historic resource study

STEAMTOWN

NATIONAL HISTORIC SITE / PENNSYLVANIA

HISTORIC RESOURCE STUDY

STEAMTOWN NATIONAL HISTORIC SITE
Pennsylvania

by
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National Park Service
Denver Service Center

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INTRODUCTION

Although the physical setting of Steamtown National Historic Site is a part of the the Delaware, Lackawanna and Western Railroad yard in Scranton, Pennsylvania, the legislation, which established that site in October 1986, made no mention of that railroad. It called for the interpretation of steam-era railroading in the region and permitted the donation of the Steamtown Foundation locomotives and rolling stock. As a result, it is the intent of this historic resource study to focus on steam-era railroading in the Northeastern United States while presenting only a brief history of the less-than-nationally significant DL&W and its Scranton yard. An evaluation of the yard and its structures is presented in the final chapter.

Transportation has always played an important role in American History. Seacoast cities of the Northeast developed as entrepots for the colonies and expanded after independence. A great commercial rivalry among these cities, which began in the first decades of the nineteenth century, led to transportation improvements such as turnpikes and canals. Then came the railroads in the third decade of that era. Merchants in these coastal cities planned numerous lines for they saw railroads as the means to greater prosperity. To expand trade areas and to prevent competition from capturing once established internal commerce, merchants in the various coastal ports worked to establish their own independent railroad networks with different track gauges.

Small at first, railroads grew through consolidation and lengthened lines. Several railroads, such as the New York Central and Pennsylvania, increased to become major trunk routes connecting eastern cities to such developing centers as Chicago and St. Louis. Three smaller, but important railroads, the Erie, Baltimore and Ohio, and Chesapeake and Ohio also functioned as trunk lines in those same areas.

Following the Civil War, railroads played a major role in America's industrial growth as well as furthered an increased urbanization, and promoted the extension of regional markets into national ones. This development occurred as merchants lost control of their rail systems to other financial interests. Track breaks and gauge differences at first inhibited the development of an integrated, national rail system, but by the 1880s this problem had been largely overcome.

As the nineteenth century progressed, railroads developed into big business. By 1890 the Pennsylvania Railroad had become the country's largest employer. Along with bigness came extreme competition which, in turn, promoted abuses as railroads vied for trade. Rate wars and rebates prevented railroads from attaining a reasonable profit. Unable to achieve stable, well-ordered economic arrangements through pools, railroad managers turned to the federal government for protection and regulation on their own terms. Their success in the establishment of the Interstate Commerce Commission (ICC) in 1887 brought the federal government, for the first time, into national economic and social regulation. Imperfect at first, the ICC could not set rates or end rebates. Thus, railroad leaders continued their quest to have greater federal protection from the risks and calamity of laissez faire.

The twentieth century produced further changes in railroading. Weak regulatory legislation, which permitted continued abuse, was slowly modified by further government enactments until the Transportation Act of 1920 provided railroad men with the regulation they had desired for years. This act came almost too late, for the year 1916 marked the end of the golden age of railroads. After that date track mileage began to shrink. Soon, competition from automobiles, trucks, buses, airlines, pipelines, and renewed water transportation began to capture more and more railroad business. This declining economic position continued until, in the 1970s, Northeastern railroading collapsed and for the most part was consolidated into the semipublic National Railroad Passenger Corporation (Amtrak) and Consolidated Railroad Corporation (Conrail).

As an interpretive setting, the Delaware, Lackawanna and Western Railroad yard contained all the typical facilities necessary to further the public understanding of a steam railroad operation. The most important of these facilities included the roundhouse, coal, water and sand stations, ash pit, and maintenance and storage structures. The integrity of the yard, however, has been diminished because many of these structures have been removed or remodeled for diesel-era use. Others remain only in part.

CHAPTER I: PRE-CIVIL WAR RAILROAD DEVELOPMENT

A. Railroad Antecedents

During the American colonial period several towns such as Boston, New York, Philadelphia, Baltimore, and Charleston rose to become the main trading ports. Merchants in those locations prospered. Much of the products they received from foreign or domestic sources were redistributed. By the time of the American Revolution, a sufficiently large number of people had moved westward to warrant that lines of trade be established farther and farther inland. Consequently, competition arose between the port cities caused by the merchants' desire to capture that trade. Their continued prosperity depended upon the amount of commerce they could attract to their home ports. Transportation improvements were required to facilitate this trade. As a result, soon after the United States won its independence from Great Britain, merchants of the northeastern ports began to focus on turnpike construction. One of these first roads was completed between Philadelphia and Lancaster in 1794. Another, the National Turnpike, started in 1811 with federal aid. Much of its route followed the current day United States Highway 40 through Maryland. Over 4,000 turnpike miles had been built before the boom ended in the early 1820s.[1]

As the turnpike era ebbed, canal construction came to the fore. Merchants saw this new form of transportation as superior to land travel. The success of the Erie Canal, which connected Albany on the Hudson River to Buffalo on Lake Erie and thus New York City to Albany via the Hudson by October 1825, stimulated other work. A number of canals which provided access to tidewater areas soon followed. Among the more

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1. George Rogers Taylor and Irene D. Neu, The American Railroad Network, 1861-1890 (Cambridge: Harvard University Press, 1956), 4; Hank W. Bowan, Pioneer Railroads (N.Y.: ARCO Pub. Co., 1954), 17; John F. Stover, American Railroads (Chicago: University of Chicago Press), 3-4.

important of these waterways chartered in the 1820s was the Delaware and Hudson Canal which linked Honesdale, Pennsylvania to Roundout, New York on the Hudson River. It was used to transport anthracite coal as was the Lehigh Canal which connected Easton and Stoddartsville, Pennsylvania, and the Morris Canal across New Jersey which joined New York Harbor to the mouth of the Lehigh River. More extensive systems, however, comprised the Pennsylvania Portage and Canal System which connected Philadelphia to Pittsburgh, and the Chesapeake and Ohio Canal from Georgetown to Cumberland, Maryland. No sooner were most of these canals completed than another form of transportation appeared to challenge them.[2]

Several Northeastern states contend for the honor of having built the first railroad. In so doing they define railroad not in the usual context of a steam locomotive pulling freight or passenger cars on a fixed track, but as beasts of burden pulling a wagon on a fixed track. Pennsylvania asserts that the first railroad was built within its borders in 1809. This mile-long line was constructed in Delaware County to haul stone from a quarry. Massachusetts, however, has advanced a counterclaim that its Granite Railway was the first successful railroad. Built in 1826 to haul granite for the construction of the Bunker Hill Monument, its track ran for three miles between Quincy and the Neponset River. The five-foot gauge wooden rails were fixed to stone ties. Strap iron was attached to the top of the wooden rails. The line had a double track and turntables at each end. Cars were moved by horsepower and gravity.[3]

The quarry lines were soon followed by coal hauling railroads which were built to connect anthracite fields with canals or rivers. The first of

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2. Stover, American Railroads, 7; Wayland F. Dunaway, A History of Pennsylvania (N.Y.: Prentice Hall, 1935), 678-683.

3. Dunaway, A History of Pennsylvania, 683; John W. Starr, Jr., One Hundred Years of American Railroading (N.Y.: Dodd, Mead & Co., 1928), 27; Bowan, Pioneer Railroads, 10.

these routes, the Mauch Chunk Railroad, opened in 1827. This nine-mile road made use of gravity to carry its cars to the Lehigh River, while mules hauled them back. The next coal railroad was opened in 1829 by the Delaware and Hudson Canal Company to connect its mines at Carbondale, Pennsylvania with its canal at Honesdale. This line used cables, gravity, and stationary steam engines to move cars along its sixteen miles of track. It had been the intent of the Delaware and Hudson Canal Company to use steam locomotives for its motive power. An employee, Horatio Allen, was sent to England to purchase four engines. The first locomotive, the America, arrived in New York City on January 15, 1829. It was assembled at the West Point Foundry in that city, but was not immediately shipped to the Delaware and Hudson Company. In the meantime a second locomotive, the Stourbridge Lion, reached New York City on May 17, 1829 and was also assembled at the same foundry. Both engines were forwarded in July 1829 to Honesdale where they arrived in the latter part of that month. The company chose the Stourbridge Lion for a trial test. Although it successfully completed the run, the engine proved to be too heavy for the wooden, iron strapped rails and a decision was made to continue the gravity road. Despite this development, the Delaware and Hudson Canal Company achieved the notoriety of having successfully operated the first steam locomotive on rails in the United States.[4]

B. Early Railroading

It was not the quarry and coal railroads from which America's first real railroads would arise, but from the economic potential seen by the merchants in the Eastern port cities. These men in Baltimore faced a commercial stagnation in the 1820s. Their drive to revive that city's economy by attracting more commerce resulted in the first American railroad public carrier in regular service. They obtained a charter for

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4. Dunaway, A History of Pennsylvania, 683-684; Starr, One Hundred Years of American Railroading, 3, 34-36; Bowen, Pioneer Railroads, 21; Stewart H. Holbrook, The Story of American Railroads (N.Y.: Crown Publishers, 1947), 23.

their Baltimore and Ohio Railroad on February 28, 1827 and broke ground on July 4 of the next year. Like the other early railroads to follow, it was initially built to serve the local needs. Beginning in October 1829, track was laid west of Baltimore. It arrived in Ellicott's Mills, fourteen miles west, in late May 1830. Although horsepower was first used, a steam engine, the Tom Thumb, made an appearance in August 1830. Much to the railroad owners' dismay, it was beaten by a horse in a race. Steam, however, ultimately prevailed as the B&O began regular service with a steam locomotive on July 1, 1831. Horses still furnished some power for awhile, especially in winter.[5]

The decade of the 1830s began with only twenty-three miles of railroad track, but Boston, New York, and Philadelphia merchants, like their Baltimore cousins, soon perceived the usefulness of steampower and turned the period into one of railroad fever. Even so, there was considerable opposition at first. Farmers believed that railroads would cause a decline in the price of horses and farm products. Stage line owners, wagoners, and harness makers feared a loss of business. Most opposition ended when it became apparent that railroads offered a great advantage over other forms of transportation.[6]

The Boston merchants were the next group to work toward establishing their own railroad network. Soon three railroads received

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5. Starr, One Hundred Years of American Railroading, 41-47; John F. Stover, The Life and Decline of the American Railroad (N.Y: Oxford University Press, 1970) 2, 7; Taylor and Neu, The American Railroad Network, 29; Bowan, Pioneer Railroads, 23; C.E. Urba, R.S. Reebie, C.J. Liba, M.J. Keale, D.A. Isacowitz, J.S. Katz, P.V. Stone, A.C. Robinson, and L. Singer, The Railroad Situation: A Perspective on the Present, Past, and Future of the Railroad Industry, Prepared for U.S. Department of Transportation, Federal Railroad Administration, Office of Policy and Program Development (Washington, D.C.: Government Printing Office, 1979), 53; Holbrook, The Story of American Railroads, 22.

6. Urba, et al., The Railroad Situation, 53; Dunaway, A History of Pennsylvania, 685.

charters. On June 5, 1830 the Boston and Lowell Railroad came into existence to bridge the twenty-six miles between those two cities. Construction on the Boston and Worcester Railroad began the next year. Its forty-four miles of track which ran to the west of Boston were designed to divert trade away from the Blackstone Canal which led to Providence, Rhode Island. The Boston and Providence Railroad also received a charter in 1831 to cover the forty-one miles between those two cities. All three lines were in operation by 1835. These railroads and the Boston and Western Railroad which was chartered in 1833 to run west to Albany, New York used the 4 feet 8½-inch track gauge. It undoubtedly came about because each line purchased its first locomotives from the British firm run by George Stephenson. That firm built engines for that gauge.[7]

By 1832 New York had chartered thirteen railroads. A number of these were short lines which operated in the Mohawk Valley and were built not by New York City merchants, but by local capital to serve local merchants and farmers. Among these railroads were the Mohawk and Hudson which opened between Albany and Schenectady on August 31, 1831. Another, the Utica and Schenectady, paralleled the Erie Canal for seventy-eight miles between those two towns when it was completed in the late summer of 1836. The New York and Harlem Railroad took almost the decade to lay its eight miles of track from city hall on Manhattan to the north. The largest undertaking at the time was the New York and Erie Railroad. Since the Erie Canal already brought trade through the state's northern counties to New York City, merchants hoped to prosper further by building a line through the southern counties from New York City to Lake Erie. These men deliberately decided to use a six-foot track gauge, the widest of the time, so that their railroad could not be used against them by competitors. Although the line was chartered on April 24, 1832,

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7. Taylor and Neu, The American Railroad Network, 4, 15; Bowan, Pioneer Railroads, 40-41; Stover, The Life and Decline of the American Railroad, 14-15; Holbrook, The Story of American Railroad, 23; Stover, American Railroads, 16.

construction did not begin until 1835. Poor building methods and swindles hampered the Erie almost from the start. The road's president, Eleazar Lord, decided to build the track on wooden piles to avoid any problem with snow. With great effort 100 miles of pilings were driven at a cost of $1,000,000, but before any rails could be laid it was discovered that the piling had rotted. Lord then abandoned his project and directed that rails were to be laid on the ground. As a result, the railroad construction began once more. It took almost nine years to lay the first fifty-four miles of track to Middletown, New York.[8]

Pennsylvania can be divided into two railroad areas. These areas consisted of those lines in the eastern part of the state north and northwest of Philadelphia and those roads which led to the west of that city. The most important railroad in the state in the 1830s was the Philadelphia and Reading. Construction of this line began in 1835. Numerous small railroads appeared in Pennsylvania as well. By 1840 sixty percent of the nation's 3,328 miles of track were located in New England and the mid-Atlantic states. Pennsylvania was first in the country at the time with 754 miles of track, followed by New York with 374 miles and Massachusetts with 301 miles.[9]

The 1837 depression temporarily slowed railroad growth and the dreams of many men died. From this economic setback came better managed and financed railroads in the 1840s when construction once more occurred at an even greater pace until the onset of the Civil War. In the two decades before that conflict, several lines, which became part of America's great trunk system, had their beginning. The Pennsylvania

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8. Taylor and Neu, The American Railroad Network, 4, 13, 23-25; Bowan, Pioneer Railroads, 44-46, 68; Starr, One Hundred Years of American Railroading, 52; Holbrook, The Story of American Railroads, 23.

9. Dunaway, A History of Pennsylvania, 685; Stover, American Railroads, 19; Urba, et al., The Railroad Situation, 53; Taylor and Neu, The American Railroad Network, 26.

Railroad, which grew into the largest corporation in the nineteenth century United States, was chartered on April 13, 1846. Slow to react to the railroad potential, Philadelphia merchants decided to develop that line to keep trade flowing to their city and not to the rival cities of New York and Baltimore which the growing Erie, and Baltimore and Ohio railroads promoted. The charter empowered the Pennsylvania to connect the western gateway at Pittsburgh to the east with branches to Erie, Blairsville, and Uniontown. With the exception of the mountain division which opened in 1854, the line was completed from Harrisburg to Pittsburgh with a 4-foot 8½-inch gauge track in 1852.[10]

The New York and Erie Railroad, which had struggled through false starts and extravagant spending in the 1830s, finally began construction in earnest in the 1840s with state grants. It was aided by the purchase of T rails from the iron works operated by George and Seldon Scranton in Scranton, Pennsylvania which were much cheaper than those obtained from England. Upon completion in April 1851 the line stretched 450 miles from New York City to Dunkirk on Lake Erie. Thus, it became for the time the longest railroad in the world. Dunkirk, however, proved to be an ill-chosen terminus, so the line was extended to Buffalo by 1861.[11]

In the 1840s the contest for commerce in New England centered on two port cities. Boston merchants sought to establish a trade area to the north because of competition with the Erie Canal and New York railroads to the west. They succeeded in gathering some trade which came to the eastern end of Lake Ontario and from Canada. When these Bostonians planned to develop a rail line to Montreal, they found a rival in the

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10. Holbrook, The Story of American Railroads, 43-47, 81; Dunaway, A History of Pennsylvania, 686; Stover, American Railroads, 28; Taylor and Neu, The American Railroad Network, 27.

11. Starr, One Hundred Years of American Railroading, 64; Holbrook, The Story of American Railroads, 50; Stover, American Railroads, 28; Taylor and New, The American Railroad Network, 25.

merchants of Portland, Maine. In 1846 John Poor, with municipal backing, sought to persuade the Montreal Board of Trade to endorse a railroad which would connect with Portland instead of Boston. He proposed a wager by which two ships of equal speed would race from Liverpool, England with one destined for Portland while the other headed for Boston. The ship to arrive first would determine the port to which a railroad would be constructed. Since Portland was one-half day closer to England than Boston, the Montreal merchants accepted Portland as a convenient winter outlet when the St. Lawrence was frozen. To make sure that Boston would not receive any benefit from their railroad, the Portland men built their line with a five-foot six-inch gauge. It was called the Atlantic and St. Lawrence Railroad from Portland to the Canadian border, and from there to Montreal it was known as the St. Lawrence and Atlantic. Soon after construction was completed in 1853, it was leased by the Grand Trunk Railway of Canada for 999 years. Further track laying in Canada with five-foot six-inch gauge made Portland, by 1861, the eastern terminal of an 800-mile route which was the longest in the world for its time.[12]

Aside from promoting the New York and Erie Railroad, New York City merchants for many years placed their trust in the Erie Canal. This situation gave impetus to local interests to build small railroads to promote their own commercial ventures. By the 1840s a series of ten small lines connected Albany to Buffalo with a standard gauge system. In the early 1850s New York City merchants captured the traffic of these lines by joining their city to Albany with the New York and Hudson, and the New York and Harlem railroads. Then in 1853 Erastus Corning and New York City merchant associates purchased and consolidated the ten lines into one railroad which they called the New York Central. In doing so these men had more railroad routes to their city from the backcountry than the

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12. Taylor and Neu, The American Railroad Network, 15-18; Bowan, Pioneer Railroads, 89-91; Holbrook, The Story of American Railroads, 70-80.

merchants in any rival port city. New York state also by now contained the largest railroad mileage in the nation, having surpassed Pennsylvania.[13]

Several smaller northeastern railroads came into existence during this period. The Lehigh Valley Railroad received its charter on April 21, 1846. First called the Delaware, Lehigh, Schuylkill and Susquehanna, it languished for want of money until 1851. Its original line was completed from Philipsburg, New Jersey to Wilkes-Barre, Pennsylvania in 1855. Its main freight was anthracite coal. The Delaware, Lackawanna and Western Railroad began in 1849 with the purchase of the unconstructed Legget's Gap Railroad and the subsequent acquisiton of the Delaware and Cobb's Gap Railroad right-of-way. When its original six-foot gauge track was completed in 1853, it ran from a junction with the Erie Railroad at Great Bend through Scranton and southeast past the Delaware Water Gap to the New Jersey border. Another line, the Central Railroad of New Jersey, began as a two and one-half-mile railroad from Elizabeth to Elizabeth port. It became the Central Railroad in April 1849 with the union of the Elizabethtown and Somerville Railroad and the Somerville and Eastern Railroad. From there it slowly built toward Jersey City during the 1850s. For a time, it permitted the Delaware, Lackawanna and Western to reach the New York City market by using its tracks. The DL&W broad gauge cars traversed its line by means of a third rail. The Central Railroad of New Jersey also connected into Pennsylvania with the Lehigh Valley Railroad. Thus, New York City had another route to the west although it was not as well controlled by that city's interests.[14]

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13. Holbrook, The Story of American Railroads, 84; Stover, American Railroads, 27-28; Taylor and Neu, The American Railroad Network, 23-24; Stover, The Life and Decline of the American Railroad, 26.

