6. S. RUSSELL CASEY, Woodley Petroleum Company, Houston, Texas, and RALPH B. CANTRELL, Lane-Wells Corporation, Houston, Texas
Davis Sand Lens, Hardin Field, Liberty County, Texas

The Davis sand lens of the Hardin field is a buried off-shore barrier (bar). It is in the upper Saline Bayou member of the Yegua (upper Eocene) formation.

The sand was first recognized as a separate sand in the Woodley Petroleum Company's Emma Davis well No. 1; the sand was encountered at a depth of 7,511 to 7,525 feet. Two wells are now producing gas and distillate from this sand, and one well is producing 36° oil. It is a separate and closed reservoir.

An isopach map of the interval containing the Davis lens shows a marked thickening within the area where the best development of the Davis sand is found. It discloses that the bar along its long axis is approximately 9,400 feet in length, and the width varies from approximately 300 feet to 1,200 feet. The total area covered by the lens is approximately 250 acres. The contours of the isopach map are lines of sedimentation from which the section to be penetrated may be postulated in advance of the drill.

The Davis "zone," wherein the lens is found, is composed of alternating sand, sandy shale and shale, and is arenaceous in character indicating lagoonal or tidal-flat deposition. The main sand is a medium-grained quartz sand, containing few other minerals, as compared to the finer-grained, more mineralized sands of the Yegua formation.

The lens was laid down as a barrier beach or off-shore bar by a retreating Yegua sea.

7. MICHEL T. HALBOUTY, consulting geologist, Houston, Texas
Oil and Gas Stratigraphic Reservoirs in University Oil Field, East Baton Rouge Parish, Louisiana

The University field, East Baton Rouge Parish, Louisiana, is a deep-seated domal type structure with minor faulting.

Production from the field is obtained from Miocene sands. The main and most important oil-producing horizon is the 6,400-foot sand. Other producing sands are the 4,300-foot gas sand, the 6,700-foot oil sand and the 7,100-foot gas sand. Aside from these four producing horizons, there are three sands which are potentially productive, the 4,100-foot and 6,200-foot sands in which oil has been cored, and the 6,900-foot sand carrying gas. To date, no attempt has been made to produce from these latter sands.

This field is of particular interest because of the presence of a greater number of stratigraphic traps (oil and gas reservoirs) than are known in any other field of the Gulf Coast except in piercement-type domes.

Accumulation in the productive 4,300-foot sand, and in the 4,100-foot and 6,200-foot potentially productive sands is controlled by stratigraphic factors which created traps.

Individual contour maps on these three sands delineate their respective lines of pinchout and with the assistance of cross sections of the sands in the field, provide an accurate picture of the stratigraphic traps which they form. An hypothesized explanation based on the assumption that erratic contemporaneous deposition of sediments from different sources in the same area is given.

8. DOROTHY A. JUNG, Republic Production Company, Houston, Texas, and DORIS S. MALKIN, Speed Oil Company, Houston, Texas
Marine Sedimentation and Oil Accumulation on Gulf Coast

The marine sands of the Gulf Coast are prolific petroleum reservoirs. Deposition of these sands has taken place during a series of advances and retreats of the sea. A résumé of the sedimentation and depositional conditions occurring in a marine advance, or transgression, and in a marine retreat, or regression, is presented. The resulting stratigraphic sequences, the "marine overlap" and "marine offlap" are discussed under ideal conditions, and illustrated by electrical log profiles. Particular reference is made to possibilities for petroleum accumulation as influenced by stratigraphic conditions.

Sands deposited in a transgressive sea, such as the "Cockfield," upper Wilcox (Sabinetown), *Marginulina*-upper Frio, and lower Miocene sands, are believed to present conditions favorable for the migration, accumulation, and recovery of oil. Although sands deposited in a regressive sea, such as parts of the Rockdale (Wilcox), lower Yegua, Vicksburg-lower Frio, and Catahoula, are not considered theoretically as favorable, local structural or environmental conditions may effect excellent reservoirs.

