

PLIO-PLEISTOCENE GEOLOGY, OUTER
CONTINENTAL SHELF, LOUISIANA AND TEXAS

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ABSTRACT

Pliocene and Pleistocene deposition on the Outer Continental Shelf and upper Continental Slope offshore from Louisiana and Texas was a continuation of the process of prograding deltaic sedimentation with associated hydrocarbon accumulation that has been active in the northern Gulf of Mexico since the end of the Cretaceous. However, this more recent phase of the geologic history of the northern Gulf of Mexico Basin differs from the earlier Tertiary history of the area in several significant aspects:

1. The rate of sediment deposition was high, and the rate of seaward progradation of the continental shelf edge was rapid. The Plio-Pleistocene embraced only 5 million years, whereas the Miocene lasted 17 million years, yet the volume of sedimentation deposited during each epoch is comparable.
2. The center of deposition moved northeast, from southwest Louisiana in the lower Miocene to southeast Louisiana in the upper Miocene - lower Pliocene, and then shifted westward again in the Pleistocene. This shifting in depocenters was accompanied by a progradation of the continental shelf edge to its present position near the 600ft. isobath. Hydrocarbon productive trends follow these shifting depocenters.
3. The bulk of the Plio-Pleistocene sediments was deposited upon substrata which is made up of several thousand feet of mobile salt plus a comparable thickness of mobile, deep water pro-delta clay. The weight of the accumulating sediments has caused movement of the underlying mobile material so that today the structural condition of the sediments in the Plio-Pleistocene depocenters is complicated by a great number of large piercement salt domes and ridges; by domes and ridges of diapiric shale; and by many normal faults with displacements up to thousands of feet with omnidirectional strike and dip.

BIOGRAPHICAL SKETCH



Olie Woodbury is a native of Boulder, Colorado, and received his BS in 1941 and his MS in 1942 from the University of Colorado. Upon receiving his Masters degree, he went into the Navy as a Photo Interpreter, where he served with the Fast Carrier Task Force in the Pacific 1943-1944, and later he also taught photo interpretation at Annapolis.

Upon leaving the Navy in 1946 he joined The California Company in the Rocky Mountains, working in Ranglely, Denver, and as District Exploration Superintendent in Casper 1952-1955. Transferred to New Orleans in 1955, he worked for three years in Evaluations Geology with Harold Hickey, and since that time he has been on the staff of the Chief Geologist, working regional problems of the Gulf and Atlantic Coastal Plains, with emphasis on stratigraphy.

Olie has been active in the geological societies having served as Secretary of the GCAGS in 1962 and as President of the New Orleans Geological Society in 1965. He presented a paper at the Shreveport GCAGS last year co-authored by Luther Powell, Chevron Oil, entitled "Possible Future Petroleum Provinces of the United States Western Gulf Basin - Pleistocene," which is being published by the AAPG in their new volume of "Future Oil Provinces of the United States."

The paper Olie will give to us was co-authored by I.B. Murray, Staff Geologist Chevron Oil Company, New Orleans, W. H. Akers, Staff Paleontologist, Chevron Oil Company, New Orleans, and P. J. Pickford, Division Geologist, Chevron, Houston, and won the AAPG George C. Matson Award for excellence when presented at the AAPG Convention in Houston last March.