14. Starr, One Hundred Years of American Railroading, 105-107; Dunaway, A History of Pennsylvania, 687; Taylor and Neu, The American Railroad Network, 25-26.

Having completed their initial trackage by the early 1850s, four of the main northeastern rival railroads pushed beyond the area to tap Midwestern trade. As a result, New York City, Philadelphia, and Baltimore all achieved western connections, albeit with track breaks and gauge differences. Both the New York Central and the Erie railroad owners sought to connect with Cleveland, Ohio from Buffalo. Four short lines planned to fill that gap to benefit from these two larger railroads. The Erie and North-East Railroad built a six-foot gauge line from Erie, Pennsylvania to the New York state border. Financial problems, however, prevented the Erie Railroad from extending its track from Dunkirk to make a connection at the New York/Pennsylvania border. In the meantime, three other small railroad companies partly filled the gap by linking Cleveland to Erie, Pennsylvania from one direction and Buffalo with the Pennsylvania border from the other side. The four-foot ten-inch gauge of these lines was not compatible with the Erie and North-East. The three railroads, however, gained control of the Erie and North-East and planned to bridge that section by converting its gauge to be consistent with their gauge. Seeing a common gauge as a method to divert traffic from Philadelphia, the Pennsylvania legislature passed a law to prevent the conversion. In this war of the gauges the New York merchants threatened to introduce federal legislation to end illegal interference with interstate trade. The Philadelphia Board of Trade finally relented after denouncing the New York foreigners and voted not to support trade obstruction. As a result, the Pennsylvania legislature reversed its earlier decision and permitted the change to common gauge in 1856. Buffalo then became a freight transfer point since neither the six-foot Erie gauge nor the four-foot, eight and one half-inch New York Central gauge matched the four-foot ten-inch gauge of the line to Cleveland.[15]

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15. Stover, American Railroads, 38-52; Taylor and Neu, The American Railroad Network, 30-32.

Another battle of a different type occurred in Pittsburgh in 1857 after the Pittsburgh, Fort Wayne and Chicago bridged the Allegheny River. This four-foot ten-inch railroad was prevented from coming within 200 feet of the four-foot eight and one-half-inch gauge Pennsylvania Railroad. Local merchants and workmen saw an advantage in this gap, for it made Pittsburgh a transfer point, but they were able to prevail for only several months. Soon the lines were connected and a means achieved whereby the four-foot eight and one-half-inch gauge cars could travel over the four-foot ten-inch gauge. Thus, the Pennsylvania Railroad had a direct connection with Chicago.[16]

The Baltimore and Ohio finally achieved its plan of reaching the Ohio River. The track arrived at Wheeling, Virginia on Christmas Eve 1852. Construction had been slowed because of the numerous tunnels, bridges, cuts, and fills needed to carry the track over the intervening mountains. At Wheeling the road faced two problems to Midwest communication. Not only did the B&O's four-foot eight and one-half-inch gauge not match the four-foot ten-inch gauge of the Ohio Central which terminated on the opposite bank of the Ohio River, but there was no railroad bridge across that river. This situation compounded the transfer problem, for freight had to be first loaded onto boats. Soon the Ohio Central became a part of the Ohio and Mississippi Railroad which reached St. Louis on May 1, 1857. As a result, the B&O had its connection into the Midwest although the line was broken at the Ohio River. That railroad completed a second link to the Ohio River at Parkersburg, Viginia. Again there was no railroad bridge and its gauge differed from the Marietta and Cincinnati Railroad which terminated on the opposite river bank.[17]

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16. Taylor and Neu, The American Railroad Network, 32-33; Stover, The Life and Decline of the American Railroad, 28.

17. Stover, The Life and Decline of the American Railroad, 27; Bowan, Pioneer Railroads, 93; Taylor and Neu, The American Railroad Network, 33; Urba, et al., The Railroad Situation, 53.

Despite its advances, by 1860 the American railroad system was not integrated. Different gauges, lack of transfer facilities, and lack of important bridges inhibited communication. By that date, when railroad mileage reached 30,626 in the United States, Chicago had become the leading railroad center with eleven lines reaching that city. Despite this fact, Chicago was basically a transfer point for freight received from or destined for the Northeastern port cities where New York merchants by 1860 had surpassed their rivals.[18]

C. A Time of Experiment: Innovations and Improvements

Soon after the 1830s railroad building boom began, it became obvious that improvements were needed. The first such advancements were made in the roadbed. Almost all early railroad track had been built with stone ties upon which wooden rails covered with iron straps had been placed. The granite blocks or other stone used for ties often failed from a lack of resilience and from susceptibility to frost heaves. Experiments showed that wooden ties placed on a gravel roadbed worked best. At the same time, the iron straps fixed to the rails frequently tended to curl under the weight of a train. These "snakeheads," as the curled iron was called, often broke through the car floors with serious consequences if they carried passengers. Robert L. Stevens, President of the Camden and Amboy Railroad found a solution to the problem. He designed the all-iron T rail and had it manufactured in England. Stevens had these rails installed on his line as early as 1831.[19]

Single-track lines led to early operational rules. Turnouts or track spurs big enough to contain a train were constructed at intervals along a track with midway markers placed between the turnouts. Locomotives that cleared the midway point had the right-of-way, and thus trains

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18. Stover, American Railroads, 45, 51; Taylor and Neu, The American Railroad Network, 23.

19. Stover, American Railroads, 20-24; Holbrook, The Story of American Railroads, 36; Bowan, Pioneer Railroads, 36.

approaching from the opposite direction were required to back up to the turnout. Employees on trains which arrived simultaneously over a midway point sometimes argued or fought over the right-of-way. Soon clear track ahead signals came into use. The first such device was employed by the New Castle and Frenchtown Railroad of Delaware. It consisted of a ball raised on a pole, hence the term to "highball it." Finally in 1851, the Erie Railroad was the first to use a telegraph to dispatch trains. Still, before the Civil War, a good system to control train movement had not been achieved. Because of this situation, more accidents occurred with the increased use of trains, especially in the 1850s.[20]

Early locomotives needed modification. The first engines used in the United States came from England, but they had a similarity to the initial one designed by Matthias Baldwin in 1832. His seven-ton locomotive Old Ironsides had four wheels of which the rear set served as drivers. They had a fifty-four-inch diameter. The spokes and rims were wood with the latter fitted with wrought-iron tires. Wood also constituted the framework as well as that of the small tender. There was no cab. These locomotives had a rigid front axle which inhibited movement around curves. In the same year that Baldwin produced his first engine, John Jervis, chief engineer of the Mohawk and Hudson Railroad, experimented with locomotive flexibility. He replaced the rigid front axle with a truck that contained two swivel axles and four wheels. Thus, he made curve negotiation easier. His design caught on, for when Baldwin constructed his next two engines in 1834, he adopted Jervis' 4-2-0 type. These locomotives had an overall weight of eight and one-half tons.[21]

By 1836 experimentation with larger sized locomotives began. Henry Campbell of Philadelphia designed an eight-wheel engine which used

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20. Bowan, Pioneer Railroads, 42, 51; Stover, American Railroads, 41.

21. Holbrook, The Story of American Railroads, 30; Stover, American Railroads, 25; Starr, One Hundred Years of American Railroading, 294-295; Bowan, Pioneer Railroads, 34.

Jervis' four lead wheel truck and four drive wheels. This 4-4-0 engine became the prototype of the American locomotive which dominated styling for fifty years. In the 1840s Septimus Norris enlarged the American type 4-4-0 engine with a third pair of driver wheels to make the first 4-6-0 locomotive. At the same time a basic design rule evolved for wheel diameter. Thirty mph engines had thirty-inch diameter driving wheels and fifty mph engines had fifty-inch diameter driving wheels.[22]

In the 1850s a distinction came to be made between passenger and freight locomotives. The 4-4-0 American type locomotive was adapted to passenger service which meant it had to have more speed. To attain higher speeds required increased horsepower. Since boiler capacity limited horsepower, passenger engines received larger boilers. The main features needed for sufficient boiler capacity were a large firebox with ample grate area and a large heating surface with proper provision for circulation. Since the freight locomotive had to have greater tractive power and slow speed, the 4-6-0 American type lent itself to this use. With its design about eighty percent of the engine weight could be placed on the driver wheels. Locomotives by this period had a weight from thirty-four to thirty-seven tons.[23]

Other locomotive modifications were produced in the pre-Civil War period. Experimentation brought the addition of a sandbox to locomotives from which sand could be placed on the track in front of the driver wheels for traction. Two conflicting stories take into account this mid-1830s innovation. One holds that it was developed because a grasshopper plague, which hit Pennsylvania in that period, resulted in rails so slippery from the crushed insects that engines could not move. The other version, which is undoubtedly the correct story, relates that

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22. Stover, American Railroads, 25; Holbrook, The Story of American Railroads, 30, 47; Bowan, Pioneer Railroads, 62.

23. Bowan, Pioneer Railroads, 83.

David Matthews of the Mohawk and Hudson Railroad rigged the sanding device as a means of getting more traction on wet rails.[24]

In the 1830s Isaac Dripps, an employee of the Camden and Amboy Railroad, invented the cowcatcher as an answer to derailments which were caused by animals on the tracks. The first such device was indeed a cowcatcher, for it consisted of several long pointed iron bars protruding from a truck which was attached to the front of the locomotive. It worked too well as it impaled animals. Modifications resulted in a cowcatcher much like those used in the present day. The adoption of this innovation set American locomotives apart from those of other nations.[25]

Gradually in the pre-Civil War era, locomotives came to have other characteristics familiar to later generations. Steam whistles and bells were added to engines in the 1830s. At the end of that decade John Harrison of Philadelphia developed the equalizing beam which permitted equal pressure on each drive wheel. An unknown individual invented the engine cab in the late 1830s, although it did not come into common usage until the 1840s. The first cabs were made of canvas followed by ones of wood and served a need to protect engineers against the weather. Night travel was facilitated in 1840 with the introduction of the headlight. It consisted of a kerosene lamp placed in front of a tin reflector. In 1851 Wilson Eddy of the Western Railroad lowered the pistons on locomotives so that they operated in a horizontal line with wheels instead of on a

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24. Stover, American Railroads, 26; Holbrook, The Story of American Railroads, 34; Bowan, Pioneer Railroads, 50.

25. Holbrook, The Story of American Railroads, 34; Stover, The Life and Decline of the American Railroad, 17; Bowan, Pioneer Railroads, 36-37.

diagonal and thereby permitted more traction and speed. In addition by the 1850s locomotives were built with the large balloon stack.[26]

Beginning in the 1830s, changes began to occur in rolling stock. Initially, freight cars tended to be crude wooden wagons, but improvements by the late 1850s resulted in a respectable, four-wheeled conveyance weighing ten tons. The first passenger cars were merely stagecoach bodies. People rode inside and on the top. Smoke and sparks from the engine did not provide an enjoyable trip. In 1837 the Philadelphia, Germantown and Norristown Railroad introduced two passenger cars similar in style to those of today. Each car had eight wheels, end doors, a narrow center aisle, and bench seats. This style, which was quickly adopted by other lines, had a width of about eight feet. The small windows were nailed shut to prevent sparks from entering. Without ceiling vents as well, these cars proved very hot in summer. In winter a small stove at one end provided heat. At night the cars were lighted by one candle in a candlestick at each end. By the 1850s ventilation had improved and even adjustable reclining seats came into use in 1854. The first experiments with a sleeping car began on the Cumberlain Valley Railroad in 1836-37. It tended to be crude and lacked comfort. It was not until December 2, 1856, however, that T.T. Woodruff was issued the first sleeping car patent. Woodruff had competition from three other individuals in the latter 1850s. Webster Wagner built such cars for the New York Central. G.B. Gates also began a company as did George Pullman. The sleeping car which Pullman designed had an upper berth which could be hidden during the day. It, however, was not hinged, but held by ropes from the ceiling. When this innovation did not succeed, he sought opportunities in other businesses for several years. Another unusual innovation for its day was the first use of a refrigerator car on July 1, 1851. Blocks of ice kept eight tons

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26. Stover, American Railroads, 25-26; Holbrook, The Story of American Railroads, 35; Bowan, Pioneer Railroads, 83; Stover, The Life and Decline of the American Railroad, 20.

of butter cool as it was transported between Ogdensburg, New York and Boston.[27]

Some railroad jobs, such as switchman and brakeman, proved to be dangerous in the early days. Cars at first were connected by three-foot chains which, when the engine started, would give a great jerk on passengers. The chains, which were also used to connect freight cars, soon gave way to drawbars and, in turn, were shortly replaced by a link and pin coupling. This latter method of joining two cars proved dangerous work for yard switchmen. To use such a device the link was first fastened with a pin to one car, then another pin was cocked at a slight angle in the hitch of the other car. As the two cars came together, the switchman guided the link into its slot. The impact usually shook the pin into place. If it did not, the switchman stepped between the cars and pounded it down with a spare pin. As a result of this process, switchmen often could be identified by their severed fingers. Uncoupling, however, was worse. Unhitching often occurred while the cars were in motion. The switchman had the choice of running between the cars to pull the pin or lying on the coupling beam. Maiming or death were certain if a man slipped. Another dangerous early occupation was that of brakeman. Since each car had a separate handbrake, these individuals had to climb up and run across the tops of cars to apply the brakes. Brackets for climbing on or over cars often pulled loose. Weather conditions made operating brakes difficult as well. Beginning in the 1850s, some railroad companies, such as the Pennsylvania, adopted the Loughridge chain brake. It was a primitive device which could be engaged from the locomotive and used a friction wheel which pulled against the engine's right rear drive wheel. As the friction wheel rotated, a chain wound around its shaft and pulled on the brakeshoes throughout the train.[28]

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27. Holbrook, The Story of American Railroads, 37, 317-320; Bowan, Pioneer Railroads, 126; Taylor and Neu, The American Railroad Network, 2.

28. Holbrook, The Story of American Railroads, 267; Stover, The Life and Decline of the American Railroad, 70-71; Bowan, Pioneer Railroads, 84; Starr, One Hundred Years of American Railroading, 301.

CHAPTER II: THE ERA OF GROWTH AND GOVERNMENT INTERVENTION, 1860-1916

The period from 1860 to 1916 was one of great railroad growth in the era of the railroad barons. Survival, however, required efficiency. An orderly operation required gauge uniformity and the bridging of rivers to promote an integrated national railway system. Growth in this generation also promoted very heavy competition on the trunk lines between the eastern port cities, and Chicago and St. Louis. Rate wars, rebates, and drawbacks resulted from trunk line competition for freight. Railroad owners sought to overcome the effects of this competition by purchasing larger and better equipment, developing fast freight service, and entering pools. As in the case of the railroads which depended for profit on the anthracite coal land in their ownership, production pools were used to maintain profit. When cutthroat competition continued to prevent railroads from prospering, a majority of the managers sought relief through federal regulation. Federal railroad legislation, which began in 1887 with the establishment of the Interstate Commerce Commission, signified the resort to political means to solve economic problems and create economic stability. Rapid consolidation of railroads occurred in the 1890 to 1916 period with the result that two-thirds of the nation's mileage came under the control of seven groups who represented eastern financial interests. At the same time railroads continued to seek and receive further federal protection.

A. Finance Capital and Efficiency

Events on the eve of the Civil War began a change in railroad ownership which, in turn, promoted the integration of the nation's railroads into a coordinated network. Financiers, who newly arose in centers such as New York City and Boston took note of the profits being made by railroads. As a result, the impetus for railroad ownership changed. Merchants lost control of their railroads to the men of money. Now railroad investment was no longer for the benefit of a port city or local interest. Instead, railroads were promoted for the profit they could

return to the financier. To enhance the gain, the barons worked toward consolidation and replacing the multi-gauge system, which favored the owners' port, with a new integrated rail network. The folly of not having a united system was visibly demonstrated during the Civil War as the flow of men and war material was interrupted. Financiers listened as shippers complained of delays and the excess charges such a system caused.[1]

One of the best known railroad barons to rise during the Civil War was Cornelius Vanderbilt. Prior to that conflict the Commodore had made his money in shipping and steamboats. In 1862 he turned to railroads and purchased the New York and Harlem, and New York and Hudson lines. Five years later Vanderbilt gained control of the New York Central which connected with his other two railroads in Albany. He combined the three roads under the name of the New York Central and Hudson River Railroad. With his son William, Vanderbilt bought the Lake Shore and Michigan Southern as well as the Michigan Central in 1869. With that transaction he extended his line to Chicago. After his father's death in 1877 William continued to expand the railroad operation. In 1882 he acquired the New York, Chicago and St. Louis Railroad which was also called the Nickel Plate. In the aftermath of a feud with the Pennsylvania Railroad, William purchased the New York, West Shore and Buffalo in 1884. He next took over the Cleveland, Cincinnati, Chicago and St. Louis Railroad. In 1891 the control of the Rome, Watertown and Ogdenburg Railroad gave Vanderbilt access to Montreal. Soon thereafter, he purchased the Boston and Albany. Ultimately, the Vanderbilt family came to own the Chicago and Northwestern Railroad as well, although after 1898 they had less control.[2]

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1. Taylor and Neu, The American Railroad Network, 5-6, 53.

2. Stover, American Railroads, 110-111; Holbrook, The Story of American Railroads, 84-94; Stover, The Life and Decline of the American Railroad, 83-84, 95.

In the same period as Cornelius Vanderbilt, the other great trunk lines of the Northeast came under control of financial interests. Men such as Jay Gould and his associates obtained the Erie, while Tom Scott ran the Pennsylvania Railroad. Actually, Gould along with Jim Fisk moved in on Daniel Drew in 1867. Gould and Fisk soon ousted Drew and engaged in shady dealings both with the railroad and with other operations such as trying to corner the gold market. Fisk's dealings ended when he was shot in 1872 by a rival for his mistress. Gould left the line in 1873 when the panic of that year caused it to go bankrupt. It failed to pay a dividend between that year and 1942 although its track expanded into the Midwest. Tom Scott's Pennsylvania Company, a holding company for the Pennsylvania Railroad, continued to expand until by 1890 that railroad had become the largest corporation in the United States.[3]

In the era after the Civil War numerous short lines were merged into the trunk railroad systems. A great majority of these short lines were the first railroad in the territory served. Usually having less than 100 miles of track, they were strictly local in character. Many, however, did connect to the major railroad systems and, therefore, not only played an important role in local service, but also delivered freight and passengers to the large trunk lines. As a result, the trunk lines often expanded their track mileage and service area by buying short lines. By the turn of the century the Pennsylvania Railroad system included more than 600 of what at one time had been independent short lines. The New York Central absorbed some 400 short lines, while the Baltimore and Ohio acquired more than 250 short lines for its system. Still, by 1916 there were more than a thousand such railroads in existence.[4]

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3. Stover, The Life and Decline of the American Railroads, 84-85.

4. Clarence A. Miller, "The Problem of the Short Lines," The Annals of the American Academy of Political and Social Science 187 (September 1936), 68-69.

