

## STROMATOLITES IN LAKE THETIS, NEAR CERVANTES

Lake Thetis is a shallow lake formed between sand dunes, about one-and-a-half kilometres inland, dating back perhaps three or four thousand years. It is very salty, and is fed by rainfall and groundwater, so its water level rises and falls with the seasons. Although salty, it is full of life, the most obvious being the cyanobacteria which have produced the stromatolites along the south and western sides, and the microbial mats which line the lake all round.

These stromatolites are interesting in that they show structures which differ from many other modern-day stromatolites but have a lot in common with some older forms found in rocks several hundreds or several thousands of years ago. Some kinds of stromatolites grow as domes or cones with distinct fine layers showing successive periods of growth. Some other kinds of stromatolites (called 'thrombolites') have a clotted structure, like those in Lake Clifton. Alternatively, some stromatolites may grow as fingers or branched columns, and the Lake Thetis ones are this last type. You may have seen the Triassic stromatolites from the Blue Hills near Northampton, which grew plastered onto Tumbagoooda Sandstone of Silurian age (the same as in the Kalbarri gorges). These have finger-like, branching columns as well as smoother dome shapes.

In fact, the stromatolites at Lake Thetis show a combination of forms: they may appear clotted in the middle, but have layers of finger-like columns and some rough layering. The mats which surround them also vary according to their location. Different kinds of cyanobacteria produce different types of mats, and there may be a contribution from the tiny siliceous diatoms which live in the lake waters.

Also living in the lake are small fish, crustaceans like amphipods and ostracods, fly larvae and nematode worms.

How do the stromatolites end up as solid calcareous structures? Some cyanobacteria actually excrete calcium carbonate, to form a limy layer as they grow. Some cyanobacteria have a sticky surface, and sediment grains become trapped on them layer by layer as the living mat grows at the surface. Some others, including these at Lake Thetis, become calcified in a more complex process involving other bacteria. The organic material left as the cyanobacteria grow up to the surface of the stromatolite acts as a base for the deposition of very fine-grained, organically-produced calcium carbonate, often microscopic fibres of the mineral aragonite.