Five wells have been drilled in the field with only the discovery well a commercial well. The second well encountered a major fault and stopped in the down-thrown side, the third and fourth wells were high and in the gas cap, and the fifth well was low and wet.

Exploration is difficult, not only because of the complex structural conditions, but surface exposures are limited by the thick growth of forests and underbrush. Many geologists believe that there is a commercial oil field in the vicinity.

PETER H. GARDETT, consulting geologist, Los Angeles, California

Geology and Related Developments in Part of the City of Los Angeles

Geologic conditions within the confines of a municipality continually manifest themselves as problems or as assets to the residents, the landowners, the industries, businessmen, and the city management.

During the past and present years the people of the City of Los Angeles have been and are affected by the geologic setting of their city. Some of the problems related to these geologic features appear only after a natural set of conditions has been altered by the projects of a growing city and her people. Other problems occur as geologic stresses tend to equalize in this area of changing tectonics. Still other situations arise when an effort is made to develop natural resources postulated to exist within a metropolitan area.

A part of the Los Angeles basin, located principally within the City of Los Angeles, and comprising an east-west-trending strip between the Los Angeles River and the Pacific Palisades is reviewed. Geologic conditions known in this area are discussed relative to building-site problems and to potential oil development. A review of recent efforts, on the part of the city management, to direct such developments to the best interests of the people is presented.

WILLIAM D. LEWIS, Lewis and Ganong, Bakersfield, California

Racetrack Hill Anticlinal Trend, Kern County, California

The Racetrack Hill anticlinal trend, approximately 7 miles east of Bakersfield, Kern County, consists of an area 10 miles long and one mile wide. On it are three oil fields of moderate economic importance—Racetrack Hill, Graham, and Jeppi—that have produced approximately 10,000,000 barrels of high-gravity oil from lower Miocene sands.

The Racetrack Hill anticlinal trend plunges approximately 500 feet per mile southwest which is almost perpendicular to the main structural trends in this part of California. It can be traced in the lower Miocene sediments as far as North Mountain View. Seismic data suggest that it probably extends southwest. The anticlinal structure, limited in general to the lower Miocene sediments, upward becomes less pronounced, and, in one place is displaced by a broad syncline in the younger sediments. Production along it is caused by actual domal closure in the Racetrack Hill oil field. Graham and Jeppi have been caused by cross-faulting in conjunction with nosing. This structure is bounded on the east by a major, possibly pre-middle Miocene fault having maximum vertical displacement of 2,000 feet.

The lower Miocene in this area is represented by a series of sediments ranging in thickness from 1,500 feet at outcrop to at least 4,000 feet in the vicinity of the North Mountain View area. The Nozu in this area reaches a maximum thickness of more than 400 feet in the Graham area where it consists mostly of a series of very coarse conglomerates. The underlying Freeman is a dark brownish gray siltstone. Beneath this the lower Miocene productive zones occur—the Jewett consisting of a series of siltstones and permeable sands having maximum thickness of 250 feet, the Pyramid Hill sand, a 20-foot ash bed beneath this characterized by a basal grit believed to be the base of the Saucesian stage, and the underlying probably Zemorrian stage sediments that are referred to as Vedder except where they grade into the non-marine Walker series. The Walker is non-productive.

KENNETH F. KRAMMES, Intex Oil Company, Bakersfield, California

Stratigraphic Sections and Stratigraphy of San Joaquin Valley, California

The South San Joaquin Valley section begins on the west side of the San Andreas fault where the strata consist of about 4,500 feet of continental beds, from Paso Robles through Simmler, resting on a granite Basement Complex. East of the San Andreas fault, the structurally complex Temblor Range has a thick marine section from upper Miocene through the Eocene and probably part of the Upper Cretaceous, although no wells have penetrated the latter. Eastward from the Belgian anticline, the wedge of marine Pliocene thickens into the central basin. On the eastside, the Pliocene becomes entirely continental. The Miocene also thickens basinward but with the exception of the top and bottom generally maintains its marine character eastward. The Oligocene is a thin sliver which is overlapped westward and lost in the general eastward sand and continental facies. Greatest penetration of the upper Eocene has been at Belgian anticline. On the eastside, the upper Eocene rests unconformably on the Jurassic Basement Complex; and along the east border, it becomes thin and continental and inseparable from the lower Miocene, Walker.