At the time that the nation's financiers began to take control of railroads, shippers began to complain of the excessive costs incurred because of the added charges to transfer freight at transhipment points. Independent groups took advantage of the situation to strike bargains with railroads to provide a cheaper, fast freight service. These fast freight organizations owned their cars and contracted with railroads to haul them for a set fee. Most of the time the need for transhipment was eliminated because the cars had wheels adapted for lines with small gauge differences. These freight operations tended to haul high class freight and, thus, railroads came to be relegated to hauling bulk freight. When the fast freight companies grew prosperous at the railroads' expense, railroad managers decided to establish their own fast freight service. As a result, by 1866 cooperative fast freight lines were established as administrative units of railways. They were actually administrative pools with each participating railroad contributing cars based on its length or share of traffic. The pools developed the through bill of ladings and prorated the fees among the participants. The first of these pools was called the Red Line. Promoted by the New York Central, it ran between Boston, New York City, and Chicago by way of Buffalo. In less than a year by January 1867, the Blue Line made its appearance. It served the same terminals as the Red Line, but its route ran north of the Great Lakes. Next the White Line was organized. It linked Boston and New York with St. Louis through the southern part of Ohio, Indiana, and Illinois. Many others followed. Each major trunk line joined fast freight pools so that by 1874 the majority of the nation's through freight was carried by these lines. The New York Central controlled the Red, Blue, White, and International routes. The Pennsylvania Railroad operated through the Star Union, National, and Empire lines. The Erie used the Great Western Dispatch. By 1871 the Baltimore and Ohio had bridged the Ohio River at Parkersburg, West Virginia and linked with its subsidiary the Ohio and Mississippi Railroad, which had standardized its gauge, to form the Continental Fast Freight Line. Competition resulted from the growing number of lines in the form of rate wars. By 1890 Boston,

which had become one of the most important grain shipping centers, was served by thirty-one fast freight lines.[5]

Competition and the money to be made by railroad financiers from fast freight became a major impetus for railroad efficiency through integration. To achieve this state, however, required gauge uniformity. Since this entailed enormous expense to change both rails and rolling stock, a compromise solution was sought at first with lines that had close gauges. Wheels with five-inch surfaces allowed rolling stock to be used on both four-foot eight and one-half-inch and four-foot ten-inch track widths. To adapt to the wider gauges some companies designed stock with long axles on which wheels could be widened or narrowed. Another method was to shift cars from a truck of one gauge to a truck of another gauge. These attempted solutions, however, never seemed to work well. Lines then began to use a third rail as a step toward a standardized gauge. Slowly uniformity was achieved. By 1880, ninety-two percent of the nation's trackage was either four foot eight and one-half inch or four foot nine inch. Nearly all track became standard by June 1, 1886, at which time the American railroad network was considered physically integrated.[6]

Another impediment to efficient railroad operation was the jumbled schedules caused by the lack of standard time zones. A uniform system had little meaning in the early railroad era when small areas were serviced. As railroads grew in length after the Civil War, managers had great difficulty in establishing reliable timetables because of the dozens of local time zones. When it was noon in Chicago, it was 12:31 p.m. in Pittsburgh, 12:09 p.m. in Louisville, 12:50 p.m. in Washington, D.C., 11:50 a.m. in St. Louis, and 11:27 a.m. in Omaha. A trunk line train could pass through as many as fifty-four local time zones. To solve the

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5. Taylor and Neu, The American Railroad Network, 68-76; Stover, American Railways, 151.

6. Taylor and Neu, The American Railroad Network, 59-62, 81.

problem a number of railroads began to hold time conventions by the early 1870s. William Allen, the editor of the Official Guide of the Railways, became secretary of the General Time Convention in 1876 and set to work on a time zone plan. He presented his ideas at the 1883 General Time Convention. Allen envisioned four time zones, Eastern, Central, Mountain, and Pacific. Each was based on the mean sun time at the 75th, 90th, 105th, and 120th meridians. The railroads accepted his proposition and selected noon on Sunday, November 18, 1883 for the conversion date. All railroad clocks were changed to the new standard time on that date and schedules published to reflect it. In doing so, the railroads forced the nation to conform. Many people were upset to think that the railroads should tamper with God's time. An Indianapolis newspaper observed that people would have to marry, go to church, and die by railroad time as well as businesses operating by those clocks. Although the nation adjusted, the United States Congress did not officially adopt the standard time for the nation until 1918.[7]

B. Equipment Improvements

A great number of technological improvements were made in rails, roadbeds, locomotives, and rolling stock in the post-Civil War period. Much of the thrust for these changes came from a desire to reduce operational costs and thereby remain competitive. Before larger locomotives and cars could be introduced, rails, roadbeds, and bridges had to be strengthened. Steel rails came into use during the Civil War and gradually replaced iron rails as gauge uniformity took place. At first these rails weighed thirty-five pounds per yard, but by 1916 they averaged eighty pounds per yard. Iron and steel bridges replaced the older wooden type.[8]

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7. Stover, American Railways, 157-158; Holbrook, The Story of American Railroads, 359; Stover, The Life and Decline of the American Railroad, 68-70.

8. Taylor and Neu, The American Railroad Network, 1; Stover, American Railways, 157.

The major development in locomotives in the 1860-1916 period was size. While New England railroads tended to keep the American type 4-4-0, other lines invested more heavily in the American type 4-6-0. These engines with tenders in the early 1860s weighed almost forty-five tons. In addition to size, technological improvements were made to these locomotives in the 1860s. Mathias Baldwin, who had become the nation's largest locomotive builder, began to shrink steel tires on iron wheels in 1862. This adaptation insured a longer wheel life. About the same time steel fireboxes and boilers were adopted for higher steam pressure. In 1865 the steam injector replaced the old boiler pump. Also in the 1860s the reliance on wood for fuel ended in favor of coal. A new locomotive type, the 2-6-0 Mogul, came into use in 1865 to propel freight trains. It provided greater traction by having eighty-five percent of the engine weight on the driving wheels. The Mogul locomotive had a problem with curves because of its longer wheelbase. The answer to this situation was found by using flexible beam driver trucks, having journal boxes with lateral play, removing the flanges from the middle set of driving wheels, and slightly increasing the track gauge on curves. This solution proved so successful that another, larger heavy freight locomotive appeared in 1867. Called the Consolidation in honor of the Lehigh Valley Railroad, it had a fourth pair of driving wheels making it 2-8-0. Thus, it provided even more traction. Soon a ten-drive wheel 2-10-0 locomotive was built. The introduction of this engine marked the end of locomotive growth until the early 1890s. No more power could be achieved from locomotives of this design because a larger firebox could not be accommodated between the rear driving wheels. A new design in the early 1890s allowed the firebox to be removed from its old location and placed over a supporting trailing truck. Thus a new generation of locomotives came into use including the 4-4-2 Atlantic (passenger), 2-6-2 Prairie (passenger), 4-6-2 Pacific (express passenger), 2-8-2 Mikado (heavy freight), and the 4-8-2 Mountain (passenger). These engines weighed up to eighty-five tons. The introduction of superheaters and mechanical stokers at the turn of the century also provided more power. Again, however, locomotives could not be made larger because without more flexibility they could not pass over curves. Once more this problem was solved by making

articulated or Mallet engines. This type of locomotive used a single boiler and firebox to propel two sets of drive wheels. The cylinders were mounted on two, six-wheeled chassis which were free to swing like the lead truck. The Baltimore and Ohio operated one of the first articulated 0-6-6-0 locomotives in 1904. By 1913 the Erie purchased a triplex articulated 2-8-8-8-2 engine.[9]

Basic improvements in transportation in addition to gauge unification constituted a major factor in post-Civil War industrial expansion. Freight cars which averaged ten tons in 1860 had increased to twenty tons by 1880 and reached forty tons by 1916. In addition specialized cars were developed as well. Although railroads had carried mail since 1838, the first experimental mail cars came into use in 1862 whereby mail could be sorted in transit. The first refrigerator car was patented in 1867. It was a vast improvement over placing ice in box cars which had been done since the early 1850s. Cattle cars came into use by 1870. Cylindrical tank cars were introduced in 1868 to haul oil. The first oil carried by rail from Titusville, Pennsylvania in late 1865 was placed in wooden tubs on flat cars. All-metal hopper cars were developed in 1880. Some of these cars used for coal had a capacity of fifty tons by the late 1890s.[10]

Improvements were also made in passenger cars although they tended not to increase much in size. Candles were replaced with kerosene lamps and, in turn, with Pintch gaslights from Germany by the 1870s. The Pennsylvania Railroad began to use electricity for lighting in 1882. Hot water heaters began to take the place of stoves in 1868 and steam heating from the locomotive was introduced in 1881. The vestibule, a covered

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9. Stover, American Railways, 159-164; Taylor and Neu, The American Railroad Network, 2; Cecil J. Allen, Railroads of To-Day: Their Evolution, Equipment and Operation (London, Frederick Warne & Co., 1929), 116.

10. Stover, American Railways, 164-165; Taylor and Neu, The American Railroad Network, 2; Stover, The Life and Decline of the American Railroad, 74.

passageway between cars, came into use by 1887. George Pullman returned to Chicago in 1863 with a new idea for sleeping cars. On this occasion he succeeded. He installed a hinged upper berth for which he received a patent in 1864. Sheets were included with his berths. They, however, caused a problem which resulted in placards being placed in each car which read "please take off your boots before retiring." Primitive dining cars were placed in use in 1863 and improved upon in 1868 when Pullman made the first real dining car. Pullman was so successful with his Palace Car Company that by the turn of the century he had driven his competition from business. In addition Pullman and the other car makers built private rail palaces for use by the nation's wealthy. Some of the best of these private cars had marble bathtubs with solid gold fixtures, Venetian mirrors, hidden jewel safes, wine cellars, and English butlers. Such people used this type of car well into the twentieth century.[11]

Although accidents and injuries to passengers and workers began to increase in the 1850s as more trains came into use, safety was rarely considered until the 1860s. The first manual block signal system to control train movements for accident prevention was introduced in 1865. This system was improved in 1871 with the appearance of the closed electric track circuit. In the same decade a manual mechanical interlocking system was devised for junctions and terminals. This arrangement made it impossible for signalmen to line up switches and signals that conflicted with each other. By the 1890s the electrically controlled pneumatic interlocking switch came into use. Safety features for trains also were developed. In 1868 Eli Janney patented an automatic coupler to replace the link and pin. It operated like the hooked fingers of two hands. Even with the improvements he made several years later, Janney found resistance to its use. Finally, the Pennsylvania Railroad

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11. Stover, American Railroads, 165-167; Holbrook, The Story of American Railroads, 317-324; Stover, The Life and Decline of the American Railroad, 75-76.

adopted the coupler in 1876. Like Janney, George Westinghouse, who patented an air brake in 1869, encountered opposition to the use of his more efficient invention. In 1879 the more progressive Pennsylvania Railroad installed the air brake on its passenger trains, but other railroad managers continued to ignore it. The cost to install that safety equipment was greater to them than the loss of a worker's life or limb. In 1874 Lorenzo Coffin, angered at the lack of concern for the safety of brakemen and switchmen, began a campaign to have the new coupler and brake adopted by all railroads. After years of lobbying, his effort succeeded when the United States Congress passed the Railroad Safety Appliance Act in March 1893, which required all railroads to install air brakes and automatic couplers.[12]

C. Competition and Regulation

The growth of railroads in the post-Civil War period brought competition and forced railroads into practices considered unethical as a means to survive in a laissez-faire world. Even then such steps to assure a fair return on investment usually failed. In the end railroads sought protection through regulation by the national government, for only that entity could promote the stability needed for profit and survival.

Selling watered stock was probably the first practice in which railroads were involved as a means to gain an advantage over rivals and line investors' pockets as well. By this routine railroads issued stock well in excess of the value of the company, thereby distorting their true corporate worth. The money derived from stock sales went into construction to beat a rival to a potential market area, prevent a consolidation takeover, or for the investors' benefit. Early in his railroad career Cornelius Vanderbilt used watered stock of the New York Central for personal gain. Watered stock also worked against Vanderbilt

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12. Stover, American Railways, 151-154, 159; Holbrook, The Story of American Railroads, 289-296; Bowan, Pioneer Railroads, 80, 130; Stover, The Life and Decline of the American Railroad, 71-73.

when he tried to take control of the Erie Railroad in the waning years of the decade of the 1860s. When he started to buy Erie stock, Jay Gould and James Fisk merely issued more. Lacking the money to keep up with Gould and Fisk's printing press, Vanderbilt had to admit defeat. The overextended stock issue, however, caused the Erie's bankruptcy in the 1873 Panic.[13]

As railroads promoted the nation's economic growth, they were in turn affected by that economic growth. Competition on the trunk lines between the Midwest and Northeast produced rate wars in the form of rebates from published charges to attract business. These debilitating conflicts caused severe income loss and led railroads to seek a solution to their problem. From 1874 railroads adopted the pool as a means of ending competition, stabilizing rates, and preserving existing market divisions. Pool agreements were thought to be the answer to maintaining profits. The first serious pool in the East was instituted in August 1874 by William Vanderbilt of the New York Central to stabilize rates in the wake of the 1873 depression. He was joined by the managers of the Erie and Pennsylvania railroads, but not the Baltimore and Ohio Railroad owners. Since each of the participants sought to take advantage of the agreement by continuing rebates, the pool lasted only six months. An attempt was made to reinstitute the pool in 1877 without success.[14]

Since competition caused reduced rate charges for long hauls on the trunk lines, railroads sought to recover some of the loss by making higher rates on the less competitive short hauls of the feeder lines. This extra levy brought unanswered complaints from those who had to pay it. Finally, people sought redress through their state governments. They

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13. Stover, The Life and Decline of the American Railroad, 83-85; Urba et al., The Railroad Situation, 56.

14. Gabriel Kolko, Railroads and Regulations, 1877-1916 (Princeton: Princeton University Press, 1965), 8-10; Taylor and Neu, The American Railroad Network, 2-3.

succeeded with the establishment of state commissions. In the Northeast these commissions were generally patterned after the 1869 Massachusetts agency which only acted to advise the legislature of needed regulations. Midwestern states, under the influence of a farm organization called the National Grange of the Patrons of Husbandry, authorized more powerful bodies. Led by Illinois in the early 1870s, these states established commissions which had the power to end the greater short haul charges by establishing rates based on distance and in some cases to prescribe maximum rates. Discrepancies among the various state regulations moved the railroads to seek relief. In a series of cases in 1876 the Supreme Court upheld the right of a state to have the power of internal railroad regulation.[15]

While the Supreme Court rulings upheld the states' right to regulate railroads operating solely within their borders, the railroads which provided interstate service went unregulated. Destablizing competition on the interstate trunk lines remained in force. The big industries, which railroad development had made possible, played one railroad against another to achieve rebates. Ultimately, the giant Standard Oil Company excelled at this game. It not only forced railroads to give rebates on its own freight, but it also received drawbacks which were refunds on freight charges paid by competitors. Suffering from sparse profits and occasional losses, railroad managers felt entangled in a hopeless situation. Federal intervention on behalf of railroads to end the great strike of 1877 soon gave railroad owners the impetus to seek government intervention to fix rates as a means of stabilizing the railroad economy.[16]

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15. Stover, American Railways, 126-130.

16. Kolko, Railroads and Regulation, 14-15; Stover, American Railways, 118; David W. Bishop, Railroad Decisions of the Interstate Commerce Commission: Their Guiding Principles (Washington, D.C.: The Catholic University of American Press, 1961), 2-3.

In the meantime further attempts were made to establish pools in the 1878 to 1881 period. These efforts collapsed in the latter year when William Vanderbilt used his New York Central Railroad to begin an unprecedented rate war. Talks among the major Eastern railroad owners began in January 1882 to try to end such a destablizing condition. As a result, rate cutting returned to a more normal level. Again, however, the greater rate war returned to plague Eastern companies for two years starting in 1883. Out of desperation for relief, the Pennsylvania Railroad sought to stop the New York Central. It began by chartering the New York, West Shore and Buffalo Railroad to build a line from New York to Buffalo parallel to the New York Central. The New York Central owners retaliated by starting to construct the Southern Pennsylvania Railroad parallel to the Pennsylvania's main line. The prominent New York Banker John Pierpont Morgan intervened to end the affair. Vanderbilt's New York Central took control of the New York, West Shore and Buffalo and abandoned its Southern Pennsylvania Railroad. Morgan's role gave him an interest in railroading and ultimately led him to become a force in that transportation business.[17]

By 1884 a large number of railroad men wanted federal regulation. When the Senate Committee on Interstate Commerce held hearings between May and November 1885, numerous railroad leaders testified. Many disagreed on specifics, but almost all accepted the principal of federal regulation. The majority advocated legalized pools, feeling that with the force of law behind such associations rebates would end. Two bills came out of the hearings. The one introduced by Senator Shelby Cullom of Illinois received more railroad support, for it made no mention of forbidding pools as did the bill presented by Senator John Reagan of Texas. Rebates were prohibited in both measures. Neither one explicitly provided for rate setting. Whereas the Cullom bill proposed a railroad commission, Reagan provided for the court to have enforcement power.

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17. Kolko, Railroads and Regulation, 18-20; Stover, American Railroads, 116-117.

In the compromise committee which met in December 1886 to reconcile the two bills, Reagan yielded to all of Cullom's proposals except one. His provision to make pools illegal was retained. This Interstate Commerce Act easily passed the House and Senate in January 1887 and became law with the president's signature on February 4. With its establishment of the Interstate Commerce Commission (ICC), the first federal government regulation of business came into existence. The ICC represented the rise of administrative law which involved the transfer of power from the legislature to an agency.[18]

The Interstate Commerce Act established a five-man commission and provided it with weak administrative power to enforce the act's provisions. Railroad rates were to be reasonable and just, but the ICC had no power to set rates. In rate cases brought to its attention the ICC could issue cease and desist orders. If a railroad refused to comply, it had no power of enforcement except through the courts. Other facets of the law prohibited the practices of rebates, drawbacks, pools, and higher charges for short hauls. It did not prohibit railroads from transporting anything mined or manufactured by them. Railroads of the period rarely engaged in manufacturing outside their own equipment, but seven shorter lines in northeastern Pennsylvania did own anthracite coal mines. By 1873 they periodically formed pools, but not for the purpose of controlling rates. These pools sought to prevent overproduction of anthracite by allotting each railroad production quotas and, thus, the price of that coal could be maintained at artificial levels. The early pools usually failed because these railroads would not adhere to their production quotas.[19]

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18. Kolko, Railroads and Regulation, 34-44; Stover, American Railways, 106; Bishop, Railroad Decisions of the Interstate Commerce Commission, 1-3, 5.

19. Stover, American Railways, 132; Jules I. Bogen, The Anthracite Railroads: A Study in American Railroad Enterprise (N.Y.: The Ronald Press Co. 1927), 210-211.

Thomas Cooley, the first chairman of the Interstate Commerce Commission, sympathized with the railroads. He even publicly supported pools. The direction he took was not to promote general rate levels, but merely to handle individual rate cases. When rate wars continued, several bankers led by J.P. Morgan called for railroad officials to meet in January 1889 and solve the problem. Following the meeting in the next month, ten Eastern lines formed a railroad association for self-regulation to maintain rates and enforce the Interstate Commerce law. This railroad association hoped to obtain ICC sanction for what amounted to a rate pool. Cooley, the ICC chairman, allowed the association to file common rates. Even after Cooley left in 1891, the practice was continued for a time. The railroad association had some success at first in dividing markets and keeping rate competition to a minimum, but it fell apart by 1893 because individual members failed to adhere to the agreement.[20]

Weakened by rate wars, many railroads went bankrupt during the 1893 depression. The Erie and the Baltimore and Ohio were among the insolvent. This situation resulted in consolidations, as J.P. Morgan purchased such Eastern lines as the Erie, Philadelphia and Reading, the New Jersey Central, Lehigh Valley, Delaware and Hudson, and the New York, New Haven and Hartford. He also captured an interest in the Delaware, Lackawanna and Western, the New York Central, and the Pennsylvania Railroad. Five of these lines were anthracite railroads which gave Morgan a near monopoly on anthracite coal production. The Pennsylvania Railroad gained control of the Baltimore and Ohio, and the Chesapeake and Ohio. By 1906 approximately two-thirds of the nation's railroad track was controlled by seven groups which included the Vanderbilts, J.P. Morgan, James Hill, Edward Harriman, George Gould (Jay's son), and the Pennsylvania Company.[21]

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20. Kolko, Railroads and Regulation, 47, 59-62; Bishop, Railroad Decisions of the Interstate Commerce Commission, 76.

