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THREE SANDS: OKLAHOMA OIL FIELD AND
COMMUNITY OF THE 1920'S

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THREE SANDS: OKLAHOMA OIL FIELD AND
COMMUNITY OF THE 1920'S

A THESIS

APPROVED FOR THE DEPARTMENT OF HISTORY

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INTRODUCTION

The plains of north central Oklahoma stretched out before the thousands of would-be homesteaders who lined the Kansas border on September 16, 1893, and waited for the Cherokee outlet to be opened for settlement. The only trees on the horizon were on the banks of the rivers and creeks which made their way through the sea of grass. This day was the fulfillment of many a homesteader's dreams. The future Kay County, containing some of the most fertile land in the state, was part of the area settled on this day. In 1893 Kay County represented the northeastern segment of the outlet and lay on the western edge of the Osage Indian reservation. The Arkansas River makes a distinct boundary to separate the Osage Hills on the east from the gentle rolling plains to the west.

Before the homesteaders arrived, Indian tribes held title to the land. The southeastern portion of Kay County had been occupied earlier by the Nez Percés and later by the Tonkawa. After an uprising on their Idaho reservation, the Nez Percés, led by Chief Joseph, were sent south in 1879 to occupy a part of the western hunting lands of the Cherokee. But widespread sickness brought on by the new climate and

longing for their mountain home caused the small band to be returned to Idaho in 1885. The same year the Nez Percés departed, the Tonkawas arrived. This small tribe had been continually harassed by the wild plains tribes in southern Indian Territory. The new arrivals were not of the same industrious nature as the Nez Percés, who had adapted quickly to the few farming opportunities given them. The Tonkawas were satisfied to take advantage of the Dawes Act in 1887. This legislation allowed the President to allot 11,000 acres to the seventy Tonkawas and to retain the remaining 80,000 acres, for \$30,000, to be used for homesteaders.¹

Portions of the former reservation did not prove to be generally as productive for the homesteaders as the whole of Kay County. South of the present town of Tonkawa, the land forms a somewhat rougher contour as it rises from the flat bottom land of the Salt Fork of the Arkansas River. Here, for twenty-nine years, farmers like Sam McKee annually planted their corn and wheat and each year became more discouraged. Some tired of the struggle with the land quite early and left, but others always came to take their place.

Neither the farmer nor the Indian before him realized the riches which lay beneath their feet. The soil hid a greater treasure than the western gold fields of an earlier era had ever produced. In 1921 a new breed of

¹Grant Foreman, The Last Trek of the Indians (Chicago: University of Chicago Press, 1946), 290.

prospector, the geologist, discovered the wealth and the rush was on to the latest oil strike in the Southwest. Within the next four years over \$158 million worth of black gold would be drawn from the Three Sands oil field² as compared with \$15 million in a similar period of time during the Virginia City gold bonanza of the 1860's.³

²Daily Oklahoman, 17 May 1925, p. B-3.

³Ray Billington, Westward Expansion (New York: MacMillan Co., 1960), 627.

THREE SANDS: OKLAHOMA OIL FIELD AND
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CHAPTER I

THE DISCOVERY OF THE TONKAWA OIL FIELD

Late in 1908 a train pulled into Ponca City and a man in his early thirties stepped off. Ernest Whitworth Marland had journeyed from the East to search for oil in the unexplored Cherokee outlet. The finding of oil was not a new experience for Marland, for until the Panic of 1907 he had been quite successful in the hills of West Virginia. While stationed at Fort Sill in Oklahoma Territory, Lieutenant Franklin Kenney, Marland's nephew, made several trips to the famous 101 Ranch south of Ponca City and reported to his uncle¹ the presence of the undeveloped area. Despite limited funds, Marland sold the idea of possible oil to George Miller, owner of the ranch, and the 101 Ranch Oil Company was created to explore the Red Beds, the basic geological formation of the area.

¹Kay County Gas Company, Kay County Oklahoma (Ponca City: n.p., 1919), 29.

At the time of Marland's arrival, no oil was thought to lay in the Red Beds, a layer of deposits from the Permian Era, which in geological time represents ancient deserts containing trapped salt water. Westward from the edge of the Osage Hills the Red Beds form the surface layer across north central Oklahoma and gives the soil west and south of Kay County a reddish tint and outcropping of red rock.²

Early day oil activity in Oklahoma surrounded the Osage Hills to the south and east; but oil companies had been prevented by the federal government from leasing within the Osage Indian reservation. Restrained from tapping the wealth within the reservation, a few oil men considered the possibility of drilling on the western edge of the Osage Hills but dismissed the idea because of the supposedly barren Red Beds.³ This was not the first time that E.W. Marland had played the odds. His earlier successes in the East had come as the result of using his gambling spirit in the business of finding oil.

At first Marland did not meet with success. The initial oil well drilled in Kay County came in a duster and the next seven only as gas producers. But in June, 1911, a year and a half after he had begun, Marland struck oil on

²The Blue Wellington shale, which is of the Permian Era, is the predominant outcropping within Kay County, and the soil in this area does not have the common reddish appearance of the remainder of the Red Beds.

³Kay County Gas Company, Kay County Oklahoma, 29.

the lease of Willie Cries-for-War, a Ponca Indian. However, Marland still had not found oil in the Red Beds. In reality he had drilled through the upper structure and into a lower layer of the Pennsylvanian Era, known as the most frequent oil bearing deposits.⁴ Regardless of its source, the discovery of oil in Kay County soon made the area a center of production. The county's first oil well opened the south Ponca field, which was quickly followed in 1913 by the Newkirk-Mervine field and the Blackwell field in 1914.

When Anthony Lucas discovered the Spindletop oil field in 1901 near Beaumont, Texas, he not only brought in the first oil of gusher quantities in the Southwest; he also informally ushered in a new era in oil exploration.⁵ Before Spindletop, oil explorers in unproven regions drilled either by intuition or by such primitive methods as "creekology," divining rods, "hillology," or proximity to a graveyard.⁶ However, Lucas reasoned from gas seepage and the perfect structure of a mound that oil was likely to lay beneath. The oil industry continued to use Lucas's method of looking for oil and gas seepages and mound prominences; but they

⁴Oil was not discovered in the Permian Era until 1917 in the Garber oil field, located forty-five miles southwest of Ponca City.

⁵Joseph Kornfeld, "A Half Century of Exploration in the Southwest," The Oil and Gas Journal, L (May supplement 1951), 187.

⁶Interview, John Cullen (Ponca City, Okla., Oct. 12, 1966). Cullen was treasurer of Comar Oil Company.

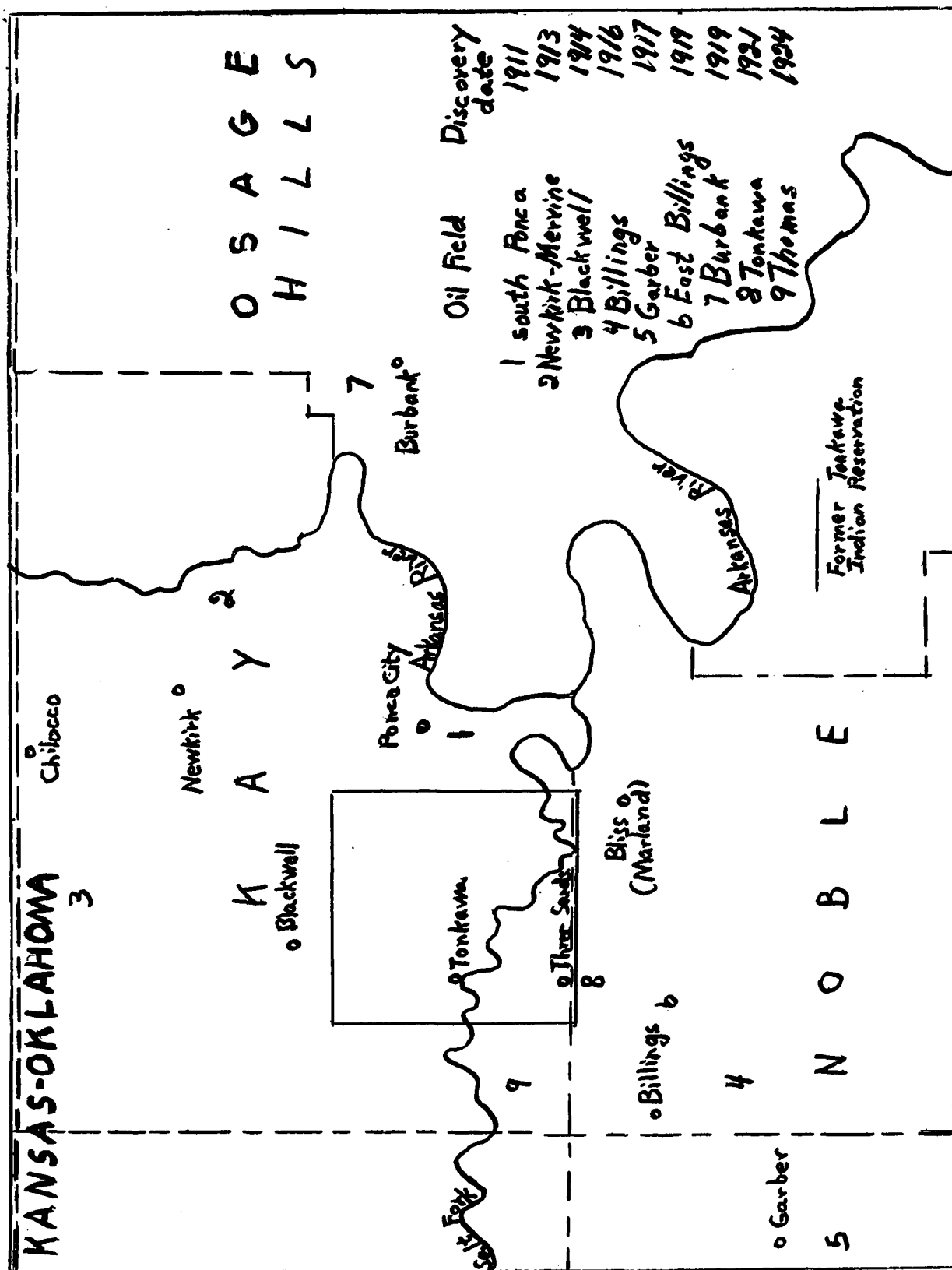


Fig. 1.--North central Oklahoma oil fields

also began to explore by the anticlinal theory, outcrops of formations, and surface expressions of salt. All of these methods were based upon direct observations of the surface and its topography and concepts on how the strata beneath the surface had trapped oil. Some of the hypotheses--such as the anticline theory--were proved to be scientifically sound; but these theories represented the layman's approach to exploration and not that of the scientist.

E.E. DeGolyer, noted geologist of the Southwest, sets 1913 as the informal date of the oil industry's acceptance of geology as a guide to prospecting.⁷ Before this acceptance, the United States Geological Survey and survey departments of various states were publishing the reports of their geologists. However, despite the fact that these official articles led to the discovery of new fields, many oil men still had a hostile attitude toward the science of geology. By 1913 the science of geology was being applied in the commercial search for oil. From their newly created departments of geology, the universities of Kansas, Oklahoma, and Texas were sending students throughout the Mid-Continent region.⁸

Marland personified the changes taking place in the exploratory phase of the industry. When he arrived in

⁷Kornfeld, "A Half Century of Exploration in the Southwest," 189-190.

⁸The Mid-Continent region includes the oil states of Missouri, Kansas, Arkansas, Oklahoma, Texas, and Louisiana with the exception of the latter two's Gulf Coast region.

Oklahoma in 1908, he had abandoned his "coal dripping" theory as a method to locate oil and had adopted the sounder principle of anticlines to find the Ponca field.⁹ In the next few years, he continued to increase his own knowledge of the Red Beds by visits with Professor Irving Perrine, geologist from the University of Oklahoma. In 1915 Marland created a geology department within his company and practical geology in north central Oklahoma had its beginnings.¹⁰

The oil industry uses both surface and subsurface geology in a two-phase search for structures known to trap oil. Both phases came to be employed when the science was introduced into the industry in 1913.¹¹ Surface geologists had the task of mapping and assembling information gained from the outcropping of rocks, the land's contour, and other surface data which might indicate the existence of certain oil bearing structures. From about 1915 until 1920, the year in which it reached its zenith, surface geology dominated the industry's search for oil and it continued to play a major role until the mid-1920's.¹²

⁹John Mathews, Life and Death of an Oilman (Norman: University of Oklahoma Press, 1951), 87.

¹⁰Kay County Gas Company, Kay County Oklahoma, 46.

¹¹Kornfeld, "A Half Century of Exploration in the Southwest," 186.

¹²Ibid.

When they had been accepted by the industry, geologists encouraged drillers to make complete records of the rocks being drilled so that they could extend their knowledge below the surface. Subsurface geology, however, remained latent and developed slowly until the drilling records of wells could be scientifically co-ordinated and better logs could be taken from holes drilled with rotary rigs. By the early 1920's this phase of geology was beginning to play a noticeable role in the discovery of oil.

The Tonkawa field, later known popularly as Three Sands, extends along Kay-Noble County boundary five miles south of the town of Tonkawa and thirteen miles west of Marland's initial well. The discovery of the field came as a result of a long and expensive search which began in 1916 after the Billings field, with its limited production, was found to the southwest.¹³ The Humphreys Petroleum Company, which had leased extensively in the area, set out to find further production along a line of structural fault which was believed to run to the northeast. In July, 1916, the company decided upon a location just a mile and a half west of what later proved to be the Tonkawa field's discovery well. Three years of off and on again drilling brought a strong showing of gas but only five barrels¹⁴ of oil at the

¹³C.D. Lockwood, "Deep Tonkawa Sand Stimulates Drilling," The Oil and Gas Journal, XXIII (May 1, 1924), 36.

¹⁴A barrel equals 42 gallons.

significant depth of 4,500 feet. The company sunk \$150,000 into the "duster."¹⁵ In 1919 further drilling in the area yielded the small East Billings field. This find encouraged oil men to once again visualize a larger field on the now apparent line of structural faulting.

The discovery of the Tonkawa field is a direct result of the employment of surface geology which was making its greatest contribution to exploration during these years. In 1920 the geological staff of the Marland Oil Company decided to drill on the northeast corner of a school lease. However, E. Park "Spot" Geyer¹⁶ and his assistants were handicapped in the selection of a site, for the land, with its level contour and scarcity of outcrops, provided only limited knowledge of underlying structures.¹⁷ In addition to their own field work, the staff gained valuable information from other sources. A map by A.E. Faith of the U.S. Geological Survey questionably indicated the presence of an anticline¹⁸ and the failures of the Humphreys Petroleum

¹⁵Lockwood, "Deep Tonkawa Sand Stimulates Drilling," 36.

¹⁶In 1918 Marland reorganized his geological corp under Spot Geyer. Geyer, who had been a former football star at the University of Oklahoma, was ideally suited in temperament for Marland. Both shared a love for poker and a willingness to take chances in a business in which risks played an important role.

¹⁷Ira Rinehart, "Survey of Northern Oklahoma Fields," The Oil and Gas Journal, XXI (Sept. 21, 1922), 94.

¹⁸Ernest Pratt, "The Tonkawa Field of North Central

Company provided further data. In the end the location of the well was, at best, merely an educated guess.¹⁹ Although the science of geology had by this period taken the place of divining rods, intuition and the spirit of venture were still prime ingredients in exploration of an unproven region--commonly known as "wildcatting"--and this remains true even today.

Besides the selection of a drilling location, an even more important step, financing, exists before a well can be put down. The initial financial steps in the Tonkawa venture were taken by the Kenney-Cleary Company and the Tom James Company,²⁰ both closely connected with Marland. The former company was owned by Jack Cleary and Franklin Kenney, and the latter organization by Tom James, a business associate of Marland from Charleston, South Carolina. Although independents, the companies maintained offices at Marland's headquarters in Ponca City and their principle stockholders served on the Marland Oil Company's board of directors. Both had recently worked together with Marland in the Burbank field with its opening in 1918.²¹

Oklahoma" (Unpublished M.S. thesis, University of Oklahoma, 1923), 7.

¹⁹Rinehart, "Survey of Northern Oklahoma Fields," 94.

²⁰Ponca City News, 21 Oct. 1962, p. C-16.

²¹Mathews, Life and Death of an Oilman, 114.

This period witnessed many small independent companies being absorbed by larger integrated organizations through the sale of stock and lease holdings. The Tom James and the Kenney-Cleary Companies were faced with the same business handicaps as the other small companies.²² First, the small independent operators usually participated in only one phase of the industry--field production--while their larger integrated brothers were involved in production, refining, transportation, and retailing. This dominance over the latter three phases allowed the large competitors to have numerous advantages in controlling the market. Secondly, the smaller companies were all dependent upon wildcatting for profit; they did not have the capital to finance the development of a large field which called for a rapid drilling program to drain all the oil possible before other companies entered the area. Wildcatting successes enabled these small operators to sell out the extent of their leases to large companies in case of a promising find and to profit from leases which they themselves might be able to develop with their limited capital. Even in wildcatting, the smaller companies were handicapped by the lack of geology departments available to their larger competitors.

It was not unusual, then, that the Kenney-Cleary and Tom James companies turned to the larger Marland Oil

²²Interview, Cullen (Oct. 12, 1966).

Company in order to develop a ten-well drilling program across southern Kansas and northern Oklahoma. In this operation, the Kenney-Cleary Company and the Tom James Company each assumed responsibility for one-fifth of the investment in a joint venture with the Marland Oil Company, which agreed to contribute the remaining capital and to lend its geology and land leasing departments.²³

At the time, various methods were being used to finance the actual drilling costs of a wildcat. All companies strived toward allowing the initial well in an unproven territory to pay for its own outlay. This was especially true of the smaller companies who engaged in only the wildcatting phase of the industry.²⁴ Financing schemes employed included selling stock, granting interest in leases, soliciting "dry hole money," and securing "farm-outs." "Dry hole money" is funds contributed to the wildcatter by others who own leases in the vicinity and who stand to gain from the geological information provided by the first well. This information gives the various companies an opportunity to decide whether they should spend money in drilling a well, sell their leases for the best offer, farm out their leases to another company or cancel the lease for the land owner. At Tonkawa, Prairie Oil and Gas Company contributed \$2,500 in dry hole money to Marland, and the Kay County Gas Company, a subsidiary to the

²³Ponca City News, 21 Oct. 1962, p. C-16.

²⁴Interview, Cullen (Oct. 15, 1966).

Marland Oil Company, gave \$5,000²⁵ to finance this one well.

Marland employed a second method of financing when he sold to Cosden Oil Company a half-interest in his 640-acre section. Marland and his partners still lacked \$16,000 to cover the wildcat drilling program until a Marland Oil Company official recalled a business favor done for the general manager of Southwestern Oil Company.²⁶ Solely upon the recommendation of Marland's geologists, Southwestern agreed to purchase 160 acres adjoining the test well. This same 160 acres had previously been given to Marland in a "farm-out" by the Humphreys Petroleum Company.²⁷ A "farm-out" consists of a company retaining a fractional interest, usually one-half, in a lease and allowing another company to finance the drilling of a test well in exchange for the other half-interest. In this instance, Humphreys Petroleum had originally given Marland a half-interest in its 320 acres. When farming out a lease to another company, the leasing company's ability to finance the drilling is not the major consideration. Rather the company usually feels that the chances for production are too small for it to undertake the risk of drilling.²⁸

In the spring of 1920, a caravan of horse-drawn wagons loaded with oil rig equipment made its way the twenty

²⁵Daily Oklahoman, 23 Sept. 1923, p. F-2.

²⁶Ponca City News, 21 Oct. 1962, p. C-16.

²⁷Daily Oklahoman, 23 Sept. 1923, p. F-2.

²⁸Interview, Cullen (Oct. 15, 1966).

miles from Ponca City to the proposed drilling site eight miles due south of Tonkawa and into Noble County. This well was No. 9 in the ten-well drilling campaign which had, thus far, brought only dusters from the most promising locations.²⁹ Drilling began by autumn and the first shows of gas at shallow depths encouraged the belief that the location was on a structure. At 2,200 feet, the optimism ended for traces of oil were found but not in commercial quantities.³⁰ Throughout these months the drilling was handicapped by unavoidable delays which faced all initial operations. Sharpening bits on locations and providing water lines meant the loss of time which would not have faced a developed field. Over a year passed before the well was drilled in at 2,658 feet, shortly before midnight, on Friday, June 30, 1921. Lack of storage prevented the running of a twenty-four hour gauge on the well until several weeks later when the valve was opened and 1,000 barrels were made. At that time, the average initial well production for the Mid-Continent area was less than 200 barrels a day.³¹

From that Friday night on, no doubt existed in the mind of the editor of the local Tonkawa News that this new

²⁹Pratt, "The Tonkawa Field of North Central Oklahoma," 10.

³⁰Ibid.

³¹Ralph Arnold, Petroleum in the United States and Possessions (New York: Harper and Brothers Publishers, 1931), 336.

well would be just the beginning of a giant field. The News believed that the wealth of oil which was inevitably covering the state had finally found its way to this community. A front page story attempted to capture the excitement of the event and to express the firm belief that an approaching oil boom was to be thought of as an unmerited blessing.

Cap Rock Jimmie [symbol of the oil man and his adventurous spirit], who has watched with unfaltering faith in the ultimate outcome, . . . was there. He stood upon the brink of the pool of oil that soon formed, and as he gazed upon its velvety greenness, he gave a prolonged shout of joy. Stooping, he cupped his hands and dipped them into the pool and bathed his smiling countenance with oil. And why not? Hath not the Psalmist said in his songs of praise: "Thou anointist my head with oil; my cup runneth over."³²

Despite this optimism, there was no immediate rush upon Tonkawa.³³ The effort to find oil there was several years old and was marked by³⁴ many failures.

Many independents had failed because they could not finance the extensive development program required after oil was discovered. For this reason, it was necessary to secure finances through the selling of interests. Marland's long

³²Tonkawa News, 23 June, 1921.

³³Grady Triplett, "Tonkawa Holding Oklahoma Output Steady," The Oil Weekly, XXVIII (Jan. 13, 1923), 10.

