THE INDUSTRIAL STRUCTURE OF THE BRADFORD OIL REGION

E. WILLARD MILLER

The exploitation of the petroleum and lumber resources of the Bradford region in northwestern Pennsylvania is the basis for all industrial activity. The development of these resources was long retarded because of the ruggedness and inaccessibility of the area. The westward migration to the farmlands of the Mississippi Valley in the early 1800's passed this region by. It was only when the seaboard forests were showing signs of depletion that the first lumbermen trickled into the area. The exploitation of the white pine forests was the first motivating influence for settlement.

The lumber industry, with its resultant frontier economy, prevailed uninterrupted until the discovery of petroleum in 1875. It was only after this event that large numbers migrated into the Bradford region. The development of the petroleum industry has been the greatest single factor in establishing the economy of the area. After nearly seventy years of continuous production, petroleum still dominates the economic life of the population.

McKean County had attracted few settlers by 1820. The development of the forest areas was still limited to the eastern seaboard. However, shortly after this date a few lumbermen came up the Susquehanna River and the Sinnemahoning Creek to eastern McKean County to begin the development of the lumber industry. The first sawmill is thought to have been built in 1826 in Ceres. In Gordon's Gazetteer of 1833 the following statement regarding McKean County is found: "Lumber seeks the western market at Pittsburgh, and the eastern market by the Sinnemahoning Creek." The only means of getting the lumber to

1 Dr. Miller, an assistant professor in the department of geology at Western Reserve University, wrote his doctor's dissertation on the Bradford Oil Region.—Ed.
2 Raymond E. and Marion Murphy, Pennsylvania: A Regional Geography, 111 (Harrisburg, 1937).
3 [M. A. Leeson], History of the Counties of McKean, Elk, Cameron and Potter, Pennsylvania, 111 (Chicago, 1890).
market was by floating it down the rivers and streams.

Development of the lumber industry proceeded slowly for a number of years. However, by 1840 many of the older regions on the Atlantic seacoast were becoming exhausted. Long years of tree-cutting had reduced the once continuous forests to scattered wood lots. With the demand of the country continually increasing, the exploitation of timber was extended beyond the margin of settlement.

The lumber industry grew rapidly during the 1840’s. In 1849 an estimate of the lumber manufactured in McKean County showed 14,500,000 feet of pine boards; 5,000,000 feet of cherry boards; 2,500,000 feet of square timber; and 5,000,000 shingles. There were fourteen sawmills along Tunungwant Creek. Tarport (East Bradford), with four sawmills and a number of lumber merchants, was the center of the lumber industry of the Tunungwant and its tributaries.5

Lumbering and its related industries was a well established and paying business by 1850. Almost every little stream had its own mill. As the timber was cut farther back from the streams an elaborate system of transportation was developed. The white pine was usually cut in late fall and winter, but was not hauled to the mills on sleds as in New England and Michigan for the ground was too rough and the snow was not sufficiently deep in all places. The logs were skidded to the nearest streams, many of them so small that flood dams had to be constructed which would impound the water until enough logs had accumulated to make it worthwhile to release the water, and start them on the way downstream to the mill. The first sawmills were powered by water from the streams. However, the streams were small and during the dry season lacked sufficient water; so that steam-powered mills began to appear about 1855. In 1860 one of the steam-powered mills could turn out over 2,000,000 feet of lumber annually.6

Because of the frontier economy of McKean County there was a limited market within the region. The manufacture of finished wood products did not develop during this early period. Nevertheless, lumbering had increased so rapidly in importance that by 1876 nearly all of the white pine had disappeared.7 In 1874 one lumberman rafted over 5,-

5 Leeson, 56, 58.
6 Bradford Era, July 28, 1925.
000,000 feet of white pine logs and manufactured 3,000,000 feet of boards. In the same year the lumber industry brought to Bradford Township alone $150,000. In 1876 the sawing capacity of the mills was more than 100,000,000 feet of lumber per year.8

Besides the cutting of white pine, the hemlock began to be utilized in the 1850's for the tanning of hides. The first tannery was built at Port Allegany. The hemlock was cut principally during the summer months when the bark could be peeled easily. Most of the logs were not used and were allowed to lie where they had fallen. There are few examples of greater waste in the history of the lumbering industry. Whole hillsides were left covered by the stripped hemlock logs. By 1875 Port Allegany was one of the leading tannery centers in the United States. However, the tanning industry was restricted in development because of the lack of transportation facilities within the region.

