form a central graben area. Production is obtained at an average depth of 10,135 to 10,545 feet from the Tuscaloosa formation of Upper Cretaceous age. Accumulation is controlled by structure and the lenticularity of the producing sands. The faulting present does not affect the accumulation.

After the slow start the field was developed rapidly due to early expiration of the leases. It was noted during the early production history that the reservoir pressures were declining rapidly. This led to a study of the reservoir conditions that resulted in a voluntary unitization agreement among the various operators and royalty owners for a pressure maintenance program to prolong the life of the field and to increase the ultimate recovery.

13. "LaGrange Oil Field, Adams County, Mississippi," M. W. Sherwin, Sohio Petroleum Company, Houston, Texas.

The LaGrange field, Adams County, Mississippi, is the largest field producing from the Wilcox in Mississippi. Originally a Tuscaloosa field opener in February, 1946, the discovery well was plugged back and recompleted as a Wilcox producer in August of the same year. Production is being recovered from several sands of the middle Wilcox at a depth of approximately 6,200 feet. In its short life, the field has been extended to encompass 3,000 acres. As of January 1, 1949, it had 99 producing wells (including 19 twins) and had a cumulative production of more than 3 million barrels. Daily runs are in excess of 11,000 barrels. With the field still not completely defined, eventual production is estimated in excess of 15 million barrels.

The field is located on the flank of the Mississippi basin. The local structure is an elongate west of south-trending anticlinal nose. Although closure is developed on a series of nodes along the axis of the fold, reservoir traps are, in good part, controlled by stratigraphic conditions. Discovery of the field resulted from combination of geophysical and subsurface information.

14. "Occurrence of the Genus *Choffatella* in Wells in South Florida and at Other Localities,"[1] Louise Jordan, Sun Oil Company, Tallahassee, Florida, and Esther R. Applin, U. S. Geological Survey, Tallahassee, Florida.

The paper discusses the occurrence of the genus *Choffatella* in deep wells in south Florida and at other localities in the Atlantic and Gulf Coastal Plain of the United States. The limited stratigraphic range of the genus and its value for correlation are mentioned and a few diagnostic structural features are illustrated with plate figures. The ecology of *Choffatella* is suggested, and occurrences in other portions of the western hemisphere are listed.

15. "Drilling Difficulties in the North Florida-South Georgia Area," Donald J. Munroe, Sun Oil Company, Tallahassee, Florida.

16. "Stratigraphic, Structural, and Correlation Studies of Florida Tertiary,"[2] Robert O. Vernon, Florida Geological Survey, Tallahassee, Florida.

The completion of field work in Citrus and Levy counties, Florida, has made it possible to redefine the "Ocala limestone" and restrict the term to the upper Jackson upper Eocene; to erect a new formation containing two members that compose the lower Jackson group; and to provide exact horizons in the Jackson on which structural maps can be accurately drawn. These shallow beds are usually reached by water wells and are readily accessible for exploratory drilling. The beds are probably the most distinctive in Florida and are divisible both lithologically and paleontologically.

A distinct unconformity is present at the base of the Jackson group in the area and is recognized by gravel beds in the base of the Jackson and by overlap of eroded middle Eocene limestone.

The division and correlation of the Jackson group have been recognized in approximately 600 wells and a structural map has been constructed, drawn on the top of the lower member of the lower Jackson group. Three well developed shear zones have been recognized. These faults have been dated as probably pre-Miocene, post-Oligocene and isopachs of the Miocene indicate filling of grabens and overlaps of areas standing high during the Miocene. The Hawthorn formation of lower Miocene age appears to be equivalent to the phosphate fixation period during which time the hard rock phosphate of Florida was formed—the Hawthorn is thus correlated with beds included in the Alachua formation, formerly thought to be Pliocene.

17. "Preliminary Report on Buried Pre-Mesozoic Rocks in Florida and Adjacent States,"[3] Paul L. Applin, U. S. Geological Survey, Tallahassee Florida.

In the southeastern Coastal Plain, information is available on 60 widely scattered oil test wells that have been drilled through the Cenozoic and Mesozoic deposits into older rocks representing a wide variety of types.

