NPS Form 10-900-b
(Revised March 1992)

OMB No. 1024-0018

United States Department of the Interior
National Park Service

SEP 26 1997
NATIONAL REGISTER

National Register of Historic Places
Multiple Property Documentation Form

This form is used for documenting multiple property groups relating to one or several historic contexts. See instructions in *How to Complete the Multiple Property Documentation Form* (National Register Bulletin 16B). Complete each item by entering the requested information. For additional space, use continuation sheets (Form 10-900-a). Use a typewriter, word processor, or computer to complete all items.

✔ New Submission _____ Amended Submission

A. Name of Multiple Property Listing

Resources of the Oil Industry in Western Pennsylvania, 1859-1945

B. Associated Historic Contexts

(Name each associated historic context, identifying theme, geographical area, and chronological period for each.)

Resources related to the discovery of oil and the birth and maturity of the petroleum industry in Pennsylvania between 1859 and 1945 in the counties of Armstrong, Beaver, Butler, Clarion, Crawford, Elk, Forest, Lawrence, McKean, Mercer, Venango, Warren, and Washington

C. Form Prepared by

name/title David L. Taylor, Principal

organization Taylor & Taylor Associates, Inc. date July, 1997

street & number 9 Walnut Street telephone 814-849-4900

city or town Brookville state PA zip code 15825

D. Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this documentation form meets the National Register documentation standards and sets forth requirements for the listing of related properties consistent with the National Register criteria. This submission meets the procedural and professional requirements set forth in 36 CFR Part 60 and the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation. (___ See continuation sheet for additional comments.)

Brent D. Glass — Dr. Brent Glass, Exec. Dir. 1 9/11/97

Signature and title of certifying official — Date

PA Historical and Museum Commission

State or Federal agency and bureau

I hereby certify that this multiple property documentation form has been approved by the National Register as a basis for evaluating related properties for listing in the National Register.

Patrick Andrus — 11/7/97

Signature of the Keeper — Date

Resources of the Oil Industry in Western Pennsylvania, 1859-1945
Name of Multiple Property Listing

PA
State

Table of Contents for Written Narrative

Provide the following information on continuation sheets. Cite the letter and the title before each section of the narrative. Assign page numbers according to the instructions for continuation sheets in How to Complete the Multiple Property Documentation Form (National Register Bulletin 16B). Fill in page numbers for each section in the space below.

	Page Numbers
E. Statement of Historic Contexts (If more than one historic context is documented, present them in sequential order.)	E-1 through E-27
F. Associated Property Types (Provide description, significance, and registration requirements.)	F-1 through F-6
G. Geographical Data	G-1
H. Summary of Identification and Evaluation Methods (Discuss the methods used in developing the multiple property listing.)	H-1
I. Major Bibliographical References (List major written works and primary location of additional documentation: State Historic Preservation Office, other State agency, Federal agency, local government, university, or other, specifying repository.)	I-1 through I-3

Paperwork reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 470 et seq.).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 120 hours per response including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate

E. STATEMENT OF HISTORIC CONTEXT

Introduction

When one-time railroad conductor Edwin L. Drake sank his well on Oil Creek near Titusville, Pennsylvania, on August 28, 1859, his discovery marked the beginnings of an industry that would literally alter forever the course of civilization. In the months immediately following Drake's pioneering efforts--and, indeed, for the next ninety years--the area around Titusville and Venango County as well as significant portions of the western section of the state were transformed from a sylvan wilderness to a landscape punctuated by oil derricks, dotted by boomtowns, and populated by would-be oilmen bent on making their fortune from the liquid mineral which soon became known as "black gold." Oil became a unifying thematic framework which links this expanse of Pennsylvania. Throughout the entire region, communities were born over night, some to grow to prosperous adulthood and others to erupt and die within months. The counties of Venango, McKean, Warren, Butler, Elk, and Forest, along with lesser activity in Armstrong, Clarion, Crawford, Lawrence, Mercer, Washington, and Beaver Counties became the cradle of the petroleum industry, and "Pennsylvania crude" became the standard by which oil quality was--and continues to be--measured. Writing in 1926, George P. Donehoo noted

> The "oil fever," the rapid rise from poverty to wealth, the "oil boom towns" which grew up like mushrooms along the upper Allegheny River and its tributaries, make up a chapter in Pennsylvania history equaled only by the chapters relating to the gold discoveries in California and the Black Hills. Farms which had been worth little or nothing suddenly became the source of riches undreamed of by their poverty-stricken owners of the type of "Coal Oil Johnnie."[1]

The exploitation of this nearly 5,700-square mile area of western Pennsylvania became legendary in American history and resulted directly in the development of the petroleum industry on a global scale. This Multiple Property Documentation Form assesses the history and role of oil in this multi-county area with specific reference to the tangible cultural remnants left in the wake of the Pennsylvania petroleum industry. Included among these are: (a.) living communities such as Oil City, Emlenton, Titusville, Butler, Franklin, McDonald, Warren, and Bradford, (b.) here-today-gone-tomorrow "boomtowns" including Pithole and Petroleum Centre, (c.) industrial resources including John D. Rockefeller's mammoth National Transit Company and local refineries such as Pennzoil, United, Wolf's Head, Quaker State, Cities Service, and Kendall, and associated industrial resources such as the Oil Well Supply Company, the Oil City Boiler

[1]Donehoo, George, P., ed. **Pennsylvania: A History** (New York: Lewis Historical Publishing Company, 1926), 1673.

Works, various railroads, pipelines, etc., and (d.) individuals--community leaders and unsavory characters alike--associated with the birth and development of the industry including figures such as Col. Edwin L. Drake, "Coal Oil" Johnnie Steele, Butler Countian T. W. Phillips, roustabout Ben Hogan, oilman-turned-assassin John Wilkes Booth, E. E. Clapp of President Township, Venango County, Quaker State's Harry Crawford, Pennzoil's Suhr family, and the Bradford Emerys.[2]

Setting

The region defined by this historic context is a primarily rural, once-sparsely populated sector of Pennsylvania which occupies much of the Allegheny River watershed in the western third of the state. The earliest days of the Pennsylvania oil industry--the late 1850s and the 1860s--are closely identified with the Oil Creek valley in Venango and Crawford Counties. Later Pennsylvania oil operations--generally from the 1870s into the 1940s--occurred south of Oil Creek in Butler, Armstrong, Clarion, Lawrence, Beaver, and Washington Counties, and closer to the State's northern tier in Forest, Elk, Warren, and McKean Counties. As in the early days of settlement, much of the terrain is heavily wooded, with elevated plateaus alternating with deeply cleft valleys throughout. The landscape was blanketed originally with dense forests both of soft- and hardwood species, including significant stands of hemlock, oak, and cherry; lumbering played a major role in the industrial complexion of parts of the region and continues to be a powerful economic force in north-central Pennsylvania at the time of writing. Population bases within the region are generally found within the county seats, Oil City and Titusville being the exceptions of non-county seats with significant population.

Geological characteristics do not play major roles in the significance of most National Register resources. Such is obviously not the case for the Oil Region of Pennsylvania, whose entire significance is traced to its geology.

> The Pennsylvania oil region is part of the larger Appalachian basin oil field, which stretches non-continuously from southern New York to Tennessee, through West Virginia, eastern Ohio, and eastern Kentucky. Its greatest production, historically, has come from Pennsylvania, West Virginia, and Ohio . . . Here, petroleum and natural gas are found in sedimentary formations, almost exclusively in porous, permeable sandstones. These formations were laid down in the Paleozoic era and, in this area, mostly in the

[2]Much of the documentation of the heritage of the petroleum industry in this region was drawn from Philip W. Ross's **Allegheny Oil: The Historic Petroleum Industry on the Allegheny National Forest** (Warren, Pennsylvania: U. S. D

Upper Devonian period.[3]

E. Willard Miller, in **Pennsylvania: Keystone to Progress** reports

> From 1859 to 1864 the oil region was confined to the valley of Oil Creek and an area extending forty miles up and down the Allegheny River. The wells of 1860 produced more oil than anyone had ever seen before, but they were small when compared to the flowing wells of 1861. . . With each new well the excitement increased. . . In 1864 production in the lowland areas began to taper off, and new discoveries were sought. Because the individual oil pools were relatively small, the boundaries of the oil region were rapidly enlarged until by the mid-1870s oil was being produced from the Bradford field on the New York boundary to the borders of West Virginia and Ohio in the southwest.[4]

Birth, Maturity, and Decline of the Industry

Industrial historian Phillip Ross' study, **Allegheny Oil: The Historic Petroleum Industry on the Allegheny Forest**, characterizes the petroleum industry within the context of five distinct periods, defined by the production of oil within the region. The *Early Phase (1859-1874)* saw the birth of the oil industry following Drake's success on Oil Creek. Major oil strikes were accompanied by an influx of new technology and settlers throughout the Oil Creek valley between 1859 and 1865 (Figures 1 and 2), years which also witnessed the 1862 incorporation of the initial settlement which became Oil City. Two examples of the frenzy of settlement in Pennsylvania oil region are Oil City's growth from twelve families in 1860 to 6,000 people by 1865[5] and the rise of Corry, Warren County, from zero in 1860 to 6,810 in 1870, due to the snaking of new oil-hauling railroad lines into the community. Other early oil explorations occurred at Pleasantville, Venango County, in 1867, at Fagundus and Triumph Hill, Warren County, between 1868 and 1872 (See Figure 3), in the Butler-Clarion field between 1867 and 1874 (See Figure 7), at Tidioute, Warren County in 1860 and 1866, and at East and West Hickory, Forest County in 1870 (Figures 3 and 8). This

---

[3] *Ibid.* p. 7.

[4] Miller, E. Willard. **Pennsylvania: Keystone to Progress** (Northridge, California: Windsor Publications, 1986), 77.

[5] Babcock, Charles A. **Venango County, Pennsylvania: Her Pioneers and People** 2 vols. (Chicago: J. H. Beers, 1919), 302.

era was characterized by the use of simple cable drilling tools, shallow drilling operations, and the introduction of casing and "shooting" the wells. Amid initial public ridicule, pipelines were first constructed to transport the generally high-priced crude oil to rail heads. Oil prices were generally high, and John D. Rockefeller's Standard Oil made its entry into the refining business in 1867.

The *Flourishing Phase (1875-1881)* saw frantic increases in oil production throughout the region, including significant discoveries at what became known as the Bradford field at the northeastern periphery of the region. Exploration in the Bradford field ran the gamut from the establishment of its earliest commercial well in 1875 through four years of rampant over-production between 1878 and 1881 (Figures 9, 10, and 11). Developments occurred in the Warren-Glade field (Warren County) in 1875, at Petrolia (Butler County) between 1873 and 1875, at the Stoneham-Clarendon and Guffey fields (Warren County) in 1878, and at East Kinzua and Dew Drop (Warren County) in 1880. The Forest County wells at Balltown and Cooper were opened in 1877 with a series of dry holes at Balltown until 1882. In response to the technological requirements of the fledgling industry, during the 1870s, improvements were made in drilling mechanics, with rigs becoming generally standardized industry-wide. The advance of technology also allowed deeper formations to be accessed. A general decline in oil prices occurred, as did overproduction and increasing speculation in oil markets. During this period, Standard Oil Trust began the construction of pipelines from the Pennsylvania oil fields to refineries on the eastern seaboard. By 1882 Standard had a virtual pipeline monopoly in the Oil Region.

The overproduction, wastefulness, and market glut of the Flourishing Phase gave rise to unstable prices and widespread oil market speculation in the *Speculative Phase (1882-1885)*. Despite these factors, major new fields were opened at Cherry Grove (Warren County) and at Balltown and Cooper (Forest County) all in 1882, at Butler-Thorn Creek (Butler County) in 1884, and near Kane (straddling the McKean-Forest County line) in 1885. Prices vacillated significantly with peaks and valleys creating an uneasy time for speculators and developers alike. A new occupation--that of oil scouts--and a new term in the lexicon of the industry--the mystery well--arose as producers, attempting to manipulate the market, grew more suspicious, crafty, secretive, and outrightly deceptive in disguising the success or failure of their wells.

The last years of the nineteenth century were characterized by an overall calming of the industry. This *Stabilization Phase (1885-1902)* occurred largely because of Rockefeller's increased control in pricing and because of the shift in oil development from the Pennsylvania oil region to other states, including Ohio, Indiana, and West Virginia between 1885 and 1900 and at Spindletop, Texas, in 1901. Strikes in Pennsylvania did occur during this period, including those in noteworthy and productive fields in Warren County and the tapping of what Ross characterizes as "Pennsylvania's last great gusher pool"[6] at McDonald, Washington County, in 1890. Concomitant with this were the outmigration of drillers from the oil region, the consolidation of a variety of exploration operations, and a general feeling of stability throughout the

[6]Ross, *op. cit.* p. 6.

industry. While prices were stable, they were also generally low by comparison to the frantic fluctuations of the Speculative Phase. Standard Oil, formerly focuses upon transport and refining, entered the production arena in 1889 and in 1895 put an end to oil speculation by announcing that in the future, Standard, rather than the market, would set prices for crude oil.

Ross characterizes the final phase--and the longest--in the historic period of the development of the Pennsylvania oil industry as the *Settled Phase (1903-1945)*. This nearly half-century span saw an overall decline in production in the region, all of which was eclipsed by the gusher fields of the American southwest. Pennsylvania exploration did occur, but at a greatly reduced scale. Included among regional developments were those along the West Branch of Salmon Creek in 1907, at Guitonville and Lacy (Forest County) in 1908, at Lewis Run (McKean County) in 1909, at Queen, near East and West Hickory (Forest County) in 1922, at Marshburg (McKean County) in 1929, and at Music Mountain (McKean County) in 1937. These years were characterized by more planned development and a more rational approach to production. Redrilling also occurred with the improvements in portable rigs.

The Early Phase (1859-1874)

Few industrial endeavors can cite their birth with such precision as the oil industry, whose beginnings are traced directly to Edwin L. Drake's well near Titusville, Pennsylvania in August, 1859. For years, the presence of oil had been known in this area. Native American and non-indigenous settlers of the Oil Creek environs were familiar with petroleum and had made use of it, including the practice of collecting the mineral from small springs or from within the creekbed itself. The material was used for medicinal purposes and as early as 1828 its use was advocated as an illuminating substance in Pittsburgh. In the 1840s, experimentation showed crude oil to be a better industrial lubricant for cotton spindles than was the best sperm oil.[7] Despite these promising uses, no method for bulk extraction was known prior to Drake's drilling of his now-famous well.

In the early 1940s, historian Joseph Risenman, Jr. wrote that Edwin Laurentine Drake (1819-1880) "drilled the first commercial oil well and thus was the founder of an industry destined to represent billions of invested capital."[8] Born in Greenville, New York, Drake's family migrated to Vermont when he was a young boy. With only rudimentary schooling, Drake's opportunities were limited and his varied employment history included a season as a clerk on a lake steamer running between Buffalo and Detroit,

---

[7]Risenman, Joseph, Jr. **History of Northwestern Pennsylvania** 3 vols. (New York: Lewis Historical Publishing Company, 1943), 486-491.

[8]*ibid.* 491

service as a hotel clerk, several sales positions in dry goods, and a stint as a conductor on the New York & New Haven Railroad.

In 1857, Drake became associated with the Pennsylvania Rock Oil Company, a group led by New Haven, Connecticut banker James Townsend and dedicated to the surface recovery of oil near Titusville using a trenching system. Drake traveled to Titusville to investigate, and upon reaching his destination, found mail from Townsend addressed to "Col." Edwin L. Drake. Local tradition suggests that Townsend addressed his correspondence to Drake in this manner in order to provide a level of legitimacy to the newcomer. This generous, totally unearned title remained with Drake for the rest of his life.

In May, 1859, Titusville area residents saw the first of the countless derricks which would become part of the cultural landscape of this region of Pennsylvania. Ridiculing Drake for his attempts and christening the contraption "Drake's Folly," their opinions changed when oil was reached in August. As for Drake himself, he failed to realize the importance of his discovery and did little to capitalize on his activity. He left the region in 1863, never to return. Neither a skilled investor nor businessman, Drake spent the balance of his life on the verge of poverty. In the early 1870s, he moved to Bethlehem, Pennsylvania and the State Legislature granted him an annual pension of $1,500 in recognition of his services. He died and was buried in Bethlehem in 1880; his remains were eventually removed to Titusville. The man who had changed the face of industry never had the opportunity to enjoy the untold wealth which his discovery ensured for others.

Returning to 1859, with Drake's successful well, "oil fever" invaded northwestern Pennsylvania with a vengeance. Speculators began to arrive by droves, swelling the populations of the existing small river and lumber towns and giving rise to other communities which sprung from the wilderness. Within two days of Drake's strike, John L. Grandin, a Tidioute (Warren County) merchant and his mechanic-partner constructed a rudimentary spring-pole rig and derrick on the banks of the Allegheny River at the mouth of Gordon Run, seventeen miles east of Titusville. Despite the fact that Grandin's initial effort was unsuccessful (Ross ascribes to him the dubious honor of having drilled the first "dry hole"), speculators engulfed the area.

In April 1860, eight months after Edwin Drake's well at Titusville, the steamship "Venango" transported the first barrels of crude oil to Pittsburgh via the Allegheny River. Within two years, fifteen steamboats and towboats along with one hundred flatboats were making the trip between Oil City and Pittsburgh, including Pittsburgher Jacob Jay Vandergrift's "Red Fox," a steamer which towed two coal barges with a capacity of 4,000 barrels. These early boats carried the oil in barrels, but by October, 1861, the first craft had arrived at Oil City ready to transport 160 barrels in bulk, pumped directly from the wells. Seeing an opportunity to capitalize on all arenas of production, Captain Vandergrift began purchasing interests in wells along Oil Creek and soon engaged in the transport of oil via rail from Pithole southwest to Oil City. In order to move the crude into Pithole, Vandergrift and his partner, W. H. Ewing, laid a pipe line from West Pithole to Pithole--a span of four miles--and named the new venture "The Star Pipe Line."