21. Kolko, Railroads and Regulation, 64-65; Stover, The Life and Decline of the American Railroad, 93-96.

Consolidation did not bring relief from rebates. Continued rate wars prompted thirty-one Eastern railroads to sign a Joint Traffic Association agreement in November 1895 to maintain reasonable rates. By that date the ICC decided that these thinly disguised pools were illegal whether they promised to uphold ICC laws or not. Court proceedings were instituted against the association, but it failed long before the Supreme Court struck it down in October 1898.[22]

In the short period before the 1898 court decision, railroad owners decided that since associations seemed always to fail to maintain rates, the only answer was more government regulation. They harkened back to their earlier desire to have legalized pools under federal control. Congress, however, did not heed their request. The Supreme Court's Joint Traffic Association decision of October 1898 (171 U.S. 505) brought an end to the railroads' attempts at self-regulation by declaring pools and rate associations to be illegal. Such groups were considered to be in restraint of trade.[23]

Tired of rebates and no longer able to establish self-regulation groups, additional legislation was the only avenue remaining for railroad managers. Prevailing upon Congress for relief, railroad owners obtained the passage of the Elkins Act in 1903. It had been authored by the Pennsylvania Railroad's legal department. The act made it a misdemeanor for railroads to deviate from published rates. Any railroad or shipper who gave or received rebates could be prosecuted. In spite of this legislation rebates continued with the result that railroad men requested further legislation by the end of 1905. In answer Congress passed the Hepburn Act in 1906. As a refinement of the Elkins Act, it granted the ICC the power to fix just and reasonable maximum rates and prescribe a uniform bookkeeping system. Its most important feature was the rate

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22. Kolko, Railroads and Regulation, 73.

23. Ibid., 83.

making provision which advanced the ICC regulatory powers. One other section struck at the virtual monopoly on anthracite coal held by seven railroads. In the commodities clause railroads were prohibited from transporting anything mined, manufactured or produced by them after May 1, 1908.[24]

The Hepburn Act failed to solve the railroads' problems. Although it empowered the ICC to establish just, fair, and reasonable rates, no criterion was given by which such charges could be determined. One loophole, that allowed railroads to continue rebate practices, was the lack of a standard freight classification system. The use of freight classification to determine charges began in the early nineteenth century with the appearance of canals. In that time freight carried on canals was divided into two classes--weight and size. Railroads at first had used this system, but they soon came to divide every possible commodity into a limited number of classes or groups to simplify rates. All commodities in the same class carried the same rate. Railroads, however, varied in assigning commodities to classes. By the middle of the nineteenth century 138 different classification systems had been established. Under this circumstance, freight managers often could not quote charges for long distance hauls since the classification on a commodity could change several times as it was handled by different railroads. In 1888-89 railroads voluntarily agreed to reduce the number to three systems. The Western covered the region west of the Mississippi, while the Southern encompassed the area south of the Ohio and Potomac Rivers. The official system enveloped the remaining portion of the country. Since the Hepburn Act had no provision for standardizing freight classification, it was not possible to bring the three regions together to establish a standard rate for the same service. Rebates, therefore, could still be made by placing a commodity in a lower freight classification.[25]

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24. Kolko, Railroads and Regulation, 144-145; Bogen, The Anthracite Railroads, 217.

25. Kolko, Railroads and Regulations, 151, 169-170; Bishop, Railroad Decisions of the Interstate Commerce Commission, 55-57.

Unable to achieve a voluntary agreement for a unified classification system, railroads turned to Congress. Their efforts in 1907 came to naught. Success, however, came with the Mann-Elkins Act of 1910. The ICC now had the power to suspend new rates and classifications for 120 days after the date they were to go into effect. If the hearings on these issues were not completed in that time, the suspension could be extended for another six months. The burden to prove that a new rate or classification was needed fell on the railroads. Finally, by 1919 the ICC achieved a unified classification system.[26]

Another facet of the Mann-Elkins Act provided for a Federal Court of Commerce. It was intended to function as an appeals court for railroad owners when they disputed the ICC rate findings. Railroads had requested such a court since 1893 feeling that it would protect their interests in the event the ICC ruled against them. The commerce court frequently failed to act in a responsible manner. In those cases which came before it, the court often ignored the ICC findings and conducted another investigation which ended with opposite conclusions. Its functions were restricted by the Supreme Court in June 1912 and Congress abolished it in 1913.[27]

As with previous acts, the Mann-Elkins Act failed to supply a framework for establishing just and reasonable rates although it came one step closer by giving the ICC jurisdiction over classification. The act, however, did provide for the final step by calling for a panel to investigate railroad values. To provide any accuracy in rate making so that a railroad could receive a fair return on its investment, the value of railroad property had to be ascertained. Many railroads had so distorted their value over the years through watered stock and bond issues that it

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26. Kolko, Railroads and Regulations, 172, 194; Bishop, Railroad Decisions of the Interstate Commerce Commission, 60.

27. Kolko, Railroads and Regulations, 194, 198-201; Stover, American Railways, 140.

was impossible to know their true value. As a result, the panel headed by Yale President Arthur Hadley recommended in its December 1911 report that legislation be passed to permit the ICC to valuate the railroads' physical property for rate setting purposes in order to achieve a fair return for a railroad. Congress acted accordingly and passed the Physical Valuation Act on March 1, 1913. It empowered the ICC to make a thorough investigation of property held or used by railroads with a view to establishing cost and physical valuation as a basis for rate making and the fixing of a reasonable profit. The investigation began in 1915.[28]

In the period between 1908 and 1916 the United States Justice Department instituted suits against the railroad monopoly on anthracite mine ownership and railroad consolidation. While railroad managers viewed combination as the means to more assured profits through controlling rebates and coal production, the United States government considered such activity to be in restraint of trade. In the first case against the anthracite railroads the Supreme Court ruled in the Delaware and Hudson Railroad case of May 1909 that a railroad could not transport a commodity which it owned at the time of transport. To comply, anthracite railroads established coal company subsidiaries. This attempt at diversion did not change the railroads' relationship with the coal they mined and hauled. Consequently, the Justice Department brought another suit against the anthracite railroads in February 1913. It contended that the coal companies were merely a subterfuge because railroads still had an interest in the coal they hauled. When the Supreme Court heard the Delaware, Lackawanna and Western Railroad case in 1915 it upheld most of the government's claim. Thus anthracite railroads and their coal sales were divorced. At the same time the Justice Department brought pressure on railroads to divest any controlling interest of other lines. The New England region was a prime example where the New York, New Haven and Hartford, under J.P. Morgan's control, had grown to be the

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28. Bishop, Railroad Decisions of the Interstate Commerce Commission, 76; Kolko, Railroads and Regulation, 193, 203.

largest railroad in that part of the country with over 2,000 miles of track. Shortly after 1900, Morgan, through the New York, New Haven and Hartford, obtained controlling interest in the Boston and Maine Railroad with its 1,700 miles of track and the Maine Central Railroad which covered 823 more miles. Morgan's plan to dominate the entire New England railroad system through the New York, New Haven and Hartford Railroad ended in 1914 upon advice from the Justice Department to divest the controlling interest in the other railroads. Other railroad owners such as those of the Pennsylvania sold their stock in the Baltimore and Ohio, and the Chesapeake and Ohio, while the New York Central divested its interest in the Nickel Plate.[29]

D. Labor and Unions

As the railroads grew in the period after the Civil War so did railroad employment. Unionization developed in this same period and probably accounts for railroad employee wages averaging above those of other American workers. In the period from 1860 to 1916 there were only two stikes of any consequence. These occurred during the course of the depressions of the 1870s and 1890s.

Railroad employment and wages rose throughout the latter part of the nineteenth and early twentieth centuries. The number of workers increased from 163,000 in 1870 to almost one and a half million by 1916. At the same time the average annual wage almost doubled from $465 in 1880 to $886 in 1916. Compared to the annual wage of other workers, railroad employees received an average of $135 more. In addition railroads were among the first corporations in the nation to develop pension plans and of these lines the Pennsylvania Railroad was the first to offer retirement pay in 1900. Within two years the Delaware, Lackawanna and Western also offered such a benefit. Employees did not

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29. Bogen, The Anthracite Railroads, 218-222; Michael Conant, Railroad Mergers and Abandonments (Berkeley: University of California Press, 1964), 47-48; Stover, American Railways, 146.

donate any pay into the pension fund. Such money as determined necessary was set aside each year by the railroad and considered to be a part of operating expenses. An employee was eligible to retire at age sixty-five with twenty-five years of service. The monthly pension depended upon salary and length of service. An individual received one percent for each year of employment on the averaged last ten years of wages.[30]

Railroad labor did not fully organize in the early post-Civil War years. The first union, the Brotherhood of Railway Engineers, appeared in 1863. It was followed by conductors in 1868, Firemen and Enginemen in 1873, and Trainmen in 1883. Known as the big four, these brotherhoods served basically as mutual insurance societies at first. Seven more unions organized between 1886 and 1901. Of these the American Railway Union established by Eugene Debs in 1893 differed. It was an industrial union which welcomed all railroad employees into its ranks, whereas the other unions were craft oriented and, therefore, restricted membership to only those of like work. Over the years railroads employed more and more Black workers, usually as porters or in dining cars. Labor unions excluded these men. Because of discrimination, Blacks did not organize their first union until 1912. This association of Colored Railway Trainmen and Locomotive Firemen was soon followed by four additional unions which included porters, dining car employees, switchmen, and brakemen.[31]

Aside from occasional walkouts, only two big strikes occurred in the 1860-1916 period. The first of these walkouts occurred in mid-1877 during the depression which lingered from the 1873 Panic. Early in that year most Eastern railroads had cut wages without disturbance, but when

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30. Urba, et al., The Railroading Situation, 246; "Delaware, Lackawanna and Western Pension Plan," Railway Age 33 (February 28, 1902), 263.

31. Stover, American Railroads, 119; Holbrook, The Story of American Railroads, 257-258.

the president of the Baltimore and Ohio announced another cut of ten percent effective on July 16, the firemen and brakemen refused to work. On July 19, Pennsylvania Railroad employees joined the strike and were soon followed by the men of the Erie and New York Central as well as workers from the smaller lines. Rioting occurred in Baltimore, Pittsburgh, Chicago, and St. Louis. President Rutherford B. Hayes ordered federal troops to Martinsburg, West Virginia and Pittsburgh. In the latter city mobs tore up railroad track, and burned machine shops and the Union Depot. Aid from the federal government ended the strike. The second labor dispute followed in the wake of the 1893 Panic. In sympathy with the Pullman Workers' plight, Eugene Debs announced that as of June 21, 1894, the members of his newly formed American Railway Union would not operate trains which hauled Pullman cars. As violence erupted, President Grover Cleveland dispatched federal troops to keep order. A federal court issued an injunction forbidding interference with the operation of the mails or interstate commerce. Debs was jailed and the strike broken. The incident dramatized the increasing use of labor injunctions against union activity. Thousands of Debs' union members were fired and blacklisted. To prevent these men from obtaining employment elsewhere, a secret watermark, which displayed a swan with a broken neck, was used on their service letters. This seal signaled to potential future employers that the bearer had partaken in the strike as one of Debs' union members. In 1916 the big four brotherhoods threatened to cause a general strike if they did not have their day's labor reduced from ten to eight hours with extra pay for overtime. The strike was averted with the passage of the Adamson Act which granted the eight-hour day, but not overtime pay.[32]

So important was continuous railroad operation to the country that the United States Congress instituted laws regulating railroad labor relations separately from other industries. The first such measure was

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32. Holbrook, The Story of American Railroads, 245-255; Stover, The Life and Decline of the American Railroad, 88-89, 119-120.

the Arbitration Act of 1888. It encouraged labor and management to reach agreement, but it failed for want of an enforcement mechanism. As a result, the Erdman Act of 1898 provided for federal mediation if invited. One further step was taken with the Newlands Act in 1913. This legislation established a permanent three-man Board of Mediation and Conciliation which could intervene in a strike without invitation. Slowly, all facets of railroad operation came under government control.[33]

33. Urba, et al., The Railroading Situation, 213-214; Holbrook, The Story of American Railroads, 258.

CHAPTER III: THE END OF THE GOLDEN AGE

The year 1916 marked the end of the golden age achieved by railroads in the previous fifty years. In that year railroads recorded their greatest mileage at 254,037. The next year, the mileage began its long decline. A prelude of things to come also highlighted 1916, for in that year the first federal highway construction act passed. Soon competition to haul the nation's freight and passengers would come not only from land transport, but also from the air and renewed waterways. Before that day, however, railroads would be run by the federal government for three years. Then in 1920 owners would achieve their long desired victory when the federal government would extend its control to not only all rate making, but also to management and finance regulation. The importance of railroads would continue to decline until a crisis would bring semipublic ownership to the Northeast in the 1970s.

A. Regulation Triumph

When the United States entered the First World War, the drastically increased war freight brought problems for an uncoordinated railroad system. The greatest problem stemmed from a car shortage. This shortage occurred when traffic jams caused by a lack of terminal trackage, warehouse space, and yard facilities resulted in the use of box cars for storage. An impending crisis created by this situation led President Woodrow Wilson to nationalize the railroads on December 26, 1917 under the United States Railroad Administration. He named Secretary of the Treasury William Gibbs McAdoo as director of that agency. McAdoo initiated a number of operational changes for more efficient service. New shipments were to be accepted only if they could be delivered promptly. Freight was to be sent over the shortest route rather than holding to the previous practice of sending it hundreds of miles out of its way to keep it moving over a single railroad. Cars had to be promptly unloaded and moved from congested areas to locations of need. Duplicate service was eliminated. It was much easier for the federal government to institute efficiency than for the numerous railroads.

Under private control the Sherman Antitrust Act of 1890 had made coordination difficult. In addition each railroad had sought to keep any traffic advantage it had. McAdoo also instituted a standardization policy for locomotives as a means to end the slight differences in engines used among the various railroads.[1]

In mid-January 1918 McAdoo created a Railroad Wage Commission to study working conditions and possible pay increases. It found that the cost of living had risen by forty percent in the previous two years while salaries rose about twelve percent to $1004 by the end of 1917. As a result, substantial wage increases were granted retroactive to January 1, 1918. In addition women, who did identical work to that of men, would receive equal pay. McAdoo also ended the wage discrimination against Blacks. Later in 1918 he extended the eight-hour day to all railroad employees with extra pay for overtime.[2]

With the passage of the Transportation Act of 1920 railroads were returned to private ownership. In handing back the railroads to corporate control, the United States Congress instituted the regulations which the owners had so long requested to achieve economic stability. The act extended to the Interstate Commerce Commission the authority to govern railroad management and finance. Rate supervision was extended to minimum rate setting. In addition rates were to be fixed to assure a fair return of 5.5 percent. One-half of income over six percent had to be sent to the government for distribution to the small railroads with financial problems. In their past struggle to achieve economic stability, competition had caused railroad owners to rarely achieve anywhere near a 5.5 percent profit. The ICC received the power to supervise all railroad security issues. Pools and interlocking directorates were forbidden. Since government ownership during the First World War revealed a great

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1. Stover, The Life and Decline of the American Railroad, 158-159, 162-163, 169.

2. Ibid., 171-172.

duplication of services and excess capacity, all new track construction or extension other than spurs or industrial track could only be accomplished by obtaining a certificate of public convenience and necessity from the ICC. At the same time, the ICC was directed to prepare a plan by which the nation's railroads could be consolidated into a limited number of systems. It, however, never produced such a plan.[3]

Although the direction of the Interstate Commerce Commission changed with the 1920 Transportation Act to permit railroad consolidations, few railroads attempted a union. Mantis and Oris Van Sweringen, who had bought the Nickel Plate Railroad from the New York Central in 1916, used that base to purchase other lines beginning in 1922. In that year they gained control of the Chesapeake and Ohio, and the Hocking Valley Railroad. Five years later in 1927 the Van Sweringens added the Wheeling and Lake Erie, the Pere Marquette, the Kansas City Southern, the Missouri Pacific, and the Erie Railroad. This railroad empire collapsed in the midst of the depression in 1935. After the breakup, the ICC permited the Chesapeake and Ohio to control the Nickel Plate and the Erie Railroads in 1937.[4]

B. Hard Times

Although the Transportation Act of 1920 gave railroads a good financial health in the 1920s, new forces came into play to begin a decline in railroading. The proliferation of the automobile and intercity bus service started a decline in railroad passenger traffic by 1923. Along with trucks, the development of pipelines and renewed water transportation fostered by the Federal Barge Line caused railroad freight

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3. Conant, Railroad Mergers and Abandonments, 28-29, 37, 43, 49, 68; Bishop, Railroad Decisions of the Interstate Commerce Commission, 32-36, 47; Kolko, Railroads and Regulation, 229; Stover, American Railroads, 195-196; Urba, et al., The Railroad Situation, 58.

4. Stover, American Railroads, 222; Conant, Railroad Mergers and Abandonments, 54.

shipments to grow only slowly. By the mid-1920s airplanes began to capture mail contracts from railroads. This was soon followed by the institution of passenger flights. The depression which followed the 1929 stock market crash brought extreme hardship to the railroads. Freight revenues dropped in half by 1933, while the passenger business nearly collapsed. Since many lines experienced serious financial problems, the federal government came to their aid with the Emergency Railroad Transportation Act of 1933. It provided for a Federal Co-ordinator of Transportation to promote economy in railroads by ending duplicate service and facilities, reducing expenses and lowering fixed charges. The act also changed the rate making rule by which the ICC was to set rates to allow a 5.5 percent profit. It could now set rates to assure a fair return without adherence to a fixed percentage. Although the rationale for this act was to encourage railroad coordination and halt uneconomical competition, it only achieved moderate success in its three-year life. Another aid to railroads was Section 77 in the Bankruptcy Act of 1933 which permitted them to restructure debts without paying interest in order to return to a marginally profitable operation. It did prove beneficial as exemplified by the New York, Ontario and Western Railroad which operated while in a state of bankruptcy between 1937 and 1957.[5]

After 1934 railroads did improve their economic position through cost cutting and improved operations. Part of the cost cutting involved abandonment of portions of track because competition from other types of transportation made those segments unprofitable. Operational improvements involved an increase in freight car size and greater engine

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5. Stover, The Life and Decline of the American Railroad, 178; Conant, Railroad Mergers and Abandonments, 68, 116; Stover, American Railroads, 219; Otto S. Beyers, "Unemployment Compensation in the Transportation Industry," The Annals of the American Academy of Political and Social Science 187 (September 1936), 95; Urba, et al., The Railroad Situation, 240.

speed. Consequently, American railroads were better prepared to meet the challenge of the Second World War than they were in the previous conflict.[6]

Although the government did not nationalize the railroads during the Second World War, President Franklin D. Roosevelt did create the Office of Defense Transportation by Executive Order on December 18, 1941. Its director, Joseph Eastman, was instructed to co-ordinate the various transportation facilities to avoid traffic congestion in ports and to estimate the volume of present and future war traffic. Needless to say the railroad traffic vastly exceeded that of the First World War in both freight and passengers. Despite this situation, cooperation among the railroads resulted in meeting the nation's needs successfully.[7]

Railroad workers, as in previous wars, were called to uniform during the Second World War. Slightly over twelve percent of those who served joined the Military Railway Service, a component of the United States Army. The men of these railroad battalions applied their experience to keep numerous rail miles operating for American troops in North Africa, Sicily, Italy, Britain, France, Germany, Austria, Alaska, Australia, New Caledonia, the Philippines, Iran, India, and Japan. In their absence many women took their place in the railroad shops and yards keeping American trains in repair and on schedule.[8]

After the Second World War railroads continued to suffer a decline. Passenger traffic immediately resumed its descent in spite of new equipment. By the late 1950s most of the fast passenger trains between the East coast and Chicago had ceased operation, and ten years later hardly any passenger service was being offered. No one wanted to

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6. Conant, Railroad Mergers and Abandonments, 115; Stover; The Life and Decline of the American Railroad, 179.

