

4. B. R. JONES, J. W. ANTOINE, and W. R. BRYANT, Hypothesis concerning origin and development of salt structures in Gulf of Mexico sedimentary basin 11:00

FRIDAY AFTERNOON, OCTOBER 27

Presiding: Beaumont Representative, Shreveport Representative, Lafayette Representative

5. E. H. RAINWATER, Résumé of Jurassic to Recent sedimentation history of Gulf of Mexico basin 1:30
6. J. E. BANKS, Florida embankment compared with Mississippi embayment 2:15
7. W. ARMSTRONG PRICE, Development of basin-in-basin honeycomb of Florida Bay and northeastern Cuban lagoon 2:45
8. DAVID E. FRAZIER, Recent deltaic deposits of Mississippi River: their development and chronology 3:15
9. DAVID W. SCHOLL and F. C. CRAIGHEAD, Recent geologic history of west coast of Florida: coastal mangrove swamps, and Florida Bay 3:45
10. A. A. MEYERHOFF, Future hydrocarbon provinces of Gulf of Mexico—Caribbean region 4:05

SEPM TECHNICAL PROGRAM

THURSDAY, OCTOBER 26

H. K. BROOKS and C. V. CONKLIN, Marine and terrestrial Pliocene and Pleistocene deposits of Florida

W. P. LEUTZE, Stratigraphic utility of *Sphaeroidinella* Cushman in Louisiana

W. L. LINDEMANN and EARLE F. MCBRIDE, Source of detritus in Gueydan (Catahoula) Formation, southern Texas Gulf Coast

C. H. MOORE, JR., Stratigraphy of Edwards and associated formations, west-central Texas

KENNETH O. SEEWALD, Stratigraphy of Upper Cretaceous Austin Group, central Texas

RICHARD L. WATSON, Is there longshore drift convergence on central Padre Island, Texas?

FRIDAY, OCTOBER 27

GEOLOGIC HISTORY OF GULF OF MEXICO SYMPOSIUM

J. W. ANTOINE and B. R. JONES, Geophysical studies of continental slope, scarp, and basin, eastern Gulf of Mexico

MAHLON BALL, Tectonic control of configuration of Bahama Banks

G. F. BONHAM-CARTER and A. J. SUTHERLAND, Diffusion and settling of suspended sediment at river mouths: a computer simulation model

A. H. CHEETHAM, Paleoclimatic significance of bryozoan *Metrarabdotos*

W. W. HAY, H. P. MOHLER, P. H. ROTH, R. R. SCHMIDT, and J. E. BOUDREAUX, Calcareous nanoplankton zonation of Cenozoic of Gulf Coast and Caribbean-Antillean area, and transoceanic correlation

F. KOHOUT, Groundwater flow and geothermal regime of Florida plateau

W. R. OGLESBY, Gravity profile of south Florida shelf

JAMES G. PALACAS, Organic matter in bottom sediments, Choctawhatchee Bay, Florida

F. B. PHLEGER, Some problems in marine geology, Gulf of Mexico

H. S. PURI and ALBERT COLLIER, Role of microorganisms in formation of limestone

JAMES K. ROGERS, Comparison of some Gulf Coast Mesozoic carbonate shelves

F. P. SHEPARD, Delta-front diapirs off Magdalena River, Colombia, compared with hills off other large deltas

F. M. SWAIN, J. H. DOLLOFF, R. A. ROZENDAL, E. N. SIRATOVICH, and JOHN WONCIK, Subsurface Upper Cretaceous stratigraphy of southwestern Arkansas

F. M. SWAIN and P. T. ENGLE, Environmental relationships of Recent Ostracoda in Mesquite, Aransas, and Copano Bays, Texas Gulf Coast

ELAZAR UCHUPI, Bathymetry of Gulf of Mexico

ABSTRACTS

J. W. ANTOINE and B. R. JONES, Texas A & M Univ., College Station, Tex.

GEOPHYSICAL STUDIES OF CONTINENTAL SLOPE, SCARP, AND BASIN, EASTERN GULF OF MEXICO

New seismic reflection data south of the Florida Panhandle and west of the Florida Peninsula, on the continental slope, were recorded by personnel from the Department of Oceanography, Texas A & M University, during January and May, 1967. These data correlate with earlier reflection and refraction results and indicate: (1) the anticlinal feature present along the top of the northern section of the West Florida escarpment, which may represent an extension of the Washita-Fredericksburg reef trend, can be followed as far south along the scarp as 27°00'N latitude and possibly farther; (2) the "scarp-face reflector" which has been traced under the abyssal plain sediments in the northeastern part of the basin can be followed toward the south to the latitude of Dry Tortu-

gas. In the southern section this reflecting horizon becomes "hummocky" and these highs and lows appear to be associated with the inundations present at the top of the scarp; and (3) the reflecting horizons believed to represent the Upper and Lower Cretaceous are identified on the slope as far south as 27°30'N. South of this latitude the character of the reflection records changes. This is interpreted to mean that the Tertiary section changes from predominantly clastic toward the northwest to mainly carbonate toward the southeast.

MAHLON BALL, Inst. Marine Sciences, Miami, Fla.

TECTONIC CONTROL OF CONFIGURATION OF BAHAMA BANKS

The residual Bouguer gravity anomaly map of the Bahamas shows that density contrasts below the level of the floors of intraplatform straits and basins cor-

relate remarkably well with present platform topography. The straits and basins invariably are areas of negative anomaly whereas the platforms generally are areas of positive anomaly. Seismic measurements show that refractors with similar transmission velocities are displaced downward in Florida Straits and Northwest Providence Channel. Limited subsurface control, utilizing paleontologic data and velocity surveys, indicates the deepest and highest velocity refractor traceable in and adjacent to the Bahamas to be at the top of Lower Cretaceous rocks.

