EVENING MEETING—FEBRUARY 6, 1978

T. D. (TED) COOK—Biographical Sketch

Born in Kentfield, California, Ted Cook completed his early education and junior college training in 1941. After service with the armored infantry in the 13th Armored Division in Europe, he completed his undergraduate work in geology at The University of Utah in 1948. Two years further study at the University of California (Berkeley) resulted in a Master's degree in paleontology.

Ted joined Shell Oil Company in 1950 as a micropaleontologist at Ventura, California, where he worked on Eocene sections in the Santa Ynez Mountains. In 1953 he transferred to Corpus Christi and began study of the Tertiary and Cretaceous of South and Central Texas. In 1955, as Division Stratigrapher, he worked on the early studies of the reef-trend exploration. After short assignments in Miami (researching recent carbonate sediments) and in Houston, he returned to Corpus Christi as Division Geologist. Similar assignments followed in Houston in both the onshore and offshore divisions, and in 1969 he was assigned to Head Office as Senior Staff Geologist. There he began work on a series of continent-wide stratigraphic maps which eventually led to the recent publication of the *Stratigraphic Atlas of North and Central America*, which he edited together with A. W. Bally.

Assignments in the International Region led to regional maps of the Mesozoic of South America and the lands around the Mediterranean and the Middle East, and to basin analyses in those areas. In 1976 he was named Manager of Stratigraphic Services for Shell, the position he now holds.

Author of several short geological papers and editor and leader of numerous geological-society field trips, he also edited AAPG Memoir 18, *Underground Waste Disposal and Environmental Implications*.

Ted is a member of GSA and HGS and a former vice-president of CCGS. He is also former president of Southwest Tennis Association and current president of Houston Tennis Umpires Association.

EXPLORATION HISTORY OF THE SOUTH TEXAS LOWER CRETACEOUS CARBONATE PLATFORM

(Abstract)

The search for hydrocarbons in reservoirs of the Lower Cretaceous of south-central Texas has been continuous for more than 60 years. Accumulations have been found in significant quantities in only four areas: (1) the very shallow fault traps high on the San Marcos arch in Caldwell and Guadalupe Counties, (2) a fault trend stretching across central Atascosa County, (3) a fault trend extending from southeastern Atascosa County to southern Gonzales County, and (4) a narrow, elongate band extending across the entire area known as the "Stuart City reef trend."

Reservoirs which contain the hydrocarbons were deposited in a myriad of environments, all related to a broad carbonate shelf covered by an extremely shallow sea. The sea deepened dramatically at the shelf margin parallel with the reef trend. Dolomites contain the accumulations in the fault trends, and porosity and permeability are reasonably good. Few limestones in the reef trend were extremely porous initially, and late cementation diminished porosity further.

Oil is the dominant hydrocarbon in the shallow fields, is less dominant in the other fault trends, and is nonexistent in the reef reservoirs. Proved ultimate recovery for the fault trends is about 350 million bbl of oil and 1.5 Tcf of gas. Reserves for dry gas in the reef-trend reservoirs are difficult to estimate because of highly variable reservoir conditions, but should fall between 1 and 1.5 Tcf.

Intensity of exploration decreases from late Early Cretaceous to older rocks. The Sligo limestone still holds the promise of success, but lies at considerable depths over much of the area. Edwards and Glen Rose rocks are more densely explored, but there are ample opportunities for new plays even in these beds. Geologists who examine cores and cuttings, determine depositional patterns, understand modern carbonate sedimentology, and study patterns of diagenesis will have an advantage in developing new concepts for exploration.