them. The porosity and permeability of coral-reef or bioherm reservoirs are attributed not only to the hollow corallites *etc.*, but also to the helter skelter accumulation of them so that, in many instances, such porosity is greater, more effective and more continuous. Partial or entire obliteration of porosity is, in part, due to infiltration of evaporites associated with the regressive type of bioherm.

3:55 (5) WESTERN CANADA SEDIMENTARY BASIN AREA
Theo. A. Link, consultant.

The Sedimentary Basin area of Western Canada which lies between the Pre-Cambrian Shield and the Cordilleran Mountain area, covers approximately 800,000 square miles. Sediments ranging from Cambrian to Tertiary are present, and of these the Upper and Lower Cretaceous, Jurassic, Mississippian, and Devonian have yielded commercial oil and gas fields. Producing zones in the Cretaceous and Jurassic are sandstones, while all of those of the Paleozoic are carbonate rocks such as reef limestones or dolomites (bioherms). Shows of oil and gas have also been encountered in the Cambrian and Triassic sediments.

The broad structural features of this vast expanse of sedimentary rocks are the Moose Jaw syncline, Sweet Grass-Battle River arch, Alberta syncline, the Foothills belt, the Rocky and Mackenzie mountains, the Great Bear-Slave Lake Basin and the Mackenzie Delta Basin area. This contribution is a brief outline of these data with examples of producing oil-field structures and stratigraphic traps.

FRIDAY MORNING, 9:30–12:00

Presiding: LOWELL E. REDWINE, Honolulu Oil Corporation, Santa Barbara
LOYAL E. NELSON, Southern California Petroleum Corporation, Los Angeles.

9:30 (1) GEOLOGY OF PLACERITA CANYON OIL FIELD
Robin Willis, Hilldon Oil Company, Los Angeles.

The Placerita Canyon oil field is developed in continental sands of Pico or Saugus age. Saturation occurs through an interval of 700 feet, with 150–400 feet of productive sand, yielding 12°–26° gravity oil.

The structure is a monocline dipping west-northwest at about 25 degrees, closed on the northeast by the San Gabriel fault, and on the south and east by minor faults. Other small faults divide the field into separate pools of varying gravity.

The proven area now covers about 560 acres, of which the intensively developed higher-gravity area (Confusion Hill) includes about 125 acres. The total reserve is estimated at 30 million barrels.

9:45 (2) GEOLOGY OF NORTH SULPHUR MOUNTAIN FIELD, VENTURA COUNTY
I. T. Schwade and Spencer Fine, Richfield Oil Corporation, Ventura, California.

The discovery well, Ojai Fee No. 35, was drilled in 1912, and completed for 100 barrels a day, 22.8° gravity, between 2,387–3,919 feet. In 1942, well No. 44 was drilled as a straight hole to the depth of 8,735 feet, and was completed in the interval, 2,425–4,357 feet. Both wells passed through a thrust fault from Pliocene into Miocene; however, as located, well No. 44 encountered only a small amount of lower Mohnian and was completed largely in older beds. The rediscovery of the field came about in 1947 with the drilling of No. 45 for the purpose of determining the attitude of the fault, and to obtain full information regarding the attitude of the beds and character of the reservoir beneath this fault. From this information a program of directed holes was undertaken to maintain a high structural position beneath the fault and to encounter a greater amount of productive section. Development proceeded east and west to the present size of approximately 1½ miles in length and slightly more than ½ mile in width, and having twenty wells. Cumulative production to July, 1949, when the field was shut in due to general curtailment of lower-gravity crude fields in the state, has been 496,000 barrels, average gravity 19°–20°.

Structurally, the productive zone of Mohnian sands and fractured shales on the east end dips 80° toward the north, overturned; on the west end of the productive zone dips 50°–60° southward, upright. Most wells penetrate the Sisar fault (Miocene over Pliocene) and the North Sulphur Mountain fault (Pliocene over Miocene) in order to reach the productive zone.

10:00 (3) VAQUEROS FORMATION WEST OF SANTA BARBARA, CALIFORNIA
Eugene R. Orwig, Jr., General Petroleum Corporation, Los Angeles, California.

A summary of data is submitted on the Vaqueros formation in the area between Gaviota Pass and Santa Barbara, California. A stratigraphic study was made with particular regard to variations in mass properties, heavy minerals, and age.

The results of field observations and laboratory analysis have indicated maxima of thickness, sorting, permeability, and porosity between Refugio and Bartlett canyons. Mean grain size was observed to have a decreasing trend from west to east. Heavy-mineral assemblages invariably consist of titanite and black opaques, with a subordinate percentage of other resistant minerals. The under-