

April 2, 1962

L. K. O'Bert, Foreign Dept., Amerada Petroleum Corporation
"Recent Developments in Libyan Petroleum Exploration"

April 9, 1962

George L. Robb, Geo Prospectors, Inc.
"Geology and Geophysics of the Arkoma Basin"

Abstract

The paper attempts to present a short historical summary of exploration and geophysical activity within the basin. The difficulties in obtaining and interpreting geophysical data have matched and surpassed the difficulties of geological analysis. Geophysical evidence of Pre-Wapanuckan faulting will be presented.

April 16, 1962

E. H. Rainwater, Sr. Res. Geologist, Shell Development Co.
"Stratigraphy and its Role in Petroleum Exploration with Special Emphasis on the Gulf Coast"

Abstract

Stratigraphy is of paramount importance in the exploration for mineral deposits in sedimentary rocks because the scientific exploration for any such deposit requires that the geological events which determined its formation and location be known. The depositional and post-depositional history of the section and area being studied are in the province of the stratigrapher. He determines the geological age and the correlation of strata; the depositional environments of the sediments through his knowledge of Recent faunas, floras, and sedimentary processes in all environments; and he knows the most favored habitats for all indigenous minerals in stratified rocks.

The petroleum stratigrapher, especially, is concerned with the kinds of rocks making up the section which is being studied; the source areas of the terrigenous clastics and the depositional conditions and probable distribution of the non-clastics; the fossil faunas and floras and their significance in local and regional correlation, and their paleoecological value; the prediction into unknown areas of the kinds and the distribution of sediments, and whether the areas are favorable or unfavorable for oil and gas occurrence.

The structural history, which made it possible for sediments to accumulate and be preserved, is known only through stratigraphy. All data from outcrop and well sections, from geophysical surveys, and from knowledge of regional stratigraphic and tectonic framework of the area are used to interpret the history. Maps, sections, and diagrams must be constructed for each layer to show its thickness, lithofacies, depositional environments, and present structure; and from these the oil and gas possibilities can be evaluated. Each area, whether it be a local prospect, a "trend", or an entire basin, should be given such evaluation by a stratigrapher.

There has been a tendency in recent years for geologists to overemphasize present structure of layered rocks without knowledge of their depositional history; to accept unproved theories about fluid and gas movements in rocks; to interpret conditions as due to diagenesis without knowing the original conditions; and to rely on machine data instead of examining the rocks themselves. Stratigraphers who are dedicated to the science of historical geology, who are willing to constantly learn more and more about Recent and ancient sediments, faunas and floras, and who can work closely with all groups of earth scientists can make the greatest contribution to petroleum exploration. Those who consider the naming of "new" species of fossils, the reclassification of groups of fossils, or the naming of each stratum the most important work have no