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PACIFIC SECTION ABSTRACTS

The following are abstracts of papers given at the 22d annual meeting of the Pacific Section of the Association, held at the Ambassador Hotel, Los Angeles, California, November 8 and 9, 1945.

FRANK S. PARKER, Signal Oil and Gas Company, Los Angeles. Results of California Exploration during the War Period.

The paper continues the work Roy Barnes published in the A.A.P.G. *Bulletin* of October, 1940, on through the war period with emphasis on discoveries of the first 9 months of 1945. The trends of geophysical activity, geological employment in exploration, and the number of A.A.P.G. members in California are shown and compared with the price curve. A pronounced increase in A.A.P.G. membership is found with only a slight increase in employment in the seventeen companies considered. It is thought the employment trend is not representative as many of the smaller companies not considered have added to their staffs. The seismograph activity has fluctuated seasonally but has averaged a level trend.

Wildcat drilling as shown by the dry-hole curve has increased and broken previous records both in 1943 and 1944. The lesser increase in number of currently active wildcats

is ascribed to increased efficiency in shortening rigging-up and shut-down periods due to greater demand for rigs and crews.

A clear correlation is shown between the number of wildcats drilled and the number of discoveries made. The less obvious correlation between geological employment and discoveries may be due to the lapse of time between the working-out of a play and the drilling of it, in some cases 5 or 10 years. The increased demand and price of dry gas is reflected in the increasing number of gas field discoveries.

The correlation of reserves, production, and new reserves by discovery is discussed. The new reserves discovered have failed to keep pace with the production. The production, which reached a new high of 311 million barrels in 1944 and possibly will reach 315 million in 1945, has been maintained by increased development drilling and the discovery of new pools and extensions. By the end of the war the California reserves had declined only 185 million barrels, from 3533 million in 39 to 3348 million in January, 1945. The effect of Order M68 on development drilling is well marked by a slump, while practically no effect is visible on wildcat drilling. As was intended, that order provided materials to keep up the pace of exploration at the expense of development drilling. The prompt recovery of development activity by the fall of 1942 and its rapid increase from then through the war is illustrated by the curve.

The amount of oil found by wildcatting alone, that is, the amount of oil in the discovery pool only of the fields is compared with the total ultimate by years. The curve shows that approximately three-eighths of the oil has been in pools discovered by later exploratory drilling.

Also, it is seen that the discoveries in California have come in steps of half billion or more size additions to reserves at intervals of 8 to 10 years which are timed by advances in geologic exploration, drilling technique, and seismic exploration. The present year should be the period for another advance in discoveries according to the chart, but so far has not differed from the last 6 or 7 years in volume of oil found. The writer estimates roughly 25 million barrels of oil as the reserves of the new fields. With the data so far in hand no estimate of the new gas fields or of the new pools and extensions can be given.

The various exploration methods or combinations of them leading to the drilling of the dry holes and discoveries are compared graphically. The chart showed 20 wildcats to be successful out of a total of 202 drilled. Of these only sixteen will eventually be regarded as having found fields rather than extensions, and five of these were of dubious commercial value. The greatest footage and number of wells were drilled on subsurface work, with both seismic and surface work less and about equal. Other methods and combinations had much less footage. The over-all wildcat success percentage was 10.2%. New-pool tests were 31% successful and outposts 42% successful. It appears that at the present rate 1945 will end with somewhat less wildcat footage but with a greater number of wells drilled. Other types of exploratory wells will exceed substantially 1944 both in footage and number.

EVAN BURTNER, Standard Oil Company of California, Taft. Buena Vista Hills (27-B Pool).

The Buena Vista oil field is situated on the southwestern edge of the Great Valley of California immediately north and east of the town of Taft. It has produced oil since 1909 from two formations, the San Joaquin clays and Etchegoin, both of Pliocene age. Although the "27-B" pool was not discovered until March, 1944, the sand had been penetrated as early as 1915, but because of unfavorable structural position, no production was realized.

The hills consist of two major anticlines, the United and the Honolulu, in northwest-southeast *échelon*, each anticline having separate closure, but with production continuous across the saddle. Limiting closure is determined at the intersection of the United anticline on its northwest plunge, with the Midway Valley syncline. Closure in the Pliocene in-