

**INTERNATIONAL EXPLORATIONISTS GROUP  
EVENING MEETING—SEPTEMBER 17, 1986**

**MORAD MALEK-ASLANI—Biographical Sketch**



Morad (Mo) Malek-Aslani is a consulting geologist specializing in exploration problems related to carbonate systems. He received a B.S. degree in mining engineering from Tehran University. He received his M.S. degree in 1950 and his Ph.D. in 1952 from the Colorado School of Mines. Upon graduation, Dr. Malek-Aslani joined Texas Gulf Sulphur Company and spent the next six years exploring for sulfur, oil and gas in

various regions of the world. In 1958, Dr. Malek-Aslani joined Tennessee Gas (now Tenneco) as a senior geologist and spent the next 28 years in their Geological Research Department working various parts of the world. He took early retirement on July 1, 1986 from a position of senior geological consultant.

Dr. Malek-Aslani has been involved in exploration for oil and gas in carbonate rocks in the Rocky Mountains, the Permian Basin, the Mid-Continent Region, the Gulf Coast Region (both onshore and offshore), the Appalachian Basin, the Atlantic OCS, the Bahamas, the North Sea, Tunisia, Ethiopia, the Middle East, and Indonesia. His principal interest is in the application of new geological, geophysical and geochemical concepts to exploration in carbonate rocks.

Dr. Malek-Aslani has authored many papers on various aspects of petroleum accumulation in carbonate rocks. He is a contributor to the recently published book entitled "Carbonate Petroleum Reservoirs", Springer-Verlag, 1985.

**PLATE TECTONIC CONTROLS OF HYDROCARBON  
TRAPS IN CARBONATE ROCKS**

Hydrocarbon traps occur in a variety of plate tectonic settings, each imparting a certain control on the depositional and diagenetic aspects of carbonate reservoirs. A knowledge of trap-type in each tectonic environment is very useful for defining exploration concepts in frontier regions where paucity of subsurface information forces the explorationist to depend solely on seismic data.

In the extensional plate-tectonic setting, during the early stage of rifting, carbonate traps can form on shoals marginal to fresh-water lakes which occupy intra-cratonic grabens. The post-breakup transgression generally results in deposition of salt which is overlain by a carbonate shelf. Salt tectonics control the configuration of carbonate traps as well as the depositional and diagenetic aspects of the reservoir. Within rifted continental margins, a majority of the carbonate traps occur in shelf facies behind ocean-facing reef complexes which are generally cemented in the marine environment. Shelf-margin reefal complexes which were subsequently subjected to a late tectonic phase may be viable exploration targets.

In a convergent plate-tectonic setting, carbonate shelves marginal to the backarc basin are ideal sites for hydrocarbon accumulations. Within the continental-collision setting,

carbonate ramps on the cratonic side of foreland basins provide for major hydrocarbon accumulations. Carbonate formations involved in overthrust structures can be sites of giant petroleum accumulations.

The trans-tensional and the trans-compressional wrench-fault setting can create favorable environmental and diagenetic conditions for carbonate traps.

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