7. Stover; The Life and Decline of the American Railroad, 182-183.

8. Ibid. 187.

travel all day by rail when an airplane could transport individuals over the same distance in less than two hours. The United States Congress ended most railroads' burden of uneconomical passenger service with the creation of the National Railroad Passenger Corporation (Amtrak) in 1971. This semi-public corporation assumed the responsibility for most intercity passenger service. Freight shipments declined as trucks and water transport increased their share of the traffic. A large revenue loss occurred when the Postal Service began to phase out mail cars in the mid-1960s in favor of airmail service.

The generally poor financial condition of northeastern railroads led to mergers in the 1960s. One of the first such consolidations occurred between the Erie and the Delaware, Lackawanna and Western in 1960 to form the Erie Lackawanna, which had a track mileage of 3,042. In 1962 the New York Central and the Pennsylvania submitted a merger petition to the ICC, but six years passed before these two huge trunk lines combined as the Pennsylvania Central Transportation Company. Less than three years later in June 1970 the Penn Central declared bankruptcy. More shocking than its being the largest corporate bankruptcy in American history was the fact that the railroad could not reorganize. This problem stemmed from the fact that the line had substituted equipment debt for funded debt as other area railroads were doing. In a bankruptcy reorganization the interest on funded debt could be voided, but not the interest on equipment debt and, therefore a creditor could repossess the property. Soon the Erie Lackawanna, Boston and Maine, Central Railroad of New Jersey, Lehigh Valley, Reading, and the Lehigh and Hudson River railroads also faced bankruptcy. As a result in early 1973 the United States Congress began to seek a solution to the problem. Only one, the Boston and Maine, was able to reorganize. The others along with the Penn Central were brought together under Conrail, a semi-public corporation, when it was formed on April 1, 1976. Much of

these railroads' problems were caused by the shift of industry and manufacturing away from the northeast to other sections of the country.[9]

C. Railroad Labor

By the end of the First World War railroad workers fared well. Along with high wages, they had gained the long sought right of collective bargaining. In addition the Transportation Act of 1920 created a nine-man Railroad Labor Board with extensive jurisdiction over labor disputes. It soon became overburdened as unions attempted to maintain wage gains into the post-war years. As a result, Congress passed the Railroad Labor Act of 1926. It established a National Mediation Board (NMB) which reviewed grievance appeals and promoted voluntary arbitration. As the cornerstone for all future labor relations, this act held that working agreements never expire, but they could be amended by notification of a desire to do so. If the parties could not reach an agreement, they had to submit their dispute to the National Mediation Board which would help them to reach an accord. If an agreement could not be reached at that point, then the NMB could offer to arbitrate. Failing such an overture, a thirty-day "cooling off" period would take affect. At the end of that period a strike could begin unless the president decreed another thirty-day interval. During that time, the president would appoint a Presidential Emergency Board which had the power to investigate the dispute and recommend a solution. Acting on that advice, the president could bring pressure on the parties to reach agreement. If he failed, a strike could ensue. No negotiations have ever reached this point although walkouts have occurred.[10]

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9. William K. Black, Railroads for Rent: The Local Rail Service Assistance Program (Bloomington: University of Indiana Press, 1986), 6, 24, 30-31; Stover, The Life and Decline of the American Railroad, 283-285; Urba, et al., The Railroad Situation, 87-89, 103, 240-241.

10. Holbrook, The Story of American Railroads, 258; Stover, American Railroads, 196; Urba, et al., The Railroad Situation, 214-216.

Workers suffered both wage reductions and layoffs during the 1930s depression as railroads sought to economize. In addition company pensions were cut. To protect these benefits, Congress passed the Railroad Retirement Act in 1937. Since there was an immediate need for pensions, railroad workers were exempt from the Social Security Act under which payments were not to be made until 1942. In 1951, however, the two pension plans were linked.[11]

During the Second World War railroads lost more workers to the draft than in the previous conflict. At the same time increased traffic necessitated more employees. Although railroad employment reached 2,000,000 by 1920, the loss of business and the depression had reduced that number to just over 1,100,000 by 1941. By the end of the second war the workforce numbered 1,420,000. Many women had been hired to replace the men lost to uniform. On the eve of war in 1941, railroads had recovered sufficiently for employees to demand wage hikes and a paid vacation. When an Emergency Mediation Board failed to end the dispute, President Franklin D. Roosevelt intervened and obtained the workers' demands for them. Employees again asked for a raise in pay in late 1942 despite the policy of the Office of Economic Stabilization to control wage increases. The announcement of a nationwide strike brought presidential intervention and a pay increase. The view, going back into the late nineteenth century, that the nation's railroads were too vital for the economy to allow interrupted service prevailed, especially during wartime. Immediately after the war there were several government railroad takeovers to prevent strikes by employees during the post-war inflation period. Employment began to drop with the introduction of diesel locomotives in large numbers, for these engines required fewer repairmen. More modern equipment including advanced maintenance-of-way machinery

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11. Urba, et al., The Railroad Situation, 214-216, 246-247.

also reduced the need for a larger labor force. Although wages have remained high, the number of employees has shrunk to about 500,000.[12]

D. Modern Railroad Stock

Through the 1920s to 1940s improvements continued to be made in steam locomotives. A new type freight engine was introduced in 1925 by the Boston and Albany Railroad. The 2-8-4 Berkshire, named for the mountains over which it was used, was an advancement over the 2-8-2 Mikado. High pressure boilers of 250 psi and feedwater heaters came into use in the 1930s. As the size of locomotives increased, the number declined since each engine could pull more cars. The advent of the diesel-electric locomotive, however, spelled the end for the steam era. Not only did these new engines have greater tractive power, they required less fuel and maintenance. The Central Railroad of New Jersey purchased the first diesel-electric locomotive in 1925 for use as a switch engine in its New York City yard. By the early 1930s several dozen other railroad companies also employed them for switching. The first diesel locomotive for passenger service came into use in 1934, while the first freight diesel appeared in 1941. Although the initial engines averaged 1,200-to-1,500 horsepower, many were capable of 4,000 horsepower when they came into general use in 1945. They slowly superseded steam locomotives until by 1960 it was easier to see steam engines in a museum than in operation on a railroad.[13]

Rolling stock changed considerably from that of the 1920s. The first use of air conditioning in passenger cars occurred in the 1930s. By the latter 1940s stainless steel vista dome or observation cars appeared. Then by the mid-1950s the slumbercoach became popular. These cars

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12. Stover, The Life and Decline of the American Railroad, 186-188, 226; Urba, et al., The Railroad Situation, 216.

13. Stover, American Railroads, 230-233; Urba, et al., The Railroad Situation, 348-352; "Lackawanna Exhibits New Diesel Facilities at Scranton," Railway Age 118 (June 2, 1945), 998.

gave the coach passengers a private roomette with bed and bath. Freight cars increased in size and variety as well. The average car capacity of forty-five tons grew to seventy-five tons by the mid-1970s with a number of 100 tons today. Metals of steel alloy and aluminum have reduced car weight. In a move to compete with the trucking industry, trailers as well as cargo containers are hauled piggyback. Automobile rack cars came into use in the 1960s. Specialized hopper cars and grain cars have replaced the gondola and box car. Railroads, which in the 1940s owned seven or eight types of freight equipment, own upward of three dozen different specialized cars today. Car locations are now determined by using computerized trackside scanners to read plastic identification strips afixed to the side of cars.[14]

Increased locomotive and car sizes required stronger tracks. Rail weights of ninety pounds per yard in the 1920s have grown to exceed 110 pounds today with some in the 130-pound range to handle the 100-ton cars. Special alloys have increased rail durability, while quarter mile long continuous welded rails are taking the place of the older thirty-nine-foot rails. Much specialized maintenance of way equipment has replaced manual labor such as weed exterminators, track alignment and ballast tamping machines, as well as those to replace spikes and ties with new ones.[15]

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14. Urba, et al., The Railroad Situation, 253; Stover, The Life and Decline of American Railroads, 215-216, 257, 268-270.

15. Urba, et al., The Railroad Situation, 356-57.

CHAPTER IV: THE DELAWARE, LACKAWANNA AND WESTERN RAILROAD YARD AND THE DICKSON SITE

A. Evolution of the Delaware, Lackawanna and Western Railroad Yard

The history of the Scranton railroad yard and its role with the Delaware, Lackawanna and Western evolved from the establishment of an iron foundry. In 1839 William Henry found iron ore at the confluence of the Lackawanna River and Roaring Brook in the area known as Slocum Hollow. The discovery was not a surprising occurrence, for in 1800 Ebenezer Slocum and his brother Benjamin had built a forge near that site. There they made iron from bog ore which could be found along the local creeks. Henry went into partnership to purchase the land, but his partner, Edward Armstrong, died before the payment was complete. Convinced that he had found valuable ore, Henry turned to his son-in-law, Seldon Scranton, for aid. Seldon, his brother George, and Sanford Grant came to view the find and they decided to invest. They organized Scrantons, Grant and Company. Soon work began on a furnace which was designed to be fired by the locally abundant anthracite coal. The first successful blast on the furnace occurred on January 18, 1842. Lacking adequate transportation, the cost to deliver the pig iron to market raised the price well above that produced elsewhere. As a result, the partners decided to manufacture nails as a more cost-effective product to ship. This move, however, proved a failure for their inferior ore resulted in worthless, brittle nails. With the lack of success in this venture, Grant left the company in 1846. It was reorganized as Scrantons and Platt when Joseph Platt joined the firm. In searching for another iron product, the Scrantons visited the Montour Iron Works in Danville, Pennsylvania where they observed the manufacture of T rails. Turning to the New York and Erie Railroad, which was building a line

across southern New York, they won a contract to supply that line with T rails.[1]

As had been the case with their other products, the greatest obstacle to delivering the rails was the lack of good transportation. In 1849 the Scrantons decided to build their own railroad. On it they planned to use steam locomotives to deliver their iron rails to the Erie Railroad. They purchased the rights to the unconstructed Legget's Gap Railroad and, with financial aid from the Phelps Dodge Company, construction began on this line in 1850. When completed the next year, the tracks ran from Scranton to Great Bend on the New York border where it connected to the New York and Erie Railroad. The track had a six-foot gauge to conform with that of the Erie. By special act of the Pennsylvania legislature on April 14, 1851, the name of the railroad became Lackawanna and Western. John Phelps held the presidency and Seldon Scranton acted as treasurer.[2]

At the same time, the Scrantons acquired the Delaware and Cobb's Gap Railroad right-of-way. They completed that route, which ran from Scranton southeast past Delaware Water Gap to the New Jersey border, in 1853. It was consolidated with the Lackawanna and Western by special act of the Pennsylvania legislature on March 11, 1853 as the Delaware, Lackawanna and Western Railroad. George Phelps became president while John Phelps, George Scranton, and William Dodge sat on the Board of Directors. With its nucleus at Scranton, the railroad finally provided cheap transportation for the iron rails and gave impetus to further development of anthracite coal mines which the company had begun to

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1. John Beck, Never Before in History: The Story of Scranton (Northridge, Calif.: Windsor Publications, 1986), 31-40; Thomas T. Tabor, The Delaware, Lackawanna & Western Railroad: The Road of Anthracite in the Nineteenth Century 1828-1899 (Williamsport, Pa.: Lycoming Printing Co., 1977), 148-149.

2. Beck, Never Before in History, 43-44; Tabor, The Delaware, Lackawanna & Western Railroad, 151-152.

develop. In addition a lease and contractual arrangement in 1856 allowed the railroad access to Hoboken, New Jersey, and thus the New York City market. Other agreements and leases provided access to the Erie Canal at Ithaca, New York at the same time.[3]

In the 1850s the Scranton railroad yard occupied only a part of the area it ultimately came to cover. As the center of its operation the company built its first passenger and freight stations there in 1851 shortly after the completion of a wooden bridge (Bridge 60) over the Lackawanna River. The passenger station was located on Lackawanna Avenue facing Wyoming Avenue. The freight depot was constructed on Lackawanna Avenue facing Washington Avenue. Both structures were moved in 1854 with the passenger station placed on Lackawanna opposite Franklin Avenue and the freight depot relocated to Lackawanna and Mifflin Avenue. At the same time a U-shaped, brick machine shop building was constructed on the west side of Washington Avenue. The main portion was 210 feet long and seventy-five feet wide. Each wing was 200 feet long and fifty-five feet wide. The main section was used for a blacksmith and pattern shop, office, engine room, and boiler room. Car repairs occurred in the south wing while engines were repaired in the north wing. A boiler shop and a car house occupied sites across Washington Avenue from the machine shop. In 1855 a seventy-five by forty-four feet iron foundry was built at the corner of Washington and Mechanic Street. That same year a 225-feet in diameter roundhouse which could house thirty locomotives was begun. Situated at the end of the machine shop wings, the completed structure was capped with a ninety-eight feet high dome (map 1).[4]

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3. Beck, Never Before in History, 43-44; Tabor, The Delaware, Lackawanna & Western Railroad, 155-157.

4. Frederick L. Hitchcock, History of Scranton and Its People, Vol. I (N.Y.: Lewis Historical Publishing Co., 1941), 50; History of the City of Scranton; Providence, Dunmore, Waverley, and Humphreysville, with Authentic Accounts of the Origins and Present Condition of the Various Railroads, Coal, Iron, and Manufacturing Companies, Churches, Schools, Societies, Etc., of the Places Above Named, Also Directory & Business Advertiser for 1867 and 1868 (Scranton: Republican Office, 1867), 50.

By the early 1860s, as the Delaware, Lackawanna and Western grew, the requirements for more repair facilities in the Scranton yard increased. In 1862 a blacksmith shop of 50 by 180 feet was constructed on the east side of Washington Avenue. At the same time the area between the machine shop wings was enclosed for a greater work space. Two lumber sheds were built nearby.[5]

A major expansion in the Scranton yard occurred in the 1864-67 period. First the 1851 passenger station was razed and a new, larger brick Victorian style station replaced it. The freight depot was also taken down and a new brick one built on Lackawanna and Cliff Street. A dressed stone bridge replaced the original wooden Bridge 60. Then, because the space to build additional shops did not exist, the DL&W purchased the remaining adjacent land between Washington Avenue and Cliff Street. On this ground the company began to build a second roundhouse with attendant machine shop in April 1865. The completed roundhouse had a 300-foot diameter which could house forty locomotives. It was open in the center, while the depth under cover was sixty-seven feet. The inside circle or front was cast iron and the outside wall was brick. Its roof consisted of iron rafters, white pine purlins, and pine matched roof board covered with slate. A sixty-six-foot turntable served the roundhouse. Simultaneously, work began on a two-story, U-shaped machine shop next to the roundhouse. The main section was 270 feet long and 100 feet wide. Its lower floor had eleven tracks for engine repair. The upper story contained a pattern shop, carpenter, tin and coppersmith shops and offices. Each of the two wings measured 200 by 75 feet. The north wing had a blacksmith and boiler shop, while the south wing contained such tools as lathes, planing machines, and drill presses. In the same year the dome on the earlier roundhouse was

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5. History of the People of Scranton, 50.

removed because settling made it unsafe (figure 1). A new 100 by 100-foot foundry replaced the older one in 1867.[6]

The Scranton railroad yard increased in importance by 1868. Beginning in that year and for several successive years, the company began to lease considerably more track--especially in New York--in an effort to expand its market. As a result, it obtained a connection to the port of Oswego on Lake Ontario. Anthracite coal was the main freight hauled to this destination for delivery in Quebec. In 1873 the Bloomsburg line was consolidated into the system. This track ran between Scranton and Northumberland, Pennsylvania to the southwest. With this integration the owned and leased track mileage grew from approximately 168 miles in the pre-1868 period to about 520 miles. This trackage expansion permitted an increase in the annual tonnage of anthracite hauled by the line from 1,592,414 tons in 1869 to 3,112,221 tons by 1874. That product represented almost ninety percent of the Delaware, Lackawanna and Western freight. The coal and other freight passed through the Scranton yard where coal trains were made up. This increased business brought several more repair shops to the yard in 1874. The old boiler shop just east of Washington Avenue was removed. A passenger car shop and paint shop were built on that site while the old, adjacent car shop was converted into a freight car repair shop (map 2).[7]

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6. History of the People of Scranton, 50-51; Hitchcock, History of Scranton and Its People, 59; Record No. 16-317, Box 7, Construction Mainline Northern 1864-1867, Corporate Records of the Delaware, Lackawanna and Western Railroad Company, (George Arents Research Library, University of Syracuse, Syracuse, New York, hereafter cited as GARL).

7. Herbert T. Walker, "Early History of the Delaware, Lackawanna & Western Railroad and Its Locomotives," Railroad Age Gazette 34 (June 13, 1902), 440-441.

Figure 1

Scranton Yard 1883

Courtesy of the Railroad Museum of Pennsylvania.

The 1850s roundhouse is visible in the center of the picture, while on the right center the 1865 roundhouse can be seen with the maintenance shop just back of it. The main section of the maintenance shop is two-story, while the wings are one-story.


MATTHEWS BROS
WAREHOUSE

Figure 2

D.L. & W. Railroad Yard, Scranton, Ca. 1880s

Courtesy of the Railroad Museum of Pennsylvania.

The 1850s roundhouse appears in the upper center. The trestle with coal chutes next to the househouse was replaced in 1906.

Figure 3

Storehouse, Ca. 1902

Courtesy of the George Arent Research Library, Syracuse University.

This two-story storage building was constructed in 1899-1900. Behind it one can see the 125-foot brick-lined, steel stack for the power plant, which was built in 1902.


