

PETROLEUM EXPLORATION HISTORY IN NORTH DAKOTA TO 1951

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ABSTRACT

The delayed discovery of oil in North Dakota resulted from remoteness, environment, and economic disadvantage, three of the six themes of Elwyn B. Robinson. Initially, lacking outside capital, the local explorers turned to their communities from 1917 to 1935 to raise the capital necessary to search for oil. As a result a complex group united to raise the capital necessary, but did not discover oil. The Great Depression ushered in the era of outside capital from 1937 to the successful discovery of oil on April 4, 1951. During this entire exploration period the state legislature, restricted by a lack of tax revenue, was unable to properly fund the North Dakota Geologic Survey. The survey achieved only marginal success throughout this exploration period. This history of early petroleum exploration not only enhances public knowledge but also lays the groundwork for further research toward a complete history of the industry.

PREFACE

During one of many long days running title in the Dunn County courthouse I came across an oil and gas lease from 1926. I wondered, “If oil was discovered in 1951, what were landmen doing in 1926?” I began to ask all who would listen if they knew anything about early petroleum exploration in North Dakota. Who drilled the first oil well and why? How many wells had been drilled prior to the discovery of oil? Who decided where to search for oil? Not only did my questions go unanswered in the state’s western courthouses, it appeared there were no published works, either. When I started graduate school in 2009, I was no closer to an answer, and as I began discussing the possibility of researching North Dakota’s early petroleum history I could only find two sources, North Dakota Geologic Survey publications and the self-published work of Bill Shemmory. What I read in these two sources created more confusion than it resolved and I continued to try and understand who it was that did the exploring and why.

My thesis covers North Dakota’s petroleum exploration from 1895 to April 4, 1951. This thesis does not discuss the consequences of the discovery of oil, nor the effects of the discovery on the state of North Dakota, good or bad, but only the process that allowed the discovery to happen. After completing a historiography in chapter one, there is an explanation of the three primary goals of this thesis. First, the thesis fills gaps in the historical record and clears up some misconceptions created by the North Dakota Geologic Survey, and newspaper reporter Bill Shemmory. Second, the thesis corrects several errors in this incomplete historical record. Finally, this thesis contributes to the regional historiography specifically and global natural resource discoveries generally. My research leads me to believe that prior to the discovery of oil in 1951 North Dakota had an incongruous mixture of practical oil men, state geologists, farmers, investors, and citizens tentatively approaching the launch of a petroleum industry. Initially this process was unique to North Dakota, but eventually North Dakota’s exploration followed a

similar pattern of oil discoveries around the globe. These men responded to chance, circumstance, geography, environment, and regulation, all of which, considered in relation to one another, contributed to the eventual discovery of oil in North Dakota.

North Dakota's particular place in petroleum exploration history is discussed in the second chapter. Unlike many other states, North Dakota's first period of exploration was financed entirely by local capital. Capital markets were unavailable to early explorers in the state so, with limited funds, they purchased marginal equipment from distant oil fields that would be operated by local unskilled labor in a vain attempt at finding oil. This was largely due to North Dakota's remoteness from and the lack of availability to capital markets.

The third chapter reveals the transformation from locally funded exploration to the introduction of national companies with substantial amounts of capital, modern equipment, skilled labor, and more precise geologic information to continue the exploration effort. This effort was aided by the introduction of new technologies and scientific understanding of North Dakota's geologic past that would ultimately aid in the discovery of oil in 1951.

The fourth chapter chronicles the North Dakota Geologic Survey's continued misfortune of being habitually under-or unfunded by the state legislature from its humble beginnings in 1895 to the discovery of oil in 1951. The survey was so poorly funded during the first exploration period it was unable to enforce conservation legislation and for most of the survey's early history could only employ one person. Despite being unfunded by the state legislature the survey, with funds provided by the federal government, was able to produce conservation policies that served the state well during the second period of early exploration.

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CHAPTER ONE: A DRY HOLE

On the fourth of April, 1951, North Dakota's first producing oil well, the Clarence Iverson #1, located ten miles south of Tioga, culminated a half century search for oil in the state. The search began in 1895 with the establishment of the North Dakota Geologic Survey, which was tasked with "identifying the mineral wealth" of the newly formed state. There are twenty-nine oil producing states that preceded North Dakota's discovery well and three that succeeded it.¹ North Dakota's relatively slow development was not from a lack of trying; early explorers drilled approximately twenty-five dry holes prior to the Clarence Iverson #1. The reasons for this delay were in large part due to North Dakota's remoteness, environment, and economic disadvantage; three of the six themes of Elwyn B. Robinson, the celebrated historian who wrote a *History of North Dakota*. Remoteness, environment, and economic disadvantage while the most significant factors, were not the only factors. Also contributing to the delay was the daunting complexity of the early oil business including the difficulty in formation of capital resources in the face of global oil development; petroleum geology, and geologists; state policies toward conservation; and geophysical technology and changes in drilling technology. It was the combination of all these factors that contributed to the slow development and eventual discovery of North Dakota's mineral wealth.

The purpose of this thesis is threefold. First, it is necessary to fill gaps left in the historical record up to the day oil was discovered in North Dakota. Second, it is important to correct errors and misconceptions in this incomplete historical record. Finally, this thesis will contribute to regional historiography specifically and global natural resource discoveries generally. It is my contention that North Dakota's oil industry developed at a slow pace in relation to other oil-producing states and countries. Nor was the development of the industry on the northern plains

¹ Arizona, Nevada, and South Dakota discovered oil in 1954.

inevitable. What then, made it happen? It is my finding that prior to the discovery of oil in 1951 North Dakota had an incongruous mixture of practical oil men, state geologists, investors, and citizens tentatively approaching the launch of a petroleum industry similar to a pattern of oil discoveries around the globe. These men responded to chance, circumstance, geography, environment, and politics all of which, considered in relation to one another, contributed to the eventual discovery of oil in North Dakota. This discovery would only come, as it had throughout the globe, when these agents of industry, finance, science, and government found the necessary conditions for success.

In January of 2012 North Dakota replaced Alaska to become the nation's second largest oil-producing state behind Texas. While the rest of the nation languished in the midst of its fourth year in recession, national news organizations flocked to the state to report on the oil boom. Citizens were soon treated to the wild reports that always accompany oil booms, but were also told Williston had a record-breaking .8% unemployment rate and that a severe housing shortage existed in the entire western half of the state. Big oil in North Dakota is big news, but what has been visibly absent from national as well as local news is any reference to the early history of North Dakota's search for oil. Many news stories begin with the April 4, 1951, discovery of oil south of Tioga, North Dakota, but at present there is an absence of significant published works on the history of North Dakota's early oil industry. Few North Dakotans even know such a history exists. It is as though Amerada Corporation came to town one day, drilled a hole, and oil gushed out. It is important to understand what North Dakotans faced in their early attempts to find oil and how it came to pass that one of the last states to discover oil is now the state with the second largest oil production.

There are many reasons for this absence, all of them related to North Dakota's remoteness, environment, and economic disadvantage; three of the six themes of Elwyn B. Robinson. In 1966 Robinson published *The History of North Dakota* an influential and celebrated work which introduced six themes: remoteness, dependence, radicalism, a position of economic disadvantage, the Too-Much-Mistake, and adjustment to the imperatives of a cool, subhumid grassland, i.e. environment. Robinson believed the state was remote. The distance between North Dakota and the population centers, industrial enterprise, financial markets, cultural development, and political decision making influenced the state's growth beyond measure. North Dakota was, as Robinson stated, a "colonial hinterland" exporting wheat, but dependent upon railroads, flour mills, elevators, grain exchanges, and banks which exerted their control over the colonists. North Dakota could not control the markets in which they sold their production, nor could they control the markets in which they bought their necessities. Robinson believed the state was radical in so much as it was struggling against its colonial status. This struggle manifested itself in the formation of the Dakota Farmers Alliance and the Nonpartisan League. Robinson believed the state was at an economic disadvantage. The economic disadvantage the state endured through most of its history is due to the agricultural economy and according to Robinson farmers were not compensated equally with other occupations. Robinson coined the phrase, the Too-Much-Mistake, which according to Robinson, was partly caused by the position of economic disadvantage. Income in North Dakota was volatile and almost always below national averages. Robinson reveals the process by which pioneers, banks, railroad barons, town boosters, churches, and lawmakers from the humid area flooded into the region with humid area experiences driving their decisions. The result was too many of everything and failure on a grand scale as communities faced light rainfall, frequent drought, grasshoppers, wild fires, and a

myriad of other potentially devastating calamities. Finally, Robinson explained the state was located in a cool, subhumid grassland. Adjustment to the environment is a key factor in the Great Plains. This is as true today as it was when Robinson wrote it. Robinson's themes illuminate North Dakota's suppressed development, population and the funding of institutions of higher learning.

The petroleum industry on the southern Great Plains had matured while North Dakota was searching for and developing its petroleum resources.² In the August 1933 edition of *The Scientific Monthly*, Carey Croneis wrote, "When an industry becomes fundamental, then comes a 'breathing spell,' in which their achievements begin to be recorded. Only then are the details of the early struggles which made them possible exhumed from the contemporary, and often contradictory, accounts."³ The petroleum industry on the southern Great Plains was fundamental, while the northern Great Plains was still in the process of discovery.

There were discoveries in Wyoming (1883), Montana (1901), and Alberta, Canada (1902), and as a result there was little interest in North Dakota's petroleum history among its much smaller and more remote population. The northern Great Plains lacks a population significant enough to maintain demand for institutions of higher learning so prominent in the south. While universities in the southern Great Plains have substantial doctoral programs in history and recognized university presses in Norman and Austin, the northern Great Plains lacks significant doctoral programs and university presses so the ability to publish has been limited. A function of these institutions of higher learning is to receive funding, in this case petroleum funding, and channel it to doctoral programs for research in petroleum geology and history. This was the case, for example, with the work of Carl Coke Rister who received generous support from the

² In the very first sentence of the Foreward to *Oil! Titan of the Southwest* E. DeGoyler writes, "The Oil Industry approaches maturity," pg. vii. Carey Croneis also mentions the petroleum industry reaching maturity in 1933.

³ Carey Croneis, "Early History of Petroleum in North America," *The Scientific Monthly* 37(Aug. 1933): 124.

Standard Oil Company of New Jersey to publish *Oil! Titan of the Southwest* at the University Press of Oklahoma.⁴

Most of North Dakota's recorded oil history comes from a sole master's thesis in addition to the publications of the North Dakota Geologic Survey and the work of Williston reporter and photographer Bill Shemmory.⁵ Remoteness and environment have suppressed North Dakota's petroleum development, population, and institutions of higher learning and as a result North Dakota's fragmented petroleum history, like many of its early oil wells, is a dry hole.

The absence in the historical record follows a pattern of some of the Great Plains' most celebrated historians. Walter P. Webb's *The Great Plains* fails to discuss oil and its discovery in the West entirely, while Carl Frederick Kraenzel's *The Great Plains in Transition* discusses oil only in relation to the Great Plains' colonial status and the exploitation of oil and other resources. Kraenzel neglects the economic, social, and environmental impact that oil had on the individual states and communities where it was first discovered. Even Gerald D. Nash, author of *The American West Transformed: The Impact of the Second World War*, briefly mentions oil producers in the first chapter and is then silent on petroleum and its impact on the transition of the West, the very subject of Nash's research. The trend would not end until 1989 when historians Richard W. Etulian and Michael P. Malone published *The American West: A Twentieth Century History*, in which appears the first significant acknowledgment of the petroleum industry and its contribution to the West. In regards to the Northern Great Plains, Etulian and Malone conclude, "Newer technologies meanwhile, brought in deeper and more difficult deposits, like the Williston Basin of Montana and North Dakota, which came in during

⁴ Carl Coke Rister, *Oil! Titan of the Southwest* (Norman: University of Oklahoma Press, 1949), xiii. The American Petroleum Institute and American Association of Petroleum Geologists have also provided funding for research.

⁵ Bill Shemmory, *Mud, Sweat, and Oil: The Early Days of the Williston Basin* (Williston, 1991); Dominic Schaff, "The History of the North Dakota Oil Industry" (Master's thesis, University of North Dakota, 1962).

the 1950's and boomed the regional economic center of Billings.”⁶ State historians developed patterns of their own. Robinson in his work *History of North Dakota*, Herbert S. Schell in his work *History of South Dakota*, and Michael P. Malone et al in their work *Montana: A History of Two Centuries*, all spend mere paragraphs discussing the search for and exploitation of oil. The absence did not go unnoticed.

In 1970 Nash wrote a historiography of the oil industry's history for the *Pacific Historical Review*.⁷ Nash was concerned with the absence of historical research into petroleum related topics. Research at colleges and universities in oil producing states in the trans-Mississippi area were, according to Nash, “surprisingly few,” and published works were “relatively few in number.” Nash wrote, “By necessity, such a discussion must deal more with what remains to be done rather than with what has already been accomplished.”⁸ What had been accomplished, according to Nash, was a limited amount of literature that included the “relevant works” of Rister's *Oil! Titan of the Southwest*, Harold F. Williamson's and Arnold Daum's *The American Petroleum Industry: The Age of Energy 1899-1959*, and Joe S. Bain's *The Economics of the Pacific Coast Petroleum Industry*. Nash outlined several areas in need of additional research, which included: histories of oil companies; biographies of influential oil men; the impact of science and technology; federal and state policies and their role in conservation and regulation; pollution; diplomacy; and military exploitation.⁹ The first category, histories of oil companies, contained “just a few” published works, and Nash used Gerald T. White's history of Standard

⁶ Richard W. Etulian and Michael P. Malone, *The American West: A Twentieth Century History* (Lincoln: University of Nebraska Press, 1989), 250.

⁷ Gerald D. Nash, “Oil in the West: Reflections on the Historiography of an Unexplored Field” *Pacific Historical Review* 39 (May 1970): 193-204.

⁸ *Ibid.*, 193.

⁹ *Ibid.*, 194.

Oil of California as an example.¹⁰ White, in his preface, wrote that there were two categories of business history: syrup-sweet stories and the work of muckrakers. White insisted his work was free from both and believed in his ability to publish an unbiased history. Nash remarked that published histories like White's, of large, mid-size, and small companies in states like Texas, Louisiana, Oklahoma, Wyoming, New Mexico, and Kansas, would be welcomed and would "clarify the reasons for successes and failures in the industry."¹¹ This new research, according to Nash, would highlight shared attributes among successful companies that would provide a basis for research on a state or regional level.¹² In reviewing the works published since Nash's 1970 request, it seems the focus of historians has been on state histories rather than company histories.

Since Nash's 1970 historiographical essay, there have been numerous publications of state-specific histories and little other work on all, but the histories of the biggest oil companies.¹³ Of these publications, a significant portion has come from the southern Great Plains. California, Colorado, Kansas, Oklahoma, and Texas are all well represented while Montana, Nebraska, North Dakota, and Wyoming lack any significant treatment of their state's petroleum history. Of course, there are always exceptions. Mike Mackey's work, *Black Gold: Patterns in the Development of Wyoming's Oil Industry*, has a little bit of everything in Nash's list. There is a history of the Ohio Oil Company in Wyoming, while other research reflects the story of Glenn Nielson and his Husky Oil. The two first chapters review biographies of important figures in the early Wyoming petroleum industry. These chapters review the impact of William Fitzhugh, an early oil man accused of claim jumping and Cy Iba and Phillip Shannon and their differing

¹⁰ Gerald T. White, *Formative Years in the Far West: A History of Standard Oil Company of California and Predecessors through 1919* (New York: Appleton-Century-Crofts, 1962).

¹¹ Nash, "Oil in the West" 194.

¹² *Ibid.*, 194-95.

¹³ These include the titles *Sign of the 76*, *An Adventure Called Skelly*, *Conoco*, *Gulf*, *Union*, *Humble*, to name a few. Many of these were funded by the specific company and put together by public affairs personnel rather than historians.

methods of securing early oil claims. Also included is military exploitation in a chapter discussing the Teapot Dome scandal and federal petroleum policy in reference to lease renewal. By Mackey's own admission the work has limits. It was to serve only as an illustration of "major problems and issues faced by . . . Wyoming's oil industry."¹⁴

The remaining northern Great Plains states would have to rely heavily on their respective Geological Surveys. In 1989 Nebraska's Geological Survey published *Oil In Nebraska: 50 Years of History; 100 Years of Exploration; 500 Million Years of History* written by Marvin Carson. Montana's sole contribution, *Oil and Gas in Montana*, written in 1953 by Eugene S. Perry and published by the Montana School of Mines, has this to say of its history: "The history of Montana oil and gas production dates from 1915"¹⁵ Woeful, but not nearly as bad as South Dakota which has no identifiable publications in regard to its petroleum industry from either its geologic survey or its school of mines. North Dakota's Geological Survey has published *The 50th Anniversary of the Discovery of Oil in North Dakota in 2001*, which was written by John P. Bluemle. Bluemle, a state geologist, relied heavily on previous geologic survey files and Bill Shemmory's work while doing little if any additional or original research. It is also important to note the sole master's thesis on the subject. In June of 1962, Dominic Schaff, a graduate student at the University of North Dakota, wrote, under the direction of Elwyn B. Robinson, *The History of the North Dakota Oil Industry*, but even Schaff devotes a single chapter to the early industry in favor of writing about the discovery and production of oil.¹⁶

The southern Great Plains in contrast to their "remote" neighbors to the north enjoy multiple universities offering doctoral programs in the research of petroleum history like Rister's ground

¹⁴ Mike Mackey, *Black Gold: Patterns in the Development of Wyoming's Oil Industry* (Powell: Western History Publications, 1997), vi.

¹⁵ Eugene S. Perry, *Oil and Gas in Montana* (Butte: Montana School of Mines, 1953), 1.

¹⁶ Dominic Schaff, "The History of the North Dakota Oil Industry" (Master's thesis, University of North Dakota, 1962).

breaking regional history. It is important to note that the southern Great Plains has its exception as well. The New Mexico Bureau of Mines and Mineral Resources published *The Story of Oil in New Mexico* in 1989. The book, written by Paige W. Christiansen, had remarkably little to say about New Mexico's petroleum history with only two chapters out of five having to do specifically with the petroleum industry in New Mexico. Texas and Oklahoma, on the other hand, have a plethora of published works with the majority coming out of the universities in Austin and Norman .

While some of these state histories attempt to tackle several categories Nash found wanting, still others address specific issues. Diana Davids Olien and Roger M. Olien tackle "business cycles, the increasing importance of science and technology, the creation and expansion of refining, manufacturing service, and supply activities" in their work.¹⁷ Kenny A. Franks, following in the footsteps of Rister and Nash with his work *The Oklahoma Petroleum Industry*, first marches through early exploration in Indian Territory then through Red Fork, Cushing, Healdron, Seminole Field, and Oklahoma City. Franks then spends several chapters discussing Nash's concerns to include regulation and conservation, science and technology, and outstanding Oklahoma oilmen.