The Central San Joaquin Valley section has been tied with the Salinas Valley section for reference and general comparison; although the stratigraphy across the structurally complex San Andreas fault and Diablo Range area is fragmentary. Here the Basement Complex is the Jurassic Franciscan series. East of Curry Mountain, the basal Pliocene unconformity overlaps the Miocene, Eocene and the top of the Upper Cretaceous. This marine series thickens basinward and changes to a continental series. Along this line of section, all the marine formations of the westside change to a continental facies on the eastside. The upper Miocene has maximum thickness of 2,100 feet and consists of marine shales and sands on the westside and central area. The middle and most of the lower Miocene, however, are dominantly continental in character. The lowermost Miocene or Zemorrian stage is represented by a thin marine wedge in the Guijarral Hills area. Along the central San Joaquin Valley section, in addition to the upper Eocene, the middle and lower Eocene, Paleocene, and Upper Cretaceous are present.

GEORGE H. ROTH AND HAROLD H. SULLWOLD, JR., consulting geologists, North Hollywood, California

Cascade Oil Field, Los Angeles County, California

The Cascade oil field is a typical new California oil field—highly complex geologically and economically insignificant to date, but with a glorious future.

The field, discovered in 1954, lies in the Santa Susana Mountains and is the most southeastern field in the Ventura basin. Production is from fluviatile and near-shore marine conglomerate and sandstone of the Sunshine Ranch member of probable latest Pliocene age. The oil is trapped in a plunging anticline with updip closure provided by a large cross-fault. The entire pool lies beneath the Santa Susana thrust fault which is here expressed as two branches separated by 1,000 feet of strata whose structure and stratigraphic relationships are obscure.

Six wells are producing a total of 360 B/D of 17°–24° gravity oil from 200–600 feet of oil sand at total depths of about 2,900 feet. Only thirty-five acres are proved to date. However, the limits have not been established and the deeper possibilities have not been fully investigated.

PAUL H. DUDLEY, JR., Humble Oil and Refining Company, Los Angeles, California

Castaic Junction Field, Los Angeles County, California

The Castaic Junction oil field, discovered in 1950, is one of the four or five major producing structures in the easternmost Ventura basin. Development has been continuous since discovery, and at present there are 58 wells in the field which have been drilled to an average depth of 11,000 feet. At the surface, the Castaic Junction structure appears as a southeast-plunging nose but the deeper beds are folded into an east-trending closed anticline. The three producing zones in the field, all in the Mohnian stage of the upper Miocene, are designated Zones 10, 15, and 21. Closure in Zone 10 is afforded by a pinch-out across the crest of the structure, but accumulation in the two lower zones is controlled primarily by the closed structure. Subsurface work in the field has resulted in a better understanding of the abrupt stratigraphic variations common in this part of the Ventura basin.

JAMES C. BENZLEY, Western Gulf Oil Company, Los Angeles County, California

Yorba Linda Oil Field, Orange County, California

The Yorba Linda field was discovered in 1930 but received its greatest development after 1937. The originally developed area is a faulted homocline producing from lenticular Repetto sands. The "Shallow" and "Repetto" pools were discovered in 1954.

The "Shallow" pool is structurally similar to the original area, but produces 12°–13° oil from beds of Pleistocene or uppermost Pliocene age. The trap is a combination of faulting and overlap. A rather unique condition exists in the presence of top water in the structurally higher wells of the "Shallow" pool. This water is theorized to be of possible meteoric origin and may have retarded discovery of this fairly considerable reserve.

The "Repetto" pool is on a gentle east-west-trending arch. Correlations are commonly difficult in a short distance and great variations occur in well potentials due to faulting and erratic stratigraphy. Some of the production faults in the Repetto area seem to have little or no displacement in the shallow beds. The main producing zone is near the upper-middle Repetto contact. Two other producing zones are present a little higher in the section—the "Third Intermediate" and the "Hall" sand. Both are lenticular and are probably channel sands.

The Carlton area was discovered in 1956 and has been very spotty and disappointing. Production is from the Repetto with faulting and pinch-outs both important. It is possible that this area is structurally related to the East Coyote field.

JOHN C. CROWELL, University of California, Los Angeles

Geology of Orocopia Mountains, Southeastern California

The Orocopia Mountains border the Salton Sea northeast of the San Andreas fault in Riverside County, California. The range core, composed of Orocopia schist, is separated on the southwest from