22385
FIRE
HOSE

Compared to the earlier period, the decades of the 1880s and 1890s witnessed few changes in the yard (figure 2). About 1884 another car repair shop was built just south of the foundry. In 1890 a paint shop and a 50-by 100-foot, two-story brick pattern shop were constructed near the 1865 roundhouse and machine shop. A two-story 54- by 209-1/3-foot brick storehouse was erected in 1899-1900 (figure 3). In this period the yard remained the central repair and freight facility for the DL&W. A major expansion in track mileage occurred in 1882 with the completion of the route to Buffalo, New York. The company at that date owned and leased 874 miles of track. By 1900 this amount had increased to 939 miles with succeeding leases (Maps 3 and 4).[8]

Soon after William Truesdale became president of the Delaware, Lackawanna and Western in 1899, a major change occurred both to the Scranton yard and to the line. In a drive to modernize the railroad in the 1902-12 period, Truesdale began to improve and divert repair and freight facilities to yards other than the main one in Scranton. Bridges were also rebuilt to carry the heavier motive power. This renovation was in keeping with a movement among the nation's railroad owners to improve repair facilities and bridges to serve the larger, modern equipment. The Scranton yard proved too small to be retained as a central yard for all modern functions. As a result, the freight car repair operation was moved to Keyser Valley on the edge of Scranton. A passenger car repair facility was developed at Kingsland, New Jersey in which all the coach overhauls were made for the system. Locomotive repairs became the main function in the Scranton yard although some of this work was diverted to shops in Kingsland, and Syracuse and Buffalo, New York. Finally, in

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8. Record 232, 296, and 512, Box 9, Construction Vouchers 1879, 1881-1892, Corporate Records of the Delaware, Lackawanna and Western Railroad Company (GARL); Storehouse 1899, Book 7, Renewal Fund 1895 to 1900, Corporate Records of the Delaware, Lackawanna and Western Railroad Company (GARL); President No. 21, Authority for Expenditure Book 1899-1909, Corporate Records of the Delaware, Lackawanna and Western Railroad Company (GARL); Building Permits No. 535, 536, and 4393, City Hall, Scranton, Pennsylvania.

1910 two new yards were developed just west of Scranton. The Hampton yard then handled all coal trains so that coal no longer passed through the Scranton yard. Returning empty coal cars came through the Taylor yard.[9]

Truesdale also succeeded in a drive to diversify the freight business and make the Delaware Lackawanna and Western into an all-commodities carrier. He feared the railroad relied too heavily on coal freight. In 1906, for the first time, the railroad hauled more non-coal freight than coal. In keeping with this policy, the Scranton yard took on a new function in 1906 with the construction of freight transfer platforms adjacent to Washington Avenue.[10]

The railroad modernization scheme brought a great physical change to the Scranton yard in the 1902-1912 period. In 1902 the original roundhouse was razed leaving only its sixty-foot turntable in place. At the same time the 1865 roundhouse was removed as well, but it was replaced with a new, larger roundhouse on the same site. Although the sixty-six-foot turntable remained in place, the new structure had forty-six stalls whose depth under cover was eighty feet. A new paint shop was erected in connection with it (Figures 4 and 5). Also in 1902 the wings were removed from the adjacent machine shop and the second floor was taken from most of the main portion. In addition a 100-foot extension was made to the south end of the main portion. At the same time a new power plant was constructed next to the west end of the 1899-1900 storage building. The draft for its four Heine boilers was

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9. "Lackawanna Improvements," Railway Age 35 (February 27, 1903), 297; Editorial, Railway Age 41 (May 25, 1906), 879; Thomas T. Tabor and Thomas T. Tabor III, The Delaware, Lackawanna & Western Railroad: The Road of Anthracite in the Twentieth Century 1899-1960, Part two (Williamsport, Pa.: Lycoming Printing Co., 1981), 456-457.

10. President's No. 340, Authority for Expenditure Book 1899-1909, Corporate Records of the Delaware, Lackawanna and Western Railroad Company (GARL); Building Permit No. 9518, City Hall, Scranton, Pennsylvania.

Figure 4

Locomotive Frame [on transfer table between the roundhouse and the maintenance shop], ca. 1910

Courtesy of the George Arent Research Library, Syracuse University.

In addition to the transfer table, a portion of the original 1902 roundhouse is visible on the left.

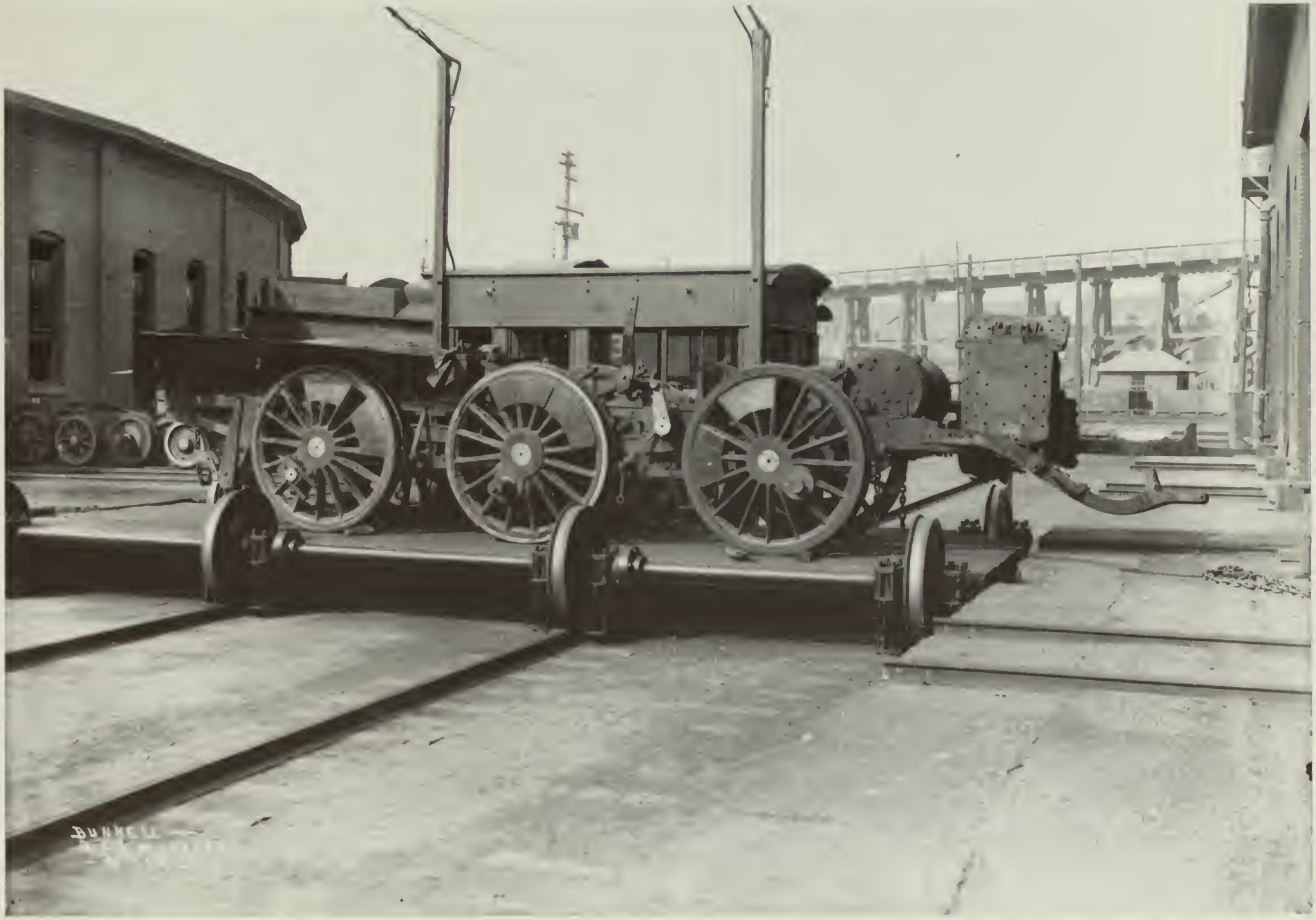
BUNNELL

Figure 5

Scranton Yard, Ca. 1910

Courtesy of the Railroad Museum of Pennsylvania.

The 1902 roundhouse without modifications appears in the center of the photograph. At this time the entrance track is through a covered area, while only the two exit tracks are uncovered. A "Santa Fe" type water tank is located to the right rear of the roundhouse. The renovated maintenance shop is located in the foreground. Its wings and most of its second story were removed in 1902, while the remainder of the second floor was taken off about 1910. The structure on the left between the maintenance shop and the roundhouse is the paint shop, which was erected in 1902.

furnished by a 125-foot high, brick-lined, steel stack. It supplied steam to the maintenance shop and roundhouse through overhead pipes. In 1905 the old machine shop, foundry, and lumber sheds west of Washington Avenue were torn down, while east of that street the blacksmith shop, paint shop, and two repair shops were removed. The following year another structure, the ca. 1884 car repair shop west of Washington Avenue, was razed. A new 400-foot-long cinder pit with overhead traveling crane was added next to the roundhouse in 1906, as well as a 900-foot-long, 25-foot-wide coal trestle with chutes for fueling locomotives (Figures 6, 7, 8, and 9). The trestle and chutes replaced an older set on that site.[11]

Ground was broken in October 1906 for a new five-story French Renaissance style passenger station. The station was located southeast of the yard because the business section of Scranton had shifted to that area. When completed in 1908 several departments from the corporate headquarters in New York City were relocated into offices in the upper floors of the station. With the opening of the new station the old 1864 Victorian style passenger structure was removed and a new freight depot constructed on its site. The old freight depot near Cliff Street was soon rented to private firms for warehouse space.[12]

Construction began on a new, steel Bridge 60 in 1907. It replaced the older stone bridge as part of President Truesdale's plan to modernize bridges to bear the weight of heavier equipment. A signal tower was attached to its side upon completion in 1908. At the same time the

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11. "Shop Improvements on the Lackawanna," Railway Age 34 (August 29, 1902), 206; Building Removal Permits No. 8361 and 9961, City Hall, Scranton, Pennsylvania; Building Permits Nos. 5613, 9516, and 9517, City Hall, Scranton, Pennsylvania; President's No. 344, Authority for Expenditure Book 1899-1909, Corporate Records of the Delaware, Lackawanna and Western Railroad Company (GARL).

12. "The New Scranton Station of the D.L.&W.R.R." Railway and Engineering Review 49 (January 9, 1909), 22-23.

Figure 6

Cinder Pit and Coal trestle, April 6, 1912

Courtesy of the George Arent Research Library, Syracuse University.

Tracks for removing ashes from the locomotive ran along both sides of the 400-foot-long cinder pit. A concrete covered sloped area under the tracks allowed the ash to slide down into water filled troughs where any hot coals were cooled. The track between the troughs permitted open cars to be placed there for ash collection. A traveling overhead crane with a clam bucket was used to remove the ash from the troughs and placed in the open cars. The structure on the left was used by the men who removed ashes from locomotives when not performing such chores. The 900-foot-long coal trestle can be seen to the left of the cinder pit.

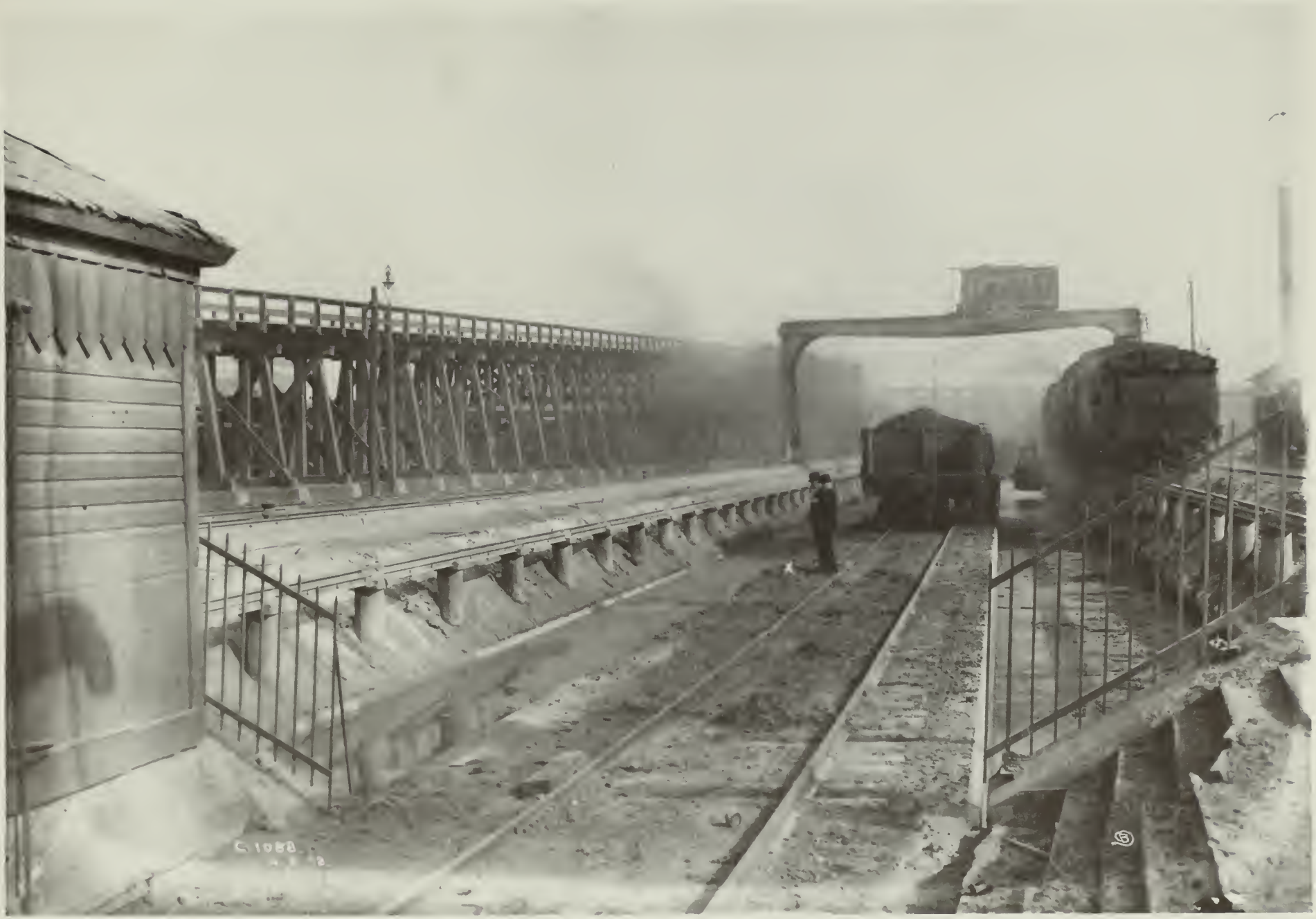
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Figure 7

Cinder Pit, Ca. 1907

Courtesy of the George Arent Research Library, Syracuse University.

In this picture one can see the use of the overhead traveling crane with its clam bucket to remove ash from the water in the cinder pit. A portion of the 1902 roundhouse appears on the right while in back of it is the maintenance shop. One can see the portion of the maintenance shop's second story which was not removed in 1902, but taken off about 1910.


D. L. &
SUNNELL
D.L.&W.
PHOTO
55-B

Figure 8

Cinder Pit, September 23, 1907

Courtesy of the George Arent Research Library, Syracuse University.

A close-up of the cinder pit with the adjacent track supported on pillars. Ash removed from locomotives fell through that track onto the sloped area beneath and slid into the water-filled cinder pit.


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9-23 07

Figure 9

Cinder Pit and Coal trestle, Ca. 1910

Courtesy of the George Arent Research Library, Syracuse University.

A distance shot of the cinder pit with its traveling crane and ash removers shack. One can see overhead water cranes on each side of the entrance to the ash pit where locomotives took on water. The wooden coal trestle appears on the left. The 1902 roundhouse is located on the right showing the uncovered exit area. Again a water crane is located at that point. A portion of the maintenance shop is visible with the second story area which remained after the 1902 renovation now removed. The power plant stack can be seen beyond the maintenance shop. It was taken down in 1912.


C. 1930

so-called "China Wall" which separated the yard from downtown Scranton was widened and elevated to permit more through tracks from the yard. It included a new, concrete overpass on Washington Avenue.[13]

Construction began in June 1907 on a new set of maintenance structures which were mainly located on the east side of Washington Avenue. The contiguous land, abandoned by the Lackawanna Iron and Steel Company in 1902 when it moved to Buffalo, New York, was incorporated into the railroad yard for part of the new facility. Between 1907 and 1912 the DL&W constructed a large machine and erecting shop with a transfer table behind it, a foundry, blacksmith shop, pattern shop with connecting casting platform, laboratory, Santa Fe-type water tank, sand blast house, power plant, and a firing-up house. A concrete and steel combination storehouse and office building with brick facing was erected just across Washington Avenue (figure 10). It was tied to the structures on the other side of the street by a subway system which contained a three-foot gauge electric tram. Covered scrap bins were built next to the storage and office building and a gas house was constructed just beyond the bins (figure 11).[14]

The 1910s witnessed a number of other changes in the railroad yard. In 1912 a new oil house was added west of the roundhouse. At the same time, the 1902 power plant was removed. In the 1912-13 period twelve stalls were lengthened in the roundhouse to have ninety-one feet under cover. The sixty-six-feet in diameter turntable in the center of that structure was removed at this time and replaced with an American Bridge

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13. Interview of Fred Hall, Scranton, Pennsylvania by Berle Clemensen, November 17, 1987.

14. Book 8b, Renewals and Betterments thru Income 1901-1907, Corporate Records of the Delaware, Lackawanna and Western Railroad Company (GARL); Account 20, Shop and Roundhouse Buildings, Analysis of Additions and Betterments, July 1, 1907 to June 30, 1918, Corporate Records of the Delaware, Lackawanna and Western Railroad Company (GARL); Building Permit Nos. 12854, 12855, 12857, 12858, 12335, 12336, 12337, 12338, and 15425, City Hall, Scranton, Pennsylvania.

Company turntable that was ninety feet in diameter. In 1915-16 an additional twelve stalls were extended in the same manner. Twenty-one of the roundhouse stalls were rebuilt after being destroyed by fire in September 1917 (figure 12). The old sand storage building was razed in 1917 and replaced with a ninety-car, fifty feet in diameter concrete green sand storage bin and dryer. An oxyweld shop and a pipe shop were added in the area east of Washington Avenue next to the erecting and maintenance shop in 1917-18 (Map 5).[15]

Few changes occurred in the yard from 1920 to 1944. In the mid-1920s the old open sixty-foot diameter turntable was replaced by one with a 100-foot diameter. In 1937 the roundhouse was again enlarged in diameter and part of the covered area removed.[16]

With the coming of the diesel age, the Delaware, Lackawanna and Western selected the Scranton yard for its diesel repair facility. In late 1944 alterations, including an addition to the south end, were begun on the machine shop next to the roundhouse to convert it into a diesel repair shop. Three fuel oil storage tanks were also added to the yard at the time. In 1949 two more additions were made to the south end of the diesel shop. Soon after another fuel oil storage tank was built next to

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15. President's Nos. 1747 and 1921, Authority for Expanditure Book September 4, 1913 to January 24, 1912, Corporate Records of the Delaware, Lackawanna and Western Railroad Company (GARL); Account 20, Shop and Roundhouse Buildings, and Sand Storage Building at Scranton, Analysis of Additions and Betterments, July 1, 1907 to June 30, 1918, Corporate Records of the Delaware, Lackawanna and Western Railroad Company (GARL); President's Nos. 3084 and 3104, Authority for Expenditure Book February 9, 1918 to February 10, 1916, Corporate Records of the Delaware, Lackawanna and Western Railroad Company (GARL); President's Nos. 2552 and 2553, Authority for Expenditure Book, August 10, 1918 to September 4, 1913 discontinuous.

16. Scranton Times, March 10 and 12, 1937.

Figure 10

Office and Storage Building, August 6, 1911

Courtesy of the George Arent Research Library, Syracuse University.

Most of this structure served for storage. The upper floors on the left side housed office space. The fence and concrete gate posts inscribed with DL&W remain.

Figure 11

Gas House under Construction, September 28, 1909

This concrete structure housed the gas works. Gas from this building was piped across Washington Avenue for use in the maintenance facilities built there in the 1907-12 period.


GAS HOUSE

Figure 12

Roundhouse Fire, September 13, 1917

Courtesy of the George Arent Research Library, Syracuse University.

