Currently, there are two schools of thought: (1) the basin has existed since late Precambrian; or (2) it was formed by early Mesozoic sea-floor spreading in the Gulf, a product of the general breakup of Pangea into continental blocks.

Late Paleozoic orogeny, in phase with or a part of a west-southwestward continuation of Appalachian folding, created a northern structural rim for the basin which strongly influenced subsequent sedimentation and structural trends. Postorogenic tension faulting along and south of this rim was particularly active during the Triassic. Jurassic sediments along the flank and gulfward from the structural rim overlie this faulted basin floor and are in unconformable contact with rocks ranging in age from Triassic to Mississippian.

Triassic sediments are fluvial to deltaic redbeds. Paleozoic deposits include both "Ouachita facies" and unmetamorphosed fluvial to offshore marine clastic rocks and highly fossiliferous shallow-water carbonate rocks. Seismic data suggest Triassic and/or late Paleozoic sediments underlie the Jurassic throughout the Gulf basin. These pre-Jurassic rocks comprise a large, very sparsely tested frontier for oil and gas.

WORSLEY, T. R., G. BLECHSCHMIDT, and B. SNOW, Univ. of Washington, Seattle Wash.

PROBABILITY-BASED ANALYSIS OF AREA-TIME DISTRIBUTION OF OLIGOCENE CALCAREOUS NANNOFOSSILS

Computer-processed, probability-based statistical analysis of the published stratigraphic information on 25 common calcareous nannofossil species present in 51 long sections of Oligocene strata indicates that the 5 Oligocene zones of the standard Paleogene zonation of Martini (1970) are very reliable. However, the available number of subdivisions is far greater than previously supposed and is likely to increase as more sections are studied. It also is evident from this study that the sequence of biostratigraphic datum surfaces for an area is dependent on both evolution and the environment in which it is found, so that sequences differ significantly among biogeographic provinces.

In this analysis, water depth and latitudinal position were used to separate 51 sections from the equatorial region and Northern Hemisphere into 4 overlapping groups. The sections first were separated into high and low-latitude groups, neritic and oceanic groups, and into the combinations of these, making a total of 8 groups. A most probable biostratigraphic sequence of datum surfaces was found for each of these groups and compared with each other, and with the composite based on all by means of cross sections and a fence diagram.

It is suggested that maximum gain in biostratigraphic resolution will result from intensive study of new and previously described sections with the aim of separating as many datum surfaces as possible from each other. The description of new species and detailed taxonomic classification, although important to local problems, will add little to global biostratigraphic resolution.

WORZEL, J. L., and J. S. WATKINS, Marine Biomedical Inst., Univ. of Texas Medical Branch, Galveston, Tex.

EVOLUTION OF NORTHERN GULF COAST DEDUCTED FROM GEOPHYSICAL DATA

Seismic refraction data from the western part of the northern Gulf Coast of the United States indicate that the uppermost crust of the Gulf region consists of a thick sequence of sedimentary rocks locally ranging up to 17 km thick. Beneath the sedimentary sequence a layer with velocities ranging from 5.2 to 6.0 km/sec probably consists of high-velocity sedimentary rocks (salt and carbonates) possibly overlying a thin upper crustal layer. The combined thickness of the sedimentary sequence and the 5.2–6.0 km/sec layer is between 15 and 20 km. The deeper crust is 12–20 km thick beneath the interior of the coastal plain and thins seaward. The velocity of this crust (6.45–6.9 km/sec) is comparable with that of oceanic crust.

From available data for the north Gulf Coast, we have constructed 3 profiles across the coastal plain to the Sigsbee Deep. From these profiles, we have reconstructed former Gulf coastal margins for 3 epochs of the Mesozoic and Cenozoic, based on the assumption that the region has remained in close isostatic equilibrium. We have postulated the evolution of the Gulf Coast geosyncline, the continental shelf, and the transition from continental crust to oceanic crust at this margin since the Mesozoic.

WRIGHT, A. P., Florida Bur. of Geology, Tallahassee, Fla., and E. O'DONNELL, Univ. of South Florida, Tampa, Fla.

SHORELINE AND BEACH CHANGES ON HONEYMOON ISLAND, PINELLAS COUNTY, FLORIDA, 1967–1971

The southwest shoreline of Honeymoon Island, an arcuate barrier feature, was extended seaward by a dredge-fill operation in 1969. During the project, 1.5-million yd of material composed predominantly of boulder-size limestone was dredged from 1,500 ft offshore to bring the southwest beach to an elevation 5 ft above mean sea level.

A series of aerial photographs taken between 1967 and 1971 indicates cyclic patterns of erosion and deposition prior to and following the dredge-fill operation. Significant alterations evident in the photographs include marked erosion of the southwest shoreline of the island and the deposition of a series of curved spits or hooks along the northwest shoreline.

Erosion of the southwest shoreline by southeasterly longshore littoral drift is substantiated by the following data collected during a 6-month period: (1) current measurements taken around the island, (2) grain-size and roundness studies of sediment samples collected monthly from 10 sampling locations, and (3) monthly field observations and measurements of shoreline configuration and sediment composition of the foreshore. Formation of the hooks is related to flood-tide currents and storms.

Data indicate that the dredge-fill operation enhanced erosion of the southwest shoreline and that continued erosion in that area can be anticipated. The methodology of this study could be utilized in evaluating the potential effects of similar dredge-fill projects.

SAN ANTONIO IS SITE OF NEXT ANNUAL CONVENTION

The charming city of San Antonio, home of The Alamo, Spanish missions, and the famous Paseo del Rio —River Walk—will be the site for the Association's 59th annual convention, April 1–3, 1974. Hosts for the meeting are the South Texas Geological Society and the Gulf Coast Association of Geological Societies.

Although there is no overall theme for the convention, the AAPG technical program will emphasize "exploration for stratigraphic traps," methods, new techniques, types of programs, application of regional stud-