

ships with the geology of the area. It was in his 1861 paper that he noted the relationship between the quantity and quality of oil seeps and the underlying structure, an idea that was later developed into the anticlinal theory of oil exploration. As with many of his age, his career was interrupted by the Civil War, but after serving with distinction, he resumed his duties at Marietta College. In 1869 he resigned to join J. S. Newberry's Ohio Geological Survey. At one point he and Newberry were involved in quite a controversy concerning the new state geologic map. In his later career he did little with oil exploration and devoted his time to the search for coal, but his pioneering work with petroleum helped create the new science of petroleum geology. His final years were spent in Lancaster, Ohio, where he died August 14, 1880, at the age of 59.

### OCOTILLO WELLS: CALIFORNIA OIL HISTORY ENCAPSULATED

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There are many places in California where oil has *written the story*, but nowhere is the gamut of the Golden State's history of petroleum exploration more physically accessible, and still in its original rugged frontier condition, than at Ocotillo Wells State Vehicular Recreation Area. While the 70 year long search for *black gold* here was a failure, the nine drilling attempts at Ocotillo Wells had unintended and far-reaching consequences. This paper explores these consequences and shows just how Ocotillo Wells represents the petroleum history of this state, and the United States as a whole.

Ocotillo Wells SVRA is an 80,000 acre off-road driving park with such place names as Oil Well Wash, Wolfe Well Road, and Texaco Trail. Unfortunately, the stories of these places, from the original mule-powered outfit in 1919, to the consultations of professional geologists who first photographed this area during the Great Depression, to the frantic drilling for war-time oil and the stream-lined operations of the monolithic Texaco in the 1950s, have been all but lost to the passing of years. Fortunately, this history has been recovered with the written and photographic records I have unearthed from forgotten collections in the Imperial County Historical Society, the bureaucratic paperwork of the state's Division of Oil, Gas, and Geothermal Resources, the faded typewritten reports of state park rangers, and the keepsakes of local residents.

Together, the existing landscape and emerging historical record of Ocotillo Wells exhibit the evolution of American petroleum from the backyard affairs of oil pioneers to the arrival of efficient and well-financed *Big Oil*. Indeed, Ocotillo Wells as a state park exists largely because oil industry access roads opened up this inhospitable corner of the desert to 4-wheel

driving, and helped create California's off-road vehicle culture. Through the microcosm of Ocotillo Wells we can even glimpse a California after oil. The troublesome hot water aquifer that bedeviled the attempts of oilmen to coax petroleum out of the ground has itself become an unintentional *liquid gold*. Plans to drill and develop these geothermal waters for an energy-starved state are making Ocotillo Wells a center for subterranean energy exploration once more. Past, present, and future, Ocotillo Wells encapsulates the untold story of oil in California.

### **HAVE WE AN OIL BELT? – LOS ANGELES BEFORE AND AFTER DOHENY'S DISCOVERY**

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**Accepted But Not Presented:** Sitting above one of the world's greatest supplies of oil, Los Angeles represents a most unique urban phenomenon, as no other major metropolis has the underground resource so close at hand. Thanks to its fault-ridden geology, more than sixty oil fields are spread throughout the region and sit below 30 percent of its total land area - from downtown to Long Beach, from El Segundo to Yorba Linda. Oil has been continuously extracted from below Los Angeles since its discovery there in the 1890s, with the region supplying almost a quarter of the nation's oil in the 1920s and that same percentage of California's needs today.

Most accounts of Los Angeles history mention the discovery of oil in the Los Angeles City field by Edward Doheny and Charles Canfield, yet few give much context to the discovery that signifies its importance to the city or how it was understood at the time. Through an examination of contemporary accounts in the city, this paper explores the situation immediately before and after the discovery in 1892.

Before oil was found, Los Angeles faced a dire and expensive fuel situation given the city's location hundreds of miles from any then-known coal source - a situation it was desperate to overcome any way it could. After the discovery, an intense public debate on drilling within the city limits sprung up as neighborhood after neighborhood felt the impacts of oil drilling, including lowered property values, noise and water pollution.