This photograph shows a portion of the twenty-one roundhouse stalls that burned in September 1917.

the other three tanks (figure 13). The steam era did not end, however, until 1960 when the last locomotive left service.[17]

As the use of steam locomotives was phased out after the advent of the diesel age, the machine and erecting shop with its attendant buildings across Washington Avenue became less useful. These structures were closed in August 1949. After standing vacant for two years, that portion of the yard was acquired by the United States Army Ordnance Corps which developed it into a complex for the manufacture of artillery shell casings. Four of these structures remain almost unchanged today, still under the army's ownership. They have the greatest integrity, with the exception of two buildings within the Steamtown site, of association with twentieth century steam railroading. Unfortunately, they are not part of Steamtown National Historic Site.[18]

About 1951 the open 100-foot turntable was removed and the following year a maintenance-of-way building was erected on part of that site. In 1953 a three-story brick signal and control tower was built at the west end of the yard near Bridge 60. Throughout the 1950s sections of the roundhouse were removed until only about one-third remained (figure 14). Its ninety-foot turntable was taken out by 1980.[19]

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17. Scranton Times, October 3 and 12, 1944, February 27 and May 5, 1945, April 15 and August 1, 1949; Building Permit Nos. F252, F4276, and F4524, Cith Hall, Scranton, Pennsylvania; "Light and Power for the Diesel Locomotive Shop," Railway Mechanical Engineer 120 (May 1946), 271-275; "Scranton Diesel Shop is Different," Railway Age 121 (November 23, 1946), 868-871; Tabor and Tabor, The Delaware, Lackawanna & Western Railroad, II:459-462.

18. Tabor and Tabor, The Delaware, Lackawanna & Western Railroad, II:459.

19. Building Permit Nos. G1079 and G1986, City Hall, Scranton, Pennsylvania; Interview of Fred Hall, Scranton, Pennsylvania, by Berle Clemensen, November 17, 1987.

Figure 13

Roundhouse and Maintenance Shop, Ca. 1951

Courtesy of the Steamtown Foundation.

In this photograph one can see the effects of the diesel-era. The left two-thirds of the maintenance shop has been rebuilt and extended for diesel maintenance while the right one-third has sustained changes especially in bay doors. A small portion of the roundhouse behind it has been removed adjacent to the exit tracks on the right. The balance of the roundhouse reflects modifications made in 1937. On the lower right one can see the diesel fuel tanks.

Figure 14

Scranton Railroad Yard, Ca. 1953

Courtesy of the Railroad Museum of Pennsylvania.

Here one can observe that, on the far right center, a large portion of the roundhouse has been razed. The trestle with coal chutes no longer exist except for the foundation. A maintenance-of-way building, just up from the diesel fuel tanks, was constructed in 1952. To the left of that structure are the 1906 freight transfer sheds.

In 1960 the Delaware, Lackawanna and Western merged with the Erie Railroad to become the Erie Lackawanna. After that line declared bankruptcy in 1972, the Scranton yard went on to become a part of the Conrail system which was created in 1976. In 1983 the City of Scranton purchased the yard as part of an arrangement to house the Steamtown collection. Under Conrail's administration the trestle with coal pockets was removed as well as the freight transfer platforms. The upper floor of the 1899-1900 storage building burned during that period. The section of the yard which contained the 1908 freight depot was purchased by the state for an office building, and the earlier freight depot next to Cliff Street was razed. In 1985 the Steamtown Foundation removed the diesel fuel tanks.

The buildings that remain in the Steamtown part of the railroad yard reflect twentieth century steam railroading and the evolution to diesel locomotives. Many of these structures have lost their integrity, unlike the buildings which remain in the army-owned portion of the railroad yard. The significance of the structures will be discussed in the next chapter.

B. The Delaware, Lackawanna and Western as an Anthracite Coal Railroad

The Lackawanna Valley, in which Scranton developed, formed a part of the northern or Wyoming anthracite coal field. Five anthracite railroads ultimately came to own coal mines in the Scranton area. The Delaware and Hudson Railroad began to ship coal in 1829 from the nearby Carbondale area by using a gravity railroad and canal. In 1860 that line entered Scranton where it opened mines. It ultimately acquired a rail system reaching into Quebec, Canada. The first railroad to mine anthracite in the Scranton community was the Pennsylvania Coal Company. It opened a mine in Dunsmore in 1850 and shipped the coal by gravity railroad to Pittston. The gravity line was abandoned in favor of steam when the Erie and Wyoming Valley Railroad purchased the Pennsylvania Coal Company in 1884. By December 1901 the Erie Railroad gained control of the E&WV. The Delaware, Lackawanna and Western Railroad

entered coal mining in 1851 with the completion of its track from Scranton to Great Bend, New York. In 1886 the Central Railroad of New Jersey reached Scranton. It had been involved in coal mining there since the early 1870s. From Scranton its connections led to Philadelphia through the Wyoming and Lehigh valleys. Finally, the New York, Ontario and Western Railway extended a line to Scranton on July 1, 1890 from Cadosia, New York. This road purchased all the Lackawanna Iron and Steel Company coal holdings in 1899. It had direct access to New England by a connection with the New York, New Haven, and Hartford Railroad. Of these railroads the Delaware and Hudson mined and hauled the most coal until 1874 when the Delaware, Lackawanna and Western outstripped it. By the last quarter of the nineteenth century and onward the DL&W was third among all the anthracite coal railroads, behind the Philadelphia and Reading and the Lehigh Valley Railroad. These latter two lines operated in the southern anthracite coalfield some fifty miles from Scranton. None of these railroads, however, developed into a major system.

Although George and Seldon Scranton had the Delaware, Lackawanna and Western constructed for the purpose of hauling T rails from their iron works to market, anthracite coal almost immediately became the main item of the freighting operation. The railroad's first annual report (1853) indicated that it had carried 100,000 tons of anthracite that year. Some of that coal came from mines developed by the DL&W as the company's charter of March 11, 1853 allowed it to own 1,000 acres of coal land. Within a year the permitted acreage expanded to 2,000 where it remained for some time.[20]

Instead of expanding its coal land holdings during the 1850s, the railroad managers chose to extend the line to existing mines owned by independent operators. As a result, the Lackawanna and Bloomsburg Railroad became the DL&W's largest feeder upon its completion in 1858. It

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20. Bogen, The Anthracite Railroads, 85, 94.

extended from Scranton to Northumberland some eighty miles to the southwest. In the first five years of operation, coal amounted to two-thirds of the freight business.[21]

During the Civil War, large profits in anthracite stimulated a demand for coal land. The two largest railroads operating in the Lackawanna Valley, the DL&W and the Delaware and Hudson Canal and Railroad Company, began to compete for coal land. (A third, the Pennsylvania Coal Company, remained small.) At first these companies bought private land. In 1868, however, the state passed an act which allowed the merger and consolidation of coal companies with any other company that owned real estate in the same county. The result was intense competition among railroads to obtain more land and thus assure an ample coal reserve. This led the DL&W into mergers which between 1868 and the early 1870s resulted in that railroad holding 17,000 acres of rich coal land. In addition, to assure outside coal freight, independent mine owners were "induced" to make long-term contracts to get their coal to market. At the same time the DL&W sought to expand its market area through leasing rail lines. The consequence of this action gave it connections to Lake Ontario at Oswego, New York from which coal could be shipped to such destinations as Canada. Another line connected the DL&W to the New York Central Railroad at Syracuse.[22]

Although adverse public reaction to railroads buying coal land produced a provision in the 1873 Pennsylvania Constitution forbidding it,

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21. Hitchcock, History of Scranton, I:106-107; Thomas Murphy, Jubilee History Commemorative of the Fiftieth Anniversary of the Creation of Lackawanna County Pennsylvania: Story of Interesting Events from Indian Occupancy of Valley, Connecticut Settlement, Organization of Luzerne County, Start of Anthracite Industry and Forty Years Effort to Establish Lackawanna County, Vol. I (Indianapolis: Historical Publishing Co., 1928), 105-106.

22. Bogen, The Anthracite Railroads, 90, 95, 209-210; W. Jett Lauck, Combination in the Anthracite Industry (Washington, D.C.: United Mine Workers of America, 1920), 61.

such land acquisition did not end. In 1872 approximately seventy percent of the mines were operated independently of the railroads, but by 1886 that percentage had fallen to twelve. At the turn of the century independent operators owned less than four percent of the coal land.[23]

In the meantime anthracite coal production glutted the market by the latter part of the 1860s. At first the railroads sought financial relief through reductions in miners' salaries. When that solution proved ineffective, the railroads turned to a pool. The first general combination or pool came into existence in 1873 with the concurrence of the leaders of six of the seven anthracite railroads. They set a total production figure and divided it among themselves on a percentage basis in the hope of fixing the price of coal. By this measure the Delaware and Hudson obtained 18.37 percent while the DL&W got 13.80. The other Lackawanna Valley railroad, the Pennsylvania Coal Company, did not participate.[24]

The pool did succeed, for anthracite prices rose. It failed, however, to prevent some companies from selling more coal than their assigned percentage. As a result, the combination ended in 1875 and again coal production increased and prices dropped. A national depression at the time acted to lower prices as well. Under this circumstance, the railroads came together again in late 1877. This time all seven carriers joined a pool which they set to become effective in 1878. By this agreement the DL&W received 12.75 percent while the Delaware and Hudson had its percentage reduced by a third to 12.48. Participating for the first time, the Pennsylvania Coal Company accepted 5.86 percent. The pool lasted for one year. An attempt to restore it in

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23. Edward C. Kirkland, Industry Comes of Age: Business, Labor, and Public Policy 1860-1897 (N.Y.: Holt, Rinehart and Winston, 1961), 82-83; G.O. Virtue, "The Anthracite Combinations," The Quarterly Journal of Economics 10 (April 1896), 297.

24. Virtue, "The Anthracite Combinations," 299-302; Bogen, The Anthracite Railroads, 210.

1879 failed as prosperity returned to the nation causing a natural rise in prices. With a thriving economy over the next four years, there was no attempt to institute a combination. Some informal agreements during the period resulted in occasional halts to production for a month or more, but usually mines would be closed for the last three days in each week.[25]

In 1884 the seven railroads renewed the pool. Again it did not operate smoothly, for on this occasion no company adhered to its assigned percentage. Under that circumstance a proviso was added to the agreement in 1886 whereby any company which exceeded its allotment would be fined by the pool at the rate of fifty cents per ton for that portion above its percentage.[26]

By the 1890s the ownership of the anthracite railroads began to change. The powerful New York banker, J.P. Morgan, began to purchase controlling interest in these carriers in a move to dominate the anthracite operations. Actually, the Scrantons had lost control of the DL&W in 1858 as a result of financial problems which developed during the 1857 panic. The president of the National City Bank of New York, Moses Taylor, supervised the railroad until his death in 1882. After that date the Standard Oil Company governed the bank and thereby had controlling interest in the DL&W. By 1893 the Vanderbilts, who owned the New York Central Railroad, possessed fifteen percent of the DL&W stock and as a result had a voice in its operation. This influence came to be muted as the twists and turns of J.P. Morgan's influence entered the company. In the early 1890s, in addition to the Vanderbilts, the Central Railroad of New Jersey, another anthracite carrier, owned stock in the DL&W and had an interlocking directorate. This gave Morgan his entry to the DL&W,

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25. Virtue, "The Anthracite Combinations," 302-307; Bogen, The Anthracite Railroads, 211.

26. "Labor Troubles in the Anthracite Regions of Pennsylvania 1887-1888," House Report 4147, 50 Cong., 2 Sess. (Washington, D.C.: Government Printing Office, 1889), LX, LXIV.

for in 1897 he purchased the bankrupt Philadelphia and Reading Railroad along with its 100,000 acres of anthracite coal land and mines. The Reading then purchased the Central Railroad of New Jersey. Thus Morgan's influence reached the DL&W. Morgan also owned the Erie Railroad which in 1901 purchased the Pennsylvania Coal Company. As the smallest of the three Lackawanna Valley railroad-owned coal companies, its mines were mainly in the Dunmore and Pittston areas. At the same time five of the six leading anthracite carriers jointly purchased the sixth--the Lehigh Valley Railroad. Only the Delaware and Hudson remained independent at the time, but it too succumbed to Morgan's control by 1912. It was no wonder that President Theodore Roosevelt went to J.P. Morgan in 1902 to gain his aid in settling the prolonged anthracite strike of that year.[27]

The virtual elimination of competition in anthracite coal around the turn of the century brought a public outcry to break the monopoly. In the dawn of the Progressive Era, with its emphasis on reforming the worst features of big business that had appeared in the previous quarter century, it became expedient for politicians to accept the challenge of public opinion. Investigations of the anthracite railroads by the United States Congress led to the inclusion of the commodities clause in the Hepburn Act of 1906. This provision prohibited railroads from transporting anything mined, manufactured, or produced by them after May 1, 1908.[28]

Having gained the legal basis to dissolve the anthracite monopoly, the scene shifted to the federal courts. In May 1909 the United States

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27. Bogen, The Anthracite Railroads, 101-102; Donald L. Miller and Richard E. Sharpless, The Kingdom of Coal: Work, Enterprise, and Ethnic Communities in the Mine Fields (Philadelphia: University of Pennsylvania Press, 1985), 243; Lauck, Combination in the Anthracite Industry, 61.

28. Bogen, The Anthracite Railroads, 215-217.

Supreme Court in the Delaware and Hudson Case (213 U.S. 366) held that the commodities clause meant that a railroad could not transport a commodity which it owned at the time of transport. Stock ownership in a company whose goods it transported, however, did not constitute a legal interest. To comply with the ruling the DL&W incorporated a subsidiary--the Delaware, Lackawanna and Western Coal Company. The vice president of the railroad was president of the coal company. By this arrangement the DL&W railroad mined the coal and then sold it to the coal company which, in turn, shipped it to market on the railroad. Needless to say, this Supreme Court decision was a joke, for nothing really changed. This lack of change brought another suit.[29]

In February 1913 the federal government brought suit against the DL&W. It contended that the coal sales company was merely a subterfuge because the railroad had an interest in the coal hauled. The federal lawyers claimed that the contract between the railroad and coal company was in restraint of trade because it tended to monopolize the coal business along company lines. When the Supreme Court heard the case (238 U.S. 517) in 1915, it upheld most of the government's claims. The contract between the DL&W and its coal company was held to violate the Sherman Anti-trust Act and the Hepburn Act. It was determined that, although the railroad no longer had a legal interest in its coal after it was sold to the coal company, it had a real interest since the railroad and coal company shared directors. Thus prompted, the DL&W conformed to the court's decision. Then in 1921 the railroad decided to sell its coal property. This decision came after the 1920 Lehigh Valley Railroad Case (254 U.S. 255) brought a Supreme Court decision that stock control of a coal company by a railroad was illegal. The Glen Alden Coal Company purchased the DL&W coal land.[30]

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29. Ibid., 219; Anthracite Coal Industry Commission, Report of the Anthracite Coal Industry Commission (Harrisburg, Pa.: Murrelle Printing Co., 1938), 581.

30. Bogen, The Anthracite Railroads, 221-228.

In the aftermath of the Morgan period, New York bankers still played a major role in the anthracite coal business. There were connections between the Glen Alden Coal Company and the First National Bank of the City of New York. Directors of the Hudson Coal Company, a subsidiary of the Delaware and Hudson Company, also sat on the boards of three different New York banks. As a result, the Federal Trade Commission determined in the mid-1920s that even though the anthracite industry was not supposed to have a connection "they still seem to possess a group identify. . . ."[31]

In the 1920s those railroads which retained their coal lands began to lease mines to independent operators. A decline in the use of anthracite, however, had begun as other fuels replaced coal. There was a rise in production during the Second World War, but by the early 1950s the anthracite-era had all but ended.[32]

The Delaware, Lackawanna and Western's Scranton railroad yard had some relationship to the company mines and mining. Coal cars were repaired in the yard shops until 1904 and loaded and empty coal cars were brought to the yard for making up into trains until 1910.

C. The Delaware, Lackawanna and Western Railroad and the Scranton Community

Although Carbondale was the first town and economic center of the Lackawanna Valley, the rise of Scranton in the late 1840s led to that city becoming the hub of the valley. Scranton came to dominate the surrounding boroughs. This situation developed because Seldon, George, and Joseph Scranton lived in their town and, besides developing iron, railroad, and coal mining enterprises, they actively sought to attract ambitious men from the surrounding area. As a result, many of the

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31. Anthracite Coal Industry Commission, Report of the Anthracite Coal Industry Commission, 167.

32. Ibid., 168.

builders of Scranton came from Carbondale and other valley villages. The businesses that these men developed complemented the iron, railroad, and mining ventures by either using the products of these businesses in their manufacturing or providing the necessary machinery for them. The workforce attracted to these early businesses came from England, Wales, and Ireland.[33]

Although the local Scranton business leaders controlled the economy in the 1850s and early 1860s, New York City economic interests slowly encroached on the area with the result that Scranton came to be dominated by outside concerns just as it controlled the valley economy. The men who operated these business interests not only did not live in the region, but visited infrequently and played no social role. As a result, the group that formed the Scranton upper class by the late 1860s was composed of middle class merchants, lawyers, doctors, independent mine operators, and foundry and shop owners.[34]

When the Scranton's lost control of their interconnected iron, coal, and railroad industry to disinterested outside forces, the new industrial hierarchy discouraged economic growth in any business which would compete for the male workforce and thus increase the cost of labor. Distressed at the effect this situation had on the local economy, the Scranton merchants established a Board of Trade in 1871 as an agency to broaden the city's financial base. The Board of Trade's option lay with attracting concerns that employed females. As a result textile and clothing manufacturers located in the town because of an abundance of cheap female labor, the ease of transportation afforded by the number of

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33. Burton W. Folsom, Jr., Urban Capitalists: Entrepreneurs and City Growth in Pennsylvania's Lackawanna and Lehigh Regions, 1800-1920 (Baltimore: The Johns Hopkins University Press, 1981), 20-22, 85.

34. Rowland Berthoff, "The Social Order of the Anthracite Region, 1825-1902," Pennsylvania Magazine of History and Biography 89 (July 1965), 275.

railroad connections, and the benefit these fuel intensive industries derived from cheap coal. Because of the merchants' efforts, Scranton developed the most diversified economy in the anthracite region, and, at the same time, they freed themselves from a dependency on coal mining and railroads. Consequently, Scranton did not suffer economic hardship as early in the twentieth century as other towns in the anthracite area when competition from other types of fuel reduced the demand for their coal.[35]

Although the outside railroad owners did not promote a diversified economy, they did have an impact on changing the ethnic makeup of Scranton. After the great railroad strike of 1877, which brought sympathy strikes by the mine and iron mill workers, the owners of these businesses viewed their English, Welsh, and Irish employees as troublemakers. As a result by 1880, railroad owners began to bring men from Eastern and Southern Europe to the Scranton area. Not only did these men from Italy, ethnic Poland and Lithuania, the Ukraine, Austria, Bohemia, Russia, and Greece replace much of the previous workforce, they also represented a source of cheap labor. The Delaware, Lackawanna and Western hired an agent to meet immigrant ships in New York harbor and direct the passengers to the railroad for transport to the Scranton area.[36]

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35. Harold W. Aurand, "Diversifing the Economy of the Anthracite Regions, 1880-1900," Pennsylvania Magazine of History and Biography 94 (January 1970), 58-61; Folsom, Urban Capitalists, 40; David Craft, W.A. Wilcox, Alfred Hand, and J. Wooldridge, History of Scranton, Penn. with Full Outline of the Natural Advantages, Accounts of Indian Tribes, Early Settlements, Connecticut's Claim to the Wyoming Valley, the Trenton Decree, Manufacturing, Mining, and Transportation Interests, the Press, Societies, Etc., Etc., Down to the Present Time (Dayton, Ohio: United Brethern Publishing House, 1891), 301.