Prior to the discovery of petroleum there was a number of attempts to develop the thin bituminous coal beds of the county. Coal was first discovered by a surveying party near Instanter in 1815 or 1816. In 1845 coal was delivered in Smethport from the Barris beds near Clermont for twelve and one-half cents a bushel, and hauled by team to Cattaraugus County, New York, over the Olean and Smethport road.9

In 1849 more than 1,000 tons were mined for heating purposes. In the 1850's a number of coal companies were organized, and it was through their efforts that the first railroads were constructed in the county. The coal beds were thin and of poor quality so that these undertakings were only partially successful.

THE OIL INDUSTRY

The beginning of the oil industry of McKean County should be dated about 1855 when the Marvin Creek Coal Company was organized to produce coal oil. A refinery was erected near Smethport and the oil made from Clermont coal. This refinery was only one of a large number that were being built in many sections of the country. In March, 1857, a letter which appeared in the Rochester, New York, Democrat illustrates how the coal oil industry was regarded by many persons:

I have just seen specimens of benzeole, camphene oil and tallow from coal up in the vicinity of Smethport, McKean county, superior to anything ever known.

8 Leeson, 58; Egle, 925.

9 Leeson, 57.
One ton of coal makes eighty gallons of benzole, forty gallons of fluid, and twenty gallons of lubricating oil and fifteen pounds of tallow or sperm. The actual cost of the benzole, etc., will not exceed fifteen cents per gallon. . . . There is a machine (for manufacturing coal oils) now on the way to Bradford. Depend upon it, this is no humbug. 10

The figures in this letter were no doubt greatly exaggerated.

Coal oil was first manufactured in Bradford in 1857. 11 In November, 1859, a New York and Boston company erected a coal-oil factory between Marsh's Corners and Kinzua. For a short period it appeared as if this industry would prosper, for the bituminous coal found locally was better suited for the production of coal oil than the good grade bituminous found farther south, but when oil was discovered in 1859 these coal-oil works could not compete with the less expensive and better quality refined petroleum products.

The Bradford oil field was developed during a period when there were no efforts to enforce a controlled drilling campaign. The prevailing policy of the day was for every producer to drill more wells and at a greater rate than his neighbor. Such a program meant that tremendous quantities of oil-field equipment were needed immediately. Although the oil industry was well established at the time of the discovery of the Bradford field in 1875, there were no direct railroad connections with the older producing region. Small producers hauled their equipment from the middle district, but this was costly and slow. Since the time factor was of extreme importance, there was need in the field for both oil-field supply houses and machine shops.

The town of Bradford, grown to be the largest community of Tungwant Valley, was the center of the drilling activity. It, therefore, became the commercial and manufacturing center for the entire field. Before the discovery of petroleum a number of blacksmith shops and small ironworks were located there. These small shops supplied the materials for the initial wells. Bovaird and Seyfang Company, founded in 1872, greatly expanded their plant with the growing market. They manufactured machinery of all kinds. By 1885 they were one of the leading producers of drilling and fishing tools in the oil region. In 1889 their annual output was valued at more than $100,000. 12

10 Leeson, 61.
12 Leeson, 207.
As soon as the Bradford field was proved a number of the regional oil-well supply houses established branch stores in Bradford, or in a number of cases moved their entire plants there. It was common practice for these organizations to follow the oil developments. The Oil Well Supply Company, established in 1861, opened a branch shop in Bradford late in 1874. At that time it was the only firm in the world that could supply everything necessary to drill and equip oil and gas wells. Another company attracted to the new boom region was Bovaird and Company. This firm, manufacturers of pumping powers, engines, pipe, and general oil-field equipment, was founded in 1875 in Shamburg, but followed the oil excitement to Bradford in 1879.

Besides the complete supply houses there were a large number of machine shops employing from two to ten workers. The machine shops were an essential part of the picture for they repaired broken equipment, and in some instances constructed new parts. The equipment of the small independent producer was often old and of inferior quality so that it was constantly breaking. Without these machine shops much of the frantic drilling could never have occurred. A number of the larger shops in Bradford did a $50,000 a year business. The machine shops were not localized in Bradford, but followed each center of development. By 1880 they were found in every part of the field.

Another important industry associated with the exploitation of petroleum is the manufacture of explosives. A charge of nitroglycerin is used to produce a pocket within or below the producing horizon so that oil can accumulate and later be pumped to the surface. The Bradford Third Sand, the principal productive horizon, is very compact so that it had to be shattered every few weeks to reestablish lines of flow. A number of these explosives plants were located in the outlying districts.

