

NOTES

STRATIGRAPHY AND CARBONATE PETROGRAPHY
OF THE SIERRA DE PIACHOS AND VICINITY,
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University of Texas, Ph.D. thesis, January, 1966

ABSTRACT

The stratigraphic section in the Sierra de Picachos is approximately 4,900 feet thick, is divisible into seven formations, and ranges in age from Nocomian to Campanian and possibly Maestrichtian (Early and Late Cretaceous). The formations are, from oldest to youngest: Cupido, La Pena, Tamaulipas, Sombretillo, Formation is introduced in this paper.

The Cretaceous section is composed predominantly of limestone, with minor amounts of dolomite, chert, and terrigenous clay. The limestone is of one type: lithified carbonate mud (micrite). Pore-filling sparry calcite is completely absent, which is unusual for such a thick section of limestone. The micrite differs mainly in the contained organic constituents, which consist principally of pelagic protists (Foraminifera, calcispheres, tintinnids, and radiolarians). The micrite average about 15 percent organic constituents by volume; some of the micrite in the Tamaulipas and San Felipe contains more than 50 percent organic constituents by volume.

Subdivision of the micrite into petrographic types is based principally on the kinds and relative abundance of allochemical constituents. Petrographic types include micrite, dolomitized micrite (restricted to the Cupido), intramicrite, ostracod-bearing micrite, calcisphere biomicrite, Foraminifera biomicrite, and others.

The study of electron micrographs suggests that recrystallization is the process by which an unconsolidated carbonate (aragonite) mud becomes a hard aphanitic limestone. The recrystallization, which involves the inversion of aragonite to calcite, results in crystal growth and a welding together of the calcite crystals to produce a lithified micrite.

Sedimentary silica, thought to be of both organic and inorganic origin, was deposited contemporaneously with the lime mud. The silica was reconstituted and redistributed during early diagenesis, probably as a response to changes in pH, to form lenses, stringers, and irregular nodules of chert. Chert occurs in the Cupido, La Pena, Tamaulipas, and Cuesta del Cura; it is especially abundant in the Cuesta de Cura.

The Cretaceous section is divided into seven zones, based principally on the identification of pelagic microfossils in thin section. The three best developed

zones are: 1) Colomiella (a tintinnid) zone, which is restricted to the lower 290 feet of the Tamaulipas, 2) thick-walled calcispheres zone (150 to 180 feet thick), which is restricted to the upper part of the Tamaulipas and the overlying Sombre-