³⁴Marland's discovery well barely missed being just another duster in the search for oil northeast of the Billings fields. The third well drilled proved to be a duster although located less than 100 yards from Marland's first well. The second well, also an offset, proved to be the "Mid-Continent wonder well of 1921" when it produced nearly 250,000 barrels within four months.

run of successful discoveries since the Ponca field in 1911 had necessitated plowing back all available resources for the protection of his leases from drainage by offset developments of other companies.³⁵ With these things in mind, Marland began hunting a partner with ready cash to help him develop the acreage adjoining his Tonkawa discovery well. It was always the desire of every independent to keep some rights in any leases that might look favorable.³⁶ To sell a part-interest in his acreage would still prove very profitable to Marland. In addition to the section held jointly with Cosden, Marland separately owned an adjoining 240-acre lease. Soon after the completion of the discovery well, he offered Carter Oil Company a half-interest in these 560 acres for \$1 million but was turned down. The Carter geologists just ". . . couldn't see the field as being profitable."³⁷ Despite the fact that the use of geology in exploration was accepted by everyone, many times it was difficult to find the same semblance of agreement among geologists themselves.

In 1912 Royal Dutch-Shell, a union of international companies, entered the United States for the first time when it purchased two small companies as subsidiaries. Both the

³⁵Kendall Beaton, Enterprise in Oil (New York: Appleton-Century-Crofts, Inc., 1957), 193.

³⁶Interview, Cullen (Oct. 15, 1966).

³⁷Daily Oklahoman, 23 Sept. 1923, p. F-2.

Shell Company of California and Roxana Petroleum Corporation in the Mid-Continent region met with early financial setbacks when their attempts at wildcatting failed. Royal Dutch-Shell had been kept from investing in semi-proven leases in the years during the war and the immediate postwar period as the high price of Mid-Continent oil had demanded high prices on all acreage. By early 1921, the price of oil had dropped to \$1 a barrel.

Thus Roxana modified its position and began to look for favorable leases. Royal Dutch-Shell's fortune took an upturn the day that its director, W.A.J.M. van Waterschoot van der Gracht, made the acquaintance of the successful Oklahoma wildcatter, E.W. Marland.³⁸ In early 1921, Roxana agreed to help provide the capital in the Burbank field where Marland had overexpanded himself in acreage. This first business adventure led Marland to seek Roxana's backing in the new Tonkawa field. In July, Marland had organized the Comar Oil Company to develop his Tonkawa leases. The company whose name meant "companies of Marland" was composed of the following Marland Oil Company subsidiaries: Ozark Pipe Line Company, Kay County Gas Company, and the Marland Refining Company. As a result of Marland's personal trip to Royal Dutch-Shell's head office in London, Roxana agreed to acquire an equal interest in Comar and early in September a contract was signed. The agreement provided that Marland

³⁸Beaton, Enterprise in Oil, 192.

would turn over his holdings in the Tonkawa field to the new Comar company and that Roxana would put up \$2 million, the first million in cash immediately and the second million when it was needed for development work.³⁹ The management of Comar was vested in Roxana, which held a fifty-one per cent controlling interest, and the affairs of the new company were to be handled by an office established in Ponca City. The procedure for developing a field by creating a separate corporation and leaving the field operations in the hands of one of the parent companies was a common practice of the time.⁴⁰

Most of the land included within the Tonkawa field had been leased before the discovery well by either company lessees or private investors.⁴¹ As a form of investment, individuals would secure mineral rights while an area was still unproven and hoped for a nearby discovery of oil to present them with an opportunity to sell to a company. Each large oil company had a land department which consisted of lessees who were paid on a commission basis. In relatively unproven areas, a company's hired lessees might attempt to increase the chances of hitting pay dirt by checkerboarding or scattering their leases. For example, Humphreys

³⁹Ibid., 195.

⁴⁰Interview, Cullen (Oct. 15, 1966).

⁴¹Oklahoma, Kay County, lease records of Township 25 North, Range 1 West, County Clerk's Office (Newkirk, Oklahoma).

Petroleum had checkerboarded the vicinity of the field years before. Handicapped by lack of capital to finance a rapid drilling program, small companies holding leases in the field's vicinity would sell out to larger ones as the field slowly took shape.

The motive for drilling what is known as a "tight hole" is usually to enable its owner to be a step ahead of his competitors with knowledge which the well provides. The information may direct him to enlarge his holdings in the vicinity. If it is the discovery of a new producing zone much deeper than known depths, the owner may desire to buy deep rights in areas even when the shallow depths have been found productive by others. Concealing a well's progress was not particularly difficult as long as the workmen could be trusted; they were simply sworn to secrecy. This gave the operator additional time to move slowly in the acquisition of surrounding leases. In the 1920's the major portion of drilling was done with cable-tool rigs which required only a driller and a tool dresser on the job. A team would work twelve hours and then another shift would come on to complete the day. Only four men would then have knowledge of what was penetrated by the drill, and frequently the tool dresser knew little, if anything, about what was being discovered. Stories are told that Three Sands had its tight wells including the T.B. Slick Oil Company's attempt to reach a deep producing sand. In other fields, instances are

recalled where wells were actually capable of producing but were plugged and temporarily abandoned.

The purchaser of land often buys with it the rights to a share in any mineral rights although these rights may be sold separately. Usually a complete quarter-section, the typical size of the area's farms, would be leased to one company. There were cases in the Tonkawa field, however, when a farm was divided into eighty and forty-acre tracts and leased to separate companies. When a company takes a lease on land, the lease agreement reserves for the owner his royalty interest or personal share of production which, in the Mid-Continent region, is a standard one-eighth. Exceptions exist as at Three Sands where one farmer asked for and received fourteen per cent of production on a very promising piece of land. The typical form of lease is for a five to ten year period for which the land owner receives an annual rental fee. Sam McKee, whose farm became the field's production center, had signed years before the field's discovery for only ten cents an acre, which represented a token annual rental.⁴² The lease has an automatic renewal if oil is being produced. In areas where the land has been proven, a company may find itself having to pay a cash bonus in order to gain the lease.

The oil scout serves as his company's field intelligence. His duty is to inform the decision makers of the

⁴²Daily Oklahoman, 11 March 1923, p. B-5.

various activities of other companies. A new well, strange geologists in the scout's assigned territory or the presence of a company lessee are signs which the scout constantly looks for. If any such activity occurs, he must find the purpose behind it in order to allow his company to plan its strategy. To aid him in his job, he must have the knowledge of a geologist, driller and lessee and at the same time be a student of human nature. He must be able to exercise both tact and persuasion. A few scouts were known to have grabbed a piece of pipe and forced their way on a location which was drilling a tight well. To secure information, he usually had to gain the confidence of a rig's driller and to sense when he was being lied to. By watching the cable from a cable-tool rig or the drill pipe of a rotary outfit, the scout was able to form a picture of what was taking place. At this period of the industry's history, scouts ". . . swapped information secretly, chiseled facts where they could and guessed at the rest."⁴³

The petroleum industry was enthusiastic over the high quality of oil being produced at Tonkawa as indicated by the prices paid for leases in the general region of the field. The echo of the "lease hound" was soon resounding throughout the land. Lease brokers could be found in all the hotel lobbies with geological survey maps in their pockets. So

⁴³Max Ball, This Fascinating Oil Business (Indianapolis: The Bobbs-Merrill Co., 1940), 29.

keen was the rivalry among lessees that they did not wait to have a lease recorded or the abstract examined. When the owner of a farm affixed his signature to a lease form, the lessee paid him off immediately in cash. By March, 1923, farmers were receiving \$350 an acre for wildcat acreage northwest of the Tonkawa field.⁴⁴

Comar showed more faith in the field than any of the other large companies and quickly added to the 580 acres it had originally held in the Tonkawa field by "block" or mass leasing in the area to the northeast. But in 1922 the field took an unexpected turn to a straight north and even a northwest direction. This change left much of Comar's holdings outside the limits of production. At the same time, Comar purchased the Alcorn Oil Company's 400 acres of leases for \$3 million in cash and oil⁴⁵ and the Wrightsman Petroleum Company's leases for \$1 million.⁴⁶ Marland, who had refused to be outbid at the Osage tribal auction of leases in the Osage field, did not hesitate at Three Sands to make

⁴⁴Tonkawa News, 4 Mar. 1923.

⁴⁵John Alcorn, a leading stockholder and official in the Marland Oil Company, owned the John S. Alcorn Company. In the recent Burbank field the company had cooperated with Marland by taking leases on which it drilled and then in turn sold out to Marland. Mathews, Life and Death of an Oilman, 115. Alcorn agreed to sell his acreage to the Comar company at the time Marland Oil Company and Roxana had signed their contract. This was one of the reasons Roxana had joined the Comar venture. Interview, Cullen (15 Oct. 1966).

⁴⁶Daily Oklahoman, 23 Sept. 1923, p. F-2.

a large investment. By late 1925 the joint Roxana-Marland venture held some 1,900 acres of producing leases at Tonkawa which were yielding over one-half of the field's total production.

In the process of acquiring leases within the field, the large companies paid what was considered at the time to be the highest prices for proven acreage in the state's history.⁴⁷ Sixteen months after the Marland-Cosden discovery well was drilled, one company gave \$1.3 million for a lease of 400 acres in the northern part of the field. In February, 1923, the Blackwell Oil and Gas Company, a local independent, sold the John Ruzek quarter-section for \$2 million or at the rate of \$7 a share for 300,000 shares.⁴⁸ The Gypsy Oil Company, T.B. Slick Oil, Carter, and other large companies bought in after Tonkawa began to produce at record figures. Huge capital resources assured rapid development. The large companies held practically all the acreage in the field by September, 1923.

With all the available acreage being sought, legal problems arose in leasing. Like Jennings, Louisiana, and Merriman, Texas, the Tonkawa field had its cemetery drilling controversy. Cemetery drilling was not considered unusual or out of the ordinary when the attempt was made to drill in

⁴⁷Ibid.

⁴⁸Ibid.

the Prairieview Church yard. The small country church of the United Brethren was located on the McKee farm which had proved to be the center of the field's production. Early day oil men believed that oil would be found near gravesites. This belief rested partly upon the superstitious nature of men who were attempting to search for the unknown. For example, it was not uncommon for a drilling crew to delay the bringing in of a well on Friday 13. Also, the frequent discovery of oil on Indian burial grounds, as Marland had done in the Ponca field, and the famous Markham cemetery lease near Bartlesville, confirmed this oil finding rule for the superstitious.⁴⁹ Geologists later gave the explanation that rises and hilltops were often selected for burial grounds to protect against drainage. These uplifts of the land contour many times reflected anticlines or domes which were structures.

In the spring of 1923 George Knox, whose brother, Charles, had developed the famous Garber field, claimed ownership of the lease of the Prairieview Church property with its adjoining cemetery. He climbed the wire fence for the purpose of examining a proposed drilling location, but the members of the congregation were prepared. The group rushed Knox and threw him over the fence. The parishioners said the place was sacred and ordered him never again to set foot there. The question was then taken to the courts where

⁴⁹Ibid., 24 Aug. 1923, p. B-4.

Knox argued that he had obtained a lease from the Oklahoma Conference of the United Brethren. The land rested on the Sam McKee farm but had been deeded to the state conference of the church. However, the defendants maintained that the location for a well would have been within thirty feet of a grave and salt water would flow down on the resting place of friends and relatives. The following newspaper account explained the issue:

Beneath the shadow of oil derricks, which spring like ghosts in the night from the fields once covered with gently waving wheat fields, lie the dead of the Prairie-view Church. The stretching fields have been transformed into a forest of derricks; these derricks crept nearer and nearer to the place of worship; . . . the shadow of the spire often fell across the graveyard as though attempting to assure the dead that they would not be reached by the advancing noise of greasy men building derricks.⁵⁰

In issuing an order to forbid the drilling company to trespass, the judge reasoned that the property had been given for the public interest and that even though the conference held the deed, the public whose interest was involved should have the authority. Knox appealed the case to the Oklahoma Supreme Court where he was again turned down. The failure to gain entrance to church property did not end the drilling in yards of farm homes and school houses.

Probably the greatest handicap faced by the geologists at Tonkawa was the relatively level contour of the land since they were still, at this time, dependent upon

⁵⁰Ibid., 23 Sept. 1923, p. B-6.

surface factors of outcrops and topography to determine the underlying structures. To solve this problem, company geologists employed core drilling for the first time in mapping out the structure of a field.⁵¹ Core drilling, which cuts an actual core of the earth's strata, was first applied as a tool for the surface geologist but, in later years, it developed into a stratigraphic drilling tool for the subsurface geologist. Marion M. Travis, former head of Midco Petroleum Company, introduced the diamond core drill to the Mid-Continent area. While visiting some mines in Colorado during the summer of 1918, Travis saw a steam-driven core drill in operation and, impressed with its possibilities, he contacted the E.J. Longyear Company of Minneapolis, which adapted the drill for use in the search for oil.⁵² This machine was used early in 1919 to verify the structural conditions on the Chilocco Indian reservation in Kay County.⁵³

Just as Marland had been one of the leaders in adopting geology to the oil industry, he continued to lead the way with the diamond core drill and later with the seismograph. In October, 1921, the Marland Oil Company purchased its first diamond core drill.⁵⁴ When the surface

⁵¹Kornfeld, "A Half Century of Exploration in the Southwest," 192.

⁵²Ibid.

⁵³Ibid.

⁵⁴Daily Oklahoman, 10 Dec. 1922, p. B-6.

cover at the new Tonkawa field precluded mapping by the usual surface geology methods, the core drill furnished the right tool to penetrate the cover and to reveal the altitude of formations which could not be determined with the absence of outcrops. The core drill was still considered a surface geology tool, since there was no attempt to coordinate the sample core with other subsurface data in determining the presence or absence of a structure. Maps obtained from the core drill data indicated that the structure did not align itself along the usual northeast to southwest trends. On the contrary, the geologists found that a major break occurred in the structure and that the principal part of the structure lay to the northwest.

The core drill's success at Tonkawa encouraged Marland Oil Company and Roxana to extend exploration to other areas where favorable structural conditions were believed to be present. At the beginning of 1923, the Marland and Roxana firms were the only companies using the core drill, but a survey made three years later indicated that nine or more companies were operating thirty-five drills across Kansas and Oklahoma.⁵⁵

When first introduced, the core drill was a clumsy affair. The mechanism was operated by two men⁵⁶ and could

⁵⁵Kornfeld, "A Half Century of Exploration in the Southwest," 194.

⁵⁶Two men operated the drill; they were paid \$10 and \$6, respectively, for a twelve-hour shift. If one was a

drill two or three 125 foot holes a week. Tractors transported the steam-driven equipment from one location to another. The rig consisted of a mast formed by a tripod of long poles. The drill obtained cores of one inch from the surface down and only diamond-studded bits were run. These black diamond bits were the most expensive part of the machine and the driller usually carried the diamonds, worth \$3,000, in his pocket.⁵⁷

The very sands from which oil was drilled made the Tonkawa field a wonder in its own right. The Daily Oklahoman called it ". . . one of the phenomenal fields of Oklahoma if not of the world,"⁵⁸ for no less than fifteen producing horizons of oil and gas were found in the field and often as many as seven producing in one location. Among the fifteen sands, only four were of importance as oil sands: the Carmichael at 2,050 feet; the Endicott at 2,100 feet; the Tonkawa at 2,500 feet; and the Wilcox at 4,100 feet.⁵⁹ Continually, wells came in with the unbelievable initial production of 5,000 barrels per day from the Tonkawa sand and

diamond-setter, he got \$12.50.

Albert Parker, "Life and Labor in the Mid-Continent Oil Fields, 1859-1945" (Unpublished Ph.D. dissertation, University of Oklahoma, 1951), 196.

⁵⁷Daily Oklahoman, 10 Dec. 1922, p. B-6.

⁵⁸Ibid., 23 Sept. 1923, p. F-2.

⁵⁹Walter Ver Wiebe, Oil Fields in the United States (New York: McGraw-Hill, 1930), 271.

the deeper wells with 10,000 barrels from the Wilcox.⁶⁰

From the beginning, three oil sands were producing over the entire field and in time, as many as five derricks were erected at one location with each drawing oil from a different horizon. At the time no oil man could recall having witnessed such large clusters of derricks in an Oklahoma field.⁶¹ Later it became quite common to have several prolific oil producing strata in a large pool; but in the early 1920's, Tonkawa was considered an Oklahoma first.⁶²

The presence of the numerous sands enabled the Tonkawa field to become a leading producer in the state although it covered only a small area. For example, in April, 1923, Tonkawa produced 95,000 barrels daily from 200 wells over its eight square-mile area. At the same time, the Burbank field was producing 91,000 barrels from its 900 wells scattered over eighteen square miles.⁶³ By the end of 1927, the field had produced an average of over 30,000 barrels an acre, which was an all time high for an Oklahoma field⁶⁴ and

⁶⁰Carl Branson, Fifty Years' Progress Semi-Centennial Report, publication of the Oklahoma Geological Survey (Norman: n.p., 1930), 44.

⁶¹Daily Oklahoman, 23 Sept. 1923, p. F-2.

⁶²Interview, Malcolm Oaks (Norman, Okla., May 21, 1967). Oaks was former petroleum engineer for Roxana and geologist for Oklahoma geological survey.

⁶³Daily Oklahoman, 22 Apr. 1923, p. B-5.

⁶⁴Edwin Reeser, Oil Royalties (Tulsa: Dexter

over one-half of the production came from deep Wilcox sand.

From the field's beginning, oil men expected a deep sand to lay below the other producing strata. The Wilcox sand lays beneath the Mississippi lime, which is a geological guide line between the above deposits of the Pennsylvania Era and the below layers of the Ordovician Era.⁶⁵ Early Oklahoma drillers believed that the Mississippi lime represented the bottom of all possible oil sands. Ordovician oil had been produced in the early fields of Glenn Pool, Flat Rock, Cushing, Bixby, and Blackwell, but the oil was not recognized as having come from this era of deposits until Ordovician microfossils were first identified in 1916 at the Healdton field.⁶⁶ The Ordovician Wilcox sand was being tapped as early as 1908 by drillers in Tulsa County, where it was called Mounds or Sapulpa, and from 1914 to 1921 the sand whose origin remained obscure was the most prolific and dependable oil sand in Oklahoma and Kansas.⁶⁷

In 1918 Fritz Aurin, a Marland geologist, theorized that wells across the state were producing from pre-Mississippi strata. Aurin took an enormous number of well logs and cuttings from wells in the north central area and

Publishing Co., 1929), 133.

⁶⁵Lerona Morris, Oklahoma Yesterday-Today-Tomorrow (Guthrie: Co-operative Publishing Co., 1930), 830.

⁶⁶Branson, Fifty Years' Progress, p. 42.

⁶⁷Kornfeld, "A Half Century of Exploration in the Southwest," 197.

prepared a stratigraphic cross-section from the information. In 1921 he presented his findings in a paper which formally opened a new concept of unlimited production potentiality in formations below the Mississippi lime.⁶⁸ His work encouraged many companies to organize sub-surface divisions in their geological departments.⁶⁹

The credit for the discovery of Tonkawa's deep pay formation belongs to Tom B. Slick. Noted for his courage and luck, he was a pioneer in his own right and it was characteristic of him that he continued to deepen his well after it was already an excellent producer within the shallow sands and when each additional foot meant the imminent danger of running into water. The consensus among those watching the well at the time was that he should ". . . have left well enough alone."⁷⁰ But, then, the reward of being a step ahead of his competitors awaited Slick in April, 1924, when he became the first to reach the Wilcox sand. For a time opinion varied about what deep sand had actually been hit since, with the wells flowing, it was impossible to determine the sand's origin. The difference of opinion was reflected in the numbering of the wells drilled to the deep horizon.

⁶⁸Fritz Aurin, "Early Petroleum Geology in Northern Oklahoma," Shale Shaker, XXI (Apr. 1966), 185.

⁶⁹Ibid., 186.

⁷⁰Lockwood, "Deep Tonkawa Sand Stimulates Drilling,"
36.

Those on the Slick lease were known as No. 1-SS (Slick Sand) while the other companies were referred to as No. 1-W (Wilcox).

CHAPTER II

THOSE WHO PROFITED FROM THE FIELD

During the 1920's the United States produced approximately sixty-five per cent of the world's crude oil and over half of the nation's production came from the Mid-Continent oil fields.¹ Through the years Oklahoma became a big factor in the Mid-Continent area's output and even within the national oil economy. Although oil was not being tapped commercially in Indian Territory until 1896, Oklahoma entered the Union in 1907 as the leading oil state and, along with California, remained one of the top two producers until 1928. Before the World War the oil bonanzas of Glenn Pool, Healdton, Cushing, and Garber had been the magic names among the state's oil fields. These discoveries and numerous smaller ones had caused Oklahoma's annual petroleum income to increase in value from \$75 million in 1900 to nearly \$1.3 billion in 1920.² But Oklahoma's zenith did not come

¹Arnold, Petroleum in the United States and Possessions, 33.

²U.S. Department of Commerce, Statistical Abstract of the United States 1920, No. 43 (Washington: Government Printing Office, 1921), 260.

until the 1920's when the discoveries of Burbank, Tonkawa, Seminole, and Oklahoma City allowed Oklahoma to lead the nation from 1920 to 1928.

The Tonkawa field reached its highest yearly yield in 1923, a year which saw the United States' production jump from 560 million to 730 million barrels for the highest increase of all time.³ Oklahoma's 160 million barrels of crude represented a new peak for the state. This was chiefly due to the flush production at Burbank, Bristow, Lyons-Quinn, Hewitt, and Tonkawa. Although 1923 proved to be the peak year of Tonkawa's output, the field still trailed Burbank, which ranked as Oklahoma's production center from 1920 to 1924. In 1923 Tonkawa produced 28 million barrels and 24 million in the following year; but not until 1925, when the field made 23 million, did Tonkawa lead the state. However, Tonkawa's highest yearly yield was exceeded in Oklahoma's petroleum history by only four other fields: Cushing, Burbank, Oklahoma City, and Seminole. The latter hit a record setting 135 million barrels in 1927 alone. The production life of the Tonkawa field was short, and within the span of three years of active flush production, the field had produced nearly one-half of its lifetime yield of 127 million barrels.⁴

³Arnold, Petroleum in the United States and Possessions, 33.

⁴Branson, Fifty Years' Progress, 44.

