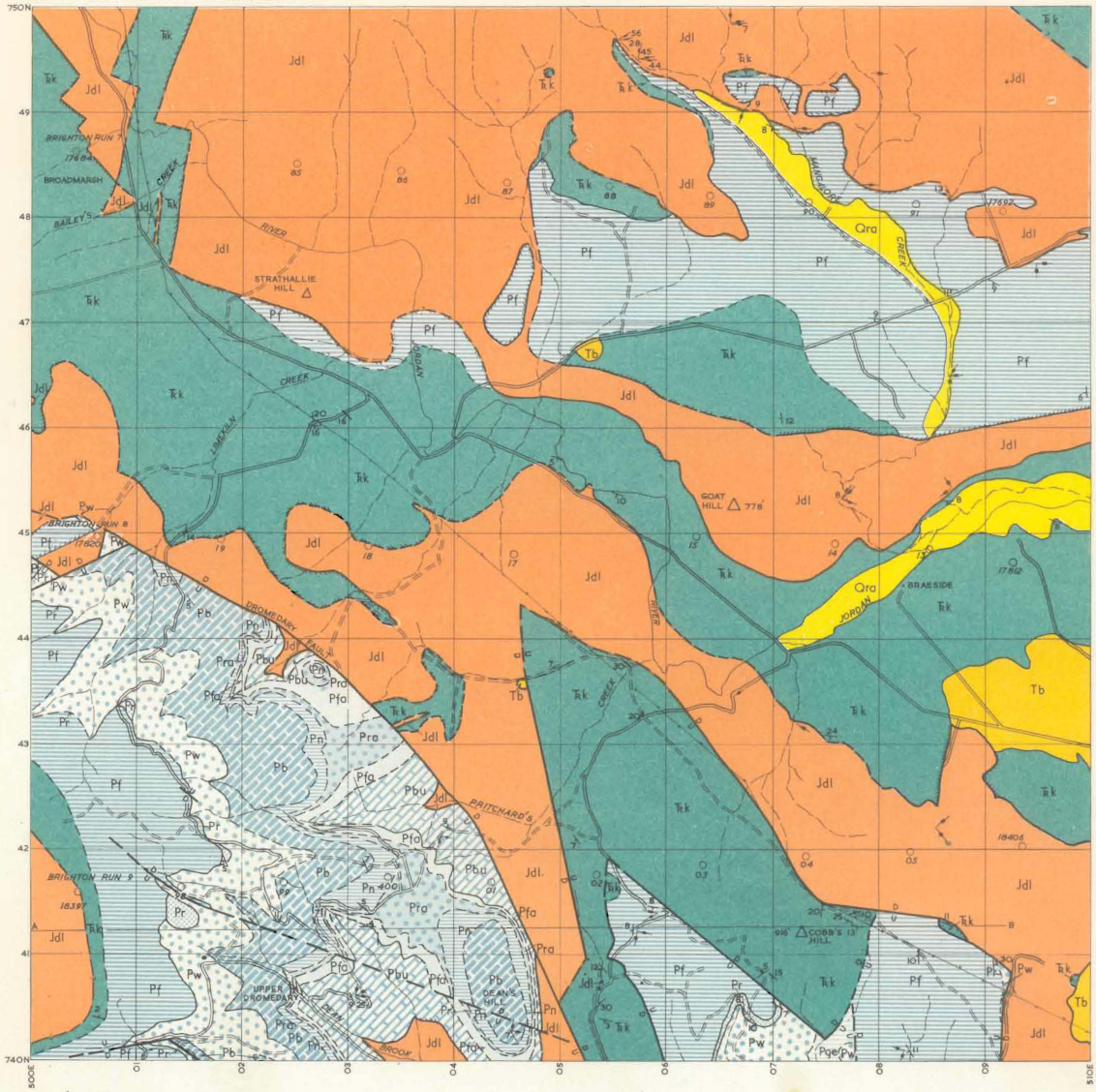
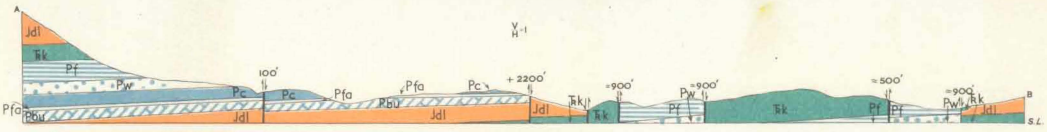
GEOLOGY OF TASMANIA

