M. MALEK-ASLANI
Biographical Sketch

M. Malek-Aslani was born in Tabriz, Iran. He received a B.S. Degree in Mining Engineering from Tehran University in 1946. He was awarded an M.S. Degree in 1950 and a Ph.D. Degree in Geology in 1952 by the Colorado School of Mines.

Beginning his professional career in 1952 with Texas Gulf Sulphur Company, he received various assignments in sulphur and oil and gas exploration. Since 1958 he has been associated with Tenneco Oil Company as Staff Geologist. He is currently involved in world wide exploration and research in carbonates.

He is a member of the GCAGS-SEPM, HGS and AAPG.

ABSTRACT

THE PERSIAN GULF HOLOCENE: A USEFUL MODEL FOR ANCIENT CARBONATES

The Post Wisconsian (Wurm) marine transgression into the Persian Gulf Basin left a varied sedimentary record which is very useful as a model for interpretation of ancient carbonate environments. The Persian Gulf is an epeiric sea which overlies the continental crust. It is situated between the stable Arabian Shield to the south and southwest and the mobile Zagros Mountains belt to the northeast. This shallow basin, less than 100 meters deep, covers 226,100 square kilometers and is situated within an arid climatic region. As such, it is truly a geosynclinal basin which has many ancient analogs in the geologic period.

The foothills of the Zagros Mountains are marginal to the deeper northeast side of the Basin where the influence of terrigenous clastic sedimentation is more apparent than the Arabian side of the Gulf. On the south and southwest the coastal plain slopes gently under the Gulf as a north and northeast dipping homocline which is a site of extensive carbonate sedimentation.

The extreme aridity of the coastal plains on the Arabian side provides ideal conditions for development of supratidal environments in which evaporites are being

formed and dolomitization of carbonates is taking place.

Off-shore from the Arabian coast contemporaneous structures such as salt domes and anticlines cause shoaling which are sites for coral reefs and skeletal banks. The high energy conditions caused by tides and wave action provide an ideal setting for development of oolitic and skeletal sand bodies.

The understanding of the sedimentary process and the depositional models in the Persian Gulf is extremely useful for the interpretation of many ancient carbonate models such as the Smackover in South Arkansas - N. Louisiana; the Silurian reefs in the Michigan Basin; and Cretaceous of the Gulf Coast.