In Florida and Georgia these buried pre-Mesozoic rocks fall in three general classifications which are:

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[2] Published by permission of the Florida Geological Survey.
[3] Published by permission of the director of the U. S. Geological Survey.

1. Dominantly marine sedimentary Paleozoic rocks that at present are known to range in age from late Cambrian or early Ordovician to Silurian.
2. Volcanic rocks which underlie sedimentary rocks considered to be of early Paleozoic age.
3. Crystalline rocks that are chiefly granitic and metamorphic. These rocks are possibly in part pre-Cambrian and in part Paleozoic in age.

In the Coastal Plain of Alabama, the buried pre-Mesozoic rocks are classified as:
1. Paleozoic sedimentary rocks that range in age from Cambrian and Ordovician to Pennsylvanian.
2. Metamorphic rocks that are possibly pre-Cambrian in age.

The volcanic rocks that underlie the early Paleozoic sedimentary rocks in Florida and Georgia have not been discovered in Alabama.

Most of the wells in the pre-Mesozoic rocks have been drilled within the past decade, and in Florida and southern Georgia the discovery of volcanic and crystalline rocks and Paleozoic strata is a comparatively recent addition to geologic knowledge. One map shows the location of the wells penetrating the pre-Mesozoic rocks and the types of rocks penetrated. Based on the study of cores and cuttings in connection with the geographic distribution of the wells, a diverse lithologic pattern is being revealed in the pre-Mesozoic rocks of the subsurface in the southeastern Coastal Plain. By means of contours drawn at 1,000-foot intervals on top of the pre-Mesozoic rocks, a second map shows the present configuration of the surface of these rocks. Two structural profiles drawn through series of wells in Georgia and Florida show an interpretation of the present structure of the pre-Mesozoic rocks and the relation of the overlying Mesozoic and Cenozoic deposits to the pre-Mesozoic surface.

18. "Geophysical Case History of Mississippi Salt-Dome Basin," L. L. Nettleton, Gravity Meter Exploration Company, Houston, Texas.

In recent years, the Society of Exploration Geophysicists has published case histories of many individual oil field structures. Of broader interest is the exploration history of a geological unit as a whole rather than its individual structures. The Mississippi salt basin, with its comparatively short period of intense geophysical activity, using modern methods, is an outstanding example of successful application of modern geophysical techniques to a large but limited geologic province.

This paper reviews the history of the geophysical operations in the south Mississippi salt basin, including the nature of the exploration carried out by different companies and their results in terms of later findings by the drill. This paper would not have been possible without the cooperation of the various companies who have contributed the information assembled and grateful appreciation of their help is acknowledged.

19. "Applied Radar in Gulf of Mexico," Orville E. Haley, McCollum Exploration Company.

20. "Offshore Geophysical Operations," a recent kodachrome sound picture furnished by the California Company.

21. "The Part Helicopters are Playing in Geophysical Exploration," E. E. Gustafson, Bell Aircraft Supply Corporation.

Eighteen months of research and development have conclusively proven that helicopters are playing an important part in gravity and seismic operations in remote areas, such as southern Louisiana marshlands, jungles, and mountainous areas where transportation is a difficult problem. Airborne gravity and seismic operations are successfully being carried on with resulting increased production and lowered costs. Discussions on techniques used in gravity and seismic airborne operations, plus a film showing actual field operations as well as flight performance, load-carrying abilities, landing areas, weather restrictions, and maintenance requirements for mobile operations and the possible uses of the helicopter in the oil industry, will be discussed in detail.

22. "Oceanographic and Meteorological Aspects of Geophysical Prospecting," Alfred H. Glenn, Alfred H. Glenn and Associates, New Orleans, Louisiana, and Charles C. Bates, consultant to A. H. Glenn and Associates, and oceanographer, U. S. Navy Hydrographic Office, Washington, D. C.

Oceanography and meteorology, the latest earth sciences used on a consultant basis by the petroleum industry, are first reviewed in general terms and then from the point of view of the petroleum geophysicist. Actual and potential applications of these sciences are shown to exist in the planning and operational phases of exploration geophysics. The sources of oceanographic and meteorological information are discussed with respect to these applications.