The Star became the first operation in the mammoth system of transportation that eventually became John D. Rockefeller's National Transit Company.[9]

The pipeline soon became almost as common on the cultural landscape as the derrick and its development stands as a prime example of an instance where critical innovation and problem-solving in the Oil Creek valley have had a lasting, often permanent impact elsewhere. Scientists had maintained that the transportation of oil by pipeline was an impossibility under the laws of friction. When this was disproved, the construction of pipelines began in earnest, replacing both the small barrel and the teamster. The first significant success of a pipeline is generally considered to be oil buyer Samuel Van Syckel's five-mile line of two-inch pipe laid between Pithole and the Miller Farm on the Oil Creek Railroad, completed in the fall of 1865.[10] The Pennsylvania Tubing and Transportation Company's 9-mile line from Pithole south to Oleopolis ("the city of oil")--on the Allegheny River--was another early pipeline success. Seeing their livelihood threatened by the new technology, drovers and waggoners became continuous saboteurs of pipelines, but the pipeline was destined to become a part of oil history. While the National Transit Company towered above all other systems, countless other operations, large and small, ran their own transportation system, terminating either at navigable creeksides or at rail heads. One 1865 observation noted,

> Pittsburgh, which used to be the Iron City, thinks now of little else than petroleum. Barrels of it swarm everywhere . . . She has become one of the great distributing depots for the trade.[11]

Across the oil region, pipeline companies were born. Illustrative of these are the Bradford and Olean (New York) Pipe Line which covered an 18¼-mile course from the Beardsley farm north of Bradford, the Kane and Parker City Pipe Line, a 65-mile line which connected Bradford with the lower reaches of the region, and the Buffalo Pipe Company's 63-mile line from Bradford north to Buffalo. A more substantial operation was that of the United Pipe Line Association, which by the mid-1880s had 3,000 miles of pipe and storage capacity for 40,000,000 barrels. United maintained offices at Oil City and Bradford, with major depots at Tarport, Duke Centre, Richburg, and Kane.

Rail service was initially non-existent in much of the region. With respect to the Oil Creek field, service in 1861 was only available in the vicinity of Corry, twenty-five miles to the north (Figure 4). Drayage to the railroad was an expensive undertaking, and short lines began to appear throughout the region,

---

[9] *Ibid.*, 501.

[10] Giddens, Paul H. **Early Days of Oil: A Pictorial History of the Beginnings of the Industry in Pennsylvania** (Princeton, New Jersey: Princeton University Press, 1948), p. 66-68.

[11] *Ibid.*

becoming partners in the transportation heritage of the oil country. Warren industrialist Thomas Struthers had been primarily responsible for the rail line linking Warren to Erie and became a leader in the establishment of the Oil Creek Railroad Company. By October, 1862, Struthers' new line had seventeen miles of trackage between Corry and Titusville (Figure 5) and by 1866 had extended to Petroleum Centre. In its first fourteen months of operation, the Oil Creek line carried nearly 500,000 barrels of oil, 22,727 tons of merchandise, and nearly 60,000 passengers[12], with the result that the directors of the company declared the shareholders' first annual dividend of 25%, which rose to 53% the following year.[13] The fifteen-mile span of the Oil City & Pithole Railroad was soon linked to the Reno & Oil Creek line--which in turn expanded a spur to Corry--and the Meadville branch of the Atlantic & Great Western was extended to connect Oil City with Franklin, the Venango County seat. Late in the 1860s, the Farmers' Railroad linked Oil City to Petroleum Centre and the Warren & Franklin, successor to the Oil City & Pithole, formed a connection with the Philadelphia & Erie line, establishing more-than-adequate transportation linkages to all points east and west. Similar rail service was established later throughout the other reaches of the Oil Region as well.

The frenzy of these years saw corresponding growth of established communities in the region. Among these were Titusville (settled in the 1790s and incorporated as a borough in 1847), Warren, Meadville, and Franklin (late eighteenth-century settlements which matured along with the oil industry), and Butler. Brown's 1890 **History of Venango County, Pennsylvania** placed the significance of oil in its proper context, noting that, " To say that the growth of Franklin since 1860 and its present general prosperity resulted directly from the discovery of oil would be the expression of a platitude.[14]

Technology for the extraction of oil during the early years was rudimentary, at best, and life in the oil fields was not for the meek. Special occupations developed, created by the individual requirements of the new technology. Machinists were in high demand, and remained so throughout the entire history of Pennsylvania petroleum, since speedy and accurate diagnosis and repair of malfunctioning machinery was essential to the entire process. Drake had used a six-horsepower steam engine and a stationary boiler to sink his well, but far more early wells were drilled manually by the spring-pole method. In **Early Days of Oil**, noted oil region historian Paul Giddens described the process:

> Most of the early wells were drilled by a slow but simple process called "kicking down a well," or the spring pole method. An elastic pole, about fifteen feet long, was placed over a fulcrum with the large end fastened to the

---

[12]Stephenson, James B., "Railroads of the Oil Regions," unpublished MSS.

[13]Giddens, *op. cit.*, p. 58.

[14]**History of Venango County, Pennsylvania** (Chicago: Brown, Runk & Co., 1890), p. 392.

> ground. Two or three feet from the free end, the drilling tools were connected with the pole and dropped into the driving pipe. Attached to the free end of the pole were stirrups in which two men each placed a foot and pulled down, permitting the tools to drop on the rock. When they loosened their hold, the spring of the pole pulled it back with enough force to raise the drilling tool a few inches. . . Repeating this process all day long enabled them to drill on an average about three feet a day. Though laborious, the spring pole method provided men of moderate means and strong muscles with a cheap method for sinking a well in shallow territory.[15]

Shallow territory in the oil region was fruitful, indeed. All along Oil Creek as well as in the Tidioute area to the north on the Allegheny River, the surface indications were encouraging. Typical of this early frenzy, by the summer of 1860 more than sixty wells had been drilled on both sides of the river around Tidioute. The Hequembourg Well on the Cohell farm opposite Tidioute, drilled by hand using a spring pole, yielded seventy barrels daily. Up and down the waterways, rigs appeared overnight. On Tidioute Island, the Ludlow Well was sunk and some speculators even constructed rafts and drilled in mid-stream, ill-fated ventures which were destroyed in a December, 1860 flood.

As the industry matured, so did the methods for extraction. Wooden derricks, 65 to 85 feet in height, were erected and were intended to be only temporary, until the individual well was exhausted. Then the derrick, or "rig," was dismantled and moved to a new wellhead. Wooden derricks remained in use until the 1920s (Fig. 11a). Historic photos of the early days of oil, particularly those by noted Oil Region photographer John Mather, show forests of wooden derricks clustered close together over recently-discovered deposits of petroleum, and raised by "rig builders" whose skills were specifically developed for the oil field. One rig builder related,

> . . . the rig builders had to do everything. We dug the cellars, made the footing, sawed out the lumber of the rig, and then built it. . . . And carpenters weren't worth a damn in building those wooden rigs, either. . . . A carpenter could be[come] a rig builder, but he had to start from the ground up, from the beginning, and learn everything. He had to forget all he ever knew about finish work and learn how to do rough stuff and he had to learn how to cut lumber in a different way from any he ever knowed.[16]

---

[15]Giddens, Paul A. *op.cit.*, p. 10.

[16]Charlie Storms, former rig builder, quoted in Malone, Patrick **The Texture of Industry** (New Haven: Yale University Press, 1994), p. 290.

To support the industry, foundries and machine shops were established in most of the major population centers throughout the oil region, turning out more efficient machinery for oil exploration and transportation. One of the largest was the Oil Well Supply Company which, according to historian Leeson, was "the only establishment in the world from which can be obtained everything necessary to drill and equip oil, gas, or artesian wells."[17] Oil Well Supply was established in 1862 by John Eaton, who in 1867 built the first manufacturing facility devoted solely to oil field goods, including items such as drill bits, wheels, screws, and a miscellany of other fittings. Eaton's enterprise pioneered the standardization of production equipment such as casing and tubing, previously produced to no universal standard. In addition to its mammoth plant in Oil City, the company also had a rod and band wheel shop in Bradford and Eaton operated stores in new oil fields, serving the needs of his customers *in situ*. The Oil Well Supply Company eventually was acquired by the United States Steel Corporation and became the Imperial Works of U. S. Steel's Oilwell Division. Steam engine and boiler plants were established across the region as well. Charles Eames began the Eames Petroleum Iron Works in Titusville, an enterprise converted to the Cyclops Steel Works in 1884. Bovaird and Seyfang's Central Iron Works were located in Bradford, producing engines of six to one hundred horsepower which were particularly suited to oil exploration; Leeson notes that the 12-, 15-, and 20-horsepower engines were "especially suited to drilling in deep territory, under which circumstances its great rapidity and unsurpassed strength are readily perceived."[18] Ross refers to

> the bewildering variety of gas engines designed for oil field duty during this era . . . The most popular type has proven to be the patent two-cycle gas engine, best represented by the Joseph Reid Gas Engine Company (Oil City), the Bessemer Gas Engine Company (Grove City, Butler County), and the Bovaird & Seyfang Company (Bradford).[19]

Hand-in-hand with the actual transportation of oil went the production of tanks, tubing, and pipes to store and carry the raw material. Among the factories producing pipe were the U. S. Pipe Line Co. of Titusville, the Oil City Tube Company, and the Oil City Boiler Works. The latter, located in Oil City's Downtown Commercial Historic District, became the community's largest employer, producing boilers, pipe line, and tanks. According to nineteenth-century oil historian John J. McLaurin, "the firm led the world as

---

[17]Leeson, Michael A. **History of the Counties of McKean, Elk, and Forest** (Chicago: J. H. Beers, 1890), p. 208.

[18]*Ibid.*, p. 209.

[19]Ross, *op. cit.*, p. 26.

tank-builders, actually constructing one-third of the total iron tankage in the United States."[20]

Secondary businesses and commercial enterprise followed the fortunes of oil throughout the region. In every town, large and small, businessmen erected business blocks throughout the downtown and offered a wide variety of local goods as well as those brought from the eastern markets. In Bradford, for example, oilman Lewis Emery Jr. operated an oil well, a machine shop, and a railroad supply house, with which was associated a general hardware store. Emery's

> mammoth stock embraces all kinds of silverware, cutlery, jewelry, optical goods, hardware, and in short everything in the merchandise line except for shoes and dry goods. A specialty is made of oil well, machinist, and railway supplies, the stock carried being the largest and most complete in this section of the country.[21]

Utopian society, too, played a role in the early development of the oil industry. In the 1850s the Economites, followers of utopian leader George Rapp, acquired about 6,000 acres along the Allegheny and became major absentee owners in the region. The society's trustees directed initial investment at lumbering, but in the spring of 1861 the Economy Oil Company sunk four successful wells, one of which produced more than six hundred barrels.[22] The utopian venture proved to be extremely successful, operating well into the decade and producing 100,000 barrels annually as late as 1868.[23] Differing thoroughly from the roughneck character of oil towns like Pithole and Petroleum Centre, the Economite fields were never pumped on Sunday and included a boardinghouse where speech and deportment were strictly controlled by written rules.[24]

The early developments of southern Warren and northern Venango County ebbed in the late 1860s. By the mid 1870s, the chances of a successful well were only one in four. Exploration moved southward,

---

[20]McLaurin, John J. **Sketches in Crude-Oil: Some Accidents and Incidents of the Petroleum Development in All Parts of the Globe** (Harrisburg: n. p., 1898).

[21]Leeson, *op.cit.* p. 209.

[22]Miller, Ernest C., "Utopian Communities in Warren County, Pennsylvania," *Western Pennsylvania Historical Magazine* 49 (October, 1966), 311-314.

[23]Whiteshot, Charles A. **The Oil-Well Driller: A History of the World's Greatest Enterprise, the Petroleum Industry** (Mannington, West Virginia, n. p., 1905), 758-759.

[24]Giddens, *op. cit.*, p. 76.

after discoveries were made at Shamburg and Scrubgrass (Venango County) in 1867 (Figure 8). Following that strike, operations moved into Clarion and Butler Counties when high-pressure strikes were made which resulted in hitherto unimagined volumes (Figure 7). In 1872, the *Petroleum Centre Record* reported, "the steady flow of the producers to the more prolific and flashy territory down the river has had the effect of bringing almost a total cessation of operations in the territory along Oil Creek."[25]

With the frenzied exploration for oil and the continuing discoveries of deposits thought to be inexhaustible, dozens of towns grew overnight and in many cases disappeared as quickly. These "boomtowns" dotted the oil region, including Shamburg, Pioneer, and Babylon, but none compared to the Venango County communities of Pithole and Petroleum Centre.

During the 1864-1865 winter, the Frazier well was struck in the vicinity of what was to become Pithole. Producing 650 barrels daily, this well encouraged further exploration and soon dozens of wells were sunk, resulting in a daily production of between six and seven thousand barrels--two-thirds of all of the oil being produced in the region. The town of Pithole was platted and within six months had nearly five hundred houses. The population soon was estimated to be 8,000, served by fifty hotels, banks, school houses, churches, and an opera house. In May, 1865, a reporter for the *Venango Spectator* wrote

> This once be-nighted but now flourishing region is the Mecca of the Oil World or the 8th Wonder, I don't know which. Even while I write, buildings are going up and some are put up and have groceries in them in six hours. . . There are many commodious buildings that are a credit to any place."[26]

The most lavish of these were the Chase, More, and Bonta Hotels, each of which cost more than $80,000 to build. Risenman notes

> It was not long before Pithole had a population of fifteen thousand or more. People from every walk of life flocked to the town, oil men, teamsters, laborers, merchants, speculators, soldiers just returned from the Civil War, gamblers, immoral women, and tough and reckless men, all the various types that go to make up a typical boom town. With respect to the volume of business, Pithole was third among the post offices of Pennsylvania, surpassed

---

[25]Carll, John F. **Report of the Geological Survey of Pennsylvania, 1886** (Harrisburg: Second Geological Survey, 1886), 599-601; quoted in Ross and Caplinger, p. 14.

[26]Dolson, Hildegard **The Great Oildorado** (New York: Random House, 1959), p. 177.

only by Philadelphia and Pittsburgh.[27]

After a brief period of unbridled prosperity and growth, the Pithole fields were exhausted and the decline of the community set in with a vengeance. By 1866, just one year after its birth and zenith, the population plunged, fires swept away entire neighborhoods, and buildings were moved to new sites. Among these were the Chase House hotel which was moved to the promising town of Pleasantville and the Presbyterian Church which in 1867 found a new home and identity as the Trinity Methodist Church in downtown Oil City. Pithole became a ghost town, but not before providing about four million barrels of crude oil in less than twenty-four months. Only archaeological remnants remain today; it is a National Register-listed, state-owned historic site which commemorates and interprets the birth and passing of Oil Region boomtowns.

A similar situation occurred in the case of Petroleum Centre, a pretentiously-named community born overnight along the banks of Oil Creek north of Oil City, roughly equidistant between Oil City and Titusville. In 1863 the Central Petroleum Company of New York leased the 207-acre George McClintock farm. The next year they purchased the property and sank a number of successful wells. The company laid out streets and leased building lots at usurious prices. Petroleum Centre became a bustling town of 3,000 including a bank, two churches, a theater, several hotels, oil brokerage offices and more. Giddens notes that with little government, Petroleum Centre "soon eclipsed all others in wickedness."[28] Like Pithole, only archaeological remnants of the heyday of Petroleum Centre remain; the site is part of the state-owned Oil Creek State Park and is interpreted as an archaeological resource.

Wickedness was not confined to the Pitholes and Petroleum Centres of the Oil Region. The most famous crime of the oil country occurred north of Petroleum Centre. On the opposite side of Oil Creek lay the Bennehoff farm (also spelled "Benninghoff" in some accounts), which also straddled Bennehoff Run, Pioneer Run, and Western Run and was presided over by John Bennehoff. At that time, it was generally believed that oil could only be found in the lowlands and along creek banks, but in the fall of 1865 a 300-barrel well was struck on Bennehoff's highland ground and he was inundated with requests for leases. Bennehoff's son, Joseph, took over the management of the family farm and soon the once-impoverished Bennehoffs had a daily income estimated at $3,000. It was widely known that the Bennehoffs had no trust in banks and that their fortune was kept at home. Assisted by two professional burglars from Philadelphia, three Saegertown, Crawford County, men robbed the farm on January 16, 1868, making off with $210,000. Although the perpetrators were apprehended, not all were convicted and the Bennehoffs never recovered their stolen fortune. The Bennehoff Robbery remains the great crime of the oil region.

---

[27]Risenman, *op. cit.*, 548.

[28]*Titusville Morning Herald*, November 19, 1866, quoted in Giddens, *op. cit.*, p. 47.

During these early years, exploration was generally confined to previously-proven fields and successful new wells were usually drilled in close proximity to existing profitable operations, creating the forests of derricks which characterized the cultural landscape of the region as seen through Oil Region photographer John Mather's lens. However, the last few years of the Early Phase witnessed both a shifting of emphasis southward from the Oil Creek watershed, as well as the birth of a new term in the vernacular of oil: the "wildcatter." Said to have originated in Wildcat Hollow just north of Petroleum Centre, wildcatters were drillers who sunk wells in hitherto untested areas. As the Early Phase closed, wildcatters moved from the Oil Creek valley and established wells in Butler and portions of Clarion and Armstrong Counties. Giddens notes

> Rewarded with good producing wells, the oilmen followed [the wildcatters]. Foxburg, St. Petersburg, Karns City, Parker's Landing, Petrolia, Millerstown, and other places became new centers of operation. For five years, 1870-1875, the Lower Region, as this area was called, completely overshadowed all other fields.[29]

By the waning years of the Early Phase, both those who produced the oil and those who refined the raw material were beset by bidding wars, at the same time that speculators were gambling in the oil markets. Crude oil was expensive and refining capacity outstripped demand by a three-to-one ratio, resulting in significant effort and expense and little profit. Added to the melee were the facts that freight costs for transportation skyrocketed and industry leadership had become vested in Cleveland, in the person of John D. Rockefeller.

