Stromatolite reef from the Early Archaean era of Australia

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The 3,430-million-year-old Strelley Pool Chert (SPC) (Pilbara Craton, Australia) contains a variety of stromatolite morphologies, including laterally linked hemispheroids, conical forms and low-amplitude columns. Detailed observations of the geometry and internal structure of the SPC stromatolites, and their relationship to associated sedimentary facies, indicate that they grew in shallow-water, wave-agitated environments. Stromatolite growth was likely influenced by the action of waves and currents, which probably controlled the availability of nutrients and dissolved inorganic carbon to microbial communities. Evidence for early life in the SPC is corroborated by the presence of isotopically light carbon in organic matter, and by the presence of putative microbial fossils. The SPC stromatolites provide the most compelling evidence for life on Earth 3.4 billion years ago.

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