ONE INCH SERIES—UNIVERSITY OF TASMANIA, GEOLOGY DEPARTMENT

DROMEDARY

5074





LEGEND

- FAULT WITH DOWNTHROWN SIDE INDICATED
- FAULT—POSITION APPROXIMATE
- FAULT INFERRED
- FORMATION BOUNDARY
- FORMATION BOUNDARY—POSITION APPROXIMATE

Dolerite Boundaries

- CONCORDANT SILL
- DISCORDANT INTRUSIVE BOUNDARIES
- VERTICAL JOINTS
- STRIKE AND DIP OF JOINTS
- STRIKE AND DIP OF STRATA
- ROAD
- RAILWAY LINE
- VEHICULAR TRACK
- TRANSMISSION LINE

Quaternary System
RECENT SERIES

- Qra ALLUVIUM

Triassic System

- Trk KNOCKLOFTY FORMATION

Permian System

- Pf FERNTREE MUDSTONE
- Pr RISDON SANDSTONE
- Pw WOODBRIDGE GLACIAL FORMATION
- Pge GRANGE MUDSTONE
- Pc CASCADES GROUP
  - Pb BERRIEDALE LIMESTONE
  - Pn NASSAU SILTSTONE
- Pra RAYNER SANDSTONE
- Pfa FAULKNER GROUP
- Pbu BUNDELLA MUDSTONE

IGNEOUS ROCKS
Tertiary System

- Tb BASALT

Jurassic(?) System

- Jdl DOLERITE

Compilation from Aerial Photographs. Trigonometric Station Control by courtesy of the Department of Lands and Surveys Hobart and the Australian Army Survey Service. Origin of co-ordinates 400,000 yds. West and 1,800,000 yds. South of the True Origin of Zone 7 of the International Grid.

KEY MAP SHOWING MAGNETIC DECLINATIONS SECULAR VARIATION 7 MINS. P.A.

MAPPED AND COMPILED BY I. McDOUGALL 1956

SCALE

0 1 2 3 4 5,000 2 MILES 10,000 FEET

GEOLOGY OF THE DROMEDARY AREA
SHEET 5074

PHYSIOGRAPHY

The area has in general a relief of about 800', with rounded, but commonly steep-sided, hills rising up from relatively broad valleys. The physiography has been controlled mainly by the Tertiary faulting striking in a north-westerly direction. The Dromedary Fault is the major fracture and has a throw of 2,000 feet or more decreasing in magnitude to the north-west. On the upthrown (south-west) side of this fault the relief is in excess of 2,000'. In the downthrown block, which was tilted towards the fault plane, the main drainage of the area takes place parallel to the fault with small consequent streams flowing in at approximately right angles from both blocks. The distribution of the resistant dolerite and the relatively soft sediments has also been an important factor in controlling the physiography. The Jordan River north of Strathallie Hill, has cut a steep-sided valley and appears to follow major joints within the dyke-like intrusion of dolerite.

STRUCTURAL GEOLOGY

The major structural features are the Tertiary faults. Apart from the large Dromedary Fault two horsts occur within the southern part of the area with the larger Cobb's Hill horst of Triassic sediments having a throw of the order of 900', and the inner, smaller horst, consisting of Permian sediments, having a throw of similar magnitude.

