

- I. Lower San Joaquin Formation (Upper Pliocene) and Salton Sea deposits (Recent?)
- II. Upper Etchegoin Formation (Pliocene) and Sunset Lagoon (Recent), Salt marshes of Mission Bay (Recent)
- III. Upper Imperial Formation (Pliocene) and shore waters of the Gulf of California (Recent), mouth of Mission Bay (Recent)
- IV. Upper Pico Formation (upper Pliocene or Pleistocene), Lower Etchegoin Formation (Pliocene), lower Imperial Formation (Pliocene or Miocene), Upper Wildcat Series (Upper Pliocene) and Pacific Coast, exposed, continental shelf bottom deposits
- V. Lomita marl (Lower Pleistocene or Upper Pliocene) and Catalina Island lee shore marl (Recent)

Slides are presented to show locality map, anatomy, representative species, and occurrences in the Pliocene of the Midway-Sunset oil field, Kern County, California.

3. "The Glendora Volcanics," JOHN S. SHELTON, Pomona College, Claremont.

The term Glendora volcanics has been given to the series of volcanic rocks exposed in the north-eastern San Gabriel basin, Los Angeles County, California. They consist of flows, tuff breccias, and tuffs ranging in composition from olivine basalt to glassy rhyolite or dacite, the most abundant being andesitic flows and pyroclastics. Thicknesses reach at least 2,000 feet in exposed sections and about 3,500 feet in wells. Luvian Foraminifera and fish scales from sediments interbedded with upper members of the volcanics indicate that they are probably largely of upper middle Miocene age.

4. "Highlights of Washington and Oregon Biostratigraphy," R. STANLEY BECK, consulting paleontologist, Bakersfield.

The biostratigraphy of type and classical localities of Washington and Oregon is discussed. Special emphasis is given to the Astoria, Cowlitz, Olympic peninsula and Coos Bay basins. Strata from Devonian to Recent are known from these areas and have a combined thickness of over 30,000 feet. These basins, as well as others, are possible areas in which oil and gas might be discovered in the future. Favorable as well as unfavorable geologic conditions will be discussed concerning oil possibilities of the Pacific Northwest.

5. "Tidal Waves from the Recent Aleutian Earthquake." FRANCIS P. SHEPARD, Scripps Institution of Oceanography, La Jolla.

On April 1, 1946, a sudden movement of the ocean bottom in the Aleutian deep started a train of sea waves which were picked up on tide gauges as far away as Australia and South America. Great damage was done to all of the north coasts of the Hawaiian Islands and the waves surged to heights as great as 55 feet in some places of convergence. Investigation of the five main Hawaiian islands showed relationships between high water marks and submarine topography. Also the height was greatly influenced by the existence of coral reefs and lagoons along the shore. Investigations in Hawaii have been compared with determinations by the Japanese in the 1933 tidal waves to devise a means of forecasting the relative danger of different situations from future tidal waves.

Personal experiences during the tidal wave are given along with accounts of other observers.

6. "Effects of World War II on California Oil Reserves," Graham B. Moody, Standard Oil Company of California, San Francisco.

The enormous demands of World War II for California oil were met successfully. Production was increased from 230,263,000 barrels in 1941 to 326,555,000 barrels in 1945. This is an increase of 41.8%. The comparable figure for the balance of the United States is 18%. During the period 1941 to 1945, inclusive, California produced 18.2% of total United States oil production and 11.7% of total world production. It increased its proportion of total United States production from 16.4% in 1941 to 19.1% in 1945. One other record of past performance is of interest: California had produced to December 31, 1945, about 22% and 14% of total cumulative production from the United States and the world, respectively. This performance was accomplished by development of about 245,000 proved productive acres, a small area compared to that in other producing states. Average ultimate recovery from California fields is estimated to be about 44,000 barrels per acre. Other major producing states have estimated ultimate recoveries of 8,000 to 14,000 barrels per acre. California pools have sufficient thickness to compensate for their restricted areal extent.

Despite the drain on California's oil resources by World War II, production in the middle of September, 1946, was about 870,000 barrels daily; the daily average during 1941 was about 631,000 barrels. During the period 1941 to 1945, inclusive, the discovery of new pools and new fields in California added estimated reserves equal to about one-third of production during that period. Additional reserves must be discovered in order to continue to meet the unprecedented peacetime demand for California oil. More new pools in present producing areas probably will add larger amounts to reserves than will new fields (Tidelands excepted). It will require intensified geological effort to find