Nash, a history professor at the University of New Mexico, avoided the New Mexico petroleum history and opted instead to publish *United States Oil Policy 1890-1964*, in which he attempted to analyze and describe the growth of cooperation and politics between government and the petroleum industry. Adding to Nash's work was Nicholas George Malavis, who in 1996 published *Bless the Pure and Humble: Texas Lawyers and Oil Regulation, 1919-1936*. While Nash reviewed regulation and policy in terms of politics, Malavis looks at regulation and

¹⁷ Diana Davids Olien and Roger M. Olien, *Oil In Texas: The Gusher Age, 1895-1945* (Austin: University of Texas Press, 2002), viii.

policy through the legal system. Recently, the work of Nash's political view and Malavis' legal view were joined by Paul Sabin. Sabin, a senior research scholar at Yale Law School and executive director of the nonprofit Environmental Leadership Program, wrote *Crude Politics: The California Oil Market, 1900-1940*, in which he addressed the "rule of capture," California oil policy, and state and local politics. Sabin was concerned state policies were being overlooked by historians and while taking a jab at "a more general federal bias among researchers," seems to project his own bias when he writes, "Global warming, caused in great part by releasing carbon dioxide through oil consumption, may prove the twentieth century's most lasting and devastating legacy."¹⁸ How easy is it to blame big oil for all that ails us?

The modern practice of blaming big oil for global warming, environmental degradation, and greed is not so modern after all. In their book, *Oil and Ideology: The Cultural Creation of the American Petroleum Industry*, Roger M. Olien and Diana Davids Olien reveal how big oil became so evil and destructive. Olien and Olien took the historical research Nash called for in a different direction, but the publication was an attempt to change an increasingly negative image of the petroleum industry. The story of petroleum continues to be told in new and exciting ways. Brian Frehner tells a tale of transformation from doodlebugging oil men to college educated petroleum geologists. This work, *Finding Oil: The Nature of Petroleum Geology, 1859-1920*, maps the course geologists took from the early days in Pennsylvania's oil field to the discovery of the anticline method and modern geologic theories and practices which replaced a myriad of doodle buggers, seers, and other dubious methods of finding oil.

While most of the published works since Nash's 1970 call to action have been limited in scope, there have been attempts to summarize the petroleum industry's entire history. Daniel

¹⁸ Paul Sabin, *Crude Politics: The California Oil Market, 1900-1940* (Berkeley: University of California Press, 2005), 11.

Yergin won a Pulitzer Prize for his work *The Prize: The Epic Quest for Oil, Money and Power*, which brought into the American lexicon the term “hydrocarbon man.” With the continued interest in petroleum history and the advent of the internet it has become easier to obtain and share information and view historical documents and photos from once scattered sources. There are internet sites too numerous to mention here, but a great place to start is the American Oil and Gas Historical Society, which is dedicated, “to raise awareness of the industry’s history and increase energy education.”¹⁹ Also available is the Petroleum History Institute, whose mission is, “To pursue the history, heritage, and development of the modern oil industry.”²⁰ The history, heritage and development of North Dakota’s oil industry remains absent from any university sponsored work. In addition to this absence there are also several errors and misconceptions in the existing record.

North Dakota’s oil history contains some unfortunate errors and misconceptions created by inaccurate and incomplete historical work. These errors include, for example, claims made by Bill Shemmory, and John P. Bluemle, North Dakota’s State Geologist. Shemmory’s account of the early oil industry was self-published on the 40th Anniversary of the discovery well in 1991. Shemmory argues that the first attempt at drilling for oil was the Pioneer Oil and Gas Company, but evidence suggests Pioneer was only drilling for gas and having failed, salted the well to obtain financing to continue their effort. Shemmory also claims that the Des Lacs Western Oil Company “folded up in 1923,” but Burr A. Dickinson, an attorney and prominent Minot resident, purchased stock in the Des Lacs Western Oil Company as late as August of 1924.²¹ It would appear that while many “wildcatters” and local businessmen attempted to drill for gas and oil

¹⁹ American Oil and Gas Historical Society, <http://www.aoghs.org> (accessed April 7, 2013).

²⁰ Petroleum History Institute, <http://www.petroleumhistory.org> (accessed April 7, 2013).

²¹ Bill Shemmory, *Mud, Sweat, and Oil* (Williston, 1991), 11; Burr A. Dickinson Papers, #10556, State Historical Society of North Dakota.

several times they did not possess the capital resources, or the scientific and technical knowledge necessary to be successful. The first serious attempt to drill by a national oil company with the capital necessary to field a modern rig replete with the most experienced crew was the California Oil Company's Nels Camp #1 well in 1938. Bluemle, a state geologist in 2001, argues that the delay in discovery aided the state overall. Bluemle writes, "In retrospect, it is probably fortunate that the Kamp well (1938) was unsuccessful; North Dakota's oil regulations would be much more confused if oil had been found in the 1930's because the State didn't have an adequate regulatory structure in effect at the time."²²

What would have happened had oil been discovered earlier than 1951? One thousand feet is all that separated Montana-Dakota Utilities' 1937 Smith #1 well from the North Dakota border with Montana. Had that well been drilled in North Dakota, would oil policy be much different? Bluemle offers little in respect to when regulations, so lauded at the time, were put into place and the possible impact of those regulations on productions. Robert E. Sullivan, Dean and Professor of Law at Montana State University wrote in 1960, "Simulated by a broad lease play throughout the state in the late 1930s and early 1940s and the subsequent geological evaluation of holdings by lessees during that period, the legislature in 1941 enacted a comprehensive conservation statute."²³ Bluemle also, in most of his published works, relies almost exclusively on the work of Shemmory, which creates a circle of doubt because Shemmory and Schaff use a Fargo Forum article from 1953 as a source. Bluemle also authored *The First 100 Years: The History of The North Dakota Geological Survey, 1895-1995*. Bluemle often quotes Shemmory in this publication as well, but more interesting is the statement, "Since 1911, North Dakota has had the necessary statutory regulatory control in place for the level of oil and gas exploration and

²² John P. Bluemle, *The 50th Anniversary of the Discovery of Oil in North Dakota* (Bismarck: North Dakota Geologic Survey 2001), i.

²³ Robert E. Sullivan, *Conservation of Oil and Gas in North Dakota: A Legal History, 1948-1958*, 3-4.

development being conducted at any given time.”²⁴ The statement directly contradicts the assumption that North Dakota was “probably fortunate” because regulation would be “much more confused” had oil been discovered earlier. What is missing from the historical record is a clear reflection of the early oil industry in North Dakota, the problems that industry initially faced, and the process by which it overcame those problems.

In the context of Nash’s 1970 historiography, North Dakota’s petroleum history could start with biographies of men instrumental to the early development of the petroleum industry in North Dakota. A few men included here are Burr A. Dickinson, an attorney from Minot, and his associate and Ryder hotel owner Edward E. Fredeen, who were active in several early oil exploration companies; Thomas W. Leach, a former oil company geologist turned entrepreneur and oil man, and his associate Alfred M. Fruh, who prompted and assisted several companies including both the California Oil Company in 1938 and the Amareda Corporation in 1951 to explore for oil in North Dakota. In addition to Dickinson and Leach, there were many other important figures at the state geological survey including A. G. Leonard and Howard E. Simpson, early pioneers at the survey, as well as Wilson Laird, who presided over important legislation in 1941 and the first oil well in 1951. Finally, the impact of the North Dakota State Geological Survey and the survey’s responsibility for state policy regarding the industry will be reviewed.

²⁴ John P. Bluemle, *The First 100 Years: The History of The North Dakota Geological Survey 1895-1995* (Bismarck: North Dakota Geological Survey, 1996), 57.

CHAPTER TWO: LOCAL CAPITAL IN EXPLORATION 1916-1935

Atop Minot's Ward County courthouse, written in the permanence of stone, is a portion of the Daniel Webster quote, "Let us develop the resources of our land, call forth its powers, build up its institutions, and promote all its great interests, and see whether we also, in our day and generation, may not perform something worthy to be remembered." The quote was indicative of the spirit in the newly formed state of North Dakota as everyone was encouraged to do their part to develop the resources. The North Dakota Geological Survey, herein referred to as the "survey," had barely begun to uncover North Dakota's geologic past when many of the first wells, initially drilled for water, produced gas. It was gas, not oil that was first discovered in North Dakota, and as in many other places in the West, it was discovered accidentally while drilling for water.¹ This happened in artesian wells being drilled near Edgeley in 1892 and then near Bottineau in August of 1907.² It was this discovery of gas in 1907 and the discovery of a small amount of oil in a 1916 water well that grabbed the attention of entrepreneurs throughout the region and state geologists at the survey. Several companies along with the survey quickly moved into the area to develop and map the field in the hope of serving surrounding communities with a commercial supply of gas and finding even greater quantities of oil. During this early exploration period (1916-1935) these companies were forced by competitive capital markets to begin raising local capital to drill exploratory wells with marginal equipment and inexperienced labor.

The period is characterized by local business men including judges, attorneys, dentists, merchants, managers, geologists, and newly arriving immigrants along with the land owners who believed oil could be found on their property. They created their own petroleum exploration

¹ The first major oil field in Texas was discovered in Corsicana by a water well contractor hired by the city.

² John G. Barry, "The Bottineau Gas Field," *Fifth Biennial Report: The Bottineau Gas Field* (Bismarck: State Geological Survey of North Dakota, 1908), 247.

companies, struggled to acquire the necessary capital, equipment and labor to be successful, and ultimately failed at finding oil. These men worked independently from any government agency, policy, or observation, although they often sought assurances or validation from the survey. They were successful only in setting the stage for further exploration and development and providing key geological information for future generations of explorers.

In 1919 as North Dakotans prepared to drill their first deep oil well, there were roughly 30,000 new wells drilled globally and in 1920 the number climbed to 34,000, consuming all available capital and equipment resources in the market.³ Williamson writes, “American investors and oil companies were willing to engage in the world-wide hunt for crude reserves and were actively doing so with considerable success, particularly in South America.”⁴ It would appear that while American investors were willing to invest in South America, they were not willing to invest in North Dakota. The reasons for this are many. North Dakota was a remote state having no roads, no ready markets for oil, and no proven fields. While there was wildcatting in South America, this was done with the knowledge of existing anticlines, ready markets, and transportation infrastructure near the Gulf of Mexico. This lack of available capital for North Dakota’s entrepreneurs would only grow worse as a glut of oil flooded the market in early 1930s as a result of incredible discoveries of oil in California, Texas, and South America, and property laws like the “rule of capture” which encouraged over production. Capital formation -- and by extension equipment, labor, and advanced geologic, scientific and technical knowledge remained a major barrier to North Dakota’s exploration efforts until the late 1930s.

During much of the early drilling activity, these men, such as Des Lacs farmer Algot F. Blum, Minot attorney Burr A. Dickinson, and Ryder hotel owner Edward E. Fredeen, relied

³ Harold F. Williamson et al, *The American Petroleum Industry: The Age of Energy, 1899-1959* (Evanston: Northwestern University Press, 1963), 300.

⁴ *Ibid.*, 301.

solely on the limited small investments by themselves and local citizens; investments which would allow for the purchase of leases, marginal equipment, and labor resources in an attempt to discover oil at relatively shallow depths, in remote areas of the state with little or no infrastructure, often under harsh environmental conditions. These companies, through newspaper boosting, advertisements, flyers, brochures, and prospectuses, all asked North Dakotans to do their part in securing North Dakota's place as an oil-producing state. This period began with the presence of a small amount of oil in a water well in 1916 and ended with the failure of the Big Viking Oil Company's well in 1935.

More important than the initial, but short term success of the gas wells, was the interest created by headlines in local and regional newspapers and the published works of the survey, especially John G. Barry's report, *The Bottineau Gas Field*, in 1908.⁵ One of the first on the scene was the Great Northern Oil, Gas and Pipeline Company which in 1908 used, according to Barry, "An oil well borer of the usual American type with a derrick built on the ground."⁶ Additionally in 1920, survey director Arthur Gray Leonard wrote that The North Dakota Gas Company, which had five of eight wells supplying gas to Westhope, attempted a deep well to find gas in the "Dakota" sandstone.⁷ Local businessmen, eager to develop the state's natural resources and unable to attract outside capital, quickly began forming their own ventures including, among many others, the Pioneer Oil and Gas Company and the Des Lacs Western Oil Company.

Domonic Schaff, Bill Shemmory, and John P. Bluemle have consistently listed the Pioneer Oil and Gas Company as the first and the Des Lacs Western Oil Company as the second to

⁵ Barry, "The Bottineau Gas Field," 247.

⁶ Ibid.

⁷ A. G. Leonard "Possibilities of Oil and Gas in North Dakota," *Bulletin No. 1* (Grand Forks: University of North Dakota 1920), 7.

attempt drilling for oil in North Dakota, but evidence suggests the Pioneer well was drilled for natural gas and not for oil, leaving the Des Lacs Western's Blum #1 well to stand alone as the state's first oil venture.⁸ The survey also has the wells listed in this order in Table 1. In published newspaper accounts, as well as in a company prospectus quoted by all three authors, there is no mention of drilling for oil. The geologist himself, John W. Phillips, reported,

In view of the fact that the company is asking for a gas franchise to supply the natural gas to the inhabitants of the city of Williston by drilling on the Hendrickson Range, you will be drilling on the western flexure of the anticlinal structure. Therefore, if you bring in gas at this point you will shorten the distance and lessen the cost of piping gas to the city very materially as compared with drilling near the center of the anticline further south and east.⁹

There was no mention of oil, its storage, refinement or use anywhere in the document. The headline in the *Williston Graphic's* September 7, 1916, edition was "Gas and Oil Drilling Machinery Arrives."¹⁰ The story reports, "The Company now intends to push things with all celerity in its attempt to prove, as predicted, that the Williston district is destined to be among the largest gas producing areas of the United States, to say nothing of the possibilities for this city in the event that oil is struck."¹¹ This again shows that oil was an afterthought and that gas was the primary purpose for drilling the well. As the drilling continued without success and capital resources dwindled, the well owners were faced with certain failure. Unable to salt a gas well, they sprayed the rig with oil and in November of 1919 "announced production."¹² While the

⁸ In a *Fargo Forum* article dated April 12, 1952, Lloyd W. Sveen argued that the first North Dakota well was the Davis #1 in Adams County.

⁹ Bluemle, *50th Anniversary of the Discovery of Oil in North Dakota*, 4.

¹⁰ "Gas and Oil Drilling Machinery Arrives," *Williston Graphic*, September 7, 1916

¹¹ *Ibid.*

¹² Bluemle, *50th Anniversary of the Discovery of Oil in North Dakota*, 3.

tactic attracted limited additional capital, it forever changed the perception of the well as being an oil rather than gas proposition.

Additionally the Pioneer Oil and Gas Company acquired a very limited leasehold prior to drilling its well on the east half of the southwest quarter of section 29, a mere 80 acres.¹³ This type of drilling was unheard of at the time, as oil companies preferred to lease large tracts before drilling began in order to secure a majority of the field for further development and to reduce over-production caused by competition. Had they struck gas, competition would have quickly moved in to capture open acreage. Also important is the Pioneer Oil and Gas Company's request to the survey for advice. Having gone to Williston and reviewed the proposed drilling sight, Leonard, in a letter to Pioneer, advised against drilling a well.¹⁴ The Pioneer Oil and Gas Company's geologist, New York-trained John W. Phillips, disagreed and acquired the leases and then assigned them to Pioneer. Finally, in all gas wells drilled during this period, the producer was required to obtain a gas franchise from the cities they expected to supply with gas, guaranteeing a monopoly which would require a limited leasehold. Pioneer Oil and Gas acquired this gas franchise.

In regard to the Des Lacs Western Bluemle writes, "It is difficult to be certain just what was going on much of the time as the various press releases and reports were a blend of hearsay, promotional statements, and facts."¹⁵ What is clear from the historical record is that Bluemle either had incomplete or misleading information because after all sources -- including newspaper accounts, courthouse records, survey records, and personal notes from the geologists have been

¹³ Williams County Register of Deeds, Book J, Page 337.

¹⁴ A.G. Leonard to Phillips 1916, North Dakota Geologic Survey Files, Elwyn B. Robinson Department of Special Collections, University of North Dakota, Grand Forks.

¹⁵ Bluemle, *50th Anniversary of the Discovery of Oil in North Dakota*, 5.

reviewed, a clear picture emerges. North Dakota's first oil well was drilled by the Des Lacs Western Oil Company with capital raised from local citizens.

Blum discovered the presence of oil on October 22, 1916, while drilling for water on property he was purchasing on contract from a Vermont homesteader.¹⁶ Blum quickly formed the Des Lacs Western Oil Company, herein referred to as Des Lacs Western, which included the local lumber yard manager, Henry S. Johnson, and attorney E. R. Sinkler among others, and sent samples of the oil off to the survey.¹⁷ Blum had hired M. H. Anderson, an experienced driller from Alberta, Canada, to drill for water. It was during this drilling that Anderson and Blum discovered what they believed to be, and what state geologists later confirmed to be, oil.

After consulting with Assistant State Geologist Howard H. Simpson, and former head of the survey Earle Babcock, Blum and his associates drilled six additional shallow wells, and samples of oil and dirt from each well were shared with the survey.¹⁸ Of these seven shallow wells oil was present in all but the seventh. Simpson initially recommended, in a letter dated March 16, 1917, that, "The evidence does not, in my judgment, indicate the presence of oil in commercial quantities and further prospecting by means of deep drilling is not therefore at present warranted."¹⁹ However, records show that former U.S. Geological Survey geologist William R. Jewell disagreed, and in his own report favored an attempt. William R. Jewell issued the "Report on the Oil Properties of the Des Lacs Western Oil Company," June 19, 1917, in which Jewell wrote, "The presence of anticlines in the region is a favorable indication and makes it possible that oil (or gas, or both) might be struck, but the finding of a little oil in shallow wells

¹⁶ Ward County Register of Deeds, Book 102, Page 477; *DeLacs Observer*, January 17, 1917.

¹⁷ "Des Lacs Oil Search Goes On For 9 Years," *The McLean County Journal* April 26, 1928.

