

Tactics designed to facilitate geological interpretation involve density of lines and shot points along lines and the use of L-spreads to obtain strike and dip. Factors in the interpretation of seismic results are diagnostic unconformities known in adjacent areas, submarine coring, regional submarine topography, and data from supplementary geophysical methods.

2:25 (2) FLOOR OF LOS ANGELES BASIN¹

J. E. Schoellhamer and A. O. Woodford, United States Geological Survey, Claremont.

The Miocene deposits of the Los Angeles Basin are between the San Gabriel Mountains and the sea, and extend from the Santa Monica Mountains to the Santa Ana Mountains. The sub-Miocene floor is largely composed of crystalline rocks of three types. Southwest of the Newport-Inglewood fault zone and in that zone the crystalline basement is made up of "Catalina schist,"² largely quartz and chlorite, and characterized especially by widespread glaucophane and lawsonite. The other two basement types, cropping out along the north and east margins of the Basin and penetrated in wells near these margins, are slate (and quartzose sandstone), possibly of Triassic age, and quartz diorite (and other quartz plutonites) intrusive into the slates.

In and near the Santa Ana Mountains Cretaceous and early Tertiary sedimentary rocks are intercalated between the slate-plutonite complex and the Miocene volcanic and sedimentary rocks.

The "Catalina schist" contains small masses of zoisite-bearing metagabbros but completely lack normal quartz plutonites. No gradation between the "Catalina schist" and the Triassic(?) slates has been found. The cordierite and other schists at the plutonite-slate contacts in the Santa Monica Mountains are very different from the "Catalina schist." The "Catalina schist" may be much older than the slates.

The surface of the "Catalina schist" west of the Inglewood-Signal Hill line shows great relief, from 1,100 feet above sea-level to 14,500 feet below. Elongate basement ridges trend northwest beneath the Torrance-Wilmington and El Segundo-Lawndale oil fields, somewhat less certainly beneath the Palos Verdes Hills, and considerably less certainly southeastward from the Playa del Rey oil field.

At the northeast edge of the Basin, from Pomona to Puente, the basement surface slopes southward about 800 feet to the mile.

The central part of the Los Angeles Basin northeast of the Newport-Inglewood fault zone has a floor that is probably far beneath the depths of 10,000-12,000 feet below sea level reached by the deepest wells. Aeromagnetic strip surveys from Playa del Rey to Pasadena and from the Palos Verdes Hills to the San Jose Hills locally give promise of contributing data on the basement surface but at present are generally inconclusive. The types of basement rock beneath the central deep are unknown, though a discontinuity within the basement has been suggested by seismic evidence.

2:45 (3) LEGAL ASPECT OF TIDELAND CONTROVERSY

William W. Clary, of law firm of O'Melveny and Myers, Los Angeles.

This talk covers the following points: (1) the three classes or types of water area involved, namely, inland waters, marginal sea, and continental shelf, and the present uncertainty about the definition and demarcation of each area; (2) the respective legal rights of States and Federal Government, so far as now determined, in each of the three water areas; also, international aspects of this problem and varying rights of foreign nations under international law in each of these water areas; (3) the present status of the Supreme Court litigation in the California, Texas, and Louisiana cases; (4) the present status of the legislation pending in Congress.

3:15 (4) THEORY OF TRANSGRESSIVE AND REGRESSIVE REEF (BIOHERM) DEVELOPMENT AND ORIGIN OF OIL WITHIN THEM

Theo. A. Link, consultant, Toronto, Ontario and Calgary, Alberta.

Part I

The established geological principle "transgression" and "regression" of epi-continental seas, the resultant sediments, together with their fauna and flora, is applied to coral-reef or bioherm-forming organisms. Bioherms which develop during a transgression are differentiated from those of a retreating sea by the associated sediments. A "transgressive" bioherm is surrounded and overlain by marine clastics deposited during submergence, while the "regressive" type of bioherm is associated with evaporites and/or other types of sediments deposited during withdrawal of the sea.

Part II

It is suggested that hydrocarbons found within coral-reef or bioherm reservoirs are in most instances indigenous, because of the obvious concentration and accumulation of organisms within

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² Name not adopted by the United States Geological Survey.