The very quality of the oil produced at Tonkawa made the field unique and enabled it to command the highest prices on the market. Tonkawa oil was over forty-two degrees gravity, which meant that it was extremely light and highly desirable for refining into gasoline. The refined Tonkawa crude yielded forty-six per cent gasoline, as compared with the average crude in the United States which was rated at thirty-three degrees gravity with a gasoline yield of twenty-six per cent.⁵ When possible, lower-gravity oil was primarily used for fuel purposes and not refined. Tonkawa crude was also very "sweet" which added to its value.⁶ A "sweet oil" had a high-paraffin base and did not have a large content of sulphur which "soured" the oil and lowered its refining value. At the time, Tonkawa was the only Mid-Continent field producing light crude in abundance and for a period in 1923, the field produced nearly one-half of the United States' light crude.⁷ In years to come, Tonkawa still ranked only second behind the Garber oil field in having yielded Oklahoma's highest gravity oil.⁸

A few large integrated companies controlled oil

⁵Arnold, Petroleum in the United States and Possessions, 385.

⁶Rinehart, "Survey of Northern Oklahoma Fields," 102.

⁷Campbell Osborn, "Eastern Refineries Buy Marland Crude," Marland Oils, III (July 1923), 9.

⁸Arnold, Petroleum in the United States and Possessions, 362.

prices by their domination of the transportation, refining, and marketing facilities. The companies determined and posted the price they would pay for a particular crude, and sooner or later, all of the other large companies adhered to those rates. In the 1920's Prairie Oil and Gas Company, the pioneer pipeline builder of the Mid-Continent area, was the most important transporter and purchaser of oil in Oklahoma.⁹

The Tonkawa field's pipelines were owned either by purchasers who desired to resell the oil or by owners of refineries. Most of the pipelines supplied small refineries, located within the state but a few, like Ozark Pipe Line Company, were connected to large interstate trunk systems. A purchaser did not necessarily need to own a pipeline because the pipelines were considered as common carriers. A state law required the rateable taking of oil that was tendered for shipment. The purchaser without a pipeline had to furnish only the transportation from an operating pipeline's terminal.

Prior to 1922 companies in the Mid-Continent did not post prices for crude oil on the basis of the oil's quality, and by paying a premium of ten to twenty-five cents per barrel, smaller purchasers often secured the higher grade of

⁹C.O. Willson, "Southwest is the Hub of the Pipeline Industry," The Oil and Gas Journal, L (May supplement 1951), 408.

crude. Under this method of pricing, the Tonkawa field held the distinction of having demanded the greatest premiums ever paid per barrel over the state's scheduled price.¹⁰ Companies gave premiums of from fifty cents to \$1.25 per barrel for the Tonkawa oil with its high gasoline yield, and these bonuses boosted the price to as much as \$3.15 to \$3.50 per barrel when the average United States crude brought only \$1.80.

After 1922 the Prairie Oil and Gas Company arranged a sliding scale which posted higher prices for the lighter crudes.¹¹ But this still caused many of the smaller purchasers to pay a premium on these higher prices in order to secure a supply. The larger buyers were able to bid at lower prices because they purchased regularly, and often the smaller operators were required to give bond that they would take the production for which they applied. Irregardless of the new scale system, each purchaser at the Tonkawa field refused to be outbid for a share of the high-quality oil.¹² Marland proved to be an important exception to the competition since he had first call on all of Comar's production. First call privileged Marland to take the Comar oil at the posted price unless someone offered more; in which case, the

¹⁰Daily Oklahoman, 23 Sept. 1923, p. F-2.

¹¹Arnold, Petroleum in the United States and Possessions, 343.

¹²Daily Oklahoman, 2 July 1922, p. B-6.

higher bidder gained Roxana's share.¹³

In contrast to almost all the fields of the time, there existed from the beginning adequate pipelines and storage to prevent a reduction in the price due to local overproduction.¹⁴ The field's operators never had to settle for less than the maximum price being offered for high-gravity crude. By the spring of 1923, twenty-six pipelines had been laid to the field and steel storage tanks--representing a capacity of over one million barrels--were scattered across the leases.¹⁵ Oil was shipped as quickly as possible, especially since high-gravity crude suffered a great loss in value from being stored. The pipelines were from two to ten inches in diameter and could transport 185,000 barrels daily.¹⁶ This was more than adequate to handle even Tonkawa's peak production.

Out of the seventeen United States fields which, at the time, had produced over 100,000 barrels daily, eight, including Tonkawa, reached the mark in 1923.¹⁷ Despite the fact that Tonkawa was among the fields bringing about overproduction and declining prices, the field was one of the

¹³Interview, Cullen (Oct. 12, 1966).

¹⁴Daily Oklahoman, 23 Sept. 1923, p. F-2.

¹⁵Ibid.

¹⁶Pratt, "The Tonkawa Field of North Central Oklahoma," 88.

¹⁷Tonkawa reached its daily peak on April 8, 1923 when the field made nearly 115,000 barrels.

most prosperous. For example, during February and March, 1923, the field's high-gravity oil brought lessees and royalty-owners \$284,000 while selling at \$2.60 per barrel.¹⁸ With its high-gravity oil Tonkawa, as a moneymaker, overshadowed all others within the Mid-Continent, including Burbank and Smackover, Arkansas, and was exceeding 200,000 barrels a day. Nationally, Tonkawa took second place in total yearly income only to the Santa Fe Springs field of California, which often passed the mark of 300,000 barrels a day.¹⁹

Tonkawa fell far short of being an all time production leader but it certainly deserved the title of "billion-dollar spot" given to it during its "heyday." By May, 1925, 70 million barrels had sold for \$158 million at an average price of \$2.25 per barrel.²⁰ By then the "wonder field" had brought more wealth to its operators than any other in the state's history.²¹ For example, The Cushing field, in 1916, had made as high as 300,000 barrels daily but the price was down to twenty-nine cents at the time.²²

From the beginning, Tonkawa tapped a second source

¹⁸Daily Oklahoman, 26 Apr. 1925, p. B-2.

¹⁹Ibid., 23 Sept. 1923, p. F-2.

²⁰Ibid., 6 Apr. 1924, p. B-6.

²¹Ibid., 17 May 1925, p. B-3.

²²Ibid., 23 Sept. 1923, p. F-2.

of wealth, natural gas. The field rested on four gas sands which lay above the unheard of shallow depth of 1,700 feet.²³ These upper gas sands were tapped by star rigs, small portable rigs used for shallow drilling. During the first two years of its existence, the field was one of the most extensive natural gas centers in the Mid-Continent area.²⁴ Gas lines from the field ran to the towns of Tonkawa and Blackwell; and local industries and citizens welcomed the added fuel supply. But, by the fall of 1922, the abundant supply of natural gas was diminishing rapidly from the shallow wells.

Gas and oil flow from an oil well together and are carried to a gas and oil separator. This gas is "wet" in that it carries considerable amounts of light gasoline fractions--amounts ranging up to two gallons per 1,000 feet of gas. This gasoline may be recovered from wet gas by one of two methods, absorption or compression.²⁵ In the former system, gas passes through a mineral seal oil which absorbs the gasoline fractions. Distillation permits gasoline to form and leaves the oil to be used again in the recovery of more gasoline. In the compression process, gas is first compressed and then cooled. This process causes the

²³Ibid., 11 Dec. 1921, p. B-4.

²⁴Ibid., 30 July 1922, p. B-7.

²⁵Ball, This Fascinating Oil Business, 155-156.

gasoline fractions to liquefy, which allows the gasoline to be recovered. The gasoline plants which employ these two methods are known as "casinghead plants" and their product, as "casinghead gasoline."

During its boom period Tonkawa became one of the United States' greatest centers for casinghead gasoline.²⁶ By 1924 over a dozen plants had been erected by various companies who owned leases in the field and were already engaged in the production of oil. Several of the casinghead industries were created as subsidiaries of existing companies. Marland, for example, owned a quarter-interest in a plant and Comar contributed the remainder of the capital. The Wentz-McCaskey Gas Company's plant, with a 22,000 gallon daily capacity, and another owned by the Gypsy Oil Company represented the largest and best equipped plants in the state.²⁷ Almost all of the plants utilized the more efficient absorption method after a suit by the Oklahoma Natural Gas Company against the Hope Natural Gas Company had broken the latter's monopoly on the absorption process. The court's decision in 1922 quickly brought about the conversion from the compression to the absorption method throughout the Southwest.²⁸

²⁶Daily Oklahoman, 23 Sept. 1923, p. F-2.

²⁷Ibid., 3 May 1925, p. B-2.

²⁸C.O. Willson, "Phenomenal Growth Marks Natural Gasoline Expansion in Southwest," The Oil and Gas Journal, L (May supplement 1951), 381.

The Tonkawa field proved to be very profitable for all who gained access to the leases. However, a few companies held the vast majority of acreage. Their good fortune in the field allowed them to make very important expansions in their companies. In 1919 only twenty-nine companies in the United States had produced over a million barrels of oil.²⁹ By September, 1925, after two years of active drilling, nine companies had passed the million-barrel mark in the Tonkawa field alone, and others were on the verge of it.³⁰

The years between 1920 and 1925 were of major importance to Royal Dutch-Shell, for in this brief period its American investments rose to positions of national prominence. Roxana's good fortune at Tonkawa was matched by its sister company on the West Coast. Shell of California had recently discovered the fabulous Signal Hill near Long Beach, California. Although Tonkawa did not have the long life of Signal Hill, the Comar venture was just as much a factor in establishing Shell in America as the California field.³¹ The high-grade oil at Tonkawa comprised a very

²⁹Carl Rister, Oil! Titan of the Southwest (Norman: University of Oklahoma Press, 1949), 187.

³⁰Eighteen leases had yielded over a million barrels each by September, 1925. C.D. Lockwood, "Tonkawa Field Production by Leases," The Oil and Gas Journal, XXIV (Oct. 15, 1925), 92.

³¹Beaton, Enterprise in Oil, 197.

substantial share of Roxana's increased output of oil during this period, and the original \$2 million investment in Comar had yielded Roxana \$30 million in dividends by the end of 1925.³²

Roxana's holdings necessitated a new refinery nearby, and in 1923 the Chamber of Commerce of Arkansas City, Kansas persuaded Roxana to locate its \$3 million plant there. The 14,500 barrel daily capacity of the refinery made it one of the largest in the Mid-Continent.³³ Finally, the large supply of oil from the Tonkawa field allowed Roxana to gain the wholesale and retail profits of an integrated company by entering into those phases of the industry.

E.W. Marland had been boosted greatly by his Burbank holdings which enabled him to extend his oil search to Mexico. The find at Tonkawa encouraged him to continue this expansion by enlarging his Ponca City refinery, building a second refinery on the Gulf of Mexico, and opening a retail phase of his company. Marland not only entered the Tonkawa field through the partnerships with Roxana and the Cosden Oil Company, but he also held some 320 acres of highly-productive leases with the T.B. Slick Oil Company and by himself.³⁴

³²Ibid.

³³C.O. Willson, "Journal-log of Southwestern Oil," The Oil and Gas Journal, L (May supplement 1951), 171.

³⁴In 1922 Jack Cleary sold his interest in the field's discovery lease to Marland and assumed the presidency of the Oklahoma Division of Marland Oil Company. The Tom James Oil Company also sold its interest but continued to

The expansion made during the years of Tonkawa's height required a great deal of capital, and Marland turned to the Wall Street House of Morgan. J.P. Morgan, who encouraged Marland's branching out, backed up the investments and, in return, received \$12 million worth of stock from the Marland Oil Company in 1924.³⁵ This year saw the beginning of the end of Marland's personal control of the company which he had founded. By 1928 the Morgan interests had forced Marland out altogether.

The Gulf Oil Corporation had its beginnings at Spindletop in 1901 when Anthony Lucas called on the Pittsburgh banking firm of T. Mellon and Sons to help develop his oil find. Andrew W. Mellon, the future Secretary of the Treasury, with his brother, Richard Mellon, agreed to furnish the needed capital, and two small companies were created to handle recovery and refining separately. In 1905, the two phases were combined in the single Gulf Oil Company, headed by the Mellon interests. A year later, Gulf formed the small Gypsy Oil Company, with headquarters in Tulsa, to explore and develop the Indian Territory.³⁶ Gypsy, backed by the mother company, had one success after another: Glenn Pool, Cushing, Burbank, and Tonkawa. With sufficient

operate as a wildcatter in years to come. Ponca City News, 21 Oct. 1962, p. C-16.

³⁵Mathews, Life and Death of an Oilman, 169.

³⁶Craig Thompson, Since Spindletop (n.p., [1951 ?]), 25.

capital, Gypsy was able to buy into Tonkawa and become second only to Comar in production with over 10 million barrels by 1925.

The Amerada Oil Company, whose title was formed from the names of America and Canada, began in 1919 with a group of English investors purchasing a limited amount of unproven land in the Osage country. Later investments outside of Burbank did not meet with the same success. When E.L. DeGolyer made several oil finds in Mexico, Lord Cosdry of England, president of Amerada, placed the young geologist in charge of the company. Backed by \$3 million, DeGolyer began to search for productive leases. One of the investments decided upon was the Goltry lease within the Tonkawa field. Although the lease had been condemned earlier by geologists on the spot, this single 160-acre lease brought in over 5 million barrels in two years of existence.³⁷ This one investment gave the Amerada Oil Company a very important lift.

John C. McCaskey, the millionaire sauerkraut king, met Lew H. Wentz by accident when the latter was ringing door bells in behalf of the Republican Party in Pittsburgh. At the time Wentz was a baseball coach for a local high school. McCaskey took an immediate liking to him and sent Wentz to Ponca City to look after his oil properties. Shortly afterward, Wentz took McCaskey's backing and started out on his own. Although he at first had a hard time making

³⁷Tonkawa News, 8 Nov. 1923.

it on his conservative pay-as-you-go policy, he became a millionaire by 1920.

Leasing largely within the north central Oklahoma area, Wentz always relied on his own judgment in selecting a lease and prided himself in never having sold one. His policy proved to be right at Tonkawa. Here Wentz was offered \$1.3 million for the McKee lease, but he refused.³⁸ Later he made a profit of more than \$3 million from a single well among the sixty-eight on the lease.³⁹ During the Tonkawa boom, the McCaskey-Wentz Oil Company was consolidated upon the death of McCaskey in 1924. The success within the field had made the Wentz Oil Company the largest individually owned company in the Mid-Continent.⁴⁰ By 1927 the Wentz Oil Company was making \$1 million a month, and Wentz's personal income was noted to be among the top six in the United States.⁴¹

In August, 1930, Tom B. Slick died. The huge Oklahoma City oil field became silent for one hour in tribute to one of the oil industry's most colorful figures. Slick, who made and lost millions, was quiet and unassuming yet aggressive in nature. The expression "Tom Slick luck" was a

³⁸Ponca City News, 21 Oct. 1962, p. C-16.

³⁹Lockwood, "Tonkawa Field Production by Leases,"
92.

⁴⁰Daily Oklahoman, 2 May 1925, p. B-5.

⁴¹Ponca City News, 21 Oct. 1962, p. C-16.

common one among oil men. To them it meant a combination of good judgment and a competitive willingness to take a chance. His successes at Cushing and Seminole came as a result of not being afraid to chance a lease when another company had turned it down on account of geological indications. At only twenty years of age, Slick began wildcatting with only one rig in 1903, and by 1912 he controlled much of the acreage in the great Cushing field, which allowed him to retire.

But wildcatting was in his blood, and in 1920 he returned to the game and began that part of his career which would end in his being named the "greatest wildcatter of all time." Although he held more unproven acreage under lease than any other company in the state, success still eluded him until Tonkawa, where he was the pioneer in opening the deep Wilcox-sand. The field was the first in a series of bonanzas which included the Seminole and Oklahoma City fields.⁴² In 1929 he sold all of his production and a half-interest in his leases to the Prairie Oil and Gas Company for \$30 million and a future payment in oil.

Before the boom, the value of the land located within the Tonkawa field varied from \$150 an acre offered for nearby bottom land to \$50 for the rougher upland where the oil field's production center came to rest.⁴³ The

⁴²Morris, Oklahoma Yesterday-Today-Tomorrow, 798.

⁴³Daily Oklahoman, 1 Apr. 1923, p. B-5.

patience of the less fortunate farmer was repaid many times over.⁴⁴ By 1923 the royalty interest in the field was estimated at over \$100 million⁴⁵ and, some farmers received over \$140,000 a month in royalty checks.⁴⁶

As the operations moved closer to each farm, the offers to buy royalty increased. Sam McKee, for example, was first approached by a royalty buyer who offered him a Ford car for a half-interest. McKee refused and, in a short time, another buyer came to offer \$10,000 for the same half-interest. Tempted by the large amount of cash, McKee gave the prospective buyer until noon the next day to raise the price to \$15,000. The buyer never returned, McKee kept his royalty, and later, was offered over \$2 million.⁴⁷ McKee's refusal to sell any of his royalty was not typical of the farmers in this area or in any other proven region across the state. At that time, it was usually considered sound business to sell one-half of one's royalty and keep the remainder; most of the farmers at Tonkawa did this.⁴⁸ A few on farms near the field attempted to insure some share of

⁴⁴Ironically, Lee Shawver sold his farm just shortly before the oil discovery for \$7,000. By September, 1925, this farm led all others in total production yielding 8.5 million barrels. Ibid., 1 Apr. 1923, p. B-5.

⁴⁵Ibid., 23 Sept. 1923, p. F-2.

⁴⁶Ibid., 3 May 1925, p. B-5.

⁴⁷Ibid.

⁴⁸Reeser, Oil Royalties, 147.

prosperity by trading equal shares of their leases among themselves. If oil was then found on any one of the farmers' land, the others shared the strike.

Royalty buying and selling reached out and touched nearly everyone in the surrounding communities, but local businessmen, real-estate agents, and farmers were the most active in the royalty business. A newspaper advertisement in 1923 announced that over 500 men and women living in or near Tonkawa were then drawing between \$100 to \$5,000 per month on small royalty investments in the field.⁴⁹ Royalties were fast becoming a popular form of investment in the early 1920's, for royalty was believed to combine all the good features of a speculative stock of a high-dividend rate with the substantial merits of a bond.

Royalty was usually sold on the unit basis and figured by the barrel. For example, an eighty-acre tract would normally be divided into eighty units of royalty. Since the royalty constitutes one-eighth of the entire production, one unit would be $1/640$ of the eighty-acre lease's total production. A buyer would figure his potential profit from the prospect of receiving payment for one out of every 640 barrels produced on the lease. Two important factors were always kept in mind by prospective buyers. First, the amount of oil already produced by a lease could cause the property to see only diminishing returns in the future; and

⁴⁹Daily Oklahoman, 25 Mar. 1923, p. B-5.

second, one must take into consideration the nearness of the tract to proven acreage. A good illustration of the dangers awaiting the unsuspecting public could be seen in an advertisement published in the Tonkawa News. The article advertised the sale of one-sixteenth of the oil and gas rights on 160 acres. The tract was to be divided into 250 units with each unit costing \$100. This meant that the purchasers of one unit would receive one out of every 4,000 barrels produced. For the buyer to see the return of his original investment, the lease would have to produce 160,000 barrels. This would be highly unlikely as the lease lay more than a mile from the southwestern edge of the field's production, and the nearest producing lease had not even reached 15,000 barrels by September, 1925.

Many local people did make wise investments, and those who bought in early often made a large profit.⁵⁰ In most cases it was considered good business to resell a portion of one's holdings to pay for the original investment and to keep the remaining royalty as profit. A few of the larger royalty owners in the field hired geological firms to make studies of their holdings and to estimate possible future production. These production studies, which sold for as high as \$500 a piece, placed the owners in a better position to know when to dispose of their royalties.

⁵⁰By 1925 the field had returned \$45,000 to its owners for each of its 3,500 producing acres. Daily Oklahoman, 17 May 1925, p. B-3.

The local banks served as clearing houses for royalty brokers, who were the link between the field and outsiders desiring to purchase royalties in the field. By obtaining either a written or spoken agreement with farmers or other holders of royalty, the brokers could place the papers, including the abstract, in the bank. Then they would contact buyers at home offices and bargain for the royalties which had been pledged. Royalty brokers seldom attempted to profit from the production of the leases themselves; rather, they concentrated on joining a prospective buyer with an available seller.⁵¹ The farmer often lost valuable time by allowing his royalties to be tied up indefinitely, since, in the meantime, he would not be in a position to bargain with others.

Several royalty companies which paid out interest to stockholders were active in the Tonkawa area. These included Northern Royalty Trust Company, United Royalty Company, Wichita Royalty Company, and Imperial Royalty Company. All of these companies were active throughout the Mid-Continent, except United Royalty, which was owned locally and operated within north central Oklahoma. The Northern Royalty Trust Company was composed of executives from the Marland Oil Company. Many of the stock companies of the time had only the income created from the sale of more

⁵¹The story is told of one broker who unknowingly attempted to interest a prospective buyer in the latter's own royalty.

stocks because the majority of their investments consisted of royalties located within unproven regions. For popular consumption only, the companies often supplemented the unproven royalties with a few from well-known and proven fields such as Tonkawa, even though time had drained the field of any heavy future production. Investments in Oklahoma royalties became a popular national form of speculation notably with the opening of the Seminole field in 1926. Thereafter purchasing of interest in royalty stock companies reached the public in the East.⁵² The Seminole field, with its high yield per acre, made the royalty salesman's work easy.

⁵²Reeser, Oil Royalties, 149.

CHAPTER III

DEVELOPMENT OF THE FIELD

Only a few months before the countryside had been silent. Now the air was filled with the sounds of escaping gas, horns, hissing steam, and roaring gushers. Trucks and wagons cut deep ruts where cattle had once grazed. Soon the field became an attraction for the sight-seer who drove for miles to witness an oil gusher spurting above its derrick, an uncontrolled gas well creating red clouds of dust, or a tank fire roaring out of control. At night the field became a city of lights which could be seen for more than twenty-five miles. Huge flares sent out tongues of fiery gas and caused shadows to dance everywhere. Night brought neither darkness nor silence as the hollow exhaust sounds from the casinghead plants, the noise of the rotary rig's mud pumps, and the movement of people continued.

The roads leading from Perry and Ponca City to Tonkawa were dirt but were generally well kept. While the boom was in process, paving was begun on both of these roads by the county whose road fund profited directly from the oil activity. The royalty and lease owners paid to the state a

gross production tax of three per cent on every barrel, and the state returned one-third of the amount to the county where it was divided equally between road and public school funds.

People reached the Tonkawa field by every conceivable route and carrier, but goods usually came by train.¹ Most of the people came by way of Ponca City either by car or by taxis; but there was the Red Ball Bus Line, which shuffled daily between Ponca, Tonkawa, and Perry for the charge of 75 cents for one way. Others came by way of the Santa Fe Railroad, which had a branch from Ponca City to Marland and another to Blackwell. The Blackwell Santa Fe line in turn had a spur running to Tonkawa by which six passenger trains ran daily and by which almost all the freight to the field arrived.

