west.

The metamorphosed Precambrian rocks on the Port Davey Sheet form the southern part of an area of Precambrian rocks which extends north to Cradle Mountain (Queenstown Sheet). Deformation took place during three dominant events during the Frenchman Orogeny (Spry, 1962). Locally intermediate events occur and in some areas the earliest event may not be present. Metamorphism began prior to the second event and continued through to the third deformation event. The grade of metamorphism ranges from the greenschist facies to the epidote-amphibolite facies.

Relatively unmetamorphosed rocks

Relatively unmetamorphosed rocks of probable Precambrian age extend from Mt Mueller [DN5664] to the Cracroft River (DN5622; Carey and Banks, 1954; Spry, 1962). The rocks form a thick sequence of interbedded quartzite and dolomite and are folded into a series of NW-trending anticlines and synclines. Part of the sequence at Scotts Peak [DN4138] is similar to that at Mt Mueller with the folds trending E-W (Godfrey, 1970). An isolated zone of garnet-mica schist was also reported from this area (Godfrey, 1970).

Rocks at Bathurst Harbour are overlain with apparent unconformity by Ordovician rocks and are assigned a probable Precambrian age (Hall, 1966; Williams, in prep.). Lithologically similar rocks at Telopea Point [DM2877], Mt Louisa [DM5288] and Ironbound Range [DN5984] have been correlated tentatively with the Bathurst Harbour sequence (Jennings, 1960; Hall, 1966). At Ironbound Range, 15 m of basal breccia containing clasts of the basement material overlie metamorphosed Precambrian rocks. The breccia is overlain by 600 m of siltstone and gritty sandstone with a well developed vartical slaty cleavage (Hall, 1966; Hall *et al.*, 1969*a*). These rocks are unconformably overlain by correlates of the Owen Conglomerate.

At Bathurst Harbour the basal unit is a 500 m thick conglomerate sequence containing blocks of metamorphosed Precambrian basement rocks up to 1.5 m long. This unit is overlain by 600 m of turbiditic sandstone, conglomerate and siltstone, which is in turn overlain by a unit comprising 700 m of sandstone and siltstone beds alternating with variable thicknesses of mudstone. This latter unit includes a number of coarse conglomerate beds in a distinct stratigraphic zone. Lateral variations in rock type are common. Deposition of these rocks is thought to have taken place on a submarine fan complex in an actively subsiding basin (Williams, P.R., in prep.).

Rocks in this sequence have been deformed by two major episodes of folding. Folds trending WNW were formed after an initial period of isoclinal folding which did not produce a penetrative rock fabric. The second folding episode produced a synclinal structure which plunged gently to the west and a cleavage was developed in the core of the fold. A third folding phase rotated the earlier fold hinges to a north-north-westerly trend and produced an axial surface cleavage, which is a crenulation cleavage in areas where the earlier cleavage developed. This cleavage crosses the boundary into the basement at Joe Page Bay [DN2502]. The boundaries between the unmetamorphosed sequences and the metamorphosed sequences are faulted (Jennings, 1960; Hall, 1966). Later small conjugate folds occur which produce a crenulation lineation, a crenulation cleavage, or both.

At the Davey River [DN1827], an unfossiliferous sequence of up to 800 m of conglomerate followed by a pebbly sandstone and sand-shale alternation up to 1000 m thick rests unconformably on metamorphosed Precambrian rocks (Bowen and MacLean, 1971). These rocks are conformably overlain by a fossiliferous sandstone unit which is Early Ordovician in age. These rocks are grouped with the relatively unmetamorphosed Precambrian rocks. They have been correlated with the Bathurst Harbour sequence (Hall *et al.*, 1969*a*; Bowen and MacLean, 1971), but may be Late Cambrian to Early Ordovician in age (Bowen and MacLean,

CAMBRIAN SYSTEM

EASTERN AREA

Unfossiliferous rocks

Rocks on the southern part of the Denison Plain* [DN3560] and at DN3858 overlie the metamorphosed Precambrian rocks with an inferred unconformity (Brown and Turner, in prep.). The sequences may be Eocambrian in age. On the Denison Plain foliated, poorly sorted conglomerate contains disoriented clasts of chert and minor cleaved quartzite up to 100 mm in size. Regions of fractured, massive and brecciated chert and siltstone-mudstone-chert also occur. On the eastern side of the Denison Plain the rocks are poorly sorted conglomerate with angular cobble-sized clasts of carbonate rocks, siltstone and rounded quartzite.

