PACIFIC SECTION ANNUAL MEETING, LOS ANGELES, NOVEMBER 5–6, 1953
ABSTRACTS

1. GRAHAM B. MOODY, Standard Oil Company of California, San Francisco. Oil in California.

This is a discussion of the change in California's position in the national oil picture since the close of World War II. California is compared with other producing states as to exploratory effort and result. The dominant position of the thirty-three big wheels in California's oil is outlined. This paper may be considered as a sequel to one presented in November, 1946.

2. W. L. STANTON, Union Oil Company of California, Sacramento. Geology and Oil and Gas Possibilities of Western Washington.

The state of Washington is one of the few potential oil and gas provinces in the United States in which no commercial production has been developed. Market demand for oil and gas in the Northwest would make any discovery very attractive economically.

This paper deals with that portion of Washington situated west of the Cascade Mountains, approximately the western one-fourth of the state. An aggregate of over 50,000 feet of marine. Tertiary sediments of Pliocene, Miocene, Oligocene, and Eocene age are present. The stratigraphy varies greatly from one sedimentary basin to another, and up to 20,000 feet of sediments have been found in some of the basins. Volcanics varying greatly in thickness, according to their distance from their source vents, are common in the middle and lower Eocene. A few hundred feet of Miocene lavas extend part way across southwestern Washington.

Structural conditions of the area are typical of coast-range structure, except for the Olympic Peninsula area. The sediments of the western Olympic Peninsula have been folded, faulted, and crushed into one of the most complex structural conditions found anywhere in the world.

Most geologists who have worked in the area believe that commercial oil and gas discoveries will be made. Oil and gas seeps are present and in several areas sub-commercial production has been found. Source beds are abundant and permeable sands are present in all formations. Contrary to popular opinion, the lack of successful discoveries to date can be attributed more to poor structural locations of the wells drilled, rather than to lack of reservoir rocks.

Exploration is difficult, not only because of the complex structural and stratigraphic conditions, but surface exposures are limited by extensive glacial deposits and thick growth of forests and underbrush. Subsurface data are needed for intelligent exploration.

3. HAROLD H. SULLWOLD, JR., University of California at Los Angeles. Omission and Repetition by Faulting.

Misleading statements are commonly seen regarding omission and repetition of beds by faulting both in wells and in outcrop, and the speaker has been unable to find in the literature any adequate discussion of the problem. The most glaring oversight in the past has been failure to recognize the importance of ground slope on repetition and omission. While the discussion applies principally to strike faults, it would also be appropriate for oblique faults.

The problem is simple in vertical holes, for reverse faults repeat and normal faults omit section, except, where beds dip steeper than the fault, the opposite takes place.

In outcrop the effects are more complex due to the presence of ground slope. Factors influencing the results are the direction and amount of dip of (1) the fault, (2) the beds, (3) the ground slope, and (4) the kind of the fault (normal or reverse). For any fault, either repetition or omission can occur at the surface depending on the ground slope. Thus, it can not be determined from repetition or omission alone whether a fault is normal or reverse in well or outcrop.

An illustration is shown classifying the twelve possibilities based on the location of the ground surface with respect to the angle formed by the intersection of the beds with the fault. The classification fails in the case of folded and inverted beds, variations in ground slope beyond the limits of the classification, and in places in the case of absolutely vertical or horizontal beds or faults.

4. PAUL P. GOUDKOFF, Consultant, Los Angeles; A. I. Safonov, The Dow Chemical Company, Sacramento. Four Dimensional Study of Sedimentation in Sacramento Valley.

This paper is an attempt to present the stratigraphy of Sacramento Valley in space and time. Areal distribution of various formations penetrated by the drill, also their variation in thickness and facies, are demonstrated by a series of illustrations. Time of certain diastrophic movements and their effect on temporary sedimentation are discussed.

5. EVERETT W. PEASE, Consultant, Bakersfield; TENNANT J. BROOKS, Franco Western Oil Company, Bakersfield. Geology of the Alferitz Anticline Area, Kern County, California.

The Alferitz anticline area is located in northwestern Kern County (T. 25 S., R. 18 E., M.D.B. &

M.) 25 miles south of the town of Avenal and lies between the Pyramid Hills and Devil's Den oil fields.