¹⁸ M.H. Anderson drilling report 1917, North Dakota Geological Survey Files, Elwyn B. Robinson Department of Special Collections, University of North Dakota, Grand Forks

¹⁹ *Ibid.*

gives no assurance that it would be found in commercial quantity at greater depth.”²⁰ The report concludes, “with a view to test out this field thoroughly and determine whether oil is present in commercial quantity at a depth of 2000 to 3000 feet the Des Lacs Western Oil Company would probably be warranted in further drilling.”²¹ Leonard also seems to have changed his mind. In Leonard’s Biennial Report he wrote that a deep test would be warranted.²² With the geologists in agreement on a deep well the Des Lacs Western spudded in the Blum #1 on July 18, 1918.²³

The local newspaper, *The Des Lacs Observer*, reported,

In view of the fact that oil is becoming one of the essential factors in the progress of the commercial world and in the winning of the great struggle now being waged for the freedom of the people of all nations [the Honorable R. A. Nestoss of Minot] declared that it was just as much our duty to develop the natural resources of our community as it is to help in the other various war activities.²⁴

The paper advised all “against investing beyond their means but urged that each one ‘do his bit’ to determine once and for all whether or not oil exists here in paying quantities.”²⁵ Drilling continued on the Blum #1, and during the drilling the survey received regular updates and soil samples. Correspondence between the survey and the Des Lacs Western continued throughout the drilling process, and the survey became the primary beneficiary of the project, as it often received accurate information to replace what was at the time guesswork to describe the depths

²⁰ William R. Jewell, “Report on the Oil Properties of the Des Lacs Western Oil Company,” North Dakota Geologic Survey Files, Elwyn B. Robinson Department of Special Collections.

²¹ *Ibid.*

²² *Ibid.*

²³ “Des Lacs Oil Co. Starts Operations on Deep Well,” *Des Lacs Observer*, August 1, 1918.

²⁴ *Ibid.*

²⁵ *Ibid.*

of the various strata below. As the drilling progressed, Blum lost his wife and was forced to take out a \$2,500 mortgage on his farm, but it did not dissuade him.²⁶

Running short of money for casing and still far from the Dakota sands and possible production, the Des Lacs Western General Manager Henry S. Johnson wrote the survey and asked, “Should we continue to drill?”²⁷ The answer, on October 23, 1920, came from Simpson, “I believe it would be a mistake to abandon the well before the drill enters [the Dakota sandstone], since otherwise you will not have made a satisfactory test.”²⁸ The letter by Simpson to the Des Lacs Western along with others from A. G. Leonard, W. H. Wineman, and H. B. Snyder were all used in a bulletin published by Des Lacs Western in the fall of 1923 to generate more capital.²⁹ The *McClean County Journal* reported that the Des Lacs Western had spent roughly \$150,000 by 1928, so the Des Lacs Western proved it was capable of raising capital, but eventually they ran out of the public’s money and patience.³⁰ Minot attorney and oil exploration booster Burr A. Dickinson bought four shares of Des Lacs Western stock on August 21, 1924. Dickinson, whose life spanned the entire exploration period, was instrumental in many early development companies and several early wells.

In the end, the Des Lacs Western’s Blum #1 failed, and drilling stopped a short time later at a total depth of 3,980 feet (Table 1).³¹ Drilling on Blum #1 stopped, but the dream did not. The Des Lacs Western continued to raise additional capital in the hopes of continuing exploration, and a second well, the Blum #2, was started, but it, too, was abandoned at a depth of 400 feet.

²⁶ Ward County Register of Deeds, Book 132, Page 264.

²⁷ Leonard to Johnson, October 23, 1920, North Dakota Geologic Survey Files, Elwyn B. Robinson Department of Special Collections.

²⁸ Ibid. This letter is present in both the North Dakota Geologic Survey Files and in the Des Lacs Western Bulletin issued in 1923 and serves to confirm the Survey’s belief that if oil existed in other states below the Dakota sandstone formation then it may exist in North Dakota as well.

²⁹ Des Lacs Western Bulletin, 1923, North Dakota Geologic Survey Files, Elwyn B. Robinson Department of Special Collections.

³⁰ “Des Lacs Oil Search Goes On For 9 Years,” *McLean County Journal* April 26, 1928

³¹ This depth is from the NDGS, but the *McLean County Journal* reported 3,962’.

The last attempt was the Blum #3, which in April of 1928 had reached a depth of 1,380 feet.³² It is unclear at this time when the company abandoned and plugged the Blum #3, but correspondence to the survey stopped as did newspaper reports of the well's progress. Blum would eventually lose his farm to foreclosure, and Des Lacs Western's stock, of which Blum held 194,600 shares, would become worthless. The records of the survey are not conclusive, and much of the Des Lacs Western's later drilling efforts went unnoticed, which explains Bluemle's comment. During this period the survey did not require permits to drill, so many of the early wells were not recorded.

While the Des Lacs Western was wrapping things up on Blum #1, so, too, was the second failed attempt at finding oil in North Dakota. The Davis Well, operated by the Prairie States Oil and Gas Company, was located in Adams County four and one half miles northeast of Lemmon, South Dakota and was created, according the *Adams County Record*, by Lemmon people (Table 1).³³ The well was plugged and abandoned April 27, 1923, but not before the owners were accused of salting the well by the *Lemmon Tribune* editor O. K. Fjetland.³⁴ Unhappy with the bad press, landowner W. H. Davis, and oil promoter D.C. Stone attacked Fjetland. He was, according to Fjetland, "Waylaid at night and kicked in the face and otherwise injured, by four men."³⁵ In the May 3 edition of the *Adams County Record* it was reported that the well had resumed drilling and that officials of the Prairie States Oil Company were pleased.³⁶ Apparently the beating Fjetland took at the hands of his detractors worked, as his reporting on the affair changed dramatically. Sensational news reports appeared throughout the region as evidenced by the *Mandan Daily Pioneer* which falsely reported, "N. DAK OIL WELL PROVES GUSHER –

³² "Des Lacs Oil Search Goes On For 9 Years," *McLean County Journal* April 26, 1928

³³ "Report Oil Bearing Sands Were Struck In Davis Well," *Adams County Record*, December 21, 1922.

³⁴ "Large Crowd Witnesses Test of Davis Oil Well," *Adams County Record* April 26, 1923.

³⁵ *Ibid.*

³⁶ *Ibid.*

ADAMS COUNTY.”³⁷ It is unclear why they chose that headline when the story itself was a reprint of the article that appeared in the *Adams County Record* which said, “The drill will be plunged into the heart of the oil sands and a gusher is confidently expected to come in at that time.”³⁸ Despite the region being “wild with excitement,” no oil was ever produced from the well.

After the Davis well the survey reports well number three to be the Great Northern Oil and Gas Pipeline Co.’s Bottineau County well, but the survey has no data on when the well was drilled or when it was plugged and abandoned (Table 1). Most certainly it was a gas well as this company drilled many gas wells and no oil wells in the Bottineau region during this time period. Another well the survey had little or no information on was the Northwest Oil Company of Noonan, which the survey reports as the sixth well drilled in the state and abandoned around 1927 (Table 1). The absence of information became a problem for the survey as companies all over the state were drilling water wells, gas wells, and oil wells. Sometimes these wells were quite modest endeavors with little need for oversight, while still other times the survey, mandated to do so by law, along with the State’s Blue Sky Commission, would have done well to protect the citizens of North Dakota from unscrupulous drilling. No better example can be found of this than well number four.

According to the survey, well number four was the A.C. Townley Interests’ Robinson Patented Land well located in Kidder County (Table 1). Schaff and Shemmory rely heavily on a 1951 *Fargo Forum* article when they write of the once popular founder of the Nonpartisan League, A.C. Townley. The Townley well’s location had been picked, unlike the previous wells,

³⁷ “N. Dak Oil Well Proves Gusher – Adams County,” *Mandan Daily Pioneer*, December 27, 1922.

³⁸ *Ibid.*

by a doodlebug oil man.³⁹ A doodlebug according to Frehner was, “one of several types of oil finders who fell under the banner of “vernacular prospectors” and relied upon a variety of techniques, some of which involved surveying the landscape and some that did not.”⁴⁰ In front of crowds of several hundred at a time, Townley would give great orations as to the likeliness and benefits of a successful well. The Townley well was plugged and abandoned in 1926 with little information available to the investors and the survey in regard to depth, strata locations, and other information (Table 1).

The survey reports that the Glenfield Oil Company drilled the fifth well in the state, and having little or no information on the Davis, Great Northern, and Townley wells, prompted the survey to request the drilling logs (Table 1). It marked the beginning of a more direct involvement by the survey in drilling activity and would lead eventually to a 1929 state law requiring a permit to drill as well as the logs being regularly sent to the survey. The residents of North Dakota were once again asked to buy stock, this time in the Central Dakota Development Company, which formed the Glenfield Oil Company. Like the Des Lacs Western, the Glenfield Oil Company enlisted the help of the survey. In a letter dated March 5, 1928, Leonard wrote,

This well has furnished to the state valuable information regarding the formations which occur below the Dakota Sandstone. These formations had never before been penetrated by a well in North Dakota. I feel that this well cannot be regarded as a satisfactory test for oil if drilling should stop at the present depth of 3000. I believe that the well should

³⁹ Schaff, “The History of The North Dakota Oil Industry, 14.

⁴⁰ Brian Frehner, *Finding Oil: The Nature of Petroleum Geology, 1859-1920* (Lincoln: University of Nebraska Press, 2001), 21.

extend 200 or 300 feet below its present depth or until granite is reached in order to make a thorough test for oil.⁴¹

The operators agreed with Leonard and continued to drill until they hit granite at 3,240 feet. When the well failed, the *Steele Ozone* reported, “All Stockholders, it is said, are satisfied that they got honest value for their money invested.”⁴² The Glenfield well did not appear to be very popular in the local news. Few articles were printed before the well was drilled, while boosting the well, or while the well was being drilled. Just a handful of articles appear regarding its failure and the disposition of assets. This would not be the case with the state’s next well, the Herman Hanson Oil Syndicate’s well #1, which would set the standard for boosting.

Herman Hanson, a pioneer farmer who had come to North Dakota in 1880, gained an interest in the oil business when he received word, in 1925, from German scientists who had been retained to analyze coal mined from his land that he should forget about the coal and drill an oil well.⁴³ After establishing himself as a successful farmer and coal mine operator, he formed the Herman Hanson Oil Syndicate, hereinafter referred to as the syndicate. The syndicate’s first move was in June of 1925 when they contracted George W. Perry to use his Mineral Indicator to locate the oil. Once a favorable report was obtained from this glorified doodlebugger with his “instrument of unlimited scope and utility,” the syndicate hired A. L. Gesche, from Spokane, Washington. Gesche’s many responsibilities included raising capital and promoting the well. Gesche often wrote articles for the *McClean County Journal*. These articles, which began in March of 1928, were boosterism at its finest. Gesche wrote, “The chief aim is to give the North Dakotans, especially the McLean County people, a chance to become interested with the

⁴¹ North Dakota Oil and Gas Division, Well File No. 5, <https://www.dmr.nd.gov/oilgas> (accessed December 16, 2012).

⁴² “Pipe Is Pulled At Glenfield Well,” *Steele Ozone* August 16, 1928.

⁴³ North Dakota Geologic Survey Files, Elwyn B. Robinson Department of Special Collections.

syndicate in this enterprise.”⁴⁴ But why did Gesche get involved? In an article by Gesche about Gesche he wrote, “After Gesche investigated these oil possibilities and was entirely convinced that great fortunes are in store for those who will undertake, or risk in, the development of this great potential oilfield.”⁴⁵ Week after week, month after month Gesche, with the help of a friendly editor, laid out the history of the syndicate, the geology of the prospective field, the pros and cons of leasing, and most importantly articles pushing investment and boosterism.

Along with stories of the syndicate’s formation, the paper also re-published articles appearing in related local papers and journals. An example of this was published in a Special Oil Edition in which an article previously published in the *North Dakota Oil Journal* referenced cuttings (bits of soil brought up during drilling) from the Glenfield oil well. The article stated, “On the basis of what these cuttings indicate to government geologists they make the statement that North Dakota is underlaid with oil and that the first enclosed structure that is drilled in the state will bring in production.”⁴⁶ The article continued, “Are you doing your part? You can help very much in this work by investing yourself and by boosting all you can.”⁴⁷ Even Hanson himself contributed an article titled “Herman Hanson Tells Why,” in which Hanson lays out the reasons for needing North Dakota capital: “We must confess that this did look unbelievable to us at first . . . it surely does seem as if the big interests are trying to hold us back.”⁴⁸ In the next column, however, Hanson writes, “The home people should by all means buy these shares which will keep out the outside speculators and will also keep the dividends in North Dakota when oil

⁴⁴ “History of the Local Oil Situation,” *McClellan County Journal*, April 26, 1928.

⁴⁵ “More Interesting Local Oil News,” *McClellan County Journal*, March 15, 1928.

⁴⁶ “History of the Local Oil Situation,” *McClellan County Journal*, April 26, 1928.

⁴⁷ “Outlook Is Good For Oil Drilling,” *McClellan County Journal*, May 3, 1928.

⁴⁸ “Herman Hanson Tells Why,” *McClellan County Journal*, May 17, 1928.

is struck.”⁴⁹ As the writer concludes his article, several statements again urge action, “This is a community affair and for that reason everyone should help.”⁵⁰

A continuous barrage of articles pressed the public into action. Another article started, “Many good boosters are already at work selling the shares. Now then – Will you do your part to help put this over or would you rather have this great wealth fall into the hands of the New York speculators and the big Trusts—what is your answer?”⁵¹ It is clear the paper’s boosting was not convincing enough people to invest. Many did, but drilling eventually ended, not because they failed to find oil, but because they ran out of money.

During the time the syndicate was boosting for capital to drill in McClean County, the E. E. Fredeen Oil Development Company was boosting in neighboring Kidder County, and the Big Viking Oil Company was selling stock to raise capital for their drilling venture in Williams County. There also was the Mott Oil and Gas Company, which had received a permit from the survey and was actively seeking capital. Between the March 8, 1928, edition of the *McLean County Journal* and the July 25, 1929, edition, a syndicate article appeared at least once a month and quite often weekly, but the news changed when the November 8, 1928, edition was published celebrating the November 4 spudding in of the well. Spudding in refers to the moment the bit begins to drill. From the spud date nearly weekly updates explained progress in feet, delays, and resumptions until they came to an end July 25, 1929, at a reported 1,420 feet.

The survey lists the date the well was plugged and abandoned as August 18, 1929, at a depth of 1840 feet, which is apparently why weekly newspaper updates stopped (Table 1). Articles would not appear again until December 5, 1929, when the syndicate stockholders held their first annual meeting. It was during this meeting that Desche resigned from his position and forfeited

⁴⁹ “Herman Hanson Tells Why,” *McClean, County Journal*, May 17, 1928.

⁵⁰ *Ibid.*

⁵¹ *Ibid.*

his “great fortunes.” It is unclear if drilling was stopped because of a lack of capital to pay labor, buy materials, or a combination of both. With the stock market crash of late October 1929, the remaining articles appeared desperate at times, and with the well at a depth of 1,600 feet the purchase of stock, as well as the *McClean County Journal* reports, stopped, and the last article appeared in the August 14, 1930, edition. It would appear that the residents of McLean County did not want to read any more articles of oil wells, overnight wealth, and doing their part, when they were now faced with the stark reality of the Great Depression.

While many companies struggled to raise sufficient capital to finish their wells, there were still many others formed, but unable to raise the necessary capital to drill. As early as 1918 Minot attorney Dickinson, along with fellow Minot resident, insurance agent, and longtime oil booster Alfred M. Fruh, created the Minot Oil and Gas Company, which failed from want of capital.⁵² Dickinson along with Ryder hotel owner Edward E. Fredeen then created the Globe Exploration and Financing Corporation in 1918 and the Great Western Oil and Refining Company in 1919.⁵³ The Great Western managed to obtain a lease from the railroad near Ryder, but neither company could raise enough capital to drill, and they both failed. The failure did not slow Dickinson or Fredeen, and in 1920 they created the Tri-State Oil and Gas Company with several investors from Dickinson’s home state of Minnesota, which also failed.⁵⁴ It seemed nothing could deter these two, as company after company was started and failed. Finally, Dickinson and Fredeen along with C. E. Danielson formed the Missouri Slope Development Company that would become in 1926 the E. E. Fredeen Oil Development Association.⁵⁵

⁵² Burr A. Dickinson Papers, #10556, State Historical Society of North Dakota.

⁵³ Ibid.

⁵⁴ Ibid.

⁵⁵ Dickinson to Fredeen, Danielson, Garness, and Dove 1928, Burr A. Dickinson Papers, #10556, State Historical Society of North Dakota.

The survey lists the Prairie Oil and Gas Company's Armstrong #1 well as eighth well to be drilled in the state despite the fact that it was started four months before the syndicate's well and was actively drilling at the same time as the Townley well. Dickinson and Fredeen, owner of Hotel Fredeen in Ryder, and President of the E. E. Fredeen Oil Development Company, were the driving forces behind the Armstrong #1 well in Kidder County. In preparation of the upcoming drilling, the local paper, the *Steele Ozone*, published a story about the Prairie Oil and Gas Company and concluded, "This Company asks for no local finances for its work, and is not selling any stock."⁵⁶ It is true that no local money was asked for by Prairie Oil and Gas, but Dickinson, Fredeen, and others sold stock for several years: first in the Missouri Slope Development Company, organized in the early 1920s, then in the E. E. Fredeen Oil Development Company in order to acquire the capital necessary, lease and provide the financing for Prairie Oil and Gas, making the statement true, but most surely misleading. The group also, in August of 1927, received a response from survey director Leonard that they used in their marketing materials. The letter read in part:

This structure, which may be called the Fredeen anticline, is one of the few such structures which are known in the state.⁵⁷ I regard this locality as one of the most favorable in North Dakota, if not the most favorable, in which to drill for oil. I understand that it is so regarded by several other geologists who have examined the anticline.⁵⁸

In August of 1928, the Prairie Oil and Gas Co. spudded in the Armstrong #1 well, drilled it to a depth of 3,388 feet, and abandoned it just before Christmas of 1929 (Table 1). The business

⁵⁶ "Important Facts About The Prairie Oil & Gas Co.," *Steele Ozone*, August 2, 1928.

⁵⁷ This structure is currently called the Tuttle Anticline.

⁵⁸ Leonard to Danielson, August 3, 1927, Burr A. Dickinson Papers, #10556, State Historical Society of North Dakota.

relationship between the two men started with the incorporation of the Globe Exploration and Financing Corporation in 1918 and progressed through many different company names, business associates, drilling plans, and successes and failures. The two men were partners when they identified the Tuttle anticline and began leasing in Kidder County. Their business relationship ended when Fredeen's hotel burned to the ground in 1947. In 1927, Dickinson received promotional literature from his old associate and secretary-treasurer of the Zenith Oil Company, A. M. Fruh. During the late 1920s Fruh was largely responsible for bringing company geologists to the Mohall district in an effort to boost the area as a place for natural gas development. Fruh escorted the geologists with Dixie Oil, a subsidiary of Standard Oil, on a tour of the area. Fruh then met Thomas W. Leach, a geologist with Transcontinental, and gave him the Mohall tour. Dixie passed on the Mohall district as did Transcontinental and others, but while A. R. Jones was preparing to drill its gas well, Leach began looking at the Nessin Anticline.

