



## BRIEF BACKGROUNDS

# PORCUPINE GORGE

## HUGHENDEN DISTRICT

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Porcupine Gorge about 45km north of Hughenden is a surprising feature cut deeply into the otherwise flat plains of the district, by Porcupine or Galah Creek, a tributary of the Flinders River.

The broad low plateau north of the town is formed on flat-lying basalt lavas of the Sturgeon Basalt, which were erupted in relatively recent geological time, about 5.5 million years ago. Porcupine Creek has eroded through this cap of basalt into the older rocks beneath. These are soft sediments, which have allowed the stream to easily and rapidly erode a deep sided gorge beneath the basalt.

Of interest are the great variety of rocks exposed in the gorge, ranging in age from late Tertiary at the top to ancient metamorphosed sediments of Cambrian to Ordovician age (about 500 million years old) at the bottom of the northern part of the gorge. Considerable time gaps exist between some of the rock units.

The uppermost rocks are the dark brown to black basalts which weather to a red soil. Beneath them are white or light coloured sediments, mainly coarse sandstones of the Glendower Formation. These were deposited by an ancient river draining south towards southwest Queensland in late Tertiary times (~5-10million years).

Beneath them are softer, poorly outcropping, sediments which were deposited in a shallow marine sea that invaded the areas in the early Cretaceous period (~130-140 million years ago). These are the Gilbert River Formation, comprising near-shore and adjacent terrestrial sandy and pebbly sediments, and the Doncaster Member of the Wallumbilla Formation, which contains shaly and muddy sediments deposited in an open marine environment.

The next lower and obvious rock unit is the mid-brown, thick sandstone of the Blantyre Sandstone, which was laid down in major river systems in Jurassic times (~200 million years ago). Beneath that again is the thick, white Warang Sandstone of Triassic age (~220 million years), also laid down in river systems.

In the upper reaches of the gorge the Warang Sandstone is underlain by the Betts Creek beds, which are freshwater sandstones, shales, minor coal seams and conglomerates laid down in relatively warm times in the late Permian period (~240 million years). Beneath these again are the Boondaroo beds (of Carboniferous to early Permian age ~280 million years), which are sediments consisting of debris from glaciers that then existed on mountainous areas to the northeast during a cold climatic interval.

The oldest rocks are the schists, gneisses and amphibolites of the Cape River beds in the northern part of the gorge east of Mount Spurgeon. These have been derived by metamorphism and compression of sediments of Cambrian to Ordovician age (~500 million years).

From the ancient metamorphic rocks in the north southwards for 30km, the gorge forms wild river scenery with impassable pools and jumbled boulder tracks, opening out in places to rock pavements and sandy pools. Access from the plateau surface is limited to one or two routes.

Most of the gorge is now within the Porcupine Gorge National Park, where a lookout has been constructed just off the Kennedy Development Road in the south and a small campsite has been developed farther north. The most accessible area is adjacent to the campsite where a walking track has been constructed to the floor of the gorge adjacent to the erosional feature known as The Pyramid.

The Pyramid is a spur of flat-bedded brown Blantyre Sandstone cut off by the gorge to give equally inclined sides like an Egyptian pyramid. The Pyramid rests on a wide elevated pavement of white Warang Sandstone, which also extends upstream to past the walking track. The Warang Sandstone has been sculptured by the stream into attractive fluted patterns. The pavement ends in a drift of sand spilling into a quiet pool at the base of the cliffs of The Pyramid.

Extracted from *Geological Elements of the National Estate in Queensland*, Geological Society of Australia Queensland Division, 1976. The geology of the gorge can be seen on the Hughenden 1:250 000 geological sheet.

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GPO Box 1820, BRISBANE Q 4001