How the City navigated this debate - attempting to balance City fuel needs with neighborhood desires for a clean and quiet community - would set the stage for its future growth and future dealings with its numerous oil fields. This undertold

story is important to any understanding of Los Angeles and its relationship with oil, and may serve as an important reference for other places balancing community needs with the development of local energy resources.

### TOOLIES AND ROPE CHOKERS

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*Toolies* is another term for tool dressers on a cable tool drilling rig. *Rope Chokers* is a derisive term used for cable tool drillers by rotary drillers in areas where the two forms of oil well drilling were in competition. Rotary drillers were called *swivel necks* by the cable tool drilling people. Ultimately, rotary drilling prevailed and is the most used form of drilling today. While a few wells are still being drilled by cable tools in the Appalachian area today, it is fast becoming a lost art.

The cable tool rigs were staffed by two two-man crews composed of a driller and tool dresser who worked alternating 12 hour tours (pronounced as *tower* in oilfield lingo). The driller ran the rig and was responsible for *making hole*. Tool dressers were driller's helpers who performed various tasks to assist the driller. Bits were dressed (sharpened) by heating in a coal or gas fired forge at the rig. When a dull bit was brought to the proper temperature and was sufficiently malleable, both the driller and toolie used sledge hammers to reshape the cutting edge.

Drillers had to be multi-talented. If something on the rig broke (usually a wooden part), they were expected to fix it and not call the tool pusher (superintendent) in the middle of the night. Some drillers also performed fishing jobs for drilling tools lost in the hole. After sufficient service as a tool dresser, a good hand could be promoted to driller position which was the highest paying job in the oil field.

The presentation is a two part program to educate people on the skills, methods, and equipment used in Appalachian oil fields. The first part consists of a number of historic photographs illustrating the men and equipment used in cable tool drilling. The second part is a 1930s film produced by Ohio Fuel Gas Company showing the drilling of one of their gas wells using a standard derrick drilling rig from start to finish. As the film moves along quite rapidly, the pictorial review of the equipment being used, as shown in historic photographs in Part One, is key to understanding the scenes shown in the film.

During my several years of oil field experience before college at Marietta, I performed the exalted position of *tool dresser* on a cable rig. I learned and practiced the joys of dressing a drilling bit using a 16 pound sledge hammer. Thus I have personal

experience and great familiarity with the equipment presented in these scenes.

### AMERICANS AND THE ALLURE OF THE ATHABASCA OIL SANDS

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*It is the considered opinion of our group that if the North American continent is to produce the oil to meet its requirements in the years ahead, oil from the Athabasca area must, of necessity, play an important role. No nation can be long secure in this atomic age unless it be amply supplied with petroleum.*

Little world attention was directed to Alberta's oil sands when J. Howard Pew, Chairman of Sun Oil, Philadelphia, spoke these words at the opening ceremonies of the Great Canadian Oil Sands' plant north of Fort McMurray in September 1967. Today, in contrast, Alberta's oil sands deposits are widely known. The history of their development spans a period of over 100 years, and from the first attempts to extract petroleum from these massive deposits Americans have played a significant role. This paper examines American involvement in the early years of development from 1905 to 1930. Great Canadian Oil Sands has historic ties to the Athabasca oil sands dating back to these twenty-five years of historic development.

Little has been written about the entrepreneurs who laid the foundation for today's major industry, and the challenges they faced. An examination and analysis of the primary sources surviving for this period reveal that Great Britain was eager to have the Dominion of Canada develop these deposits and attempted to influence their development; but it was American expertise, technology and financial resources that played a more significant role in their actual development.

Individuals from California, Texas, Oklahoma, Washington, Colorado and Montana traveled to Alberta's hinterland, bringing with them their knowledge of the petroleum industry gained in the petroleum fields in the United States. They attempted to win the petroleum first by using conventional drilling methods. Once the nature of the deposits was better understood, the developers then looked for unconventional means for extracting the petroleum from the sands. Samples of the deposits were sent to Pittsburgh, New York, New Jersey, Pennsylvania, Colorado, California, Spokane, Seattle and Texas for analysis. Experimental separation plants were built in New York, New Jersey and Colorado to treat the oil sands and to determine if the processes could economically separate the petroleum from the sands. S. C. Ells, who worked with the Dominion Government's Department of Mines, carefully