A. R. Jones Oil and Operating Company's Gehringer #1, listed by the survey as North Dakota's ninth well, was spudded in November of 1929 (Table 1). It is important to note that A. R. Jones was not looking for oil, but gas, as is evident by their request for a franchise from the city of Minot. The operation may mark the first time a well was drilled in the state purely with outside capital resources, materials, and labor, but the survey mistakenly lists it as an oil well.

Many wells drilled in North Dakota were drilled without permits or the survey's knowledge. Such was the case in LaMoure County when health culturist turned swindler Alois P. Swaboda drilled a well ten miles west of Edgely in November of 1929.⁵⁹ Swaboda, with the help of "oil seer" John Dahlgren, duped trusting Brooklyn investors, to say nothing of the LaMoure County investors, out of thousands of dollars. Time magazine reported in July of 1930 that Swaboda had been "Enjoined in Brooklyn from selling oil stock to members of his cult by a letter describing

⁵⁹ "LaMoure County's First Oil Rig," *Tuttle Times*, November 7, 1929.

one ‘Dahlgran,’ alleged oil well locator. Eighteen months ago, Dr. Swoboda took in \$70,000 for the stock; no oil has yet appeared.”⁶⁰ Additionally not every stock salesman was approved by the State’s Blue Sky Commission to sell stock. The *Williams County Farmers Press* reported in 1926 that R. T. Ronnald was arrested for selling stock in the Red Top Oil and Gas Company in violation of the blue sky law.⁶¹

In the spring of 1928 the Velva Petroleum Company would spud its well five miles west of Minot. The well, doomed from the start by quicksand, would go down a mere 520 feet (Table 1).⁶² Having little capital and poor equipment, the well was abandoned and the investors, mostly area business men, were once again left without a return on their investment. The survey reports that the well was abandoned March 25, 1931, but L. L. Colby, president of the Velva Petroleum Company sent a letter to the survey on April 6, 1931, and at that time reported the well at 520 feet (Table 1).⁶³ The letter was in response to the 1929 passage of the law requiring a drilling permit that the Velva Petroleum Company did not have at the time and the survey, due to lack of funding, was unable to enforce.

Like the A. R. Jones well, the D. J. Carter well also was drilled for gas, but the survey has some errors in its records, as the first attempt at gas in Logan County, the Morehead Oil and Gas Company, spudded in its gas well June 18, 1929, and abandoned it around July of 1930.⁶⁴ The D. J. Carter company spudded its gas well on June 12, 1933, and abandoned it that same year. This well was financed by the Shell Butte Development Company, a local group. “Gas is being sought in the new drilling project which is sponsored by D. J. Carter of Pennsylvania,” reported

⁶⁰ *Time* 16 July 7, 1930, 58.

⁶¹ “Oil Stock Salesman Released On Bonds,” *Williams County Farmer Press*, April 22, 1926.

⁶² North Dakota Geologic Survey Files, Elwyn B. Robinson Department of Special Collections

⁶³ Colby to Leonard, April 6, 1931, North Dakota Geologic Survey Files, Elwyn B. Robinson Department of Special Collections.

⁶⁴ “Drilling Starts At First Oil Test Well In County,” *Napolean Homestead*, June 21, 1929.

the *Napolean Homestead*.⁶⁵ Despite the failure of the previous eleven wells spanning over a decade, the citizens of North Dakota did not yet tire of doing their part to see North Dakota produce.

In the fall of 1927, prior to the spudding of the syndicate's well and the Prairie Oil and Gas Company's well, the Big Viking Oil Company spudded in its Big Viking No. 1. The Big Viking would be known for several firsts and several lasts. It was the first well drilled on the Nesson anticline, the first well drilled past the 4,000 foot mark, and the first well to set the longest string of 8 ½ inch casing in the state. It was the last well drilled with local capital, the last well drilled with a cable tool rig, and the last well drilled with a wooden derrick. When the Big Viking failed, it, too, failed for want of capital, which ended eighteen years of oil exploration by North Dakotans for North Dakotans. Over the course of this period drilling was done exclusively with a cable tool rig due to the unavailability and or expense of the more modern rotary rig, which was first used at Spindletop in 1901. In 1937, *Bismarck Tribune* writer Gordon MacGregor wrote that the Big Viking's derrick stood, "ghost-like against the panorama of buttes, a monument to the pioneer effort to find oil in the Nesson valley."⁶⁶

The Big Viking well, according to *Fargo Forum* writer Lloyd Sveen, "can be given credit for sparking the eventual discovery of oil in North Dakota." But it was not the Big Viking, it was the Des Lacs Western's Blum #1, well that deserves credit for igniting the oil industry in North Dakota.⁶⁷ Sveen and MacGregor believed it was the reports of A. J. Collier in 1918 and A. G. Leonard in 1920 that brought A. R. Davis, Dixie Oil, and Transcontinental's geologist Thomas Leach to North Dakota, but it was, according to the *Renville County Farmer*, the result of

⁶⁵ "Logan Gas Test Well Spudded In," *Napolean Homestead*, June 16, 1933.

⁶⁶ Gordon MacGregor, *Oil Hunting in North Dakota: The Story of Exploration Operations in the Nesson Valley* (Bismarck: The Bismarck Tribune, 1938), 5

⁶⁷ Loyd W. Sveen, "Big Viking Well Sparked Activity," *Fargo Forum*, April 12, 1953.

“Constructive work done many years ago by Simpson . . . who pronounced the (Mohall) structure the best in North Dakota.”⁶⁸ It was during this time in 1928 that Dixie Oil geologist A. F. Crider, along with Fruh, visited Mohall. Crider asked for the logs from the Des Lacs well which Simpson had prepared from his notes. The article concludes, “Fruh said that the logs of Professor Simpson, the most thorough in existence . . . mean that a well will be drilled . . . without any effort to interest local capital.”⁶⁹ It was the Mohall district and those reports by Simpson that brought Leach to North Dakota where he visited for himself the Nessen Anticline.

From 1916, when Blum found the presence of oil in his water well, until 1935, when the Big Viking well was abandoned, every well drilled in North Dakota would be drilled in this manner. No other state’s early exploration period weighed so heavily on its local citizens for capital resources. Often a local farmer or entrepreneur would form a local corporation, boost his enterprise in a local paper, and use local labor and what marginal equipment was available to drill a dry hole. Citizens were urged to do their part to place North Dakota in the “producing” column, but as the Great Depression gripped the nation, North Dakotans became unwilling and unable to risk any more of their hard earned savings.

During the years 1916-1935, competitive capital markets forced North Dakota’s oil explorers to acquire local capital, marginal equipment, and unskilled labor with limited geological knowledge. As the 1920s drew to a close and the nation was gripped with economic calamity, local capital markets, like the North Dakota oil wells and wheat fields, were dry. When the Big Viking Oil Company, the last of its kind, failed due to a lack of capital, the oil explorers were left to search for capital outside the state. With the help of Leach, outside capital moved into the state with information gleaned from the initial exploration period. National companies

⁶⁸ “Standard Oil Gets Report On Simpson Logs In Oil Field,” *Renville County Farmer*, October 18, 1928.

⁶⁹ *Ibid.*

encouraged by Leach had greater amounts of capital, modern equipment, experienced labor, and accumulated geologic information and scientific technology, which they would use to more effectively explore for oil throughout the state.

CHAPTER THREE: OUTSIDE CAPITAL EXPLORATION 1937-1951

In 1937, within view of the Big Viking's abandoned wooden derrick, a mute reminder of an earlier age, workers erected a steel rig for the California Oil Company. The California Oil Company's interest in North Dakota would usher in a new era of oil exploration. Instead of local citizens "doing their part" to raise capital for local companies to explore for oil, national companies brought their own capital to explore for oil. Instead of using horse and wagon to haul supplies over a prairie with no roads, large, modern diesel trucks carried modern equipment including seismograph crews over newly built gravel roads, and diesel engines replaced boilers as the power source for the rig. Instead of drill cuttings being inconsistently collected if collected at all, drillers were now responsible for providing drill cuttings, core samples, and well logs for analysis to the survey. These changes, in addition to a more skilled labor force and continuous technological innovation that included the use of explosives, acid, and newly invented scientific instruments, meant an acceleration of the drilling process, as wells were not only being drilled faster, but deeper and at a much higher cost. The result was an increased reliability in the geologic information as each successive failure seemed to prompt companies not to focus on their failure to find oil, but on their success at having identified where it was not.

Despite repeated failures, companies continued to come to North Dakota and spend large amounts of money on leases and drilling. There were no indications from any of the wells they drilled that they were even close to production, but that did not deter them. This second period in North Dakota's oil exploration from 1937-1951 was characterized by national petroleum companies from outside the state with the necessary amount of capital resources, experienced labor, accumulated geologic information, and modern equipment and scientific technology.

These national companies initially lacked the necessary combination of these elements to prove successful, but would ultimately be successful in the discovery of oil.

The California Oil Company, possessed some of the requirements necessary for finding oil in the state, and began its operations in North Dakota in 1937. The California Oil Company had been encouraged by Thomas W. Leach, who not only provided nearly 170,000 acres of leases, but who, along with his partner Alfred M. Fruh, negotiated the acquisition of the Big Viking's interest without, which the project may not have been completed.¹ Those associated with the Big Viking were asking for more than Leach was willing to give, and in a letter to Fruh Leach wrote, "The California (Oil) Company and others of my associates interested in the deal have decided to stop further plans for the project until we can work out some satisfactory arrangement with the Big Viking."² Leach, who had been the chief geologist with the Transcontinental Oil Company (eventually bought by the Standard Oil Company of California), came to North Dakota in 1928.³

There are conflicting stories as to what brought Leach to North Dakota. Gordon MacGregor, writer for the *Bismarck Tribune*, claimed, "The exploration was inspired by the wildcatting of the Big Viking Oil Company which sank a well in the Nesson valley. Transcontinental felt that if the Big Viking Company was successful, it would want to be in on the ground floor in the development of the field."⁴ *Rinehart's Oil Report*, however, claimed that Leach came to North Dakota in 1928 to "study the Souris (Mouse) River Loop."⁵ Regardless of why Leach came to North Dakota what is certain is that while here Leach became acquainted with Fruh and Leach became convinced the Nesson Anticline was the place to drill. Leach

¹ Leach to Fruh, January 12, 1937, Thomas W. and Frances V. Leach Papers, #10534, State Historical Society of North Dakota.

² Ibid.

³ MacGregor, *Oil Hunting in North Dakota*, 5.

⁴ Ibid.

⁵ *Rinehart's Oil Report* (December 1940), quoted by Loyd W. Sveen, "Big Viking Well Sparked Activity," *Fargo Forum*, April 12, 1953.

believed, according to Rinehart's Oil Report, the (Nesson Anticline) was a great deal larger than outlined by A. J. Collier, who first studied the anticline while with the U. S. Geological Survey (Figure 1).⁶

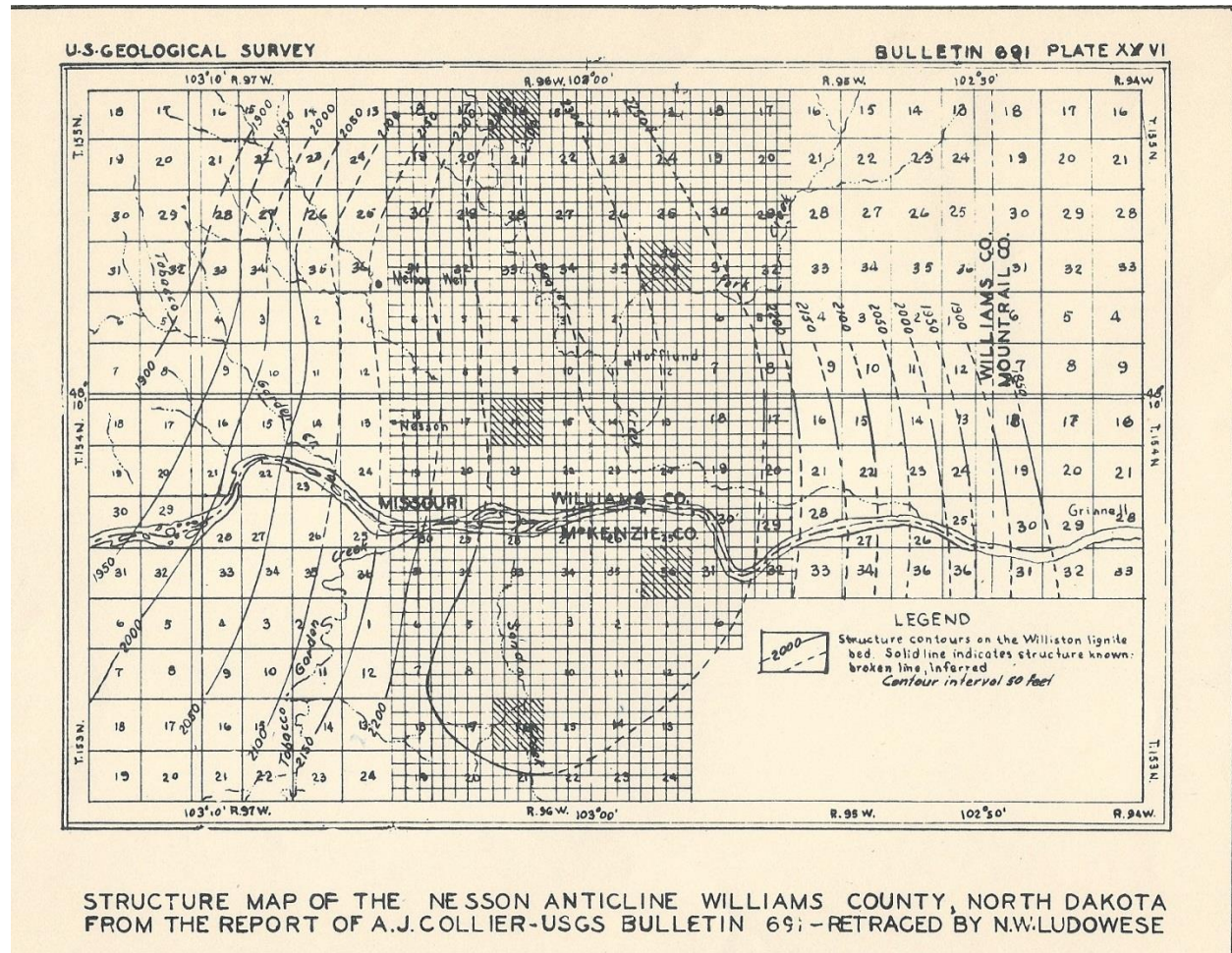


Fig. 1. Nesson Anticline.

So convinced the Nesson Anticline held oil, Leach left his job with Transcontinental and set up shop in Bismarck where he began a business partnership with Fruh that would last until 1950. The two men began buying and selling mineral interests, leases, and royalties as early as February of 1937.⁷ At the time royalties were being bought for nine and a half cents per point,

⁶ Rinehart's Oil Report (December 1940); quoted by Loyd W. Sveen, "Big Viking Well Sparked Activity," *The Fargo Forum*, April 12, 1953.

⁷ Thomas W. and Frances V. Leach Papers, #10534, State Historical Society of North Dakota, Bismarck

and leases were being purchased for anywhere between .25 cents and \$1.00 per acre.⁸ Leach often traveled to Colorado and Oklahoma to meet with the California Oil Company to discuss plans to drill in the state, while Fruh, believing the discovery of oil was imminent, acted as the state's first petroleum lobbyist, pushing House Bill No. 15 through the legislature in Bismarck.⁹ House Bill No. 15, "Legalizing Gas and Oil as Fuel for Public Buildings," would have required locally produced petroleum to be purchased and used by state agencies, but having passed the house and senate was vetoed by the governor on March 20, 1937.¹⁰

In addition to acquiring leases for the California Oil Company, Leach, along with Fruh, actively worked to acquire leases throughout the state and offered those leases for sale to several major oil companies anxious to discover new production.¹¹ The impact of outside capital coming into the state was positive and felt immediately. A local newspaper reported, "North Dakota's dust bowl farmers, losers in their gamble with nature in the business of raising crops, are holding their chins up, expecting a 'new break' as the Standard Oil Company of California pushes on with plans for development of the Nesson valley, southeast of here, as an oil field."¹² The economic impact of the California Oil Company's exploration was crucial for the survival of suffering farmers. The report continued, "Meanwhile land leasing is under way in the area with landowners holding a portion of their rights to oil production and disposing of the remainder to others. This, with the funds put into the preliminary work and maintenance of the survey crew, is bringing a small income to farmers who otherwise would have been left without funds because

⁸ Thomas W. and Frances V. Leach Papers, #10534, State Historical Society of North Dakota.

The total royalty to the land owner was .125 % so a point would be .1 of .125

⁹ Leach to Fruh, February 1, 1937, Thomas W. and Frances V. Leach Papers, #10534, State Historical Society of North Dakota.

¹⁰ North Dakota Legislative Assembly, Laws Passed at the Twenty-Fifth Session of the Legislative Assembly of the State of North Dakota (Bismarck, 1937), 574.

¹¹ Thomas W. and Frances V. Leach Papers, #10534, State Historical Society of North Dakota, Bismarck

¹² North Dakota Oil and Gas Division, Well File No. 13, <https://www.dmr.nd.gov> (accessed December 16, 2012).

of crop failure.”¹³ Farmers skeptical of the well’s success jumped at the chance to sell portions of their royalty or mineral interests for an opportunity to make some additional income and in many cases to save their farms. Newspaper reports, especially those of *Bismarck Tribune* writer, Gordon MacGregor, confirmed that people were excited about the California Oil Company coming into the state to explore for oil, and that unlike past wells promoted in the state, this venture was not asking for local investors. MacGregor wrote, “Noteworthy is the fact that this is one promotional venture in North Dakota that is being 99 per cent financed by outside capital. And it is for that reason that many farmers and businessmen in this area believe that the prospects of striking oil are good.”¹⁴

Different, too, was the labor California Oil Company brought to the state -- not just roughnecks to erect and run the derrick as in the past, but a crew of scientists to include several geologists, a seismograph crew of 16, seismometer operators, surveyors, to say the least of the truck drivers, dynamite and acid handlers, and boiler operators from oil fields throughout the United States. The men all needed housing and food, which provided an additional economic boost to the local economy.

The rig, a modern steel rig with a rotary bit, was the “second biggest of its kind in the country” at the time and the first rotary rig used in the state.¹⁵ Rotary drilling, unlike a cable drill, sent a stream of re-circulated water or “drilling mud” down the shaft of the drilling pipe and out of the bit to carry away cuttings. The drilling mud, however, would eventually lead to the well’s failure. The California Oil Company used technological and scientific breakthroughs like rotary drilling and seismometers to reach a depth previously unheard of in the state.

¹³ North Dakota Oil and Gas Division, Well File No. 13, <https://www.dmr.nd.gov/oilgas> (accessed December 16, 2012).