The Pennsylvania Railroad's vice president, Thomas Scott, led a group which secured the inactive charter of a Pennsylvania corporation known as the South Improvement Company. Rockefeller learned of Scott's efforts and agreed to associate himself with the rejuvenated South Improvement Company, comprised of the railroads and the refiners. The railroads agreed that oil rates would be increased (for example, from 87¢ per barrel to $2.14) and, irrespective of which road carried the freight, the total income would be split based upon a pre-arranged percentage. Refiners from urban centers in Pittsburgh, New York, Cleveland, and Philadelphia either joined willingly or were subjected to unsubtle pressure. The independent refiners of the oil region recognized these thinly-veiled attempts at price-fixing and manipulation of the market, and refused to join.[30]

Warren County oilmen were the first to rebel against the schemes of the South Improvement

---

[29]Giddens, *op. cit.*, 103.

[30]Miller, Ernest C. **History and Development of the Petroleum Industry in Warren County, Pennsylvania**, p. 39-41.

Company. The Producers' Protective Association, led by President Township, Venango County landowner Edwin E. Clapp, was established following emotional meetings at Tidioute, Oil City, and Titusville, the latter of which attracted more than 3,000 producers. The Association pledged to combat the South Improvement Company, stating

> . . . . that we agree and recommend, in connection with the other producers of the oil region, to shut down our wells so long as may be necessary to thwart the designs of this monopoly.[31]

It is a measure of the stalwart character of these western Pennsylvania oil men that their determination led to a rapid depletion of crude storage, the inability of South agents to purchase crude even by offering premium prices, and the railroads left with no product to transport. The resolute producers stood fast and soon the Commonwealth of Pennsylvania repealed the charter of the South Improvement Company.

Local historical sources have chronicled the lives of many of the thousands who came into the valley during these years to make their fortunes. Of particular interest are figures such as Drake, Clapp, and Rockefeller, as well as John W. Steele ("Coal Oil Johnnie"), Ben Hogan, and John Wilkes Booth. These larger-than-life characters mingled with the oil prospectors, oilfield workers, scouts, and landowners to create an oral tradition which lives on throughout the region to the present.

Drake's position within the heritage of the oil industry is well known and has been highlighted above. Among all the other characters who emerged during the rise of the industry, certainly the most extravagant was John Washington Steele. In 1864, young Steele, who became "the most notorious playboy of the oil boom,"[32] inherited from his adoptive mother the McClintock farm and cash generated from leases totaling $200,000. Estimates of his daily income averaged $2,000. Upon turning twenty-one, he went to Philadelphia and New York and embarked upon a spending spree that wiped him out in a single year. Christened "Coal Oil Johnnie" by the eastern newspapers, his escapades were so spectacular that they were chronicled in the press and were devoured by readers to whom such incredible wealth was only a dream. He eventually squandered his entire fortune and when he declared bankruptcy, a newspaper account suggested that "perhaps no man in the United States ever squandered as much money in the same space of time."[33]

While "Coal Oil Johnnie" appears to have harmed only himself, not the same can be said of Ben

---

[31] *Ibid.*, 41.

[32] Dolson, *op. cit.*, 95.

[33] Quoted in Giddens, *op. cit.*, 32.

Hogan, whose philandering was viewed as an affront to society throughout the oil region. A Swiss native, Hogan became a southern blockade runner during the Civil War and later switched allegiance and worked to enlist soldiers in the Union Army--always for a price. He came to Pithole in 1865 and opened a "sporting house" in the wide-open town, where his receipts were said to have topped $1,000 daily. As towns were born and died, and as the authorities closed in on his business ventures, Hogan and his protégé, "French Kate" moved throughout the region, surfacing in Tidioute, Titusville, Petrolia, Bullion, and Bradford. Not necessarily confined to land, Hogan even operated a floating brothel on the Allegheny River at Parker's Landing, near the Butler-Armstrong county line--just far enough offshore to be out of the reach of the local constabulary. His colorful life story was told in 1878 by George Francis Trainer in **The Life and Adventures of Ben Hogan, the Wickedest Man in the World**--the subtitle taken from a sign which hung over one of Hogan's oil country establishments.

"Coal Oil Johnnie" and Ben Hogan were clearly significant to the rich heritage of the oil region. Of equal significance to the region--although not due to any local escapades--was John Wilkes Booth, whose stay in the region in 1864 remains an important part of local history in Venango County. Booth visited Meadville, Franklin and the Pithole Creek fields during the summer and fall of 1864, purchasing 3.5 acres on the Fuller farm along the Allegheny River below Franklin. He also owned a 1/13 interest in the Homestead well on the Hymer farm, the second well to be drilled at Pithole. His visit to the region was short-lived, however, and he left some months before his assassination of Abraham Lincoln secured his place in American history forever. That fact notwithstanding, he was nonetheless fondly remembered in Franklin, where a contemporary recalled

> After the assassination, we prayed that he wouldn't come back here to hide out, because we couldn't face the thought of turning him in. A scoundrel, I grant you, but, oh, such a charming man.[34]

Operating at the same time as the roustabouts and characters of the Oil Region were scientists who were the vanguard of a new sub-specialty of study: petroleum geology. Philip Ross characterizes the rise of petroleum geology as "turbulent" during the first thirty years of the industry, and reports that even geologists themselves could not reach consensus as to either the method of oil and gas accumulation or an acceptable scientific process for locating significant mineral deposits.[35] Within the western Pennsylvania Oil Region, the best-known of the early geologists was John F. Carll, who painstakingly gathered well data--when permitted to do so by the owners or leaseholders--and produced five large volumes of research in Venango, Butler, Clarion, McKean, Warren, and Forest Counties in the 1870s and '80s. Petroleum geologists continued to play an important role in the scientific documentation of the exploration for oil,

---

[34]Dolson, *op. cit.*, 145.

[35]Ross, *op. cit.*, p. 9

although Ross maintains that

> In general, however, practical oil men ignored any geology that they could not see on their cuttings. As a result, scientific knowledge played very little part in the development in this region.[36]

The Flourishing Era (1875-1881)

With the demise of the Oil Creek fields, the Bradford field, at the northeast corner of the oil region in McKean County, became the industry leader from the mid 1870s into the early 1880s (Figures 9 and 10). Within nine months of Drake's well, exploration occurred at Smethport and Port Allegany, McKean County,[37] but the product appeared sparse and was mixed with a fine sand which impeded production. In the ensuing years, various explorations occurred, including the 1868 enterprise of Job Moses, near Limestone, and the operations of the Salem Oil Company on Shepherd's Run. In March, 1874, the Emporium (Potter County) *Press* reported,

> The oil fever is raging in our neighboring county. Two wells have been put down at Bradford and both are yielding well. The oil is of better quality than that found in the oil regions, and many oil men are changing base, preparing to operate in this new oilderado [sic].[38]

Late in 1874, C. H. Foster and James E. Butts opened Butts Well No. 1 and in 1875, the Crocker Well was sunk, producing three hundred barrels daily; it is a measure of the excitement of that particular endeavor that a half-interest was sold quickly for $40,000. Historian Michael A. Leeson noted

> The true development of the Bradford District commenced in the [American] centennial year, when operators from the Venango fields turned to the Tuna Valley [surrounding Bradford]. . . At this time, oil lands were purchased from $6 to $10 per acre, which in a few months were worth $500 and $1,000 an acre."[39]

---

[36] *Ibid.*

[37] Leeson, *op. cit.*, p. 62.

[38] Emporium [Pennsylvania] *Press*, March 16, 1874.

[39] *Ibid.*, p. 64.

Covering an area of 84,000 acres, eighty-six percent of which lay in Pennsylvania, the distribution of oil in the Bradford field also extended across the New York state line.[40] Speculators who entered the Bradford market in these years went on to become the leaders of the entire Appalachian exploration.[41]

The rise of the city of Bradford during this period was typical of the growth throughout the oil region. Originally established in the 1830s as a lumbering community known as "Littleton," the village was re-named in the 1850s and was incorporated as a borough in 1872. Writing in 1898, John J. McLaurin observed that following the success of the Crocker Well,

> . . . rigs multiplied like rabbits in Australia . . . The valley soon echoed and re-echoed the music of the tool-dresser and rig-builder and the clink of the drill, as well as the vigorous profanity of the imported teamster.[42]

Beginning with this phase of the development of the industry, the population centers of the region--large and small--experienced unbridled prosperity which continued for a generation. The fortunes of oil resulted directly in the rich architectural legacy of communities such as Oil City, Franklin, Tidioute, Warren, Kane, and Bradford. *City Directories* of these years and beyond are filled with listings of individuals whose occupation is listed as "oilman" or "oil producer." The cultural landscape of these communities is characterized by handsome business blocks in the downtowns and neighborhoods of spacious residences executed in the elite design modes of the day. Architectural styles which flourished during this period and which remain today include Italianate, Gothic Revival, Italian Villa, French Second Empire, and Stick and Shingle style.

Throughout the history of the industry, a major percentage of the exploration was based on the utilization of land which was leased rather than owned outright by the oil developers. For example, much of the early Oil Creek prosperity came from lease tracts upon which were erected many derricks. Beyond Venango County, major lease tracts in the Bradford field included Lewis Emery, Jr.'s 5,000-acre Quintuple Tract and Marcus Hulings' Clark and Babcock Tract of 6,000 acres. Both Emery and Hulings became major historical figures in the region; in Bradford, Emery established what became the Kendall Oil Refinery, ran a local newspaper, and served twice in the Senate, where he championed the cause of small oil producers in opposition to Rockefeller's Standard Oil Trust. Marcus Hulings became a railroad developer whose

---

[40]Miller, E. W., "Natural Production in the Bradford Field, 1860-1906," *Products Monthly* 15 (April, 1943), quoted in Ross, p. 17.

[41]*Ibid.*, 15.

[42]McLaurin, John J., Sketches in Crude Oil: Some Accidents and Incidents of Petroleum in All Parts of the Globe, 2nd ed. (Harrisburg: Author, 1898), 201; quoted in Ross, p. 18.

narrow gauge line between Bradford and Olean, New York served boom towns with picturesque names such as Derrick City, Bell's Camp, and Red Rock.

Wildcatters played their own role in the growth of the Bradford field. These adventuresome oil explorers are typified by Westmoreland County native James M. Guffey. He arrived in the area southwest of Bradford in 1878, and by the end of 1879 had twenty-nine wells up and an additional twenty-seven under construction. The flow was so heavy that storage tankage could not keep pace with production and in June, 1880 five thousand barrels of oil flowed to waste on the ground each day. Within a short time, the Union Oil Company acquired much of the production; Guffey, having matured in the Bradford field, went on to secure a permanent place in petroleum history by opening the Spindletop field at Beaumont, Texas.

Securing entry to the Bradford field was an expensive venture. Prospectors of more meager means sought less costly land to explore, and significant developments occurred in unexplored portions of Warren County, immediately west of McKean County, where oil of an equally high quality was found. Across Conewango Creek from the city of Warren, David Beaty, who had been active along Oil Creek a decade earlier, discovered a new pool in 1875 and by May of the next year, twelve wells were in production. Within time, deposits were identified covering a 6,000-acre area on both sides of the Allegheny River; approximately twenty-five percent of this field is on the site of the present city of Warren, much of whose architectural legacy is due to the fortunes of oil during these years.

Throughout the first decades of the Flourishing Era, Pennsylvania was the undisputed leader in oil production in the United States (Figure 12). The position of the Bradford field can be understood best by comparing its production to that of Pennsylvania and the nation. In 1900, influence of the Bradford field was chronicled by oil scout/newspaper publisher Patrick Boyle of Oil City:

Year	Average Daily Production (barrels)	Annual Total Production	Percentage of Pennsylvania Production	Percentage of U. S. Production
1876	1,046	382,768	4.1	4.0
1877	4,023	1,468,451	11.1	11.0
1878	16,908	6,197,746	40.8	40.3
1879	38,587	14,084,120	71.5	70.8
1880	55,173	20,138,091	77.3	76.7
1881	70,811	25,846,261	94.4	93.8[43]

As shown above, although the Bradford boom peaked in 1881, by the early 1880s the Bradford field was producing considerably more then nine-tenths of the national supply of petroleum. Bradford's boom spelled bust for neighboring fields; the abandonment of well sites in Clarion, Butler, and Armstrong Counties marked a period of economic disaster when drillers dismantled equipment and shipped it northwest to McKean and Warren Counties to capitalize upon the dream of overnight fortunes.

Midway through the Flourishing Period, the Clarendon field was opened south of Warren. Eventually encompassing 24,000 acres, the Clarendon field extended from Stoneham along Tionesta Creek to the area southwest of Sheffield, including the Warren County communities of Clarendon and Tiona. Although this area failed to attract the frenzied attention enjoyed by the Bradford field, it did become a renowned producer of extremely high-grade crude, amber in color, particularly well-suited for refining into lubricating oil, and produced without a single dry hole.[44]

The Flourishing Period also saw the maturity of a localized economic institution within the oil region of Pennsylvania: the oil exchange. As the industry grew and prices rose and fell with impunity, more sophisticated marketing and financial mechanisms were needed. No longer did crude pass directly from the producer to the refiner. Pipelines were built and products became co-mingled in storage tanks to await refining. For each thousand barrels, producers received certificates which were negotiable and were guaranteed by the pipeline operators. Exchanges were established to trade in the economy of "paper oil." Pittsburgh's exchange was born in 1863 and by 1871 both Oil City and Titusville boasted exchanges. Oil City's exchange became the official exchange of record, with all pipeline companies accepting Oil City's rates as official.[45] Within the oil region, exchanges occupied prominent positions in the economy of the region, and were generally housed in office buildings befitting their prominence in the community.

During these years, the technology of oil extraction changed only slightly. Ross notes that the process of extracting oil from wells was essentially the same as that used for the actual drilling.

> Instead of lifting and dropping the drilling tools, the rig's walking beam drove a valve pump in the bottom of the well. The pump was connected to the walking beam by "sucker rods," long wooden (usually hickory or ash) rods with iron male and female (box and pin) screw connectors riveted on either

---

[43]Boyle, Patrick C., ed. **The Derrick's Hand-Book of Petroleum: A Complete Chronological and Statistical Review of Petroleum Developments**, 2 vols (Oil City: Derrick Publishing Company, 1900), 167.

[44]*Petroleum Age* (May 1886), 1348, quoted in Ross, 22.

[45]Boyle, P. C., Introduction to Tennent, James C. **The Oil Scouts: Reminiscences of the Night Riders of the Hemlocks** (Oil City: Derrick Publishing Company, 1915), 8; quoted in Ross, 23.

end. The steam engine that had been used to drill the well also pumped it. This "standard" drilling and pumping rig remained the production method of choice for deep-sand wells ands other wells that were sparsely scattered over a wide area.[46]

The Speculative Phase, 1882-1885

The peak years of production in the Bradford field ended in 1881 (Figure 10), leading oil developers to look to other pools for the extraction of oil. Warren and Forest Counties were located geographically between the long-established deposits of Venango County and the Bradford fields, and speculative exploration began in this new area, which became known as the "Middle Field" of the "Middle District" (Figure 9). As noted above, the Clarendon field had rendered a rich harvest but exploration in other parts of Warren County was not widespread. Exploratory drilling in the 1860s and '70s had identified deposits in other portions of Warren County as well as in Forest County to the south, and the Middle District became the focus of the industry in the 1880s. A major strike at Cherry Grove (Warren County) secured the position of the Middle District as an important production center. As had occurred with the opening of earlier new fields, new towns grew up almost overnight in the district. Farnsworth and Garfield, for example, were laid out within a mile of each other and Garfield's population soon topped 1,500. A narrow gauge line, the Warren and Farnsworth Valley Railroad, was established, along with a toll plank road leading to Cherry Valley.

The Cherry Valley boomtowns such as Farnsworth and Garfield came and went. Warren, located both on the river and on the railroad, was the primary benefactor of the rise of the Middle District, becoming a center of activity for the entire field, complete with an oil exchange and a busy telegraph office. The architecture of Warren bespeaks its position as an economic and industrial hub, with spacious homes and business blocks constructed by the fortunes made and kept during this period.

Forest County, immediately south of Warren County, had seen some scattered exploration in the 1860s and '70s, but initially the deposits were deemed too sparse for further investigation. In 1882, as Cherry Grove was developing, several wildcat wells were sunk in northern Forest County along Tionesta Creek. Among significant strikes in Forest County during this period is the Cooper farm well, leased by piano tuner C. A. Schultz and his partner, jeweler F. M. Morck. Schultz and Morck then subdivided the tract and sub-leased a portion to Phillip M. Shannon. Shannon's drilling resulted in a classic mystery well, protected by an armed guard and spied upon by oil scouts. While this particular well was not a major producer, it did result in a re-kindling of interest in Forest County petroleum and placed this county squarely

---

[46]Ross, *op. Cit.*, p. 61.

in the middle of the oil region.

Further down Tionesta Creek, at Balltown, the Balltown Oil Company had been established by County Judge John Proper and J. B. Agnew. Despite a series of dry holes, in December, 1882 a well was opened which flowed 1,000 barrels daily. Over the next three years wells were opened on a fairly regular basis and the Balltown field proved a profitable venture for its developers. Ross notes

> Through the middle of 1885, the field, consisting of 122 wells, produced 1,781,185 barrels of oil worth $1,655,322. The wells, which cost an average of $2,500 each to drill, could have been sold for the customary price of $1,000 per daily barrel of production. In 1900, the field's production was 200 barrels per day, so if the field had been sold at that rate--eighteen years after its development--it would have returned nearly its original investment.[47]

Throughout the field, more than 4,000 producing wells were opened, yielding 50,000 barrels daily.[48]

Southwest of Bradford, but still in McKean County, lies Kane. It was known that oil lay within the Kane field, but its quantity had been uncertain until November, 1885. At that time it rose to prominence when news was released that the field was producing seventy-nine barrels in sixteen hours. This volume did not compare with the earlier production figures of Pithole or the Crocker well, but they nonetheless secured the position of Kane and the Kane fields within the heritage of the Pennsylvania oil fields.