STRATIGRAPHIC TABLE

Age	Group	Formation	Lithology	Thickness (in feet)
Quaternary			River gravels and alluvium	
Tertiary		Brighton Basalt	Olivine basalt flow	100
			Basanite plugs	
Early Tertiary (?)			Strong Faulting	
Jurassic (?)			Tholeiitic dolerite sills and dykes	
Triassic		Knocklofty Sandstone and Shale	Predominantly quartz sandstone, some shale. Basal conglomerates and granule conglomerates.	650
Permian		Ferntree Mudstone	Mudstone	620
		Risdon Sandstone	Sandstone, conglomeratic bands	20
		"Woodbridge Glacial Formation"	Siltstones and fine sandstones—Basal coarse sandstone	260
	Cascades	Grange Mudstone	Mudstone	**100-0**
		Berriedale Limestone	Limestone, minor calcareous mudstone	150-250
		Nassau Siltstone	Siltstone	60
		Rayner Sandstone	Sandstone and Siltstone	35
	Faulkner		Sandstone and Siltstone	40
		Bundella Mudstone	Sandstones, siltstones, mudstones	250+

IGNEOUS ROCKS

In the Jurassic (?) Period there was widespread injection by tholeiitic dolerite magma into the Permo-Triassic sediments as large, commonly irregular, sill-like and dyke-like bodies. The sills in most cases have been unroofed by erosion. Over 1,000 feet of dolerite is exposed in a sill capping Mt. Dromedary in the south-west corner of the area.

There are two occurrences of basanite in the form of plugs and these are considered to be Tertiary in age. A flow of olivine basalt of Tertiary age fills portion of the pre-basaltic Jordan valley.

POINTS OF SPECIAL INTEREST

Basanite plug (5053E 7468N).
Horst fault (5060E 7415N).
Dromedary Fault (5047E 7413N).
Fault breccia (5010E 7402N).
Steep intrusive contact of dolerite with sediments (5050E 7466N).
Basal Triassic grits (5070E 7472N).
Risdon Sandstone (5067E 7405N).

REFERENCES

Banks, M. R., and Hale, G. E. A., 1957—A type section of the Permian System in the Hobart Area. **Pap. Proc. Roy. Soc. Tasm.,** vol. 91, pp. 41-64.

Lewis, A. N., 1946—Geology of the Hobart District. Mercury Press, Hobart.

McDougall, I., 1959—The Brighton Basalts, Tasmania. **Pap. Proc. Roy. Soc. Tasm.,** vol. 93.

McDougall, I., 1959—The Geology of the Pontville-Dromedary Area, Tasmania. **Pap. Proc. Roy. Soc. Tasm.,** vol. 93.