¹⁴ MacGregor, *Oil Hunting in North Dakota*, 5.

¹⁵ *Ibid.*, 16

Seismometers measure the shock wave of an explosion detonated to record the seismic waves creating a seismograph, which was used by geologists to identify oil bearing strata. The survey, grossly underfunded and lagging the industry in conservation policies, had begun issuing permits at this time under a 1929 law. The cost to issue the state's first drilling license was \$10.00, and the California Oil Company was also required to submit its drilling logs, cutting samples, and a list of lessees to the survey.¹⁶ With all the regulatory requirements met, the California Oil Company prepared to drill.

Drilling on the Nels Camp well began October 1, 1937, and continued, stopping only as a result of snow-clogged roads. The California Company's rig may have been the second biggest, but it could not stand up to the harsh North Dakota winter. Roads, packed with snow, forced work to stop until the spring of 1938.¹⁷ The well was spudded in on October 1, 1937, and continued until August 14, 1938, when the pipe was twisted off in the hole at 10,281 feet (Table 1).¹⁸ After fifteen days and numerous attempts to fish the pipe out failed, it was decided to abandon the well. Sveen gives an explanation of the failure: "Since the chief cause of stuck drill pipe is an inadequate mud mixture it is probable that was the main cause."¹⁹ Later revelations would reveal that as the drill entered a newly identified salt and anhydrite formation, the drilling mud dissolved the salt formation creating a cavern within the uncased well, which eventually collapsed around the pipe.

At the time the Nels Kamp well had been the most scientific test well in the state, and the most expensive with the best chance for success. Once again the survey was the chief benefactor

¹⁶ North Dakota Oil and Gas Division, Well File No. 1, <https://www.dmr.nd.gov/oilgas> (accessed December 16, 2012).

¹⁷ Sveen, "1938 Well Drilled 3 ½ Miles From Producer," *Fargo Forum*, April 5, 1958.

¹⁸ North Dakota Oil and Gas Division, Well File No. 13, <https://www.dmr.nd.gov/oilgas> (accessed December 16, 2012).

¹⁹ Sveen, "Big Viking Well Sparked Activity," *Fargo Forum*, April 12, 1953.

and in a press release said, “No oil or gas was found in the well, which was very disappointing but it did yield much new information on the geology of depth formations in North Dakota.”²⁰ Additional information gleaned from the well’s failure would be crucial in future efforts as multiple companies faced drilling through the same salt and anhydrite formations. Survey head F. C. Foley wrote, “Exploration for oil in North Dakota is a very expensive process and will require someone with large capital to carry it on. Several hundred thousand dollars were spent on the Ray test well.”²¹

The failure of the California Oil Company to discover oil in the Nesson Anticline did not stop exploration in other areas of the state. *Rinehart’s Oil Report* wrote, “Nearly every major oil firm sent men into (North Dakota) to check the activity and in many instances to take leases.”²² Despite the failures, there were high expectations that an extensive drilling program was on the horizon, and an estimated 10 million acres were soon under lease.²³ Much of this acreage had been leased by Leach, who had not slowed his leasing effort in the face of the initial failure. On March 4, 1940, Leach reached an agreement with the Carter Oil Company, operating subsidiary of the Standard of New Jersey, and assigned several large tracts over for development including 50,000 acres in Oliver County and 80,000 in Morton County.²⁴

The Carter Oil Company had much to be excited about. It was reported that an estimated 100,000 square miles of North and South Dakota was a possible oil producing area.²⁵ In anticipation of a successful drilling program, the Carter Oil Company moved its district office from Billings, Montana, to Bismarck, and on October 23, 1940, spudded in its stratigraphic test

²⁰ Sveen, “Big Viking Well Sparked Activity,” *Fargo Forum*, April 12, 1953.

²¹ North Dakota Oil and Gas Division, Well File No. 13, <https://www.dmr.nd.gov/oilgas> (accessed December 16, 2012).

²² *Rinehart’s Oil Report* (December 1940); quoted by Sveen, “Big Viking Well Sparked Activity,” *Fargo Forum*, April 12, 1953.

²³ Sveen, “Big Viking Well Sparked Activity,” *Fargo Forum*, April 12, 1953.

²⁴ Thomas W. and Frances V. Leach Papers, #10534, State Historical Society of North Dakota.

²⁵ “Dakota Lease Play Continues With Little Drilling.” *Oil and Gas Journal* (October 9, 1941): 89.

in Morton County (Table 1).²⁶ The test well was drilled to 4,930 feet when the bit hit granite. Oil was not present at any level, and because oil does not exist below granite, they plugged and abandoned the well as a dry hole on December 11, 1940.²⁷ It took the Carter Oil Company just three months with modern equipment to drill nearly 5,000 feet.²⁸ The survey, with the help of Carter Oil Company's attorney Forrest Darrough, sought and received new conservation legislation which was passed by the legislature in 1941.²⁹ As a result of the new law, Carter's drilling activity was delayed slightly as the survey and industrial commission sought to implement new drilling policies and procedures.

Despite the attack on Pearl Harbor in December of 1941, the Carter Oil Company continued its search for oil and in 1942 moved into Oliver County. The survey, according to the new legislation passed in 1941, did not require a permit to drill a stratigraphic test, as these wells were drilled not in the hopes of finding oil, but in finding the information contained in the geologic formations lying below. The well, E. L. Semling #1, was drilled to granite at 8,852 feet and plugged and abandoned on September 5, 1942 (Table 1).³⁰ Carter Oil Company had failed to find oil, but it made two important contributions by helping to pass needed conservation legislation and by discovering valuable information about North Dakota's geologic past that would soon be shared by others involved in the search.

Carter Oil Company was not the only company Leach was doing business with. In April of 1942, he signed an agreement with Amerada Petroleum for a block of leases in southwestern

²⁶ North Dakota Oil and Gas Division, Well File No. 13, <https://www.dmr.nd.gov/oilgas> (accessed December 16, 2012).

²⁷ North Dakota Oil and Gas Division, Well File No. 14, <https://www.dmr.nd.gov/oilgas> (accessed December 16, 2012).

²⁸ Ibid.

²⁹ Bluemle, *The First 100 Years*, 55.

³⁰ North Dakota Oil and Gas Division, Well File No. 15, <https://www.dmr.nd.gov/oilgas> (accessed December 16, 2012).

North Dakota, but after several dry holes in South Dakota and the hostilities in Europe and Asia, Amerada would abandon its drilling program for the remainder of the war and declined the option on 168,000 acres of leases in Stark, Hettinger, and McLean Counties.³¹

The once-high expectations of an extensive drilling program in the state ended when the challenges of war necessitated the rationing of steel. Sveen explained, “The remoteness of North Dakota from any market and a lack of oil transportation facilities forced the industry to concentrate its efforts in established (fields).”³²

Despite the war effort, there was one well drilled in North Dakota during the war. The Northern Ordnance’s Franklin Investment Company #1 well was drilled in Emmons County in 1943 (Table 1).³³ Unlike previous wells, the Northern Ordnance filed a completion report with the survey, allowing a much clearer picture of the drilling process. The report gave insight into the many innovative changes that had come to the industry. Instead of hauling local supplies of coal on horse drawn wagons for coal burning boiler engines, this rig was hauled in and run by two Detroit Diesel engines.³⁴ In addition, the report stated, “this well was drilled on indications of a structure in the Fox Hills on the surface. The drilling of this well was to serve as a check on the reliability of Cretaceous surface structures, and their usefulness as an indication of subsurface structures. It was also to be used to locate possible producing horizons existing in the area.”³⁵ Having drilled to granite at 5,359 feet, the Northern Ordnance, experiencing no shows of oil, plugged and abandoned the well and reported, “The formation drilled in this well showed a marked thinning over those encountered in the Carter Oil Company #1 Smeling.”³⁶ It was

³¹ Sveen, “Big Viking Well Sparked Activity,” *Fargo Forum*, April 12, 1953.

³² *Ibid.*

³³ North Dakota Oil and Gas Division, Well File No. 16, <https://www.dmr.nd.gov/oilgas> (accessed December 16, 2012).

³⁴ *Ibid.*

³⁵ *Ibid.*

³⁶ *Ibid.*

apparent from the remark that oil companies were relying heavily on previous geologic reports in deciding where to place their wells for the best chance at success as well as correlating the findings. In the end it was apparent that from West to East the geologic structures were thinning.

In 1946, soon after the conclusion of World War II, Leach and Fruh began to once again assemble leases throughout North Dakota. No one person worked towards the discovery of oil in North Dakota more than Leach. He either sold leases to, leased for, or spoke to and exchanged geologic information with every company drilling or thinking of drilling in North Dakota. Leach's files contained the survey's reports of every single well drilled in North Dakota since a drilling report was required in 1929. County records indicate that Leach and Fruh held leases near Richardton, Glen Ullin, Linton, Turtle Lake, and specifically in McKenzie and Williams counties in the heart of the Nesson Anticline.³⁷ Companies interested included the California Company (previously California Oil Company), the Magnolia Company, and the Carter Oil Company. In a September, 1947, letter Leach confided to Fruh that he was put out with the California Company over a deal that had soured between Leach, the California Company, and Phillips. Leach wrote, "As you will remember, the deal fell through after I had worked on it a long time due to lack of cooperation on the part of the California Company."³⁸ It was in 1947 after losing the deal with Phillips that Leach began corresponding with L. J. Handy, head of the land department at Amerada Petroleum. Leach began taking leases for Amerada while the remaining companies working in the state avoided the Nesson Anticline in favor of other regions in the state.

There were, over the course of the war, many new innovations in the petroleum industry that affected the search for oil in North Dakota. One such invention came from two Frenchman,

³⁷ Sveen, "Big Viking Well Sparked Activity," *Fargo Forum*, April 12, 1953.

³⁸ Leach to Fruh, September 23, 1947, Thomas W. and Frances V. Leach Papers, #10534, State Historical Society of North Dakota.

Conrad and Marcel Schlumberger. Schlumberger was fast becoming a household name in the oil industry for the development of an electrical resistivity well log created by the French brothers in 1927. According to Schlumberger's website, "The log showed that electrical measurements taken in boreholes could help identify the geological formations around them. It effectively enabled people to (see) what was down the well – and because the resistivity recordings proved to be repeatable in neighboring wells, it was possible to enable precise correlation of formations across an entire field."³⁹ What this meant to those exploring for oil in North Dakota was the information they now had was much more accurate than it had ever been in the past, and they could see if there was a possibility of oil in the well without having to rely on shows of oil, acid, or dynamite. If they could see there was a possibility of oil, they would then perforate the well.

The practice of perforating a well, or using explosives to perforate the rock, is not new. Colonel Edward A. L. Roberts first used his "Roberts Torpedo" in 1864.⁴⁰ The practice was successful, and soon the dry holes of Pennsylvania were turned into producers by "shooting the well" with nitroglycerin torpedoes.⁴¹ Over the course of time, the industry progressed, and by the end of World War II the practice of "shooting the well" was replaced with perforation. Perforation became a standard practice whereby multiple charges attached to a gun were lowered into the wells casing. Once into position, the charges were fired, perforating the well at small intervals, hopefully releasing the oil from the rock. Once a well was perforated, acid would often be poured down the well to help release the oil.

First to drill in the state after the war was H. W. Snowden, a Texas company, in 1948. The survey issued permit number 3A to the well Richland County (Table 1). The drilling went quick

³⁹ Schlumberger, "1920s: The First Well Log" <http://slb.com/about/history/1920s.aspx> (accessed 12/16/2012).

⁴⁰ Paul Adomites, "The First Frackers – Shooting Oil Wells With Nitroglycerin Torpedoes," *Oil-Industry History* 12 (2011): 129.

⁴¹ *Ibid.*

and the well was shallow, dry, and to granite. The total depth was 695 feet despite the fact that the bit hit granite as shallow as 495 feet. It is unclear why they continued to drill once they hit granite, but it was most probably the contract drill depth. While H. W. Snowden drilled the well with his own capital and the company was from Texas, it was by no means a major or national oil company, and it is still unclear what geologic indications brought them to Richland County in the first place. Quoted in the Whapeton paper, H.W. Snowden said it was the “wildest wildcat I ever backed.”⁴² After the well failed the company geologist said, “Oil will not be found within one hundred miles of this well.”⁴³ Geologists ever since have agreed.

From one corner of the state to the other, companies leapfrogged one another in anticipation of being the first to identify an oil producing zone. On August 18, 1948, the Price Drilling Company began operations in Ward County on the Kline # well (Table 1). Initially financed by Vic Karnes from Beaumont, Texas the well drilled by the Price Drilling Company, also from Texas, ran out of money at 7,775 feet. Operations stopped long enough for Karnes to put together a prospectus and send out some marketing materials to several larger companies. The California Company, formerly California Oil Company, responded, and while it provided additional capital, the well was transformed into a stratigraphic test. This was because the California Company wanted stratigraphic information and did not expect to find any oil.⁴⁴ When the pipe reached 8,150 feet, it once again twisted off in the same salt formation experienced when drilling the Nels Camp well. This time the pipe was successfully retrieved, the hole was plugged with concrete, and drilling continued, but after a stem test showed no oil, the well was plugged and abandoned at 8,435 feet. The California Company was concerned with

⁴² North Dakota Oil and Gas Division, Well File No. 17, <https://www.dmr.nd.gov/oilgas> (accessed December 16, 2012).

⁴³ Ibid.

⁴⁴ Ibid.

keeping the drilling logs secret and asked that the survey withhold the information from the public. The survey declined, citing the law requiring the information be released after 90 days. Undeterred, the California Company wrote North Dakota's governor in a failed attempt to have him bend the rules. In a letter to survey director Dr. Wilson Laird in April of 1950, the California Company representative C. L. Severy wrote, "As you know, The California Company was the sole contributor to the Price #1 Kline well below 7,765 feet, and that the well would have been abandoned at that depth had we not supplied the necessary financing."⁴⁵ "Our purpose in supplying this money," Severy said, "was not in hopes of finding oil as we had no structural information on the area but was merely to obtain further stratigraphic control in a strategic location."⁴⁶ Karnes, too, attempted to delay the release of drilling information with a flurry of letters. In a letter to Laird in September of 1949, after repeated attempts by Laird to receive information on the well from Karnes, Karnes went into a rant about "parasitic" competitors:

While we bear the brunt of responsibility, heavy labor and costs, other oil concerns of tremendous financial resources simply seek information, bottle up cheap leases for "protection" and wait for us to "holler" their heads off about what and when are "we" going to drill. Meanwhile some of these "oil" concerns have frankly stated "There is no use for them to help us with our drilling costs to get information from our well, they will get it 90 days after the well is finished anyway because of the state law" – See What I mean. The State law works a hardship on us – the ones who are really doing the hard work.⁴⁷

⁴⁵ North Dakota Oil and Gas Division, Well File No. 17, <https://www.dmr.nd.gov/oilgas> (accessed December 16, 2012).

⁴⁶ Ibid.

⁴⁷ Ibid.

Karnes's point was that drilling in North Dakota was becoming extremely expensive as the wells were going deeper and relying on much more expensive technologies in search of oil. Gone were the days of drilling a hole and having oil gush out. Many companies, upon learning that someone was drilling a well, would come in and lease acreage around the well in case oil was struck and review the stratigraphic reports once 90 days had elapsed after the well was completed, thereby gaining all the information from the drilling without spending a dime.

The Kline #1 was abandoned at 8,435 feet in November of 1949, and it was much to the dismay of the survey.⁴⁸ Laird wrote, "It is unfortunate that you were unable to complete the well entirely because this is one of the most important wildcat wells in the Northern Great Plains in my opinion."⁴⁹ It was important to Laird because drillers were exploring formations previously unseen. The well was just eighty miles east of the Nels Kamp well, and it seemed to Laird and Leach, that if oil was going to be found in North Dakota, it was going to be found in the Nesson Anticline. Having written extensively about the Des Lacs Western well for over a decade, it is curious to note that not a single mention of the Kline #1 appeared anywhere in local newspapers. It was apparent that the men and women of Ward County who had endured over a decade of boosting for the Des Lacs Western well were not interested in hearing of any more oil news. There were, however, several articles in other newspapers including a headline that read, "Strike Oil Sands in Well at Carpio N.D.," which once again reported false hopes of oil.⁵⁰

Throughout the remainder of the 1940s and into 1950, companies continued to skip seemingly arbitrarily from county to county drilling wells, not always in search of oil, but of geologic information, and Leach was in the thick of things. In March of 1949, Leach received a

⁴⁸ North Dakota Oil and Gas Division, Well File No. 18, <https://www.dmr.nd.gov/oilgas> (accessed December 16, 2012).

⁴⁹ Ibid.

⁵⁰ Ibid.

letter from L. J. Fulton of the Pure Oil Company looking “to get the dope on current activity in North Dakota.”⁵¹ Fulton was most interested in knowing whether Amerada or the Ohio Company was preparing to drill on the Nesson Anticline. He was prepared to offer in exchange information of his own when he wrote, “I have heard rumors Stanolind may do something.”⁵² Fulton also reported that they were unable to “get very much information” on the well the California Company was trying so hard to keep from the public. Drilling continued and soon moved into Burleigh County.

Continental Oil Company in cooperation with the Pure Oil Company moved into North Dakota in the spring of 1949 after having leased approximately 1,500,000 acres in Burleigh, Sheridan, Kidder, Wells, and Emmons counties.⁵³ After a seismograph crew did some preliminary work, the companies settled on drilling a stratigraphic test in Burleigh County.⁵⁴ The Clarence Davidson #1 (Table 1) was drilled to 6,957 feet to granite, and on October 16, 1949, like all previous wells, having no shows of oil, was plugged and abandoned.⁵⁵ No permit was required, as this was a stratigraphic test, and according to Ira Cram, Vice President of Continental Oil Company, “This dry hole did not discourage us in North Dakota for we did not expect to find oil when we drilled the well.”⁵⁶ While Cram claimed Continental was not discouraged, neither they nor Price returned to the state for further exploration until the late 1950s, but the information gathered from the test was valuable to the survey and those looking to drill in the future.

⁵¹ Fulton to Leach, March 26, 1949, Thomas W. and Frances V. Leach Papers, #10534, State Historical Society of North Dakota.

⁵² Ibid.

⁵³ North Dakota Oil and Gas Division, Well File No. 19, <https://www.dmr.nd.gov/oilgas> (accessed December 16, 2012).

⁵⁴ Ibid.

⁵⁵ Ibid.

⁵⁶ Ibid.

Following the Continental-Pure stratigraphic test in Burleigh County, the Union Oil Company chose to drill another stratigraphic test in Ramsey County: the Davidson #1 Stratigraphic (Table 1). Like previous stratigraphic tests, Union Oil was excused from the permitting process, but the company was required to report on its activity. According to R. G. Green, manager of lands for Union Oil Company of California, “This well will be drilled for the purpose of obtaining geological data and may be used as a basis for locating subsequent tests for oil and gas.” The drilling was uneventful taking less than three months to drill. After running a “Schlumberger” test, the well was plugged and abandoned on November 8, 1949, to a depth of 3,223 feet to granite.