Between the southern end of the Denison Plain and DN3858, phyllite, micaceous quartzite and minor quartzite crop out. A sequence of dark grey phyllite and micaceous quartzite occurs at DN3858 (Corbett, 1970; Brown and Turner, in prep.). The micaceous quartzite contains boulders, cobbles and pebbles of quartzite and graded bedding has been observed. Mixtite units form part of the sequence.

A sequence of granule, pebble and minor thick-bedded cobble conglomerate, pebbly siliceous sandstone and siliceous sandstone unconformably overlies the above rocks. Graded bedding in the sandstone shows that the sequence faces east. Cleavage surfaces and kink bands in the clasts are randomly oriented, showing that the deformation in the basement rocks occurred prior to the deposition of this sequence. This conglomeratic unit passes conformably upwards into a turbidite sequence consisting of silty and sandy turbidite beds up to 0.5 m thick with little interbedded mudstone (Brown and Turner, in prep.).

Poorly sorted sandstone, fissile mudstone and subordinate chert adjoin the turbidite sequence to the north and east. The contact is at least partly due to faulting. Thick-bedded sandstone and mudstone are the predominant rock types. Chert is interbedded with mudstone in horizons up to 10 m thick. Minor basic to intermediate volcanic rocks also occur (Corbett, 1970).

Deformation of this sequence of rocks produced up to three cleavages and was related to the behaviour of the metamorphosed Precambrian rocks to the west. At least part of the deformation took place before the Tabberabberan Orogeny (Brown and Turner, in prep.).

A small area of probable Cambrian rocks on the western end of Mt Mueller [DN5664] includes thick horizons of banded chert, massive greywacke, red mudstone, acid tuff and andesitic lavas (Corbett, 1970). Dolerite intrusions are also present.

Ultramafic rocks

Separate bodies of ultramafic intrusive rocks crop out around DN4767 and DN4858. Rocks in the northern body are serpentinite and serpentinised dunite (Brown, 1972). The southern ultramafic body consists of intermixed lenses of sheared serpentinite and sheared mudstone. A thick lens of blocky serpentinite with some relict primary pyroxenite textures occurs towards the southern end of the body. The ultramafic rocks were intruded prior to the deposition of sediments containing ultramafic detritus in the Adamsfield area

*Now flooded by Lake Gordon.

(Queenstown Sheet, DN4470), the age of which is Late Dresbachian to Early Franconian (Carey and Banks, 1954).

Fossiliferous rocks

A sequence of poorly sorted conglomerate contains sub-angular to sub-rounded clasts of quartzite and quartz-mica schist up to 600 mm in diameter at Harlequin Hill [DN4641] (Godfrey, 1970). This grades upwards to a coarse-grained quartz-sandstone with occasional small pebbles. The sequence is 600 m thick and is overlain by fine-grained turbidites interbedded with green micaceous siltstone containing trilobites indicating an early Late Cambrian age for the rocks. The siltstone also contains an abundant shelly fauna of early orthid and strophomenid brachiopods.

An isolated sequence of 300 m of dolomitic sandstone, red and green mudstone, conglomerate containing ultramafic detritus and turbidites occurs on the Scotts Peak road (DN5058; Corbett, 1970). This sequence has an unconformable contact with the mudstone sequence to the west. It is poorly fossiliferous with a fauna containing Middle or Late Cambrian hydroids, dendroids, inarticulate brachiopods and an arthropod (Quilty, 1971).

WESTERN AREA

Acid volcanic and associated intrusive rocks

Acid volcanic and associated intrusive rocks crop out between Little Rocky River [CN8541], Drake Creek [CN8140] and the Wanderer River [CN8559]. The eastern boundary is marked by a quartz-feldspar-porphyry intrusion which extends north of the Wanderer River (Hall *et al.*, 1969*b*). This is faulted against Precambrian rocks (White, 1975).

The volcanic sequence consists dominantly of ash-fall tuffs with minor flows (White, 1975) some of which have been described as rhyolitic lavas (Corbett, 1968*a*). Near the Lewis River [CN8245] the upper part of this sequence contains interbedded sediments which have been metamorphosed to quartz schist and dolomitic or chloritic phyllite.

