

ECONOMIC & GENERAL GEOLOGY

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1. Granite outcrops, Forestier Peninsula.

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The geological map published in the Atlas of Tasmania in 1965 shows granite on the foreshore near Cape Surville; Forestier Peninsula. Three visits were made to the Cape Surville area to sample granite outcrops. The shoreline was reached by a different route on each occasion indicating that descent to sea level is possible at intervals along this stretch of coast. Rugged relief precluded visits to many outcrops; lithologies were sometimes derived from the inspection of fallen blocks, and recognition, correlation and estimates of thickness were made from a distance (fig. 2).

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The sequence in the 100 m high cliffs of the gulch at the end of Schofield Road was interpreted as Ross-type sandstone overlying 60-70 m of Permian mudstone/siltstone. A shallow south-west dip makes correlation across the gulch imprecise but apparently this is the site of an E-W fault with a down-throw of about 20 m south. The castellated ridge forming the headland 0.5 km further south, again exhibits a sedimentary sequence of 50 m of grey mudstone overlain by 50 m of pale yellow sandstone.

A descent was made 0.5 km south of the east end of Schofield Road where 0.7 km of boulder beach was traversed from north to south with a headland of Triassic sandstone overlying Permian mudstone to the north, 0.2 km of Triassic sandstone at sea level (downfaulted or landslipped) then fossiliferous, more or less indurated, Permian siltstone and mudstone with cliffs, waterfalls and intertidal pavements before a sharp inaccessible igneous contact. The next major headland is Cape Surville where a tower of 60 m of Permian mudstone rests on a 120 m plinth of Jurassic dolerite. At one place on the beach some half-dozen boulders of basalt occur. The concentration and uniqueness suggests a local source. Inspection of hand specimens by F.L. Sutherland confirms olivine basalt unrelated to Jurassic dolerite and probably Tertiary in age.

The headland opposite The Sisters group of islands was reached via Macgregor Link and Richardsons Road with a 1.5 km approach through heavy re-growth scrub over intermittent fossiliferous Permian mudstone outcrop. Descent was made down 120 m of broken cliff and giant scree through a succession composed mainly of fossiliferous Permian limestone. An upper, massive, fragmental limestone overlies an abundantly fossiliferous strophalosiid siltstone and thence down through spiriferid limestone beds, *Eurydesma* limestone, massive conglomerate, and arkose basal beds. Occasionally the basal beds consist of re-cemented angular granite blocks only slightly disarranged from their original relative positions. The southern aspect of the headland is of granite porphyry with the base of the Permian succession descending from about 50 m inland to only 5-10 m above sea level on the point to the south. The succession on the northern aspect of the point is obscured by rock fragments many tens of metres in each dimension, probably slipped blocks and cliff-fall material. No Triassic rubble occurs on this section of the shore.

The geology of the cliffs to the west and north is spectacular, with the Cape Surville dolerite sill rising from sea level beneath granite, and

with Permian rocks forming a conspicuous capping over granite and dolerite at various levels. The Sisters consist of four major islets aligned E-W of the headland, the inner two are indubitably of granite. However, the outer two have a conspicuous horizontal stratiform structure with flat tops suggesting unusually well-defined basal jointing in granite or possibly bedding in highly-resistant basal Permian conglomerates and arkoses.

A hand specimen of granite from The Sisters headland shows zoned euhedral feldspar phenocrysts up to 30 mm in length and rounded clusters of grey quartz 10 mm in diameter, in a medium-grained background composed of quartz and cream-coloured feldspar. In thin section extensive alteration and partial recrystallisation has clouded the feldspars and produced mosaic patches of sutured quartz with shadowy extinction. Rounded quartz grains of hollow skeletal form, and broad tracts of quartz-alkali feldspar intergrowth occur. Rectangular sections of multiple-twinned sodic plagioclase, 2 mm in length can be recognised. Irregular interstitial patches of felted sericite 0.5 mm in diameter, and patches of chlorite, sericite, iron oxide and biotite-remnants, 2 mm in diameter, suggest alteration from biotite aggregates.

Further to the south Deep Glen Bay was reached via the Macgregor Link and Richardsons Road, and a descent was made in the creek bed 3 km to the south of Schofield Road. A pebble beach is limited to approximately 100 m, with the bedrock everywhere at sea level being granite. From a vantage point 0.4 km along the north side of the bay the relief of the pre-Permian surface is well displayed, reminiscent of the east coast terrain of Maria Island. A gully in granite infilled by Permian boulder beds to the north-east shows the base of the Permian strata at some 60 m above sea level with a succession of small cliffs of Permian sediments rising to 350 m. Near the beach the base of the Permian is again estimated at 60 m but further south the Permian base occurs only about 20 m above sea level. Fragments on the shore include monolithic blocks of Triassic sandstone, and occasional pale, fragmental Permian limestone boulders. The *Eurydesma* limestone seen on the headland opposite The Sisters was not observed.