Approximately 13,000 feet of sediments, ranging in age from Pliocene to Eocene have been deposited in the area since Cretaceous time. These beds thin from east to west due to both erosion and to several important unconformities. Commercial accumulations of oil have been found in eight different zones within these beds—due both to folding and faulting.

This area, referred to by Ralph D. Reed as, "a complex group of low hills," presents a very complicated structural picture. Although the surface axis of the Alferitz anticline trends N. 25° W., the axis in the lower beds has nearly an east-west trend.

Oil is produced from both the Alferitz Anticline field and from the smaller "Hillview" area in the north part of the area. Total production is approximately 500 barrels a day and varies from 15° in the Escudo sand to 34° in the lowermost productive interval in the Point of Rocks sand. Eight productive zones have been found as follows: five zones within the Point of Rocks sand, the Tumey shale, the Agua sand, and the Escudo sand.

6. V. L. VANDER HOOF, Intex Oil Company, Santa Barbara. Review of Sespe Paleontology.

A review of what is known of the Sespe fauna and flora leads to the following comments.

1. The meager vertebrate fauna is not diagnostic of the climate or environment or mode of deposition. It may be stated with certainty that the Sespe contains the osseous remains of land vertebrates of late Eocene, Oligocene, and early Miocene age. But it may be said with nearly equal certainty that most, if not all, of these remains have been transported some distance from the normal geographic habitat occupied by the animals in life.

2. The absence of fresh-water invertebrates supports the suggestion that the Sespe is not fluvial or lacustrine.

3. The absence of marine animals leads to the belief that the Sespe is non-marine.

4. The absence of any flora leads to the impression that the distributive provenance was without plants.

5. The concluding comment is that the Sespe is non-marine deposit derived from deeply weathered and numerous distributive land areas of high relief. Its heterogeneity of color and sorting gives it a homogeneity for field recognition, but the real nature of its deposition may perhaps be solved by some future and ingenious multiple hypothecator.

7. ROBERT H. PASCHALL, Amerada Petroleum Corporation, Ventura. The Sespe Formation of the Santa Barbara Embayment.

The Sespe formation, composed of red, buff, and gray sandstone and conglomerate, and red and green siltstone, has a landward extent of about 1,250 square miles, and a volume of about 950 cubic miles. Its seaward extent may be greater or much less than that on land, since its presence in the Channel Islands chain is confined to Santa Rosa Island. Its maximum thickness of about 7,000 feet is found in the Simi Valley, near the formation's present east margin. In general the formation thins westward, due in part to gradation into beds of definite marine character.

The Sespe has an age range possibly as great as from upper middle Eocene to middle Miocene. The formation's vivid colors and scarcity of organic matter, especially in its eastern portion, combined with its lateral gradation into beds of undisputed marine character, are suggestive of a non-marine origin for the bulk of the formation. The Sespe does not appear to be a unique unit from the standpoint of time-lithology association. Many other sedimentary basins in Southern California possess similarly appearing rocks occupying about the same place in the geologic column. It would seem that widespread climatic and orogenic factors contrived to produce these formational cousins at about the same time.

Sespe oil production has been established over an east-west belt 90 miles long. Current production from the Sespe is about 17,000 barrels daily, 95% of which comes from fields on the 17-mile-long Oak Ridge uplift. Different zones in the Sespe formation produce from field to field, even along Oak Ridge, in a manner suggestive of varying or multiple sources for the Sespe's oil.

8. DOUGLAS WILSON, Intex Oil Company, Bakersfield. Sheep Springs Area, Cymric Oil Field, Kern County, California.

The Sheep Springs area of the Cymric oil field is located on the west side of the San Joaquin Valley approximately 40 miles due west from Bakersfield. Sheep Springs is relatively small, both in areal extent and in total oil reserves; however, it includes complex structural and stratigraphic traps which will be characteristic of probable future Westside oil fields.

Production is obtained from at least five different sands ranging in age from Pliocene to Oligocene. All but one of these sands pinch-out within one mile of the wells in which they are productive.

During the Miocene the Salt Creek anticline, with its associated normal faults, was developed. Oligocene and Miocene oil accumulated near pinch-outs of the sands and was localized by faults on the plunging nose and north flank of the anticline. After a period of erosion, Pliocene and Pleistocene