SECTION D, SOCIAL SCIENCES

The Early California Petroleum Industry

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The American petroleum industry was created and developed because it fulfilled a commercial and technological need—it produced a cheap and efficient illuminant at a time when growing population, increasing affluence, and urban expansion in the United States and Europe demanded such a product. A handsome market price of $20.00/bl for petroleum (Anon., 1892:625) motivated the financial backers of Edwin L. Drake to dispatch him to drill the first commercial oil well on Oil Creek near Titusville, Pennsylvania, in 1859. From this genesis along Oil Creek in the western portions of the Keystone State, the operations of the oil seekers spread chiefly southwestward and northeastward until the Appalachian oil region encompassed substantial portions of western New York, much of western Pennsylvania, and part of West Virginia (Williamson and Daum, 1959). Fortunes were made and lost as new strikes brought "oil fever" and "boom towns" to new locales while all over the United States oil seekers pressed their search for crude petroleum. The chronicle of the search for "black gold" in the Golden State of California, far to the west of proven production, is unique.

The first white men to explore the coast of Alta, California — the Spanish seaborne expedition of 1542-43 led by Juan Rodrigues Cabrillo and Bartolomé Ferrelo — discovered petroleum seeps in the locale of Carpinteria which produced a substance the Indians had already learned to utilize in waterproofing their dugout canoes (Clark, 1963:5). Since the Spanish sought gold and silver, the "black gold" of a future age was regarded by them mainly as natural phenomena which Hispanics continued to notice in various places as they first explored and then, after 1769, settled California. The brea pit near Los Angeles was an interesting curiosity to them. By the time the 49er gold rush had populated the area and California had become the 31st state, local Hispanics were gathering and refining petroleum from seeps in Ventura County to produce illuminants for nearby missions (Clark, 1963:22).

The first serious attempts to find and develop the petroleum deposits of California occurred during the 1860's. Local promoters, envisioning economic possibilities similar to those encountered in the oil regions of Pennsylvania, were numerous and active. Even as the Civil War raged in the East, Thomas Scott, the vice-president of the Pennsylvania Railroad, a proven entrepreneur and an Assistant Secretary of War in the Lincoln Administration, became interested in California as a source of petroleum. Scott and a number of prominent Eastern investors were inspired by reports written by Professor Benjamin Silliman, Jr., the Yale University chemist who had gained financial and scientific fame as the author of *"Rock Oil, or Petroleum from Venango, Pennsylvania"* (1855), the report that motivated the drilling of the Drake well near Titusville in 1859. Unlike his famous and sound "Rock Oil" report, Silliman's written estimates of California petroleum properties, based on his visit to the Golden State in 1864-65, treated facts so cavalierly and were so unduly optimistic and enthusiastic that his professional career subsequently was detrimentally affected (White, 1962:6-13).

A number of companies and enterprises were organized or authorized and considerable activities ensued during the 1860's in Humboldt, Ventura, Los Angeles and Kern counties, but by 1870, nearly all operations had been terminated unsuccessfully. The easy presumptions of Pacific promoters and eastern investors that California oil seeps predicted rich oil

strikes and operations rivaling those of Pennsylvania proved to be costly and disappointing (White, 1962:13-20). California crude differed markedly in chemical characteristics from the paraffin-based petroleum of Pennsylvania and geological conditions in the West were quite dissimilar to those which obtained in the eastern oil regions (Anon., 1892:645).

Some interesting discoveries and developments were made during the 1860's, however. Heavy oil was first produced in the McKittrick area of Kern County from open pits and shafts as early as 1861. The following year natural gas was discovered in the lower valley of the Mattole River (Clark, 1963:32, 62). In Ventura and Los Angeles counties, oil seekers drove several tunnels into mountain sides, a practice known locally as "coyoting." One such tunnel, dug in 1864 by a combine of which Leland Stanford was a member, initially produced 25 bl/day of crude oil and was producing 5 bl/day in 1885, when the partnership of Hardison and Stewart purchased the property.

The genesis of the California petroleum industry was the rugged Pico canyon area in the northwestern portion of Los Angeles County. There, in 1975, C. A. Mentry discovered the Pico field with his shallow (120 ft) No. 1 Pico well (Anon., 1892:646-8). Other shallow wells, financed mainly by capitalists from Los Angeles (population approximately 8,000) and the smaller town of Ventura, were quickly drilled in the several canyons and dry washes located on the north flank of the Santa Susana Mountains (White, 1962:11, 23).

Many difficulties beset the early operators of the Pico and Ventura County areas. Drilling operations in the resistant formations, inclined at angles up to 75°, produced crooked holes which frequently required expensive torpedoing with nitroglycerin and reaming to recover lodged tools (Anon., 1892:646). Legal title to the drilling sites, many of which were located on the public domain, at first were claimed and operated tenuously under the Possessory Act, a California statute enacted in 1852 chiefly to protect mining claims (White, 1962:28). Equipment was scarce and expensive, transportation and refining facilities were extremely limited, and the asphaltum-based Pico crude produced inferior illuminants.

Despite a host of difficulties, once commercial production had been obtained, drilling operations proceeded apace and in 1876, California produced 12,000 bl of crude petroleum (Anon., 1892:611, 645-650). In response to the Pico area production, the California Star Oil Works, a forerunner of Standard Oil Company of California, built the state's first commercial oil refinery near Newhall, adjacent to the Southern Pacific Railroad (Clark, 1963:50). As new discoveries and production spread in Ventura County, California crude output rose to 40,000 bl in 1880 (Anon., 1892:611), the year in which another precursor of Standard of California constructed a refinery at Alameda with a capacity of 500 bl/day. At the time this was the largest refinery west of Cleveland. The same year Standard also laid the West's first pipeline, a 2-inch line 5 miles long connecting Pico with Newhall (Clark, 1963:54).

