fulfilled the dimensional criteria. By measurement of flow rates and viscosities in a model, he determined the equivalent viscosity for the sediments arriving at a value which is in reasonable accord with determinations by other means. The experiments by Griggs and the thermodynamic development of the physics of stressed solids by Goranson in recent years have interpreted the physical properties of rock material, in terms of long time stresses. This work has clarified and evaluated certain fundamental properties such as "strength," "plasticity," etc. that are directly applicable to the fluid mechanical postulate of salt-dome formation. Finally, recent extensive geophysical work and drilling around salt domes have revealed the frequent existence of rim synclines which are a natural consequence of the fluid-mechanical theory and which were relatively unknown or unrecognized as such at the time of the earlier paper. All of this work seems to confirm the general hypothesis that salt-dome formation is largely a fluid-mechanical process.

A dynamic model illustrating the fluid mechanics of dome formation will be available when the paper is given, and it is hoped it can be seen in operation in connection with other exhibits of the convention.

22. R. DANA RUSSELL, Louisiana State University, Baton Rouge, Louisiana
Salt Domes of Bienville Parish

The salt domes of Bienville Parish, Louisiana, are classic examples of the shallow or piercement-type dome, and have been prominent in the geologic literature of the Gulf Coast since the discovery of Cretaceous fossils at King's Dome in 1867.

Detailed surface mapping shows the domes to be round to oval in plan, with progressively younger sediments exposed in concentric rings outward from a central depression. Rim synclines and partial rim anticlines are also evident. Deformation of Pleistocene deposits serves to date the last period of uplift on most of the domes.

Neither the ring of upturned sediments nor the adjoining anticline has been adequately explored by drilling on most of the domes, so they may still be considered as potential producers.

23. PAUL WEAVER AND COMMITTEE, Gulf Oil Corporation, Houston, Texas
JOHN S. IVY, Geologist, Houston
D. PERRY OLCOTT, Humble Oil and Refining Company, Houston
JOHN M. VETTER, Pan American Prod. Company, Houston
GEORGE S. BUCHANAN, Consulting, Houston
Statistical Analyses of Crude Oils of Tertiary Age in the Gulf Coast of Texas and Louisiana as They Vary with Depth, Producing Formations, and Structural Types

24. FREDERIC H. LAHEE, Sun Oil Company, Dallas, Texas
Discovery Rate and Relation of Wildcatting to the Discovery of New Reserves

The total number of wildcats drilled in 1941, in the states covered by this report, was 3,264, and the footage drilled was 11,615,085, as contrasted with 3,038 holes and 10,144,870 feet, respectively, in 1940. The average depth of hole increased from 3,339 feet to 3,559 feet for all states covered, and from 4,209 feet to 4,372 feet in the southern states.

This résumé on wildcatting is followed by a study of discovery rate in the eleven states of Arkansas, California, Illinois, Indiana, Kansas, Louisiana, Michigan, Mississippi, New Mexico, Oklahoma, and Texas. Discovery rate is measured by the relations between wildcatting and the discovery of new reserves during the last half decade. Except for a slight rise, in 1941, in the curves expressing rate of discovery, there has been a decline since 1937.

25. F. M. GETZENDANER, Consulting Geologist, Uvalde, Texas
Problem of Pre-Trinity Deposits in South Texas

Probability of Permian deposits in the East Texas basin is suggested. Attention is directed to the new section of Jurassic, Neocomian, and Trinity deposits in the region of East Texas, Louisiana, and Arkansas, arranged by the Shreveport Geological Society and Ralph W. Imlay, with new names for some of the formations; and the presence of Jurassic deposits in Limestone County, Texas, on the west side of the basin.

Evidence is presented of the progressive increase in basinward slopes on the basement and dips on the sedimentary beds, westward across Arkansas and East Texas, thence southwestward to the locality of San Antonio, thence continuing westward again to the Rio Grande. For this 700 miles of generally uniform trend it is postulated that the