Rains came but none like those of May, 1923, which covered north central Oklahoma. By mid-June the waters had reached a record high.² Automobile traffic into the Tonkawa oil field ceased because of flood waters, and within the field's vicinity a few workmen were stranded on rigs and had to be rescued by boat. While working under the greatest handicap in the history of the area, oil operators still completed new wells, and teams of horses within a few days

¹Daily Oklahoman, 18 Mar. 1923, p. B-6.

²Tonkawa News, 21 June 1923.

had carried over one hundred loads to the field from Tonkawa.³ Because of the washout of bridges it became necessary to provide a large ferry over the Salt Fork River at the 101 Ranch in order to move supplies to the field.

When rains came before, the teamsters had made an easy profit of \$5 to \$10 a car to pull a vehicle through the mud holes just south of Tonkawa. The town's Chamber of Commerce then began to provide teams to pull waiting cars for one dollar from 7:00 A.M. to 5:00 P.M. each day, and by passing a hat among businessmen and interested individuals, the chamber raised money from time to time to see that the roads leading to the field were graded and improved. To meet the crisis caused by the floods of 1923, the civic organizations of Tonkawa declared a road holiday. With hand tools 2,000 men worked at draining mud holes one hundred yards in length and three feet deep. The laborers included 500 residents of Tonkawa, as well as drillers, truck drivers, and other workers from the oil field. In the same day the chamber raised \$10,000 in Tonkawa, and oil operators gave \$18,000 all of which went to improve the oil field roads.⁴

The speed of a field's development centered about transportation. Any over-all slowdown in drilling came from

³Cold was not considered a handicap to the field's development except when water pipes froze or snow blocked the roads. A March wind wrecked 104 derricks in 1924.

⁴Daily Oklahoman, 24 June 1923, p. B-5.

a lack of mobility from the railroad site to the well. By the early 1920's oil field transportation had entered upon a transitional era which saw the passing of horse-drawn vehicles. By the end of Tonkawa's boom, the horse no longer held the dominant role as it did when only horses had hauled the drilling equipment for the field's first well. Motor power had become an important factor in the field's transportation by 1922, but in bad weather and on bad roads the horse still remained king.⁵

In October, 1922, it was estimated that 5,000 teams of large draft horses were employed in the western Osage and Tonkawa fields.⁶ The animals were usually Percherons and Clydesdales. A limited number of mules made their appearance in the Tonkawa field; their only distinct disadvantage was their stubbornness. Finally, one teamster used a yoke of oxen, and despite their advantages of strength and less care and feed, the animals lacked the important attribute of speed upon which a rapid developing field depended.

Team contractors and mule skimmers were vital occupations in the field's life.⁷ Contractors, like Bert Musselman, operated nearly a hundred teams at one time. Oil companies made arrangements for hauling jobs with the

⁵Ibid., 29 Oct. 1922, p. B-5.

⁶Ibid.

⁷Teamsters received \$4 for a nine to twelve-hour day. If a teamster had his own team, he received an extra \$4.

contractor. Some of the teams might be owned by the contractor himself or rented to him, but in most cases independent teamsters attached themselves to a contractor. If the job was to haul equipment to the field, the trip might take a day to make the seven miles from town. Approximately four days were required to dig a slush pit, which was a frequent assignment. The hardest jobs centered around loading and unloading boilers, large band wheels from rigs, and other heavy equipment.

A good team might bring as high as \$1,500, and skimmers prided themselves in having matched teams and in providing good care for their animals. Teamsters often worked far into the night grooming their horses and polishing elaborately decorated harness. If the teams were able to make it back to Tonkawa for the night, they would be kept at one of the several livery stables. Often large contractors shipped in special loads of feed for their animals.

By 1923 Dodge, Federal, and Indiana trucks were helping to speed up the trips made to the field. The trucks, like horses, were usually owned and operated by independent operators, and not by oil companies. However, Comar did buy a fleet of sixteen White trucks to lessen its dependence upon teamsters; and all companies usually had Model T trucks to make small deliveries and serve as runabouts. Winch trucks helped load wagons and trucks which otherwise required two teams of horses for the job. Twin

City, Ford, and Rumbley tractors did not play a major role in field work until around 1924.

Drilling for oil is done by one of two methods, cable-tool outfits or rotary equipment.⁸ Cable-tool drilling consists essentially of making a hole by raising a bit attached to the end of a steel cable and then allowing it to fall free. The bit pounds or fractures the rock and earth to be penetrated. The hole in rotary drilling is made by rotating a cutting tool on the end of a string of pipe. Out of the 109,000 wells completed in the United States from 1914 to 1918, cable-tool rigs drilled approximately 100,000 of them.⁹ Cable tools, which are especially adaptable to prospecting, dominated the Tonkawa field until October, 1922, when the southern boundaries of the pool became defined.

Although Anthony Lucas had drilled into the Spindletop field with a rotary rig, oilmen in 1901 considered this type of drilling rig an oddity. The principle of the rotary drill had been demonstrated as early as 1863 by a Frenchman named Leschet, and United States patents in 1869 indicated that Americans knew of the system.¹⁰ But it took two water

⁸Ball, This Fascinating Oil Business, 98-138.

⁹R.E. Collon, Prospecting and Testing for Oil and Gas, publication by the U.S. Department of Interior, Bulletin No. 201 (Washington: Government Printing Office, 1922), 52.

¹⁰Leigh McCuslin, "Southwest, U.S.A.--Birthplace of Rotary Drilling," The Oil and Gas Journal, L (May supplement 1951), 226.

well contractors from South Dakota to adapt the rotary drill to finding oil. M.C. and C.E. Baker brought the drill from South Dakota to Corsicana, Texas, where the American Well and Prospecting Company realized the possibilities of using it in the soft shales of Texas and made further adaptations to fit the local oil men's needs.¹¹ Beginning in February, 1922, the Southwestern Petroleum Company drilled the first well using a rotary rig in the Tonkawa field.¹² By November of the same year most of the drilling equipment arriving in the field was rotary. The Tonkawa field became the first oil field to be predominantly drilled by the use of the rotary method.¹³ The field came to symbolize a turning point, for by 1940, nine-tenths of the wells were being drilled by rotary.

To cool the rotary bit, mud is pumped down through the string of drilling pipe and out at the bit where it is then forced up to the surface between the pipe and the walls of the hole. In addition to cooling the bit, the mud-laden fluid acts as a sealer against unwanted gas, water, or oil sands, which are passed through, and as a support to prevent the hole from caving in. However a cable-tool rig requires a string of pipe or casing to be placed down the hole and

¹¹Ibid.

¹²J.S. Ross, "Drilling Methods in the Tonkawa Field," The Oil and Gas Journal, XXI (Mar. 1, 1923), 84.

¹³Daily Oklahoman, 23 Sept. 1923, p. F-2.

cemented each time the bit goes through an unwanted sand or a cave-in is a threat. Because operators faced numerous gas and oil sands in the Tonkawa field, they found it profitable to drill by rotary which cost them \$8 a foot.¹⁴ Cable-tool rigs had the advantage of being less costly as a unit of equipment, but rotary outfits, which completed wells in about fifty days, were faster and required less casing, the major cost of drilling a well.¹⁵

Although rotary rigs drilled the major portion of each well, companies still used cable tools to "drill in." The rotary drilled to just above the sand which was to be tapped, and then the workman lowered the final or "oil string" of casing. While the cement was setting, a cable-tool crew came in and completely renovated the rig for their own drilling equipment. Operators feared that the rotary would seal off the producing sand with its mudding process and limit the sand's production.

There existed a heated rivalry between the crews of these two types of drilling.¹⁶ Supporters of cable tools

¹⁴Pratt, "The Tonkawa Field of North Central Oklahoma," Cable-tool drilling cost about \$5 a foot. Daily Oklahoman, 23 Sept. 1923, p. F-2.

¹⁵The wells drilled to the deep Wilcox sand cost about \$50,000 and took over three months to drill. Lockwood, "Deep Tonkawa Sand Stimulates Drilling," 36.

¹⁶Wages in the field were described as "best possible" for the times, and "there was always work for those who were willing." Drillers received \$1 per hour for twelve hours; rig builders, \$13 per day for twelve hours; tool dressers, \$10 per day for twelve hours. Roustabouts who

prided themselves in the skill which the driller possessed. A driller had to know when to let out the cable or take up the slack in order that the bit would hit bottom with maximum force. This knowledge came only after years of apprenticeship as a tool dresser and on-the-job experience. On the other hand, the larger rotary crews could point to efficiency and speed. When a well was to be drilled in, the cable-tool crews refused to even begin rigging up until all the rotary equipment was taken away. In order to prevent brawls, boarding houses often found it profitable to have separate quarters for each type of crew.

The driller on each well takes a sample of the cuttings brought to the surface and records in the well's log book the formation and its depth. Logging a well drilled by a rotary rig at first presented problems to the geologist and held up the development of the subsurface phase of geology. The mud brought the cuttings up at spasmodic rates of from ten to sixty minutes after they had been drilled, and there was the difficulty of analyzing the nature of the samples after they had been mixed with the mud. In July, 1924, Stuart K. Clark became the head of the new subsurface division in the Marland Oil Company's geological department, and he began conducting experiments to solve the problems

were general laborers received the lowest pay, \$125 per month.

faced by rotary drillers in the Tonkawa field.¹⁷

The cable-tool operators had recorded excellent logs in the field but all early attempts by rotary drillers to do the same proved futile. Except for watching for certain definite horizons, the rotary driller paid little attention to the returning mud or attempt to sample it. Instead he relied solely upon his ability to detect the various strata by the action of the drill stem and mud pump. Aided in the experiments by J.T. Richards of the Gypsy Oil Company and James Daniels, Clark arrived at the conclusion that a correct sample in a rotary well could be obtained by slowing down a part of the return stream of mud to the point that some of the cuttings would drop out of suspension. He accomplished this by causing the cuttings to accumulate behind an inserted weir in the wooden flumes which carried the mud away from the well.¹⁸

Fires were a constant source of danger to life and property during times of flush production. Tonkawa was especially susceptible to fires due to its light crude and high gas production. A spark from a hammer or a careless

¹⁷Stuart Clark, "Development of Rotary Sample Analysis," Shale Shaker, XVI (Apr. 1966), 184-85.

¹⁸Still rotary drilling never obtained the accuracy of cable-tool drilling. It was not until "coring" the actual taking of a sample core, that any type of precision was made possible. Even then drillers did not core a complete rotary hole but only at infrequent intervals. Ball, This Fascinating Oil Business, 131.

smoker might set off an inferno of heat and smoke. One fire swept a battery of twenty-three 500 barrel tanks. Such a blaze with flames leaping a hundred feet high would require 500 men and seventy-five to one hundred teams of horses to extinguish it¹⁹ and to dig earthen storage for the oil emerging from flowing wells. The black clouds of smoke, which could be seen for miles, brought as many as 3,000 visitors to the field for the fire often lasted more than a day. After only one year of very limited drilling, there had been damages totalling \$200,000, which observers felt to be a remarkably low figure in view of the extremely inflammable conditions.²⁰ But the greatest loss did not come until after the casinghead gasoline plants were built. A fire in the McMann Oil Company's plant did \$60,000 worth of damages, and in 1927 the large Gypsy plant, costing \$2 million, was the scene of a fire which killed three men and injured twelve more.²¹

By this date the fighting of fires had become a very systematic procedure. Each company fought its own fires, and only Comar had a fire truck. In putting out an oil well fire, the first thing to do after the rig had fallen was to clear the ground around the well of the burning timbers. The timbers of the superstructure of a rig were soon

¹⁹Tonkawa News, 29 Mar. 1923.

²⁰Ibid., 27 Nov. 1924.

²¹Daily Oklahoman, 15 July 1922, p. B-7.

consumed, but the very heavy foundation beams would burn for several hours under the intense heat of the oil and gas fire. The workers gradually edged their way to the fire's center and hitched the timbers to a line in order that teams of horses might pull the beams away. Each time the men rushed the fire with slabs of corrugated iron while a stream of water was played over the improvised shields.

The man directing the work stayed close to the fire himself. He said very little until some careless holder of the hose sent a stream of water on the control head valve at the mouth of the well. There was a great danger in throwing water on the control head, for the contact of the cold water on the heated metal has been known to cause the head to burst. The full force of the flow of gas and oil from the well would rush out and cover the workers with burning oil. Steam was used to fight oil well fires. Workmen fired boilers and laid pipes to convey steam close to the flaming control head. These pipes had been fitted with nozzles, and upon command the steam was sent against the base of the flames. There was a fierce struggle with roaring flames and hissing steam; then the red flare gave way to the yellow oil and the battle was won. There was not a trace of fire left. The water had been playing upon the burning oil that poured down through the opening cracks of the control head, and when the flames above were extinguished, there was nothing

left to ignite them again.²²

A study made by the U.S. Department of Labor revealed that over forty per cent of all the permanent disability accidents and twenty-five per cent of the deaths occurring in Oklahoma industries from 1923 to 1924 took place within the petroleum industry.²³ Besides fires, workers faced numerous hazards including exploding nitroglycerine and drilling tools being blown out of a well's hole by gas pressure; but the greatest number of injuries came from falls occurring on the oil slick derrick, loading heavy equipment, and laying pipelines. Inexperience and carelessness encouraged by long hours on the job also caused accidents.

Most companies had an agreement with a local physician to care for their workers in case of accident or sickness, and fellow workers were generous when a hat was passed for the benefit of an accident victim. In the Tonkawa field companies did not undertake an accident prevention program until after the field passed through its drilling phase. Companies set safety regulations for drilling rigs, but they were not rigorously enforced. By 1927 various companies began conducting lectures on safety to their workers. These talks were presented by U.S. Bureau

²²Tonkawa News, 18 Dec. 1924.

²³H.C. Fowler, Accidents in the Petroleum Industry of Oklahoma 1915-1924, publication by U.S. Department of Commerce, Technical Paper No. 392 (Washington: Government Printing Office, 1926), 14, 16.

of Mines officials or by fellow employees who had received education in safety procedures.²⁴

²⁴Parker, "Life and Labor in the Mid-Continent Oil Fields, 1859-1945," 165.

CHAPTER IV

ATTEMPTS AT OIL CONSERVATION

During the 1920's, attempts by the states to conserve oil and to stabilize prices were hindered by two factors.¹ First, over the years, the courts had come to view oil in the same manner as they would a wild animal which became the possession of the land owner on whose property the creature was captured. Since oil in its natural reservoir tends to flow to the area of reduced pressure, surface owners were in competition with each other to drill as many wells as possible. Secondly, although the United States' demand kept pace with its oil supply, foreign imports created a surplus. For example, in 1922 the United States fell 37 million barrels short of the domestic market demand of 550 million barrels, but foreign imports of 125 million barrels more than filled the gap.²

The movement for oil regulation came out of the Mid-Continent region and, in particular, from its center of

¹Arnold, Petroleum in the United States and Possessions, 28-29.

²Max Bently, "Smackover, and Seekers of Oil," Harper's Magazine, CXLVIII (Dec. 1923), 74.

production--Oklahoma. Largely with the backing of the Independent Oil and Gas Operators Association, the Fifth Oklahoma Legislature in February and March, 1915, passed two comprehensive conservation measures designed to prevent the waste of oil and gas. First, the oil act defined waste as ". . . economic waste, underground waste, and surface waste incident to the production of crude oil or petroleum in excess of transportation or marketing facilities."³ Secondly, the act prohibited waste and production of crude oil when its market value fell below the cost of production. Thirdly, it provided for the rateable taking of crude oil from a common source of supply, and finally, the legislation authorized the Corporation Commission to issue rules for the enforcement of the act. The second bill forbade the waste of natural gas and made the Corporation Commission overseer of the act. At the time, these two acts represented the most advanced conservation measures taken by any state.⁴

Under the power given by the conservation acts of 1915, the Oklahoma Corporation Commission set down forty-one rules in July, 1917, which were to prevent waste by encouraging engineering efficiency.⁵ These regulations

³Oklahoma. Session Laws of 1915 (Fifth Legislature, 1st sess.), (Oklahoma City: Warden Printing and Publishing Co., June 1915), 326-29.

⁴Stanley Clark, The Oil Century (Norman: University of Oklahoma Press, 1955), 166.

⁵Oklahoma Corporation Commission, Tenth Annual Report (Oklahoma City: Warden Company, 1919), Order No. 1299,

remained the basis for the state's conservation efforts to increase efficiency of production until 1935. For example, in the Tonkawa field, two Corporation Commission officers, with divided jurisdiction, oversaw the mixing of mud fluid in rotary drilling in order to mud off gas sands; and when the final string of casing was cemented, a ten-day period was required for it to set. Also, in accordance with its stated policy, the Commission compelled Comar to install a high pressure trap (separator) to handle the oil and gas.⁶

Besides the enforcement of general rules, the Commission issued specific rulings for the Tonkawa field. Comar, Blackwell Oil and Gas Company, McCaskey-Wentz Oil Company and others became the plaintiffs in a petition to the Commission for an order against certain practices of rotary drillers. The plaintiff companies desired the defendants to follow the formers' practice of putting in cable tools each time a producing oil sand was reached and laying casing to seal off the upper sands. Supposedly, the rotary mud was failing to properly seal off oil sands from water which flowed down the hole from upper water sands and ruined the oil. The Commission denied the petition on grounds that the rotary mud was acting as an adequate sealer; but it did repeat a previous order to its field representative to

525-39.

⁶Daily Oklahoman, 19 Feb. 1922, p. B-5.

oversee the use of the mud-laden fluid.⁷

In the early 1920's, the interests of the federal government in conservation had been confined to the supervision of drilling practices on federal lands--including many Indian reservations in Oklahoma--and the issuance of publications on more efficient methods of production by the U.S. Bureau of Mines. Oklahoma was the scene of many experiments carried on within oil fields by the Bureau of Mines, and the state exemplified the federal government's role toward conservation. The Bureau of Mines began publication of its recommendations to the petroleum industry as early as 1910 and was an early leader in the advocating uniform casing programs, cementing of wells, and use of the mud-fluid process in drilling.⁸

Coinciding with the work of the Bureau of Mines was the development of a new academic discipline--petroleum engineering--which centered about technical problems faced by the oil industry, especially in the recovery phase. The study of petroleum engineering was first taught at the University of Pittsburgh in 1912, but it was not until after the World War I that a four-year program was offered in the subject. In 1918 the Bureau of Mines founded the Petroleum Station at Bartlesville, Oklahoma, and five years later, it

⁷Oklahoma Corporation Commission, Seventeenth Annual Report (Guthrie: Co-operative Publishing Co., 1924), Order 2143, 242-45.

⁸Clark, The Oil Century, 167.

transferred its petroleum laboratory from Pittsburgh. The Bureau of Mines sent several men from Bartlesville to the Tonkawa field where they carried on research in the technology of oil drilling. The Tonkawa Chamber of Commerce provided a building for Bureau workers.

R.M. Carr, Assistant Petroleum Engineer, constructed a peg model of the field in order to show, in three dimension, the underground structure and the position of the oil, gas, and water sands. This was the first time a peg model had been placed in a developing oil field in Oklahoma. A peg represented each well in the area, and each peg had a blueprint glued around it to show the formations from the surface to the bottom of the hole. Operators used the model to help them determine sand depths and to plan their casing programs.

Finally, efficiency was promoted by voluntary agreement among the various oil companies which provided that one well for each separate oil sand would be drilled every twenty acres. The wells were also to be 320 feet from the boundaries of the lease.⁹ By October, 1922, a few operators began drilling closer to the borders than the agreed distance. A boundary war seemed likely to break out, but soon, the more aggressive operators backed down.¹⁰ As the field

⁹G.C. Clark, "The Tonkawa Field, Oklahoma," Bulletin of the American Association of Petroleum Geologists, VIII, No. 3 (1924), 270.

¹⁰Daily Oklahoman, 14 Dec. 1922, p. B-5.

progressed, the operators adopted the well-spacing program recommended by the Bureau of Mines. This called for a well to be spaced approximately every ten acres, and from four to five locations every half-section line with each location having as many wells as sands. The Shawver lease had a total of ninety-six wells producing from its 160 acres, and altogether, the field drew from more than 700 wells.

The use of vacuum gas, compressed air, steam or water to increase the recovery of oil is almost as old as the commercial search for oil itself. Vacuum gas was first used in the Triumph pool of Pennsylvania in 1869, but it was not until 1917 that secondary recovery efforts were first employed in the Southwest. In the latter year, gas-repressuring operations were begun in Nowata County, Oklahoma.¹¹ By the time of the Tonkawa field, it was not unusual to resort to pumping air into a well to force oil to the surface. The field was the scene of experiments at pumping compressed air to recover oil from unheard of depths of 4,000 feet. Lew Wentz attempted to use air in the deep Wilcox sand where, in the past, pumping and swabbing had always been resorted to after the natural reservoir pressure had diminished.¹²

¹¹Leigh S. McCaslin, Jr., "Southwest Quickly Dominated Nation's Petroleum Supply," Oil and Gas Journal, L (May supplement 1951), 287.

¹²Royce Munsell, "Compressed Residue Gas Flows Deep Tonkawa Well," The Oil Weekly, XXXIX (Nov. 27, 1925), 37.

Reflecting on the period of which the Tonkawa field was a part, a leader of oil conservation remarked, "What is waste today, according to our present standards, was not necessarily waste years ago, and you can no more blame the state conservation authorities or the oil industry for not having applied present methods 15 years ago than you can blame a physician today for not having cured his patients with sulfanilamide in 1925 when the remedy was unknown."¹³ When viewed in the light of this statement, it could be definitely said that progress was being made during the early 1920's toward bringing about more efficient means of recovering oil and gas. By March, 1922, an estimated 600 million cubic feet of gas had been sealed off in the Tonkawa field,¹⁴ and it further illustrates the progress made by casinghead plants which recovered gasoline from wet gas and sold the residue to surrounding towns for fuel. Despite the advancement in technology, efficiency was not the same as conservation. For example, well-spacing was designed to bring about a maximum recovery of oil as quickly as possible. Not until the Seminole field in 1926 was there a serious attempt to restrain the supply of oil to the market demand by

¹³U.S. Congress, House, Committee on Interstate and Foreign Commerce, Petroleum Investigation: Hearings before the Subcommittee on Petroleum Investigation, . . . Mar. 27-28 and Apr. 1-2, 1941, Pursuant to House Resolution 15 and 118 (77th Cong., 1st sess.) Washington: Government Printing Office, 1934, 51.

