## NOON MEETING—MARCH 29, 1978

### RICHARD S. BISHOP—Biographical Sketch

Dick Bishop is a typically "migrating" petroleum geologist; he was born a Yankee but has roots in Texas. He received his degrees from Texas Christian University (BS), the University of Missouri (MA), and Stanford University (PhD). During his schooling he spent the summers doing subsurface mapping and working on gravity and magnetics field crews. For 2 years he worked in both production geology and exploration geophysics for Union Oil of California in New Orleans. During this time he also taught a structural-geology course at Louisiana State University in New Orleans.

Since joining Exxon Production Research Company in 1975, he has held assignments in both Basin Evaluation and Assessment Sections, where he has participated in projects on structural-trap prediction, assessment criteria, and geochemistry.

Dr. Bishop is a member of AAPG, GSA, SPE of AIME, and HGS.

### SHALE DIAPIRISM AND COMPACTION OF ABNORMALLY PRESSURED SHALES IN SOUTH TEXAS (Abstract)

Both salt and shale diapirs of the Gulf Coast basin occur in similar tectonic settings and seemingly have formed by the same mechanism. Despite their similarity, however, salt and shale diapirs differ significantly in size, abundance, geographic distribution, and in their capability to trap hydrocarbons. Although diapirism generally is described as an intrusive process whereby less dense material (usually salt) rises into more dense overburden owing to buoyancy, shale diapirs in the Gulf Coast do not behave as predicted by buoyancy theory. Shale density inversions occur in large areas of both South Louisiana and South Texas, yet subsurface piercement shale diapirs occur only in South Texas. Explaining this anomalous behavior has required the integration of field data and the use of a loading model of diapirism, a model of the compaction of thick shales, and a numerical simulation of compaction history in South Texas.

Interpretation of the results is that two South Texas shale diapirs, La Ward and Sheriff, formed primarily by extrusion and subsequent burial, rather than by intrusion. In general, rapid deposition of a sandy overburden on a thick, montmorillonitic shale is the condition most conducive to forming shale density inversions.

A theoretical simulation of the South Texas shale-compaction history, combined with a loading model of diapirism, provides the basis to explain this general model of shale-diapir emplacement.