

## Stratigraphy, Sedimentation, and Seismology

H. M. THRALLS, Geo-Prospectors, Inc., Tulsa, Oklahoma

Many measurements of physical properties are made in bore holes which are used by geologists as geological information. These physical properties are accepted without question as aids to the application of geologic principals in the search for and development of oil fields. Seismology (and other geophysical methods) should be placed in the same category as bore-hole measurements and accepted in the same manner.

The classification of geophysics as a distinct and separate science apart from geology is extremely unfortunate even though it is understandable. The definition of geophysics as an independent science was the result of the difference in background and training between the early-day geophysicists (physicists) and members of the already established and respected geological profession. Jealousy undoubtedly was a contributing factor. However, the time is long past when members of either one of the so-called separate professions has anything to gain by being snobbish or aloof.

The term "scientific success and commercial failure" applied to a dry test drilled on the recommendation of geophysics indicates that they have forgotten their assignment, i.e., to find oil at costs commensurate with market prices. The use of the foregoing descriptive term emphasizes that the test location was chosen without proper consideration of all the factors involved. The failure of the test to find oil can mean only that the geophysicists, the geologists, or both arrived at an improper solution, and they can derive no professional satisfaction from the dry test even though the formations were encountered in the predicted positions.

Many tests classed as geophysical failures are actually geological failures, particularly if they can be described by the false term "scientific success and commercial failure." Analysis by the exploration team in these instances placed too much weight on geophysical data and failed to include the all important background studies of stratigraphy, sedimentation, and the historical geologic movements that determine where and when oil was and is present.

Geologists must consider geophysics as a geologic tool. Geophysicists must strive to be geologists. Geophysical data must be transferred into geological solutions. Prospects must be selected that are favorable from the standpoint of stratigraphy, sedimentology, and historical deformation. A combined knowledge of all of these is the requirement for successful oil finding.

## Geophysics, Geology, and Economics in Deep Fields

PAUL WEAVER, A. and M. College of Texas, College Station

O. C. Clifford last March concluded that our oil finding will pay off if directed to areas not presently producing. Morgan Davis in November stated that both old and new areas in the United States are contributing to new production. Also in November, L. F. McCollum contended the most pressing problem was economic, that of cost reduction, especially in development and lifting costs, but also in the 35% of total cost he classified as for exploration.

All of these authors seemed concerned with the drilling-in and production of fields similar to those we now have, and did not appraise separately deeper prospective production, which will be the exclusive subject of this paper.

To this end the physics of deeper rocks must be set forth, if different or distinct for production from those now exploited.

Secondly, consideration must be given to the resolving power to find deeper structures by geophysics, and subsequently the aid possible from geophysics in development. Economics of both must be improved if the greater cost of each deep well is to be offset by reducing total number of development wells if possible, as advocated by McCollum.