

GEOLOGIC FRAMEWORK OF THE GULF COASTAL PLAIN OF TEXAS ¹

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ABSTRACT

The Gulf Coastal Plain of Texas is bounded on the north by the outcrop of the oldest Upper Cretaceous beds, on the south by the outer margin of the present Continental Shelf, on the east by the Louisiana State Line and on the southwest by the Rio Grande River. The Ouachita folded belt lies under the inner margin of the Coastal Plain and beneath the beds of Jurassic or Cretaceous age. These partially truncated Ouachita folds served, in part, as the foundation on which the Mesozoic and Cenozoic sediments were deposited.

Regional tectonics controlled the geological features and their associated sedimentary processes. Partial peneplanation at the close of several periods was followed by rejuvenation of the land areas which resulted in long periods of deltaic deposition. This, together with the downwarping, faulting, and slumping along the successively younger continental shelves, formed structural and sedimentary conditions ideal for the trapping of oil and gas. The closed basins and embayments received evaporites and reef development to a minor degree. The migration of the geosyncline southeastward with each period of deposition resulted in the great thickness of sediments underlying the Gulf Coastal Plain.

The structural, isopach, and isolith maps illustrate: (1) the present structure and position of selected horizons from the Jurassic through the Miocene, (2) the thickness of these sediments, and (3) the ratio of sand to shale and regional facies changes.

ACKNOWLEDGMENTS

The writers are indebted to F. E. Heath, Sun Oil Company Division Chief Geologist, under whose supervision the paper was written; to P. F. Oetking for aiding in all phases of the report; to W. W. Schell for his helpful suggestions; to W. J. Wright and Mrs. G. R. Moore for the preparation of illustrations and the manuscript. Acknowledgments are also extended to the geologists in district offices of the Sun Oil Company located at Corpus Christi, Houston, McAllen, San Antonio and Tyler, Texas, and Shreveport, Louisiana, for their contributions of geological information.

¹ Read before the Association at the St. Louis meeting, April 14, 1954.