

## NEW DEPOSITIONAL MODEL FOR THE MISSISSIPPI RIVER DELTA PLAIN

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### ABSTRACT

Coastal Louisiana has long served as a laboratory for delta and chenier plain research due to the presence of North America's largest river, the Mississippi. The current Mississippi River delta model depicts a single Holocene delta plain consisting of five delta complexes sequentially deposited over the last 7000 years by the delta switching process. With the acquisition and integration of an extensive onshore and offshore seismic, vibracore, and radiocarbon data base, the Holocene delta plain is now interpreted as consisting of two separate delta plains developed at different sea level positions. Termed the Modern and late Holocene, these two delta plains are separated by a regional ravinement surface several hundred kilometers along strike in extent and bounded updip by a relict shoreline of maximum transgression, the Teche shoreline. The late Holocene delta plain consists of a set of delta complexes deposited during a slow relative sea level rise some 5–6 m below the present, ≈4000–7000 yrs B.P. An increase in the rate of relative sea level rise between 3000–4000 yrs B.P to about present sea level led to the transgressive submergence of the distal late Holocene delta plain, generating Trinity Shoal, Ship Shoal, and the Teche shoreline. The Modern delta plain began building seaward of the Teche shoreline about 3000 yrs B.P during a second period of slow relative sea level rise induced primarily by subsidence. The St. Bernard and Lafourche delta complexes and associated transgressive shorelines represent the abandoned portions of the Modern "birdfoot" delta plain, separated from the underlying late Holocene delta plain by the regional Teche ravinement surface. The Modern and Atchafalaya delta complexes are currently active. In sequence stratigraphic terms, each composite delta plain represents a set of parasequences bounded by transgressive surfaces of erosion which include ravinement and marine flooding surfaces. The late Holocene delta plain occurs within a transgressive systems tract and is separated from the overlying Modern delta plain in a highstand systems tract by a maximum flooding surface.

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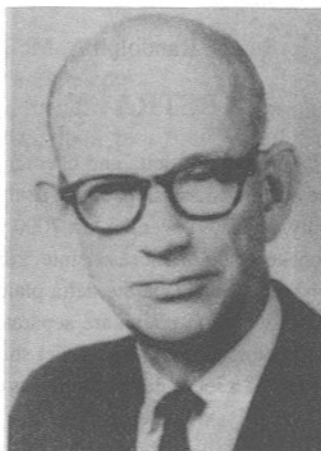
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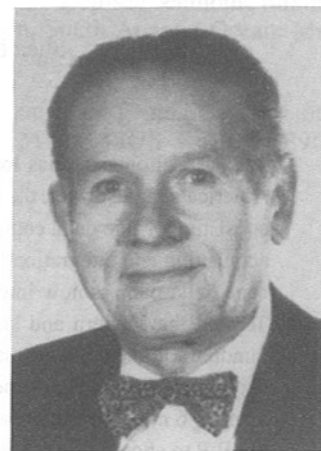
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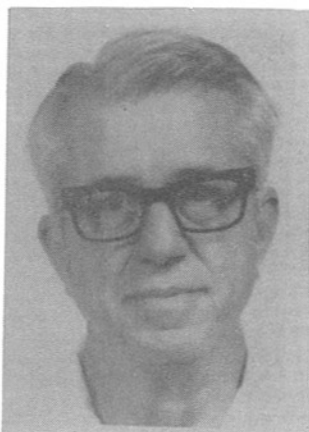
### GCAGS Founding Fathers

These seven geologists met in Baton Rouge, May 12, 1950 and discussed the organization of a regional geological association. As a result, the Gulf Coast Association of Geological Societies was born on May 15, 1951. Les Bowling, Aime Claudet, and Des Utterback were from New Orleans; Tom Philpott, Shreveport; Phil Allin and Woo Neill, Lake Charles; and Frances Stein, Lafayette (the latter three representing the South Louisiana Geological Society).

We owe these gentlemen a very large vote of thanks and our everlasting gratitude!



D.D. Utterback



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