¹⁴Daily Oklahoman, 23 Sept. 1923, p. F-2.

proration--the limiting of production to below the maximum output of a field.

Oklahoma's attempts at limiting production by stabilizing prices were largely stop-gap measures, at best. In June, 1915, the Corporation Commission prorated the oil being produced in the Healdton field to limit production to the capacity of the pipelines. However, in 1920 the Corporation Commission failed to delay early drilling in the Hewitt field where there was an obvious lack of transportation for future production. The failure came as a result of the field's operators refusing to cooperate with the commission for fear of the ". . . rising tide of socialistic doctrine and state regulation."¹⁵ In the early 1920's, the oil companies hoped to stabilize prices within a field by voluntarily limiting production, but each attempt only ended in failure.

There always existed a demand for the high quality Tonkawa crude and adequate transportation facilities in the field prevented the supply flooding the market demand. There was then no occasion for the Corporation Commission to limit the Tonkawa field's production. But despite the Tonkawa crude being in constant demand, there was a significant decline and fluctuation occurring in prices which

¹⁵Meeting of the American Petroleum Institute, St. Louis in 1922. As quoted in Gerald Forbes, Flush Production (Norman: University of Oklahoma, 1942), 188.

hurt the field's operators.¹⁶

The Tonkawa field illustrates the ineffective attempts of the oil industry to stabilize prices by voluntary action on the part of its members. The Tonkawa field and the unpredictability of its future production proved to be a constant menace to overproduction within the state. Attempts by oil men to predict the future production of the Tonkawa field had constantly ended in failure. On more than one occasion state oil leaders anticipated the decline of the field's production only to see the production hold its own or even increase. As early as May, 1923, operators within the field could not agree upon self-restraint in order to allow prices to return to higher levels.¹⁷ It was not until November of the same year that drilling, for the first time, ceased in the fields, and this was only after flooding in the north central part of the state had slowed transportation to a standstill. Although the current market did not encourage immediate resumption of drilling, it took muddy roads to effect a complete shutdown when oil executives had failed.

¹⁶"In Oklahoma Oil Fields," Harlow's Weekly, XXII (May 19, 1923), 7.

¹⁷Daily Oklahoman, 19 May 1923, p. B-7.

CHAPTER V

FROM "HATCHVILLE" TO THREE SANDS

The population--even the buildings--of the field's community shifted from place to place as the center of oil operations changed.¹ As drilling moved north from Noble County, a succession of business districts laid momentary claim to being the hub of the field's commercial and social activities only to find that another corner had soon taken its place. Local merchants and promoters gave the names of "Hatchville," "Murray," "Four Ways," and "Kanolka" to these crossroads of activity in hopes that a name would add an air of permanency and that an enduring town would be formed about their corner. But fate had reserved such a site for the town of Three Sands situated on the Noble-Kay County boundary.

Although leases provided for the exploitation of subsurface minerals, companies were obligated to obtain building privileges on the surface and settle for damages. When a boom took hold, time could not be wasted with the tedious legal settlement required to gain building rights for

¹Daily Oklahoman, 14 Sept. 1924, p. B-5.

each additional well. In most cases the company obtained a blanket lease by which any construction could be erected and any existing farm buildings could be used. Many farm homes became company offices and rooming houses. Such an agreement also provided compensation for the damages suffered by crops and livestock and the permanent effects of the salt water on the land. Few farmers resisted such agreements since much of the land was agriculturally substandard and the full exploitation of the oil was compensation in itself. One farmer of a school lease refused to accept payment and, in the end, received little compensation for his legal efforts at resisting the oil companies. At the same time another lessee of a school's land surface rights received \$14,000 to vacate his land. Most farmers saw in their new wealth an opportunity to move to Tonkawa and left the land to the oil companies and their followers.

Since in many cases the oil company--not the land owner--held the right of construction on each lease, businessmen looking for store locations to rent came to the lease superintendent. Companies particularly welcomed and often made special concessions to boarding houses and other businesses which helped to provide for the necessities of their employees. Other newcomers simply took advantage of the existing confusion of the boom to squat. These squatters erected their businesses and places of residence in a very makeshift manner. Due to the abundant gas sands--and

their being considered a handicap to drilling--the businesses often received gas free, or at a minimum flat rate, for heating and lighting. Other services, such as electricity and ice, were also obtained at a minimum charge from the company's dynamo and ice plant on the lease.

Three Sand's first business, a grocery store, was across the road east of the discovery well. Charlie Hatch, who had been a driller on the field's first well, reigned as the ex-officio mayor of his establishment--appropriately named "Hatchville."² In December, 1921, F.H. Murray leased his farm for building sites when an offset on his place proved to be a "duster." Despite this early dry hole, the new field of five months was making greater demands each day for a residential and business area. "Murray" consisted of a barber shop, grocery store, filling station, and dry goods store; all clustered on the crossroads of the discovery well.³ As production moved north, the businesses of Hatchville and Murray continued to serve the community of Comar employees, whose company headquarters remained in the vicinity.

In the spring of 1922 the drilling activity momentarily shifted a mile east of Marland's initial well to the Tonkawa-Perry road, and with it, business shifted. At three successive crossroads of the Tonkawa-Perry road north to the

²Tonkawa News, 28 Aug. 1924.

³Ibid.

county line, "Four Ways," "Kanolka," and "Three Sands," each, in turn, made their appearance until a solid alignment of buildings--from saloons to garages and blacksmith shops--connected all three corners.⁴

By November, 1922, in a small shack built on the C.C. Endicott farm, which lay just north across the Noble County line, a visitor of the field or an oil worker could get a sandwich, ham and eggs, and a cup of coffee.⁵ Around this small cafe and a nearby grocery store, the permanent business center of the field sprang up. Three Sands represented a central position on the Tonkawa-Perry road, which served as the main transportation artery to the field. At first, the name of "Comar" was given to this latest business district. Despite the fact that six other major companies operated within a radius of less than two miles from the town, the Comar Oil Company had engaged in the most extensive operation. However, it became almost a daily occurrence to drill in wells flowing from 6,000 to 8,000 barrels of oil from the Endicott, Carmichael, and Tonkawa sands; and by February, 1923, the name of "Three Sands" was being used interchangeably with that of "Comar." Because the Tonkawa News requested that a name be selected for the new community in the field, a few merchants met with company officials and the name "Three Sands" was adopted. If a six months delay

⁴Daily Oklahoman, 1 Apr. 1923, p. B-5.

⁵Ibid., 28 Jan. 1923, p. B-5.

had taken place before the adoption of a name, it undoubtedly would have been called "Six Sands" with the discovery of a sixth producing oil strata.

By December, 1922, a month after its establishment, Comar (Three Sands) had eleven boarding houses, cafes, and "joints" serving meals and lunches. Boarding houses, restaurants, and joints always sprang up first and prevailed throughout the life of the field. Oil tool supply houses, meat markets, stores, and machine and boiler shops were also making their appearance. The machine and boiler shops repaired all types of well equipment including the sharpening of drilling bits. At the time the newest business was the town's first drug store, and the Cozy Theater was in the process of being completed to show movies. Statewide newspapers recognized Comar as being Oklahoma's fastest growing oil town since, in its first month's existence, between 500 and 1,000 individuals had located there.⁶ Day by day an air of importance was being added to the new town as the crowd on the street increased. Although the rush was not in full force until spring, the midst of winter and the inadequate housing facilities failed to keep people away. Those who came in spite of conditions either had no family or had come ahead to provide for their families' later arrival. By January, 1923, the town could claim a two-story building--a dance hall--whose owner promised to hold only square dances

⁶Ibid., 18 Feb. 1923, p. B-6.

and "old-time hoe-downs" and not to permit the "jelly bean" kind. At the same time, the town's second movie was being built on the north side of the dance hall.

In March workers and landowners near Three Sands voiced a demand for a post office and a petition was initiated toward that end. The petitioners claimed that nearly 2,000 people lived in the town itself and from 2,000 to 3,000 more lived within a mile of it.⁷ By this time carpenters were beginning to work day and night in order to fill the demands for buildings of pine and construction board, and besides, few carpenters could afford to leave lumber out at night for fear of it being stolen. From the first frame shack that was built, the town had gone down the hill and through the fields that once grew wheat and oats. It had spread for more than a mile along the Tonkawa-Perry road, which was first called "Broadway" and, later, "Main Street." On both sides, one-story buildings were jammed together to prevent each other from getting closer to the passing throng.

In this throng one could normally identify the role that each passer-by was playing in the field. The geologists wore their laced pants, high boots, and large stetson hats. In the winter oil field workers had on their typical khakis and leather jackets which revealed one or two pairs of long underwear worn beneath. One might hear men speaking in a

⁷Ibid., 11 Mar. 1923, p. B-4.

foreign tongue as they walked by. More than likely the foreigners were geologists for Roxana or observers of the "wonder field of the Mid-Continent" for some other international company.⁸ Just as some were recognized by their common characteristics, so others were noted for their eccentricities. One could easily spot "Two-Ton-Tilly," a rather large woman who ran a boarding house. It was rumored that she had shot a man but that no charges had ever been filed. Another operator of a rooming house, "Three Sands Blanche," could often be seen by the side of the road sleeping off the effects of her dope addiction. Farther along the street, a hunchback--employed by a bootlegger--could be seen stepping out of a late model limousine.

The crowd did not arrive in Three Sands until the late spring and early summer of 1923, six months after the establishment of the town.⁹ The hundreds upon hundreds of men and women who flooded the town could not have cared for the conveniences of living for they merely existed. In tents, dugouts, and shacks of one room, the cooking, eating and sleeping for a family of five to ten were accomplished. In any sort of makeshift residence, the population lived

⁸Blackwell Morning Tribune, 5 June 1927, p. 1.

⁹The majority of the workers and oil field followers came from the western Osage, where the Burbank field had held the state's oil spotlight until the Tonkawa field in 1923. Any momentary decline in activity at Tonkawa, however, might send some back to the Osage where flush production continued until the end of 1924.

from day to day for the sole purpose of washing its hands in the black gold which poured from the gushers of the five producing oil sands.

By the time the sixth sand was discovered in September, 1923, Three Sands had expanded to a radius of one-half to two miles. One leading newspaper estimated the population at a peak of over 10,000 in Three Sands itself, with another 15,000 scattered throughout the remainder of the field.¹⁰ More than likely, a conservative total of 15,000 existed in the field, of whom 8,000 lived within the town.¹¹ There was no doubt that the late summer of 1923 witnessed the town's greatest height. Although far from being fully developed, at that time the field was well defined in area except for limited drilling in the extreme northwest and east.

A visiting newspaperman described the scene which confronted him--during this period of rapid growth--by remarking that Three Sands could be more aptly described as:

. . . a crowd and not a city. A struggling, shoving, pushing, determined, reckless, maddened, coldly calculating mixture of human beings who have forgotten for the time being that they are alive--who don't seem to care how long they live--who, in fact, are bent on one thing--the getting of all the money they can as fast as they can. The person visiting Three Sands today finds himself in a traffic jam surpassing that of any city of 300,000 inhabitants. There isn't such a thing as the "right-of-way." The man who tries

¹⁰Tulsa Daily World, 19 Jan. 1930, p. 9.

¹¹Blackwell Morning Tribune, 5 June 1927, p. 1.

to make his way through the street is "in the way" of everyone, including himself. All he can do is keep going, he can't turn around, he can't stop, he can't become impatient--he can only keep going and at the speed decided upon by a mile of automobiles, motor trucks, and pedestrians.

If he took a notion to get away from the throng and speed through the fields to his destination, he would find himself trying to dodge oil well rigs that are so thick it's pretty hard, sometimes, to walk between them without getting oil on your clothing.¹²

Oil wells and business houses intermingled over the leases. McKee's famous No. 45, the leading producing well, could be found in back of the Club Cafe.

No Chamber of Commerce or other civic organization existed to promote enterprises in Three Sands. The merchants of the town were ready to grasp any business opportunities which came their way and seemed quite satisfied to allow conditions to adjust themselves. No active interest in civic affairs was manifested. For example, when the oil field roads improved later--due to the co-operation of county and township officials with the field's oil companies--the Three Sands merchants appreciated the fact, but were quite willing to let well enough alone in the matter. They did not care whether paved roads extended another yard in the direction of Three Sands; for the muddier the roads were, the better the business was in the oil town. Neither did the proposal of a spur of the Santa Fe Railroad from the town of Marland arouse much excitement among the businessmen. "If a railroad comes through town, all right, and

¹²Daily Oklahoman, 1 Apr. 1923, p. B-5.

if it doesn't, it will not be missed."¹³

A substantial portion of the field's businessmen came from the oil camps of the Osage to establish stores in Oklahoma's latest bonanza field. Ed Burke, a Tonkawa grocer who built the first store on the Three Sands corner, was representative of local people taking advantage of the customers who had come their way. Other Tonkawa merchants supplied many services without having to invest in a permanent structure in the boom town. Groceries, furniture, bread, ice, and laundry were delivered by truck and wagon from Tonkawa. However, many of the town's businessmen were neither local people nor regular followers of oil booms. They were individual businessmen located in towns across Oklahoma who saw in the growth of a boom town an opportunity to gain profit by fulfilling the oil workers' needs. They owned main shops in Cushing, Enid, and other cities, but Three Sands provided a chance to branch out and to form a chain of establishments.

Local carpenters poured in from the surrounding towns to rapidly assemble business houses replacing the tents and even wagons which had temporarily been substituted. These wooden frame buildings were predominantly one-storied and were covered with one by twelve-inch boards of pine. To keep the structure warmer, batten was placed on the outside to cover the cracks between the boards;

¹³Ibid., 14 Sept. 1924, p. B-5.

inside, beaverboard--along with heavy wallpaper--was nailed against the walls to keep out the cold. Most commonly the roofs were slanted and covered with tarpaper; a few dome-shaped roofs were made by bending oil field wheels to form the supports and then covering them with tar paper. In one day three men could complete the average one-room structure which was twelve by twenty feet. Sometimes merchants sold their establishments to move closer to the center of the field. Some dismantled the buildings by sections in order to relocate where they desired, and still others skidded their business houses to the new locations. It was not until after the town had made some appearance of stability that a few brick buildings were constructed in the midst of the wooden shops with their large advertising facades and false fronts.

If Three Sands was not the first, neither was it the last of the crossroad towns to spring up in the Tonkawa field or nearby. The town of "East Side" lay a mile east of Three Sands' original intersection and consisted of only a few buildings. "Foster City" came into existence a mile west of Three Sands in April, 1923, but neither it nor "East Side" remained a distinct community and were eventually absorbed by the ever expanding Three Sands.¹⁴ Three Sands' greatest rivalry came from "Riverview," and the proposed

¹⁴Ibid., 1 Apr. 1923, p. B-4.

town of "Blueridge."¹⁵ Both of these communities rested in the Thomas field which lay about seven miles west of Three Sands. Discovered during the spring of 1924, the Thomas oil pool was believed, at first, to be more extensive than it actually proved to be.¹⁶ However, while the Thomas field was being developed, Three Sands was busy enjoying its second boom as a result of deeper production from the Wilcox sand. In the spring of 1924, with the discovery of the Wilcox sand, merchants came back from "Layman," "Cooper," "Webb City," and other oil towns located in the western Osage where many of them had previously had establishments or had moved during the winter to "greener pastures."¹⁷ Finally, fire destroyed all possible rivalry from "River-view" when a blaze swept through the new town's business section in the fall of 1924.

Three Sands rose and fell with production. When the drilling operations around it were active, the town prospered, but when a slump hit the field, Three Sands contracted.¹⁸ This constant fluctuation of people went on from

¹⁵Tonkawa News, 5 June 1924.

¹⁶The Thomas field was discovered six miles to the northeast of Three Sands in May, 1924. At first it was speculated that a second large oil field had been discovered, but the producing area proved to be only approximately one-square mile. Drilling to locate the extent of the field lasted only a year, and Marland Oil Company owned most of the leases.

¹⁷Daily Oklahoman, 11 May 1924, p. B-4.

¹⁸Ibid., 14 Sept. 1924, p. B-5.

week to week on a minor scale of such important events as the discovery of the deep Wilcox sand. Even though businesses were scattered across the field, still the crossroads of Three Sands on the Tonkawa-Perry road remained the chief business district. With each fall of population, less came or returned until by the late summer of 1924 only 7,000 remained within the entire field.¹⁹

In Three Sands proper, there were no palatial homes nor fine business houses. In the beginning no man demonstrated his faith in the future of the town to the extent of investing in permanent structures. Made up of shacks and, in many cases, tents, it typified many other such oil cities in northern Oklahoma, as it merely provided workers with a place to sleep, to buy the necessities of life, and to find a little recreation. Three Sands could claim nothing more for itself than its being an oil town; but it certainly was entitled to a place among the foremost of that class.

Three Sands existed without a mayor, a city council, or civic regulations of any kind ordinarily involved in some manner in the governing of a city. The leasing of the land by the oil companies barred the town from incorporation. Newspapers circulated the rumor that there had been an ex-officio mayor at one time but that he was shot and since then the office had been vacant. However, the only resemblance to city government was a justice of the peace and a deputy

¹⁹Tonkawa News, 28 Aug. 1924.

sheriff, who were the only representatives of the law in Three Sands.

No frontier town that thrived in former years had more color than Three Sands which furnished many stories in its boom days for newspapers. The Enid Eagle described the town as ". . . the rip-roaring shack city of oil [which] had a reputation from Maine to California. Visitors wishing to see the modern version of the old hell-holes of gold mining days came from hundreds of miles. Writers of fiction often visited it to get atmosphere, and others came for self-pleasure."²⁰ Three Sands had the most hectic and lurid career during the time of its boom of any Mid-Continent oil town, but it never became as wild as the more infamous ones in the eyes of men who saw Cromwell, Seminole, and Oilton with its private graveyard.²¹ Killings in Three Sands were less frequent than in Oklahoma's roughest oil towns. However, the quenching or acquiring of thirst was a different matter altogether, for a drink could be had at any hour of the day or night with the sky as the limit. Free-for-all fights were so common on Main Street that they often failed to attract attention from passers-by.

Three Sands certainly did not begin as a wild town. Crime and vice increased with the influx of people. The

²⁰As quoted from "Law Enforcement Given Impetus in Oil Fields," Harlow's Weekly, XXIII (Oct. 11, 1924), 13.

²¹Blackwell Morning Tribune, 5 June 1927, p. 1.

consensus in the town's early months were that even though the bootlegger was making visits, Three Sands would be a "clean" town when compared to "Whizz Bang" and other contemporary oil towns of the western Osage. Both county sheriffs promised that the free and easy conduct of other oil camps would not be tolerated. One witness, at this time, reported that the ". . . men know how to take care of themselves, and the slickers, card sharks, and the general crook has learned to watch his step; for each fears that he will fall into the hands of a law that administers justice without a great deal of preliminary ceremony."²²

Like all boom towns, Three Sands faced several unique obstacles when it attempted to enforce the law. First, the officer in charge of Three Sands was often a professional boom town sheriff. A boom town sheriff traveled the various oil camps and sold his peace-keeping services to the highest bidder. Since Three Sands was divided by a county line, each county furnished a deputy to maintain order over its jurisdiction. But the deputy received only a minimum salary from the county and, as in most oil towns, the town's law enforcement officers depended on contributions from the local civic organizations, merchants, and oil companies to supplement their salaries. This led to payoffs and such abuses as selling protection to individuals against harm to themselves or to their property. For \$25 one could

²²Daily Oklahoman, 1 Apr. 1923, p. B-5.

be guaranteed that his car would not be accidentally burned or stolen. In the fall of 1924, after the citizens demanded a cleanup of the town's criminal element and a change of officers, the Tonkawa Chamber of Commerce and the oil companies made arrangements to provide a periodic and designated fund to supplement the deputies' salaries. The companies also had a hand, directly, in law enforcement through their lease watchmen, who guarded against theft and disturbances on the company's property.

Secondly, the division of the town by the county line created the problem of holding the law enforcing agency accountable. The county line itself did not prevent one county officer from crossing the boundary to apprehend a fleeing offender, for the troubled life of the boom town allowed officers to waive the fine points of the law in fulfilling the job of keeping order. But a cleanup on the part of one county's officer would necessitate such action on the part of the other county. Often a county sheriff shifted his responsibility by hinting that all of the crime lay on the other side of town.

Finally, even when arrests were made, Three Sands lacked the facilities to handle the prisoners. With no jail, Johnny "Three Fingers" Miller, a local officer, resorted to chaining his prisoners to a telephone pole to await the pickup from the proper county authorities. The county jail facilities also proved inadequate when

attempting to handle the results of a raid on Three Sands, which often brought as many as sixty men and women to the county seat. During the Three Sands boom, Kay County built a special wire stockade at the Newkirk jail to handle the overflow until a train could carry a group to the state prison or the court could dispose of those cases awaiting trial.

The county books reveal that drunkenness, selling liquor, bad checks, and vagrancy were the subjects of most arrests, but the offenses committed ran from the failure of businesses to close on Sunday to the possession of narcotics.²³ Raids by the county sheriff were quite frequent and seldom did the officers come back completely empty handed. On special occasions, federal officers were in search of violators of the Eighteenth--or prohibition--Amendment; while state health officials checked operators of eating and pharmaceutical establishments for tuberculosis and occupants of boarding houses for venereal disease. Scattered rooming houses sheltered the gamblers, prostitutes, and dope pushers. Narcotics were often confiscated in quantities valued at several thousand dollars. Gambling was open and would take place anywhere workers gathered, whether it was a friendly game at the rig or a game in the back room of a saloon.

²³Oklahoma, Kay County, county court records of 1923 at the Office of the Court Clerk (Newkirk, Oklahoma).

Since most business and wage transactions took place on a day-by-day cash basis, hijacking was quite common. A large stretch of mud where cars would have to slow down often proved to be a likely spot for such a crime. Doctors answering calls in the field at night carried guns. The drilling crews working at night, however, were the most likely victims. One night five crews were robbed as the hijackers marched one crew after another to the next well to relieve its members of their money. A total of twenty-five workers finally watched their captors make their get away.

