unusual in these multi-reservoir fields.

The Hansford gas area of Hansford County is a large multi-reservoir field. Accumulation is controlled by lensing sandstones on the northwest flank of the Anadarko basin. Gas production occurs in rocks of various ages but the dominant number of reservoirs are Morrow in age. The Lips field in northern Roberts County has gas production from Morrow sands and is situated on a pronounced anticline. The accumulation of gas in this reservoir may be due in large part to its high structural position; however, there are other Morrow sand reservoirs in the adjacent area that are not astride this anticline.

Several large interstate gas pipelines traverse the Panhandle area and furnish a ready market for gas. Present prices paid for gas average 15-17 cents per MCF. This ready market, and numerous gas discoveries of the past year, have kept the drilling activity in the western Anadarko basin at a brisk pace through the first half of 1960. Large untested areas within this basin area, combined with favorable discovery rates and access to pipelines, give indications that the accelerated pace of exploratory drilling and development drilling will continue through the remainder of this year and into 1961.

ROBERT J. HESTER, Cosden Petroleum Corporation, Midland, Texas

RICHARD R. HOLLAND, Phillips Petroleum Company, Midland, Texas

Geology of Puckett Field

Geographically, the Puckett field is 27 miles southeast of Fort Stockton in central Pecos County, Texas. Structurally, it is a large faulted anticline on the north flank of Val Verde basin.

The geological evolution of this feature was controlled, primarily, by three periods of uplift and erosion—one in early Pennsylvanian time, a second in either late Pennsylvanian time or early Permian, and a third movement, sometime after the close of the Permian.

The discovery of gas here in 1952 opened one of the world's largest gas reserves and has contributed immensely to the unraveling of the geologic history of the Val Verde basin.

LOYD E. WALKER, Plymouth Oil Company, Midland, Texas

Geology of Benedum Field, Upton County, Texas

The Benedum field, in the east-central part of Upton County, Texas, is in the southwestern part of the Midland basin. It is an elongate anticlinal structure having a concave base and a flat top. The accumulation of gas in this field is situated on a pronounced anticline. The reservoir sands exhibit a uniformity in texture, and porosity 24%, permeability 25-34 md., oil saturation 54%, and water saturation 46%. Their average reservoir characteristics are very similar: porosity 24%, permeability 25-34 md., oil saturation 13%, and water saturation 44%.

Wells can be drilled for as little as $20,000 depending on the depth required in the location in the basin. Accumulative production to date is approximately 7,500,000 barrels for the entire Mason and North Mason fields over 8 years, and 950,000 barrels for the entire El Mar field over a 1-year period.

Deeper possibilities exist throughout the 4,000 feet of the Delaware Mountain group, as well as in the pre-Permian sediments. Future discoveries are imminent, for well density is increasing each month. This allows better evaluation of each new test, thereby giving rise to more realistic acreage appraisals.

WILLIAM J. LE MAY, Hondo Oil and Gas Company, Roswell, New Mexico

Oil Accumulations along Abo Reefing, Southeastern New Mexico

During Abo (lower Leonard) time, clastic deposits in the Delaware basin were separated from the lagoon deposits on the Northwest shelf by a transgressive barrier reef. A lithologic study of the Abo formation reveals facies changes from shelf to reef to basin. Shelf or back-reef deposits consist of interbedded green shale and light gray to tan, fine crystalline, anhydritic dolomite. The interfingering of shelf and reef dolomites form an effective permeability barrier to the migration of fluids