

Artesian Karst Springs in Northern South Australia

Miles Pierce (story and photos)

In the course of a recent trip into northern South Australia in our elderly Toyota 4Runner, my wife and I spent some time away from the corrugations of the Oodnadatta track visiting the well-interpreted Strangways Springs, about 30 kilometres south-west from William Creek. Here, a cluster of so-called 'mound springs' were an important source of water to nomadic aboriginal tribes in pre-European settlement times and subsequently during European settlement.



Looking into a mound spring

The Strangways Springs were first recorded and named by explorer Peter Warburton in 1858. From 1872 to 1896, they were the base location of a pastoral station - Strangways Station - the building ruins from which add further interest to the site¹. It was also the location of one of the 11 manned repeater stations on the Overland Telegraph line from Adelaide to Darwin and, later, a watering point for steam locomotives on the original Ghan Railway.

The Strangways mound springs are one of the many natural springs in the eastern part of Central Australia where pressurised fossil water from the Great Artesian Basin (GAB) reaches up to the land surface. The springs typically occur around the margin of the GAB where the water-bearing aquifers abut adjoining basement rock.

A characteristic of the many such springs in the region to the south-west of Lake Eyre is the substantial mounds that have formed around them due to cementation of sand and clay particles by precipitated carbonates, notably calcium carbonate, combined with some natural surface erosion².



At the Strangways site, individual spring mounds range up to an estimated 10-15 metre in diameter and three-to-four metres in height. A few of the mounds still have a trickle of artesian water emanating from them, while others exhibit only seepage. Several appear to have dried up completely.

From observation, calcium carbonate has clearly been a major component in forming and stabilising the spring mounds. The pool at the top of 'Sedge Spring' - see photograph - is hemmed with limestone. The 'Waterfall Spring' has a quite large section of calcite flowstone extending downwards from one side of its 'summit' pool with water trickling over it, giving rise to the name.

The mound springs in this arid part of northern South Australia have, for millennia, supported native flora and fauna, with the former comprising both dryland and wetland species, some of which are considered to be unique. While water flow from the mound springs likely varied in the distant past, the drilling of bores to exploit the artesian water source since European settlement has reduced or terminated outflow at many of the natural springs due to bore drawdown causing a lowering of the 'water table'.



The wall of a mound

Although the surrounding landscape is not karst per se, the precipitation of calcite from the artesian water is a significant factor in the formation of the distinctive mounds. Presumably (my conjecture), the slow-moving artesian water that resurges from the mound springs has been in prior contact with

buried limestone deposits and the calcium carbonate dissolved therefrom is then precipitated when the water reaches the surface. By reference to Ford and Williams³, I think that I am justified in considering the mound springs to be karst features; however, others may differ. I await future 'letters to the editor' in dispute.

1. Brochure, 'Strangways Springs Walks' Friends of Mound Springs and S A Govt. 2016.
2. G M Mudd, 'Mound Springs of the Great Australian Basin in South Australia: a case study for Olympic Dam', Environmental Geology, Vol 39, No 5, March 2000.
3. D F Ford & P Williams, 'Karst Hydrology and Geomorphology', Wiley 2007.

The mounding of the springs is obvious