Many of the saloons were not as careful to conceal their goods as did one cafe with a trap door for barrels to be stored, or the drug store which sold drinks instead of medicine. "Choc beer" was probably the most common beverage. Over 350 gallons of beer being sold in bottles were confiscated in one raid. "Jamaica Rum," "Red Eye," and "Spike Handle" were names given to the hard liquor being sold. Often raids by county authorities disclosed that dealers had been tipped off, and more than one citizen suspected the local deputy. Stills could be found throughout the farm and oil field area as a large proportion of liquor sold at Three Sands was produced by local bootleggers. Often a rented building, farm home or corn field served as the location of the still with the mash being fed to livestock.

There probably were no more than ten killings

altogether in the life of Three Sands but two particular incidents stand out. These murders not only aroused strong public reaction but they also illustrate the problems which the oil town faced in its law enforcement. The county deputy in control of Three Sands during the spring of 1923 was John "Two Gun" Middleton, known for carrying a Colt-45 on each hip. His self-appointed assistant was George "Hookey"--or "Three Finger"--Miller. Miller had been a member of the infamous Red Buck gang of western Oklahoma²⁴ in the early 1900's and had served a term in federal prison for robbery. Two fingers were shot from Miller's left hand when he was captured after a gun battle with U.S. marshals, and a dynamite explosion had severed his right arm, which was replaced with a pointed hook. Both men served as boom town policemen in Oklahoma and had killed men--supposedly, in the line of duty.

Jackson "Chief" Burns, a full-blooded Choctaw, lived with his wife and three small children in the Tonkawa oil field where he was known as a dependable worker. It was later learned, in the trial, that Miller chained Burns to a bedpost in a boarding house room and beat him until he

²⁴George Weightsman, alias Red Buck, had been a member of the infamous gang of Bill Doolin during the 1890's. Later, Weightsman formed his own gang of which Miller became a member. Miller was wounded in the hand during the same gunfight near Arapaho, Oklahoma, in which U.S. marshals took the life of Weightsman. Ed Bartholomew, The Biographical Album of Western Gunfighters (Houston: Frontier Press of Texas, 1958), Weightsman, listed alphabetically.

agreed to pay protection money. Middleton and Miller had both warned Burns that they had better not catch him in town again. At 12:20 noon, on Saturday, July 21, 1923, the two officers approached the Blue Front Cafe where Jackson was sitting. Witnesses varied their testimonies in recounting what happened. Some said that one of the officers yelled, "Let's burn him!" and that both of the deputies went for their guns. Others testified that Burns had blazed away from the secluded doorway of the cafe, dropping Middleton with three shots from the Indian's .38 Special before the deputy could draw his gun or escape the fire. Next, the oil worker fired on Miller, who was retreating down the street. Three shots hit Miller, who was said to have carried notches on his gun from earlier gun battles. Both had been shot in the back all six times, with one bullet passing through Miller's back and shattering his already scarred hand as it gripped the notched handle of his gun. Middleton died on the spot; Miller succumbed to his wounds a few hours later in the Tonkawa Hospital. Burns, after the incident, retreated quietly through the cafe's rear entrance and walked back to the oil rig where he worked. Later, at the trial, a jury acquitted the Indian on the grounds that it was a case of "kill or be killed."²⁵

The final slaying in Three Sands, in October, 1924,

²⁵Tonkawa News, 12 July 1923.

Blackwell Journal-Tribune, 19 Mar. 1958, p. 8.

had the greatest consequences for the town in its efforts at law enforcement. During an argument on Main Street, a disabled veteran of the World War was killed in cold blood by a paroled federal convict in front of the Central Rooms. A mass meeting in which nearly 500 men took part followed that Saturday night on the Comar baseball field. The crowd was composed of mostly oil workers and lease superintendents, many of them members of the American Legion and the Masonic Lodge. The victim had been a member of both. Even though this group represented the better element of the field, the mob spirit almost attained control of the gathering with cries of "Burn the town!" and "Drive out the undesirables!" However, the Rev. A.L. Snyder, pastor of the Methodist Mission, and others allowed better judgment to prevail, and a decision was made to ask the U.S. marshal to aid in cleaning up the city and to call Governor Trapp's attention to the situation. The workers concluded the meeting by passing a resolution which gave the county officers twenty-four hours to clean up Three Sands and warned them that, otherwise, direct action would be taken by the workers, themselves.²⁶

Editorials across the state called for the end of lawlessness in the town and commended the citizens on the actions which they had taken. The Enid Eagle carried the following editorial:

²⁶"Law Enforcement Given Impetus in Oil Fields," 13.

Most of the Three Sands residents were just average citizens, no better, but certainly, no worse, than those found in any city with a fairer name than the one of their adoption. They contributed nothing to its wickedness, and surely took no part in it. And yet, by their tolerance, they allowed unthinkable conditions to exist under their very noses. New to the place, migratory in the main, feeling no particular faith in its permanence, they simply stood for things as they found them. Civic consciousness has at last awakened in the thriving little oil town. But too late to save the life of young Askren, who lived through the hell of the World War, only to meet a violent death in a city in the midst of a section of Oklahoma notable for its peace and prosperity.²⁷

The Daily Oklahoman stated the lesson to be learned:

The sovereign people can always get action when they are sufficiently interested to demand action. They have negligible law enforcement when they tolerate negligible law enforcement. They have strict law enforcement whenever and wherever they demand it.²⁸

The immediate result was a series of raids in which practically all the places of ill-repute were closed and several hundred undesirables shown the way out of town. When the demand was made that a new justice of the peace be selected, Reverend Snyder momentarily took the office, whose duties he administered from the counter of his grocery store.²⁹ Although no threats were uttered against the two deputy sheriffs from the adjoining counties in control of Three Sands, the citizens gave them to understand that they were not particularly wanted.

"Yes, we had to leave Three Sands," two women are

²⁷As quoted in Ibid.

²⁸As quoted in Ibid., 15.

²⁹Ibid.

said to have stated later, in Tonkawa, after their hasty departure. "We may have to leave Three Sands and go to Blackwell until the storm blows over, but we will be back there in a few days."³⁰ But the Askren murder and the following cleanup proved to be the end of the rough element in the field. With the boom behind the town in the fall of 1924, there was nothing to come back to. Shaker Alley, a night spot where taxi-dancers had worn bright cotton prints and saved a dance for ten cents, could never recover from the diminishing oil. The sound of the saxophone and muted cornet and the shuffle of heavy boots dancing on the wooden floors of joints, no longer vied with the noise of drilling.³¹ The oil man who had traveled many of the Oklahoma fields, later wrote that Three Sands soon became noted for its peacefulness. "At one time, when a man committed a crime and his company wanted to punish him very severely, they sent him to Three Sands."³²

³⁰Tonkawa News, 2 Oct. 1924.

³¹Campbell Osborn, Let Freedom Ring (Tokyo: Inter Nation Co., 1954), 41.

³²John Jones, Ten Years in the Oil Fields [El Dorado, Ark.: n.p., 1926?], 55.

CHAPTER VI

LIFE AT THREE SANDS

By the early 1920's there existed a consciousness among oil leaders that the "public be damned" could no longer be the guide line by which the employer viewed his employees. One phase of the company's movement to create a conservative working force centered about involvement for the employee's welfare.¹ Companies assumed a paternalistic role in the lives of their workers, from providing housing to helping supplement the funds for a union Sunday school. However, the companies' influence on the workers did take less subtle forms. "Some of the companies would turn their men off for election time and tell them that they could vote however they pleased; but if they [the companies] lost, they would surely tell their opponents what they thought of them [the workers]."

The town was not without its home life from the beginning. Many a man brought his family with him because he couldn't leave his wife and children elsewhere, and in the

¹Parker, "Life and Labor in the Mid-Continent Oil Fields, 1859-1945," 165.

small houses of one, two, and three rooms, life was made as comfortable as possible. Most companies took upon themselves the responsibility of locating housing for the families of incoming employees, although only houses provided for pumpers and superintendents were actually built at the company's expense. The other employees could usually either build or purchase a three room house for \$125. In all cases the workers benefitted from rent free land on which their houses rested, and the companies furnished gas or electric lights, water, and gas heat free to those living on their lease as there was no community light or power system. Each lease had its own dynamo since only electric lighting could be used safely on the oil rigs.

The water supply was a problem in the early years of the field.² Wells quickly became contaminated and were unfit for use because of pollution by draining salt water and sewage. It was necessary to purchase bottled water which was regularly delivered by businesses or well water sold by nearby farmers. In due time the oil companies took care of this situation. Comar drilled several deep wells for drinking water. Most people used the well water only for bathing and washing purposes and continued to use bottled water for drinking. One unpleasant incident occurred when the body of a man, drowned for over a week, was found in the supply tank. The Gypsy Company constructed a water system which

²Blackwell Morning Tribune, 18 Sept. 1927, p. 1.

distilled and aerated the impure water. Several companies furnished ice from their own plants until a daily run of ice trucks from Tonkawa provided service.

At one time the field had nearly twenty doctors practicing in the area, and the Red Cross hired a nurse to supervise its work in Tonkawa and Three Sands. The nurse and state health officials sporadically checked eating places, wells, schools, boarding houses, and dance halls. Monoxide gas poisoning was not infrequent in rooming houses, and "Jake Legg," alcoholic poisoning from cheap liquor, resulted in several deaths. There were both a typhoid epidemic and a smallpox scare in which all the people were urged to be vaccinated. One doctor recalls having inoculated over 500 people for typhoid in one day.

The companies furnished buildings for people to use as boarding houses and to cook for company employees on each lease. These sponsored boarding houses charged about fifty cents for meals and packed lunches for workers to take to their work. In 1925 Comar announced the end of cold meals during working hours when they opened a refinery cafeteria which allowed for hot meals to replace the cold sandwiches and "mush" pies. This second Comar cafeteria which was opened in the field fed approximately 250 men daily. The purpose of the cafeteria was economy for the men, and not profit. The menu prices read as follows: soup, five cents; roast pork, fifteen cents; potatoes, five cents; beans, five

cents; cake, five cents; tapioca, ten cents; coffee, tea or milk, five cents; bread was free.³

In June, 1923, the fourth-class post office was moved from "Four Ways" to Three Sands and changed to second class. From 8:00 A.M. to well past 6:00 P.M. a line of people waiting for general delivery mail stretched for some distance along the street in front of the post office. Records indicated that the new post office got off to a busy start; receipts for money orders totaled over \$22,000 the first three months of the office's existence.⁴ However, some of the residents of Three Sands continued to receive their mail in Tonkawa or over a rural route from Tonkawa. People usually gave the name of the lease as their address. All messages of importance to the people in Three Sands came by way of telegrams which had been sent to Tonkawa and delivered from there to Three Sands.

Good streets in Three Sands in the early days were an impossibility. To those who had followed oil fields this was nothing new. Bad streets were considered a necessary evil. Even Main Street, merely an opening between two rows of business houses, was often a mire that was next to impossible in bad weather and extremely rough even under the best of conditions.⁵ By 1925, paved Highway 177 passed through the

³Tonkawa News, 2 Dec. 1925.

⁴Daily Oklahoman, 24 June 1956, p. D-1.

⁵Blackwell Morning Tribune, 18 Sept. 1927, p. 2.

center of the town and in that way Three Sands could boast of a paved main street. In the beginning there had been no boardwalk to keep the throngs out of the mire, but covered boardwalks were eventually connected to the continuous line of store fronts.

Neat rows of well painted cottages, each bearing its company's colors, sprang up across the various leases. The Gypsy houses were represented by grey; Comar by green; Amerada by grey trimmed with red roofs; and Carter by gold. These houses were fairly comfortable when compared to the houses from which most of the workers had come, farm homes in the area or houses of nearby towns. Family life went on, unmindful of the wild life or the oil boom about it. Yet the spray of a gusher or March winds picking up oil soaked dirt from the roads was a constant reminder to a housewife whose washing hung on the clothes line. Just a few steps away from the streets where thousands were wildly crowding their way hour after hour, children shot marbles and played "grownups." Door to door venders could be seen peddling a variety of merchandise including fruits and produce. Most of the people had their own cows, pigs, chickens, and gardens, and, stock owners hired a herder to watch the milk cows as they grazed between the wells on the lease.

The land was barren of trees except for locust groves or cedars which surrounded a farm house or furnished a windbreak along a fence row. The residents made attempts

at lawns, and some planted flowers to add color to the Oklahoma prairie where only a few summers earlier wheat had grown. All of these efforts gave a look of permanency about the community. Even the oil companies began to make use of this idea and landscaped the grounds around field offices and gasoline plants. In 1924, largely due to the personal efforts of Lew Wentz, the McKee farm was rated by the Corporation Commission the cleanest oil lease in the state.

Even though Three Sands was never incorporated and no municipal government existed, still a community spirit grew among the people across the field. This identification with one another continued after the boom had spent itself and the crowds had gone. The church, school, and oil company were three forces which dominated the lives of the field's inhabitants and welded them together as a community.⁶

Before the boom there existed two rural churches within the field's vicinity. But the Holiness Mission became the first religious organization to be established within the new town of Three Sands. With its first meeting in 1923, the mission grew until it had well over a hundred in attendance. The second group to arrive was the Three Sands Mission of the Methodist Church which became the most active. The Methodist Mission typified the attempt to reach the throngs who crowded the streets of Three Sands. The oil men who were the subject of the church's outreach were

⁶Ibid.

neither atheists nor Sunday school men. Their whole attention was directed to the field in fear that the flowing wealth would get away from them if they didn't stay on the job; so they stayed.

One missionary, Rev. A.L. Snyder, had been a cow-puncher for thirty years. Part of that time had been spent in the Oklahoma Territory. Being a burly sort of individual, he had been given the commission of pioneering mission work in the rough frontier areas of the church; this included Three Sands. He spent his first night in town locked in his car with a .38 calibre revolver handy for defense against hijackers. Before acquiring a place in which to preach he had to wait counters in a cafe to maintain his existence and to gain funds to send for his family. Before long he purchased a general store which also served as a church.⁷ By closing on Saturday night and remaining closed until morning, the store was the only business establishment to shut up shop for twenty-four hours.

Reverend Snyder was soon able to obtain over \$500 from four contributors including himself. With this money the church was able to purchase the Braceen Hideout, thought by many to be the worst night spot in Three Sands. The building was located among houses of ill repute, and newspapers called it the only place in Three Sands where one couldn't purchase liquor. Soon the walls of the mission

⁷Tonkawa News, 16 Jan. 1926.

were decorated with placards reading "We need old time religion" and "How long has it been since you wrote your mother?".⁸ Besides the fact that on several occasions the six-foot tall minister had to throw rowdies out of the service to maintain order, no opposition hindered the work of the Methodist Church.

When attendance reached a peak of 260, the mission's board of trustees took up the construction of a new building to be used as a union Sunday school for all the children of the field. It was not uncommon for such a nondenominational Sunday school to spring up in a sparsely populated area or in a community where rapid shifting of the population made permanent arrangements by various denominations impractical. Even in the life of the church the oil companies played a role. Comar gave \$2,500 towards the new building. Wentz company provided \$500, and several other companies made smaller contributions.

As the school system gradually grew and with the feeling of a mutual interest so necessary to the growth of a community, there existed the second link by which the people of Three Sands might identify themselves. The original school district on the Kay County side of Three Sands had only a one room school known as Valley Center. By Christmas of 1921 the lone teacher at the school house had to place two children at a desk as the original enrollment of

⁸Blackwell Morning Tribune, 18 Sept. 1927, p. 2.

twenty-eight had doubled, and by the spring of 1922 the 106 pupils were sitting three in a seat most of the time. An arrangement was made by which the first, second, seventh, and eighth grades came on one day and the four middle grades came the next. The next year the burden of school financing was partially lifted from the farmers by the oil companies and royalty owners paying the three per cent state production tax on each barrel of oil. Although annually behind in sufficient financing and construction, the school system in 1926 had a total of ten rooms scattered at three separate locations, and thirteen teachers taught 400 pupils.⁹ Three Sands, with a new high school building, was the state's largest common school district.

The schools south and west of Three Sands faced problems similar to those of Kay County. Comar solved much of Noble County's problems when it donated a school building and hired two teachers to instruct a subscription school for thirty children of employees. All of the companies proved co-operative in the community matter of education and offered many free services to each school including housing for teachers. To the west at "Riverview" the children met in the United Brethren Church until a school building was constructed.

With the boom in progress there was little time for families to give to social life, yet it existed in a manner

⁹Ibid.

of sorts. Undoubtedly the most popular pastime was card clubs organized on the various leases. There were also meetings of fraternal organizations such as the American Legion, Free Masons, and Ku Klux Klan with its 300 members and auxiliary.¹⁰ Most of the larger social events centered around the church or around special occasions held at the schools. Comar held large dances and other socials for their employees at the company's gymnasium.

Soon after the field started, the workers built a baseball diamond in front of the Wentz office building. Later the Wentz and Comar companies organized semi-professional teams which played throughout the state against other industrial supported teams. Often players came from the University of Oklahoma and Oklahoma A. & M. and were given special jobs to help compensate for their athletic skills.

Comar officials learned that their workers were talking about acquiring a gymnasium for a basketball league and the company volunteered to construct it themselves. The building seated 2,500 and cost \$60,000. Officials claimed that it was the largest oil field gymnasium in existence.¹¹ Besides basketball and boxing, the building provided facilities for billiards and physical fitness. The gymnasium association was made up of over 1,000 member employees.

¹⁰Tonkawa News, 7 July 1925.

¹¹Blackwell Morning Tribune, 18 Sept. 1927, p. 2.

The town which had sprung up overnight died out slowly. Oil had been the town's creator and the sole purpose for its existence; the oil dwindled; the masses left. Only a minimum number of company employees remained to handle the field's limited production, and these were gradually transferred to other locations. Even the workers who decided to make the area their home found it convenient to move to nearby Tonkawa. By 1930 about 2,000 were scattered across the field although only a few hundred could be found within the town itself.¹² A railroad spur had been built to the town, but only a bus line furnished passenger communication. The high school closed its doors in 1946. A grocery store served as the last place of business in 1951 just as it had been the first type of enterprise in 1922. The Shell gasoline plant was shut down a year later; in 1957 the post office closed.¹³ Three Sands had ceased to exist.

¹²Interview, Works Progress Administration, professional project. Oklahoma Historical Society Library. Classified in file under "Tonkawa."

¹³Daily Oklahoman, 24 June 1956, p. D-1.

CHAPTER VII

TONKAWA: THE TOWN THAT GOT READY FOR AN OIL BOOM

Tonkawa, which lies in the center of the former Nez Percés and Tonkawa Indian reservations, was established as a result of the Cherokee Strip land rush of 1893. The town emerged as a small trading center in the farming area of Kay County. When the Oklahoma Territory legislature established the University Preparatory School in 1901, the community received a look of permanency. In 1910 the town's population had grown to 1,776, but the town failed to expand any further in the next ten years. The postwar years did bring some hope that the town would become more than just a farm community, for although connected by only a railroad spur, it lay on one section of the nation's transcontinental highway, later designated as Highway 60. Yet even the most optimistic realized the town's limitations unless some unexpected resource was discovered.

The editors of Harlow's Weekly wrote at the height of the boom, "Tonkawa knew a long time ago what was going to

happen and got ready for it."¹ Before the discovery of oil the town had begun a modest program of public works including paving and the supplying of utilities to its citizens. But even more important, Tonkawa had an oil field supply house ready to be used at the time Three Sands' discovery well was brought in. It was this step that pointed the oil businesses toward Tonkawa and made it the headquarters for the oil boom.² The supply house had been built in anticipation of further oil activity surrounding the Billings field and scattered across Kay County.

The town of Marland,³ located southwest of Ponca City, was just as near the drilling as Tonkawa, but the throngs went to Ponca City, where they took the taxi and bus route to get to Tonkawa and spent their money in the "town that got ready." Marland, with its population of several hundred had even less housing and other facilities than Tonkawa to offer the workers; and as the field moved north, the center of operations became decidedly closer to Tonkawa. This closeness was a big factor in transportation and communication between the field and the outside world.

At one time the local newspaper could brag that Tonkawa had less business failures according to its size

¹Daily Oklahoman, 18 Mar. 1923, p. B-5.

²Ibid.

³The name was changed from Bliss to Marland in 1923.

than any town in Oklahoma. But, in spite of the warning by the Chamber of Commerce that the town did not want any "fly by night" businesses, it had its share. Tonkawa, at its population peak, was estimated to have had over one hundred cafes and eating houses.⁴ Where there had been only one theatre, there were three by 1923. A bottling works and car enameling shop illustrate the variety of businesses which sprang up. By April, 1923, the town had erected a total of 150 new businesses, including fifteen oil field supply houses which was the most located in any Mid-Continent town.⁵

Old businesses and industries expanded to meet the new demands while the prosperity brought still other establishments here to build for the first time. Before the oil boom, the American State Bank, Bank of Commerce, and Farmers National Bank had a total of nearly \$1 million in deposits. By 1927 the total deposits of the three banks had reached \$13 million.⁶ The Santa Fe Railroad depot moved up among the first-class offices of the line. Its receipts were said to average about \$250,000 a month or about ten times the pre-boom average. By April, 1923, the Tonkawa office received 800 carloads of oil supplies and merchandise every month;

⁴Tonkawa News, 22 Feb. 1923.

⁵Ibid., 23 July 1925.

⁶Blackwell Morning Tribune, 5 June 1927, p. 1.

while at the same time, 120 carloads of high-gravity crude were being shipped out from the field.⁷ Within town the Tonkawa Petroleum Company built a refinery with a capacity of 3,000 barrels a day and shipped its products throughout the Midwest.

Local observers estimated that 10,000 or more people stayed in Tonkawa during the boom's height in 1923.⁸ Day by day South Main Street became livelier as the same crowds who were on the streets of Three Sands were also frequenting Tonkawa. South Main, which became the center of business expansion during the boom, ran south for three-quarters of a mile to the Salt Fork River bridge and the road to Three Sands. Where less than two years before lots had not been worth the paving in front of them, frontage was now so valuable that a wide drainage ditch had been spanned with a trestle and business houses were built thereon. From one end of the street to the other, there was a transformation.⁹ The Main Garage was made over into an eating place known as Stricklen's Cafeteria, with eating rooms built on both sides of the entrance to the garage, which was placed in the back. Next door south lay Coppage's newsstand, Bertwell's shoe store, a theatre, new lumber yard, feedstores, and more

⁷Daily Oklahoman, 22 Apr. 1923, p. B-4.

⁸Tonkawa News, 22 Feb. 1923.

