THE TECTONIC BEHAVIOR OF EVAPORITES

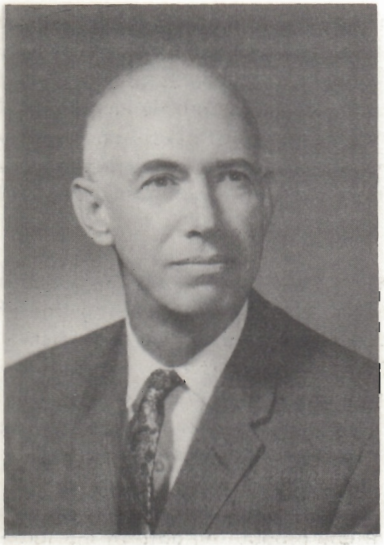
By Joseph D. Martinez

ABSTRACT

The great commercial importance of the salt domes of the Gulf Coast has focused the attention of most American geologists on salt tectonics as it applies to these structures. These domes although illustrative of many general principles, represent only one type. Their formation and growth is in response to deep burial and essentially buoyant forces. Little, if any, effect of regional stress can be observed in the U.S. Gulf Coast, although such response is found in Mexico and elsewhere. Mineralogically they are almost pure halite. Although banding of anhydrite-rich layers has been mapped and the style of internal structure thus defined, no significant progress has been made in identifying and following banding throughout a mine. Neither has the more difficult task of correlating relict sedimentary layers from dome to dome been accomplished or even attempted. This is in sharp contrast with the very detailed stratigraphic work with the Zechstein saline deposits in Germany, made possible by the highly variable nature of the succession. The special concern with salt tectonics per se in the Gulf tends to detract from the importance of the structural behavior of the other evaporites.

A framework is presented which classifies and places in perspective all aspects of the tectonic behavior of evaporites. One of the two major divisions deals with the response of evaporite sedimentation and accumulation to regional and local control. The other considers both the active and passive roles of evaporites as agents of tectonism.

BIOGRAPHICAL DATA



Dr. Joseph D. Martinez comes to us with a broad and varied background. After receiving a B. S. in electrical engineering from LSU and serving four years in the infantry, then Captain Martinez joined Brown Co. in Berlin, New Hampshire, where he concerned himself with engineering and design. He returned to Baton Rouge in 1948 as a consulting engineer and re-enrolled in LSU where he completed both the M. S. and Ph.D. programs in geology. At this time he joined the Humble Oil and Refining Company where he performed research in paleomagnetism and structural geology. While with Humble he served as a lecturer in geology at Rice University. Leaving Humble and the South, Dr. Martinez became an associate Professor in geology at Northern Illinois University and from there went to the University of Wisconsin before returning to Baton Rouge in 1965 where he joined the LSU staff. He presently is a Professor of Environmental Engineering and

Director of the Institute for Saline Studies.

A man with a varied background, Dr. Martinez has serveral patents and over twenty-five publications on subjects varying from paleomagnetism to the "Impact of Salt on Man's Environment."

A member of Sigma Xi and a fellow in the GSA, Dr. Martinez is a member of AAPG, SEPM, AGU and is a CPG of the AIPG.

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