Elk County, too, played a role in the industry during these years. Near Kane, at the corners of Elk, McKean, Forest, and Warren Counties, Pithole veteran F. J. Cleminger leased 1,000 acres in 1879. Marcus Hulings had just identified a deposit on Kinzua Creek, and Cleminger's project extended the Hulings exploration to land southwest of Kane. Two disappointing wells were followed by an encouraging drilling in September, 1881. This third Cleminger well, opened in 1885, was interesting enough to draw the attention of Joseph P. Cappeau, a well-known oil scout, who with his partner, Pittsburgh oil broker Joseph Craig, sank a well which produced even after two plugs had been inserted to stem the flow. By the mid-1880s, production in the Kane field was well under way. Craig and Cappeau, along with the Union Oil Company, controlled twenty-nine wells which produced 2,655 barrels daily.

As suggested by its name, the Speculative Phase of the Pennsylvania oil industry witnessed widespread speculation within the oil markets, as developers and would-be developers prowled the territory. Rumor fed upon rumor, giving rise to the occupation of "oil scout" and to the birth of the mystery well. An oil scout was an in-the-field reporter charged with keeping track of new developments which could be

---

[47]Ross, *op. cit.*, 39-40.

[48]Leeson, *op. cit.*, p. 63.

of use to the industry, developing accurate evaluations of potential production levels, trespassing if necessary, and reporting back to his employers. A scout of the 1880s received an average of $150 monthly, along with a percentage based upon the value of the information provided and whatever bribes he could accumulate.[49] Hand-in-hand with the business of scouting was the "mystery well," intended to shroud the discovery of new fields in question and to keep competitors guessing. Ross cites the Dew Drop well, at the mouth of Kinzua Creek, as a prime example of the mystery well. The operators of the well first reported the discovery of gas, then oil, and finally salt water, after which time they reported nothing. **The Oil Scouts** records

> For their own protection, the leading interests in the trade adversely affected by rumors, employed trained men to watch the oil fields and report daily on conditions. These scouts foregathered for the first time at Kinzua and kept watch on its mystery of the Dew Drop; prominent among them were B. S. Tupper, Si Hughes, J. B. Cappeau, Jim Giles, Harry Beam, representing the oil trade; Frank H. Taylor, Tom E. Kern, J. C. McMullin, and Pat Boyle, representing the press.[50]

Stabilization, 1886-1902

The last fifteen years of the nineteenth century saw the oil industry become more of a national operation, rather than one centered within the oil region of Pennsylvania. Strikes in southwestern Pennsylvania, West Virginia, and the 1885 discoveries at Lima, Ohio, encouraged development outside western Pennsylvania. The last new major Pennsylvania pool was found in 1890 in McDonald, Washington County near the Allegheny County line--well outside the established fields of northwestern Pennsylvania. The McDonald field and the deposits at Sistersville, West Virginia led the production lists in 1892, effectively shifting the oil industry to the "Southwest," the term by which the northwestern Pennsylvania periodicals knew any field beyond Butler.

Standard Oil, the great Rockefeller endeavor, was greatly strengthened during these years and left an indelible mark on the industry as a whole. Standard had been the dominant factor in the network of pipelines which transported the crude oil and in 1889 the company embarked in production when the South Penn Oil Company was formed. Other producers were merged with Standard and still others became

---

[49]Whiteshot, *op. cit.*, 139; also Crum, A. R., ed. Romance of American Petroleum and Gas. Vol. 1 (Oil City: Derrick Publishing Company, 1911), 104.

[50]Tennent, *op. cit.*, 10-11.

associated with but not owned by the Rockefeller interests; as a result, Standard gained control of about one-fourth of all of Pennsylvania's production capabilities. By the mid-1890s, Standard Oil completely dominated the business of refining and transportation of petroleum. A lasting physical reminder of Standard's position in the region is the National Register-listed 1891 National Transit Company Building and Annex in Oil City, headquarters of the company's oil pipeline network. Titusville (Crawford County) resident Joseph Seep had become the chief purchaser for Standard in 1874 and in 1895 announced that henceforth Standard would issue bids every day for crude oil, rather than adhering to the openness of the market quotations from the various oil exchanges. Where the oil exchanges had been at the hub of the oil economy in the past, now Standard Oil would offer bids for crude which could have little relationship to the prices which the exchanges quoted. Regardless of the esteem in which Standard was held, their position relative to the oil exchanges effectively put an end to the days of rampant speculation, and 1908 marked the issuance of the last oil certificate.[51]

Exploration during this period was spread across the region. Northeast of Sheffield, J. M. Clapp opened a well in 1890 which produced 350 barrels daily--a far cry from the Pithole days, but significant nonetheless. Other wells drilled during this period were far more productive, some with volumes approaching fifty barrels per hour. A syndicate was established at Sheffield (Warren County) which extended the old Cooper field. An interesting sidebar development during this time were the leases obtained by the Brooklyn, New York-based Cheseborough Company who used the oil in the production of "Vaseline" and as a base for other similar products.[52] In the Kinzua area, L. E. Mallory opened a 200-barrel well in 1896. No stranger to the industry, Mallory had operated at Pithole and Pleasantville in the 1860s, in Clarion and Butler County in the '70s, and in the Lima, Ohio, fields in the 1880s.[53]

Oil development occurred during the period outside the confines of the traditional northwestern Pennsylvania oil fields. In 1889, although McKean and Warren Counties were the state's leading and fourth-highest producing counties (with 7,158,000 and 2,347,000 barrels, respectively), Butler County, immediately south of Venango County, was second (4,180,000), following by Washington County (3,848,000) followed by Clarion (1,180,000). During that same time, Beaver County was producing between 600,000 and 1,125,000 barrels and Greene County, at the far southwestern corner of the state, produced between 175,000 and 600,000 barrels (the same range as Forest County during the same period)

Large refineries grew in the oil region during this period and became major employers in many of the major cities of the region. Among these were Pennzoil, United, Quaker State, Cities Service, Kendall,

---

[51]Tennent, *op cit.*, p. 8.

[52]Ross, *op. cit*, 48.

[53]*Ibid*, 48

and Keystone. An example of the growth of the Pennsylvania refinery is that of the United Refining Company, established in Warren in 1902 as one of fourteen refineries in the Warren area. Using crude piped from the Bradford field as well as that produced nearly, United went on to export to Europe high-quality Pennsylvania-based lubricants and eventually entered the gasoline industry through a subsidiary, the Emblem Oil Co., which had been established to distribute gasoline and fuel oil under the "Keystone" brand.

These years also saw changes in petroleum-based technology. Throughout most of the history of the industry, the ubiquitous steam engine dotted the landscape of the oil lease. These devices were labor-intensive and dangerous, due to the constant risk of explosion and fire from natural gas being ignited by fire under a boiler. Joseph Reid, a Scottish-born machinist, is cited as being the first to develop a practical gas engine for use in the oil fields. The first internal combustion pump engine was installed on the Rynd Farm lease tract along Oil Creek in 1895. Following Reid's fine-tuning of the gas engine, an astonishing variety of engines were developed. Both two-cycle and four-cycle engines were used in the industry, many of which were manufactured by Reid's Oil City-based Joseph Reid Gas Engine Company and by other producers within the Oil Region, including the Bessemer Gas Engine Company and the Evans Company (Grove City and Butler, Butler County, respectively) and the Bovaird and Seyfang Company of Bradford, McKean County. Ross notes that examples of both the two- and four-cycle gas engines remain in regular use in the Appalachian oil fields at the time of writing.[54]

Ross characterizes the close of the Stabilization Phase as follows:

> The nineteenth century closed on the Middle Field with its prospects much in doubt. The tide of production had shifted decisively to the south, and production in the established pools continued to decline.[55]

The ebbing of the fortunes of the Middle District coincided with the dawn of the new century, and the beginning of a new phase in the life of the Pennsylvania oil industry.

The Settled Phase: 1903-1946

The almost hourly changes in technology in the late nineteenth and early twentieth century wrought major changes on the face of the Pennsylvania petroleum industry. Discoveries in the American West and Southwest were enhanced by technological advances such as the refinability of lower-grade crude for use as

---

[54]Ross, *op. cit.*, p. 68-69.

[55]*Ibid.*, p. 49

a locomotive fuel. The eastern Texas Spindletop field was discovered in 1900; a major role was played there by James Guffey, once a production leader in the Bradford field. In 1904, the area west of the Mississippi for the first time outstripped the east in oil production, a distinction that expanded through World War II.[56] The new fields of the Southwest produced an abundant product, although it was clearly inferior to the "Pennsylvania crude." The development of fuel oil provided a ready market for the heavy-grade crudes of the Southwest, and railroads, geographically distant from the coal fields of the east, embarked upon the use of fuel oil for steam fuel.[57]

New fields were discovered in the Bradford field at Lewis Run (1909) and Marshburg (1929)--both McKean County--and at Queen (1922), near the Forest-Warren County line between Tidioute and East Hickory. In southwestern Pennsylvania, Greene, Washington, and a small section of Allegheny County, along with Clarion County each produced between 175,000 and 600,000 barrels in the early 1920s, eclipsed, however, by Warren and McKean Counties' production of more than 1,125,000 barrels. Elk and Forest County were producing between 37,000 and 175,000 barrels, Lawrence and Crawford County accounted for production of fewer than 35,000 barrels each, and Beaver and Mercer County produced none. By the early 1940s, McKean County alone produced in excess of 1,125,000 barrels and Venango, between 600,000 and 1,125,000. The McDonald area of Washington-Allegheny County, along with Butler and Warren Counties produced between 175,000 and 600,000 barrels. Beaver, Lawrence, and Mercer Counties produced between 100 and 37,400 barrels. (Figure 11). New developments were generally small and production quickly diminished.[58] The established Pennsylvania fields began a period of sustained decline.

A pivotal factor in the decrease of Pennsylvania production was the continuation of the wasteful production practices which had been the rule of the nineteenth century, when a seemingly inexhaustible supply of the raw material existed. Because of irresponsible drilling practices, the reservoir pressure of the oil had been reduced greatly, resulting in a lack of propellant to force the petroleum out of the ground. Drawing on a method espoused by pioneer petroleum geologist John Carll as early as 1880, operators began the practice of "water flooding" of wells, by pulling the well casings and allowing subterranean water to invade the producing rock formations, thus forcing the oil upward. Water flooding was illegal in Pennsylvania in the early days of exploration and production, theoretically to prevent adjoining operators from blackmailing or being blackmailed with a threat of flooding. This fact notwithstanding, the practice was employed and was even eventually improved upon, evidenced by the Bradford pool's unexplained production increase in 1906. Waterflooding gave new breath to the lagging Pennsylvania fields, particularly

---

[56]**The Oil City Derrick's Statistical Abstract of the Petroleum Industry** (Oil City, Pennsylvania: Derrick Publishing Company, 1916), 39; quoted in Ross and Caplinger, 51.

[57]Ross, *op. cit.*, 51.

[58]Miller, p. 101, quoted in Ross, *op. cit.*, p. 52.

through efforts such as the Bradford-based Forest Oil Company's 1922 development of the "line flood" and the 1928 development of a "five-spot" flood process.

Pennsylvania oil production rose significantly as the result of this improved technology. By the 1930s, boosted by the water flooding-based rejuvenation of the Bradford field, the state's second production peak was reached at 10,930,799 barrels.[59] In a number of instances, "secondary production" methods such as waterflooding propelled production to even higher rates than had been seen through natural pressure when the fields had been originally developed a generation earlier

The refining industry gained also new sophistication during this period as the automobile became firmly entrenched in the American scene. Warren County, for example, boasted fourteen refineries: nine in the borough of Warren, four in Clarendon, and one at Struthers. Other refining centers included Oil City and Rouseville (Pennzoil and Wolf's Head), Emlenton (Quaker State), Warren (United, marketed under the "Keystone" brand), and at Bradford (Kendall).

Conclusion

The preceeding pages have established a clear contextual framework for the heritage of the oil industry in western Pennsylvania. No other technology has affected the course of civilization--for better or worse--to the extent of the petroleum industry, and western Pennsylvania occupied the forefront of activity throughout much of its history.

To summarize the context of the oil industry for western Pennsylvania, historians Bruce Bomberger and William Sisson wrote

> The meteoric ascent and decline of the State's petroleum industry was likened by many to the [California] Gold Rush because of its legacy of colorful characters, fast fortunes, and ghost towns. The State's oil boom began in 1859, peaked in 1891, and by the early decades of the twentieth century, had seen its tiring reserves eclipsed by vast new western discoveries. But most significantly, essentially all of the basic technology for the modern oil industry was developed in northwestern Pennsylvania from the 1860s through the 1870s.[60]

---

[59]Ross, *op. cit.*, p. 54.

[60]Bomberger, Bruce and William Sisson **Made in Pennsylvania: An Overview of the Major Historical Industries of the Commonwealth** (Harrisburg: Pennsylvania Historical and Museum Commission, 1991),

F. ASSOCIATED PROPERTY TYPES

The following property types and subtypes have been identified within the Oil Region of western Pennsylvania:

Property Type 1: Historic Districts of Oil Communities

As defined in National Register Bulletin 16A, *How to Complete the National Register Registration Form*, historic districts are collection of historic resources which possess "a significant concentration, linkage or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development." Within the western Pennsylvania Oil Region, four historic district subtypes are found: (a) commercial districts, (b) residential districts, (c) oil-related manufacturing and industrial districts, and (d) linear corridors. Subtypes (a), (b), and (c) may appear separately or in combination with one another within a given National Register district; subtype (d) will generally be found separate from other resources.

Both commercial and residential districts are typified by those communities, large and small, whose birth, growth and/or prosperity is traced directly to the discovery and exploitation of oil within the region.

Property Sub-Type 1a: Commercial Historic Districts

Description Property Type 1a, *commercial districts* include the traditional central and neighborhood business districts of communities within the region. Examples of these are business districts in Titusville, Butler, Tidioute, Clarendon, Warren, Foxburg, Bradford, Oil City, Emlenton, Clarion, and Franklin. These districts are typically built in a linear or grid pattern, with major thoroughfares bisected by smaller alleys. Many are found along creek or river banks. Construction within commercial historic districts is usually dense, with buildings built flush with one another, with little or no setback from the public right-of-way. Institutional buildings, including churches, meeting halls, and schools are often found within these districts along with a small proportion of residences, often converted to commercial use. Architectural styles include commercial and institutional adaptations of the Greek Revival, Italianate, Gothic, Romanesque Revival, Neo-Classical Revival, and Colonial Revival styles, along with vernacular derivatives of each. Religious buildings are usually executed in the Gothic Revival, Romanesque Revival, Late Gothic Revival, Richardsonian Romanesque, and Colonial Revival styles. There may also be examples of early service stations, which are significant examples of twentieth-century roadside architecture.

Significance Commercial historic districts are eligible under National Register Criteria A and C. Under Criterion A, these districts are significant for their association with commerce and industry and stand as the tangible evidence of the prosperity of the Oil Region within the period of significance, reflected in

the commercial growth of the region during the period when much of the nation's oil supply came from the Pennsylvania oil fields. Commercial districts are also eligible under Criterion C, for architecture, for their embodiment of specific architectural styles, often containing the work of regionally- and locally-important architects who were active during the period of significance of the district. Among these are Joseph P. Brenot, Emmett E. Bailey, Edward A. Phillips, Henry C. Park, and W. Holmes Crosby, important Oil Region practitioners during the late nineteenth and the first half of the twentieth centuries.

Also found within the Oil Region, within Criterion D, are the sites of eligible commercial districts which are no longer extant. These sites may suggest no easily-discernible link to the oil industry, since they may be completely overgrown, with little visible trace of cultural material. These "boomtowns" are typified by Pithole and Petroleum Centre, both of whose meteoric rise and equally rapid demise left no visible evidence of their existence on the cultural landscape. These districts are eligible under Criterion A, for their associative significance to the oil industry, as well as under Criterion D, for their potential to yield important archaeological evidence about the function and operation of the Pennsylvania oil industry as a series of impermanent "boom" communities.

Property Sub-Type 1b: Residential Historic Districts

Description Property Type 1b, *residential districts* are found throughout the Oil Region of northwestern Pennsylvania, in communities large and small. Examples of these districts are found in Oil City, Titusville, Foxburg, Franklin, Emlenton, Warren, Bradford, Smethport, etc. These consist of neighborhoods, generally at the peripheries of centers of commerce within their respective communities. The residential districts contain a variety of housing styles and house types, ranging from vernacular I-houses and workers' cottages to spacious suburban homes of the 1870s through the 1930s. Architectural styles run the gamut of modes generally popular from the pre-Civil War years through the immediate post-World War Two period. These styles include Greek Revival, Italianate, Gothic Revival, French Second Empire, Queen Anne, Neo-Classical Revival, Colonial Revival (including Georgian Revival, Spanish Colonial Revival, and Dutch Colonial Revival), Stick and Shingle Style, Tudor Revival, and Bungalow, as well as pattern-book design and mail-order catalog homes of the first half of the twentieth century. Churches are often scattered throughout residential districts and constitute major "anchors" for the districts. Religious buildings are executed in styles such as Gothic Revival, High Victorian Gothic, Romanesque Revival, Richardsonian Romanesque, and Late Gothic Revival, and represent the work both of locally and regionally important architects. Residential neighborhoods are often characterized by tree-lined streets, some of brick pavement, often with generous, front-, side-, and rear-yard setback. The scale of design is usually confined to two stories, with some one- and 1½-story cottages and Bungalows interspersed with commodious three-story dwellings.

