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 deformed late Cenozoic non-marine strata by the Hidden Spring fault zone, a branch of the nearby San Andreas.

Northeast of the Orocopia schist a mile-wide wedge of gabbro, diorite, anorthosite, gneiss, and alaskite lies between a northeast-dipping fault, at places folded, and a high-angle major fault marked by great crushing. These rocks, intruded by volcanics and highly deformed, resemble rocks in the western San Gabriel Mountains, about 150 miles northwest.

Northeast of the high-angle fault, augen gneiss with migmatite on the southeast and granite on the north underlies unconformably about 4,800 feet of newly discovered fossiliferous marine Eocene strata which are probably correlative with Coast Range middle Eocene. Unconformably overlying this sequence is a 5,000-foot thick variable series of undated non-marine conglomerate, sandstone, shale, and tuff, with volcanic flows and intrusions. In this series, lenses of granitic breccia characterize the northwest, and platy tuffaceous sandstone with gypsum-bearing interbeds the southeast.

Major faults separate the area into tectonic blocks of different geologic history, and local correlation across the faults is not possible. Understanding of the significance of these faults and others in the vicinity, like the San Andreas, awaits regional study such as that now underway. Strike separations dominate over dip separations on minor faults associated with complex folds.

TAKEO SUSUKI AND JOHN C. CROWELL, University of California, Los Angeles

Eocene Stratigraphy and Paleontology of Orocopia Mountains, Southeastern California

Marine Eocene strata underlie about 26 square miles in the northeastern Orocopia Mountains, Riverside County. The newly discovered section, which totals about 4,800 feet in thickness, lies in a structural trough within basement rocks and is overlain unconformably by about 5,000 feet of undated non-marine clastic and volcanic rocks.

The Eocene beds consist of interbedded siltstone, sandstone, and breccia with some sandy limestone and conglomerate. On the east, at the base of the section, large granitic boulders up to 30 feet in diameter lie along the unconformity with granite. These give way upward to thick lenses of coarse granitic breccia with interbeds of buff siltstone and arkosic sandstone. The upper part of the section on the east consists of massive buff siltstone with sandstone and boulder beds. On the west the section consists largely of interbedded siltstone and sandstone with conspicuous isolated boulders of granite.

Mollusks and Foraminifera, including orbitoids, occur at many localities throughout the section. Some of the characteristic forms are: *Turritella andersoni* cf. *lawsoni* Dickerson, *Turritella uvasana* cf. *applini* Hanna, *Clavilithes* sp., *Marginulina mexicana* (Cushman) var., *Pseudophragmina* (*Proporocyclina*) *psila* (Woodring) and *Pseudophragmina* (*Proporocyclina*) *clarki* (Cushman).

This fauna indicates middle Eocene age, and the strata are possibly correlative with similar rocks of the Coast Ranges.

GORDON E. ANDREASEN, ISIDORE ZIETZ, AND ARTHUR GRANTZ, Alaskan Branch, United States Geological Survey, Washington, D. C., and Menlo Park, California

Aeromagnetic Study of Copper River Basin, Alaska

An aeromagnetic survey was made of approximately 6,000 square miles of the Copper River Basin, Alaska, in 1954 and 1955. North-south flight lines spaced one mile apart were flown from Latitude 61°45′ to 63°00′. The eastern and western borders of the surveyed areas are at Longitudes 145°00′ and 147°22′.

The magnetic patterns closely parallel the generally east-west arcuate geologic "grain" and seem to be correlative with lithology and with geologic structure. Outcropping areas of volcanic rocks are reflected by the configuration of the magnetic contours. A large area of low-amplitude magnetic anomalies extends from the Chugach Mountains north to about Latitude 62°30′. This area may possibly outline a structural basin of Tertiary age superimposed upon a depositional and structural trough of Jurassic and Cretaceous age. Anomaly-producing rock masses in this area are estimated to be a mile or more beneath the surface and are interpreted to be most deeply buried beneath the southern part of the Copper River Basin.

The magnetic data suggest that lower Jurassic volcanic rocks exposed in the Talkeetna and Chugach mountains underlie the marine and non-marine sedimentary rocks of the southwestern part of the surveyed area. The change in the magnetic pattern at the northern front of the Chugach Mountains is caused by a contact between these volcanic rocks and the younger sedimentary rocks on the north. The magnetic data suggest that the Wrangell lavas of Tertiary and Quaternary age are present at shallow depths beneath the basin in the vicinity of Mount Drum.

GORDON ANDREASEN, ISIDORE ZIETZ, AND ARTHUR GRANTZ, Alaskan Branch, United States Geological Survey, Washington, D. C., and Menlo Park, California

Aeromagnetic Reconnaissance of Cook Inlet Area, Alaska

Fourteen aeromagnetic profiles were flown east-west across the Cook Inlet area in 1954, nine extending from about the Triumvirate and Capps glaciers to the Chugach Mountains, and five from