

## PALAEOBIOGEOGRAPHIC DISTRIBUTION OF LATE APTIAN TO ALBIAN „NEW WORLD“ CORALS

Hannes LÖSER

Estación Regional del Noroeste, Instituto de Geología, UNAM, Apartado Postal 1039, Hermosillo, Sonora, México 83000; [hloeser@geologia.unam.mx](mailto:hloeser@geologia.unam.mx)

Today coral distribution is determined by provinces. Caribbean coral species differ from Indian Ocean coral species, and east Australian species differ from Red Sea species. In current times, oceans are arranged in north to south directions and continents form natural barriers. This was not true during the Cretaceous Period, when oceans were arranged in an east-west-direction and corals could disperse freely. Cretaceous corals were more cosmopolite with practically no existence of faunal provinces. Their distribution was likely controlled by other factors such as temperature and salinity.

To gain more insight into factors determining patterns of distribution among coral, coral distribution was observed in a small area through a short time span. The area of investigation - the Bisbee basin (northern Mexico and southern USA) and the Texas platform (USA) - is no larger than the western Mediterranean Sea. The time period investigated spans the Late Aptian to Albian (18 Ma).

The project has been carried out using exclusively samples. Some material was obtained from collections, but for the most part samples were collected anew within the past four years. The literature was not used in this study because the 70 year-old descriptions of Cretaceous corals from Texas are in need of revision and the coral record of the Bisbee Basin is not thoroughly described.

A total of 81 species were used for the analysis. Some dubious and/or rare genera were excluded. The material was analysed using methods of numerical taxonomy. The faunas were first compared interspecifically by correlating and clustering. Both complexes - Late Aptian / Early Albian corals from the Bisbee Basin and Albian corals from the Texas platform - were compared to 300 other palaeogeographic units. Correlation and clustering was carried out as well with these data.

The generic diversity for both complexes is high. The faunas are mainly composed of colonial corals of the genera *Actinastrea*, *Adelocoenia*, *Astraeofungia*, *Aulastraeopora*, *Eugyra*, *Felixigyra*, *Mesomorpha*, *Microsolena*, *Preverastraea* and *Thamnoseris*. The genera *Amphiastrea*, *Axosmia*, *Brachyseris*, *Cladophyllia*, *Columactinastraea*, *Columnocoenia*, *Confusaforma*, *Heterocoenia*, *Latusastrea*, *Meandraraea*, *Pentacoenia*, *Polyphylloseris*, *Polytremacis*, *Pseudomyriophyllia*, *Pseudopistophyllum*, *Stylina*, *Thecosmia*, *Tiarasmilia* are rarer.

The number of species at each of the 32 sample locations in the area of investigation area is moderate to low (with the maximum number of 18 species in a Northern Mexico fauna). The faunas differ in their composition. This difference can be explained neither by geographic distances, nor by slightly differing stratigraphy, but is explained by differing facies. It appears that the influence of local conditions was important as well.

A stratigraphic similarity between the faunas considered in this investigation and other faunas throughout the world is demonstrated: both complexes correlate with Late Aptian Tethyan faunas of the southern Pyrenees and North Africa.