Significance Residential districts will be eligible under Criteria A, B, and/or C. Under Criterion

A, these districts will be eligible as the physical manifestation of the residential development patterns associated with the oil industry in western Pennsylvania, patterns which may be associated with industrialists or workers. Under Criterion B, the districts will be eligible if individual properties located within their boundaries are associated with industry leaders including oilmen, refiners, financiers, etc. Under Criterion C, the residential districts are eligible because of the architecture found therein, representing styles popular during the period of significance and/or being the product of locally- or regionally-important architects and builders.

Property Sub-Type 1c: Manufacturing and Industrial Historic Districts

Description Property Type 1c, *manufacturing and industrial districts* contain significant collections of buildings and objects representative of those industries which were associated with the petroleum industry and which went hand-in-hand with the discovery of oil and the growth and prosperity of the northwestern Pennsylvania Oil Region. Among these are factories which produced oil pipe and other equipment (such as the National Transit Company, W. J. Innis & Company, and the Oil Well Supply Company of Oil City, and the U.S. Pipe Line Company of Titusville), refineries (including those trading under names such as Pennzoil, Quaker State, Wolf's Head, Keystone, and Kendall and their predecessor firms including Oil City Oil & Grease Company, Germania Refining Company, etc.), the production of wooden and steel barrels for the storage and transportation of oil (such as the Oil City Boiler Works, the Manion Steel Barrel Company at Rouseville, and the Rush Barrel Works near McClintockville), and the manufacture of engines and related material for the extraction of the raw material (such as Bovaird & Seyfang's Central Iron Works in Bradford, the Joseph Reid Gas Engine Company of Oil City, the Bessemer Gas Engine Company of Grove City and firms involved with the production of substances such as nitroglycerine, including the Cupler Torpedo Company of Titusville).

These districts contain industrial vernacular buildings and objects of a variety of scales and materials, including brick factories, early corrugated metal buildings, pipe galleries, equipment, storage tanks, etc. They may also contain offices of high-style design or derivation.

Significance Property Type 1c districts are eligible under National Register Criteria A and C, for their close association with the oil industry and as examples of industrial design during the period of significance of the region.

Property Sub-Type 1d: Historic Corridors

Description Property Type 1d, *historic corridors*, are linear districts related to the transportation of oil, and include rail lines and pipelines--if such systems were the result or subject of specific engineering

efforts during the period of significance of the region. These resources will generally be found separate from or running between other resources. Rail lines were established during the first years of the oil boom, and soon snaked their way across the region, transporting not only raw material and equipment but also the men and women who populated the oil fields and boomtowns. Among these were the Farmers' Railroad, the Reno & Pithole, the Oil Creek, the Oil City & Pithole, the Warren & Franklin, and the Warren & Farnsworth Valley. Historic rail corridors include the rights-of-way of the line as well as extant buildings and structures (stations, bridges, water tanks, etc.) associated with the line.

Pipeline corridors date from Samuel Van Syckel's 2-inch line which stretched about five miles from Pithole to the Miller Farm and from the Pennsylvania Tubing and Transportation Company's successful 9-mile line from Pithole to Oleopolis on the Allegheny River. The largest of these are those associated with the National Transit Company, which, at the time of its formation in 1881, was the single largest unit among the holdings of Rockefeller's Standard Oil Company[61]. "With the exception of Tidewater [whose line ran eastward from the Bradford fields] and a few microscopic independent gathering lines, National Transit controlled virtually every inch of pipe line in and out of the Regions."[62] Smaller pipelines included the Bradford & Olean (New York) Pipe Line, which traversed an 18¼-mile path northward from the Beardsley farm. The Kane and Parker City Pipe Line crossed sixty-five miles, connecting the Bradford field with the lower region. An especially ambitious line was that of the United Pipe Line Association, which by the mid 1880s had 3,000 miles of pipe and storage capacity for 40,000,000 barrels, with offices at Oil City and Bradford along with major depots at Tarport, Duke Centre, Richburg, and Kane. Union was absorbed by the National Transit Company in 1884. Linear corridors will be found primarily in the rural reaches of the Oil Region; they will be only as wide as the rights-of-way, may be completely overgrown, and may extend over many miles.

Significance Property Type 1d historic resources will be eligible under National Register Criteria A, C, and/or D. Corridors are eligible under Criterion A because of the important role which they played in the transportation of crude oil from wellheads to refineries. Under Criterion C, corridors may retain pump stations, depots, bridges and other architectural/engineering resources from the period of significance. Under Criterion D, significant corridors may yield important historic archaeological information about the oil region of northwestern Pennsylvania.

---

[61] Williamson, Harold F. and Daum, Arnold R. **The American Petroleum Industry: The Age of Illumination 1859-1899** (Evanston, Illinois: Northwestern University Press, 1959), p. 452.

[62] *Ibid.*, p. 452.

REGISTRATION REQUIREMENTS FOR PROPERTY TYPE 1 RESOURCES

Registration requirements for Property Type 1 are that the districts must be documented to have been associated with the oil industry, that they are fifty years old, and that they retain the integrity necessary to reflect their appearance during their period of significance. Commercial and residential districts should not contain a high percentage of non-contributing resources. Due to the rapid acceleration of technology, industrial districts have been subjected to evolutionary alterations, but should nonetheless retain integrity of location, design, setting, materials, and association.

Property Type 2: Lease Sites

Description As noted in the context statement, much of the activity of oil exploration occurred on lands which were leased, rather than owned outright by the oil prospectors. From the very beginning, lands were leased either for a fixed fee or for a percentage of the production from particular wells located on the lease sites. Generally located on farms in rural sectors of the region, eligible lease sites include the well site itself, as well as a house or other outbuildings dating from the period of significance (or evidence thereof), and evidence of a power transmission system, equipment, storage facilities, etc.

Significance Properties within this category are generally eligible under Criterion A, as the reflection of an important facet of the oil industry--that of the lease tract. These property types may also be significant as the site of a discovery well or of a well of particularly high production within the period of significance. Under Criterion B, they may also derive significance from the fact that they were owned, worked, or leased by an individual of particular importance to the region or to the industry. Lease sites may also be eligible under Criterion D, for their potential to yield important archaeological information about the oil industry during the period of significance. It is likely that important historic archaeological evidence of the oil industry throughout the Oil Region still lies beneath the hundreds of lease tracts found across this 5,700-square mile area. Evidence could reasonably be expected to include the remains of storage tanks as well as equipment and artifacts representing the built environment of the oil region throughout its entire ninety-year period of significance.

REGISTRATION REQUIREMENTS FOR PROPERTY TYPE 2 RESOURCES

Registration requirements for Property Type 2 resources are that they be documented to be more than fifty years old and were the sites of oil production activity during the period of significance. The lease sites may contain an extant house and/or powerhouse retaining sufficient architectural integrity to reflect its appearance during its period of significance. Additional significance would be gained by Property Type 2 resources if the essential components of a central power system are *in situ*, date to the period of significance,

and exhibit a high degree of integrity. The decades-old abandonment of lease sites has necessarily resulted in the deterioration of many of these sites. In order to be eligible under Criterion D, a lease site must retain or be able to yield evidence of its original configuration, setting, and materials, and it must be demonstrated how the site will improve the larger body of information about the history of lease sites within the context of the western Pennsylvania oil industry.

Property Type 3: Individual Oil-Related Buildings

Description This property type consists of those buildings which are not located in eligible historic districts but which are documented to be associated with oil history in the region. Included in this property type are buildings associated with individuals whose prominence is linked to the oil industry. Examples of such individuals include historian Ida Tarbell (born in Erie but more closely associated with Titusville) , ambitious oilman/railroader Marcus Hulings, "Coal Oil Johnnie" Steele, oil region photographer John Mather, important producers such as T. W. Phillips of Butler and W. Floyd Clinger of Warren, industrialist John Eaton, refiners such as Emlenton's Harry Jennings Crawford and Warren's H. A. Jamieson (also the first president of the National Petroleum Association), oil scouts such as S. B. Hughes, J. C. Tennent, and J. P. Cappeau, various proprietors of oil-related business and mercantile endeavors, and Rockefeller protégés such as Joseph Seep.

Significance Property Type 3 buildings will be National Register-eligible under Criteria A, B, and/or C. Under Criterion A, they will be eligible due to their direct association with the oil industry, and under Criterion B for their relationship to the lives of persons significant in the history of oil. Under Criterion C, these buildings may be distinctive representatives of particular architectural styles and may represent the work of locally- and regionally-important architects and/or builders.

REGISTRATION REQUIREMENTS FOR PROPERTY TYPE 3 RESOURCES

Registration requirements for Property Type 3 buildings are that the individual buildings must be fifty years old, must be documented to have been associated with the broad patterns and anomalies of the oil industry (as an industrial site or building associated with an individual important to the industry), and must retain the integrity of design, materials, setting, and association necessary to reflect their appearance during their period of significance.

G. GEOGRAPHICAL DATA

The geographical boundaries for this Multiple Property Documentation Form include the Pennsylvania counties of Armstrong, Beaver, Butler, Clarion, Crawford, Elk, Forest, Lawrence, McKean, Mercer, Venango, Warren, and Washington.

H. SUMMARY OF IDENTIFICATION AND EVALUATION METHODS

This Multiple Property Documentation Form for the Resources of the Oil Industry of Western Pennsylvania is based upon extensive research into the history of the petroleum industry and into the tangible remains left by the industry in this section of Pennsylvania. Documentation began with the 1859 discovery of oil and ended with the immediate post-World War II era, corresponding to the 50-year guideline for National Register designation. In the course of the preparation of the material, survey data and National Register nominations for previously-listed resources within the region were examined at the Pennsylvania Bureau for Historic Preservation, the state's State Historic Preservation Office.

In addition to the study of existing architectural surveys and National Register material, "windshield" surveys were completed in targeted areas of the region, investigating the range of architectural styles found therein. These included the major population bases (Butler, Clarion, Oil City, Bradford, Warren, Titusville, Franklin, etc.), as well as smaller communities (Foxburg, Parker, Emlenton, Clarendon, Kane, etc.) whose history is linked with oil.

Published material was consulted, primarily at the Oil City Public Library, since that facility's oil history collection is among the most complete in the region. Significant insight was provided by the writings of Paul Giddens, the Oil Region's most faithful historian. Other important information was found in writings undertaken contemporaneously with the rise and fall of the industry. Philip Ross's **Allegheny Oil: The Historic Petroleum Industry on the Allegheny National Forest** provided the basis for the chronological organization of the research. Beth Proper's master's thesis, *The Built Environment of Oil City*, was an important document for evaluating the architectural character of this especially important Oil Region center of activity.

Three sample National Register nominations--all from Venango County--were prepared in conjunction with the Multiple Property Documentation Form. The nominations of the Emlenton Historic District, the Oil City South Side Historic District, and the Oil City Downtown Commercial Historic District constitute the first phase of nomination activity based upon the MPDF. These nominations were chosen because the communities are especially evocative of the rise and fall of the oil industry within the region. Two additional districts were identified in Oil City, but budgetary and time constraints prohibited their nomination during this initial phase. At the time of the preparation of the MPDF, nominations were in various stages of preparation for districts in Foxburg and Warren, two vastly different communities with a diversity of architectural character. These districts will join already-listed districts in other Oil Region communities including Beaver, Titusville, and Franklin.

I. MAJOR BIBLIOGRAPHICAL SOURCES

Asbury, Herbert. **The Golden Flood: An Informal History of America's First Oil Field** (New York: Alfred A. Knopf, 1942).

Babcock, Charles A. **Venango County, Pennsylvania: Her Pioneers and People** 2 vols. (Chicago: J. H. Beers, 1919).

Bell, Herbert C. **History of Venango County, Pennsylvania** 2 vols. (Chicago: 1919).

Bomberger, Bruce and William Sisson **Made in Pennsylvania: An Overview of the Major Historical Industries of the Commonwealth** (Harrisburg: Pennsylvania Historical and Museum Commission, 1991).

Brandon, J. Campbell **A Concise History of Butler County, Pennsylvania, 1800-1950** (Butler: Eagle Printery, Inc., 1960).

Brantly, J. E. **History of Oil Well Drilling** (Houston, Texas: Gulf Publishing Company, 1971).

Brown, R. C., ed. **History of Butler County, Pennsylvania** (Chicago: R. C. Brown & Co., 1895).

Boyle, Patrick C., ed. **The Derrick's Hand Book of Petroleum: A Comprehensive Chronological and Statistical Review of Petroleum Developments** 2 vols. (Oil City, Pennsylvania: Derrick Publishing Company, 1898, 1900).

Carll, John F. **Report of the Geological Survey of Pennsylvania, 1886** 2 vols. (Harrisburg: n. p., 1886).

Crum, A. R. **Romance of American Petroleum and Gas** 2 vols. (Oil City, Pennsylvania: Derrick Publishing Company, 1911).

Darrah, William C. **Pithole: The Vanished City** (Author: 1972).

Dolson, Hildegard. **The Great Oildorado** (New York: Random House, 1959).

Donehoo, George P., ed. **Pennsylvania: A History** (New York: Lewis Historical Publishing Company, 1926).

Giddens, Paul H. **The American Petroleum Industry--Its Beginnings in Pennsylvania** (New York: Newcomen Society in North America, 1959).

_____. **The Birth of the Oil Industry** (1938; reprint, New York: Arno Press, 1972).

_____. **Early Days of Oil** (Princeton, New Jersey: Princeton University Press, 1948).

_____. **The Beginnings of the Petroleum Industry** (Harrisburg, Pennsylvania: Pennsylvania Historical Commission, 1941).

_____. **Pennsylvania Petroleum, 1750-1872: A Documentary History** (Harrisburg, Pennsylvania: Pennsylvania Historical Commission, 1947).

History of Butler County, Pennsylvania (Chicago: Waterman, Watkins & Co., 1883).

Howden, J. A. and Odbert A. **History and Combination Atlas of Warren County** (Washington, Pa.: 1878).

Hopkins, G. M. & Co. **Combination Atlas of the County of Butler and the State of Pennsylvania** (Philadelphia: G. M. Hopkins & Co., 1874).

Leeson, Michael A. **History of the Counties of McKean, Elk, and Forest** (Chicago: J. H. Beers, 1890).

Malone, Patrick **The Texture of Industry** (New Haven: Yale University Press, 1994).

McKee, James., ed. and comp. **Twentieth Century History of Butler and Butler County** (Chicago: 1909).

McLaurin, John J. **Sketches in Crude-Oil: Some Accidents and Incidents of the Petroleum Development in All Parts of the Globe** Second edition. (Harrisburg, Pennsylvania: n. p., 1898).

Miller, Ernest C. **History and Development of the Petroleum Industry in Warren County, Pennsylvania** (Warren: Warren County Historical Society, 1983).

Muller, Edward K., ed. **A Concise Historical Atlas of Pennsylvania** (Philadelphia: Temple University Press).

Newton J. H., ed. **History of Venango County, Pennsylvania** (Columbus: 1879).

The Oil City Derrick's Statistical Abstract of the Petroleum Industry (Oil City, Pennsylvania: Derrick Publishing Company, 1916).

Proper, Beth Ann *Built Environment of Oil City, Pennsylvania* (Unpublished Master's thesis, Pennsylvania State University, 1981).

Risenman, Joseph, Jr. **History of Northwestern Pennsylvania** (New York: Lewis Historical Publishing Company, 1943).

Ross, Philip W. **Allegheny Oil: The Historic Petroleum Industry on the Allegheny National Forest** (Warren, Pennsylvania: U. S. Department of Agriculture Forest Service, 1996)

Schenck, J. S., ed. **History of Warren County** (Syracuse: 1887).

Stephenson, James B. "Railroads of the Oil Regions," unpublished MSS.

Tennent, James C. **The Oil Scouts: Reminiscences of the Night Riders of the Hemlocks** (Oil City, Pennsylvania: Derrick Publishing Company, 1915).

Walker, Samuel C. *A Review of the National Transit Pipeline Company* (Unpublished MSS prepared for the Sixth Annual Oil Heritage Region Conference, 1996).

Williamson, Harold F. and Daum, Arnold R. **The American Petroleum Industry: 1859-1899, The Age of Illumination** (Evanston, Illinois: Northwestern University Press, 1959).

_____, Andreano, Ralph L. and Klose, Gilbert C. **The American Petroleum Industry: 1899-1959, The Age of Energy** (Evanston, Illinois: Northwestern University Press, 1963).

Whiteshot, Charles A. **The Oil Well Driller: A History of the World's Greatest Enterprise, the Petroleum Industry** (Mannington, West Virginia: n. p., 1905).

