

These depositional systems comprise depositional sequences, which are transgressive-regressive stratigraphic units bounded at least in part by unconformities: the Trinity, Fredericksburg, lower Washita, and the Upper Cretaceous upper Washita sequences. Some of the sequence boundaries are synchronous within the limits of a paleontologic zone, but others are clearly time-transgressive. These sequences can be correlated in cross sections from a detailed measured section at Fort Stockton to Big Bend National Park and to the Southern Quitman Mountains.

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## INITIATION OF LOWER CRETACEOUS REEFS IN SABINAS BASIN, N.E. MEXICO

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### ABSTRACT

Coral-algal and rudist reefs were initiated in the center of the subsiding Sabinas basin during the Hauterivian.

It is speculated that the reefs may have grown along a hinge line, or perhaps over salt or shale anticline. The reefs, together with their associated lagoon and sabkha, mark the beginning of a vast carbonate-evaporite platform sequence, equivalent to the Sligo, which prograded eastward and built out over nearly all of the former basin.

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## A LOWER CRETACEOUS SHELF MARGIN IN NORTHERN MEXICO

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### ABSTRACT

In seven sections in the Monterrey-Salttillo area of Mexico the 800 to 500 m thick Lower Cretaceous Cupido Limestone and the underlying Taraises Formation of shale and black lime mudstone of about the same thickness have been studied petrographically. These units apparently represent in part complementary facies of carbonate bank and basinal environments. Isopach maps should include both formations if used for paleotectonic interpretation. The formations record a marine transgression in earliest Cretaceous time over a positive element in central Mexico which furnished sands and muds to the east. This was followed in Barremian time by eastward progradation of a carbonate bank out from the positive element. The fully expanded late Cupido bank is overlain by the transgressive La Pena black shale and limestone of Late Aptian age. The bank, as developed around Saltillo, consists almost wholly of cyclic grainstone and tidal flat sediments showing progressive upward shoaling. To the east around Monterrey a bank edge appears, marked by more than 100m of rudists and corals. This facies migrates eastward and rises in the section as the bank expands. The downslope facies in this area (Taraises Formation) is thick and well-developed, contains litho-clastic conglomerates in black micritic matrix, and also has tumbled remains of corals and rudists. An eastern edgeline of the bank occurs at Saddle Mountain, Monterrey and the Sierra Minas Viejas 50 km north east of the city. Still farther east and south of Monterrey in the Sierra de la Silla basinal micritic limestone occurs through the total Lower Cretaceous section.

The extension of this trend northeast into Texas is as yet difficult to follow. From outcrop studies around Monterrey-Salttillo and north at Sierra de la Gavia and Bustamante it is possible to predict that the bank margin has a gentle slope over some tens of km. Initial porosity and brecciation, vuggy and cavernous secondary voids, and dolomitization in the bank edge are encouraging signs for subsurface reservoir development.

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