The best explanation for the observations available is that some combination of post-Late Cretaceous downfolding or downfaulting occurred in the areas of the present intraplateau straits and basins. Erosion of adjacent highs and accompanying infilling of lows with relatively light material subdued the topography directly reflecting structure and at the same time created the conditions necessary to explain the residual gravity anomalies. Perpetuation of the structural high areas by continuation of shallow-water carbonate sedimentation, during the Cenozoic, gave rise to the relief of the Bahama Banks. It follows that, although the plan distribution of Bahamian platforms *versus* strait and basin areas is structurally controlled, the great relief of the platforms is a function of local upbuilding by carbonate sedimentation in step with regional subsidence.

Tectonic control of the limits of shallow-water carbonate sedimentation is also indicated for various other modern and ancient platforms. The Blake, Campeche, and Great Barrier Reef platform edges all coincide with regional structure features, *i.e.*, zones of transition of continental to oceanic crust. The Devonian Leduc-Rimbeiy trend of Alberta, Canada, follows the structural grain of Precambrian basement rocks. The relationship of the Permian Central Basin platform to a structurally high block in its foundation is well known from both geophysical and drilling information.

J. E. BANKS, Coastal Petroleum Co., Tallahassee, Fla.

FLORIDA EMBANKMENT COMPARED WITH MISSISSIPPI EMBAYMENT

On the continent of North America, the Florida embankment and the Mississippi embayment are large areas of thick sedimentation within the Atlantic and Gulf coastal province of post-Paleozoic age.

The Florida embankment occupies an exterior position on a broad continental rise between the deep waters of the Gulf of Mexico and those of the Atlantic Ocean. It has a central axis of thin sediments, a thick column of beds rich in carbonate grains derived from marine sources, and very few beds that were deposited above sea level.

In contrast, the Mississippi embayment occupies a position within the continent between the Ouachita and Appalachian Mountains. It has a central axis of thick sediments, a thick column of beds rich in quartz grains and clay minerals derived from the mountains, any many beds deposited above sea level.

The consequences of these important differences are discussed; also, stratigraphic divisions of the Florida column are presented.

G. F. BONHAM-CARTER, Dept. Geology, Stanford Univ., Palo Alto, Calif., and ALEX J. SUTHERLAND, Dept. Civil Engineering, Stanford Univ., Palo Alto, Calif.

DIFFUSION AND SETTLING OF SUSPENDED SEDIMENT AT RIVER MOUTHS: A COMPUTER SIMULATION MODEL

A *Fortran IV* computer program has been written for simulating the diffusion and settling of suspended sediment at river mouths. The rate of sediment accumulation at any point in front of the channel mouth is governed by water and sediment discharge, sediment grain-size distribution, sediment density, the porosity of the resulting sediment, width and depth of the river channel, and the geometry of the basin. A plane jet model is used for determining the velocity field and the rates of sediment diffusion. By adjusting the input parameters, a variety of "delta" deposits may be created. The shape and foreset slope of the delta fan are found to be closely controlled by grain size and discharge. By allowing the model to respond dynamically to the buildup of sediment at the channel mouth, a distributary mouth bar and submerged levees can be formed. Delta-simulation experiments are monitored by printing (1) maps showing the rates of sedimentation for each grain size at every point in a digital accounting grid and (2) facies maps using alphabetic symbols. Maps and stratigraphic cross sections are drawn with a digital plotter.

Computer simulation is an important method for sedimentology, and should be used in combination with hydraulic models and direct observations of natural phenomena.

LESLIE BOWLING, Consultant, New Orleans, La.
WHY AND WHITHER GULF COAST ASSOCIATION OF GEOLOGICAL SOCIETIES?

The limitations of four AAPG-sponsored regional meetings held in the Gulf Coast area between 1946-49 resulted in the design of an Association of Geological Societies for two purposes, to hold an annual meeting and to implement a means of rapid publication. GCAGS was founded May 15, 1951 and the first Annual Meeting was held in New Orleans on November 15, 16, and 17, 1951.

A strong wedge of disunity was driven into the Association in its embryonic stage. It was driven ever deeper until about 1957. Since that time the wound has been slowly healing.

The issue has been the question of GCAGS becoming a section of AAPG. The last blow was struck in 1967 with Mike Halbouty wielding the hammer. Mike, representing AAPG, submitted a resolution on March 2, 1967 inviting GCAGS to become a section of AAPG. It was amended by GCAGS, approved by AAPG, and as of this date the invitation has been accepted and approved by a majority of the member societies.

GCAGS officially notified AAPG of its acceptance on July 10, 1967 and the Executive Committee of AAPG has approved. The formality of approval by the Business Committee of AAPG is awaited.

Henceforth it is anticipated the history of GCAGS will be an accumulation of dates and statistics.

H. K. BROOKS and C. V. CONKLIN, Univ. Florida, Gainesville, Fla.

MARINE AND TERRESTRIAL PLIOCENE AND PLEISTOCENE DEPOSITS OF FLORIDA

For the first time fossiliferous marine, estuarine, and terrestrial deposits of peninsular Florida are correlated and are related to topographic terraces. Synthesis of all data reliably proves a middle to late Pliocene