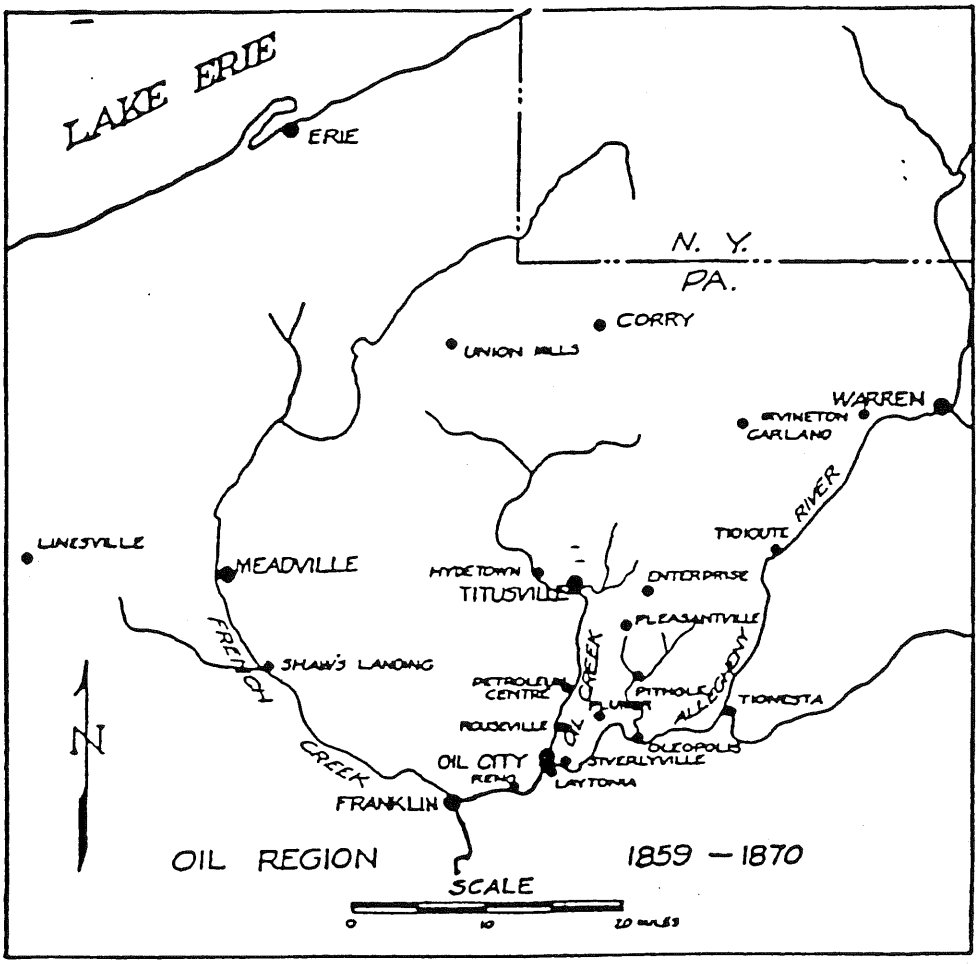


Figure 1: Oil Region, 1859-1870 [from Giddings, **The Birth of the Oil Industry**, p. 50].

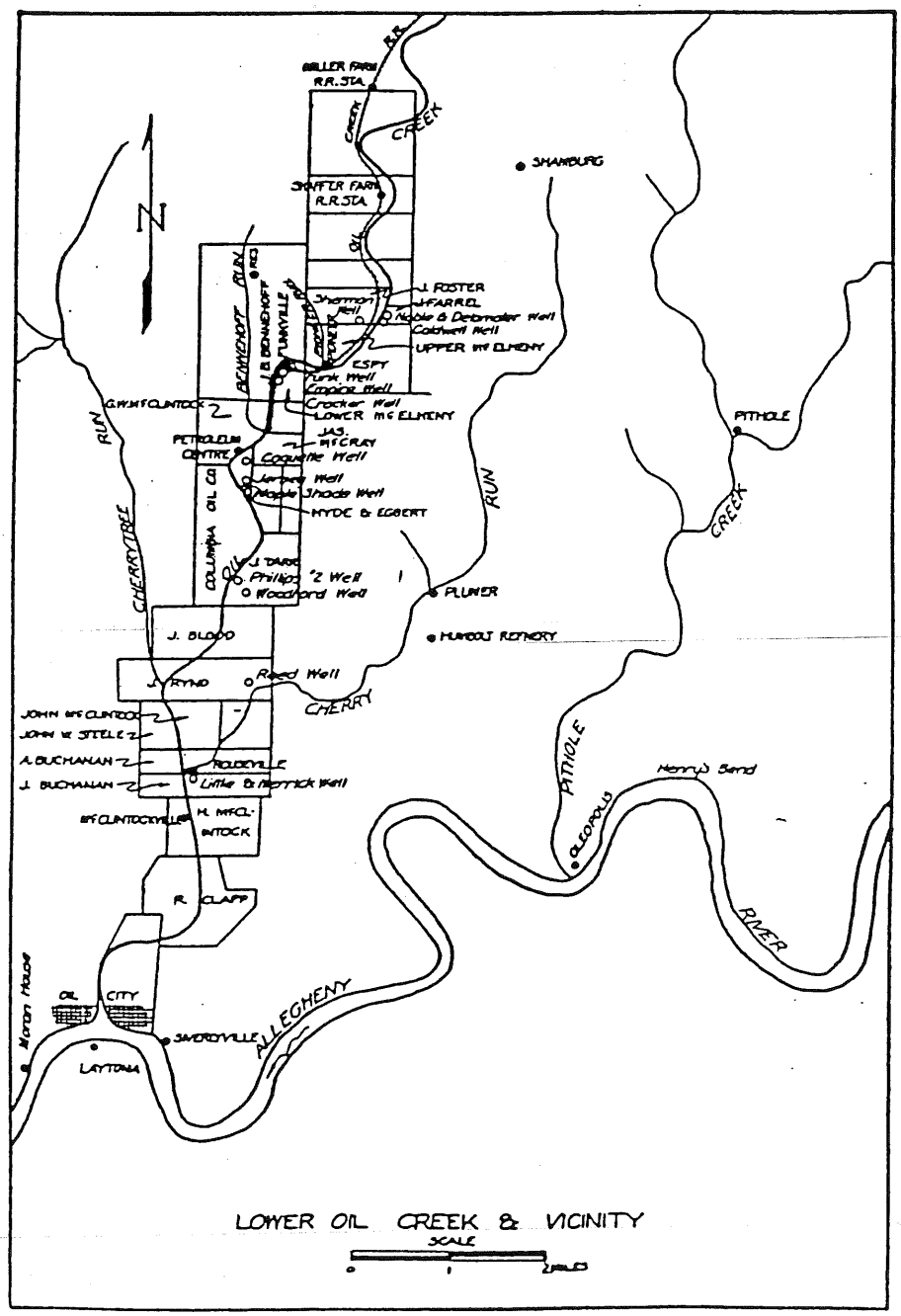


Figure 2: Lower Oil Creek and Vicinity [from Giddings, **The Birth of the Oil Industry**, p. 79].

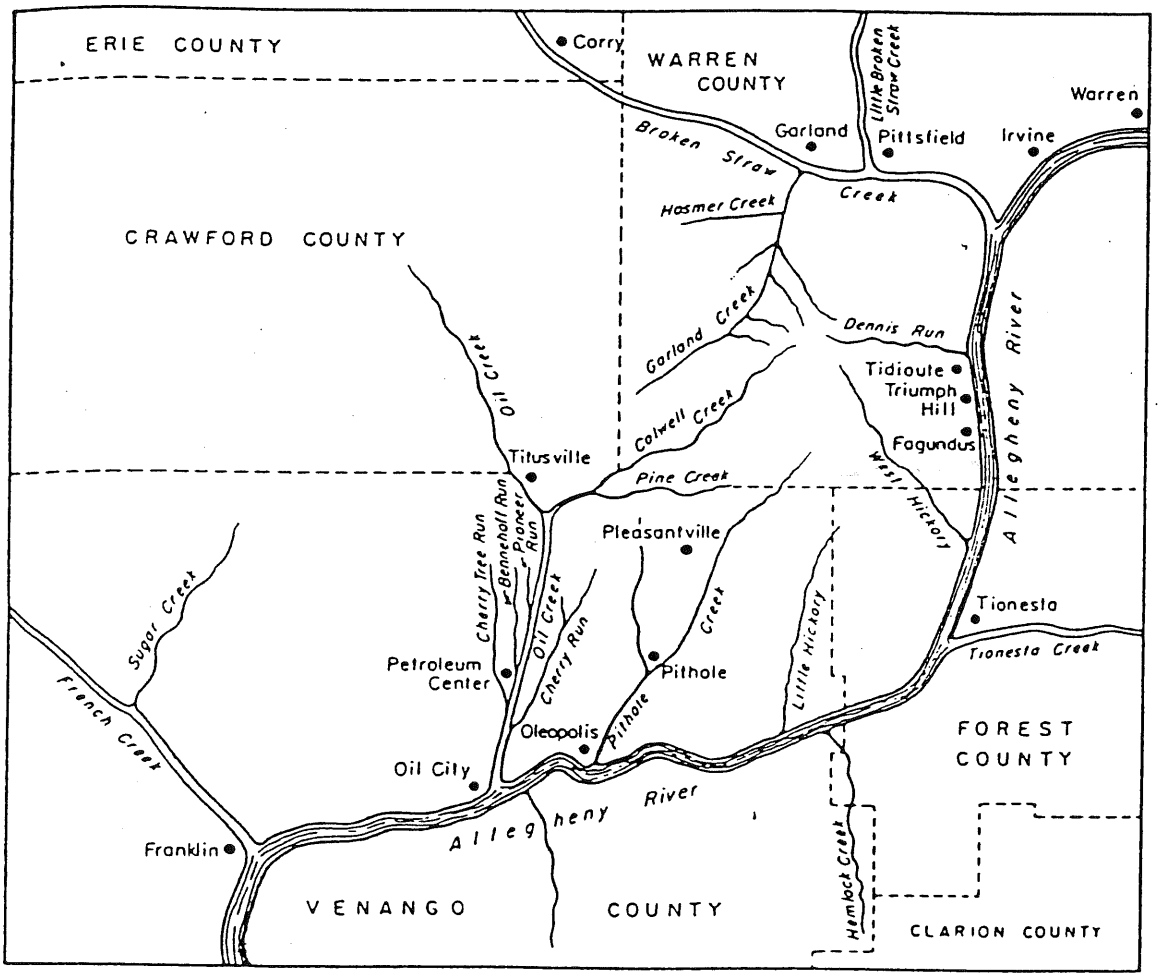


Figure 3: Upper Region [from Williamson and Dunn, **The American Petroluem Industry 1859-1899**, p. 101].

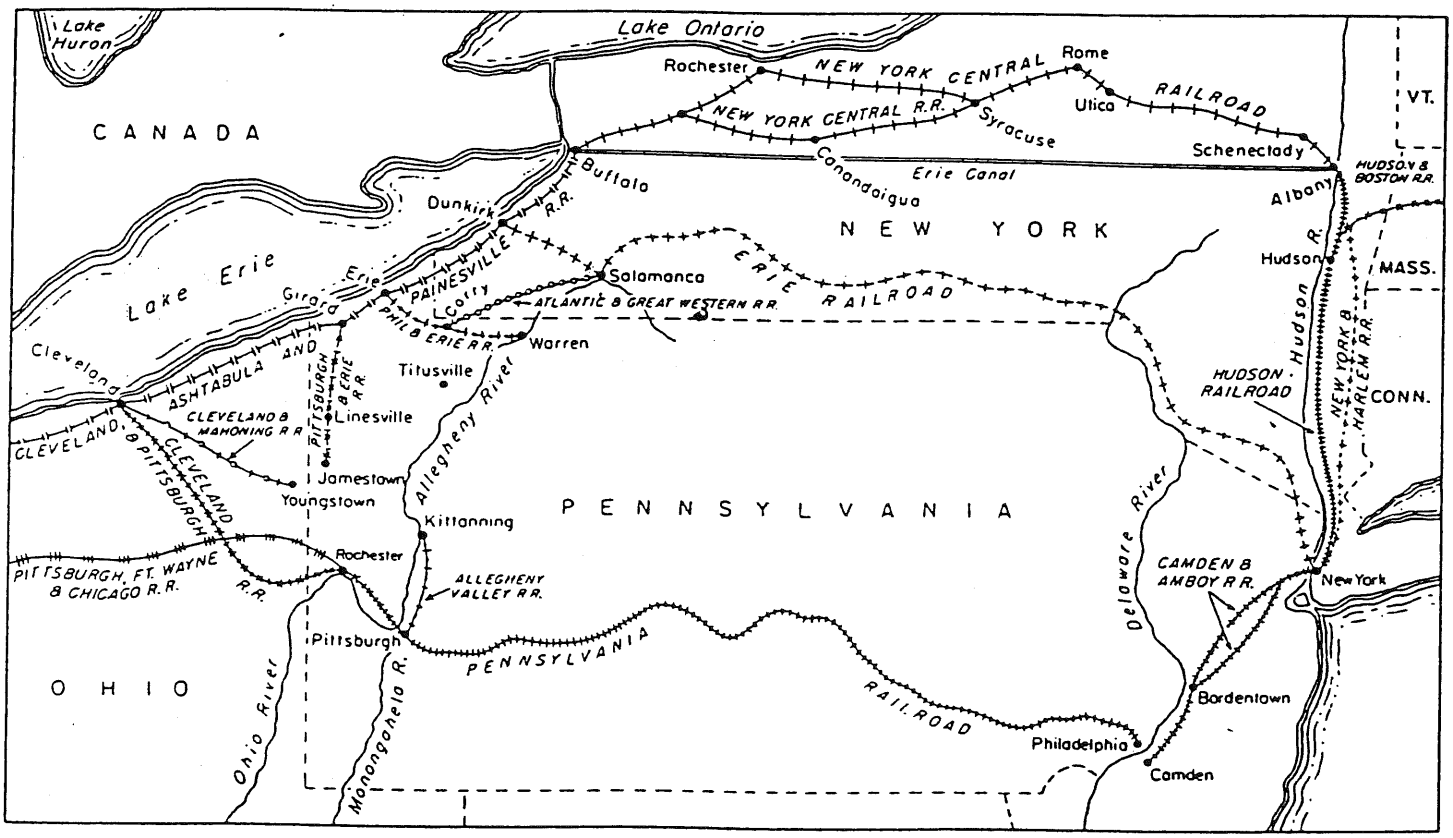


Figure 4: Major railroad lines between Cleveland and the eastern seaboard, 1861 [from Williamson and Dunn, **The American Petroleum Industry 1859-1899**, p. 171].

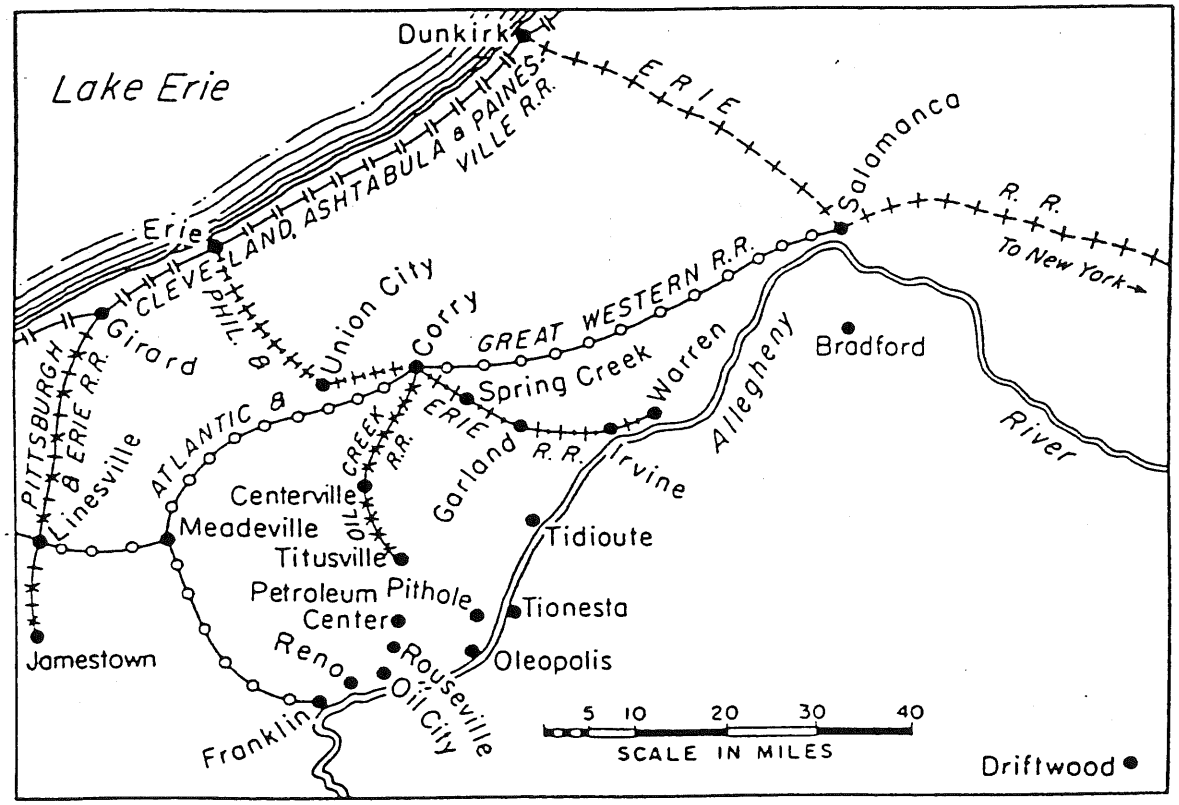


Figure 5: Railroad Facilities in the Region, early 1865 [from Williamson and Dunn, **The American Petroluem Industry 1859-1899**, p. 173].