The volcanic rocks have been intruded by several major granitic bodies which are compositionally similar to the surrounding pyroclastic rocks (White, 1975). At Low Rocky Point [CN7840] a major adamellite intrusion is bounded to the north by quartz porphyry. Both rock types interfinger with the volcanic rocks. Composition within the adamellite body ranges from granite to granodiorite. The granitic rocks are intruded by aplite and mafic dykes; the latter also intrude the volcanic rocks. Some of the dykes are of lamprophyre and may be related to Mesozoic igneous activity (White, 1975; Sutherland and Corbett, 1974).

Intermediate volancic rocks

West of the acid volcanic sequence a variable thickness (up to 700 m) of phyllite and siliceous schist conformably underlies intermediate volcanic rocks which extend north from Diorite Point [CN7547]. These rocks have been metamorphosed to form lower greenschist facies assemblages and primary minerals are rarely preserved. The succession includes breccia with flattened fragments of altered igneous rocks, laminated pale green volcanic siltstone and banded or massive tuff, calcareous siltstone and greywacke, altered dacite and intermediate lava types and basic and intermediate dyke rocks. The alteration appears most intense in the south (Corbett, 1968*b*).

Marine sedimentary sequence

The intermediate volcanics are probably overlain to the west by grey siltstone, greywacke and conglomerate containing clasts of schist, siltstone and chert. Between the head of Cypress Creek [CN7560] and north of Mt Osmund [CN7958], the marine sequence is dominantly argillite and greywacke with minor conglomerate and rare limestone. Volcanic rocks and minor serpentinite, andesite, gabbro, basalt and diorite occur in the sequence (Corbett, 1969).

The volcanic rocks are well foliated and steeply dipping, suggesting that the metamorphism and cleavage may be contemporaneous (Corbett, 1968*b*). The sedimentary sequence has a dominant N-S trending slaty cleavage closely parallel to the lithological layering which is cut by a later crenulation cleavage (Hall, *et al.*, 1969*b*).

LATE CAMBRIAN AND ORDOVICIAN SEQUENCES

Late Cambrian to Ordovician rocks occur in the Olga and Hardwood Valley [DN0260-DN1341], Mt Osmund [CN8053] and at Ragged Range [DN4466] and Saw Back Range [DN4764].

At Ragged Range, a 200 m thick sequence of chert-rich conglomerate, quartz sandstone and micaceous siltstone with abundant worm tubes, unconformably overlies Cambrian chert and greywacke. This is followed by 500 m of pebble to boulder conglomerate interbedded with maroon conglomeratic sandstone interfingering with cross-bedded sandstone and fine conglomerate at Ragged Range and Saw Back Range. The sandstone contains worm burrows and rare gastropods (Corbett, 1970). The lower 200 m is correlated with the lower part of the Denison Sub-Group (Corbett, 1970) which is Late Cambrian in age. The conglomeratic rocks are conformably overlain by quartz sandstone with abundant worm tubes and gastropods, interbedded calcareous siltstone, fine sandstone and impure nodular limestone and cross-bedded quartz sandstone with calcareous and glauconitic horizons. This sequence of rocks contains an abundant marine fauna of Early Ordovician age.

These siliceous rocks are overlain by a thick sequence of dominantly marine limestone. The limestone is dark grey and fine-grained, and includes subsiduary bio-calcarenite, dolomitic limestone, cherty limestone, algal limestone and nodular limestone (Corbett, 1970).

About 130 m of sandstone rests unconformably on metamorphosed Precambrian sediments along the western side of the Olga and Hardwood valleys (Hall, *et al.*, 1969*a)*. South of the confluence of the Hardwood and Davey Rivers [DN1734] the sequence consists of shale, quartz sandstone and conglomerate containing fossils and organic markings (Bowen and Maclean, 1971). The rocks in this area conformably overlie the conglomerate-turbidite sequence described previously (p. 8) or unconformably overlie the basement metamorphic rocks. The total thickness is 100 m.

Conformably overlying the siliceous sequence is a sequence of interbedded limestone, muddy limestone and mudstone up to 1500 m thick (Roberts and Andric, 1972). Sandstone beds are rare and confined to the uppermost parts of the sequence.