The Bradford field has contributed a large number of technological improvements to the oil industry. During the early days a number of general improvements appeared. The McKee Bull and Sand Wheel Company manufactured a bull wheel, known as the "patent sectional," that could be taken apart. The old type bull wheel which was constructed in one piece was exceedingly difficult to move from one well location to another in the heavily forested and deeply dissected region. By 1889 this company was supplying bull wheels for the entire oil region.

13 Bradford Souvenir Program.
The Dresser Manufacturing Company was founded in 1880 to produce specialties invented by S. R. Dresser. One of his earliest contributions was the construction of the modern oil and gas well packer. One of the greatest achievements of the company came in 1906 when a new type coupling was developed. Previous to this time all couplings had been made of cast iron. Dresser now used steel which made it possible to secure extremely high pressures, and was more easily handled in the construction of pipe lines.

Although production declined rapidly during the 1880's there was no sudden collapse of the manufacturing of oil-field equipment. Many of the smaller machine shops disappeared, but sufficient production was maintained for the larger firms to be able to survive. Besides the moderate business of supplying the Bradford field, the establishments of this district supplied much of the material for new discoveries in Pennsylvania and Ohio.

With the introduction of secondary recovery methods in the early 1900's in the Bradford district, interest was once again aroused in the oil industry. The first concrete evidence of this appeared in 1906 when the production curve began its rise. At this time so many of the small plants had disappeared or had become obsolete that there was an actual need for new establishments. The introduction of a new method of production necessitated the development of certain changes in pumping equipment. Besides the increased activity in the home field, the development of the mid-continent fields added to the market. In 1907 the Bradford Supply Company was founded, and in 1911 the Bradford Motor Works. The eastern oil region supplied much of the machinery during the early period of the Mid-Continent field development because of the availability of skilled labor, and the inertia of established plants to move from their original location. With the stabilization of the oil industry in the Mid-Continent and other western fields many of the eastern firms transferred their plants to the newer areas. This trend did not affect the Bradford region for by this time it was experiencing a remarkable recovery, and the Bradford firms were expanding to meet the local demands. The increasing activity, however, developed so gradually that there was no sudden demand for supplies. Also by this time the drilling program was controlled by a number of larger corporations and companies. Therefore, there have been no new plants established in the past thirty years.
specifically for the manufacture of oil-field supplies.

At the time of discovery of oil in the Bradford field, there was only a limited local market for refined oils. The large refineries were located on the eastern seaboard, so that the oil was refined largely outside of the producing region. The refineries of the oil region were small, having a capacity of only a few hundred barrels per month. In 1881 the Kendall Refining Company was organized in Bradford with a capacity of 300 barrels per month. This is the oldest refinery of the field, and today maintains an important position in the refining of Bradford oil. In 1888 the Emery Manufacturing Company was established. This plant had an initial capacity of 200 barrels per month.

The greatest incentive for the expansion of refineries of the entire oil region of Pennsylvania came in 1893 when the United States Refined Oil Pipe Line was completed to the eastern coast. It was now possible for the independent refiners of the oil region to compete with those controlled by the Standard Trust. By 1901 the Emery Refinery had a capacity of 50,000 barrels per month. Although the refineries in the Bradford district expanded enormously, no new plants were constructed. A number of factors were responsible: first, the supply of oil was limited, and secondly, any new company had to battle the policies of the Standard Oil Company.

At the close of the first World War there was an increasing demand for gasoline and lubricating oils because of the expanding automobile industry. As a result two new refineries were organized in the Bradford field. The Bradford Oil Refining Company, organized in 1922, built its plant in Bradford. It was a coöperative effort of the leading producers of the field, who banded together, pledging an adequate supply of crude, as well as storage facilities, pipe lines, and a marketing system. The organization was unique in that it had neither service nor bulk distribution stations, but depended entirely on buyers who knew the company and the quality of the product. The firm manufactured principally lubricating oils and greases.

The McKean County Refining Company was organized in 1923. This plant was located at Farmers Valley on the eastern edge of the field. Its location here was the result of a number of factors. The crude came from the Rue, Coleville, and Bordell sections and could be moved by gravity to the refinery. Also, the value of land for plant space was con-
siderably less than in the city of Bradford. The transportation facilities here were also as good as any place in the field.