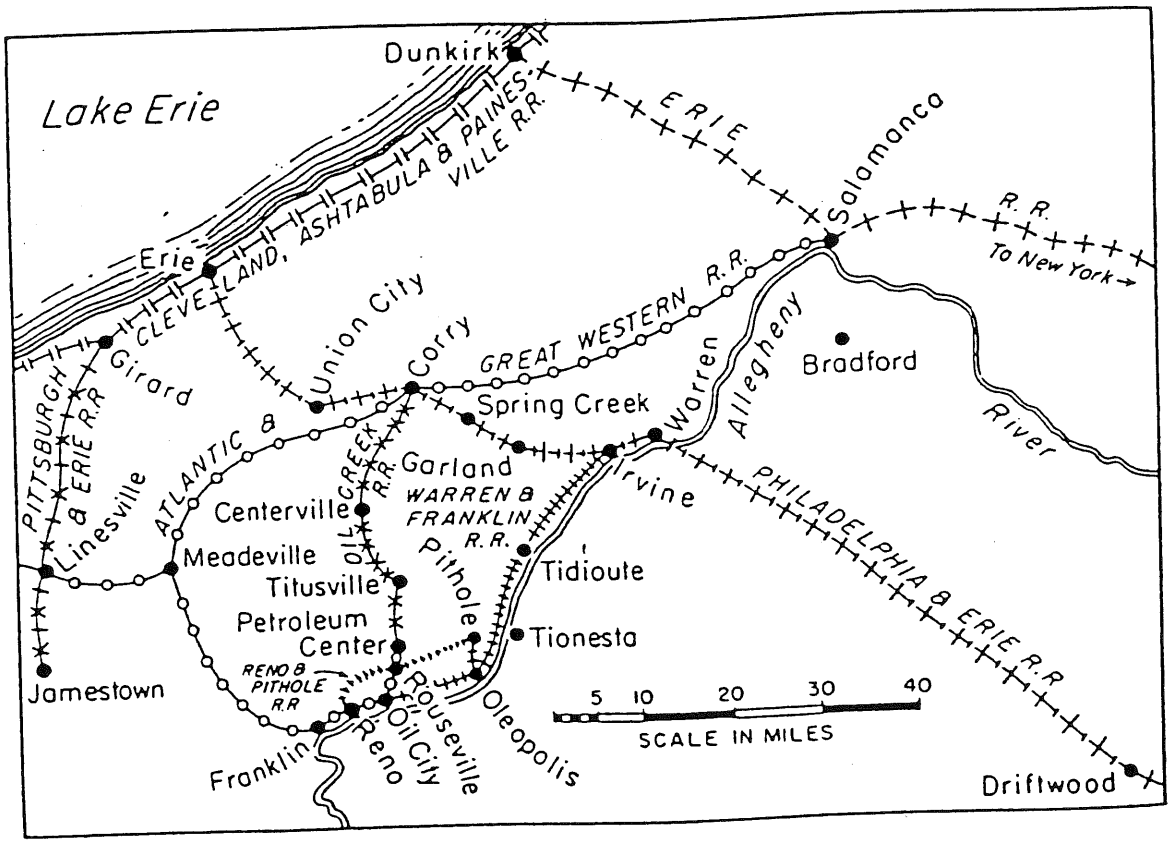


Figure 6: Railroad Facilities in the Region, 1866 [from Williamson and Dunn, **The American Petroluem Industry 1859-1899**, p. 176].

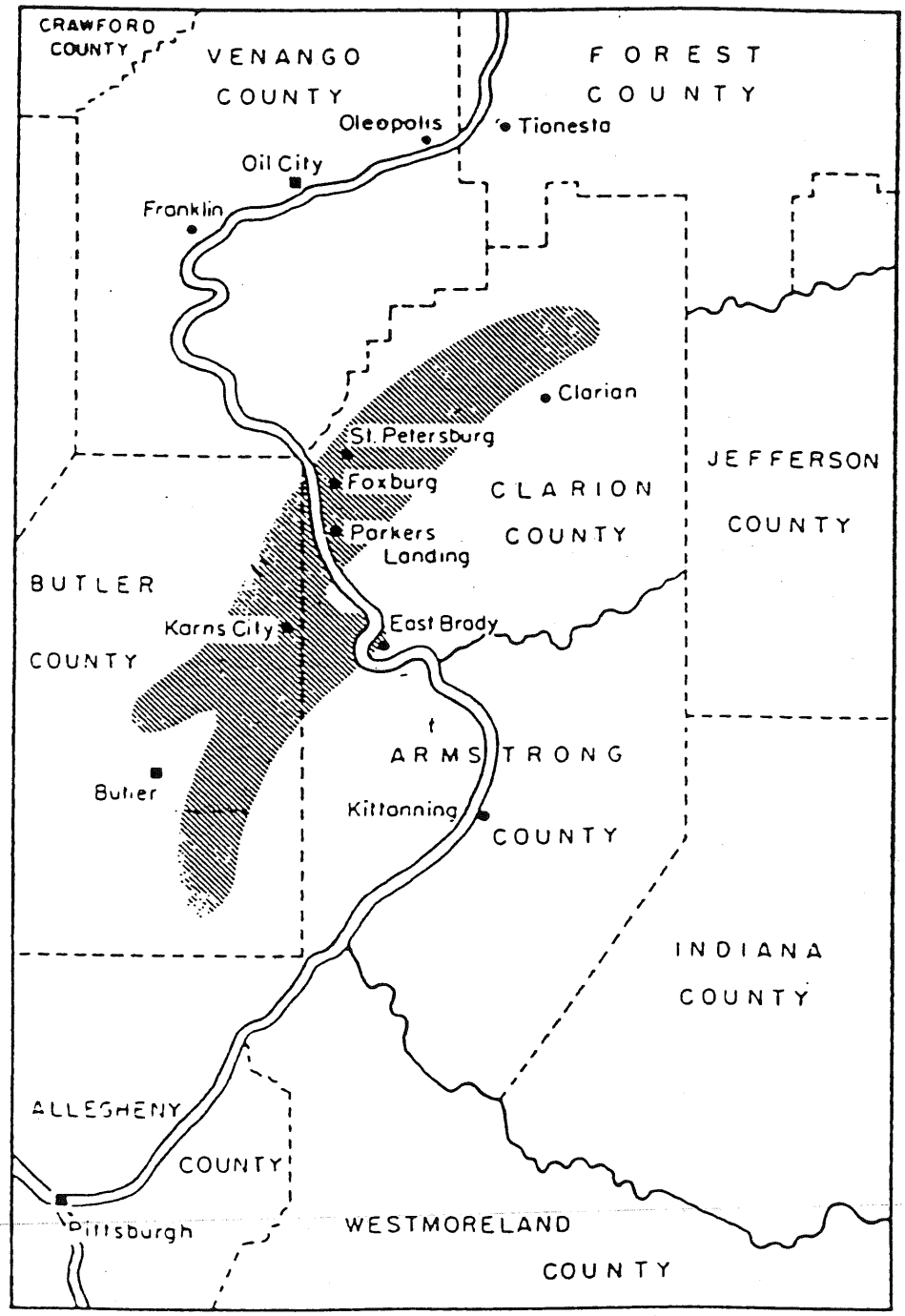


Figure 7: Lower Region, 1869-1873 [from Williamson and Dunn, **The American Petroluem Industry 1859-1899**, p. 132].

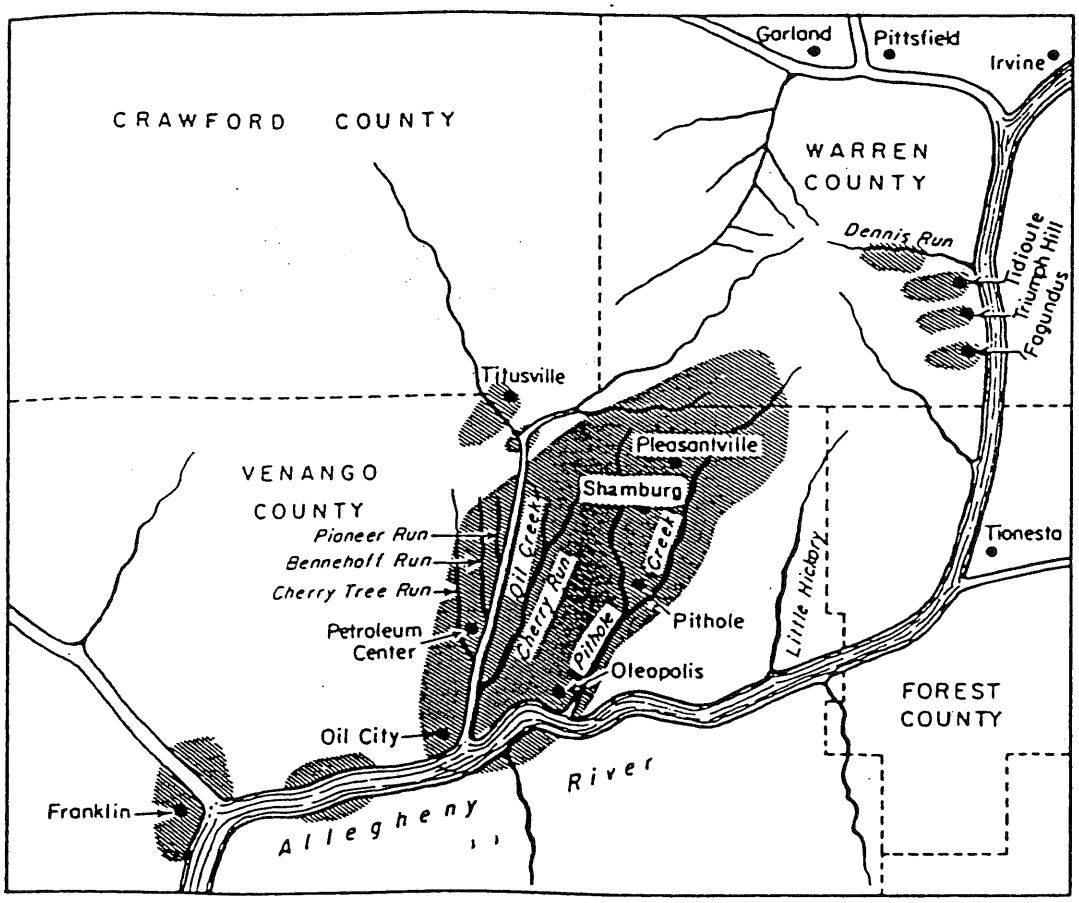


Figure 8: Upper Region oil-producing territories, 1860s [from Williamson and Dunn, The American Petroleum Industry 1859-1899, p. 129].

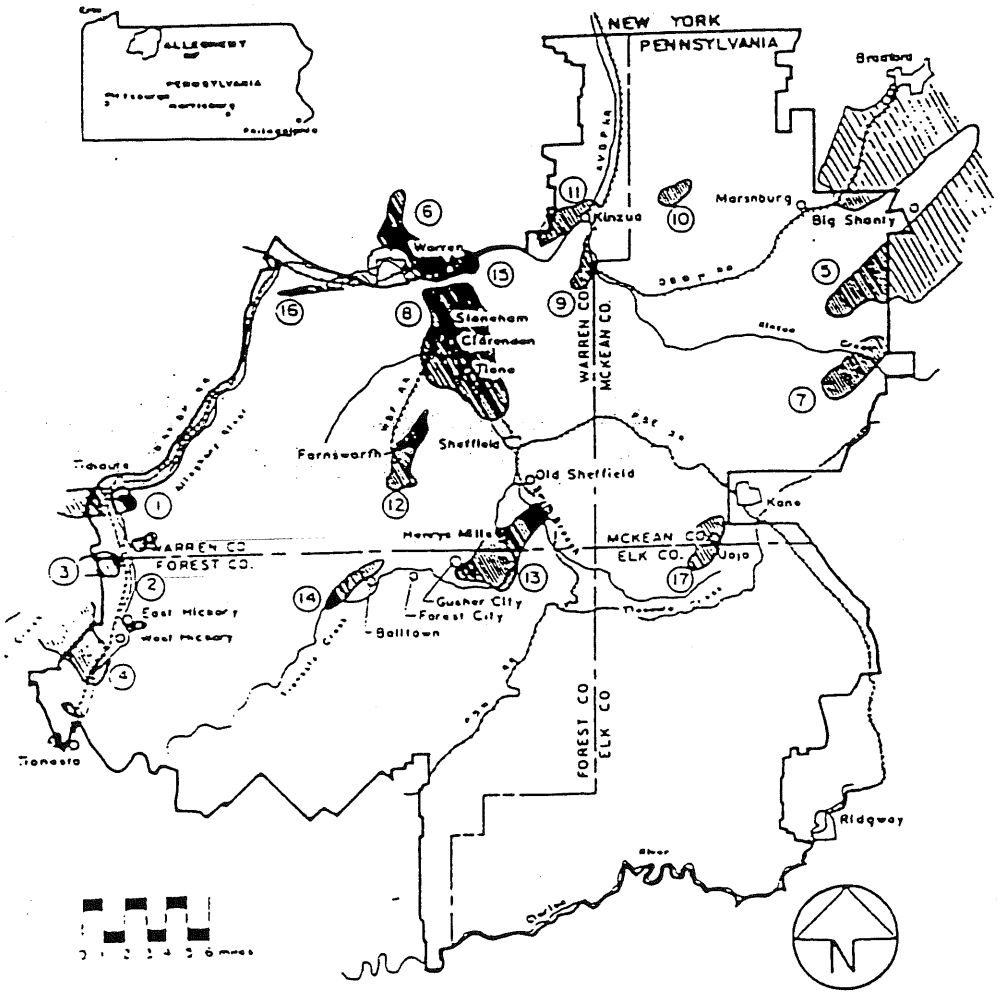


Figure 9: Oil Fields in the Upper Region, c. 1885 [from Ross and Caplinger, p. 109, after Carll, John F. Seventh Report on the Oil and Gas Fields of Western Pennsylvania for 1887].

