EVENING MEETING—OCTOBER 12, 1981

DAVID STOUDT—Biographical Sketch

David Stoudt received a B.S. in geology with honors from Waynesburg College, Waynesburg, Pa. in 1972, and a Master of Science from Texas A&M University in 1974. He holds the Houston Geological Society Best Student Award for his work at Texas A&M. From 1974 until 1977, he worked for Getty Oil in New Orleans and Houston, being involved in Gulf Coast Jurassic exploration, Nevada Basin and Range field work, and northern California Tertiary Basins. After a short period with Amoco, he became exploration geologist in the ArkLaTx and MaFla areas for Reserve Oil from 1978-1980. Since February 1980, he has been employed by Mosbacher Production Co., as exploration geologist working the Gulf Coast Cretaceous-Jurassic. Mr. Stoudt is a member of AAPG, HGS and RMAGS.

LATE JURASSIC REEFS OF THE SMACKOVER FORMATION

Algal and coral reefs are recognized in conventional cores of the Upper Smackover Formation from southwestern Arkansas eastward into the panhandle of Florida. Although only one reef has produced hydrocarbons in commercial quantities, attractive porosities and permeabilities exist (mean porosity of 15%, mean permeability of 20 md). These attractive reservoir characteristics result from fresh-water leaching, fracturing, or dolomitization. In addition, the reefs may have been positive structural features in localized areas during subsequent Smackover deposition and diagenesis.

Smackover reefs formed during periods of Late Jurassic maximum marine transgression (good circulation, clear water, normal marine salinity). They occur in three major paleogeographic settings: (1) the margins of Paleozoic highs protruding into the Smackover basin, e.g., Vocation Field in Alabama; (2) the upthrown sides of basement normal faults, e.g. Melvin Field and (3) the seaward edges of upthrown salt-cored fault blocks, e.g., Walker Creek Field in Arkansas, Hico Knowles and North Haynesville Fields in Louisiana, and West Paulding Field in Mississippi (Fig. 1). The buildups are commonly elongate, 3 to 40 meters (10 to 130 feet) thick and generally cover several square kilometers. The reefs occur higher (younger) in the stratigraphic section downdip. Also, the reefs are younger and have a more diverse biota in Arkansas and Louisiana than in Alabama and Florida.

Smackover reefs in Alabama and Florida were constructed by algae. Although vertical relief on the reef surface during growth may have been only a few meters, similar reefs in southern Arkansas and northern Louisiana have a vertical zonation suggesting an evolving reef community. These buildups of *Tubiphytes* are stromatolitic algal boundstones containing scattered corals toward the base. Diversity increases upward with the occurrence of abundant corals (*Actinastrea, Complexastrea, Thamnasteria,* and others), sponges, skeletal algae, and byrozoans. The reefs are commonly underlain and overlain by subtidal peloidal lime packstones containing oncolites and scattered fossils. These buildups can develop in close proximity to subtidal quartz sands.

* Please note the coauthors are: **Lawrence R. Baria,** Tideway Oil; **Paul M. Harris,** Gulf Research and Development; and **Paul D. Crevello,** Marathon Oil.

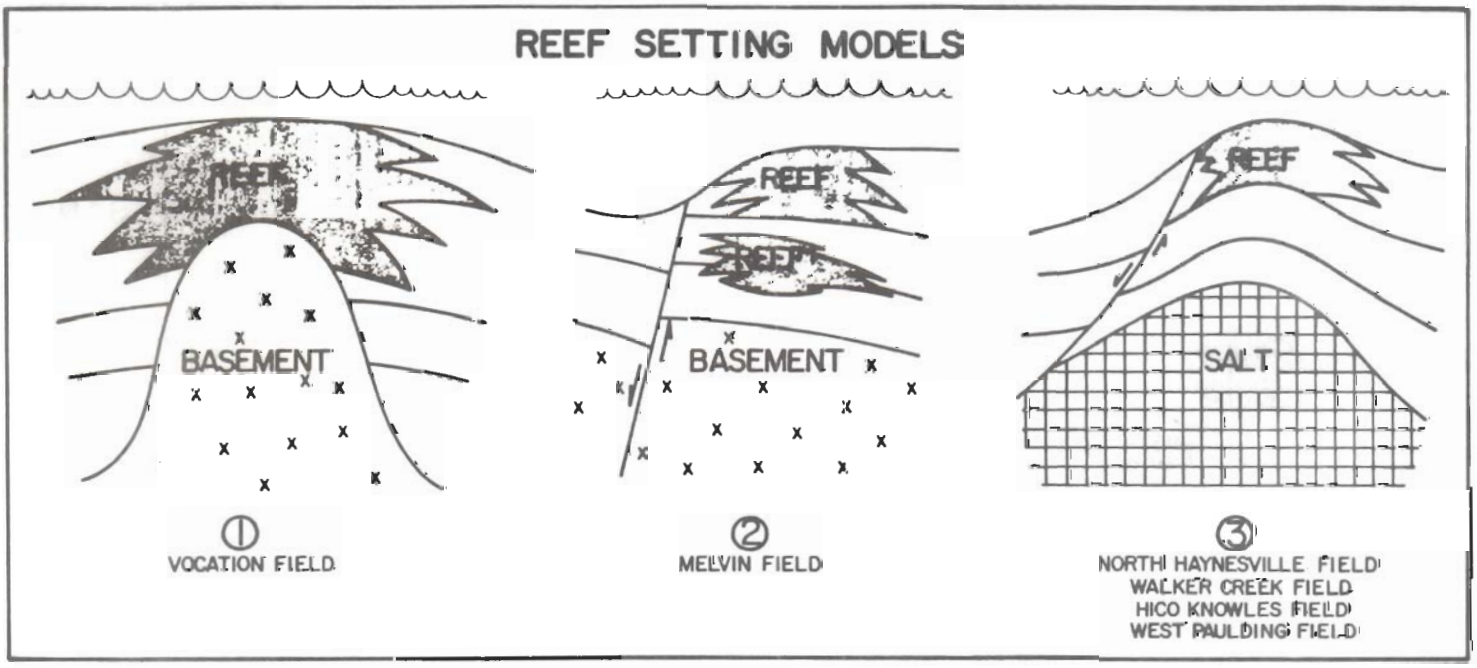

Fig. 1 Structural setting of late Jurassic Smackover reefs.