THOUSAND SPRINGS VALLEY AREA

No specific localities are given by Wheeler and McNair for this area but the observations made throw grave doubt on the possibility of low-angle thrusts which involve the Humboldt beds.

(a) East of Thousand Springs Creek along the western base of Nine Mile Ridge, in Secs. 27 and 34, T. 42 N., R. 66 E., the Paleozoic-Humboldt contact is well exposed. For approximately ¾ mile along the range front, steeply west-dipping Humboldt beds rest in depositional contact on the Paleozoic. The basal depositional breccia and conglomerate show no evidence of low-angle deformation.

(b) West of Thousand Spring Creek along the western edge of T. 42 and 43 N., R. 66 E., ridges of Paleozoic rocks stand above the gravel-covered pediment which cuts across gently to steeply dipping Humboldt beds. The Paleozoic-Humboldt contact was studied at two localities. In Sec. 29, T. 43 N., R. 66 E., Paleozoic limestone occurs as an up-faulted wedge between two intersecting normal faults, one of which continues into the Humboldt sediments. In Sec. 6, T. 42 N., R. 66 E., a high-standing area of Paleozoic rocks has Humboldt beds in normal depositional contact dipping away from it on at least three sides. The Paleozoic is anticlinally folded, and relations indicate that these rocks and the Humboldt beds were folded at the same time. Immediately south of the anticlinal area, the lake beds are faulted against the older rocks. No features indicative of low-angle faulting were found.

GORDON R. BELL, Western Gulf Oil Company, Santa Maria.

Geology and Exploration for Oil in the Huasna District, San Luis Obispo County.

The Huasna district, an area of approximately 100 square miles, lies at the southern end of the Santa Lucia Range in the California Coast Range province about 12 miles northeast of the town of Santa Maria. Geologically it consists of a synclinal basin filled with Miocene sediments and interbedded volcanics. The basin is roughly limited on the east and west by two nearly parallel faults. On or near these boundaries Miocene strata are found in fault or depositional contact with Franciscan rocks on the west and Cretaceous sediments on the east. Anticlines have formed on the flanks of the major syncline.

Middle and upper Miocene (Monterey) shales and sands crop out along the eastern flank of the syncline. Basinward they are overlain by 2,000 feet of Santa Margarita sands and shales. Wells drilled within the deeper portion of the basin penetrate 4,000–6,500 feet of brown cherty and siliceous shales and dark brown calcareous shales representing all the foraminiferal stages from upper Mohnian to Relizian. Shows of tarry oil occur throughout this interval both in outcrop and in wells, probably accounting for many of the shows of oil recorded by early tests in the district. At and throughout the basal portion of this predominantly shale section volcanic interbeds of tuff, agglomerate and ashy sands of middle and lower Miocene (Saucesian ?) age are encountered. Incomplete records on earlier wells and lack of deep stratigraphic penetration in more than one well near the center of the basin lead to some conjecture as to the nature and distribution of lower Miocene sediments.

Thirty-five wells have been drilled in the Huasna district since 1898. Two or three wells have produced a small amount of oil. The Barneberg No. 2, drilled on the Tar Springs anticline, has produced 11,400 barrels of 16 degrees A.P.I. oil, which appears to have come from near the Santa Margarita-Monterey gradational contact and from within the underlying locally fractured shales. Recent wells drilled nearby failed to develop production.

The possibilities of stratigraphic traps at depth within the basin and of better structural position on some of the asymmetric anticlines are indicated as being the objectives of future exploration in the district.

THOMAS A. BALDWIN, Jergins Oil Company, San Ardo.

Geology of the Santa Cruz Mountains.

The Santa Cruz Mountains occupy the area west of the San Andreas fault between San Francisco and Salinas. Principal structural features are the San Andreas fault, the Pescadero fault, the Ben Lomond Highlands and associated faulting and the Butano-Bean Hill uplift. These features are described and related to their counterparts in adjacent areas.

A basement-contour map is used to illustrate the discussion. Major stratigraphic features are pointed out through the use of generalized columnar sections and isopach maps of the Pliocene and Miocene basins. Stratigraphic similarities with other portions of the province of Salinia are investigated.

The history of oil exploration in the Santa Cruz Mountains is briefly reviewed with emphasis on consideration of the cause of wildcat failures in this province which on the surface exhibits all the features commonly considered prerequisites to oil accumulation.

W. S. W. KEW, consultant, San Francisco.

Historical Background of the Geology of the Castaic-Newhall Basin.

The Castaic-Newhall basin is a local name given to describe the eastern part of the Ventura basin, one of the major geologic features of California. It extends from the San Gabriel Mountains to Point Concepcion, a distance of 130 miles and contains a thick section of sedimentary strata ranging in age from Cretaceous to Recent. There are no widespread unconformities, though locally marked changes