

INTERNATIONAL EXPLORATIONISTS GROUP EVENING MEETING—SEPTEMBER 19, 1984

H. HUGH WILSON—Biographical Sketch



H. Hugh Wilson is a Staff Explorationists with Superior Oil involved with frontier exploration and the generation of new exploration concepts. He received a B.S. degree, with honors, in natural science (Geology major) from Dublin University in 1950 and an M.S. degree in Geology from the same university in 1952. Upon graduation, Mr. Wilson joined Royal Dutch Shell and spent the next 17 years in various areas of the world:

as field geologist in Colombia, chief geologist and head of exploration in Turkey, exploration manager in Guatemala, exploration manager of the Arabian Gulf area, general manager in Guatemala, exploration manager of the Arabian Gulf area, general manager of exploration and production in Australia, and in management programs in London. In 1969, he transferred to Shell U. S. where he worked primarily the Gulf Coast area. In 1973, Hugh resigned from Shell to join a consulting firm in New Orleans, and later became a consultant to Louisiana Land and Exploration Company. After six years of looking after worldwide projects for LL&E, he formed his own consulting firm, Vanguard Exploration. He joined Superior in 1983.

Mr. Wilson has published papers on a wide range of technical topics and geographical areas. These papers appeared in such publications as AAPG bulletins, *Geology Magazine*, *Journal of the Institute of Petroleum*, *GCAGS Transactions*, and the *Journal of Petroleum Geology*. The areas covered by his papers have included the U. K., Guatemala, British Honduras, the Oman Mountains, the Gulf of Mexico, Saudi Arabia, and Mexico. He has dealt with such diverse subjects in his papers as salt tectonics, diagenetic traps for hydrocarbons, orogenic pulses, and timing of hydrocarbon expulsion. In addition, he has been a lecturer for the Advanced Petroleum Geology courses at Tulsa University and for in-house exploration seminars within oil companies. He was key speaker at the GSA Penrose Conference on Geodynamics of Continental Interiors, and has been guest speaker at geological societies in California, Louisiana and Texas. He has served as Associate Editor for AAPG and was a team member of the International Geodynamics Project working on global synthesis of evidence leading to the reconstruction of distribution of continents and oceans through time.

Mr. Wilson is a fellow of the Geological Society of London and the Institute of Petroleum in London. He is a member of the Geological Society of America, the American Association of Petroleum Geologists, the American Association for the Advancement of Science, the Australian Petroleum Exploration Association, the New Orleans Geological Society, and the Houston Geological Society.

THE STRUCTURAL EVOLUTION OF THE GOLDEN LANE AREA, MEXICO

The discovery well for the Old Golden Lane was drilled in 1908. Follow-up wells quickly defined a buried Cretaceous carbonate ridge.

This narrow buried ridge was interpreted as a structural feature with some crossing faults. As drilling proceeded, an alternate interpretation emerged in 1923 describing the carbonate ridge as a huge buried Cretaceous reef. The reef concept quickly gained favor and was reinforced by subsequent drilling results which defined the Tamabra fore-reef apron on the west and lagoonal back-reef evaporites on the east.

Continued drilling revealed the New Golden Lane and then the Marine Golden Lane offshore which joined the Old and New Golden Lanes to form the Middle Cretaceous Golden Lane Atoll. However, geological investigation suggests that this popular concept of the nature of the Golden Lane is erroneous and its application as an analog for exploration may be very misleading.

Interpretations of the Golden Lane "Atoll" generally are supported by illustrations of **present day** geometry and attempts to unravel its structural history have been discouraged by the lack of reliable time stratigraphic control of the varying Cretaceous and Tertiary facies. Furthermore, seismic data quality is adversely affected by fracturing and injection of numerous Neogene dikes and plugs.

Paleostructural reconstructions on an Oligocene datum show that the present day Golden Lane is an inverted Oligocene syncline which plunged westward. Strong positive features present to the east in Oligocene time collapsed in the Neogene as the Gulf basin developed. The east side of the "Atoll" is a Neogene fault contact.

In late Cretaceous time strong positives were present north and south of the Golden Lane and at least one east-west horst block was uplifted north of Poza Rica.

Paleontological data show that much of the El Abra and Tamabra carbonates are of late Cretaceous age. The presence of bentonite intervals in the El Abra of the Golden Lane and the Tamabra also suggest a late Cretaceous age by reference to both local and regional volcanogenic history.

Age relationships in the Cretaceous are confused by fossil reworking. The presence of Jurassic detritus in the Tamabra casts doubt on its Golden Lane provenance.

Tectofacies, volcanicity, unconformities and structural growth indicate an active structural environment during the late Cretaceous which lends more support to a structural than passive carbonate build-up interpretation for the Golden Lane.

Late Cretaceous and Tertiary structural history in the Tampico embayment also point to an active, probable extensional tectonic evolution of the southwestern Gulf of Mexico during that period rather than the post-Jurassic quiescence interpreted from seismic-stratigraphic studies.