The oldest Tertiary rocks exposed are the reddish sandstones of the middle Miocene Topanga formation present in a narrow fault zone in the Pacoima Hills. Some 1,700 feet of marine upper Miocene Modelo clastic sediments crop out extensively as far east as the mouth of Big Tujunga Canyon. Topanga or early Modelo basalt flows and breccia are exposed in the Pacoima Hills and near Sunland in the Verdugo and San Gabriel Mountains. Marine lower Pliocene sandstone and conglomerate lie unconformably on the Modelo and overlap it to the north and east. The lower Pliocene thins rapidly eastward from about 3,000 feet at Lopez Canyon to less than 400 feet at Big Tujunga Canyon. West of San Fernando Reservoir 3,000 feet of upper Pliocene continental and brackish-water gravels, sandstones and thin limestones of the Sunshine Ranch member of the Pico formation crop out. Less than half this thickness appears east of the Reservoir. Sunshine Ranch beds lie unconformably on thin middle Pliocene calcareous sandstones containing a San Diego fauna at the south end of the Reservoir, but no middle or upper Pliocene has been recognized east of Mission Hills. The continental lower Pleistocene Saugus formation, consisting of as much as 6,000 feet of gravels and coarse sands, lies unconformably on Pliocene formations and overlaps all older formations onto the pre-Tertiary crystalline rocks up to elevations as high as 3,000 feet in the San Gabriel Mountains. A succession of terrace gravels, the oldest of which is folded, lies with great angular unconformity on the Saugus gravels.

The area was complexly folded and faulted in post-Saugus pre-Terrace time. The principal structural feature is the asymmetrical Little Tujunga syncline whose axis lies close to the northern margin of the Tertiary sediments. The north limb is overturned and the Tertiary sediments are in contact with the pre-Tertiary crystalline rocks along a series of arcuate convex-southward reverse faults of highly variable dip. The south limb is much less faulted but its southern margin is obscured by alluvium. A fault may mark the north margin of the Tujunga Valley but it seems more likely that that valley is anticlinal, with Modelo beds lying directly on pre-Tertiary crystalline rocks. The Verdugo Mountains-Pacoima Hills structural high probably continues due west, with a westward plunge, under San Fernando Valley alluvium.

Early operators were attracted to this area by tar seeps and exposed dry oil sands common in lower Pliocene rocks west of Lopez Canyon. Approximately 20 wells have been drilled, most of them many years ago. Renewal of interest has brought several exploratory holes in the past three years.

W. H. Corey, G. R. Bell, J. W. Knight, J. S. Loofbourow, Edward Winterer, A. S. Holston, and J. W. Sheller.

East Ventura Basin Cross Section.

Beginning at the granite-Eocene contact in the northeast part of the Ventura sedimentary basin, the cross section proceeds southeasterly through the Oak Canyon, Del Valle, Newhall-Potrero and Pico Canyon oil fields. From Pico Canyon the section is projected along a surface rock datum to Rice Canyon, then due south through the Aliso Canyon oil field. Rocks of Pleistocene through Eocene ages are discussed.

Purpose of the cross section is to illustrate the relationships between various time-stratigraphic and rock-stratigraphic units. Comments are made on the validity and accuracy of surface and subsurface formation names. Need for a new formation name for rocks lying between base of Pico formation and top of the Modelo formation is discussed.

Hunter Yarborough, Humble Oil and Refining Company, Los Angeles.

Correlation Sections Prepared by the Geological Names and Correlations Committee of the A.A.P.G. Castaic Junction Field, Los Angeles County.

The Humble Oil and Refining Company discovered Castaic Junction in January, 1950, with its fifteenth California wildcat. The discovery well, Newhall Land and Farming Company No. 1, was completed from 11,792–11,841 feet, flowing 156 barrels of 34.2° API gravity oil, gas-oil ratio 3,945, tubing pressure 825 pounds, ¼-inch positive choke, 2.8 per cent salt water. After drilling through a continuous upper Miocene shale section from 8,000–10,900 feet, the well encountered a lower Mohnian gas-condensate sand at 11,638 and an oil sand at 11,775 feet. Subsequently, N. L. & F. 2, located 3,000 feet west-northwest of the discovery, was completed from 100 feet of net gas-condensate sand between 11,198 and 11,371 feet. These wells are producing from the deepest known sand in the field, Reservoir 21.

N. L. & F. 3, located down structure, 2,400 feet southeast of the discovery well, encountered a new reservoir sand near the top of the Mohnian stage of the upper Miocene. Three additional wells have been completed in this sand which has been designated Reservoir 10. Net oil-stained sand and conglomerate range in thickness from 95 feet in N. L. & F. 3 to 221 feet in N. L. & F. 4. A minimum oil column of 998 feet has been proved in Reservoir 10 with no bottom water yet encountered. There is an apparent natural stratification of oil, structurally low wells producing 18.5° gravity oil increasing to 21.3° gravity higher on the structure.

