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ABSTRACTS OF PAPERS ON HOUSTON PROGRAM

GULF COAST

1. O. L. BRACE, consulting geologist, Houston, Texas
Review of Developments in 1940, Gulf Coast of Upper Texas and Louisiana

The poor discovery record of the upper Texas Coast for 1940 is no improvement over that established for 1939. Coastal Louisiana, however, showed an advance in both the number and quality of new areas uncovered. The most noteworthy improvement of the year in Louisiana has been the increasing importance of the new reserves added to old fields through extensions and new sand discoveries.

During the past few years, a shift in the center of successful activity has given coastal Louisiana the lead over upper Texas. This shift coincided with the opening of the large area of only partly explored delta territory of Louisiana to intensive exploitation.

The increase in the number of economically marginal areas that are now being developed is credited to improvements in the technique of well testing and completion, mainly the introduction of the electric log, gun perforating, and cement squeezing.

2. URBAN B. HUGHES, consulting geologist, Jackson, Mississippi
Developments in Mississippi in 1940

Development in Mississippi during 1940 passed through two phases. The first of these was hysterical, resulting from the fact that only a few of the major companies and independent operators had scientific data or lease protection prior to the discovery at Tinsley. This resulted in rapid, and necessarily sketchy, geophysical work, promiscuous leasing and drilling of wells by crews largely inexperienced in Gulf coastal formations. In the second phase, hasty, haphazard work gave way to sounder practices in both exploration and drilling.

During the first half of the year leasing activity was largely confined to the north portion of the state but during the latter months the play shifted to the south. The 1,221,412 acres of leases owned by major and larger independent oil companies on January 1, 1940, was increased to 4,775,610 acres during the year. A probable additional 1,500,000 acres were acquired by individuals and small independents in the same period.

On January 1, 1940, there were 61 geophysical parties operating in Mississippi. This figure was increased to 64 on June 1, and decreased to 22 on the last day of the year. At the peak, more than 60% of all geophysical parties were operating in the State.

No new discoveries of importance occurred. The Pickens field, with four producers, proved disappointing. Tinsley spread beyond early expectations and had 101 producing wells.

Of the 208 wells drilled, 103 were dry holes and of these only seven resulted in positive proof of the existence of structure. Many of the dry holes were drilled without geological guidance or were located on geophysical evidence which was unsatisfactory, and some were drilled on seemingly good prospects which were disproved by drilling.

One of the main purposes of this paper is to evaluate the results outlined above and to point out their influence on future activity. Although the results of exploration during the year 1940 were disappointing, a true valuation leads to the conclusion that the State has not had a fair test, especially in the southern part, and that its future potentialities as an oil-producing area have not been materially affected.

3. TOM MCGLOTHLIN, Gulf Oil Corporation, Jackson, Mississippi
Notes on Geology of Mississippi

The larger structural features of Mississippi include: the Issaquena-Sharkey "Platform," an eastern extension of the Monroe-Richland uplift, the salt basin, the Jackson structure, and the George and Stone County "high."

Sediments that crop out in Mississippi or that have been reached by drilling wells range in age from Ordovician to Recent. The general stratigraphy of the post-Paleozoic beds is herein discussed.

The extensive truncation of the Comanche series with the overlap of the Gulf series is not as noticeable in Mississippi as it is in South Arkansas and Louisiana. Apparently the beds of the Upper and Lower Cretaceous are more nearly parallel in Mississippi.

A structure map and several cross sections are presented.

4. CARL B. RICHARDSON, Barnsdall Oil Corporation, Houston, Texas
Comparative Study of Origin and Distribution of Gulf Coast Tertiary Sediments

The Tertiary sediments of the Gulf Coast offer the world's finest available laboratory for a broad study of sedimentation. The deep drilling of the past few years furnishes accurate logs and samples to a depth of about two miles over a large area of relatively undisturbed sediments. The Gulf of Mexico with its shorelines parallel to the strike of the sediments offers a present example of processes and distribution which may be compared to the past.

The bottom sample descriptions from Coast and Geodetic Survey charts have been compiled on a map of the Gulf of Mexico. The shape of the Gulf bottom based upon soundings has been studied with respect to the action of currents and waves upon distribution of sediments. The following zones of deposition are outlined and discussed: continental, lagoonal, the sand zone, the mud zone, the coral zone, and the deep sea muds.

Four cross sections, exaggerated 20 times vertically, have been drawn from the Cretaceous outcrop across the Gulf. The profiles of the Gulf which accompany the subsurface section relate the present sedimentary zones to those of the past. The detail of the subsurface sections shows a comparison of the various sand groups as to distribution, volume, extent, and probable effects of deltas, currents, and waves. Compared to one another, the sections show the type and relative amount of deposition on different parts of the Gulf Coast and place the time and location of the outstanding depositional events.

5. C. B. ROACH, Shell Petroleum Corporation, Lake Charles, Louisiana
Subsurface Study of Jennings Dome, Acadia Parish, La.

A study of the subsurface structure of the flank sediments of the Jennings dome has revealed several stages of uplift of the salt plug which have resulted in erosion and subsequent unconformities. One such uplift at the end of *Marginulina* times is of great importance, as it closed a period of intense faulting which does not extend into the overlying sediments. It is therefore extremely difficult, if not impossible, to predict the structural conditions which will be encountered in the *Marginulina* oil sand series when drilling. Faulting of fairly recent age is also present, which cuts both the Miocene and Oligocene sections.

The origin of the mineralized Miocene sand section on the east half of the dome is also discussed, together with the effect of these hard cemented sands upon the growth of the salt plug. This further indicates the manner in which the oil migrated to the supercap sands.