

# **GEOLOGIC HISTORY OF THE GULF BASIN**

HUNTER YARBOROUGH  
Humble Oil & Refining Company  
Houston, Texas

## **A B S T R A C T**

The basin contains more than six million cubic miles of predominately Mesozoic and Cenozoic sediments. Deep-water sediments overlying an oceanic crust occupy its central portion.

Late Paleozoic orogenies influenced the basin shape: the "buried" Llanoria structural belt along the northern margin, the Chiapas-Guatemalan structural belt along the southern margin, and a "connecting" structural belt (now "buried") along the western margin. This latter margin was more strongly established by Nevadan (Jurassic) and Laramide (early Tertiary) orogenies. A complex system of transcurrent faulting, created as the Gulf Basin (and Mexico) drifted westward, leaving the Caribbean "Pacific Tongue" behind, marks the southeastern margin.

Great thicknesses of Jurassic salt occur in major depressions within the basin. Much of this salt was apparently deposited rather abruptly in deep waters. During salt deposition, the African continent probably marked the eastern margin of the Gulf Basin. The Nevadan orogeny restricted normal Gulf circulation from the Pacific, creating conditions favorable for salt sedimentation.

Post-salt sediments came from two major proveniences: Mesozoic from the Appalachians and Cenozoic from the Rocky Mountains.

History of the Gulf Basin supports modern concepts of continental drift. The Gulf "salt basin" appears genetically related to a series of "salt basins" which formed from north to south as continents began to drift apart along the Mid-Atlantic "swell." Progressive decrease in age from Late Paleozoic at the north to Lower Cretaceous at the south suggests the supercontinent began drifting apart first at the northern end. The sedimentary and structural records indicate drift was spasmodic rather than continuous.