In hand specimen the granite from Deep Glen Bay displays a fine-grained matrix, sparse rotten feldspar insets 30 mm in diameter and clusters of glassy quartz, 10 mm in diameter. In thin section the matrix of quartz and extensively-altered feldspar is composed of an equigranular mosaic with an average grain size of 0.3 mm, in which multiple-twinned sub-rectangular sections of sodic plagioclase are less common than irregular quartz grains with shadowy extinction and subhedral and interstitial, simply-twinned alkali feldspars. Biotite formed rare clusters, 2 mm in diameter, consisting of flakes 0.6 mm in length are now almost completely altered along the cleavage to muscovite, with interstitial patches of felted sericite. Rare flakes of muscovite, 0.2 mm in length may be original. Partial late stage replacement has produced a pattern of quartz blebs 0.2 mm in diameter, locally with optical continuity, in patches of matrix, 5 mm in diameter.

REFERENCE

DAVIES, J.L. (ed.). 1965. *Atlas of Tasmania*. Lands and Surveys Department, Hobart.

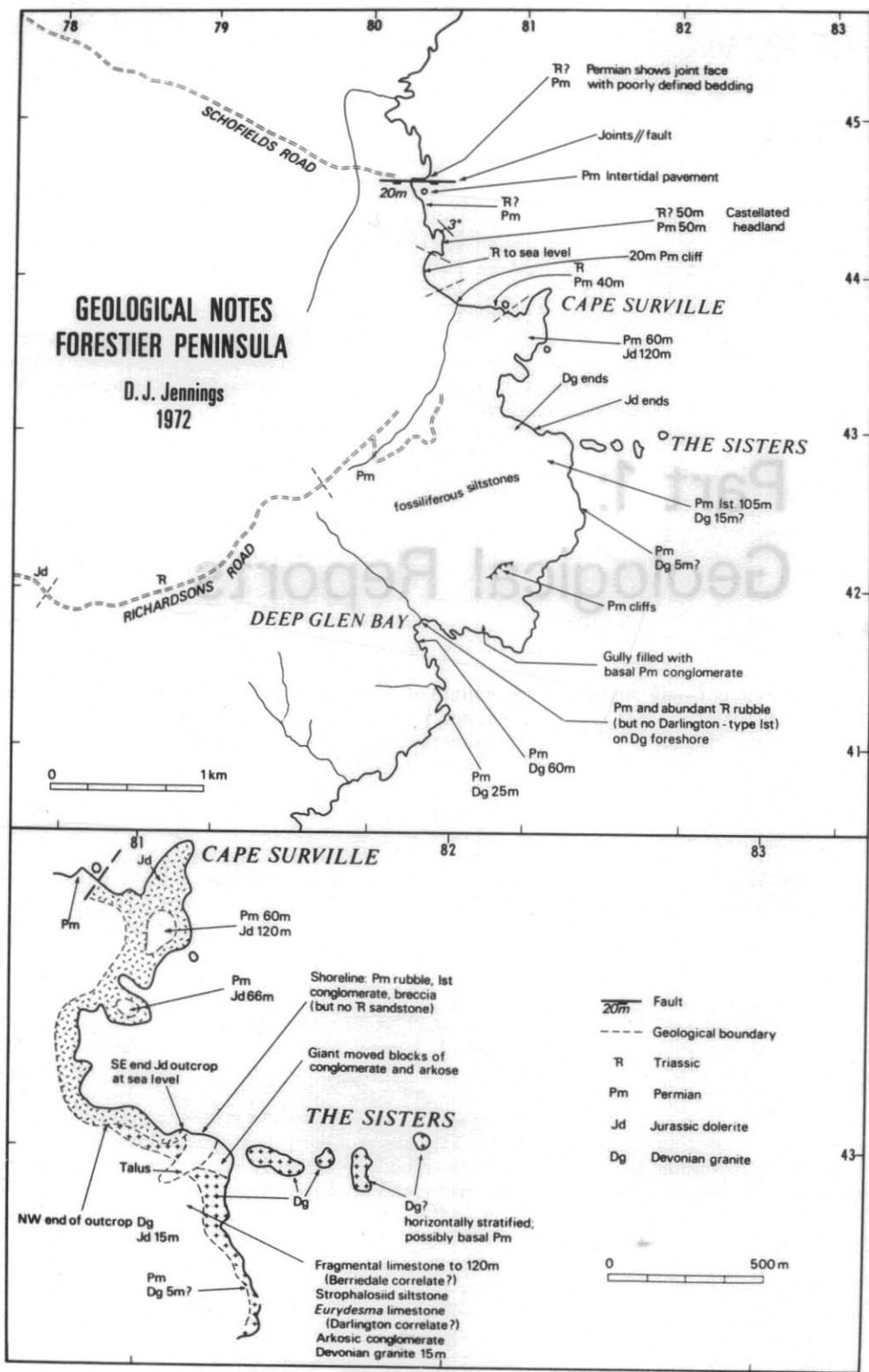


Figure 2.