OTHER INDUSTRIES AND THE REVIVAL OF LUMBERING

The boom period of the Bradford field acted as a magnet to attract people to the region. For the first few years the oil industry was able to absorb all newcomers. With the decline of production in the 1880's large numbers had the choice of two alternatives, either to leave the region or to turn to other activities. Many of the drillers, field hands, speculators, and those who continually followed the oil excitement did migrate to the new centers of interest. However, a majority had settled permanently and had no desire to leave. This created an excess labor body. Another important effect of the oil boom was to increase the wealth of the region. When the opportunities for investment in the oil industry lessened, this capital was available for the development of new industries.

Throughout the nineteenth century the principles of conservation were not developed sufficiently to avert the boom period following the discovery of oil. However, the Bradford community leaders had seen the gutted environment of earlier developments, and as soon as the decline started they instituted plans to prevent the Bradford region from becoming a ghost district. With the available labor supply and financial backing it was hoped that new industries would gradually replace the declining oil industry. Thus when the oil supply became depleted the economy of the region would be permanently stabilized.

In 1882 the first Bradford Board of Trade was formed for the purpose of “protecting, encouraging, and developing the commercial, manufacturing and business interests” of Bradford and the surrounding districts. A campaign was started which advertised the advantages of raw materials (lumber, chemical wood, clay, sandstone, natural gas, and petroleum), cheap fuel, transportation facilities, and a large labor supply. The work of the initial board of trade was hardly begun when one of the greatest speculative eras in the history of petroleum began with the buying and selling of pipe-line certificates. This period, lasting from 1882 to 1885, so affected the economy of the region that the activities of the board were temporarily abandoned. In 1887 the second board of trade

14 Vernelle A. Hatch, ed., Illustrated History of Bradford, McKean County, Pa., 65 (Bradford, 1901).
was formed. The purpose of this board was the same as the first. However, by this time there was a greater need for new industries, and so the board was given more power to act. By 1900 it was estimated the board had been instrumental in establishing industries which had invested over a million dollars, and were employing more than a thousand workers.

The discovery and exploitation of petroleum did not displace the lumber industry. For the first time in the history of the region an immense local market was created. The building of derricks, which required approximately 10,000 feet of lumber, powerhouses, sheds, fuel, and the construction of homes for the newcomers, used tens of thousands of feet of timber each month. Consequently, the lumber industry expanded enormously with the development of the field. With the decline of oil an even greater emphasis was placed on the exploitation of the remaining timber resources. There still remained vast tracts of hemlock and second-growth hardwoods to be cut. From about 1885 to 1910 the lumber industry again became the most important industry of the region.

In 1891 a brief survey of the Bradford region was prepared for the United States Senate. This study adequately presented the importance of the lumber industry:

Authoritative estimates from the different districts tributary to the city [Bradford], have been carefully compiled, covering an area of hardwood comprising 600,000 acres, and of hemlock comprising 130,000 acres, showing that there remains 3,000,000,000 feet of hardwood timber, 1,300,000,000 feet of hemlock timber, and 870,000 cords of bark, of which the manufactured products, free on board, would be worth today [1891] $46,002,000 and requiring an expenditure for cutting and manufacturing the timber alone, of $20,135,000. Forty-one saw-mills have already been established in the vicinity of Bradford at an aggregate investment of $410,000, planing mills, $50,000, logging railways, 120 miles, $720,000, or a total investment of $1,180,000.

Half a million dollars is invested in the five wood-acid factories near Bradford, of which the monthly out-put is valued at $32,000, involving a monthly expenditure of $8,400 for labor and $14,700 for beech and maple wood.

Manufactured wood products were produced for the first time within the district. The Tuna Manufacturing Company of Bradford produced

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15 Petroleum Age, 1595, 1727 (April, September, 1887). This magazine was published in Bradford during the 1880's. Fairly complete volumes are found in the Bradford Public Library.

16 Hatch, 65.

17 Rufus B. Stone, McKean: The Governor's County, 121-123 (New York, 1926).
all types of interior wood finishings along with general building equipment. In 1890 the Union Dish Company produced one half of all the toothpicks used in the United States. As a specialty they carved butter dishes and butcher's wooden skewers from sugar maple logs. This company used 1,000 cords of wood annually and had a $100,000 business. In 1891 the Standard Wood Company was organized. For twenty years this firm controlled the kindling wood business of the United States. There were ten plants in the county employing 200 workers and producing 100,000 bundles of kindling wood per day. Because of the large amount of rock maple the American Wood Rim Company was organized in 1896. This company originated one of the first entirely wood rim, known as the "Fairbanks Rim." For a considerable period it was the largest producer in the world, making rims for carriages, automobiles, motorcycles, and for other pneumatic wheels. During the 1890's there were also established a number of small furniture factories.

