

24. W. T. BORN, president, S. E. G., Geophysical Research Corporation, Tulsa, Oklahoma  
Presidential address: *The Future of Geophysics*
25. CAREY CRONEIS, president, S. E. P. M., Walker Museum of Paleontology, University of Chicago  
Presidential address: *Micropaleontology, Past and Future*

This paper traces the rise of interest in microscopic fossils from the sixteen sixties when Leeuwenhoek's development of the forerunner of the microscope made their study possible, through the several centuries of their sporadic investigation in the interests of pure research by small groups of scientists, to the birth of the utilitarian science of micropaleontology a quarter century ago. The developmental phases of the science are then outlined, and the progressive multiplication of the micropaleontologic groups studied is considered.

The origin and growth of micropaleontology as a subject in university curricula is reviewed, and suggestions are made for the future expansion and improvement of training in this special field. In addition, consideration is given to the general academic background the prospective paleontologist should acquire in order best to serve his science as well as prove most valuable to the organization which purchases his services.

Finally the future of the science of micropaleontology is analyzed, and suggestions are made for the direction of efforts into new lines of investigation which may prove profitable in enlarging the scientific scope of the field and thus in enhancing its commercial significance.

#### SPECIAL ADDRESSES

26. ROBERT E. WILSON, president, Pan-American Petroleum and Transport Company, and in charge of Petroleum Section, Raw Materials Division, Advisory Commission to the Council of National Defense  
*Petroleum and the War*
27. J. EDGAR PEW, vice-president, Sun Oil Company, Philadelphia, Pennsylvania  
*The Fifth Dimension in the Oil Industry*
28. N. C. MCGOWEN, president, United Gas Pipe Line Company and Union Producing Company, Shreveport, Louisiana  
*Natural Gas with Regard to Its Place in National Defense*
29. SUMNER T. PIKE, commissioner, Securities and Exchange Commission, Washington, D. C.  
*The Petroleum Geologists and the S.E.C.*

#### PAPERS OF GENERAL INTEREST

30. EDGAR W. OWEN, secretary-treasurer, A. A. P. G., with Lew H. Wentz, San Antonio, Texas  
*Rôle of Surface Geology in Petroleum Exploration*

Although the use of surface geology as an independent method in petroleum exploration has become practically obsolete, it should be employed to a much greater extent in conjunction with geophysical, subsurface and other modern techniques. Where familiar methods of mapping surface structure are not applicable, much valuable information can be obtained at low cost by physiographic studies. The application of surface, structural, and physiographic work to exploration problems in the Gulf Coastal Plain and in the Permian Basin is discussed. Certain types of physiographic anomalies of diagnostic value are described, and some of the difficulties surrounding their interpretation are indicated.

31. L. W. STORM, Schlumberger Well Surveying Corporation, Corpus Christi, Texas  
*Résumé on Sedimentation in Gulf Coast Region of Texas and Louisiana*

The structure, composition, and manner of accumulation of present-day deposits along the coast are described along with those of Recent and Pleistocene time still largely intact. Meaning of the topography on the surface of these deposits, and their relation to Glacial history are discussed.

Following this and using it as a background, the more significant features of formations back to the beginning of the Eocene are reviewed.

Topics receiving special attention are: delta structure of several kinds and the con-

cept of a Deltaic Coastal Plain; subsidence under load and the Gulf Coast geosyncline changes of Gulf Coast sediments in the direction of the dip and along the strike; and structural changes contemporaneous with deposition of sediments.

The manner in which the facts and theories discussed may be used by geologists in the search for oil.

32. H. D. WILDE, Humble Oil and Refining Company, Houston, Texas  
*Why Crudes Differ in Value*

Although crudes are all fundamentally made up of mixtures of hydrocarbons and are hence similar in this respect, the type of hydrocarbons and the relative proportions in which they are present can vary widely from crude to crude. This variation causes crudes to differ in value. This value is established by the refineries who use crudes as a raw material for the manufacture of the various finished products. Some crudes are in demand and are assigned a high value because substantial yields of good quality products can be made from them with little special processing, whereas, others are penalized because certain products are not present or are of such poor quality that special processing (which is usually expensive) is necessary to make these products saleable. In order to evaluate crude, a sample is assayed in the laboratory, whereby the yield and quality of the primary products are determined and these data are used in computing the value of the crude. Other factors, such as transportation costs to refinery centers and the ultimate consumers and competitive conditions, are also considered in arriving at the price paid for a crude at the well.

33. BASIL B. ZAVOICO, Chase National Bank, New York City  
*Foreign Developments during 1939 and 1940*

The oil industry has inevitably been affected by the present Great War, since it supplies the prime movers for striking power in the conflict. A unique feature of the business is that unlike other war supplying industries its rapid growth usually precedes major conflicts; and exploration and construction stagnate while they last. Time necessary for exploration and development of new resources and for construction of large new refining plants—together with heavy demand for metals at the time when these products are vitally needed elsewhere—all tend to slow down active development of new crude oil reserves during actual hostilities. In the present war and immediately preceding it the increased range of bombing planes, as well as the political uncertainties in large portions of the world, further served to reduce new work in the oil industry to a minimum except in the Western Hemisphere. However, even here in portions of South and Central Americas the social and political changes under way brought exploration for new reserves to a virtual standstill. Geologists and geophysicists were unavoidably affected in the foreign fields, resulting in a sharp increase in the domestic supplies in these two professional classifications.

A revolutionary effect of the war is the growing volume of synthetic hydrocarbons reaching the markets under the vital necessities of the Axis powers and to a lesser degree of Soviet Russia. Improved processes and quantity production will result in lowering costs and some synthetic hydrocarbons may prove to be competitive with corresponding crude oil derivatives within a rather narrow span of years, particularly in cases where long distances separate sources of supply from markets. The indicated developments may have a very considerable economic effect on the various phases of the oil industry.

Among principal producing countries of the world, outside of the U. S. A., none increased its production except Colombia where completion of a new pipe line allowed somewhat larger exports, production of this country increasing from 23,774,151 barrels in 1939 to 25,526,492 barrels during 1940, with the result that in 1940 production of the world, outside of the United States, declined to about 790,000,000 barrels (2,158,469 barrels per day) from 810,000,000 barrels (2,219,178 barrels per day) produced in the preceding year. More particularly dormant was the exploration work without any new really major regional or local discoveries. Such trend is likely to continue for the duration of the war and only the end of the conflict should bring the renaissance in all exploratory activities with a subsequent rapid expansion in the demand for qualified technicians.

34. P. E. FITZGERALD, Dowell, Incorporated, Tulsa, Oklahoma  
F. R. JAMES, The Dow Chemical Company, Midland, Michigan  
RAY L. AUSTIN, Dowell, Incorporated, Casper, Wyoming  
*Laboratory and Field Observations of Effect of Acidizing Oil Reservoirs Composed of Sands*