BURKHOLDER, J. F., Mobil Oil Corp., Houston, Tex., and D. N. Lumsden, Memphis State Univ., Memphis, Tenn.

PETROGRAPHIC ANALYSIS OF SUBSURFACE PART OF GLEN ROSE FORMATION (LOWER CRETACEOUS), SOUTH TEXAS

The main cause of poor hydrocarbon production from the Glen Rose is low porosity through most of the section and the lack of suitable structural features. Although the Glen Rose may be a source rock for other units, the presence of impermeable micrites in its lower part may act as a barrier to oil migration into the Glen Rose from below.

Analysis of 72 electric logs and 475 thin sections from 6 selected wells were used to determine the depositional history of the Glen Rose across the San Marcos platform and Maverick basin. Five limestone facies (micrite, biomicrite, poorly washed biomicrite, washed intrabiopelsparite, and well-washed intrapelsparite), dolostone (fine to medium grained), and some anhydrite were present. The Glen Rose is fairly constant in thickness across the San Marcos platform (1,400 ± 200 ft), and thickens into the Maverick basin (2,200 + ft). The Stuart City reef trend became a barrier between these areas and the open ocean during middle Glen Rose deposition and affected environments during later Glen Rose deposition.

BUSCH, D. A., Consultant, Tulsa, Okla.

OLIGOCENE STUDIES, NORTHEAST MEXICO

Regional and detailed structural-stratigraphic studies of the Oligocene in the Burgos basin (northeast Mexico) point up the great significance of many growth and postdepositional faults. Several unconformities, together with abrupt facies changes, add to the complexity of stratigraphic and structural analysis.

An interdisciplinary (team) approach was used, involving the construction of both regional and detailed electric-log correlation grids. Such correlations were supplemented by petrologic, micropaleontologic, and seismic studies.

Within a selected pilot area, the lower Oligocene (Vicksburg) sedimentary rocks consist primarily of marine shales interbedded with marine lenticular sandstones. The middle Oligocene (Frio), composed predominantly of nonmarine sandstones interbedded with shale, has a maximum overall thickness of 2,000 m. The basal middle Oligocene contains brackish-water sandstones and shales. In the western part of the area, the nonmarine Norma conglomerate lies unconformably on truncated beds of the lower Oligocene marine sequence. This conglomerate thins abruptly in the eastern third of the pilot area and grades into a thick sequence of nonmarine (Frio) sandstones and shales, on the downthrown side of the McAllen growth fault. The Norma conglomerate is absent north of the Rio Grande River.

The upper Oligocene (Anahuac) is a westward-thinning wedge of marine sandstones and shales, with a maximum observed thickness of 1,000 m. Although in the Gulf Coast of Texas, the Anahuac generally is considered to be of late Oligocene age, the lowest part in northeastern Mexico appears to be of late middle Oligocene age. The basal *Marginulina* zone was deposited under marine transgressive conditions and interfingers with Frio sediments. Only the thinnest (upper) part of this zone overlies nonmarine Frio.

CLEARY, W. J., and P. A. THAYER, Univ. of North Carolina, Wilmington, N.C.

PETROGRAPHY OF CARBONATE SANDS ON CAROLINA CONTINENTAL SHELF

To provide petrographic criteria for interpreting ancient shallow-marine carbonate deposits, 300 grain thin sections from the Carolina continental shelf were studied. The sample area extends from Cape Lookout, North Carolina, to Cape Romain, South Carolina.

Percentage of carbonate grains in this area is chiefly a function of dilution from adjacent terrigenous sources. Skeletal components, the dominant carbonate grain type, form 10–60% of the total sediment and are mainly pelecypods, gastropods, and coralline algae. Foraminifers, bryozoans, echinoderms, barnacles, ostracods, corals, and worm tubes are minor constituents. Nonskeletal constituents consist of peloids, ooids, lumps, and assorted carbonate lithoclasts and usually comprise less than 10% of the total specimens.

Generally, there is a systematic but irregular increase in total carbonate components in a seaward direction. Molluscan assemblages characterize most inner and middle shelf sands, whereas coralline algae are prevalent in outer shelf sands. Other carbonate components show no trends in an offshore direction.

Subsea and subaerial diagenetic processes have affected most of the carbonate grains. Principal diagenetic features are: (1) discrete macroborings and microborings filled with orange-brown cryptocrystalline carbonate, (2) partial or complete micritization of skeletal grains with obliteration of skeletal architecture, (3) homogenization of ooids by recrystallization to cryptocrystalline carbonate, and (4) recrystallization of pelecypod fragments to coarse fibrous spar. Carbonate lithoclasts display a variety of diagenetic features that include: aggrading recrystallization of micrite to form pseudospar, development of moldic porosity with or without calcite spar fillings, recrystallization of high-magnesium allochems to low-magnesium calcite, and growth of primary void filling calcite spar.

COLEMAN, J. M., and L. D. WRIGHT, Coastal Studies Inst., Louisiana State Univ., Baton Rouge, La.

VARIABILITY OF MODERN RIVER DELTAS

Depositional facies in deltaic sediments result from interacting dynamic processes (climate, hydrologic characteristics, wave energy, tidal action, *etc.*) which modify and disperse transported riverine sediment.

These processes, which vary in both intensity and frequency, control the eventual sedimentary framework of a delta. Approximately 400 similar process and form parameters were compared in 50 major deltas to investigate the differences among the deltas and to generate distinctive deltaic frameworks. In addition, field studies were conducted in 16 of the deltas to field check the data and to gather additional subsurface and spatial data. The results of this study indicated that no one delta model could be formulated to use as a basis for predicting vertical sequences in all of the deltas. The study also indicated that sand-body distribution, geometry, and characteristics are primarily a function of wave-energy distributions, river-mouth dynamics, subsidence, and alongshore currents. The following deltas are used as examples in illustrating the common deltaic vertical sequences: Mississippi, Klang, Danube, Burdekin, Nile, Niger, Ord, Sao Francisco, and Senegal.