The clay deposits of the Bradford district were first developed in the 1890's. In 1901 Hatch gave the following reasons for the appearance of the brick industry: first, material, pure clay without coloring matter and free from lime, magnesia, and saltpeter; second, the use of natural gas found near by in the Kane and other fields; and third, the development of a kiln which used gas so that all parts of the brick were baked uniformly insuring ends and faces equally well done.¹⁸

The Pressed Brick and Tile Company was organized in 1893. The original plant consisted simply of one press and two kilns for making dry pressed bricks. The capacity of the plant was 15,000 bricks per day. In 1922 the company's shale deposits in Bradford were exhausted; so a new plant was constructed at Lewis Run, four miles south of Bradford. In 1925 the company was reorganized and is now known as the Handley Brick Company. The most important improvement contributed by this firm is the use of the tunnel kiln system for burning face bricks.

The Penn Brick Company was established in 1903 in Bradford. In 1926 the average capacity of the plant was 60,000 bricks a day. By 1929, however, the shale resources were exhausted and the plant has been inactive since then.

The availability of skilled labor has also attracted a number of manufacturing concerns to the Bradford region. This was particularly the case

¹⁸ Hatch, 125, 141, 177.
after the renewed activity in the recovery of petroleum. In 1889 the Holly Motor Company started to manufacture a motor for bicycles and motor bikes. Case and Sons Cutlery Company built their plant in 1908, and began the manufacture of all types of knives. The Corliss Carbon Company was organized in 1910 to utilize petroleum coke, a by-product of oil refining, for the manufacture of carbon brushes for electrical machinery. The Midwest Steel and Supply Company, organized during the first World War, produced an air filter designed and used for the ventilation of public buildings. This company also produced the Ventex safety device designed to prevent explosions in cars, tanks or containers filled with inflammable and explosive fluids. The plant stopped operations during the early part of the thirties and has never reopened. In the late twenties a low cost airplane plant was created, and did a flourishing business until 1937, when the plant was destroyed by fire, and because of depressed economic conditions was not rebuilt.

THE ROLE OF TRANSPORTATION

The streams as navigable highways were most important during the first seventy-five years of the region’s history when rafts and logs were sent downstream. In 1828 Tunungwant Creek was declared a public highway by the Pennsylvania legislature. In the act it was stated that the stream was for “the passing of rafts, boats or other crafts, and it shall and may be lawful for the inhabitants desiring of using the navigation of said creek, to remove all natural and artificial obstructions from the bed or channel of the said creek . . . as may be necessary for the passage of rafts, boats or other vessels.”

The rafting of logs declined in the seventies and the streams were no longer used.

The streams also served another purpose during the pioneer era. The Allegheny plateau in McKean County is deeply dissected and the easiest route for the early settlers to enter the area was by following the water courses to their headwaters, and then crossing the narrow divides to the next valley.

The building of highways in the Bradford region has always been difficult because of the terrain. The physiography has also had a marked effect upon the highway pattern. The main roads are in the valleys and

19 Stone, 169.
branch roads extend up the minor tributaries. There are also one or two roads winding along the crests of the ridges, as from Rew to Smethport.

During the pioneer period a number of important roads were cut through the forests. One of the earliest, known as the East and West road, was started in 1808. Smethport, the county seat, was the hub for these roads. Owing to the density of the forest and impracticability of grading to shed water through standing stumps, it was hardly possible to keep the roads sufficiently dry to be of use. In the 1850's plank or corduroy roads were first constructed. These were a great improvement over the "dust or mud" roads.

The discovery of oil led to a new interest in constructing roads. The old roads were used, but hundreds of "lease" roads were hurriedly cut through the forests so that the oil men could reach their productive tracts. These roads were exceedingly poor. The best of them were narrow, rough, unmade highways, merely paths to the outside. They became deserts of dust in the summer, turned into seas of mud in the spring, and in the winter were rough, frozen danger spots for both horse and wagon. The story is told that in the spring of 1879 the streets of Bradford were in such a state that horses drowned when they slipped or fell into the deep mud holes. The poor condition of the roads was the greatest impetus to the construction of the many narrow gauge railroads.

