LUNCHEON MEETING—NOVEMBER 23, 1987

MARTIN P. A. JACKSON—Biographical Sketch

Martin Jackson is Senior Research Scientist at the University of Texas' Bureau of Economic Geology in Austin. Born and educated in Zimbabwe, he received a B.Sc. in Geology from London University in 1968 and a B.Sc. Hons. in 1969 for a thesis on lunar geology. In 1972, after two years in mineral exploration with Cominco in southern Africa, Martin joined the Precambrian Research Unit of the University of Cape Town, South Africa. Martin received a Ph.D. from Cape Town in 1976 for a study of a Proterozoic high-grade gneiss terrane in Namibia, and joined the faculty of the University of Natal, South Africa, where he taught and carried out Quaternary and Archean research.

In 1980 Martin joined the Bureau of Economic Geology and began research on salt diapirism. He and S. J. Seni received the 1985 A.A.P.G. Sproule Award for their synthesis of the kinematics of diapirism in the East Texas Basin. In 1984 and 1986 Martin carried out centrifuge experiments on diapirism under varying conditions of sedimentary loading at the Hans Ramberg Tectonic Laboratory in Uppsala, Sweden.

Dr. Jackson is an associate editor of the A.A.P.G. Bulletin and a member of the A.A.P.G. and the Geological Society of America.

NEW INSIGHTS ON SALT DIAPIRISM FROM THE GREAT KAVIR, CENTRAL IRAN

The Great Kavir is the largest salt desert in Iran. More than 50 salt diapirs are exposed along its northern fringe in the foreland of the Elburz Orogen. The Kavir diapirs are large, abundant, superbly exposed, and have correlatable stratigraphy within them. These qualities provide an unrivaled opportunity for detailed analysis of diapir emplacement.

The talk summarizes research on this topic by an international team. Field data collected in the 1950s is integrated with remotely sensed data to produce structural maps which are interpreted kinematically and dynamically in three dimensions. Our interpretation makes use of centrifuge and analytical modeling scaled directly to the Great Kavir. Some novel discoveries are: mushroom-shaped diapirs with peripheral pendant lobes, some of which are coiled in vortices, and a salt canopy comprising 12 laterally fused diapirs. Despite being among the largest exposed diapirs in the world, the Kavir diapirs are anomalously closely spaced. Tight clustering is explained by unusually low viscosity contrasts between two Tertiary evaporite units — a feature that also accounts for the peculiar growth of mushroom-shaped diapirs in the Kavir. Both diapirism and regional folding began only about 5 Ma ago; both types of deformation continue today.

Similar conditions that encourage the formation of mushroom diapirs and salt canopies may be present in the outer continental shelf and slope of the northwestern Gulf of Mexico.