In the spring of 1950, F. F. Kelley, in cooperation with Plymouth Oil Company of Midland, Texas, applied for and received permit number 38 to drill an oil and gas well in Mercer County (Table 1). The Fritz Leutz #1 well, drilled to 12,526 feet, not only exceeded the depth of the Nels Camp well, but also experienced the same salt formations as did the Nels Camp and Kline wells. To avoid another stuck pipe from cave in, the company adjusted the mud mixture by adding salt to it.⁵⁷ This simple change to the drilling mud was all that it took to solve the problem of collapsing well holes and cleared the way for future successful drilling through this formation. The well was drilled to granite, plugged and abandoned on October 5, 1950.

The Herman Hanson Oil Syndicate, which first drilled in McClean County in 1929, ran out of money before completing its well, but never gave up hope that it sat upon a vast amount of oil. In 1950, the Samedan Oil Corporation of Ardmore, Oklahoma, acquired permit number 39 to drill the Vaughn Hanson #1 well.⁵⁸ Gone were the front page headlines, the “petroleum

⁵⁷ North Dakota Oil and Gas Division, Well File No. 20, <https://www.dmr.nd.gov/oilgas> (accessed December 16, 2012).

⁵⁸ North Dakota Oil and Gas Division, Well File No. 22, <https://www.dmr.nd.gov/oilgas> (accessed December 16, 2012).

editions,” the testimonials of the syndicate’s associates, and most importantly gone were the pleas for additional investment from struggling North Dakotans calling for them to “do their part.” Most notably gone was the newspaper, which had moved from Robinson to Garrison in the wake of the Great Depression. The first of two articles appeared in the *McLean County Independent* with an optimistic picture of the towering rig.⁵⁹ The second article’s headline, “Stop Oil Drilling At Turtle Lake,” was brief, reporting only the most basic information. The well reached granite at 9,033 feet, and no oil was found.⁶⁰ The Vaughns came away empty handed once again.

Permit number 40, issued July 31, 1950, to Roeser and Pendleton of Fort Worth, Texas was to drill the J. J. Weber #1 (Table 1).⁶¹ According to the *Emmons County Record* the well was being drilled for the Magnolia Petroleum Company after an extensive and frenetic leasing period in which landowners were encouraged to seek out an attorney before signing any leases.⁶² The well, the second to be drilled in Emmons County, was drilled to a depth of 5,556 feet, and after several stem tests showing no oil was plugged and abandoned on September 19, 1950, when it hit granite. In addition to the Emmons County well, Magnolia Petroleum Company also drilled another stratigraphic test in Kidder County. That well, the Magnolia #1 State “A” well, was drilled 5,609 feet to granite before it was plugged and abandoned December 21, 1950 (Table 1).⁶³ In a letter dated January 2, 1951, to survey head Dr. Laird, G. Wendell Smith, geologist for Magnolia, wrote, “May 1951 find the oil I know there is in North Dakota.”⁶⁴

⁵⁹ “Hunt For Oil In McClean County Now Underway,” *McLean County Independent*, July 27, 1950.

⁶⁰ “Stop Oil Drilling At Turtle Lake,” *McLean County Independent*, September 21, 1950.

⁶¹ North Dakota Oil and Gas Division, Well File No. 23, <https://www.dmr.nd.gov/oilgas> (accessed December 16, 2012).

⁶² “To Drill for Oil Near Linton, Says Report,” *Emmons County Record*, July 6, 1950.

⁶³ North Dakota Oil and Gas Division, Well File No. 24, <https://www.dmr.nd.gov/oilgas> (accessed December 16, 2012).

⁶⁴ *Ibid.*

Leach, who had kept in contact with geologists at Amerada Petroleum prior to the war, again began corresponding. In 1949 he entered into another agreement in which Leach, with the help of Fruh, would acquire the leases necessary to begin a drilling program.⁶⁵ This time, however, instead of southwest North Dakota, Leach had convinced Amerada that success lay in the Nesson Anticline. Much had changed since the failure of the Nels Camp well in 1938. In the twelve years since that attempt, companies had learned that when drilling through the salt formations they had to condition their drilling mud to be saturated with saltwater or face collapse of the hole and loss of pipe. The problem persisted after discovery, and in a drilling-mud article, the authors wrote, “Most engineers feel that the cause is the carving into solution caverns and hole enlargements of unsupported formations above. As a result some operators are now drilling their new wells with saturated salt-water mud to prevent the solutions of the salt beds.”⁶⁶ Companies also gained Geologic information from the twenty-four previous wells that they used along with more accurate seismograph work and Schlumberger tests to increase the likelihood of success. However, there still was no proof that oil existed in North Dakota, and until someone drilled a producing well, that was not going to change.

Drilling on Amerada’s Clarence Iverson #1 began September 3, 1950, and as required by state law, a weekly report of its progress was submitted (Table 1). There was little to report between September 3 when the well was spudded in and the week of January 29, 1951, except the depth of the bit, the conditioning of the mud, and the occasional tripping pipe. Then a blizzard hit. The report read, “Were on trip out with core when the well was shut down due to

⁶⁵ Thomas W. and Frances V. Leach Papers, #10534, State Historical Society of North Dakota, Bismarck

⁶⁶ E. E. Huebotter, B. W. Emerson, and F. A. Scarce “Saturated Salt-Water-Emulsion Mud Solves Williston Problem,” *Oil and Gas Journal* (December 13, 1954): 109.

storm.”⁶⁷ Work continued a short time later and total depth, 11,744 feet, was reached on February 4, 1951.⁶⁸ Work continued, and on March 1 the well was perforated with Lane-Wells Koneshot from 11,706 to 11,729 feet, but no oil was found. The Koneshot was a type of perforating gun that used a shaped charge. It was another innovation. The Koneshot, according to the Baker and Hughes website, “Contained shaped charges in a spiral placement in a steel housing at a 3-in. centerline distance from each other. This design was a definite improvement over some of the early perforators offered by competing companies that spaced their charges at much greater distances in plastic housings.”⁶⁹

Work on the well was again halted the week of March 5th by another blizzard.⁷⁰ This time the well would remain idle for several weeks until the snow-choked roads could be cleared for passage. With the well plugged back to a depth of 11,669 feet, the work stopped to make repairs and prepare for another perforation. The April 2 report read, “We perforated with Lane-Wells from 11,630 feet to 11,640 feet with 4 holes per foot and acidized with 4,000 gal. 15% acid since our last weekly report was made.”⁷¹ At 12:55 am on April 4, the well was opened and the gas flair was ignited as fluid began accumulating in the tank.⁷² The well produced about 10 barrels per hour in the 11,630-11,660 foot range.⁷³ The state of North Dakota had discovered oil. Headlines the following morning said it all, “OIL FLOWING FROM TIOGA WELL TODAY.”⁷⁴

⁶⁷ North Dakota Oil and Gas Division, Well File No. 25, <https://www.dmr.nd.gov/oilgas> (accessed December 16, 2012).

⁶⁸ Ibid.

⁶⁹ Noel Atzmilller, “From Bazookas to Well Perforating,” Baker and Hughes Inc, <http://www.epmag.com/Production-Drilling/From-bazookas-well-perforating-45570> (accessed December 16, 2012).

⁷⁰ North Dakota Oil and Gas Division, Well File No. 25, <https://www.dmr.nd.gov/oilgas> (accessed December 16, 2012).

⁷¹ Ibid.

⁷² Ibid.

⁷³ Ibid.

⁷⁴ “Oil Flowing From Tioga Well Today,” *Williston Daily Herald*, April 5, 1951.

The period of local capital gave way to the period of outside capital beginning with the drilling of the Nels Camp well in 1937-38 through to the discovery of oil on the Clarence Iverson farm by Amerada Petroleum Corporation in April of 1951. During this period, every well drilled, without exception, was drilled by a national company with abundant capital resources, modern geologic and scientific knowledge and equipment. While their effort paused during the war, they worked continuously until they succeeded. All but two wells were drilled to granite and tested without success for oil. Men came from all over the country to work on the North Dakota oil rigs. Throughout the entire discovery period, dry holes were not looked at as failures, but as learning experiences as valuable geologic and technical knowledge was gained from each attempt. The only thing missing was a properly funded survey and the necessary rules and regulations to ensure conservation and protect the interests of the residents of North Dakota.

CHAPTER FOUR: THE FINANCIAL STRUGGLES OF THE SURVEY 1895-1951

In 1889, North Dakota gained statehood, and by an Act of Congress was given several thousand acres of land to be used for the development of natural resources, but there was a catch.¹ In order to keep these lands, the state was required to create a geological survey within six years of statehood or forfeit the gift.² As a result North Dakota's 4th Legislative Assembly enacted Senate Bill 44 in 1895 creating the survey.³ The legislature named the University of North Dakota's geology department head, Professor Earle Jay Babcock, the first director. The legislature agreed to a \$5,000 provision to begin operations, but having satisfied Congress' requirement, the Governor vetoed the appropriation portion of the bill leaving the survey unfunded.⁴ During his first six summers as head of the survey, Babcock, in an effort to "encourage development of the mineral resources," spent his vacations performing pro bono geologic research.⁵ According to Babcock, "these vacations [were] cheerfully contributed for the good of the cause."⁶ The legislature, in 1899, finally funded the survey with \$300 annually.⁷ The survey was aware of vast amounts of lignite coal, clay, and the other building materials, but the greatest concern in North Dakota, as it was throughout the Great Plains, was water. Water, not any other natural resource was what finally induced the legislature to increase funding to the survey to \$1,000 in 1903.⁸

The survey, throughout its first fifty-six years, was grossly underfunded, marginally successful, and managed ineffectual policies created by a legislature unwilling to provide the

¹ Frederic W. Voedisch *History of the North Dakota Geological Survey* North Dakota Geologic Survey Files, Elwyn B. Robinson Department of Special Collections, University of North Dakota, Grand Forks 1937

² Ibid.

³ Ibid.

⁴ Ibid.

⁵ Bluemle, *The First 100 Years*, 3.

⁶ Ibid.

⁷ Voedisch *History of the North Dakota Geological Survey*

⁸ Ibid.

funding necessary for success. Despite the increase in funding, the survey remained grossly underfunded and often times unfunded. This remained the case until oil was discovered in 1951. The result of the legislatures habitual underfunding of the survey meant that the laws intended to protect citizens from unwarranted investment in drilling activity where marginally successful as were laws passed for conservation measures and government oversight. The survey, unable to enforce existing conservation laws, was impotent at protecting citizens against chicanery.

When the survey was created it was tasked by the legislature to perform several functions. These functions, as written in the Senate Bill 44, 4th Legislative Assembly 1895, insured that the survey:

Shall be carried on with a view to a complete account of the mineral kingdom, as represented in the State, including the number, order, dip and magnitude of the several geological strata, their richness in ores, coals, clays, peat, salines and mineral waters, marls, cement, building stones, and other useful materials, the value of said substance for economical purposes, and their accessibility; also an accurate chemical analysis of the various rocks, soils, ores, clay, peats, marl and other mineral substances; of which complete and exact record shall be made.⁹

Babcock began work on this immediately and during his summer vacations discovered valuable deposits of clay and cement which he reported in the First Biennial Report published in 1900.¹⁰ In addition to being the survey's first director, Babcock was also director of the departments of geology, chemistry and the school of mines. Once the survey was funded, the

⁹ Voedisch *History of the North Dakota Geological Survey*

¹⁰ Unknown Author *Work of the North Dakota Geological Survey* North Dakota Geologic Survey Files, Elwyn B. Robinson Department of Special Collections, University of North Dakota, Grand Forks, 1-2.

work became too much for Babcock and while he remained at the university, he stepped down from the survey and was replaced by Dr. Frank A Wilder in June of 1902.¹¹

Wilder published the Second Biennial Report in 1903 in which he outlined the future work of the survey and the direction he planned to take it. Wilder also added what he believed to be an additional task not specifically addressed in Senate Bill 44

In addition to what may fairly be termed the positive work of the survey, namely the pointing out of the mineral resources of the state which justify investment, a great deal of the survey work, just as important in its bearing on the development of the state, is negative in its nature, consisting of making examinations for interested citizens which results in assuring them that the proposition which they have submitted will not warrant development. In this way the survey saves to the state large sums of money and prevents many hopeless speculations which would delay the development of justifiable projects.¹²

In 1903 Wilder too would leave the survey for opportunities outside the state and be replaced by Arthur Gray Leonard. Leonard's ascendancy to the head of the survey coincided with the Second Dakota Boom. Writing in 1908 Leonard said,

The rush of settlers into the western part of the state during the last year or two has been remarkable, and in many places the rancher is having to give way to the farmer. In districts where a short time ago it was possible to ride in any direction over the trackless prairie, one now has to follow the section lines and keep between wire fences. From the top of a high butte like Sentinel Butte, the houses and cultivated fields of the newcomers can be seen in every direction as far as the eye can reach.

¹¹ Unknown Author *Work of the North Dakota Geological Survey*, 2-5.

¹² *Ibid.*, 6.

Leonard settled into a routine at the survey, teaching during the school year, traveling across the state on field trips in the summer months, and publishing biennial reports and various survey publications all within the \$1,000 annual budget, which according to Leonard, “is the smallest amount of money received by any state survey.”¹³ The survey, with very little money, relied heavily on the U.S. Geological Survey’s summer mapping work to investigate North Dakota’s geologic past as well as on Leonard’s work for private citizens investigating possibilities for oil and gas.¹⁴

Leonard reported that while the primary purpose of the survey was to report on the natural resources of the state, the survey also was responsible to “advertise the State; to prevent the waste of money in futile prospecting; and to circulate educational reports and information.”¹⁵ Leonard echoed Wilder when he wrote, “It is as much the duty of the survey to inform people how to avoid squandering their money on useless prospecting as it is to make valuable resources known.”¹⁶ By 1908, there still was no talk of oil although gas was being produced in North Dakota, but throughout the Great Plains “useless prospecting” was of great concern. In 1911, concern created by the careless release of gas by well promoters led the North Dakota Legislature to pass its first conservation law which prohibited releasing gas unless it was connected to a distribution system (S. L. 1911, ch. 195).¹⁷ The survey did not possess the funds necessary to implement and enforce the law, and it was never asked to. There is no record in any survey files of the law, its passage, or enforcement. It is unclear if the survey was even aware of the law as there is no mention of it in any correspondence or biennial reports.

¹³ Unknown Author *Work of the North Dakota Geological Survey*, 27-28.

¹⁴ *Ibid.*

¹⁵ *Ibid.*

¹⁶ *Ibid.*

¹⁷ North Dakota Geologic Survey Newsletter Vol. 23 No. 4 Winter 1996, 15.

Leonard, in his Fifth Biennial Report wrote, “The geological surveys of many states have been the means of saving thousands of dollars to citizens by telling them not only where, but where not to look for coal, gas, oil and other minerals.”¹⁸ This was never more important than it was during the first period of North Dakota’s petroleum exploration. During this period the capital necessary to drill these early exploratory wells was raised entirely from the citizens of the state. Despite the survey’s assertions Leonard had no way of protecting citizens unless they specifically wrote to the survey with an inquiry. Even then there was no guarantee that the citizens would take Leonard’s advice. So strong was the lure of stories of amazing wealth told by the stock salesman, fake geologists, or doodlebuggers that despite recriminations by the survey many bought shares in an exploration company, created an exploration company, or drilled a dry hole anyway.

In April of 1916 Leonard was asked to investigate the possibility of finding oil or gas near Williston presumably for the Pioneer Oil and Gas Company, which, despite Leonard’s negative report, drilled a dry hole anyway.¹⁹ Leonard also reported that a survey geologist, Howard Simpson, would be investigating reports of oil and gas the following summer, and that most of the inquiries coming into the survey were in reference to oil and gas by people from outside the state.²⁰ Leonard often received letters from individual citizens concerned about a particular company’s pleas for investment, from groups of citizens eager to form a company and explore for oil and gas, or from a particular land owner convinced his land contained some form of mineral wealth. In 1917, the Des Lacs Western Oil Company requested the help of the survey after finding the presence of oil while drilling a water well. After initially advising against drilling, Leonard reported, “Enough evidence was found during the work to warrant further

¹⁸ Unknown Author *Work of the North Dakota Geological Survey*, 28.

¹⁹ *Ibid.*, 63.

²⁰ *Ibid.*, 64.

prospecting by sinking a deep well, and work on this was undertaken.”²¹ Des Lacs Western’s attempt to find oil failed, but it was one of few companies that asked for and received the survey’s blessing and provided the survey with valuable samples from the well. Leonard, along with several other state and federal geologists, provided letters to be used in Des Lacs Western’s promotional materials. Without Leonard’s blessing, many investors would not have invested in the project. Leonard also would lend his title as State Geologist to a letter written in support of drilling to the promoters of the Prairie Oil and Gas Company.²²

Most of the wells during this early exploration period were drilled without the knowledge or support of the survey and to this day the survey has no records of their activity. All that remains of these early efforts are reports in the local newspapers. Of the first twelve recorded oil wells drilled in the state several were attempted with the knowledge and support of the survey and subsequently submitted samples to the survey for study. These included the Des Lacs Western, the Glenfield Oil Company, the Prairie Oil and Gas Company, and the Big Viking Oil Company wells. In 1922, Leonard traveled to several locations throughout the state to make “special investigations regarding oil and gas possibilities.”²³ The survey and sometimes Leonard specifically was asked to aid would-be explorers with geological advice. The Turtle Mountain Oil Company, The New England Petroleum Company, and the Mott Oil and Gas Company were three of many that asked for and received help, but were either unable to obtain enough capital to begin operations or were persuaded by Leonard and the survey not to drill.²⁴ Still others, such as a company in Divide County, requested the help of Leonard in reviewing the geology of the area

²¹ Unknown Author *Work of the North Dakota Geological Survey*, 64.

²² North Dakota Oil and Gas Division, Well File No. 8, <https://www.dmr.nd.gov/oilgas> (accessed December 16, 2012).

²³ Unknown Author *Work of the North Dakota Geological Survey*, 64.