McKean County was one of the first counties to undertake a systematic plan for permanent highway improvement. Beginning in 1916 steady progress has been made toward completion of hard surfaced roads. The McKean County Good Roads Association, acting with other civic bodies, secured the bonding of the county for $750,000—an action approved by a vote of four to one. This amount was increased by a like figure by the state. A highway system of approximately 100 miles was laid out, and construction of the present type of concrete roads was started. By 1926 more than 110 miles had been constructed at a cost of $5,500,000. At that time all primary roads were paved. At the present time the Roosevelt and the Buffalo-Pittsburgh highways traverse the county, which has increased its improved highways to 354 miles.

Evidences of the benefits of good roads are readily seen. Supplies and repair parts are hauled quickly and economically to the oil leases. Oil refineries located close to the paved roads distribute most of their products by motor truck. A public market operated in Bradford is one of the direct
results of the concrete road system. Motor bus line connections are now available to all points.

The railroads of the Bradford region, like most other industrial developments, are a response to the economic development of the natural resources. The exploitation of the coal beds lent the first impetus for the construction of a railroad into McKean County. In 1859 a branch of the Erie Railroad was projected from Carrollton, New York, up the Tunungwant Creek to Gilesville to develop the Lafayette coal beds. In 1874 the McKean and Buffalo Railroad was constructed, as a branch of the Buffalo, New York and Philadelphia Railroad, which traversed the eastern portion of the county, from Larrabee to Clermont, to work the coal mines found there.

The discovery of oil created a great demand for transportation facilities for both men and materials within the region. Many of the oil men lived in Bradford, commuting daily to their leases, and also, Bradford, being the supply center of the field, needed transportation facilities to distribute the necessary equipment. A number of narrow gauge railroads were soon organized as local enterprises. The first, the Olean, Bradford and Warren Railroad, organized in 1877, ran from Olean to Bradford. The Kendall and Eldred Railroad, organized a year later, extended from East Bradford to Eldred. In March, 1880, the Bradford, Bordell and Kinzua Company was organized with the consolidation of a number of short lines: the Bradford, Bordell and Kinzua with tracks between Bradford and Simpson; the Bradford, Bordell and Smethport with a track from Simpson to Smethport; and the Rew City and Eldred Railroad from Rew City to Eldred. The Bradford Railway Company, organized in 1881, had its tracks from Bradford to Kinzua Junction. These railroads extended up the valleys and wound around the hills, servicing the oil leases. As the oil boom subsided all of these narrow gauge railroads were leased by the Buffalo, New York and Philadelphia Railroad (now the Pennsylvania Railroad).

The problem of transportation was frequently acute so that a number of experiments were tried. No discussion would be complete without mention of the Bradford and Foster Brook Railroad, known locally as

20 Most of the data for the following discussion of railroads was obtained from the State Engineers Report on Railroads, New York, 1871-1882; New York Railroad Commission, 1883-1906; Public Service Commission, New York, 1907-1920; Pennsylvania Reports of the Bureau of Railroads, 1890-1917; Moody's Railroad Guides, 1930-1942.
the "Peg Leg" railroad. It was organized in October, 1877, to run from Bradford to Gilmore City. The "Peg Leg" was described as follows:

The cars run astride an elevated track on a single rail. This rail is nailed to a single wooden stringer which rests on the top of piles. So evenly balanced is the train, that passing over a pond or creek at the rate of twenty miles an hour the water is hardly disturbed... The locomotive is a queer looking thing. An Irishman here compared it to a gigantic pair of boots swung over a clothes line. The boiler is without a flue, the engine without a piston, and the driver without a crank.\(^{21}\)

In 1879 the boiler exploded killing a number of people and the road was abandoned.

During the era of decline of production no railroads were constructed in the field proper, but one major system entered the region and a number of lumber railroads were constructed in outlying districts. In 1883 the Buffalo, Rochester and Pittsburgh Railroad extended its tracks as far as Bradford, and continued on to Pittsburgh. Since Bradford was midway between the two termini, the city became the headquarters for the running of trains, and most of the large shops were located here. In 1916 about 200 men were employed in the railroad shops of Bradford.\(^{22}\)

Of the logging railroads one of the most important was the Mt. Jewett, Kinzua and Riterville Railway Company, organized in 1889, which controlled the Kinzua, Hemlock Railway Company, the Mt. Jewett, the Kusheque Railroad, the Mead Run Railroad, the Smethport Railroad, and several other short lines. Other narrow gauge lines were the Kinzua Creek and Kane Railroad Company, the Kinzua Railway Company, the Big Level and Kinzua Railway Company, the Kinzua Valley Railroad, the Mt. Jewett, Clermant and Northern Railroad, and the Smethport and Olean Railroad.

