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## Precambrian Animal Life: Probable Developmental and Adult Cnidarian Forms from Southwest China

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## Abstract

The evolutionary divergence of cnidarian and bilaterian lineages from their remote metazoan ancestor occurred at an unknown depth in time before the Cambrian, since crown group representatives of each are found in Lower Cambrian fossil assemblages. We report here a variety of putative embryonic, larval, and adult microfossils deriving from Precambrian phosphorite deposits of Southwest China, which may predate the Cambrian radiation by 25–45 million years. These are most probably of cnidarian affinity. Large numbers of fossilized early planula-like larvae were observed under the microscope in sections. Though several forms are represented, the majority display remarkable conformity, which is inconsistent with the alternative that they are artifactual mineral inclusions. Some of these fossils are preserved in such high resolution that individual cells can be discerned. We confirm in detail an earlier report of the presence in the same deposits of tabulates, an extinct crown group anthozoan form. Other sections reveal structures that most closely resemble sections of basal modern corals. A large number of fossils similar to modern hydrozoan gastrulae were also observed. These again displayed great morphological consistency. Though only a single example is available, a microscopic animal remarkably similar to a modern adult hydrozoan is also presented. Taken together, the new observations reported in this paper indicate the existence of a diverse and already differentiated cnidarian fauna, long before the Cambrian evolutionary event. It follows that at least stem group bilaterians must also have been present at this time.

## Keywords

cnidarian; fossil; Precambrian; embryo

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