

Stromatolites (Archean to Present)

Stromatolites are laminated structures built by blue green algae also called cyanobacteria, one of the simplest and earliest known life forms. Basically, each layer of algae contains sticky cells that trap sediment when it is washed over algae's surface. As sediment accumulates, the algal layer grows through and over the sediment to the top to trap more sediment. Stromatolites can form small round structures or large "heads" independent of each other, or flat sheets (layers), or vertically stacked and linked structures depending on the amount of water energy in the environment. They form today in warm intertidal shallow water in Shark Bay, Australia. Since blue-green algae needs sunlight for photosynthesis, stromatolites are restricted to shallow water within the photic zone. Fossil stromatolites (Fig. 1) are preserved in Ordovician age dolostones and limestones and Mississippian limestones in the Ozark Plateaus Region. These stromatolite "heads" formed round spheres independent of each other. A high energy (intertidal) environment probably prevented the "heads" from linking together. The flat linked stromatolites (Fig. 2) formed in relatively low energy shallow water (subtidal) with low turbulence.



Fig. 1. Stromatolite "heads" in the Ordovician Cotter Formation.



Fig. 2. Wavy stromatolites in dolostone of the Everton Formation.



Stromatolites in the Cotter Formation at Norfolk Lake.



Stromatolites in the Cotter Formation at Beaver Lake.