At the turn of the century a period of abandoning and consolidation began. The narrow gauge lines within the Bradford field and many of the logging railroads were abandoned. The railroads that were maintained were widened to standard gauge. The last consolidation took place in 1931, when the Baltimore and Ohio acquired the Buffalo, Rochester and Pittsburgh, the Mt. Jewett, Kane and Riterville Railroad, and the Big Level and Kinzua Railroad.

The Bradford district is now served by the Baltimore and Ohio, the

\(^{21}\) Leeson, 156.

\(^{22}\) Pennsylvania Industrial Directory, 1916.
Erie, the Pennsylvania, and the Pittsburgh Shawmut and Northern railroads. Of all the counties of north central Pennsylvania McKean has had the most complicated and diverse railroad history. Each economy developed has demanded different and better transportation facilities. Today railroads are no longer as important as formerly, for automobiles and trucks have displaced them for local hauling.

PRESENT INDUSTRIAL AND ECONOMIC CHARACTERISTICS

Thirty years ago it was thought that the oil industry was nearly finished, and the region was gradually turning to other economic activities. With the introduction of pressure-flooding this trend has been entirely reversed. Today McKean County as a whole is predominantly engaged in the production of natural gas and crude oil, and the many allied businesses supported thereby. During this period a change from close owner-worker relations to centralization of leases into a few large companies has come about. Actual lease operations provide steady employment. Drilling and lease improvements, such as laying pipe lines, new power houses, and general improvements are not only highly seasonal but also are affected by the fluctuations in the price of crude oil. Trucking, tractor operations and repair, rig and engine house construction, the manufacture and sale of oil-field equipment and machinery, the manufacture and the discharge in new wells of nitroglycerin, the refining of oil, and a thriving trade in junk are the major activities supported by the oil and gas industry.23

In 1941 the ten leading producing companies, including those working in refineries, employed 4,000 men. In addition to these major companies there are many small producers employing from one to fifty workers. It must be remembered that the entire oil output is purchased by a few large refineries or pipe-line companies at set rates, and that no merchandising problem exists. Hiring practices are somewhat loose with the smaller employers, but the large companies have instituted age limits and physical examinations mainly to detect hernia, which is an occupational hazard of oil-field work. Besides those employed in the field in 1941 there were 575 workers employed in oil-well supply houses and machine shops. In 1938, the last year of available statistics, the value of

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the chemical and allied products was $14,922,200, of which seventy per cent was from petroleum products; $3,441,500 from metals and metal products, and $2,608,200 from leather goods.²⁴

Since the rejuvenation of the oil industry there has developed a striking contrast between the economic activities in the field and those in the surrounding districts. The Pennsylvania State Planning Board designates the areas surrounding the oil territory as part of the "problem area" of

²⁴ Pennsylvania Industrial Directory, 1938, 1941.
northern Pennsylvania. Within the Bradford field the predominance of the oil industry is striking. Bradford, known for years as the "High Grade Oil Metropolis of the world," is still the center for the commercial and manufacturing activities. In the city are found twelve oil-well supply companies and machine shops. The small towns in the field, such as Duke Center, Rew, Rixford, Derrick City, Red Rock, and Alton, have no manufacturing. These small communities are composed entirely of producers and oil-field workers. Small manufacturing establishments have not developed because they could not compete with the high wage scale paid by the oil industry, and because of poor transportation facilities.

The forests of McKean County are still an important resource of the region. A number of diverse products come from the continued exploitation of these tracts. To the southwest of Bradford in the Kane district there is a considerable area of hardwoods. Such products as wooden toys, venetian blinds, window screens, weather stripping, and wood specialties are manufactured.

In the past twenty-five years the number of sawmills has decreased, and the sawing of timber is now relatively unimportant. The forest is largely second growth, and the quality is poor. Much of the best timber has been bought by the federal government and the principles of conservation are applied.