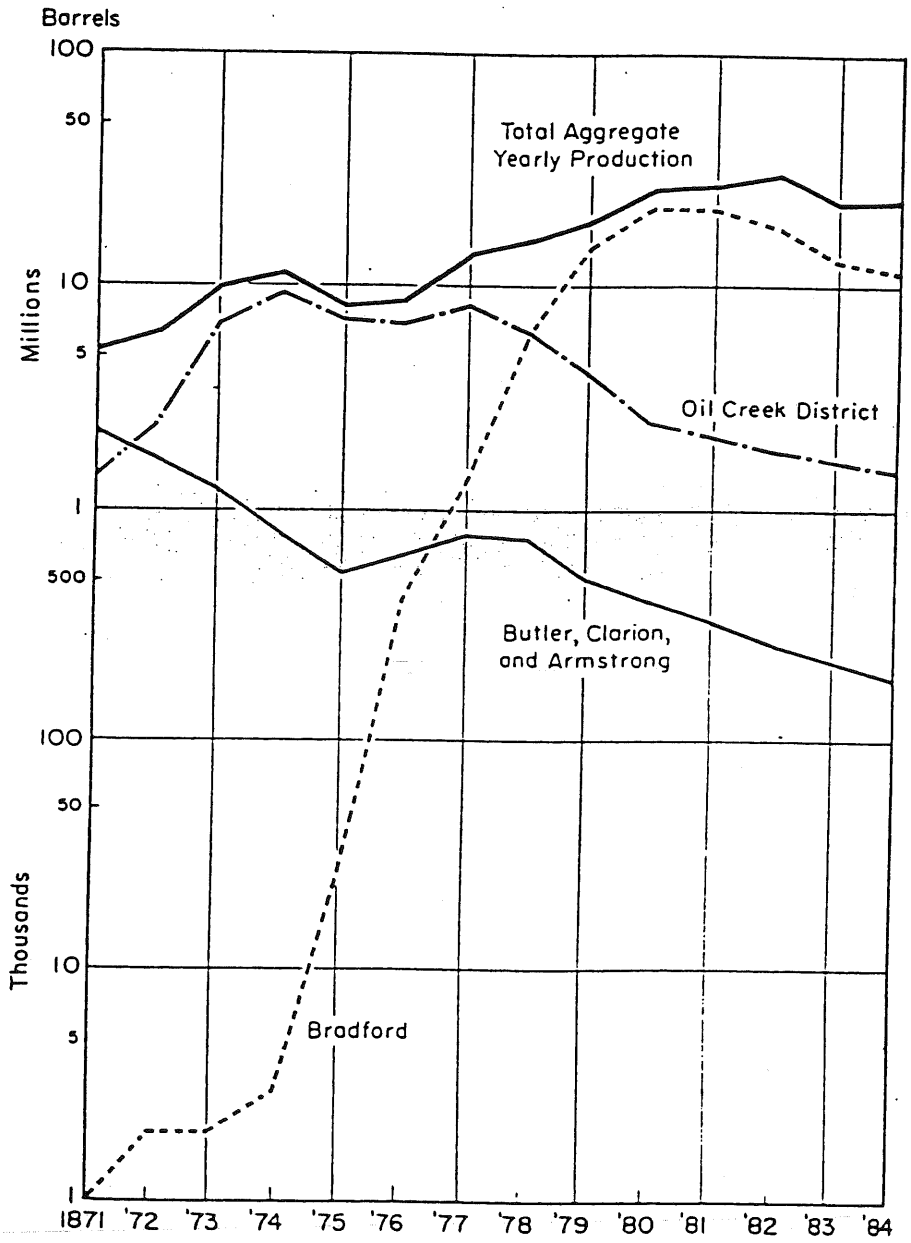
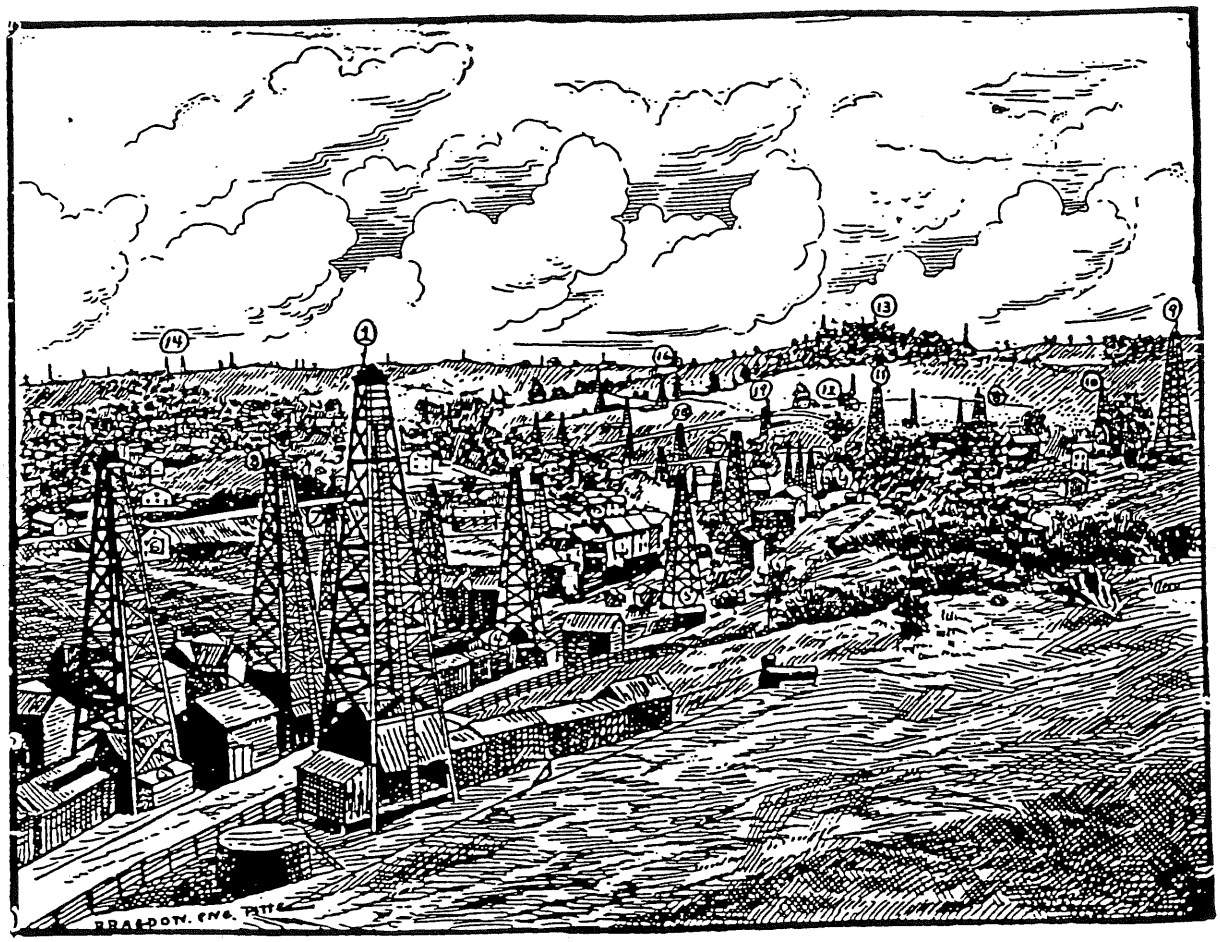
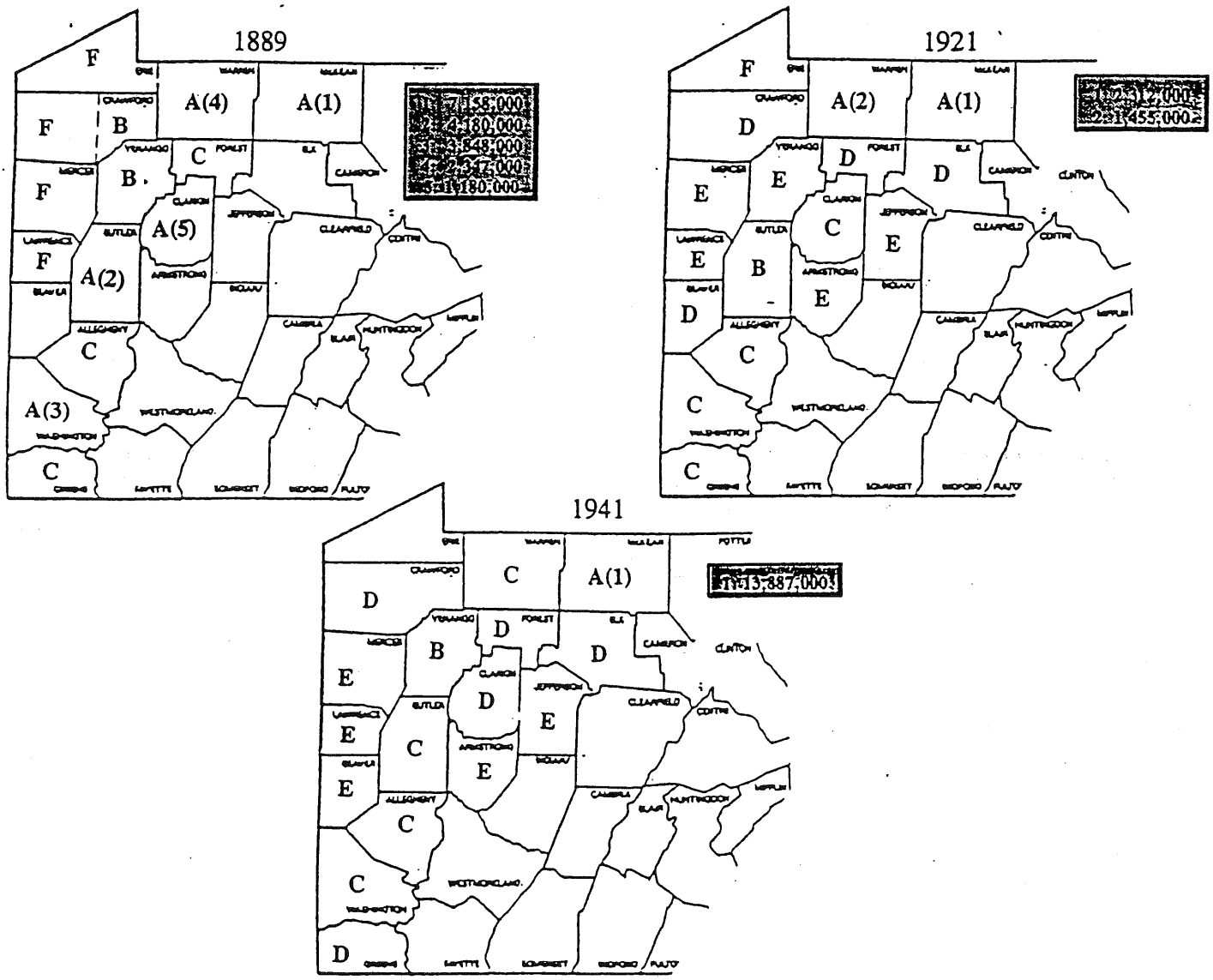


Figure 10: Average annual production of crude oil from major Pennsylvania Fields, 1871-1884 [from Williamson and Dunn, **The American Petroluem Industry 1859-1899**, p. 378].



WASHINGTON OIL SCENE—1899

Figure 11a: Typical oil field, showing density of derricks and associated production buildings. This view illustrates the Washington County fields of the late 1890s. [from Donehoo, George P., ed. **Pennsylvania: A History** p. 1654-1655].



Barrels			
A:	Over 1,125,000	D:	37,500 to 175,000
B:	600,000 to 1,125,000	E:	100 to 37,500
C:	175,000 to 600,000	F:	No Oil

Figure 11: Pennsylvania Oil Production, 1889-1941 [from Muller, A Concise

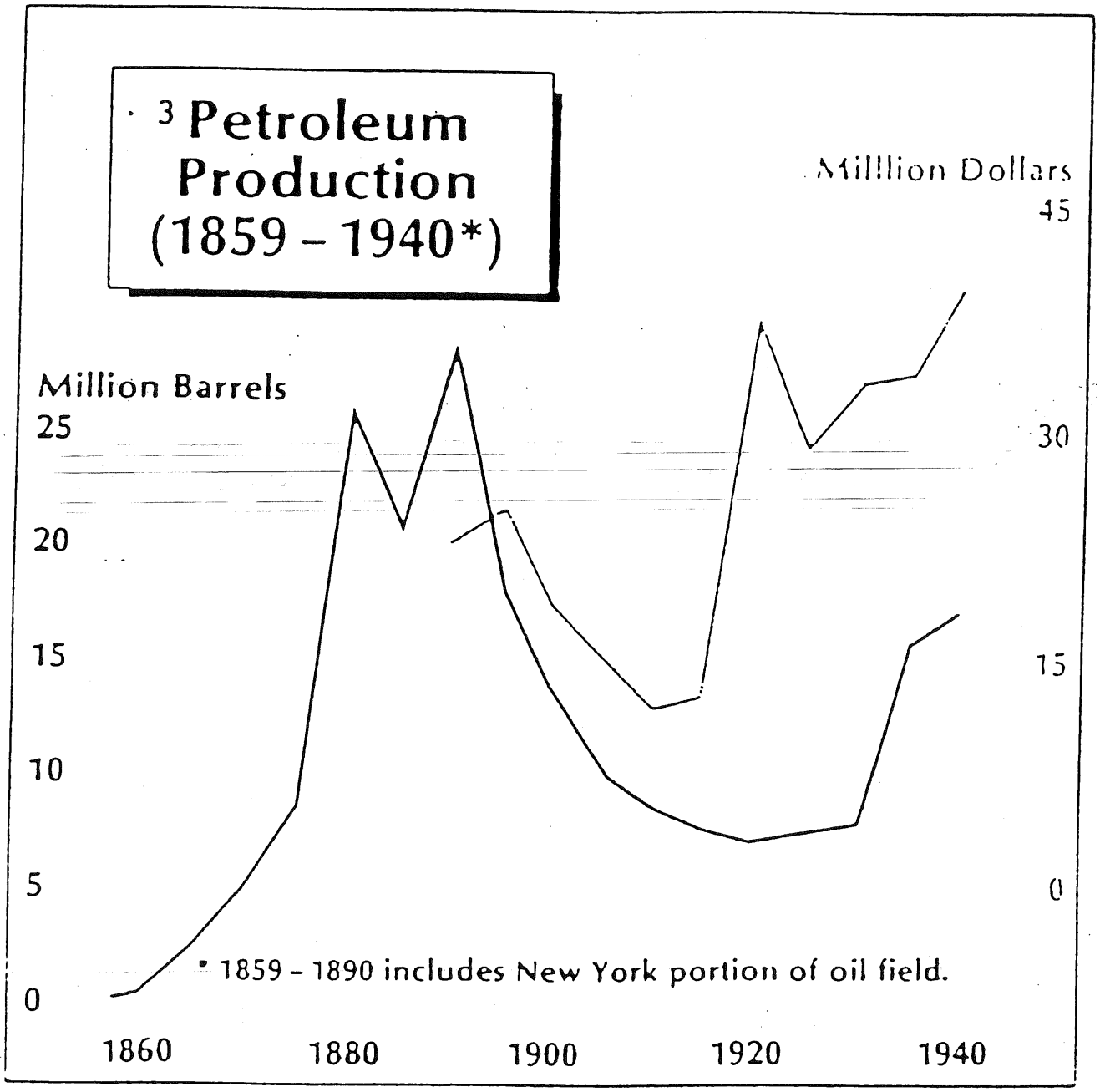


Figure 12: Pennsylvania Petroleum Production, 1859-1940 [from Muller, A Concise Historical Atlas of Pennsylvania, p. 106].

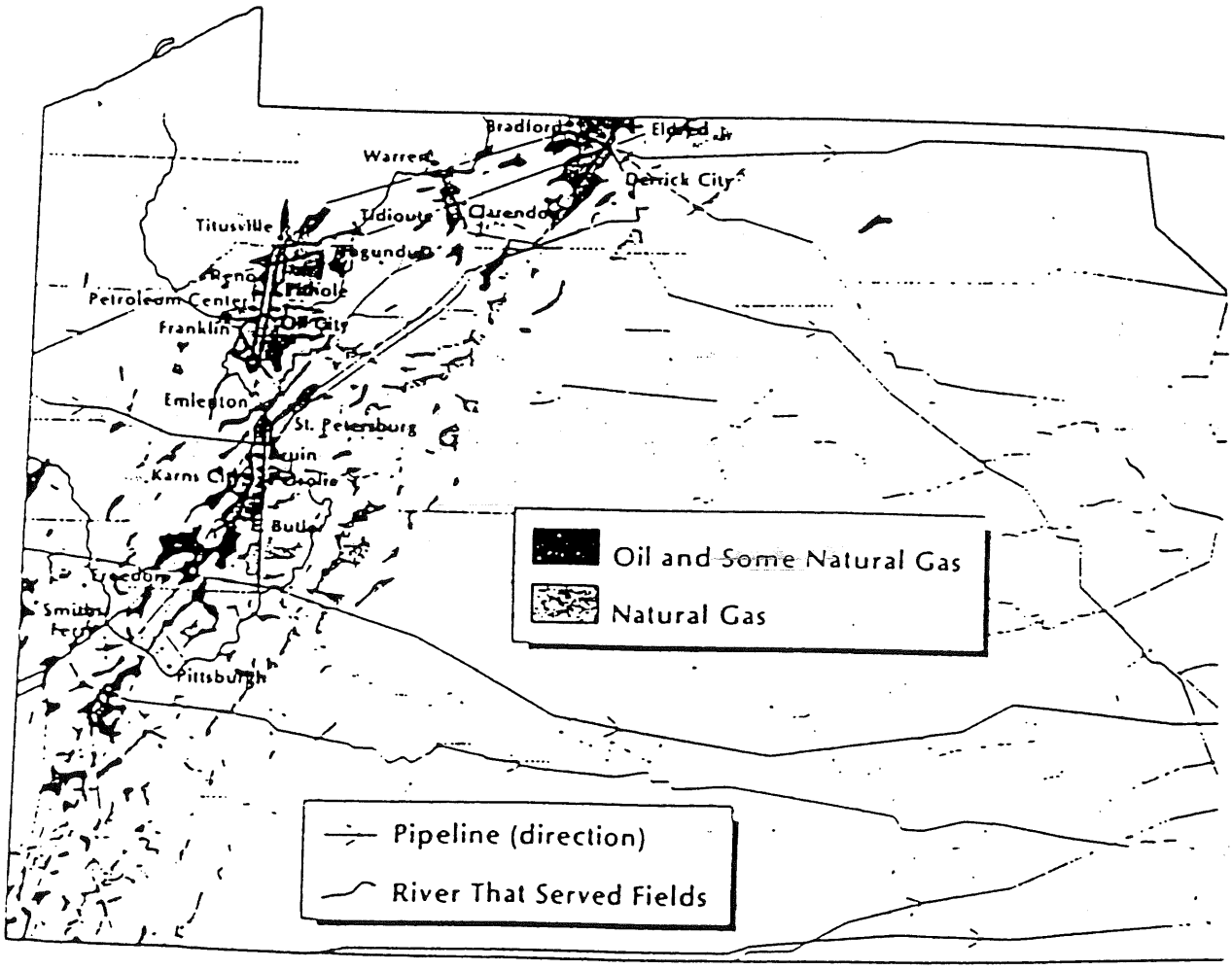


Figure 13: Known Pennsylvania Oil and Gas Fields, 1921 [from Muller, **A Concise Historical Atlas of Pennsylvania**, p. 106].

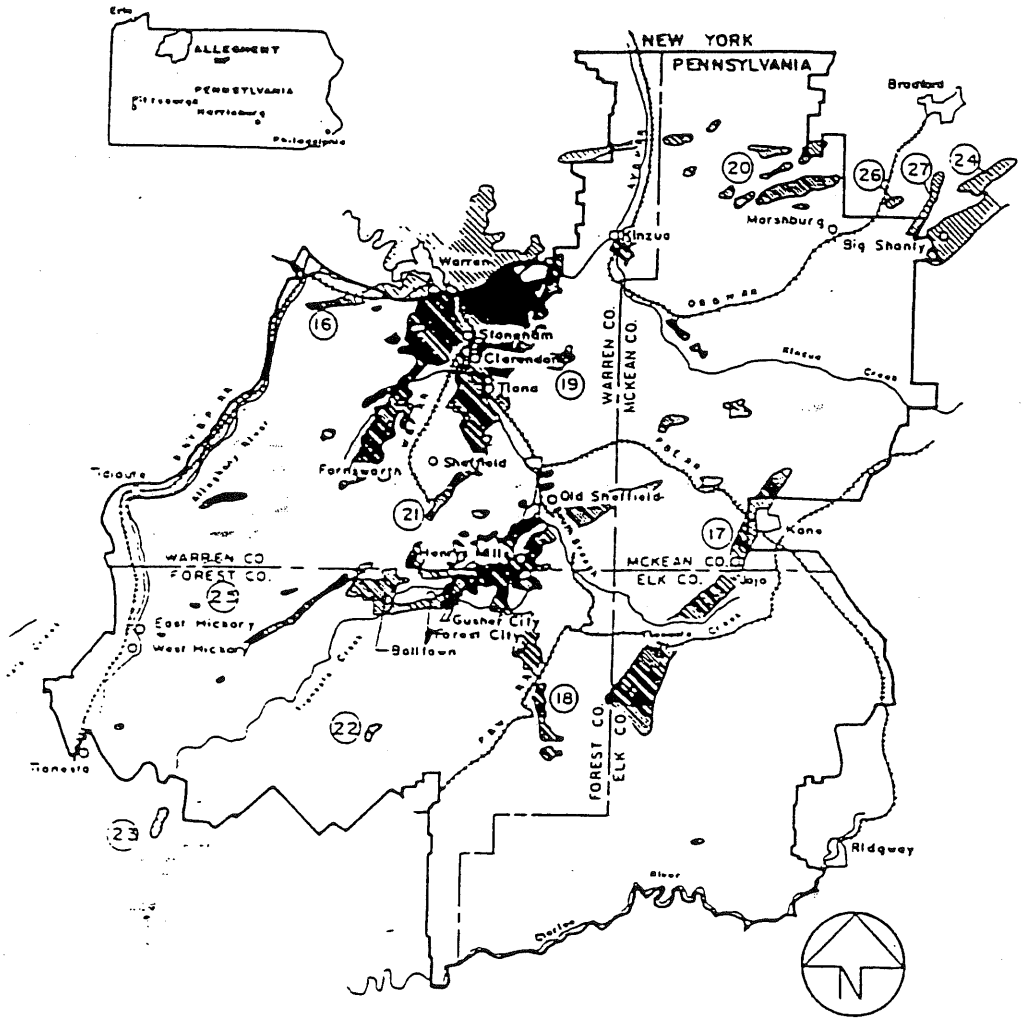


Figure 14: Oil Fields in the Upper Region, c. 1945 [from Ross and Caplinger, p. 111, after Lytle, William S. **Crude Oil Reserves of Pennsylvania**].