The compound features representing a marine invasion followed by a retreat, or the reverse, are also considered and electrical log profiles presented. The economic significance in petroleum geology of the resultant sand wedges and shale wedges is dis-

cussed. It is suggested that both local and regional studies of producing horizons be made in the light of the theory of the "marine overlap."

9. CLARENCE E. BREHM, consulting geologist, Mt. Vernon, Illinois
Pickens Pool, Yazoo County, Mississippi

The Pickens pool was discovered by continuous profiling seismic work which showed an increase of closure with depth. This increase, causing four times as much reversal on the Eutaw as on the Midway, has been substantiated by drilling.

The "pool" consists of four wells producing 4–8 feet of saturated Wilburn sand in the Eutaw over approximately 160 acres. The producing area is practically defined by dry holes. Wells come in for 400 barrels, settle to a steady 200 barrels on pump. Production to date is 300,000 barrels.

The limited producing area suggests a small structure but an isopach of the Wilcox formation shows it to be in the center of an area of structural thinning extending 30 or 40 miles parallel to the Yazoo basin.

The break in seismic reflections near the field is interpreted as a fault extending into the Lower Cretaceous. It is suggested that the original reservoir was in those lower beds and that some oil migrated up the fault plane to impregnate this small area of the Wilburn sand. This condition is compared with the faulted Tinsley field and Upper Cretaceous fields of northern Louisiana and southern Arkansas.

10. A. N. WILSON, General Crude Oil Company, Houston, Texas
Basal Vicksburg Sand of Texas Gulf Coast

The discovery of commercially important oil sands at the base of the Vicksburg formation, on the flanks of some Texas Gulf Coast dome structures during the past few years, recalls the necessity for constant re-examination of the older producing areas by methods which make full use of the newest proved geological tools.

This paper employs the now common electrical well log, in conjunction with the best paleontological opinions, to identify and to map the areal extent and thickness of the basal Vicksburg sand in the Texas Gulf Coast, and to predict, with some foundation, its future possibilities for commercial oil production on the older known structures.

Electrical well log cross sections through the region, two of them down the dip and one along the sedimentary strike, are given in support of the sand thickness map.

11. JOSEPH M. WILSON, Dallas, Texas
South Cotton Lake Field of Chambers County, Texas

Torsion-balance work in 1934 indicated a large minimum which centered, after regional corrections were applied, slightly north of the present producing area. After two wells were drilled in the vicinity, both of which were abandoned after encouraging showings, the area was detailed with the reflection seismograph, using the continuous profile method. As the result of this work, the discovery well was located and subsequent development of the field showed that the seismograph gave a remarkably accurate picture of the structure, a faulted dome elongate east and west.

The three producing sands are the *Marginulina* sand with an average of $7\frac{1}{2}$ feet of effective sand, the No. 1 Frio with 10 feet and the No. 2 Frio with 5 feet. Each sand has a separate water level and oil-gas contact and all occur within an interval of about 100 feet. The average total depth of wells is 6,500 feet. The maximum producing area is expected to be about 1,200 acres. One deep test in the field failed to find any promising deeper sands. There are now 51 oil wells and two gas wells here and development is nearly complete. As of January 1, 1941, the field had produced a total of 1,573,400 barrels.

SOUTH TEXAS

12. L. B. HERRING, consulting geologist, Corpus Christi, Texas
Developments in South Texas during 1940

This paper discusses the developments during the year 1940 in the South Texas area and suggests that the collapse of foreign markets caused pipe-line proration and local price cuts.

Twenty-eight new producing areas were found during the year. Drilling was slightly under the 1939 rate, and geological exploratory work was greatly reduced.

Four wildcat wells were completed in Wilcox sands, three producing gas and condensate and one producing oil with water. None of these discoveries appears to represent reserves of consequence.