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Abstract:

Stratigraphy and Its Role in the Future Exploration for Oil and Gas in the Gulf Coast, by E. H. Rainwater *

The Gulf Coast of the United States is part of a large mediterranean sea area which has been in existence since Upper Purassic. The many structural features within and adjacent to this basin which have profoundly influenced sedimentation are pointed out.

Some principles of stratigraphy which must be understood in order to decipher the geological history of this area are briefly revised and illustrated. The habitat of oil and gas, or the depositional conditions most favorable, less favorable, and least favorable for their occurrence, is described.

The need to make general studies in order to have a framework into which details can be fitted is pointed out, and criticism is aimed at several types of "research" which ignore known stratigraphic conditions.

Early stratigraphic studies which established the age and correlation and described the facies of Gulf Coast formations are briefly reviewed, as is also the part played in subsurface zonation by Foraminifera. The present status of stratigraphy and micropaleontology in petroleum exploration in this province is described.

The paper is mainly concerned with the application of stratigraphy in future exploration of the Gulf Coast. The Gulf basin history is outlined, and each of the major producing or potentially productive sections is described as to environment of deposition. The relationship of oil and gas occurrence to depositional conditions is pointed out for each section, and the exploration problems which stratigraphy can help solve are outlined. Generalized depositional-environment sections of the productive and non-productive formations and small-scale dip sections showing depositional environment and structural position of the major stratigraphic units are presented.

From the amount of favorable facies of numerous stratigraphic sections in many areas yet to be explored, it is concluded that more oil and gas will be discovered in the future in the Gulf Coast than has been found to date, and that stratigraphy will play a leading role in this discovery.

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