At Mt Osmund [CN8053], 20 m of dark coloured shale is overlain by 2000 m of conglomerate consisting dominantly of thickly bedded pebble to cobble conglomerate interbedded with some shale, micaceous sandstone and thinly bedded conglomerate. To the east, the conglomerate rests unconformably on Cambrian acid volcanic rocks and is faulted against Cambrian volcanics and sediment rocks to the west (Hall, *et al.*, 1969*a*).

Two hundred metres of siliceous sandstone is exposed at the Giblin River [CN9739]. The sandstone is overlain by at least 1000 m of light grey to black crystalline limestone (Hall, *et al.*, 1969*a*).

A thin belt of conglomerate at the southern end of the Macquarie Graben [CN9062] has been correlated with the Owen Conglomerate (Hall, *et al.*, 1969*a*). Recent mapping to the north of the region shows that similar conglomerates underlie Cambrian volcanic rocks (Martin, 1974). Because of the continuity of this belt with Cambrian rocks, including conglomerate, to the north, it is probable that the conglomerates are also of Cambrian age.

ELDON GROUP CORRELATES (SILURIAN AND LOWER DEVONIAN SYSTEMS)

A wide belt of quartzite and slate rests conformably on the limestone sequence along the eastern margin of the Olga River and is faulted against the metamorphosed Precambrian rocks (Hall, 1966). These rocks continued north of the Sheet as a sequence of quartzite, siltstone and minor dolomite overlain by siltstone and argillite followed by quartzite. This sequence is overlain by quartzite and sandstone correlated with the Florence Sandstone, and shale and siltstone correlated with the Bell Shale of Early Devonian age (Roberts and Andric, 1974).

TABBERABBERAN OROGENY

The Late Cambrian to Early Ordovician sequences and the Eldon Group Correlates were deformed by the Tabberabberan Orogeny (middle Early Devonian to late Middle Devonian). At Mt Osmund, the conglomerate sequence is folded into an asymmetric syncline plunging gently to the north. At the Giblin River the sandstone and limestone in the centre of syncline plunge SSW. The syncline from the Olga River to the Davey River [DN1734] is an upright structure plunging very gently NNW. The synclinal axis is in rocks correlated with the Eldon Group in the northern part, and in fossiliferous Ordovician rocks in the souther part. The limestone sequence east of the Saw Back Range is in the core of a northerly plunging syncline which is faulted on the western limb by the Lake Edgar fault system.

DEVONIAN GRANITE

Granitic intrusions occur at Cox Bight [DM3985] and at South West Cape [DM2275]. The granite at Cox Bight is coarse- to medium-grained, porphyritic or non-porphyritic, and usually white in colour; it is composed of quartz, K-feldspar, plagioclase, red-brown biotite with secondary chlorite and muscovite. At South West Cape, the rock os coarse-grained, white to yellow in colour and porphyritic with phenocrysts of feldspar and biotite. The biotite is green and the rock contains primary and secondary muscovite. The strong foliation is due to alignment of biotite flakes. The age of these rocks was determined on biotite using the Rb-Sr method which gave ages of 384 $\pm$ 10 Ma for the Cox Bight granite and 326 $\pm$ 10 Ma for the South West Cape granite (C. Brooks, *in litt.*, 14 June, 1971).

LATE CARBONIFEROUS-PERMIAN-TRIASSIC SYSTEMS (PARMEENER SUPER-GROUP)

Rocks belonging to the Parmeener Super-Group occur on Mt Mueller [DN5664], Mt Wedge [DN4256] and Mt Anne [DN5345]. On Mt Mueller 400 m of tillite, conglomerate, sandstone and mudstone overlie Cambrian or relatively unmetamorphosed Precambrian rocks. Basal tillite occurs on the eastern side of Mt Anne and below the summit 80 m of fine-grained, well-bedded sandstone overlie the Precambrian basement (Hall, *et al.*, 1969*a*). Rocks of the lower marine sequence also occur in this area (M.J. Clarke, pers. comm.).

JURASSIC DOLERITE

Jurassic tholeiitic dolerite intrudes the Parmeener Super-Group sediments on Mt Anne, Mt Wedge and Mt Mueller. The intrusions are slightly discordant. At Mt Anne, dolerite rests on the Precambrian rocks and has intruded Precambrian quartzite in one small area (Hall, *et al.*, 1969*a*).