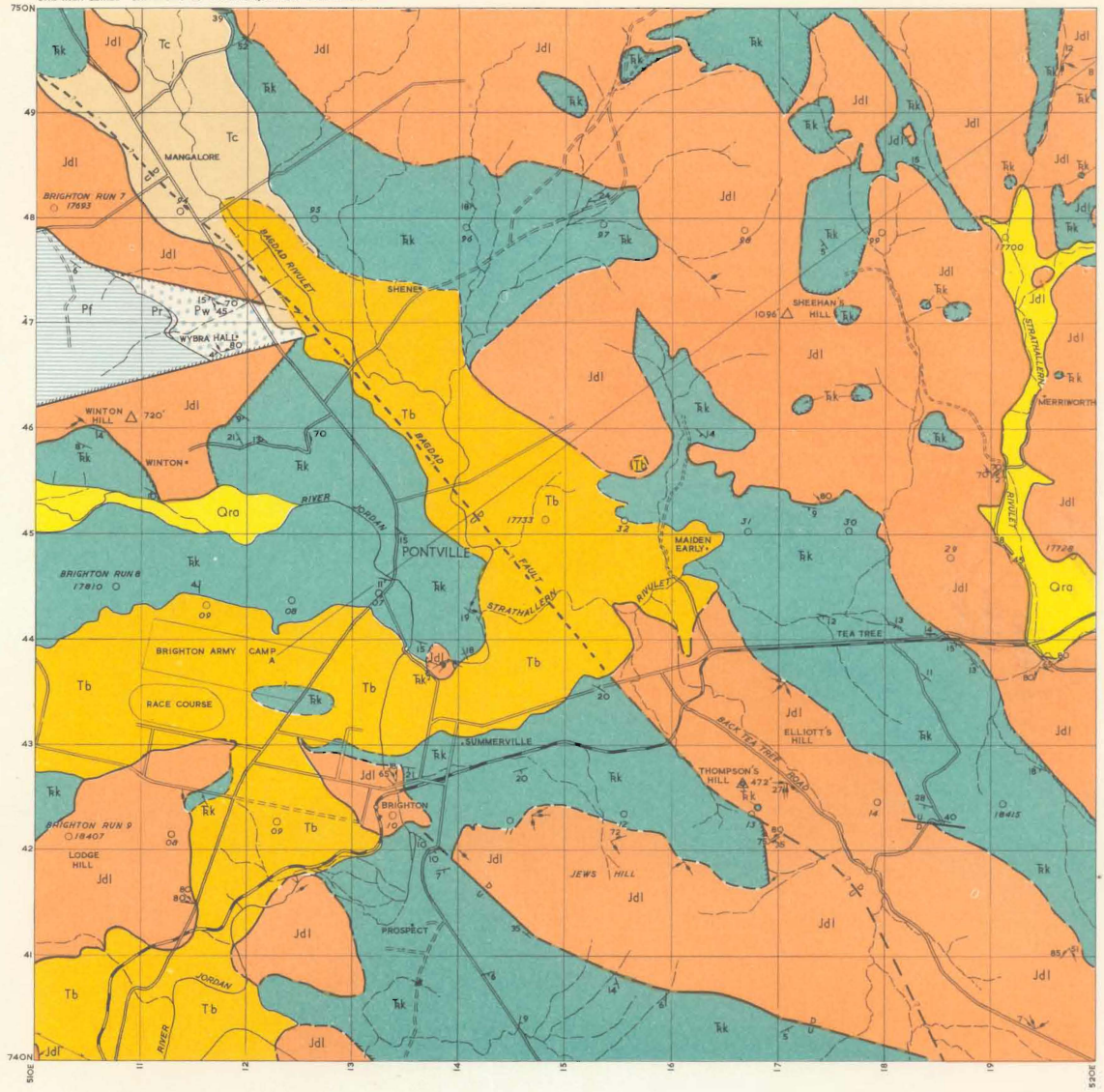
Nye, P. B., 1922—The underground water resources of the Jericho-Richmond-Bridgewater Area. **Tas. Dept. Mines Underground Water Supply Paper,** No. 2.

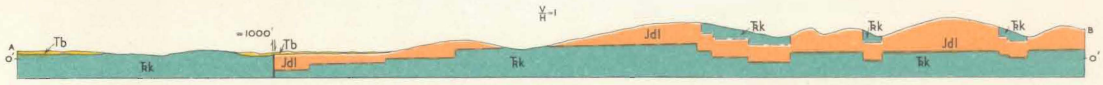
GEOLOGY OF TASMANIA

ONE INCH SERIES — UNIVERSITY OF TASMANIA, GEOLOGY DEPARTMENT

PONTVILLE

5174





LEGEND

Compilation from Aerial Photographs. Trigonometric Station Control by courtesy of the Department of Lands and Surveys, Hobart, and the Australian Army Survey Service Origin of co-ordinates 400,000 yds. West and 1,800,000 yds. South of True Origin of Zone 7 of the International Grid.

