

Production is from sands in the uppermost part of the Stevens sand zone of upper Miocene age. Three productive wells and two dry holes have been drilled since discovery.

Accumulation is believed to be due principally to stratigraphic trap conditions formed by the lensing-out of individual sand members.

The cumulative production of the Calder field, to August 1, 1950, is 78,895 barrels.

7. REPORT OF SUB-COMMITTEE ON THE CENOZOIC OF THE GEOLOGIC NAMES AND CORRELATIONS COMMITTEE OF THE A.A.P.G.

ROBERT T. WHITE, State Exploration Company, Los Angeles

8. MONTALVO OIL FIELD, VENTURA COUNTY

LEO H. MOIR, JR., Wilshire Oil Company, Santa Paula

The Montalvo oil field, discovered in 1947 by the Standard Oil Company of California, is located at the mouth of the Santa Clara River on the Oxnard Plain, Ventura County, California.

The accumulation of oil is due to a pinch-out of lower Pliocene (Repetto) sands on the north flank of a faulted, easterly plunging anticline. The producing sands are known as the McGrath zone, which is highly lenticular and in places is divided into two parts by an intermediate shale. The proved acreage is currently limited to this McGrath zone and covers about 375 acres.

In the vicinity of the Montalvo oil field, two distinct Miocene sedimentary provinces meet. The northern province, in which the field is located, contains a Miocene section, the whole of which is as yet unexplored. The southern province, which is separated from the northern by a large fault, contains a Miocene section similar to that of the Oakridge uplift and in one place has been completely penetrated by a test well. That well proves that the lower Miocene and Sespe formations contain reservoirs of value.

THURSDAY NOON, LUNCHEON

EMBASSY ROOM

Presiding: J. R. PEMBERTON, President, Pacific Section, Consultant, Los Angeles

INTRODUCTION OF NATIONAL OFFICERS

DISCUSSION OF ASSOCIATION AFFAIRS

C. L. MOODY, President of A.A.P.G., Ohio Oil Company, Shreveport, Louisiana

THURSDAY AFTERNOON

THEATER

Presiding: MILTON W. LEWIS, Consultant, Los Angeles

FRANK S. PARKER, Signal Oil and Gas Company, Los Angeles

9. PROGRESS IN GEOLOGY AND GEOPHYSICS

PAUL WEAVER, Past-President of A.A.P.G. and of S.E.G., Gulf Oil Corporation, Houston, Texas

Geophysical surveys in the past have been successful in the location of anticlines and faults, large either in relief or in area, and in a general way known oil provinces in the United States have been covered by this kind of survey, and particularly using the reflection seismograph. But the finding of these large structures might be considered "high grading." A substantial part of recent discoveries by the reflection seismograph has been different because on structures of low relief or of small area.

The discussion emphasizes that this kind of an exploration program requires that reflection shooting to be successful must be refined and improved, particularly in the contouring and geological interpretation.

10. OPPORTUNITIES FOR PETROLEUM DEVELOPMENT IN ARIZONA

EDWIN D. MCKEE, University of Arizona, Tucson

Arizona may be divided into two principal parts on the basis of geological features. Most of the northern half, except in the extreme west, belongs to the Plateau province and is characterized by dominantly horizontal strata deformed by uplifts, downwarps, and high-angle faults. The remainder of the state belongs to the Basin-and-Range province, and is composed of linear ranges, mostly oriented with northwest-southeast trends, and separated by wide, deep valleys filled largely with Tertiary and later alluvium. Overthrusts and many compressional features are represented in the mountain structures.

To date no significant petroleum discoveries have been made in Arizona. The Basin-and-Range portion, furthermore, offers encouragement for prospecting in few places. Its valleys, except possibly in the extreme southwestern part of the region, appear to be filled with continental sediments; deep water wells have exposed nothing to justify optimism. In contrast, certain features of the Plateau province favor more exploration in that area.

Rocks similar in type and age to those forming parts of the plateau of northern Arizona have produced petroleum in adjoining areas of southern Utah and northwestern New Mexico. Studies of

the distribution and thickness of these strata and of possible basins of accumulation within them, are discussed. Recent developments in exploration of this area are briefly summarized.