TERTIARY SYSTEM

The southern end of the Macquarie Harbour graben extends to the Wanderer River [CN7664] and is filled with a non-marine sequence of poorly consolidated sand and gravel with thinner beds of clay, silt and lignite (Scott, 1960). Similar deposits at Strahan are of Palaeocene age (Cookson and Eisenack, 1967; Harris, 1968).

QUATERNARY SYSTEM

Deposits of thin boulder till are found on Mt Mueller and Mt Anne (Derbyshire, 1965), on the southern side od Arthur Range [DN4720] and on the eastern side of Frankland Range [DN2843]. Terminal and lateral moraines occur at Mt Mueller and on the Arthur Range, sometimes producing dammed lakes (Derbyshire, 1965). However effects of earlier Quaternary glacial periods than the one which produced the above deposits may have been significant, and the limit of ice much lower than in the later period (Colhoun, 1975).

Raised back-beach dunes at Cox Bight [DM3885] contain cassiterite which has been mined intermittently. Sand dunes behind beaches on the west coast (*e.g.* Stephens Bay, DM1795) are of two generations; stablished longitudinal dunes, trending WNW and fore-dunes actively encroaching the longitudinal dunes (Williams, in press).

Stream deposits of poorly sorted granular material and very well sorted sandy material containing concentrations of alluvial cassiterite are being mined at Moth Creek [DM32912. Recent deposits of peat containing angular quartzite fragments are common in most river valleys and on large plains.

There are numerous gravel deposits associated with the present drainage system at Port Davey, and older gravel deposits, possibly beach gravels, occur above present beach level. There are recent well consolidated consolidated conglomerate deposits at several localities around Bathurst Harbour and Port Davey (Williams, in press). These are formed on the present coastal platform. Small areas of talus and scree mantle the present topography.

REFERENCES

BAKER, W.E.; AHMAD, N. 1959. Re-examination of the fjord theory of Port Davey, Tasmania. *Pap.Proc.R.Soc.Tasm.* 93:113-115.

BOULTER, C.A. 1974*a*. Structural sequence in the metamorphosed Precambrian rocks of the Frankland and Wilmot Ranges, southwestern Tasmania. *Pap. Proc.R.Soc.Tasm.* 107:105-115.

BOULTER, C.A. 1974*b*. Tectonic deformation of soft sedimentary clastic dykes from the Precambrian rocks of Tasmania, Australia, with particular reference to their relations with cleavages. *Bull.geol.Soc.Am.* 85:1413-1420.

BOULTER, C.A.; RÅHEIM, A. 1974. Variation in Si^{4+} - content of phengite through a three stage deformation sequence. *Contrib.Miner.Petrology* 48:57-71.

BOWEN, E.A.; MACLEAN, C.J. 1971. Palaeozoic rocks of the Davey River, southwest Tasmania. *Pap.Proc.R.Soc.Tasm.* 105:21-28.

BROWN, A.V. 1972. *Petrology and structure of the Adamsfield ultramafic mass.* B.sc. (Hons) thesis, University of Tasmania : Hobart.

CAREY, S.W.; BANKS, M.R. 1954. Lower Palaeozoic unconformities in Tasmania. *Pap.Proc.R.Soc.Tasm.* 88:245-270.

COLHOUN, E.A. 1975. A Quaternary climatic curve for Tasmania. *Royal Meteorological Society. Australasian Conference on climate and climatic change, Monash University, 7-12 December 1975.* [unpublished].

COOKSON, I.C.; EISENACK, A. 1967. Some early Tertiary microplankton and pollen grains from a deposit near Strahan, western Tasmania. *Proc.R. Soc.Vict.* 80:131-140.

CORBETT, E.B. 1968*a*. Petrology of the Lewis River Volcanics, southwestern Tasmania. *Rep.explor.Dep.B.H.P., Melb.*

CORBETT, E.B. 1968*b*. Geology and petrology of the Mainwaring Group and associated rocks, southwestern Tasmania. *Rep.explor.Dep.B.H.P., Melb.*

CORBETT, E.B. 1969. Petrology of some specimens from Cypress Creek-North Mainwaring River area, southwestern Tasmania. *Rep.explor.Dep.B.H.P., Melb.*

CORBETT, K.D. 1970. *Sedimentology of an Upper Cambrian flysch-paralic sequence (Denison Group) on the Denison Range, south-west Tasmania.* Ph.D. thesis, University of Tasmania : Hobart.