U/D — FAULT WITH DOWNTHROWN SIDE INDICATED

FAULT CONCEALED

? FAULT INFERRED

FORMATION BOUNDARY

FORMATION BOUNDARY - POSITION APPROXIMATE

Dolerite Boundaries

CONCORDANT SILL

DISCORDANT INTRUSIVE BOUNDARIES

VERTICAL JOINTS

75 STRIKE AND DIP OF JOINTS

13 STRIKE AND DIP OF STRATA

ROAD

RAILWAY LINE

VEHICULAR TRACK

TRANSMISSION LINE

Quaternary System

RECENT SERIES

Qra ALLUVIUM

Tertiary System

Tc CLAYS AND SANDS

Triassic System

Tk KNOCKLOFTY FORMATION

Permian System

Pf FERNTREE MUDSTONE

Pr RISDON SANDSTONE

Pw WOODBRIDGE GLACIAL FORMATION

IGNEOUS ROCKS

Tertiary System

Tb BASALT

Jurassic ? System

Jdl DOLERITE

KEY MAP SHOWING MAGNETIC DECLINATIONS 1957

SECULAR VARIATION 7' PER ANNUM

MAPPED AND COMPILED BY I. McDOUGALL 1956

SCALE

0 1 2 3 4 5,000 2 MILES 10,000 FEET

GEOLOGY OF THE PONTVILLE AREA
SHEET 5174

PHYSIOGRAPHY

Rounded but steep-sided hills, usually composed of dolerite, rise up to some 800' above the broad open valleys which are generally eroded in the relatively soft Triassic sediments. Faulting has also been a controlling factor, particularly the Bagdad Fault, which the Bagdad Rivulet follows for some distance. Commonly dolerite and basalt act as local base levels for the streams because of their resistance to erosion. Above these bars the drainage system has sediments as bed rock and wide valleys have been eroded in which the gradient of the streams is low. Within the basalt and dolerite the rivers have developed gorges.

The surface of the basalt, except where the streams breach it, is markedly planar.

STRUCTURAL GEOLOGY

The Bagdad Fault is the main structural feature of the area and has an estimated throw of about 800', downthrowing to the north-east. The south side of Jew's Hill is also faulted, with a minimum throw of 150'.

STRATIGRAPHIC TABLE

Age	Formation	Lithology	Thickness (in feet)
Quaternary		Alluvium and river gravels	
Tertiary	Mangalore	Clay and sand	5 +
	Brighton Basalt	Olivine basalt flow	150 +
		Plug of olivine basalt	
Early Tertiary (?)	**Strong Faulting**		
Jurassic (?)		Tholeiitic dolerite sills and dykes	
Triassic	Knocklofty Sandstone and Shale	Sandstones and shales	1000 +
Permian	Ferntree Mudstone	Mudstone	200 +
	Risdon Sandstone	Sandstone	20
	"Woodbridge Glacial Formation"	Siltstones and fine sandstones	250

IGNEOUS ROCKS

Jurassic (?) dolerite was intruded as rather irregular sheet-like and dyke-like bodies. Almost invariably the sedimentary roof rocks of the intrusions have been removed by erosion along with some of the dolerite, so that the maximum thickness remaining in a sill-like body is about 800 feet. The complex outcrop pattern of dolerite and sediment in the north-eastern part of the area is possibly due to the interfingering of two sheets of dolerite originating from different centres of irruption.

The Brighton Basalt of Tertiary age has flowed down the pre-existing Jordan valley, flooding back up the valleys of the Bagdad and Strathallern Rivulets. Only one flow is present which in the south exceeds 150 feet in thickness. The basalt is a massive to vesicular and amygdaloidal, olivine-bearing type normatively saturated in silica. Depending on the position within the flow the texture varies from porphyritic with a glassy groundmass to typically ophitic. Polygonal joint columns are usually developed and in some cases groups of such columns present most extraordinary forms, varying from fan-shaped groups to "synclines" up to 120 yards across.

A plug of olivine basalt, probably also of Tertiary age, occurs north-west of Maiden Early.

POINTS OF SPECIAL INTEREST

"Syncline" of basalt columns (5115E 7400N).

Fan shaped group of basalt columns (5135E 7438N).

Section through basalt flow showing the strong textural variation (5142E 7438N).

Intrusive contact of dolerite with sandstone (5139E 7438N).

Triassic sandstones showing current bedding (5187E 7439N) and slump structures (5133E 7446N).

REFERENCES

Edwards, A. B., 1950—The petrology of the Cainozoic basaltic rocks of Tasmania. **Pap. Proc. Roy. Soc. Vic.,** vol. 62 (New Series), pp. 97-120.

Lewis, A. N., 1946—Geology of the Hobart District. Mercury Press, Hobart.

McDougall, I., 1959—The Geology of the Pontville-Dromedary Area, Tasmania. **Pap. Proc. Roy. Soc. Tasm.,** Vol. 93.

McDougall, I., 1959—The Brighton Basalts, Tasmania. **Pap. Proc. Roy. Soc. Tasm.,** Vol. 93.

Nye, P. B., 1922—The underground water resources of the Jericho-Richmond-Bridgewater Area. **Tas. Dept. Mines Underground Water Supply Paper,** No. 2.