The next two decades were years of rapid development and expansion for the California petroleum industry. In 1883 oil was discovered at a shallow depth in the Puente Hills region, a few miles east of Los Angeles. The Puente field, producing heavy crudes utilized mainly as fuel oil (Anon., 1892:650), was the first of many fields, some extremely prolific, found and developed in the Los Angeles Basin. The nearby Brea-Olinda field was discovered in 1889, and four years later the oil craze struck the pueblo of Los Angeles itself. A town-lot drilling boom was ignited when E. L. Doheny, a former hard-rock miner during the silver days of Tombstone, acquired a property with an oil seep near Second Street and Glendale Boulevard, hand-dug a well 160 ft deep, and struck oil. Doheny's discovery not only uncovered the substantial Los Angeles City field but

brought him fame and wealth— and lots of both (Carr, 1935). Meanwhile, the San Joaquin Valley, the site of some of the truly great oil fields of the world, became an area of important petroleum discoveries.

The first of these magnificent Valley fields, some which subsequently disgorged prolific amounts in both oil and natural gas from multiple horizons, was discovered in 1887 near McKittrick in western Kern County (Clark, 1963:62). As the McKittrick field was developed, several large wells were completed with initial productions ranging up to 2,000 bl/day (Anon., 1900:586). Shallow production was first obtained in the Coalinga field in southern Fresno County in 1890, and four years later the great Midway-Sunset field was uncovered. As the century ended, the Kern River field near Bakersfield was opened in June of 1899, and a western extension of the Coalinga field was discovered in 1900 (Clark, 1963:65-77).

California crude petroleum output accelerated rapidly during the 1890's and reached a total of 2,256,207 bl in 1898. In three years that figure was quadrupled and in 1903, when California produced 24,382,472 bl, the Golden State overhauled Ohio and led the nation in the production of "black gold." As new fields were discovered and older ones developed, California production rose to a total of 33,427,473 bl in 1905 before declining slightly in 1906 because of a curtailment of production and development motivated by low prices (Anon., 1906:831). In 1907 the new state of Oklahoma, with its famous Glennpool field flooding the Mid-continent area with crude oil, surpassed California in petroleum production and the two states vied for the national production leadership, with first one ahead and then the other, until 1928, when Texas surpassed them both (Anon., 1959:7).

Texas first came to the nation's attention as a producer of substantial quantities of petroleum when the world-famous Lucas "gusher" at Spindletop near Beaumont roared to life at a rate of 100,000 bl/day on 10 January 1901 (McCaslin, 1951:111). Spindletop's appearance was a harbinger of things to come along the coast of the Gulf of Mexico, but California soon had a "gusher" to rival it — and one of the world's greatest at that. On 15 March 1910, the Union Oil Company's Lake View No. 1, near Maricopa in the Midway-Sunset field, blasted into production at an initial rate of 125,000 bl/day. This incredible well averaged a daily production of 60,000 bl of crude oil during its first three months and ultimately disgorged approximately 9,000,000 bl of petroleum before it caved in on 9 September 1911.

Union did not realize the full economic benefit from its great gusher because the well's tremendous productivity toppled prices of crude in the area and the lack of storage and transportation in the field caused a great amount of waste, but Lake View No. 1 and other prolific wells demonstrated conclusively that the Midway-Sunset area possessed refinable oils in large quantities (White, 1962:301, 359, 462; Anon., 1966:103). This important discovery of large deposits of refinable oils in the Midway-Sunset field completed the bases for the development in California of a fully integrated petroleum industry.

From its inception in Pico Canyon, the California petroleum industry developed differently from its Pennsylvania progenitor. West Coast oil operators were cursed and blessed with circumstances substantially different from those which existed in the East. California crudes were usually considerably heavier than eastern oils so that the western petroleum produced inferior illuminants. Drilling conditions in the Golden State, because of highly tilted and faulted geological formations, were usually much more formidable than in the East. One of the few advantages enjoyed by the California oil men was the state's dearth of coal. That valuable but bulky substance had to be brought in from New Mexico and Utah at exorbitant prices so that even the heavy California crudes

found a ready market as fuel oil (Carr, 1935:330). California's relative isolation from other oil-producing areas assured her petroleum a pre-eminent position in whatever markets could be developed along the West Coast. For a number of reasons, then, the California petroleum industry "developed a pioneering and self-reliant spirit" (Anon., 1950:47) which made the West Coast operators ready to experiment and quick to innovate.

In their pioneering enterprises, California oil men demonstrated skill and daring and achieved a number of novel accomplishments which often had far-reaching effects on the industry in other geographic areas. The mountainous terrain frequently encountered and a lack of proximate harbors necessitated pipeline construction on a monumental scale. Californians pioneered and perfected directional drilling to meet their needs for the development of offshore petroleum and natural gas deposits and to facilitate operations in mountains where several wells had to be drilled from a single available location. To meet California's peculiar drilling and operational problems, equipment manufacturers and tool companies on the West Coast invented and developed a number of special techniques and tools which subsequently were utilized by petroleum operators throughout the world (Anon., 1950:47, A67-88). Thus, a pioneer spirit and an industrial compulsion to innovate in order to produce, transport, and market petroleum products influenced significantly California operations and fashioned companies such as the Standard of California, the Union Oil Company, Shell, Tidewater, and even railroad company petroleum subsidiaries into some of the most interesting corporate operations in all of North America.

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