CORBETT, K.D. 1975. The Late Cambrian to Early Ordovician sequence on the Denison Range, south-west Tasmania. *Pap.Proc.R.Soc.Tasm.* 109:111-120.

DERBYSHIRE, E.; BANKS, M.R.; DAVIES, J.L.; JENNINGS, I. 1965. Glacial map of Tasmania. *Spec.Publ.R.Soc.Tasm.* 2.

GODFREY, N.H.H. Notes on the geology of the Scotts Peak Basin area. *Geol. Rep.Hydro-electr.Commn Tasm.* 644-GOR-10.

HALL, W.D.M. 1966. Interim geological report on the southwest portion of exploration licence 13/65, south-west Tasmania. *Rep.explor.Dep.B.H.P., Melb.* 566.

HALL, W.D.M.; McINTYRE, M.H.; HALL, K. 1969*a*. South-west Tasmania, E.L. 13/65. Geological report 1966-1967. *Rep.explor.Dep.B.H.P.,Melb.* 778.

HALL, W.D.M.; McINTYRE, M.H.; CORBETT, E.B.; McGREGOR, P.W.; FENTON, G.R.; ARNDT, C.D.; BUMSTEAD, E.D. 1969. Report on field work in Exploration Licence 13/65, south-west Tasmania during 1967-1968 field season. *Rep. explor.Dep.B.H.P.,Melb.* 793.

HARRIS, W.K. 1968. Tasmanian Tertiary and Quaternary microfloras. Summary report. *Palaeont.Rep.geol.Surv.S.Aust.* 5/68.

JAGO, J.B. 1972. The youngest recorded Tasmanian Cambrian trilobites. *Search* 3 : 173-174.

JENNINGS, I.B. 1960. Notes on the geology of portion of south-west Tasmania. *Tech.Rep.Dep.Mines Tasm.* 5:179-185.

McDOUGALL, I.; LEGGO, P.J. 1965. Isotopic age determination on granitic rocks from Tasmania. *J.geol.Soc.Aust.* 12:295-332.

MACLEAN, C.J. 1974. Structural petrology of the Davey River area, south-western Tasmania. *Pap.Proc.R.Soc.Tasm.* 107:57-63.

MACLEAN, C.J.; BOWEN, E.A. 1971. Structure of the Precambrian rocks of the Davey River area, south-western Tasmania. *Pap.Proc.R.Soc.Tasm.* 105:97-104.

MARTIN, I.D. 1974. *Final report on exploration licence 2/72, Tasmania.* Australasian Minerals Inc. : Perth.

QUILTY, P.G. 1971. Cambrian and Ordovician dendroids and hydroids of Tasmania. *J.geol.Soc.Aust.* 17:171-189.

ROBERTS, G.T.; ANDRIC, M. 1972. Lower Gordon Investigation, Butler Island scheme. Olga-Hardwood Saddle area. *Geol.Rep.Hydro-electr.Commn Tasm.* 644-97-4.

ROBERTS, G.T.; ANDRIC, M. 1974. Investigations into the watertightness of the proposed Gordon-above-Olga hydro-electric storage south-west Tasmania. *Quart.J.engng Geol.* 7:121-136.

SCOTT, B. 1960. Comments on the Cainozoic history of western Tasmania. *Rec.Qn Vict.Mus.* (n.s.) 12.

SPRY, A.H. 1962. The Precambrian rocks, *in* SPRY, A.H.; BANKS, M.R. (ed.). The geology of Tasmania. *J.geol.Soc.Aust.* 9(2):107-126.

SPRY, A.H.; BAKER, W.E. 1965. The Precambrian rocks of Tasmania, Part VII, Notes on the petrology of some rocks from the Port Davey-Bathurst Harbour area. *Pap.Proc.R.Soc.Tasm.* 99:17-26.

SUTHERLAND, F.L.; CORBETT, E.B. 1974. The extent of Upper Mesozoic igneous activity in relation to lamprophyric intrusions in Tasmania. *Pap.Proc. R.Soc.Tasm.* 107:175-190.

WHITE, N.C. 1975. *Cambrian volcanism and mineralisation, south-west Tasmania.* Ph.D. thesis, University of Tasmania : Hobart.

WILLIAMS, P.R. in press. Geological atlas 1:50 000 series. Sheet 91 (8011S), Davey. *Explan.Rep.geol.Surv.Tasm.*