The Louisiana chenier system is the product of a complex interaction of coastal, riverine, biologic, and storm processes. An important component of the chenier system, the chenier ridge, has been described as an accumulation of sand and/or shell material winnowed from existing marsh and tidal flat deposits. According to most interpretations, these ridges are correlative with changes in the flow direction of the Mississippi River from west to east. Most workers believe that the extensive mudflat and marsh sediments that separate the chenier ridges represent periods of progradation, influenced by a high sediment load from the Mississippi during periods of westerly discharge. These alternating periods of easterly and westerly flows represent the classical model that has been presented for genesis of the chenier plain during the past 3,000 years.

While it is generally agreed that Mississippi River sedimentation has been a major factor in the development of coastal geomorphology of southwestern Louisiana, the "flip/flop" model presented above is oversimplified. Furthermore, the term, chenier ridge, has been indiscriminately applied to almost any morphologic unit within the system that shows noticeable relief as reflected in vegetative development. Therefore, little genetic significance should be ascribed to the term. Multiple beach ridges, recurved spits, overwash deposits, storm berms, strandline ridges, perched beaches, and ancient oyster reefs all quality as chenier ridges under previous guidelines.

A more serious problem that appears with the Mississippi River flip/flop model is that relict shoreline dates are not directly correlative with the Mississippi delta-lobe dates, and a growth rate curve of the chenier plain does not support this model.

If the modern southwestern Louisiana coastal zone is examined, several distinctly different environments are encountered: shelly sand beaches, exposed tidal mudflats, and eroding marsh deposits. The conceptual model that has been implied in previous studies of a strandline consisting either of chenier ridges or a marsh/tidal flat environment, depending on the Mississippi River discharge direction, appears to be unjustified on the basis of modern day conditions and C^{14} dating. Refinements in the model based on current field work and further dating should yield a more detailed and integrated picture of the development of the chenier system through time.

KARPOVICH, RAYMOND P., Lafayette, La., and S. J. MAZZULLO, Midland, Tex.

Jurassic Geology and Hydrocarbon Potential of Southwestern Alabama

The Jurassic Haynesville-Buckner-Smackover-Norphlet sequence in southwestern Alabama includes excellent deep reservoirs and laterally equivalent source rocks. The complex interaction of stratigraphy, syndepositional salt tectonics and faulting, and draping due to differential compaction over basement structures provides mechanisms for early entrapment of potentially significant hydrocarbon reserves in this area. Major Smackover-Norphlet production to the northwest and northeast, at Hatters Pond, Chunchula, and Jay fields, is from facies similar to those found in southwestern Baldwin County, Alabama. Detailed petrographic analyses of cores, chips, and cuttings samples from seven wells in southern Alabama and western Florida provide data for conceptualizing Upper Jurassic stratigraphy (Norphlet-Lower Haynesville) and paleofacies relations in this area.

The development of a regional Triassic Eagle Mills paleotopography in this area, including the interior salt basin, was influenced by existing Paleozoic basement structural trends and tensional tectonism related to incipient opening of the ancestral Gulf of Mexico. In the easternmost part of the salt basin, deposition of the Werner Anhydrite and Louann Salt was succeeded by the southward progradation of fluvial lower Norphlet facies. Upper Norphlet facies include littoral and possibly eolian sandstones, which are among the oldest Jurassic hydrocarbon reservoirs in the region. Rapid inundation of the Norphlet surface in lower Smackover time resulted in the deposition of "basinal" argillaceous carbonates (brown dense facies) in the area. This event was followed by the establishment and progressive southward progradation of a shoal-water limestone facies mosaic, including high-energy grainstones. Many of these subsequently dolomitized grainstones have porosities of as much as 24% and good permeabilities despite their burial below 19,000 ft (5,791 m) in southern Baldwin County. However, commercial hydrocarbon production from such reservoirs has not yet been extended south into this area.

Evaporitic sabkha facies of the uppermost Smackover and Buckner-Lower Haynesville subsequently prograded over shelf carbonates throughout most of the study area. Whereas the area south of the Baldwin County graben generally appears to have remained basinal in character throughout all of Smackover time, Buckner-Lower Haynesville deposits in the Amoco 2 Amos well in Sec. 32, T7S, R4E, include thick grainstone shoal deposits which indicate the local existence of an emerging positive area south of the graben. This facies could provide for a significant stratigraphic-structural hydrocarbon accumulations in this heretofore unexplored region.

KOCURKO, M. JOHN, Midwestern State Univ., Wichita Falls, Tex.

Early Cementation and Mineral Stability of Chipola Formation, Calhoun County, Florida

The Chipola Formation crops out along the Chipola River, Ten Mile Creek, and Farley Creek in Calhoun County, Florida. The formation, dated at 16.1 m.y.B.P., is predominantly an unconsolidated, bioclastic wackestone. These carbonate rocks have undergone very little diagenetic alteration and as a result, fossil preservation is excellent. Original mineralogy is unchanged. X-ray analysis of unlithified sediment indicates an average composition of approximately 70% carbonate (45% aragonite and 25% low-magnesium calcite) and 30% noncarbonate (15% quartz, 6% clay, and 9% other). Most shell material is preserved as aragonite and a few sediment samples are still composed of high-magnesium calcite. Disregarding the age of the formation, the unit is considered to be in a very early diagenetic stage.

Cementation occurs in the unit by the formation of low-magnesium calcite in the form of microspar. The