

larger isolated reefs give way southward to reef banks 5 to 8 km across, surrounded by mudstones and wackestones containing pelagic microfossils. Shallow-water deposits of the southernmost bank "step" progressively southeastward over deeper water limestones.

Reef cores in most of this belt consist of platy, branching megacolonies of the coral *Microsolena*, encrusted by thick, laminated stromatolites. In the north, rudists are abundant only on reef flanks and caps, and in shallow interreef and backreef areas. Rudists increase in abundance on reef banks to the south, as do various encrusting and head-forming algae. Thoroughly bound rudist-coral-algal frames dominate the southernmost reefs.

Lagoonal limestones of the early regressive phase overlie the reef interval, and are punctuated in the south by the thick sandstone and shale wedge. Nearshore and continental clastic units of the Cintura Formation ended carbonate deposition in this area.

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Deposition and Diagenesis of Mississippian Pinnacle Reefs of Chappel Limestone, Fort Worth Basin, Texas

The Mississippian Chappel Limestone constitutes an important oil-bearing unit that occurs along the western margin of the Fort Worth basin in north-central Texas. It has long been assumed that the Chappel is productive from pinnacle reefs. Stratigraphic relations of the "Chester," which in part overlies the Chappel, and the Chappel have remained enigmatic.

Study of cores reveals that the Chappel represents a mound-core facies consisting predominantly of fenestrate bryozoans which, soon after death, became rigidly stabilized by submarine aragonitic-fan druse cements; these provided sufficient wave resistance for the mounds to be termed "reefs." The "Chester" represents a flank facies, consisting predominantly of crinozoan components and siliceous sponge spicules, that is time-equivalent to Chappel core facies. Flank dips range up to 35°. Thus the term "pinnacle" is no longer applicable to these reef complexes.

The core facies consists predominantly of bryozoan boundstones and very coarse grainstones ("slabstones"); the flank facies contains grainstones, packstones, and wackestones. Slope instability precluded formation of submarine cements in grainstones of the flank facies.

The reef complex was subjected to complex, multicyclic diagenesis which records several episodes of subaerial exposure and freshwater diagenesis followed by submergence, recolonization, and renewed reef growth.

Nearly all preserved porosity is in the reef core and represents primary voids among erect and broken bryozoan "fronds"—voids which have been filled to varying degrees by submarine and vadose internal sediments, submarine cements, and meteoric vadose and phreatic cements. These materials were cyclically emplaced during submergent and emergent phases.

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Paleoecologic Implications of Foraminiferal Distributional Patterns Off Big Pine Key, Florida

Foraminifera are important both as biotic elements and as skeletal constituents of sediments in carbonate depositional provinces such as south Florida. A better understanding of distribution, habitats, and ecology of shallow-water Foraminifera can lead to more accurate paleoenvironmental interpretations based on the fossil record. In shallow-water carbonate environments plants are an important foraminiferal habitat, and the plant-dwelling biocoenosis in an area may not be reflected accurately by the thanatocoenosis among the associated bottom sediments.

Bottom sediments and vegetation were collected from lagoonal, tidal channel, patch reef, and outer reef environments in the vicinity of Big Pine Key. Living and dead individuals were distinguished for the 106 foram species identified. Sanders' similarity index indicated that the biocoenoses on different kinds of plants within any one environment were similar, whereas the biocoenosis from each major environment was unique. The Shannon-Wiener information function showed a correlation between species diversity and evenness as related to degree of environmental variability. Additionally, biocoenoses from vegetation were dissimilar to thanatocoenoses among sediments. Larger, more robust tests were predominant among sediments, particularly in less sheltered environments. Postmortem processes, such as sorting and differential destruction of tests, affect the character of species diversity and evenness indigenous to living populations. In making paleoecologic and paleoenvironmental analyses of fossil foraminiferal assemblages, it is necessary to discriminate between ecologic factors that influence the distribution of living populations and environmental factors that determine the final character of the dead assemblage.

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Mechanisms of Basin Subsidence

No abstract available.

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Entrapment Factors in California Turbidite and Canyon-Related Pools

California oil and gas pools in a variety of turbidite and other deep-water facies are classified according to their dominant or diagnostic causative geologic factors, some uniquely, others in more than one category. Canyon-dependent traps include sandstones in canyon walls and sandstones buttressed against canyon walls (Walnut Grove), sandstones draped by differential compaction over channel fill (Rosedale Ranch), and possibly other configurations. Fan-dependent stratigraphic traps are sand channels (and bar buildups?) without significant secondary structure (Strand). Anticline-depen-