Evidence suggests that during its development, the thrust reached the surface as a steep fault; with additional movement, the fault followed roughly the erosion surface and its flatter segment was developed. The latest period of movement was probably Pleistocene, for terrace deposits considered to be of that age are overridden by the thrust. Many problems connected with the fault await solution, chief among them being the explanation of the major differences between the stratigraphic sections within the overthrust and static blocks.

ALBERT GREGERSEN, Exploratory Activity and Oil and Gas Discoveries in California for First Nine Months of 1944

The number of wildcat discoveries in this period are very impressive. The amount of oil discovered is depressive. Gas discoveries have been of major importance. Results are compared with 1943. Twenty-four new oil fields and six new gas fields have been discovered. Most important oil fields are Jacalitos Northwest, and Sheep Springs. Commercial oil discoveries are discussed. All six gas discoveries are commercial. These are described.

Thirty-one new pool discoveries and extensions have added at least six to eight times as much to our reserves of oil as the wildcat discoveries. By far the most important new pool discovery is the "27-B" sand in the Buena Vista field, Kern County, where as much as 40 million barrels of reserves may have been proved by drilling to date. Another important deeper zone discovery, the lower Grubb of Pliocene age, was made in the San Miguelito field, Ventura County. A deeper zone discovery in the Rio Vista gas field, the Perry Anderson sand in the Eocene, is of major importance.

Exploratory drilling is up 30 per cent over 1943. Depth of exploratory holes has increased. Geological exploration, surface and subsurface, was responsible for 19 out of 30 wildcat discoveries. Seismograph mapping accounted for eight discoveries.

Success percentage of exploratory holes and footage drilled was up about 5 per cent over 1943. There was a decrease from last year in the success percentage of wildcats drilled on subsurface geology and seismograph surveys.

Nineteen forty-four will be a record year for exploratory drilling activity. The average reserves per oil field discovery will be an all-time low. A world's record for deep drilling has been established.

Results of wildcatting suggest that we are fishing in streams largely fished out. New preserves, such as the State tidelands, may be opened by law. Others, such as Tertiary Marine Basin of the Pacific Northwest, may be opened by adventurous Izaak Waltons. Persistent and expert fishermen will continue to catch a few "big ones" for some time to come.

L. A. TARBET AND W. H. HOLMAN, Stratigraphy and Micropaleontology of the West Side of Imperial Valley, California

Imperial Valley is the southern part of a large northwesterly trending valley in southeastern California. This valley is a part of a large basin of deposition which existed during parts of Tertiary and Quaternary time. The stratigraphy discussed in this paper is based on a study of the exposed Tertiary and Quaternary sediments in the region bounded by the Santa Rosa Mountains on the north, Salton Sea on the east, Mexico on the south, and the crystalline rocks of the Coast Range on the west.

The rocks exposed in this region may be divided as follows:

Basement complex. Granite and metamorphic rocks

Split Mountain formation—0 to 2,700 feet. Non-marine fanglomerates and sandstones intercalated with marine sandstones and shales unconformably overlying basement complex. Miocene?

Alverson Canyon formation—0 to 700 feet. Non-marine unassorted sediments and associated basic igneous flows and tuffaceous sediments unconformably overlying all older rocks. Unfossiliferous

Imperial formation—0 to 3,600 feet. Marine mudstones, siltstones, and sandstones unconformably overlying all older rocks. Upper Miocene
Palm Spring formation—0 to 6,100 feet. Non-marine mudstones, siltstones, and sandstones conformably overlying Imperial formation
Borrego formation—0 to 7,600 feet. Non-marine mudstones, siltstones, sandstones, and conglomerates probably unconformably overlying all older rocks
Terrace deposits—0 to 200 feet
Lake Coahuila deposits—0 to 100 feet. Thin veneer of lake marls covering most of surface below ancient beach line
Salton Sea deposits
Recent alluvium

The geology of the region surveyed indicates that the sediments are probably less than 14,000 feet thick due to the various unconformities within the sedimentary section. No data are available concerning the depth of the sediments in the central part of Imperial Valley. If the present topographic basin represents the central part of the basin of deposition, the sediments may extend to a depth of 22,000 feet or more.

The principal microfossils represented in the succession are Foraminifera and Ostracoda. Sixty species of the small Foraminifera were found in the Imperial formation, and most of these are confined to the lower few hundred feet of strata.

A gradual change to brackish-water conditions is indicated with the passage of Imperial time. This was followed by a comparatively abrupt change to fresh-water and slightly saline environments of the Palm Spring and Borrego formations. These locally contain Ostracoda, *Chara*, *Rotalia beccarii*, and a few species of *Elphidium*. The latter group of microfossils is represented in the deposits of Lake Coahuila, which covered the Salton Sink in relatively recent time. Some of the species are living in the Salton Sea, which now partially occupies the Salton Sink.

The foraminiferal fauna of the Imperial formation is not found elsewhere in California. It is clearly related to Miocene faunas of the Gulf of Mexico and Caribbean borderlands and is considered to be upper Miocene in age. A meager fauna from the Split Mountain formation suggests Miocene age. The microfossils of the Palm Spring and Borrego formations have no apparent value at this time in determining geologic age, but they can be used in local correlation.