²⁴ Unknown Author *Work of the North Dakota Geological Survey*, 64.

only for Leonard to discover, “they had been milked by a fake geologist.”²⁵ It is important to note that due to a lack of funding Leonard did this work as a private citizen and was paid directly by those seeking his aid. However, when Leonard responded in writing he responded as the head of the survey. The conflict between the geological surveys he did as a private geologist did not seem to bother Leonard when he affixed his official title to his signature in correspondence. The correspondence was often used in promotional literature by the very same companies that paid Leonard for his work. While the Blue Sky Commission regulated the creation of oil and gas companies and the sale of stocks, the survey did not require anyone to apply for drilling permits, and there were no drilling regulations at the time. The only protection came not from the survey, but from the Blue Sky Commission which, for example, caused the arrest of P. T. Ronald who was caught selling stock on behalf of the Red Top Oil and Gas Company in violation of the law. Nor were there any regulations controlling the many geologists, both fake and real, and the many doodlebuggers with their faux scientific instruments from conning many unsuspecting pioneers out of their hard earned money. This isn’t to say all doodle buggers were frauds. Throughout Pennsylvania, Ohio, and the Southwest doodlebuggers had a long history of success. Frehner writes,

Some prospectors found oil by relying on their eyes, ears, feet, and hands while traversing landscapes. Others saw field work as an opportunity to formulate philosophical speculations about geological principles useful for finding oil and answering larger questions about a landscape’s form, age, and relationship to surrounding topography.

What made doodlebuggers unsuccessful in North Dakota was that oil was not present on the surface as it was in other parts of the United States. Nor was the surface geology particularly

²⁵ Ibid., 87.

helpful as a result of glaciation which covered the eastern two thirds of the state. Only in the western one third portion of the state could a trained geologist recognize the anticlines so sought after by petroleum explorers. On the northern plains geologists were fast replacing doodlebuggers with the science of surface geology. Frehner explains, “Geologists began to displace (doodlebuggers) as oil-finding authorities during the first two decades of the twentieth century by building institutional power within universities and surveys and using these forums for creating and controlling knowledge the oil industry wanted while simultaneously advancing their professional authority and prestige.” Doodlebuggers often came to the state, but none were successful and two in particular cost many people there hard earned savings. The two examples of this would be A. C. Townley and Herman Hanson.

Lloyd W. Sveen reported the A. C. Townley well in Robinson to be “without a doubt the most fabulous story in the history of oil exploration in North Dakota.”²⁶ Sveen’s article, written in July of 1951, tells the story of A. C. Townley and his efforts to find oil first near Robinson then near Ray, but what makes the story so fabulous? It could be that Townley came back to North Dakota from Kansas upon hearing an incredible story of a Robinson water well that for a short time produced refined gasoline, or it could be that Townley, as founder of the Nonpartisan League, was considered by many to be an incredible fraud who collected by some estimates from \$500,000 to \$1,000,000 in local capital for his failed attempts to discover oil in North Dakota.²⁷ Despite Leonard’s assertion that “the prospects of finding oil in the district were a gamble pure and simple,” and the Blue Sky Commission’s failure “to find a geologist who would give a

²⁶ Sveen, *Fargo Forum*, June 24, 1951.

²⁷ Sveen, “Townley Well Most Fabulous Story In N. D. Oil Hunt,” *Fargo Forum*, June 24, 1951.

favorable report,” the survey was unable to do anything to save the citizens of North Dakota from what Bill Shemmory calls the silver tongued man.²⁸

Townley arrived on the scene sometime after hearing of the incredible gas-producing water well of Robinson in 1925. According to Sveen’s article, Townley gathered old contacts from his Nonpartisan League days and asked them to bring their friends to Robinson where Townley set up an oil camp and began holding secret meetings.²⁹ During these meetings, Townley, a noted orator, would give his patented story to crowds of about 200 people.³⁰ The story would start with Townley’s amazing find. A doodle bugger from Texas could, according to Townley, accurately predict where oil was located.³¹ Townley had brought the man to Robinson and had used his “scientific instrument” to show Townley where to buy leases. Sveen explained “as Townley reached the climax he made his appeal for funds in the domineering take or leave it style which proved so effective in organizing the league. Townley would bellow through loud speakers “loan me your money - but kiss it goodbye. There may be oil here, I am convinced that there is, but there may not. If we strike oil it will make us all rich. There will be plenty of money to pay off mortgages and all other debts and then some. The money is to be used to drill for oil in both North Dakota and Kansas or elsewhere.”³²

²⁸ Shemmory, *Blood Sweat and Oil*, 40.

²⁹ Sveen, “Townley Well Most Fabulous Story In N. D. Oil Hunt,” *Fargo Forum*, June 24, 1951.

³⁰ *Ibid.*

³¹ *Ibid.*

³² *Ibid.*



Fig 2. Townley Well.

The Townley well ran into the same problem as all other North Dakota exploration efforts. It ran out of money. As a result Townley salted the well and on May 15, 1926 produced a bottle of crude oil and announced discovery. He paid local men to drive people out to the well in carloads for a demonstration. Sveen reported estimates of between 6,000 and 7,000 people watched as the drilling pipe was lowered into the well and when brought up was “dripping with oil and mud.”³³ Little additional money was raised and the well was eventually abandoned, but that did not slow Townley. He simply moved to Ray.

About the same time the Big Viking was preparing to drill its well, Townley was in the Ray area raising money for another attempt. The Ray well was never started and Townley eventually sold his rig and motor to the Big Viking for a share in Big Viking. Interviewed in 1953 for a *Williston Daily Herald* article, Townley said, “I took the money and they took my notes. We were called a fraud by almost everyone in the state—everyone, that is, but people who contributed

³³ Sveen, “Townley Well Most Fabulous Story In N. D. Oil Hunt,” *Fargo Forum*, June 24, 1951.

money.”³⁴ Townley was not the only promoter that took North Dakotans for a ride nor was he the only promoter to use a doodlebugger.

Herman Hanson was a pioneer land owner in McClean County. In 1925, Herman, after being convinced by German scientists that there was oil present on his land, hired William Perry, a glorified doodle bugger, to survey the land with his “mineral indicator.”³⁵ In a letter written to Herman Hanson’s Oil Syndicate, Perry concluded, “I predict that development will quickly prove these lands the greatest oil field the world has ever known.”³⁶ Perry’s Mineral Indicator, which operated on the principle of affinity of minerals or “Like attracts Like” seemed too good to be true, so Herman sent the letter to Leonard and asked his advice regarding Perry’s assertion. Leonard’s response was not kind:

I was interested in receiving your letter of November 17 and the report of the findings made with a “Mineral Indicator.” I am sorry you believe the ridiculous stuff contained in that report and by the time you have spent many thousands of dollars drilling for oil and finding none, you will realize what a fake the man was. His findings are almost too absurd to deserve notice. No instrument has yet been invented which will locate oil below the surface as has been abundantly proved again and again. There is absolutely no evidence of any anticline in McLean County and if there were, the “Indicator” would never locate it. I know, of course, that you will drill one or more holes in search of oil and I certainly wish you might find the oil, but I am satisfied that the conditions are not favorable and that no oil is present below the surface. For this reason I feel that I should

³⁴ “A.C. Townley Returns To Organize Oil Venture,” *The Williston Daily Herald* May 29, 1951.

³⁵ North Dakota Geologic Survey Files, Elwyn B. Robinson Department of Special Collections, University of North Dakota, Grand Forks.

³⁶ Perry to Herman Hanson Oil Syndicate, August 17, 1925, North Dakota Geologic Survey Files, Elwyn B. Robinson Department of Special Collections, University of North Dakota, Grand Forks.

warn you beforehand that your money spent in drilling will be wasted and no oil will be found.³⁷

It is unclear why, if Leonard was so convinced otherwise, he did not address the same letter to the *McClellan County Farmer* and warn the community against investing. In the end, the survey was not effective in combating fraud, waste, and abuse because of either a lack of proper regulatory statutes, a lack of funding to the survey, or a combination of the two. To combat this unregulated and wasteful use of local capital, the legislature sought a way to control and monitor the drilling process through the survey.

In 1929, Chapter 184 of the Laws of the State of North Dakota provided for the licensing of all corporations, partnerships and individuals drilling test holes for oil in North Dakota. Although several test wells had been drilled for oil and gas in North Dakota, the only provision made to reimburse the survey for this supervision was the license fee of \$10.00 for each well, which in no way covered the cost of inspection and supervision. The act read as follows:

An Act providing for licensing of any person, co-partnership, firm or corporation, who shall either lease from the owner of land, and obtain oil or gas rights thereon, or who shall sell its corporate stock, bonds, notes, or any other evidence of indebtedness, who desires to drill either a test hole or an oil or gas well, shall apply to the State Geologist for a permit before drilling, providing that the State Geologist shall issue a license for drilling and provided further that the person, co-partnership, firm or corporation shall file with the State Geologist a complete log of the drilling, which log shall be a public record, giving authority to the State Geologist to make such examination of the drilling while in

³⁷ Bluemle, *The First 100 Years*, 30-31.

progress or after completion, and giving authority to the State Geologist to inspect drilling operations for the purpose of testing and examining the well.³⁸

The penalty if found guilty of not abiding by the law? Any person found in violation, “Shall be guilty of a misdemeanor and upon conviction hereof, shall be fined, a sum not exceeding \$5,000, or by imprisonment in the county jail, not exceeding one (1) year, or both such fine and imprisonment.”³⁹ While the law went into effect upon approval on March 7, 1929, there was one important problem.⁴⁰ The legislature had not funded the survey since 1923 and would not again until 1935, making all legislation moot as the survey was unable to do anything except, as Leonard repeatedly did, send a letter asking for compliance to the law.⁴¹

In 1931 Leonard published an article in the *Quarterly Journal of the University of North Dakota* entitled *Will Oil And Gas Be Found In North Dakota?* In it Leonard wrote, “Quite a number of wells have been drilled for oil and gas in North Dakota where there was no evidence whatever of any structure in which they might have accumulated in commercial quantity. Such wells were doomed to failure from the start. No drilling should be undertaken unless there is fairly good evidence of a favorable structure such as a dome or anticline.”⁴²

What finally put an end to local capital investment was not the survey, but the Great Depression. Of all of the wells drilled in 1929, none were completed due to a lack of capital, including the Hermon Hanson Oil Syndicate’s well and the Big Viking Oil Company’s well. They were all abandoned as dry holes before reaching the depth where it was believed oil would be found.

³⁸ North Dakota Legislative Assembly, *Laws Passed at the Twenty-First Session of the Legislative Assembly of the State of North Dakota* (Bismarck 1929).

³⁹ *Ibid.*

⁴⁰ North Dakota Geologic Survey Files, Elwyn B. Robinson Department of Special Collections, University of North Dakota, Grand Forks.

⁴¹ *Ibid.*

⁴² A. G. Leonard, “Will Oil and Gas Be Found In North Dakota?” *Quarterly Journal of the University of North Dakota*, (Summer 1931).

On December 17, 1932 Arthur Gray Leonard died and an important chapter in North Dakota's oil exploration history came to a close. Having served the survey for thirty years through being underfunded and at times unfunded, Leonard maintained a high degree of professionalism and always moved the survey forward. Despite the lack of support from the legislature, Leonard was often able to gain valuable information from investigations on behalf of exploration companies like the Des Lacs Western Oil Company, the New England Petroleum Company, and others who paid Leonard and the survey staff for their help.

Howard Simpson became the State Geologist in 1933. When the California Oil Company began to work in the state, everybody, including Simpson, felt that oil would be discovered. In an effort to have legislation in place before the discovery of oil the survey, as well as oil men like Leach and Fruh, pushed for specific legislation. In February of 1938 the legislature, in Chapter 135 of the Laws of North Dakota, added, "Supervision of the drilling, plugging and abandoning of oil and gas wells, the distribution and sale of oil and gas in North Dakota, as well as other matters pertaining to the regulation and control of drilling activities for oil and gas in North Dakota," but once again made no provision to cover the added expense of supervision and enforcement.⁴³

Simpson fell ill; according to Bluemle the sickness was "brought on by the strain of years of keeping the survey going without state support," and Simpson eventually passed away in 1938.⁴⁴ Simpson was replaced by Dr. Frank Foley, a recent PhD graduate at the University of North Dakota who remained the sole person on the survey. Foley, like his predecessors, personally responded to hundreds of inquiries from out-of-state residents, oil exploration companies, and local residents regarding the oil and gas possibilities in North Dakota.

⁴³ North Dakota Legislative Assembly, *Laws Passed at the Twenty-Fifth Session of the Legislative Assembly of the State of North Dakota* (Bismarck 1937).

⁴⁴ Bluemle, *The First 100 Years*, 53.

In an effort to reach a wider audience and stem the tide of inquiries flooding his office, Foley published an article in the *Oil and Gas Journal* in 1940. The article, using well logs from the Des Lacs Western Oil Co., Glenfield, Prairie Oil and Gas Co., and A. R. Jones Oil and Operating Co. wells, was mostly a review of the state's geologic stratigraphy. Foley believed, "The major structural feature of North Dakota is the Williston basin."⁴⁵ Regarding the possibility of finding oil Foley concluded, "Though North Dakota has not produced any oil as yet, there is considerable possibility that careful exploration will reveal structures that may produce. The sedimentary section contains formations that do produce petroleum in other areas. It is probable that if petroleum is obtained in any quantity it will be found in rocks of pre-Cretaceous age."⁴⁶ Foley resigned in 1941 in order to take a position with the United States Geological Survey and was replaced by Wilson Laird.

Wilson Laird quickly encountered the same budget problems that had plagued the survey since its inception. As the search for oil continued in North Dakota so did the lack of meaningful industry oversight and enforcement. Laird would take steps immediately to change both the lack of funding and the lack of proper industry oversight. According to Bluemle, a report was prepared by Laird explaining the goals of the survey and the funds needed to reach those goals.⁴⁷ The report was submitted and Laird reported, "My report was so impressive that the Budget Board saw fit to cut the appropriation of the survey \$1,100 from what it had enjoyed (?) during the biennium of 1941-43."⁴⁸ The legislature, and according to Laird, Senator Watt –the "watchdog of the treasury" specifically were unwilling to add to the survey's budget.⁴⁹

⁴⁵ Frank C. Foley, "In North Dakota Oil Search" *Oil and Gas Journal* (July 1940): 14.

⁴⁶ *Ibid.*

⁴⁷ Bluemle, *The First 100 Years*, 55.

⁴⁸ *Ibid.*

⁴⁹ *Ibid.*

Throughout the early 1930s North Dakotans suffered under the devastation wrought by the Great Depression, and oil exploration in the state collapsed. Global overproduction drove the oil industry into near disaster as the price of oil fell from a \$3.07 high in 1920 to .67 a barrel in 1932.⁵⁰ Incredible new discoveries in East Texas, Arabia, Rumania, the Soviet Union, and Venezuela, added to a worldwide glut of oil, causing calamity within the industry. Fear began to grow that overproduction would soon result in complete resource exhaustion.

Bismarck Tribune city editor, Gordon MacGregor, writing in 1938 said, “First it must be understood that with the exhaustion of the known oil fields of the world only a few years off, the major oil companies are spending millions of dollars in exploring areas where geology, hitherto, has not indicated there was oil. They have expanded their activities into every state of the union and the foreign countries of the world.”⁵¹ As a result of over production and years of failed government and industry attempts to control it, California, Illinois, Kansas, New Mexico, Oklahoma, and Texas signed the Interstate Oil Compact, henceforth the IOC, in 1935.⁵² The IOC, according to John G. Clark, “permitted each state to act as it wished regarding oil production.”⁵³ It was precisely because of this fear of resource exhaustion coupled with restrictions on production by oil producing states that companies sought new production in states not restricted by the IOC. Such a state was North Dakota.

The petroleum industry had experienced a tumultuous decade in the 1930s as rank waste ruled the day and the frenetic drilling and search for additional sources of oil nearly collapsed the industry. The cause for this unmitigated economic and environmental disaster was the rule of capture. The “rule of capture” was an English common law that initially had applied to the

⁵⁰ ChartsBin, <http://chartsbin.com/view/oau> (accessed May 22, 2013).

⁵¹ MacGregor, *Oil Hunting in North Dakota*, 14.

⁵² Rister, *Oil! Titan of the Southwest*, 376.

⁵³ John G. Clark, *Energy and the Federal Government: Fossil Fuel Policies, 1900-1946*, (Urbana: University of Illinois Press, 1987), 243.

capture or killing of wild game. Wild game, regardless of where it existed, became the property of the person who captured and or killed it. The effect the law had on the petroleum industry, according to Paul Sabin, was that it, “forced neighboring producers into a drilling race simply to protect their share of common oil pools.”⁵⁴ The iconic photos of oil derricks stacked seemingly one upon the next for as far as the eye could see were the direct result.

The solution, after years of struggle, was the Interstate Oil Compact Commission (IOCC), a voluntary association created in 1935. The result of the IOCC was that each state would control its own production and producers. In an attempt to increase their production, the producers sought new sources of petroleum in non-member states such as North Dakota, and North Dakota sought protection from the over production that plagued the producing states. While North Dakota’s oil and gas companies struggled to raise local capital, North Dakota struggled to raise revenue for its government. This lack of revenue was significant because the agency that was uniquely qualified to police the oil and gas industry. The survey, lacked the funds necessary to enforce the laws put in place in 1911, 1929, and 1937 respectively.

Not long after heading the survey, Laird joined forces with Forrest Darrough from the Carter Oil Company to seek the passage of an oil and gas conservation law.⁵⁵ Laird wrote, “In the fall of 1940, oil industry individuals working with the oil laws of the state recognized that the laws we had were woefully inadequate and impossible to administer.”⁵⁶ During questioning by the Legislature regarding the necessity of the law, Laird responded, “The present laws were a hopeless mess and that, without the proposed legislation, there would essentially be no state control whatever if oil was discovered.”⁵⁷ The main question according to Laird was, “whether

⁵⁴ Sabin, *Crude Politic*, 15-16.

⁵⁵ Bluemle, *The First 100 Years*, 55.

⁵⁶ *Ibid.* pg. 58

⁵⁷ *Ibid.* pg. 59

it would involve any additional funds to administer and generally how it would work.” Laird avoided the question and answered instead with what would happen if the legislature failed to pass meaningful regulations. Laird said, “I told them what had happened in other states, notably Texas when oil was discovered in the East Texas Field in the early thirties, and what chaos had resulted.”⁵⁸

The law, fashioned after the Model Act, was passed in 1941 and made the Industrial Commission “responsible for the conservation of oil and gas in North Dakota” well in advance of actual production in the state.⁵⁹ The Model Act was created by Interstate Oil Commission as a uniform law that states could use to create their own petroleum conservation laws. Bluemle writes, “Since 1911, North Dakota had the necessary statutory regulatory control in place for the level of oil and gas exploration and development being conducted at any given time. The role of the State Geologist in the regulation of oil and gas exploration and development has been significant since 1929. The Industrial Commission has been responsible for the conservation of oil and gas in North Dakota since 1941.”⁶⁰ This seems to be in direct opposition to Laird, who considered the previous legislation “woefully inadequate and impossible to administer” and a “hopeless mess.” Regardless of previous legislative attempts the new legislation was above all a conservation law.

