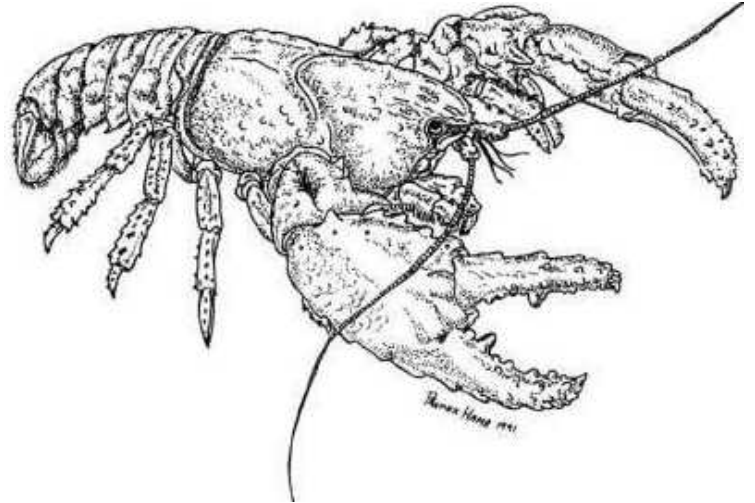


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## *Stromatolites*

by **Helen Jones**



One of the highlights of my recent trip to West Australia was a visit to Shark Bay and Hamelin Pool to see stromatolites. We watched bubbles rising surface-ward from these large mushroom-shaped structures half submerged in the extra salty sea water of the nearly enclosed Hamelin Pool; bubbles of oxygen which had made the evolution of higher life forms possible.

Microbialites (stromatolites and thrombolites) were only known as fossils up to the 1950s. They are rock-like structures and their microbial mats are built by cyanobacteria and other microscopic organisms.

Cyanobacteria or blue greens are primitive single-celled organisms that have no cell nucleus and are related to bacteria. The microscopic cells form colonies or threadlike chains. Like plants they use light energy for photosynthesis.

Cyanobacteria were among the first forms of life and they dominated the earth for millions of years, producing carbohydrates from solar energy and releasing oxygen, thus helping to make our atmosphere.

Microbial communities build stromatolites in two ways:

1. Cyanobacteria trap fine sediment with a sticky film of mucous which they secrete. This binds the grains together with calcium carbonate extracted from the water in which they live. (Hamelin Bay stromatolites)
2. Cyanobacteria form their own framework from the calcium carbonate. Many of the stromatolites growing in lakes form this way.

Stromatolite means 'layered rock' and thrombolite is derived from the root for

thrombosis (clot). Thrombolites have a clotted interior while stromatolites are layered in cross section.

Stromatolites are not restricted to hyper saline waters. In fact they are recorded in an incredibly wide range of environments, some of which, like glacial lakes and volcanic springs, are extremely hostile. They are also found in normal marine situations such as the Bahamas. In W.A they are found in freshwater, brackish and saline lakes.

Lake Clifton is on the west coast about 100kms south of Perth. (see map below) It is less salty than the sea and has a thrombolite reef at its northern end which is 6 km long and 120m wide. These thrombolites are said to be modern day examples of the 600 million year old fossils found on ancient shorelines in the Amadeus Basin in the Northern Territory.

The structures we saw at Lake Clifton were quite different from those at Hamelin Pool, looking like nothing else but large submarine cowpats.

At the Hamelin Pool we spent a long time silently watching oxygen bubbles rise, very conscious of own breathing and mesmerized by the simplicity of this part of our life support system – the waste product of a bug.

**References:**

- McNamara K.J. *Stromatolites*. Western Australian Museum. 2001

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