

EVENING MEETING—OCTOBER 6, 1980

STEPHEN E. COLLINS—Biographical Sketch



Stephen Collins is a native of Vicksburg, Mississippi. He received a BS in geology from Millsaps College, Jackson, Mississippi, in 1955, and received a master's in geology the next year from the University of Tennessee, Knoxville.

Mr. Collins was employed by Amoco Production Co. (formerly Pan American Petroleum Corp.) from 1957 to 1964. He worked in the East Texas (Tyler) and West Texas

(Lubbock) district offices as a petroleum geologist responsible for originating drillable geologic prospects. He joined Geomap Co. in 1964, where he remained until 1966, when he became an independent geologist.

In 1970, Mr. Collins formed Dallas Exploration, Inc., with Sam H. Allen. The firm is involved in exploration drilling activity primarily in the Ark-La-Tex area, but also does work in West Texas, Mississippi, and Florida.

downdip from the salt anticlines; (5) complex graben-fault traps associated with more intense salt features deeper within the basin; and (6) a possible new trend opened in western Henderson County, Texas, updip from the Mexia-Talco fault trend, by a recent highly significant discovery of McFarlane Oil Co.

The five producers (and no dry holes) drilled to date show only very slight structural turnover at the Smackover level in an area of regional east dip into the basin with the possibility of minor (less than 100 ft) fault interruptions. Current interpretation is that trapping is due to a combination of slight structural closure and updip porosity pinchout. Updip oil migration may have occurred through "breaks" in the Mexia-Talco fault system. Well control is inadequate for further definition of this trend. Flow rates over 1,000 BOPD have been reported in several of McFarlane's wells. Producing characteristics appear to be excellent; the oil is 48° gravity and the GOR is less than 1100:1. Hydrogen sulfide is reported to be 2% or less. In view of its possibly large area and shallow depth (9,000 ft)—and a price of \$40/barrel—this field could prove to be the most significant oil field discovered in East Texas in 20 years.

(NOTE: Mr. Collins will give an exploration review and update on recent activity in the Jurassic play, as well as treating some of the factors discussed in his article in the *AAPG Bulletin*, July 1980.)

APPLYING MODERN GEOLOGIC METHODS TO PETROLEUM EXPLORATION AND DEVELOPMENT—CASE STUDY OF JURASSIC RESERVOIRS IN EAST TEXAS, NORTH LOUISIANA, AND SOUTH ARKANSAS (Abstract)

The stratigraphic and structural framework of the Cotton Valley and Smackover can be divided into distinct producing trends. Each trend has predictable producing characteristics and geographic limits.

The Cotton Valley producing trends lie in four different areas: (1) a semicircular belt of lower Cotton Valley Limestone reservoirs along the west flank of the Sabine Uplift covering portions of Rusk, Shelby, Smith, Upshur, and Cass counties, Texas; (2) a northeast-trending belt of lower Cotton Valley Limestone reservoirs on the west flank of the East Texas Basin covering parts of Henderson, Navarro, Freestone, Limestone, and Robertson counties; (3) an arcuate belt of "blanket" strandline sandstones in North Louisiana centering in Lincoln Parish; and (4) a broad circular area covering most of the Sabine Uplift where very fine-grained upper Cotton Valley sandstones produce from a 1,400-ft stratigraphic interval. Minor Cotton Valley sandstone production is being developed on the west flank of the East Texas Basin from low-permeability Bossier sandstones. Cotton Valley reservoirs generally have low permeability (less than 1 md) and require fracture treatment for commercial flow rates. Higher gas prices and improved frac techniques have caused a high level of exploration for Cotton Valley reservoirs.

Smackover producing areas are in six different trends: (1) updip fault traps along the Mexia-Talco fault system; (2) salt anticlines along the flank of the salt basins; (3) basement structures updip from the salt anticline and fault system; (4) stratigraphic traps near the Arkansas-Louisiana state line