⁹Ibid.

restaurants. On the west side of the street, boarding houses, cleaning establishments, and royalty offices predominated the scene. The sidewalk by the Farmer National Bank became the local gathering place for stories of the field and the latest speculation on production activities.

The local newspaper editor warned real estate owners, ". . . not to kill the goose that laid the golden egg by asking too exuberant prices."¹⁰ But these words fell on deaf ears. Lots that had sold a short time ago for only \$50 and \$75 were bringing as high as \$1,500; and a six by twelve foot office front rented for \$100 a month.¹¹ Carpenters were working day and night to complete frame rooming houses and restaurants in order to accommodate the people's needs. Trees were being cut down to make way for brick garages, supply houses, and other buildings that were often planned and furnished within a few days. Building was so rapid that one man bought some lots which he thought were at the extreme end of the street, and when he returned a week later, he found a two-story hotel built south of him on a fraction of a lot on the high bank of the river.

In February, 1923, an addition sprang up south of the Salt Fork River. A Tonkawa man had leased 1,000 feet of farm land on either side of the Three Sands road and began

¹⁰Ibid., 6 Oct. 1922.

¹¹Daily Oklahoman, 18 Mar. 1923, p. B-5.

building what he was pleased to call "Smackover" after the contemporary Arkansas boom field. Every day saw a new rude board hut or tent erected until even an additional street was laid out west of the road. Soon this area became locally infamous for the numerous crimes which took place and the character of the inhabitants; but judgment came in the form of a flood. June, 1923, brought the greatest flood in the history of north central Oklahoma and, as the waters quickly rose over this low bank of the river, they covered Smackover.¹² The main street of Smackover lay under ten feet of water, and several of the dwelling houses and stores were washed away. Smackover never again became a building district of importance as the majority of the inhabitants moved away.

South Main had the same throngs and traffic jams which prevailed at Three Sands. The language of the teamsters could be heard above the shuffling of the crowds. Rolls-Royce, Peerless, and Lincoln cars, which before had been unknown to the country hamlet, were now parked along its streets. All newcomers to the field soon developed the patience that was necessary in waiting for an opening in the street to occur so that one could inch his way to his destination. Boiler wagons, trucks, and cars made their way to the Salt Fork bridge where each waited its turn to cross. The city connected a footbridge to the main trestle to

¹²Tonkawa News, 14 June 1923.

enable pedestrians to have more freedom. Workers dressed in their field clothes predominated the scene, but the business of the field had brought its share of peddlers and smartly dressed salesmen who bartered pencils and royalties to the passer-by.

On one occasion when several men and women were arrested for disorderly conduct, the local judge asked one of the women just where the drinking party had been held. She replied, "Ah, it was down on South Main Street; down where they act rough."¹³ Most of the town's crime could be centered on this one street whose residents were termed the "underworld" by the local newspaper. Stabbings, small robberies, gambling, prostitution, and peddling of narcotics were all frequent, but crime and vice never reached the open violence that it did at Three Sands.

During the boom years, persons of wealth felt the threat of kidnaping constantly. Families found themselves rich overnight, and the news of their newly acquired fortunes carried state-wide. Some sent their children to and from school in limousines for fear of abduction, and one son of a royalty owner even had his own personal bodyguard.

When people began to arrive in the fall of 1922, the housing situation soon revealed itself as the most acute problem facing the city. The city park was full of campers who were seeking construction or oil field jobs. The

¹³Ibid., 4 Nov. 1923.

Tonkawa News editor welcomed these "free spenders" but forecast that the housing situation would be great in the coming winter. The inhabitants of this wagon and tent town, he warned, ". . . seemed to have very little thought of tomorrow and 'sufficient unto the day is the evil thereof.'" ¹⁴

Nearly 3,000 people came within a three-month period beginning in January, 1923. Most of the people who arrived late got the same answers given to one young man who asked for a room at one of Tonkawa's three hotels. The clerk laughed and told him it would cost fifty cents just to sleep in the lobby. There were beds set up along each of the hotel's hallways. By March, 1923, a company had been formed to finance the building of the Hotel Tonkawa, a \$100,000 investment which quickly became the headquarters for practically all the scouts, geologists, and lease hounds.

There were 8,000 workers in the oil field during the summer of 1923, and the local Chamber of Commerce claimed that sixty per cent of them stayed in Tonkawa during this time. ¹⁵ Many of the students at the nearby University Preparatory School had to lay out of school for the 1922-23 term since the price of rooms in peoples' homes had been raised to a prohibitive level. Along with the construction of boarding houses, people across town began to open a room,

¹⁴Ibid., 24 Aug. 1922.

¹⁵Tonkawa Chamber of Commerce, "Gateway to the Greatest Oil Fields in the World," The Oil and Gas Journal, XXIV (Oct. 15, 1925), 91.

an attic, a garage or even a stable to profit from the workers arriving daily. Those families living in small homes would themselves move into one room and rent the remaining one or two rooms to others. Men would come to sleep in shifts of eight hours using the same beds; but there were some who did not rate even these inadequate accommodations. Some, for example, burrowed in the middle of the winter on the high bank of the river and closed the open space with boards.

To accommodate the overnight expansion, houses were built at a rapid pace. By April, 1923, 150 new business houses had been erected besides the 500 new residences which cost between \$500 and \$10,000.¹⁶ In December, 1922, the real estate valuation of Tonkawa was estimated at \$546,000.¹⁷ A survey taken in 1925 revealed an additional \$2 million in building materials had been invested in public buildings, businesses and residences. Of the total, \$1.2 million had been invested in residences including shacks or small houses valued at less than \$1,000 which numbered in the hundreds.¹⁸ Sam McKee built the first residence in Tonkawa to cost more than \$10,000 when he erected his \$35,000 home. His was followed by other showplaces built from royalty money.¹⁹

¹⁶Tonkawa News, 2 Apr. 1923.

¹⁷Ibid., 23 July 1925.

¹⁸Ibid.

¹⁹Daily Oklahoman, 4 Feb. 1925, p. B-6.

On a Saturday night in April, 1922, a double file of white-robed and hooded marchers appeared on Grand Avenue, Tonkawa's principle street. They were led by a fiery cross held aloft between two American flags; and a weird bugle blast announced their approach as they silently passed through the business section of town which was thronged with people. They bore banners upon which were printed such sentiments as "We are 100 per cent American" and "We are Here, Today, and Tomorrow and All the Time." As the latter banner passed a woman cried out, "Oh, why were you not here yesterday?" The marchers continued on until they had disappeared in the darkness once again. The Ku Klux Klan had made its first appearance in the new oil city.²⁰

Within months, the local Ku Klux Klan had grown into a formidable organization with active Klans at both Tonkawa and Three Sands. One of the larger rallies was held in a pasture north of Tonkawa. Cars lined the roads as 2,000 Klansmen from nearby towns were present to witness the torch light initiation of over a hundred new members. Local businessmen, permanent citizens of the town, and area farmers constituted the majority of the Klan's members. Leaders among the oil community such as lease foremen also became members, and if any of them did not, it was usually because they were too involved in their work and not out of lack of sympathy for the Klan. But few of the field's transient

²⁰Tonkawa News, 27 Apr. 1922.

workers or boom followers were invited to join.

One letter addressed by the Klan to the local paper ended with the statement: "Our eyes are on every man, woman, and child in this community."²¹ To prove this the Klan befriended various individuals when misfortune struck. For instance, a contribution might be handed to an accident victim in the field. There were also rumors of threats being made upon individuals by the Klan or at least in the name of the Klan when the formal arm of the law found no remedy against an injustice. But, surprisingly, there was no widespread use of force by the Klan even though the nearby oil field, with its lack of law enforcement, might have encouraged it. The only instance of mob intervention occurred after the Askren murder at Three Sands, and the Klan did not formally take a part in the mass rally whose participants threatened a cleanup of the lawlessness by vigilantes unless immediate action was taken by the proper authorities. Undoubtedly, the leaders of the meeting were also Klan sympathizers.

Across America in the 1920's, the outlook prevailed that "what was good for business was good for everyone." In 1919 the Tonkawa Chamber of Commerce was founded to promote the community's welfare by promoting business. Although much of a field's trade would have come to the town anyway, the Chamber played a major role in making the field dependent

²¹Ibid., 25 May 1922.

upon Tonkawa. The Chamber had roads graded, telephone lines run, and cars pulled through the mud; all to bring the oil people and their money to town. But more important, the Chamber promoted the idea that the oil boom was welcomed. There was never any questioning that oil would bring anything but a sound prosperity to the town nor was there any placing the spotlight upon the inconvenience and problems which the boom created. The town's people were to see the boom as an opportunity for betterment and to take full advantage of the times while the prosperity lasted. By 1927 a federal census indicated that the town's population had dropped to 4,635.²²

Before oil was even discovered, the town fathers made plans for their community, one with the conveniences and facilities which its citizens would soon come to expect. The boom allowed the town to expand quickly into the community which it had hoped to be with its limited resources. A city hall, high school, and hospital were constructed; the churches undertook extensive building programs; and "Tonkawa is to have a band, now that it is an oil city."²³ Many of these improvements and symbols of civic progress would have

²²A federal census revealed that of the 4,625 inhabitants within Tonkawa 2,376 were males and 2,249 were females. There were five Indians and two Mexicans who made up the non-white population. Blackwell Morning Tribune, 21 Apr. 1927, p. 1.

²³Tonkawa News, 25 Jan. 1923.

come with time and without the aid of oil. But, undoubtedly, the boom did help the town more than it could ever have been without the field, for the very fact that the boom brought more people. Although the throngs left, some stayed and found a place within the community.

BIBLIOGRAPHY

Public Records

- Oklahoma, Kay County, lease records of Township 25 North, Range 1 West, County Clerk's Office (Newkirk, Oklahoma).
- Oklahoma, Kay County, county court records of 1923 at the Office of the Court Clerk (Newkirk, Oklahoma).
- Oklahoma, Noble County, lease records of Township 24 North, Range 1 West, County Clerk's Office (Perry, Oklahoma).

Bibliographies

- DeGolyer, E., and Harold Vance. Bibliography on the Petroleum Industry, publication by Agricultural and Mechanical College of Texas. (Bulletin No. 83) College Station, Texas: n.p., 1944.
- Skelton, Alan G., and Martha B. Skelton. A Bibliography of Oklahoma Oil and Gas Pools, publication by Oklahoma Geological Survey. (Bulletin No. 63) Norman: n.p., 1942.

Government Publications

- Branson, Carl C. Fifty Years' Progress Semi-centennial Report, publication by Oklahoma Geological Survey. Norman: n.p., 1930.
- Clark, G.C., and C.L. Cooper. "Kay, Grant, Garfield, and Noble Counties," pp. 67-104 in Vol. II of Oil and Gas in Oklahoma, publication by Oklahoma Geological Survey. (Bulletin No. 40) Norman: n.p., 1930.
- Collom, R.E. Prospecting and Testing for Oil and Gas, publication by U.S. Department of the Interior. (Bulletin No. 201) Washington: Government Printing Office, 1922.

Fowler, H.C. Accidents in the Petroleum Industry of Oklahoma 1915-1924, publication by U.S. Department of Commerce. (Technical Paper No. 392) Washington: Government Printing Office, 1926.

Oklahoma Corporation Commission, Tenth Annual Report. Oklahoma City: Warden Company, 1917.

Oklahoma Corporation Commission, Seventeenth Annual Report. Guthrie: Co-operative Publishing Co., 1924.

Oklahoma Session Laws of 1915. (Fifth Legislature, 1st sess.) Oklahoma City: Warden Printing and Publishing Co., 1915.

U.S. Congress, House, Committee on Interstate and Foreign Commerce, Petroleum Investigation: Hearings before the Subcommittee on Petroleum Investigation, . . . March 27-28 and April 1-2, 1941, pursuant to House Resolution 15 and 118. (77th. Cong., 1st sess.) Washington: Government Printing Office, 1934.

U.S. Department of Commerce, Statistical Abstract of the United States 1920, R.S. MacElwee, Director of the Bureau of Foreign and Domestic Commerce. (No. 43) Washington: Government Printing Office, 1921.

U.S. Department of Labor, Wages and Hours in the Petroleum Industry 1920. (Bulletin No. 297) Washington: Government Printing Office, 1922.

Books

American Bar Association, Section of Mineral Law, Legal History of Conservation of Oil and Gas. Chicago: Lord Baltimore Press, 1938.

Arnold, Ralph, and William J. Kemnitzer. Petroleum in the United States and Possessions. New York: Harper and Brothers Publishers, 1931.

Ball, Max W. This Fascinating Oil Business. Indianapolis: The Bobbs-Merrill Co., 1940.

Bartholomew, Ed. The Biographical Album of Western Gun-fighters. Houston: Frontier Press of Texas, 1958.

Beaton, Kendall. Enterprise in Oil. New York: Appleton-Century-Crofts, Inc., 1957.

- Billington, Ray Allen. Westward Expansion. New York: MacMillan Co., 1960.
- Boone, Lalia Phipps. The Petroleum Dictionary. Norman: University of Oklahoma Press, 1952.
- Clark, J. Stanley. The Oil Century. Norman: University of Oklahoma Press, 1955.
- Forbes, Gerald. Flush Production. Norman: University of Oklahoma Press, 1942.
- Foreman, Grant. The Last Trek of the Indians. Chicago: University of Chicago Press, 1946.
- Jones, John P. Ten Years in the Oil Fields. [El Dorado, Ark.: n.p., 1926?].
- Kay County Gas Company, Kay County Oklahoma. Ponca City: n.p., 1919.
- Knowles, Ruth. The Greatest Gamblers. New York: McGraw-Hill, 1959.
- Lenski, Lois. Boom Town Boy. New York: J.B. Lippincott Co., 1948. (A fictional account of Three Sands--for children.)
- Mathews, John Joseph. Life and Death of an Oilman. Norman: University of Oklahoma Press, 1951.
- Morris, Lerona Rosamond, ed. Oklahoma Yesterday-Today-Tomorrow. Guthrie: Co-operative Publishing Co., 1930.
- Osborn, Campbell. Let Freedom Ring. Tokyo: Inter Nation Co., 1954.
- Reeser, Edwin I. Oil Royalties. Tulsa: Dexter Publishing Co., 1929.
- Rister, Carl Coke. Oil! Titan of the Southwest. Norman: University of Oklahoma Press, 1949.
- Thompson, Craig. Since Spindletop. n.p., [1951?] (Gulf Oil Corporation's fiftieth anniversary publication).
- Ver Wiebe, Walter a. Oil Fields in the United States. New York: McGraw-Hill, 1930.

Articles

- Aurin, Fritz L. "Early Petroleum Geology in Northern Oklahoma," Shale Shaker, XVI (Apr. 1966), 185-86.
- Baker, Ralph T. "The Greatest High Grade Oil Field," The Oil and Gas Journal, XXI (Feb. 22, 1923), 14, 111, 113.
- Bentley, Max. "Smackover, and Seekers of Oil," Harper's Magazine, CXLVIII (Dec. 1923), 73-74.
- Clark, G.C., and F.L. Aurin. "The Tonkawa Field, Oklahoma," Bulletin of the American Association of Petroleum Geologists, X, No. 2 (1926), 885-91.
- Clark, Stuart K. "Development of Rotary Sample Analysis," Shale Shaker, XVI (Apr. 1966), 184-85.
- Craighead, David. "Treasure in the Redbeds," Oklahoma Today, XVI, No. 3 (1966), 22-25.
- Forbes, Gerald. "Southwestern Oil Boom Towns," The Chronicles of Oklahoma, XVII (Dec. 1939), 393-400.
- Hinton, A.F. "1923 Was Greatest Year for Tonkawa," National Petroleum News, XVI (Jan. 23, 1924), 31-32.
- Hosterman, J.F. "The Tonkawa Oil and Gas Field, Oklahoma," Bulletin of the American Association of Petroleum Geologists, VIII, No. 3 (1924), 284-300.
- "In Oklahoma Oil Fields," Harlow's Weekly, XXII (May 19, 1923), 7, 13.
- Kornfeld, Joseph A. "A Half Century of Exploration in the Southwest," The Oil and Gas Journal, L (May supplement 1951), 186-214.
- "Law Enforcement Given Impetus in Oil Fields," Harlow's Weekly, XXIII (Oct. 11, 1924), 13, 15.
- Lockwood, C.D. "Deep Tonkawa Sand Stimulates Drilling," The Oil and Gas Journal, XXIII (May 1, 1924), 36-37.
- Lockwood, C.D. "Tonkawa Field Production by Leases," The Oil and Gas Journal, XXIV (Oct. 15, 1925), 92, 94.
- McCaslin, Leigh S., Jr. "Southwest Quickly Dominated Nation's Petroleum Supply," The Oil and Gas Journal, L (May supplement 1951), 258-305.

- McCaslin, Leigh S., Jr. "Southwest, U.S.A.--Birthplace of Rotary Drilling," The Oil and Gas Journal, L (May supplement 1951), 222-51.
- McIntyre, James, ed. "New Extensions to Tonkawa Possible," The Oil and Gas Journal, XXIV (Oct. 15, 1925), 88, 90.
- Munsell, Royce. "Compressed Residue Gas Flows Deep Tonkawa Well," The Oil Weekly, XXXIX (Nov. 27, 1925), 37, 40.
- Osborn, C. Campbell. "Eastern Refineries Buy Marland Crude," Marland Oils, III (July 1923), 9-12.
- Rinehart, Ira. "Survey of Northern Oklahoma Fields," The Oil and Gas Journal, XXI (Sept. 21, 1922), 94-102.
- Ross, J.S. "Drilling Methods in the Tonkawa Field," The Oil and Gas Journal, XXI (Mar. 1, 1923), 84, 88, 90.
- Tonkawa Chamber of Commerce, "Gateway to the Greatest Oil Fields of the World," advertisement published in The Oil and Gas Journal, XXIV (Oct. 15, 1925), 91.
- "Tonkawa, One of Oklahoma's Most Substantial Oil Towns," Harlow's Weekly, XXI (Dec. 30, 1922), 12-13.
- Triplett, Grady. "Tonkawa Holding Oklahoma Output Steady," The Oil Weekly, XXVIII (Jan. 13, 1923), 10-11.
- Triplett, Grady. "Tonkawa Field Promises To Be Factor," The Oil Weekly, XXVI (Sept. 16, 1922), 10-11.
- Willson, C.O. "Phenomenal Growth Marks Natural-Gasoline Expansion in Southwest," The Oil and Gas Journal, L (May supplement 1951), 374-92.
- Willson, C.O. "Southwest is Hub of the Pipe-Line Industry," The Oil and Gas Journal, L (May supplement 1951), 400-50.
- Willson, C.O. "Journal-log of Southwestern Oil," The Oil and Gas Journal, L (May supplement 1951), 164-85.

Unpublished Material

- Parker, Albert Raymond. "Life and Labor in the Mid-Continent Oil Fields, 1859-1945." Unpublished Ph.D. dissertation, Norman: University of Oklahoma, 1951.

Pratt, Ernest S. "The Tonkawa Field of North Central Oklahoma." Unpublished M.S. thesis in geology, Norman: University of Oklahoma, 1923.

Robinson, Bruce. "The Three Sands Oil Boom." Unpublished semester report, Norman: University of Oklahoma, 1961. In Manuscript Division of University of Oklahoma Library.

Newspapers

Blackwell (Okla.) Morning Tribune.

Daily Oklahoman (Oklahoma City).

Ponca City (Okla.) News.

Tonkawa (Okla.) News.

Tulsa Daily World.

Letters

Aurin, Fritz L., to the author, Fort Worth, Texas (Oct. 4, 1966). Aurin is a former geologist for Marland Oil Company and is now associated with Southland Royalty Company.

Ingram, C.E., to the author, Denver, Colorado (Sept. 20, 1966). Ingram is the present Division Services Manager of the Rocky Mountain Division, Shell Oil Company.

Kemm, James O., to the author, Tulsa, Oklahoma (Oct. 7, 1966). Kemm is present Executive Manager, Oklahoma Petroleum Council.

McBryde, O.C., Jr., to the author, Tulsa, Oklahoma (Sept. 12, 1966). McBryde is Chief Petroleum Engineer for Amerada Petroleum Corporation.

McCaslin, John, to the author, Tulsa, Oklahoma (Sept. 6, 1966). McCaslin is the Exploration Editor for The Oil and Gas Journal.

Interviews

Bewley, Walter employee of Shell Oil Company

Birch, E.C. Amerada Oil Company, Supt. at
Three Sands

Bowman, Myrtle collector of newspaper articles
on Three Sands

Bush, Morgan Druggist and royalty-owner during
boom

Clark, Glen. Marland Oil Company, geologist

Cleary, J.K. Cleary Oil Company, vice-president

Conaghan, B.F. tool-dresser in early boom-days

Cox, Roy defending lawyer in Miller-
Middleton killing. First
criminal case.

Craighead, David author of a series of articles on
Oklahoma oil booms appearing in
Oklahoma Today.

