Palaeozoic Reefs and Their Development in the Sichuan Basin, China

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The Sichuan Basin, with about 19×10 km^2 in area, is not only a very important tectonic and sedimentary basin, but also the oil bearing basin on the Upper Yangtze Platform. With the stable tectonic development from Early Paleozoic to Middle Triassic, the reefs were very well developed in Early Cambrian, Early Silurian, Devonian and Late Permian. Geographically, the Cambrian reefs distributed on the north and northeastern margin of the basin. The reefs include cyan bacteria—Archaeocyathus reefs, thrombolite micrite mounds, oncolite biostromes and bioclasic & oolitic banks. The reef-building organisms include archaeocyathus and cyanobacteria; the living organisms include brachiopods, trilobites, crinoids and sponges.

Comprising patch reefs, mudmounds and biostromes, the Silurian reefs occurred on the north and south margin of the basin in the Llandoverian to Wenlockian, when the area was storm influenced siliciclastic and carbonate ramp environment. The Permian reefs were observed in the Changxing Fm in eastern and northeastern Sichuan, and can be divided into three types: platform margin reefs, mud mound in the low platform slope, and patch reefs within the platform. The reef-building organisms mostly include Sphinctozoa, Inozoa, Hydrozoa, and Tabulozoa; main binding organisms are blue green algae, Tubiphytes and Tabulozoa. The reef-living organisms mainly include bryozoa, brachiopoda, foraminifera and echinodermata. The formation and distribution of the Permian reefs are vulnerable to regional topography controlled by major faults. In general, development and distribution of the Paleozoic reefs in Sichuan Basin were controlled by regional sea level changes and various tectonic movements.