

Prospective sediments range in age from Eocene to Pliocene. They are marine, with the exception of minor amounts of lower Miocene non-marine beds near basement highs and a veneer of upper Pliocene and Pleistocene continental beds in the central portion of the province.

Commercial oil production comes from anticlinal closures and stratigraphic and fault traps.

It is probable that substantial undiscovered reserves of heavy crude exist in this province, and that lighter oils may be found in parts of the stratigraphic section or in areas not before subjected to intensive search. Stratigraphic and structural studies may well be expected to yield important discoveries.

FRIDAY AFTERNOON

Presiding: HENRY H. NEEL, Tide Water Associated Oil Company, Ventura
 RUSSELL R. SIMONSON, Ohio Oil Company, Los Angeles
 GRAHAM B. MOODY, Standard Oil Company of California, San Francisco

SYMPOSIUM ON POSSIBLE FUTURE OIL PROVINCES OF PACIFIC COAST REGION

9. OFFSHORE SOUTHERN CALIFORNIA

K. O. EMERY, University of Southern California, Los Angeles

The total submarine area between the 9,000-foot contour of the continental slope and the shoreline is about 31,000 square statute miles. This area is broken into a checkerboard-like arrangement of fault blocks; the upthrown blocks form banks and the downthrown ones, basins. Indications are that the basins were initiated in late Miocene time and that thick post-Miocene sediments are restricted mostly to them. The great depth of sea water eliminates most of the submarine area from consideration as possible oil provinces in the foreseeable future. It is believed that the submarine areas of Pliocene-Miocene or possible Miocene outcrops at comparatively shallow depths are the most favorable future oil provinces because of the probability that these sediments are similar in lithology, structure, and oil content to those in the Los Angeles and Ventura basins on land. Shallow areas are restricted to the near-shore zone of the mainland and island shores and to the tops of some offshore banks. No estimates of the total stratigraphic thickness nor of the volume of sediments are possible with the present state of knowledge.

10. SOUTHERN COASTAL REGION

GORDON B. OAKESHOTT, California State Division of Mines, San Francisco

The Southern Coastal region is here defined as a narrow coastal strip of sedimentary deposits extending from the vicinity of San Onofre on the north to the Mexican border on the south and from the Pacific Ocean to outcropping crystalline rocks in the Peninsular Range a few miles east. The northern part of the region is a southeastward extension of the Lost Angeles basin; the southern part of the region is the San Diego Plio-Pleistocene basin. The coastal sedimentary strip connecting the two basins is occupied by an Eocene series overlying Cretaceous sediments at shallow depth. The total area of sedimentary rocks is approximately 950 square miles and maximum depth to basement is probably not much more than 6,000 feet.

Structurally, the sedimentary strip comprising the Southern Coastal region is relatively simple; it has not been subjected to intense folding or faulting. Cretaceous and Eocene sediments dip gently westward off the older crystalline rocks making up the Peninsular Ranges and are overlain by middle Miocene San Onofre sediments in the northern part of the area, and by middle Pliocene San Diego sediments in the vicinity of San Diego. Unconformities between formations exist, but there are no great angular unconformities and formations from the Upper Cretaceous Chico to middle Pliocene San Diego are almost concordant. The northwest-trending Soledad Mountain anticline, near La Jolla, is a local exception to the simple regional structure.

The Southern Coastal region lacks the seepages of oil and gas so common in petroliferous regions elsewhere in California. More than 30 wildcat wells, several of which reached basement, have been drilled in the region without shows of oil or gas. The Soledad Mountain anticline has been tested by several wells and depth to basement at the crest of that structure has been shown to be about 3,750 feet.

11. SOUTHERN MOUNTAIN REGION

GORDON B. OAKESHOTT, California State Division of Mines, San Francisco

The Southern Mountain region, by definition here, includes the San Gabriel Mountains of the Transverse Ranges, and the Peninsular Ranges. The northern and eastern boundary of the region is essentially the San Andreas fault zone; the southwestern boundary is the contact of Cretaceous-Tertiary sedimentary rocks on the older crystalline rocks.

The San Gabriel Mountains consist of a complex series of closely related Upper Jurassic (?) plutonic rocks including principally granite, granodiorite, monzonite, diorite, and gabbro. These include