

HOLIDAY GEOLOGY

Wave Rock, Australia

Most of Western Australia is underlain by an assemblage of very old granites and metamorphic rocks that collectively form the West Australian Craton. These rocks were formed in stages by successive continental collisions dating from 3700 to 450 Ma. The break-up of Gondwanaland from 135 Ma then separated India and Antarctica from Australia, which then moved northward from its location near the South Pole while undergoing stages of subsidence, uplift and erosion.

Today, granite outcrops break the surface at many locations in an otherwise largely flat landscape. Many of these sites pull in local visitors and foreign tourists alike. Wave Rock, near Hyden in the Midland Wheat Belt is four hours drive east of Perth and attracts 100,000 visitors a year.

From the surrounding bush the rock emerges with a profile shaped like a perfect wave. It is just the skirt of an extensive granite dome. The Wave itself is over 100 m long and about 12 m high. The granite, which



The pale pink porphyritic granite from which Wave Rock has been carved.

View along Wave Rock, with the dark streaks formed by algae that grows along drip lines.



On the dome above Wave Rock, large granite boulders are core-stones left from deep sub-soil weathering in the past.

dates from 2600 Ma, shows flow banding and has contemporary pegmatite dykes. Although this part of Western Australia is fairly dry there is sufficient rainwater run-off for algae to grow on the rock face, and it is this that forms the vertical stripes on the wave. The dark stains are living algae that change colour to rust brown when the water supply diminishes. When the algae die, the crust peels off to reveal the clean pale granite. The catchment area above the Wave is sufficiently extensive, and productive in the wet season, to justify the low walls built along the rim of the Wave to direct run-off water into a reservoir at the east end.

The wave shape was created by underground weathering beneath a moist soil. Subsequently, the soil was eroded away to exposing the Wave and the adjacent rock pavement. On the dome above the Wave, a barren granite plain has depressions filled with lush vegetation and a scatter of large granite boulders. At first sight these could be taken to be erratics that remain from the extensive glaciations prior to 135 Ma, but they are actually core-stones left by deep weathering of the granite during the Tertiary and Quaternary.

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