The second or third growth hardwood tracts are used as chemical wood. Throughout the county there are nine chemical plants producing acetic and crude methylene, acetate, wood alcohol, and charcoal. Until 1940 their importance was decreasing because of the declining market, but this trend has been reversed because of the war demands. Chemical wood in most cases is supplied by woodjobbers and woodcutters, the majority of whom are foreign-born. They "shanty" in remote sections of the woods from one year to another. No figures are available as to the number of woodcutters employed and those engaged in hauling wood, but a fair estimate would be between 400 and 450. There exists a shortage of woodcutters at present mainly because of low wages and working conditions.

Because of the wood chemical products the tanning industry has long been present. The larger firms are located at Port Allegany, Ludlow,
and Mt. Jewett. Within recent years the making of leather goods has also decreased in importance.

The manufacture of glass products was never important in the Bradford field. However, in both Kane and Port Allegany it became an important industry. This industry developed because of the availability of gas found in fields close to these two towns. The Bradford field produced only small quantities of natural gas. Port Allegany secures its fuel from the Tioga gas fields. Glass bricks, cellular glass, and glass containers are made. Two plants employ 350 workers.

Several employment trends have been noticed in recent years. The oil industry has drawn many workers, such as drillers, tool dressers, roustabouts, pumpers, rig and power builders, tractor operators, truck drivers, gaugers, and unskilled laborers, from the middle oil district of Pennsylvania where employment was not available. These workers, who are termed "down homers" by the native population, generally settle in McKean County and soon form part of the community. This migration has been in progress for the past thirteen years, and it is estimated at least five or six hundred families have come to McKean County. Oil companies have sometimes been charged with encouraging the hiring of new arrivals in order to maintain a labor surplus, but it is doubtful if any such intention exists. 25

Years ago McKean County was one of the leaders in glass production, especially Kane, which at one time boasted of three window glass plants and one plate glass plant. These have all been abandoned during the past ten or twelve years, mainly because of the depletion of natural gas and of the high cost of transportation. Seven plants in all have stopped producing. Many glass workers have migrated from the county or changed occupations.

During the past fifteen years there has been a consolidation of refineries, so that two large companies now control the refining within the field. The Kendall Refining Company is the largest firm, and is now the only refinery in the city of Bradford. Both the Emery Manufacturing Company and the Bradford Oil Refinery Company have become part of the Kendall Refinery. The McKean County Refining Company was

purchased by the Quaker State Oil Company in 1929. This company’s plant is located at Farmers Valley. These two concerns employ 900 men and are now operating at full capacity.

Within the Bradford field women workers are utilized in only one or two plants. This is a recent trend. The wages of the oil-field worker are sufficiently high to support his home without the aid of his wife or daughters. In the district surrounding the field women workers have become increasingly important. This is particularly the case in Kane because of the highly seasonal character of the lumbering done by men. A clothing industry, similar to that found in the Pennsylvania anthracite area, has developed. These plants employ as high as eighty-five per cent female workers. Many of the women commute fifteen miles to work. Because of the competitive nature of the product low wages are the rule, and many married women enter and leave the labor market with the seasonal activity of the plants. The number of labor disputes and strikes has increased in the past few years.

The defense program has to some extent stimulated employment because of increased activities in the oil field and of new war contracts received. There are few large plants in the county equipped for defense work, and the region has not been affected by the “boom” to any marked degree. However, there is available a group of skilled workers and small plants that could be utilized to better advantage. The Dresser Manufacturing Company (January, 1942) had the largest contract, $962,500, for the production of shell forgings. The Kendall Refining Company has various contracts for lubricating oil totaling more than $100,000. Small contracts have been given to a number of companies which produce clothing, wood products, leather, and cutlery.

The only new plant erected specifically for the defense industry is at Eldred for the purpose of loading shells and bombs. The plant is under British supervision, but only American labor is used. About 700 workers are employed in the plant, of which approximately sixty-five per cent are women.

In September, 1942, the invested capital of the Bradford oil field was $150,000,000. At that time there were 12,000 persons, with a monthly payroll of $1,800,000, employed in all phases of work in the oil industry.
In 1937 the recent peak in production was reached. Since that year a gradual decline has set in. The war demands, however, have temporarily reversed the present trend, but unless an improved method of secondary recovery is discovered the field will gradually decline. It is now estimated by the Bradford District Pennsylvania Oil Producers Association that the life of the field will be an additional ten years. With the decline of petroleum production a change again will occur in the industrial structure of the Bradford region, turning to other economic activities possibly such as occurred when the petroleum industry declined in importance in the latter part of the last century.