11. OIL PROSPECTS OF NORTHEASTERN NEVADA AND NORTHWESTERN UTAH
PAUL H. DUDLEY, Consultant, Long Beach

Intensive geological field work currently is being carried out in northeastern Nevada and northwestern Utah, in the northern part of the Basin-and-Range province. The first exploratory test of recent years is being drilled on the eastern side of the Pancake Range. Sediments are primarily Paleozoic and constitute one of the most complete and thickest sections of this group in America. Showings of oil, asphaltic material, and gas are known at several points. Devonian and Carboniferous limestones and the White Pine shale (Upper (?) Mississippian) are the best source rocks. Certain facies of the so-called Diamond Peak quartzite (Lower (?) Pennsylvanian) and the Weber conglomerate (Upper Pennsylvanian), as well as the Upper Paleozoic limestones themselves, may prove suitable reservoirs. The thermal effect of volcanic and granitic rocks on sediments is generally unimportant. The structure and stratigraphy indicate that there are anticlinal, fault, and stratigraphic traps within the area. Faulting probably will be the most important risk in exploration.

12. SAN MIGUELITO OIL FIELD
HUGH McCLELLAN, Continental Oil Company, Los Angeles
RICHARD B. HAINES, Continental Oil Company, Ventura

The San Miguelito oil field, in Ventura County, California, was discovered in November, 1931, by means of surface geology. Accumulation occurs throughout a 2,500-foot series of Pliocene sands in a closed anticline, which is on the westward continuation of the Ventura Avenue axis. The field is bounded on the north by the south-dipping Padre thrust fault, which strikes nearly parallel with the axis of the fold and has an apparent vertical displacement of approximately 3,000 feet.

To date, 81 wells have been drilled and development is continuing. No wells have been abandoned. Total cumulative production to June 30, 1950, was 21,595,000 barrels of oil.

13. IS PETROLEUM GEOLOGY GEARED FOR WAR?
FRANK A. MORGAN, Vice-President, Richfield Oil Corporation, Los Angeles

Petroleum geology has grown up. The record speaks for itself. In the United States crude-oil reserves have been discovered and are being discovered in excess of withdrawals, permitting an efficient producing rate which is comfortably above present and immediately foreseeable demands.

With a peace-time domestic production and concurrent demand exceeding 2 billion barrels of crude petroleum in a single year, the responsibility of petroleum geology as an integral part of the oil industry is greater than ever before.

There can be little doubt that there are sufficient undiscovered reserves of oil stored in the vast sedimentary basins within the United States to supply the demands of our way of life for generations. The oil industry alone can locate and develop these reserves at an efficient rate if the fine balance of organization, economics, and science required for such an operation is not undermined by thoughtless interference from various departments of government.

In addition to the immediate fruits of discovery, the over-all exploration effort constitutes, in effect, a long-term research program with the power to shape the future in oil productive capacity. Private competitive enterprise with its assured continuity of effort provides the best base for this type of research. In this environment the science of petroleum geology will continue to do the job to meet the demands of peace or war.

14. DEVELOPMENTS IN CUYAMA VALLEY—1950
ARTHUR S. HUEY, The Hancock Oil Company of California, Long Beach

The Cuyama Valley in 1950 continues to be an important area in California for the drilling of both field development wells and wildcats. More than 50,000 barrels of high-gravity oil are now produced daily from the combined fields of Cuyama. The Russell Ranch field, discovered in June, 1948, has reached a state of almost complete development and now produces 21,000 barrels of oil per day from 138 wells. The South Cuyama field, discovered in May, 1949, is incompletely developed and now produces about 29,000 barrels of oil per day from 155 wells. The geology of these proved fields is not reviewed.

Thus far in 1950, about 45 wildcat wells have been drilled in the Cuyama-Carrizo area and only the three which resulted in new discoveries in the Morales Canyon area of North Cuyama were successful. This rather low discovery ratio of 1:15 reflects the complexity of the geologic structure and the difficulty of finding new oil in Cuyama Valley. The Superior Oil Company completed "Government" No. 18-2 in Sec. 2, T. 11 N., R. 28 W., S.B.B. & M., on April 1, 1950, flowing from an undisclosed formation in the interval 5,635-6,125 feet, 500 barrels per day of 37.5° gravity oil, 2.5% cut, through $\frac{1}{4}$ -inch bean with 400 pounds pressure and 250 M.c.f. gas. Immediately surrounding this well, one additional pumpjack has been completed, three dry holes abandoned, and one well is currently drill-