In August, 1951, N. L. & F. 6, located 726 feet north of N. L. & F. 3, drilled through Reservoir 10 and discovered a new upper Mohnian sand, Reservoir 15, approximately 1,000 feet below the base of Reservoir 10. Formation tests of this new reservoir indicate excellent productivity of between 27° and 29° gravity oil and condensate.

Subsurface information is so limited to date that the mechanics of reservoir closure are not definitely known. Since the field lies on the southeasterly plunging Del Valle nose, the most logical cause seems to be either strong cross faulting between the Del Valle and the Castaic Junction fields, or merely the development of stratigraphic traps by lensing sands along the anticlinal structure. The highly lenticular nature of the sands and the general structure are depicted on the cross sections and maps. A strong northward shift of the subsurface structural axis is apparent. Current production is approximately 1,100 barrels per day with individual well potentials ranging from 450 to 750 through ¼-inch choke.

F. D. Bode and A. J. MacMillan, Jr., The Texas Company, Los Angeles.
Geology of the Honor Rancho Oil Field, Los Angeles County.

The Honor Rancho field was discovered by The Texas Company's Honor Rancho (NCT-1) well No. 1 which was completed on August 22, 1950, flowing 1,414 barrels per day, 35.3° clean oil from the interval 5,302–5,340 feet. Six wells have subsequently been drilled, of which one, the Honor Rancho (NCT-1) No. 4, is a dry hole.

The section penetrated consists of approximately 4,000 feet of Pleisto-Pliocene Saugus and Pico, 700 feet of Pliocene Repetto, and 5,000 feet of upper Miocene shale, sand, and conglomerate within the Delmontian and Mohnian stages.

The discovery well was drilled on the assumption that the west-plunging anticlinal nose mapped at the surface in the area west of Castaic Creek would rise eastward across the Rancho to the San Gabriel fault and be closed by this fault.

Two productive horizons have been discovered: the upper Rancho zone; and the lower, Wayside zone. In the dry hole, Honor Rancho (NCT-1) No. 4, which was drilled to 10,086 feet, deeper sands and conglomerates were found non-productive.

The lithology of the oil zones varies from very fine thin-bedded sand to massive conglomerate. The fine sand, generally, is highly permeable while the conglomerate tends to be tight. The thickness of oil sand interval varies considerably from well to well and the electric logs are difficult to correlate. The field appears to be complexly faulted with, possibly, both normal and reverse faults present.

In view of the variable lithology and the complex faulting, the writers believe it is impossible to predict the extent of this field at the present time.

M. N. Bramlette, H. L. Driver, E. C. Edwards, D. T. Graves, C. W. Johnson, D. I. Johnstone, J. S. Shelton, and R. T. White.
Correlation Section Across the Los Angeles Basin.

The section extends northward from the ocean across the Palos Verdes Hills, through the Torrance, Dominguez, and Montebello oil fields, includes the type section of the Repetto formation, and continues north across the San Gabriel Valley to the San Gabriel Mountains north of Monrovia. Salient features are location and nature of lithologic and thickness changes in lower Pliocene and upper Miocene strata. A cross section of the Los Angeles sedimentary basin, and Los Angeles and San Gabriel structural basins is presented. The cross section portrays the need for clarification of stratigraphic terminology and need for differentiation between time-stratigraphic and rock-stratigraphic terms.

T. A. Baldwin, R. R. Thorup, J. H. Fackler, L. A. Tarbet, and J. E. Kilkenny.
Salinas Valley Cross Section.

This transverse section extends from the Tertiary outcrop section west of the San Antonio River (R. 25 S., R. 10 E.), Monterey County, in a general north-northeast direction across the San Antonio Hills, the Salinas River, the San Ardo oil field, and the Gabilan Mesa to the San Andreas fault (T. 21 S., R. 12 E.).

Several interesting features are shown including the relationship of the deep Miocene shale basin underlying the San Antonio Hills to the thin veneer of sediments in the San Ardo field and the Gabilan Mesa, the "King City" thrust fault, and two interpretations of the stratigraphy in the controversial San Ardo group.

The name Aurignac sand is proposed for the lower producing zone in the San Ardo field. The Aurignac sand is separated from the upper producing sand, the Lombardi, by a thin siltstone bed and is underlain by basement within the limits of the field. The term "Orradre sand" was formerly applied to the Aurignac sand in the Campbell pool, but subsequent drilling has proved the two sands to be one. It is suggested that the name "Orradre sand" be dropped. The name Lombardi silt is proposed for the siltstone member underlying the Santa Margarita sand and overlying the Lombardi sand. The name Aurignac silt is proposed for the siltstone separating the Lombardi and Aurignac sands.