

BIOSTRATIGRAPHY OF THE CARDENAS FORMATION  
(UPPER CRETACEOUS SAN LUIS POTOSI, MEXICO)

by

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ABSTRACT

The Cardenas Formation is a very fossiliferous 1050-meter thick unit of finely clastic sedimentary rocks that crops out in an asymmetric syncline in the folded Sierra Madre Oriental. Six versions of the stratigraphy at Cardenas have been published, but they have included partially inverted sequences because of failure to recognize the structure of the syncline. For this study the region around Cardenas was mapped on topographic sheets at a scale of 1:50,000, and the Cardenas syncline was mapped with plane table and alidade at a scale of 1:4,800. Of eleven measured sections, two were structurally uncomplicated and complete enough to establish the sequence of stratigraphic units.

The Cardenas Formation, herein defined, is divided into three informally designated members. The lower member is 180 meters of alternating shale, sandstone, and biosparite (Folk, 1959); the middle member is 445 meters of shale and siltstone; the upper member is 430 meters of siltstone, sandstone, and biosparudite. The Cardenas Formation is unconformably overlain by unfossiliferous siltstone, sandstone, and conglomerate, the Tabaco Formation.

In present study 71 species of invertebrate fossils were collected from the Cardenas Formation: 8 rudists, 36 other bivalves, 14 gastropods, 6 corals, 4 echinoids, 2 serpulids, and 1 brachiopod. These occur in three assemblage zones at Cardenas. The middle zone and perhaps the lower zone are correlative with the Exogyra costata Zone of the Gulf Coastal Plain. The upper zone is probably younger than the Exogyra costata Zone, but still Maastrichtian. The Cardenas Formation is a "regressive" type of deposit; during its formation sedimentation changed repeatedly from deposition of fine clastics to the accumulation of biogenic limestones.