Chapter 170 of the 1941 law read, “An Act to conserve crude petroleum oil and natural gas; to enlarge the duties and authority of the Industrial Commission of North Dakota to supervise and control the oil and gas resources of North Dakota; authorizing the Industrial Commission of North Dakota to promulgate rules and regulations for the enforcement of the provisions of the Act for the purpose of conserving oil and gas; providing penalties for the violation of certain

⁵⁸ Bluemle, *The First 100 Years*, 59.

⁵⁹ *Ibid.*, 57.

⁶⁰ *Ibid.*

provisions of the Act or the regulations promulgated thereunder; repealing Chapter 184 of the 1929 Session Laws and Chapter 135 of the 1937 Session Laws of North Dakota; repealing all laws and parts of laws in conflict herewith.”⁶¹ Many of the provisions were the same as those of the unenforced 1937 law, such as requiring a permit, copies of logs, samples of cuttings, and a bond to ensure performance, but technological and scientific advances required the passage of new laws that included attempts to control blow outs, caving, seepage, as well as shooting the well with explosives.⁶² Additionally, environmental disasters throughout the United States propagated state laws addressing the protection of the environment.

These environmental provisions included protecting ground water sources and prevention of fires, but most importantly the new laws included provisions limiting waste.⁶³ The waste of oil and gas either by drowning stratum with water, through secondary recovery efforts, or by allowing gas to escape were important, but nothing the state passed was more important than provision number 13, “To regulate the spacing of wells.”⁶⁴ This brings us back to those iconic photos of well upon well and the rule of capture. The Industrial Commission now had the authority to control the size of a spacing unit and how many wells could be drilled on that spacing unit. This would allow restricted recovery of oil and prevent over-production. The last provision, a requirement to give notice to the state for drilling a stratigraphic test that required no fees be paid, is interesting in that the first person to drill a stratigraphic test was the Carter Oil Company employer of Darrough.⁶⁵ Laird and Darrough believed oil discovery without proper conservation laws in place would be dangerous for the state. They moved to correct the problem

⁶¹ North Dakota Legislative Assembly, *Laws Passed at the Twenty-Seventh Session of the Legislative Assembly of the State of North Dakota* (Bismarck 1941), 243-251.

⁶² *Ibid.*

⁶³ *Ibid.*

⁶⁴ *Ibid.*

⁶⁵ *Ibid.*

immediately and while the 1941 law was no panacea, it was a proper foundation for exploration within the state. Laird concluded, “Very few, if any, states can say that they were so well prepared for the oil and gas industry to come to their respective states as was North Dakota.”⁶⁶

Despite the habitual and debilitating lack of funding to the survey, it managed to be marginally successful at its primary purpose, which was to identify “the mineral kingdom “ and the “richness in ores, coals, clays, peat, salines and mineral waters, marls, cement, building stones, and other useful materials, the value of said substance for economical purposes, and their accessibility.” In regard to the self-appointed protector of citizen capital, it failed miserably and often until the Great Depression did what it could not: cut off the flow of local capital to risky and often unwarranted exploration. The survey would not be properly funded and properly protect the citizens of the State of North Dakota until after oil was discovered in 1951. In 1949, funding to the survey was \$10, 637, but once oil was discovered, funding to the survey rose to \$43,478.⁶⁷

⁶⁶ Bluemle, *The First 100 Years*, 59.

⁶⁷ North Dakota Geologic Survey Files, Elwyn B. Robinson Department of Special Collections.

CHAPTER FIVE: THE DAWN OF A NEW AGE

The Des Lacs Western Oil Company was formed in 1917. Simultaneously, the Des Lacs Western began raising capital for its drilling venture and the State of North Dakota began forming a highway commission to build roads. North Dakota lacked roads and only railroads and wagon trails served the state. After a year and a half of raising local capital, the state's petroleum pioneers purchased marginal drilling equipment from a distant oil field and set about moving it into place. The equipment had been delivered by train from a distant oil field and due to the lack of roads had to be hauled from the rail yard by wagon over several miles of rutted trails to a drill site. It took several months to build the derrick, assemble equipment, and purchase additional casing. Remoteness acted as a barrier to early petroleum exploration.

By 1927, gravel roads and a few miles of paved roads existed in the eastern part of the state, but little had changed in the west. As North Dakota entered the Great Depression, petroleum exploration, backed by local capital and crushed by environmental changes, came to an abrupt end. National companies, including the California Oil Company, urged by Leach, supplanted community backed companies and began operations in the state. These companies overcame or were unaffected by the barriers of remoteness and the environment and eventually found success.

During the state's entire petroleum exploration period the state's survey languished. From the survey's inception in 1895 to the discovery of oil in 1951 the survey was unable to function during several periods, during other periods, it was reduced to a single employee, the director. The state, suffering from an economic disadvantage, had little revenues to distribute to state agencies and the legislature often either unfunded or underfunded the survey. The survey, tasked

with identifying gravel resources for road building, had little remaining resources to devote to the petroleum industry.

During this time, North Dakota's remoteness, environment, and economic disadvantage placed many obstacles in front of these petroleum pioneers, but they were not deterred. These men first faced a farrago of chronic shortages of capital, lack of geologic information, marginal equipment and labor. They also encountered complex geologic structures, technical and scientific barriers, and an unfunded and underfunded survey. In the end, no one factor specifically, or several factors generally held these explorers back. A host of complexities not only combined, but interacted to allow success that for so long eluded North Dakota's early petroleum explorers.

At no other time in the United States' petroleum history did a state's citizenry attempt, on such a grand scale, to develop its resources by raising all necessary capital locally. North Dakota's local communities were gripped with a sense of community and oil fever as local newspaper editors along with business men, oil men, and more than a few confidence men boosted the wells until little or no available capital was left in the community. Several wells during this early period failed, not because they could not find oil, but because they could not raise the capital necessary to finish the wells. This was especially true of the Herman Hanson Oil Syndicate and Big Viking wells which were both heavily boosted until the Great Depression deprived them of their primary source of capital, local community members. Once sources of capital began to dry up and failure seemed imminent, early promoters would often salt the well in an effort to induce additional investment. A lack of capital and by extension a lack of skilled labor and modern equipment along with a lack of geologic knowledge of the state and effective

conservation and drilling policies combined to form a situation where the conditions for success could not be met.

Continuing the search for global oil reserves brought the major oil companies into North Dakota. With the help of a tenacious geologist, Thomas W. Leach, the California Oil Company was the first national company to enter the state and the Nesson Anticline. The conditions for success, absent during the earlier exploration period, were now beginning to take shape. Companies began to move into the state with modern equipment, skilled labor, and seemingly unlimited capital resources to explore the states previously unknown geologic formations. Continued failure, especially in reference to collapsing salt bearing strata, brought increased knowledge and experience until capital, equipment, technological innovation, and governmental policy succeeded with the discovery of oil at the Clarence Iverson #1 well drilled by Amerada Petroleum, and located on lands leased by Thomas W. Leach. Leach, the “father of North Dakota’s petroleum industry,” did not just lease to the California Company and Amerada Petroleum he was responsible for selling leases to nearly all major oil companies drilling in the state during the late 1940s. Companies Leach sold leases to drilled six of the last twelve wells drilled prior to discovery. It was his interpretation of the geologic data acquired after twenty years of drilling in the state that led to Amerada’s success.

While North Dakota’s early oil explorers lacked the necessary capital to finish wells, the survey lacked the necessary funding to operate. Initially given no funds, it existed on next to nothing for so long that its impact on oil exploration was reduced to letter writing by a single employee who worked independently from the survey during the summer months as a contract geologist to earn additional income. It is curious that during the early exploration period from 1917 to 1937, successive survey geologists such as Babcock, Wilder, Simpson, and Leonard

worked as private citizens preparing geologic surveys for petroleum exploration companies while simultaneously producing promotional letters signed by the survey directors. This happened specifically with the Des Lacs Western Oil Company and the Prairie Oil and Gas Company. It was not until the Roosevelt administration that federal money started to flow into the survey and any meaningful policy was passed to monitor and control the oil industry. However, despite federal money, the survey remained grossly underfunded until oil was discovered in 1951.

The development of North Dakota's petroleum resources was retarded by its remoteness, environment, and economic disadvantage. Lacking the infrastructure necessary for development, national companies capable of developing those resources went elsewhere leaving North Dakota to exhaust its own capital resources. Once local capital resources were exhausted, Thomas Leach encouraged national companies with outside capital to explore the state for new sources of petroleum. An unfunded survey struggled throughout the period unable to effectively manage the exploration of petroleum until, with the aid of federal funds a proper conservation law was passed the decade before discovery.

Great Plains historians have evolved in their explanation of history. Walter P. Webb's singular causation of environmental determinism, born in the Turnarian model, stood for decades as the standard by which western history was written. Webb's work influenced Carl Kraenzel who added to it, rather than altering it in any significant way. Kraenzel's thesis, "Adapt or get out" was a reflection of the depopulation of the Great Plains during the depression era. Webb's work would eventually be replaced by Elwyn B. Robinson, Gilbert C. Fite, and others. These historians, working with Webb's environmental determinism in mind, crafted histories that were multi-causal. Robinson's famed six themes which transformed how state histories were written;

and several of these themes are as prevalent today as they were in 1966. Fite believed Webb's thesis was a symptom not the problem. However, Fite's resulting views of "transition and adjustment" led one to believe the competing themes homogenous. The multi-causal historians would, like Webb, fade as historians began breaking new ground in how they looked at history. Elliott West, writing about the Cheyenne, and Pekka Hamalainen, writing about the Comanche, replaced multi-causal history with a narrative involving agency and complexity. Today, agency: the capacity of people, as individuals and as groups, to make judgments and decisions; and complexity: how agents—in history, people or groups of people—relate to one another in systems guide historians in their work. Agency and complexity have revolutionized historical writing and reveals layer upon layer of humanity long covered by the dust of time.

This evolution is not unique to Great Plains historians. Petroleum historians have gone through similar changes of their own. In the 19th Century, historical works regarding the petroleum industry were, like the new science of geology, wholly inaccurate. The industry was thought to have matured in the middle of the 20th Century and historical research became exclusively sponsored by the petroleum industry which helped produce the noticeably slanted work of Carl Coke Rister. In *Oil! Titan of the Southwest*, Rister gave special thanks to the generosity of the Standard Oil Company of New Jersey and like so many historians of this period, praised the industry for its contributions rather than its consequences. Following Rister's work published in 1949, petroleum historians began publishing state petroleum histories - - specifically those in the southwest. The southwest was first to accomplish this because of the availability of university presses in Oklahoma and Texas. States that lacked university presses failed to publish meaningful research, but several of these states had geologic surveys pick up the slack and publish bulletins outlining some of the state's petroleum history. These works were

biased as well, not towards the petroleum industry, but in favor of the geologic surveys and their desire to induce additional funding from their prospective legislatures. They were written by geologists, not historians. In North Dakota they were written with an incomplete and inaccurate historical record and a desperate need for additional funding. The state legislatures are responsible for funding state geologic surveys and in an effort to paint themselves in the most positive light, wrote of the survey's many qualities. The bias is undeniable.

I have used a wide variety of sources to show the judgments and decisions of men like Algot F. Blum, Burr A. Dickinson, Herman Hanson, Thomas W. Leach, Wilson Laird and others. These men, through the use of primary sources, reveal how judges, dentists, farmers, politicians, and geologists, not to mention a few confidence men, criminals, and shysters, form a complex story of the humble beginnings of North Dakota's petroleum industry and what it took for that industry to eventually succeed. I have used these primary sources to build an ordered narrative from atomized resources without becoming an industry booster.

The primary sources I have used consist of newspaper articles from papers long shuttered under the pressure of what Robinson called the "too much mistake." These newspaper articles revealed so much more than facts. The articles told the story of generations of North Dakotans whose hopes and dreams were written within their pages. Editors turned boosters talked of oil shows to induce investment as well as reported the heartbreaking failure and abandonment of the wells. The newspaper articles lack technical detail, but tell a rich story that brings agency to those who wrote and lived during the period.

I spent countless hours traveling throughout western North Dakota, visiting the register of deeds offices in Mountrail, Ward, Williams, and McKenzie Counties, combing through oil and gas leases, warranty deeds, and probate records to understand the financial toll petroleum

exploration took on many who risked everything they had. The survey files located online and at the Chester Fritz Library on the University of North Dakota campus in Grand Forks was crucial to understanding the survey's role in the early exploration period. The survey's mission, its administration of policies, and its response to unbridled exploration were all found within these documents including the personal correspondence of the survey directors.

The North Dakota State Historical Society holds the personal papers of Burr A. Dickinson and Thomas W. Leach. These collections were invaluable in identifying who was responsible for much of North Dakota's petroleum exploration activity from the beginning. The archives also contained photographs that were helpful in identifying the types of equipment used during the drilling process. These sources are available to use for the best possible narrative the result of which is this thesis.

The story of North Dakota's early petroleum exploration is a complex story that has never been told. No professional historian has ever researched the topic and this thesis is merely a start. There is much work to be done in both this early period and in the post discovery period including the current oil boom that started in . . . ? When did the current oil boom start? Many questions are yet to be answered, but when the historical record of pre-discovery oil exploration in North Dakota is gathered, a picture emerges. Not a deterministic picture or a multi themed picture where remoteness, environment, and economic disadvantage dictate how lives are lived or determined, but a complex story of interaction, counteraction, success and failure. No example is better than the lives of a few of the many men who acted as independent agents seeking their own best interest.

In 1907, Burr A. Dickinson moved to North Dakota where he became the first resident of Ryder. While living in Ryder, Dickenson befriended hotel owner Edward E. Fredeen and the

two became lifelong business partners that collectively owned stock in several companies.

Dickenson owned stock in many companies, including the first company to drill - - the Des Lacs Western. Des Lacs Western actively drilled the Blum #1, #2, and #3 from 1917 to 1926.

Dickenson, after moving to Minot and starting a law practice, later created and owned stock with Fredeen in the E. E. Fredeen Development Company, which, with the help of the Prairie Oil and Gas Company, drilled the Armstrong #1 in 1928. Once in Minot, Dickinson continued to invest in several petroleum exploration companies including a company created by local insurance salesman Fruh.

Dickinson, Fredeen, and Fruh all failed at creating petroleum exploration companies capable of raising enough capital to drill and discover oil. Dickinson and Fredeen would give up the quest, Fruh would not. Fruh, acting as a petroleum booster in the Minot area took several visiting geologists on a tour of the Mohal district thought to be a good gas prospect. One such visitor was Transcontinental geologist Leach.

Leach viewed the geologic report of the Nesson anticline, quickly dismissed the Mohall district and began lobbying Transcontinental to drill in the Nesson. Transcontinental declined the opportunity and shortly after Leach's visit to North Dakota was purchased by the California Oil Company. Leach, convinced that oil existed in the Nesson anticline, quit his job as geologist and moved to Bismarck to begin leasing in the Nesson near the Big Viking's drilling operation. Leach, with the help of his wife Francis, set up operations at the Patterson Hotel in Bismarck and started writing letters and visiting with Fruh. The two men developed a business relationship with Leach traveling back and forth from Bismarck to Oklahoma and Colorado and Fruh doing most of the leasing including his attempt at acquiring the Big Viking interests once that well failed.

Leach, having acquired the Big Vikings interests in addition to his own leases, approached the California Oil Company with an offer to come to North Dakota and drill an oil well. Once the California Oil Company's Nels Kamp well failed Leach continued to lobby national companies to come to North Dakota. He sold blocks of several hundred thousands of acres to the Carter Oil Company and the Amerada Petroleum Company, among others, throughout the 1930s and 1940s stopping only for World War II until Amerada discovered oil in the Clarence Iverson #1 on April 4, 1951.

These men, Dickinson, Fredeen, Fruh, Leach, survey directors Leonard and Laird, and countless others were not deterred by North Dakota's remoteness, environment, or economic disadvantage, but rather they were connected in a complex and evolving way. They worked independently from these outside forces determined to effect change in their own lives. Sometimes failing, sometimes succeeding they struggled and overcame. Edward E. Fredeen lost his hotel to fire in the 1940s. Algot F. Blum lost his wife and his farm. Dickinson, while losing all the money he invested in the petroleum exploration business, remained an influential and successful attorney. Hermon Hanson passed away, but his children continued drilling in vain until they too had to give up on the search for oil. A. C. Townley left the state in shame; always the great orator, he died penniless. Fruh and Leach became successful beyond their wildest dreams and the impact of Leach's success is still felt today in his Leach Foundation.

TABLE 1. North Dakota Geological Survey Well List

<u>Operator/Well Name</u>	<u>Permit No.</u>	<u>Spud Date</u>	<u>Plugged & Abandoned</u>	<u>Total Depth</u>	<u>County</u>
Des Lacs Western Oil/ Blum #1		10/22/16	07/31/18	3980	Ward
Prairie States Oil/ Davis Well			04/27/23	2800	Adams
Great Northern Oil and Gas A.C. Townley Interest/ Robinson Patented Land #1			26	2400	Bottineau Kidder
Glenfield Oil/ Glenfield Oil Company #1			08/01/26	3240	Foster
Northwest Oil/ Northwest Oil Company #1				1452	Divide
Herman Hanson Oil Syndicate/ Herman Hanson Oil Syndicate #1		11/08/28	08/18/29	1840	McClean
Prairie Oil and Gas/ Armstrong #1		08/02/28	12/05/29	3884	Kidder
A.R. Jones Oil/ Gehring #1			31	3872	Renville
Velva Petroleum D.J. Carter Oil/ Burnstad#1			03/25/31	520	Ward
Big Viking Oil/ Big Viking #1		06/12/33	08/01/33	2284	Logan
California Oil/ Nels Kamp #1			06/12/28	4642	Williams
Carter Oil/ North Dakota #1		10/01/37	08/15/38	10281	Williams
Carter Oil Company/ E.L. Smeling #1		10/23/40	10/01/40	4930	Morton
Northern Ordnance/ Franklin Investment #1	1	06/08/42	08/26/42	8850	Oliver
H.W. Snowden/ Ruddy Brothers #1	2	06/10/43	07/22/43	5359	Emmons
Price Drilling/ J.H. Kline #1	3-A	06/29/48	08/19/4 8	695	Richland
Continental-Pure/ Davidson #1	4-A	08/18/49	11/26/49	8435	Ward
Union Oil/ Aanstad Stratigraphic #1		08/05/49	10/15/49	6957	Burleigh
Kelly-Plymouth/ Fritz Leutz #1		09/24/49	11/11/49	3223	Ramsey
Samedan Oil/ Vaughn Hanson #1	38	05/15/50	10/05/50	12526	Mercer
Roeser-Pendleton/ J.J. Weber #1	39	07/15/50	10/04/50	9032	McClean
Magnolia Petroleum/ North Dakota State "A" #1	40	02/19/50	09/19/50	5556	Emmons
Amerada Petroleum/ Clarence Iverson #1		10/21/50	12/21/50	5609	Kidder
	41	09/03/50		11744	Williams

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