Cullen, John Marland Oil Company, Tax Dept.;
Comar, treasurer

Davis, Ellis Tonkawa, City Clerk; later, Kay
County, Treasurer

Davis, Walt. Production Supt. for Lew Wentz--
1925

Godwin, Jimmie Godwin-Barclay Royalty and Real
Estate during the boom

Goldstern, Joe Goldstern Pipe-Line Company

Halls, Steve geologist

Leffler, Kenneth worked for a furniture store and
made deliveries to Three Sands
while attending school in
Tonkawa

McElmurray, Charles. . . . Three Sands merchant

Mitchell, Josephine. . . . early-day schoolteacher in Kay-
 (Bowen) (Mrs.) Noble Counties
 Moore, E.W.. . . . Tonkawa, dry goods merchant
 during boom
 Moore, E.W. (Mrs.) housewife during boom
 Morgan, Max. McCaskey-Wentz Company, geologist
 Mussellman, John mule-skinner during boom
 Noles, Tom Three Sands merchant
 Noles, Tom (Mrs.). housewife during boom
 Oaks, Malcolm. former geologist, Oklahoma Geo-
 logical Survey
 Pursifull, Robert. Comar, Three Sands early-day
 worker
 Robinson, L.A. Shell Oil Company employee
 Robinson, L.A. (Mrs.). . . . Three Sands schoolteacher
 See, Ernest. See farm owner; insurance agent
 and banker during those days
 Shinn, Ann (Mrs.). daughter-in-law of early-day
 sheriff
 Simpson, C.W. Gulf Oil Company, oil field
 worker
 Smith, Ray (Maurie). . . . Red Cross nurse for Tonkawa and
 (Mrs.) public schools
 Smith, Russell, (Mrs.) . . housewife during boom
 Vogt, Mary (Robins). . . . early Holiness Church member
 (Mrs.)
 Waggoner, Dr. E.E. doctor during boom; treated noted
 outlaws
 Waggoner, E.E. (Mrs.). . . wife of local doctor during boom
 West, Nora Tonkawa Ice Company employee

Williams, Earl. Royalty and Real Estate during
1920's

Wilson, Newt (Mrs.) Methodist Mission member

Withrow, Phil editor of Shell Shaker

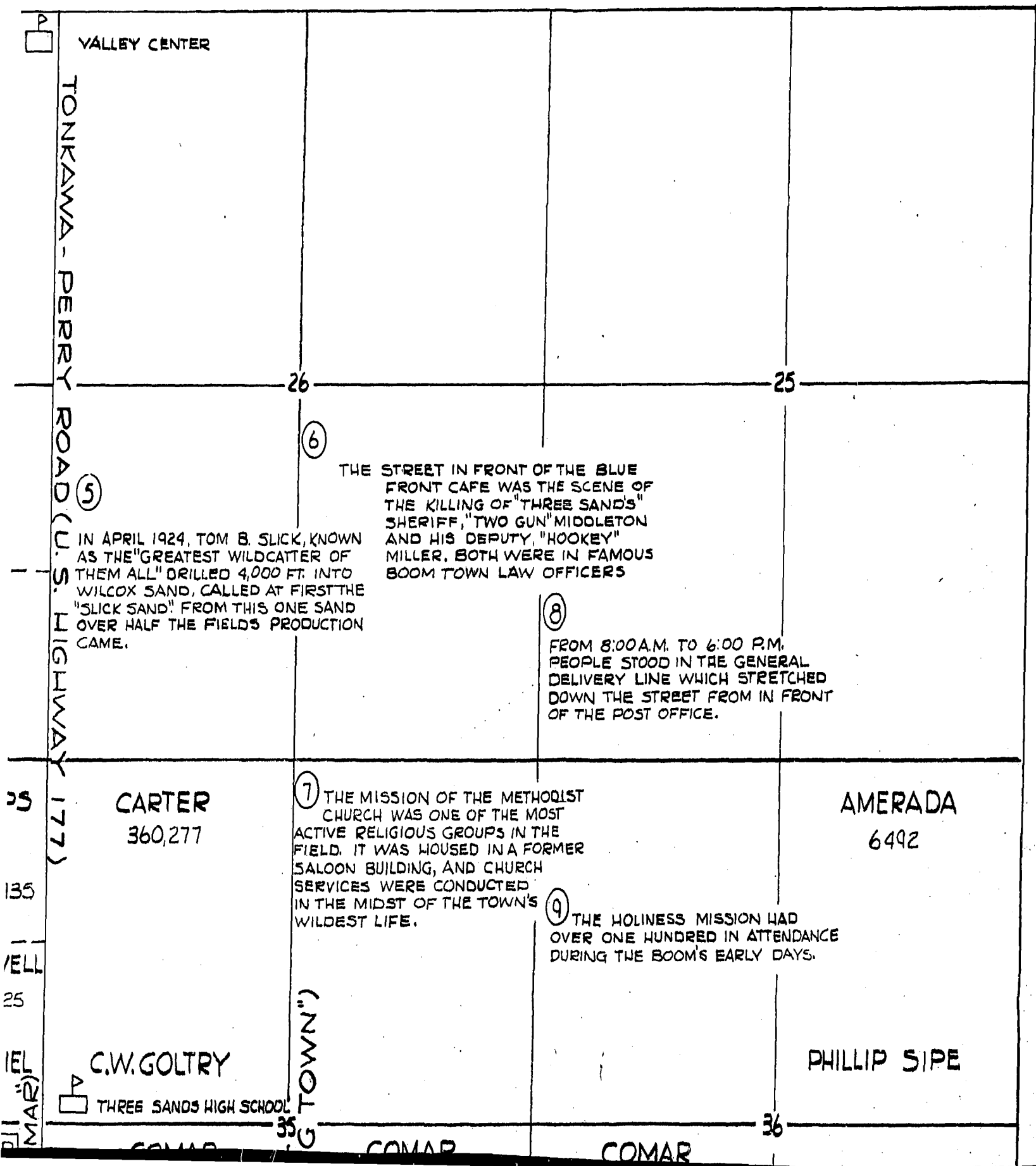
Wolfe, Smith. Marland Oil Company, Lease Dept.

Works Progress Administration, professional project interview.
Oklahoma Historical Society Library. Classified in
folder file under "Tonkawa."

TONKAWA OIL FIELD

FRIEDMAN 12,408 SILER	28	④ THIS LEASE WAS EARLIER CONDEMNED BY GEOLOGISTS ON THE SPOT, BUT DE GOLYER, FAMED GEOLOGIST AND DIRECTOR OF AMERADA OIL, TOOK THE LEASE WHICH PROVED TO BE A SIGNIFICANT FACTOR IN THE COMPANY'S FINANCIAL PROGRESS.	↑ TONKAWA (6 MILES) TONKAWA - PERRY ROAD (U.S. HIGHWAY 111)
28	WENTZ OIL CORP. 227,109 M. MAHONEY	27 TEXAS 875,135 R. L. DAVIS CAMP	M'CMAN O & G. 161,083 SUITER
T 25 N ← THOMAS FIELD "RIVERVIEW" (6 MILES) THE DIAMOND CORE DRILL WAS USED FOR THE FIRST TIME AT THE TONKAWA FIELD TO MAP OUT THE EXTENT OF A PROVEN FIELD.	COSDEN & MARLAND 478,681 R. L. WOOD	COMAR 6,293,931 BY 1925 THIS LEASE LED ALL OTHERS IN PRODUCTION FROM THE PROLIFIC WILCOX SAND. F. BEVERLIN	CAMP AMERADA PHILLIPS ④ 3,344,000 330,935 BLACKWELL 1,114,725 (WOODS) GOLTRY M'DANIEL 33 34

LD (THREE SANDS)



← THOMAS FIELD

"RIVERVIEW" (6 MILES)

THE DIAMOND CORE DRILL WAS USED FOR THE FIRST TIME AT THE TONKAWA FIELD TO MAP OUT THE EXTENT OF A PROVEN FIELD.

COSDEN & MARLAND

478,681

R. L. WOOD

COMAR

6,293,931

BY 1925 THIS LEASE LED ALL OTHERS IN PRODUCTION FROM THE PROLIFIC WILCOX SAND.

F. BEVERLIN

CAMP

AMERADA

PHILLIPS

④

3,344,000

330,935

BLACKWELL

1,114,725

(WOODS)

GOLTRY

MCDANIEL

33

34

THE CEMETERY OF PRAIRIEVIEW UNITED BRETHERN CHURCH WAS THE SCENE OF AN ATTEMPT TO DRILL IN A CHURCHYARD, BUT THE STATE SUPREME COURT RULED THAT IT WAS NOT TO BE DISTURBED.

SAM MCKEE, WHO SOLD NONE OF HIS ROYALTY, AT ONE TIME WAS DRAWING \$140,000 A MONTH.

③

MCKEE NO. 45 WAS THE SECOND ALL TIME PRODUCING WELL OF HIGH GRADE OIL IN STATE'S HISTORY. IT MADE OVER THREE MILLION DOLLARS.

WENTZ

6,984,690

PLANT

BASEBALL FIELD

COMAR

CAMP

5,108,152

PENNOAK

⑥

1,744,836

C.C. ENDICOTT

⑨

⑧

SAM MCKEE

③

KAY COUNTY

"FOSTER CITY" PRAIRIEVIEW

THREE SANDS (COMAR)

SINCLAIR

10,735

J. FREDERICK

BLACKWELL O & G.

THE OSAGE TRIBAL AUCTIONS OF THE BURBANK OIL BOOM WAS THE ONLY PRECEDENT IN THE STATE'S HISTORY TO THE HIGH PRICES PAID FOR TONKAWA LEASES. THE RUZEK LEASE OF 160 ACRES WAS SOLD FOR \$2 MILLION.

1,675,825

J. RUZEK

COMAR

4,073,297

CARMICHAEL

(S. PETTIT)

4

3

TWENTY-SIX PIPELINES CARRIED OIL FROM THE FIELD. THESE LINES WITH 185,000 DAILY CAPACITY & THERE WERE ALWAYS PLENTY OF BUYERS FOR TONKAWA OIL.

MCCASKEY & WENTZ

12,359

COMAR

1,675,825

CAMP "A" MAIN STREET (BROADWAY)

CARTER
360,277

⑦ THE MISSION OF THE METHODIST CHURCH WAS ONE OF THE MOST ACTIVE RELIGIOUS GROUPS IN THE FIELD. IT WAS HOUSED IN A FORMER SALOON BUILDING, AND CHURCH SERVICES WERE CONDUCTED IN THE MIDST OF THE TOWN'S WILDEST LIFE.

AMERADA
6492

⑨ THE HOLINESS MISSION HAD OVER ONE HUNDRED IN ATTENDANCE DURING THE BOOM'S EARLY DAYS.

C.W. GOLTRY

THREE SANDS HIGH SCHOOL

PHILLIP SIPE

COMAR
2,875,412

COMAR
668,620

COMAR
4,570

T. B SLICK & COMAR
⑤ 5,635,435

⑦ L. ENDICOTT

C.R. OGG

H KOFFENBRINK

PLANT GYPSY

BY 1925 THIS LEASE LED ALL OTHERS IN PRODUCTION. IT HAD 97 WELLS ON THIS ONE 160 ACRES LEASE

8,590,117

CLARK
(SHAWVER)

COMAR
2,060,428

BY LATE 1925 OVER 18 LEASES HAD PRODUCED MORE THAN ONE MILLION BARRELS.

S. E. GAUME

NOBLE COUNTY

UNTIL 1927 THE TONKAWA FIELD HAD YIELDED MORE OIL PER ACRE (30,000 BARRELS) THAN ANY OTHER OIL FIELD IN THE HISTORY OF THE STATE.

CAMP COMAR
3,635,742

COMAR
943,249

IXL

BASEBALL FIELD

THE COMER BASEBALL PARK WAS THE SCENE OF A NIGHT RALLY OF THE FIELD'S CITIZENS WHO HAD GATHERED TO PROTEST THE MURDER OF A FELLOW CITIZEN. AT THE MEETING THE GROUP QUESTIONED PROPER AUTHORITIES FOR A CLEAN UP OF THE

THE NAME "KANOLKA" IS A COMBINATION OF "KAY" AND "NOBLE"

HOPE (FROG HOLLER)	TWENTY-SIX PIPELINES CARRIED OIL FROM THE FIELD. THESE LINES WITH 185,000 DAILY CAPACITY & THERE WERE ALWAYS PLENTY OF BUYERS FOR TONKAWA OIL.	MCASKEY & WENTZ 12,359 G. A. HAYS.	COMAR 1,675,825 R. RUZEK CAMP "KANOLKA"
← INTERSTATE HIGHWAY 35 (2 MILES)		HUMPHREYS PET. 43,340 M. W. PLUMB	GYPSY 1,631,975 EVANS CAMP PLANT
(2) THIS 160 ACRE LEASE HAD BEEN A "FARMOUT" GIVEN TO MARLAND BY HUMPHREYS PETROLEUM. LATER MARLAND SOLD THE TRACT TO SOUTHWESTERN TO HELP FINANCE THE DRILLING OF THE FIELD'S FIRST WELL.	THE THIRD WELL IN THE FIELD CAME IN A "DUSTER" ALTHOUGH DRILLED LESS THAN 100 YARDS FROM MARLAND'S DISCOVERY WELL.	SOUTHWESTERN SOUTHWESTERN WAS THE FIRST TO DRILL WITH A ROTARY RIG WITHIN THE TONKAWA FIELD WHICH WAS THE FIRST FIELD TO EVER BE DRILLED PREDOMINANTLY WITH SUCH RIGS 1,881,242 (2) E. MURRAY	PRAIRIE 862,804 WHITE EAGLE 628,272 NOVOTNY
	COSDEN & MARLAND MARLAND'S DISCOVERY WELL CAME IN AT OVER 1,000 BARRELS AT 11:00 P.M. ON	(1) COMAR CAMP GYMNASIUM	AMERADA 249,462 HOOPER "F T"

T
24
N
 HIGHWAY 35
 TONKAWA
 PLANT
 D Y T T O
 "F T"

CAMP CAMP "KANOLKA" 2 CAMP	COMAR 3,635,742 THE NAME "KANOLKA" IS A COMBINATION OF "KAY" AND "NOBLE" BASEBALL FIELD B. F. BLUBAUGH	COMAR 943,249 IXL THE COMER BASEBALL PARK WAS THE SCENE OF A NIGHT RALLY OF THE FIELD'S CITIZENS WHO HAD GATHERED TO PROTEST THE MURDER OF A FELLOW CITIZEN. AT THE MEETING THE GROUP QUESTIONED PROPER AUTHORITIES FOR A CLEAN UP OF THE TOWN'S LAWLESSNESS AND WARNED THAT FAILURE TO DO SO WOULD LEAD TO DIRECT ACTION ON PART OF THE GROUP. B. F. BLUBAUGH	
CAMP PLANT HEALDTON O & G 2,071,326 D. H. RENCE	COMAR 42,636 G. OLIVER		THE FIELD RESTED ON 15 PRODUCING HORIZONS OF OIL & GAS. FOUR OF THE SANDS WERE MAJOR OIL SANDS FOUND IN ONE LOCATION. THIS WAS UNHEARD OF AT THE TIME. AS MANY AS FIVE DERRICKS EACH TAPPING A DIFFERENT SAND WERE SEEN IN CLUSTERS. THIS MANY IN ONE GROUP WAS A NEW SIGHT FOR OIL MEN. IT WAS COMMON FOR WELLS TO COME IN AT 5,000 BARRELS IN THE LOWER SANDS & 10,000 IN THE DEEP WILCOX
DURING THE FIRST TWO YEARS OF ITS EXISTENCE THE FIELD BECAME ONE OF THE NATURAL GAS CENTERS OF THE MIDCONTINENT GRANDVIEW BARTIST		12 ONLY ONE OTHER FIELD IN THE HISTORY OF THE STATE HAD AS HIGH A QUALITY OF OIL AS THREE SANDS. THE HIGH GRAVITY CRUDE MADE IT ESPECIALLY VALUABLE FOR REFINERY. AT ONE TIME IT WAS PRODUCING NEARLY HALF OF THE HIGH GRAVITY CRUDE IN THE UNITED STATES. THE HIGH GRAVITY OIL ALLOWED THE FIELD TO DRAW THE HIGHEST PRICES. IT RECEIVED THE HIGHEST PREMIUMS EVER PAID FOR OIL WITHIN THE STATE. AT THE TIME THE FIELD BROUGHT ITS OWNERS MORE MONEY THAN ANY OTHER IN THE STATE'S HISTORY AS THE AVERAGE PRICE WAS MORE THAN \$2.25 A BARREL FOR TONKAWA CRUDE.	
"FOURWAYS" (BURTON) "FOURWAY" GREW UP AROUND THE SMALL POST OFFICE OF BURTON			BY 1925 AFTER ONLY THREE YEARS OF ACTIVE DRILLING THE FIELD HAD PRODUCED 70 MILLION BARRELS, NEARLY HALF OF ITS LIFETIME YIELD. IT LED THE STATE IN 1925 WITH 23 MILLION BARRELS. ONLY FOUR FIELDS IN THE STATE'S HISTORY HAD HIGHER ANNUAL YIELDS. IT REACHED ITS HIGHEST DAILY YIELD IN APRIL 1923

2

THIS 160 ACRE LEASE HAD BEEN A "FARMOUT" GIVEN TO MARLAND BY HUMPHREYS PETROLEUM. LATER MARLAND SOLD THE TRACT TO SOUTHWESTERN TO HELP FINANCE THE DRILLING OF THE FIELD'S FIRST WELL.

THE THIRD WELL IN THE "MURRAY" FIELD CAME IN A "DUSTER" ALTHOUGH DRILLED LESS THAN 100 YARDS FROM MARLAND'S DISCOVERY WELL.

"MURRAY"

SOUTHWESTERN WAS THE FIRST TO DRILL WITH A ROTARY RIG WITHIN THE TONKAWA FIELD WHICH WAS THE FIRST FIELD TO EVER BE DRILLED PREDOMINANTLY WITH SUCH RIGS

1,881,242

2

E. MURRAY

WHITE EAGLE

628,272

NOVOTNY

COSDEN & MARLAND

MARLAND'S DISCOVERY WELL CAME IN AT OVER 1,000 BARRELS AT 11:00 P.M. ON FRIDAY NIGHT, JUNE 30, 1921

493,502

16

COMAR CAMP



GYMNASIUM

THE COMAR GYMNASIUM LAY CLAIM TO BEING THE LARGEST OIL FIELD GYM IN EXISTENCE

1,864,886

AMERADA

249,462

HOOPER

J.H. SMITH

"HATCHVILLE"

1

J. SEE

CHAMPLIN

37,268

J.A. MORRIS

1

THE NO. 1 SEE WELL, SECOND WELL DRILLED IN THE FIELD WAS KNOWN AS THE "WONDER WELL OF THE MIDCONTINENT OF 1921"

SCHOOL LAND

CHAMPLIN CHAMPLIN
TWINSTATE AMERAD

756

43,989

LESS THAN 1 1/2 MILES SOUTHWEST OF THE DISCOVERY WELL, A \$150,000 DRY HOLE WAS DRILLED IN 1916 BY THE HUMPHREYS PETROLEUM IN SEARCH OF OIL WHICH SEEMED LIKELY TO LIE NORTHEAST OF THE BILLINGS AND EAST BILLINGS FIELD.

COMAR OIL COMPANY WAS A JOINT VENTURE FORMED BY THE MARLAND OIL COMPANY AND ROXANA OIL (ROYAL DUTCH-SHELL) TO DEVELOPE THE THREE SANDS OIL FIELD. THIS ONE COMPANY OWNED OVER HALF THE 3,400 PRODUCING ACRES AND ALSO GAINED MORE THAN HALF OF THE OIL PRODUCTION.

TONKAWA - PERRY ROAD (U.S.)

THE FIELD BECAME ONE OF THE NATURAL GAS CENTERS OF THE MIDCONTINENT



GRANDVIEW BAPTIST

SANDS. THE HIGH GRAVITY CRUDE MADE IT ESPECIALLY VALUABLE FOR REFINERY. AT ONE TIME IT WAS PRODUCING NEARLY HALF OF THE HIGH GRAVITY CRUDE IN THE UNITED STATES.

THE HIGH GRAVITY OIL ALLOWED THE FIELD TO DRAW THE HIGHEST PRICES. IT RECEIVED THE HIGHEST PREMIUMS EVER PAID FOR OIL WITHIN THE STATE. AT THE TIME THE FIELD BROUGHT ITS OWNERS MORE MONEY THAN ANY OTHER IN THE STATE'S HISTORY AS THE AVERAGE PRICE WAS MORE THAN \$2.25 A BARREL FOR TONKAWA CRUDE.

● "FOURWAYS" (BURTON)

"FOURWAY" GREW UP AROUND THE SMALL POST OFFICE OF BURTON

BY 1925 AFTER ONLY THREE YEARS OF ACTIVE DRILLING THE FIELD HAD PRODUCED 70 MILLION BARRELS, NEARLY HALF OF ITS LIFETIME YIELD. IT LED THE STATE IN 1925 WITH 23 MILLION BARRELS. ONLY FOUR FIELDS IN THE STATE'S HISTORY HAD HIGHER ANNUAL YIELDS. IT REACHED ITS HIGHEST DAILY YIELD IN APRIL 1923 WHEN IT BROUGHT 115,000 BARRELS DAILY.

14

13

THE TONKAWA FIELD BECAME ONE OF THE CENTERS OF CASINGHEAD GASOLINE WITHIN THE MIDCONTINENT. ONE PLANT OWNED BY WENTZ & THE SECOND BY GYPSY WERE AMONG THE LARGEST IN THE STATE.

MARLAND (7 MILES) →

MARLAND - THREE SANDS ROAD (U.S. HIGHWAY 77)

TONKAWA - PERRY ROAD (U.S. 77)

TONKAWA - PERRY ROAD (U.S. HIGHWAY 177)

①

THE NO. 1 SEE WELL, SECOND WELL DRILLED IN THE FIELD WAS KNOWN AS THE "WONDER WELL OF THE MIDCONTINENT OF 1921"

J. SEE

CHAMPLIN

37,268

J. A. MORRIS

SCHOOL LAND

LESS THAN 1 1/2 MILES
SOUTHWEST OF THE DIS-
COVERY WELL, A \$150,000
DRY HOLE WAS DRILLED IN
1916 BY THE HUMPHREYS
PETROLEUM IN SEARCH OF OIL
WHICH SEEMED LIKELY TO LIE
NORTHEAST OF THE BILLINGS AND
EAST BILLINGS FIELD.

CHAMPLIN CHAMPLIN
TWINSTATE AMERAD

756

43,989

COMAR OIL COMPANY WAS
A JOINT VENTURE FORMED BY
THE MARLAND OIL COMPANY
AND ROXANA OIL (ROYAL DUTCH-SHELL)
TO DEVELOPE THE THREE SANDS
OIL FIELD. THIS ONE COMPANY
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3,400 PRODUCING ACRES
AND ALSO GAINED MORE
THAN HALF OF THE OIL
PRODUCTION.

SMITHEISLER

CHAMPLIN

BURCH

PERRY (17 MILES) →

R | W

THE TONKAWA FIELD BECAME ONE
OF THE CENTERS OF CASINGHEAD
GASOLINE WITHIN THE MIDCONTINENT.
ONE PLANT OWNED BY WENTZ &
THE SECOND BY GYPSY WERE
AMONG THE LARGEST IN THE
STATE.

MARLAND (7 MILES) →

MARLAND - THREE SANDS ROAD (U.S. HIGHWAY 77)

TONKAWA - PERRY ROAD (U.S. HIGHWAY 177)

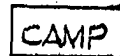
6

2 | W NAME OF OPERATING COMPANY
TOTAL PRODUCTION TO SEPT. 27, 1925
FARM NAME.

 SCHOOL

 CHURCH

 CASING HEAD GASOLINE
PLANT

 OIL COMPANY CAMP

● TRADING POINT