36. Miller and Sharpless, The Kingdom of Coal, 172.

D. The Dickson Locomotive Manufacturing Site

The Dickson brothers and their enterprise in Scranton were identified with the approach that Seldon, George, and Joseph Scranton took to build their town, for they were among the ambitious men the Scrantons attracted to their community. Thomas, John, and George Dickson came with their parents from Scotland to the United States in 1832. As young men, they settled in Carbondale where they operated a small business making stationary steam engines for the Delaware and Hudson mining operations there. With the promise of financial aid from the Scrantons, they relocated to Scranton in 1856 where, as Dickson and Company, they opened a foundry and machine shop some five blocks from the Delaware, Lackawanna and Western railroad yard. Here they built and repaired mining machinery in addition to making stationary steam engines. These engines were purchased by mine owners for use in operating hoists or pumping water. The Delaware and Hudson Railroad also continued to purchase their products for use on the gravity railroad and for mining.[37]

In 1862 the Dickson brothers purchased the machine shop and land adjacent to the Delaware, Lackawanna and Western railroad yard from William Cook. Reorganized as the Dickson Manufacturing Company, they began to manufacture steam locomotives on this site which they called the Cliff Works. At first they made five locomotives per year, but by 1870 the Dicksons had expanded to making that number in a month. In addition in 1864 they purchased the adjacent Kirlin Planing Mill and began to produce cars (figure 15). On February 27, 1875 fire destroyed the Cliff Works. The Dicksons rebuilt their plant (figure 16) and extended their area of operation across Cliff Street where they built a machine shop and a pattern shop. Over the next twenty-five years the company expanded its output so that by 1890 they could produce 100 locomotives

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37. Craft, et al., History of Scranton, 256; Samuel C. Logan, The Life of Thomas Dickson: A Memorial (Scranton: The De Vinne Press, 1888), 6, 10, 49; History of the City of Scranton, 55.

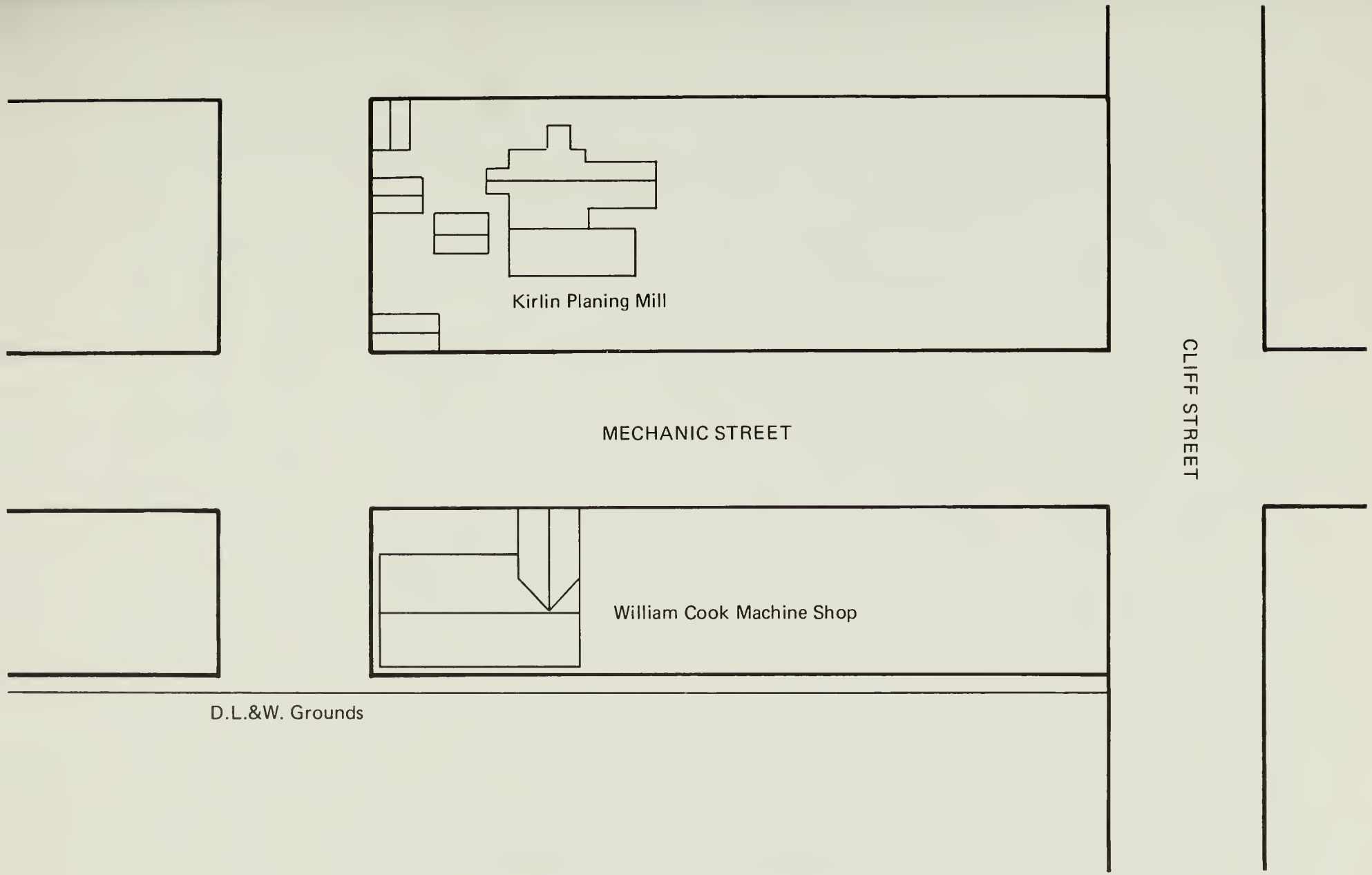

Figure 15 — 1857 SITE OF DICKSON LOCOMOTIVE SHOP

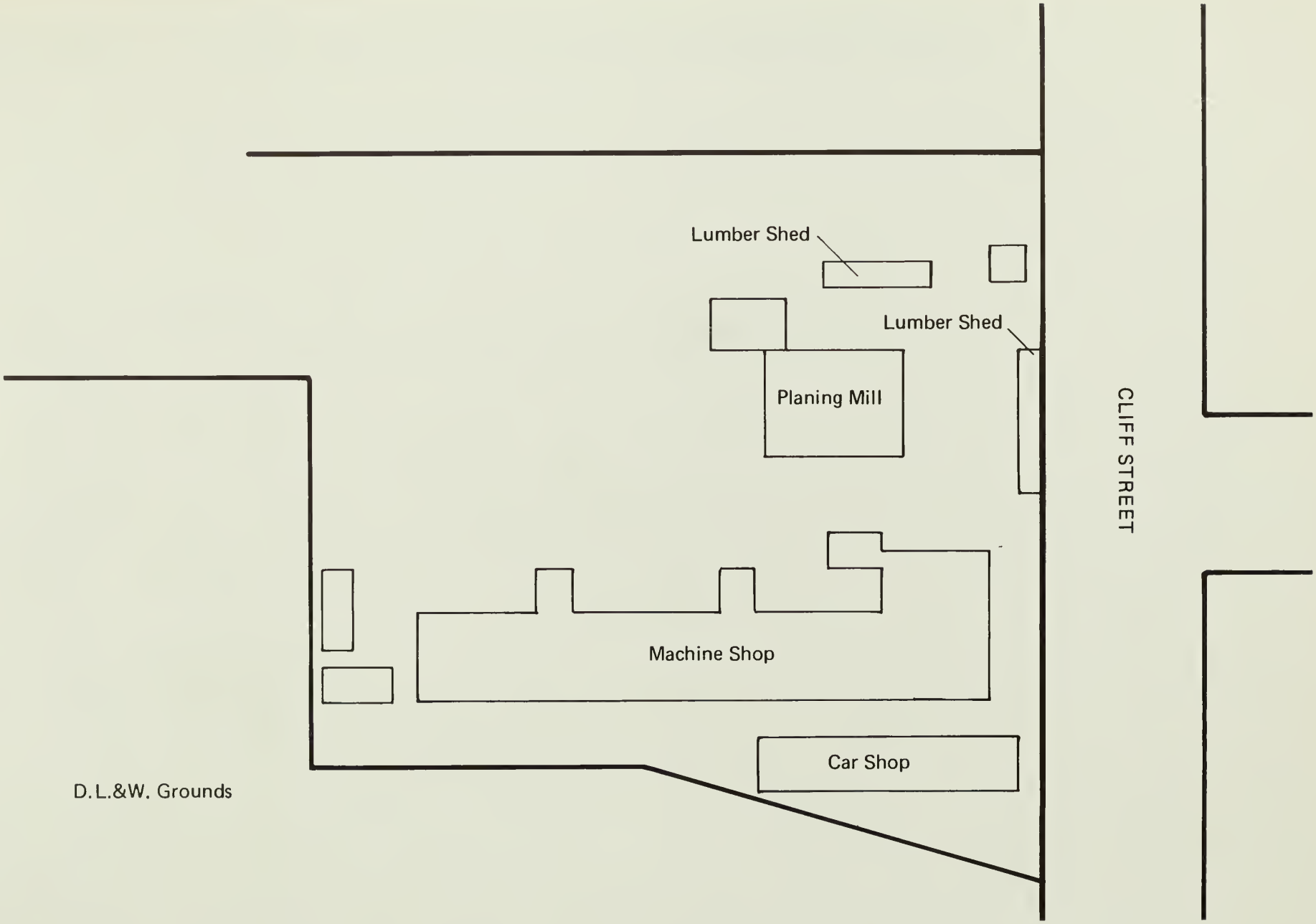

Figure 16 — 1877 SITE OF DICKSON LOCOMOTIVE SHOP

per year (figures 17 and 18). The Dickson Company always remained a minor locomotive maker until the day it ceased production in 1902.[38]

The American Locomotive Company purchased Dickson's Cliff Works in 1902. During its eight-year operation, this concern made two changes. It removed the old planing mill and replaced it with a larger structure and added another building in the southeast corner of the site in the 1905-06 period (figure 19).[39]

Within a year after the American Locomotive Company left the site several local businesses moved into some of the vacant buildings. These included the Sall Mountain Company which manufactured asbestos roofing and pipe coverings, the Williams Ice Cream Company, and the Quackenbush Warehouse (figure 20). In 1920 Quackenbush vacated its warehouse and the Sall Mountain Company moved from its previous location into the Quackenbush Warehouse. That company altered the building slightly (figure 21). Several silk mills occupied the structure west of Cliff Street until those buildings were attached as one in 1926. After that date the now single structure served as a warehouse.[40]

In 1925 a number of the structures on the site were removed (figure 22). In that year the Williams Company divided its building and installed a bakery along with its ice cream works. At the same time it built a brick garage onto the structure's east end. Several more additions were joined to the building in 1927 and 1929. Sall Mountain Company vacated its location in 1931. The Scranton Truck Terminal and Warehouse replaced it until it moved in 1934. After two years unoccupied, the

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38. Craft, et al., History of Scranton, 256; Logan, The Life of Thomas Dickson, 51; History of the City of Scranton, 55;

39. Scranton City Directories, 1902-1910; Building Permit Nos. 8300 and 9412, City Hall, Scranton, Pennsylvania.

40. Scranton City Directories, 1911-85; Building Permit Nos. 19821 and 19822, City Hall, Scranton, Pennsylvania.

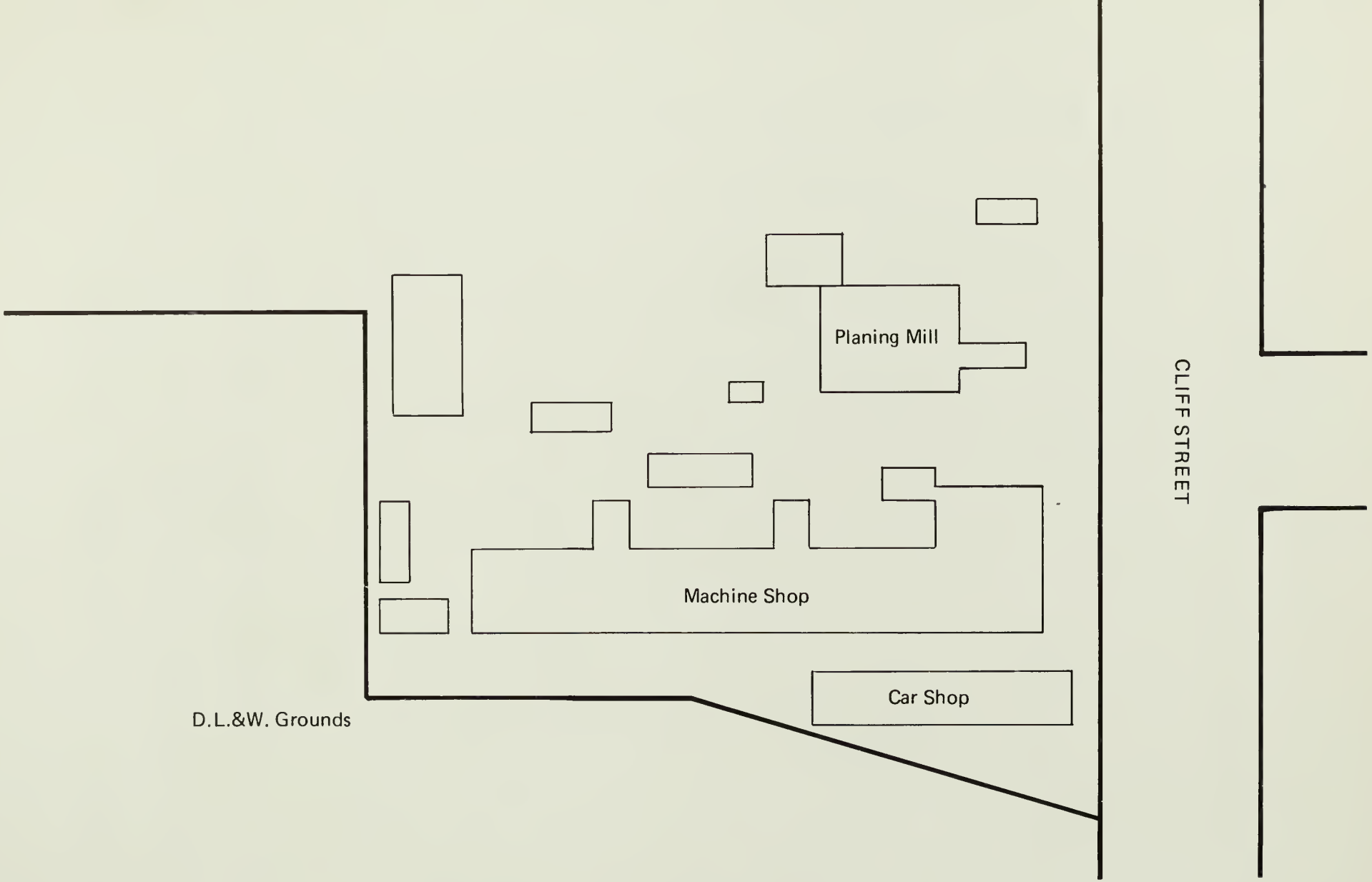

Figure 17 — 1888 SITE OF DICKSON LOCOMOTIVE SHOP

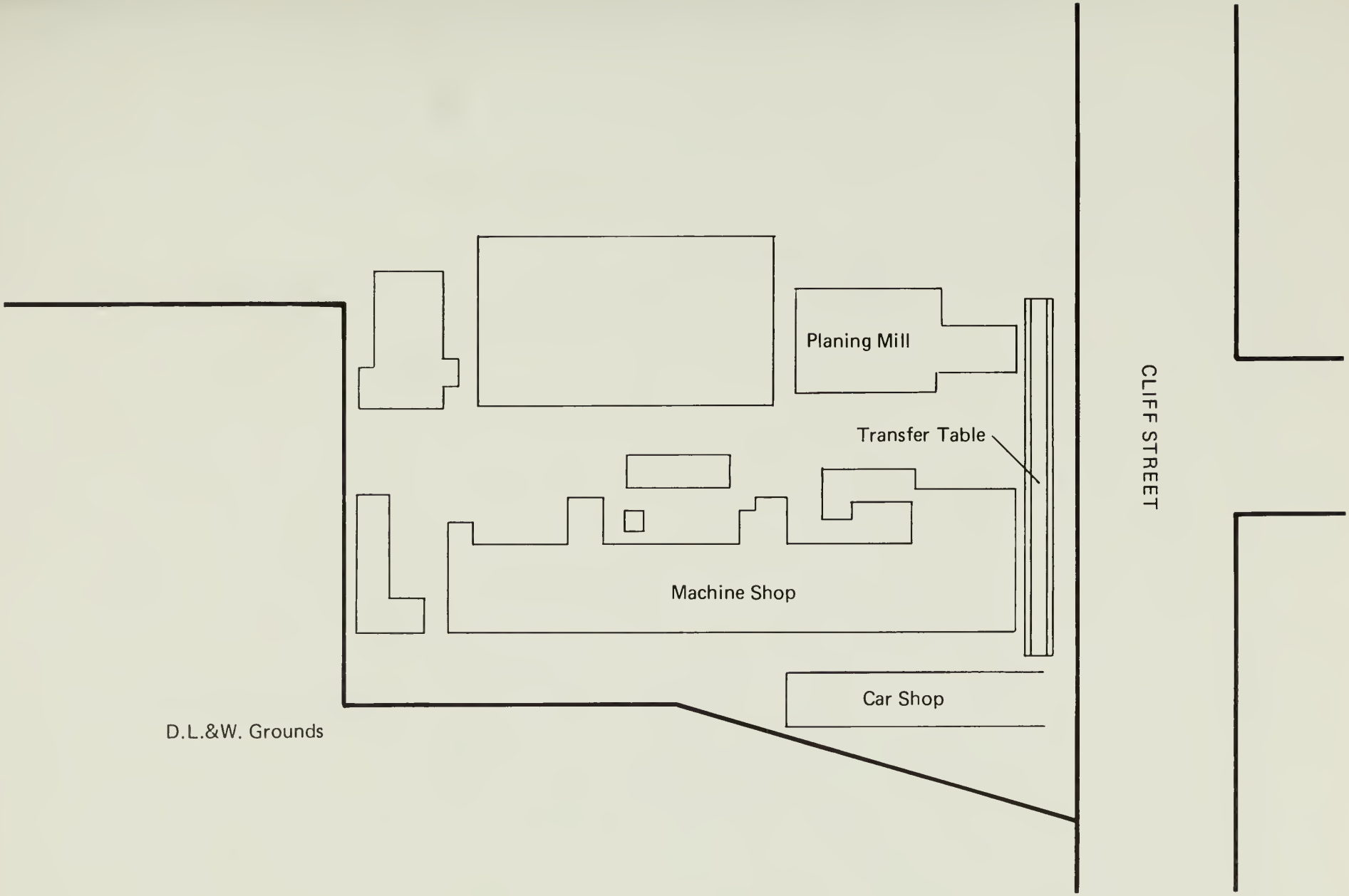

Figure 18 — 1898 SITE OF DICKSON LOCOMOTIVE SHOP

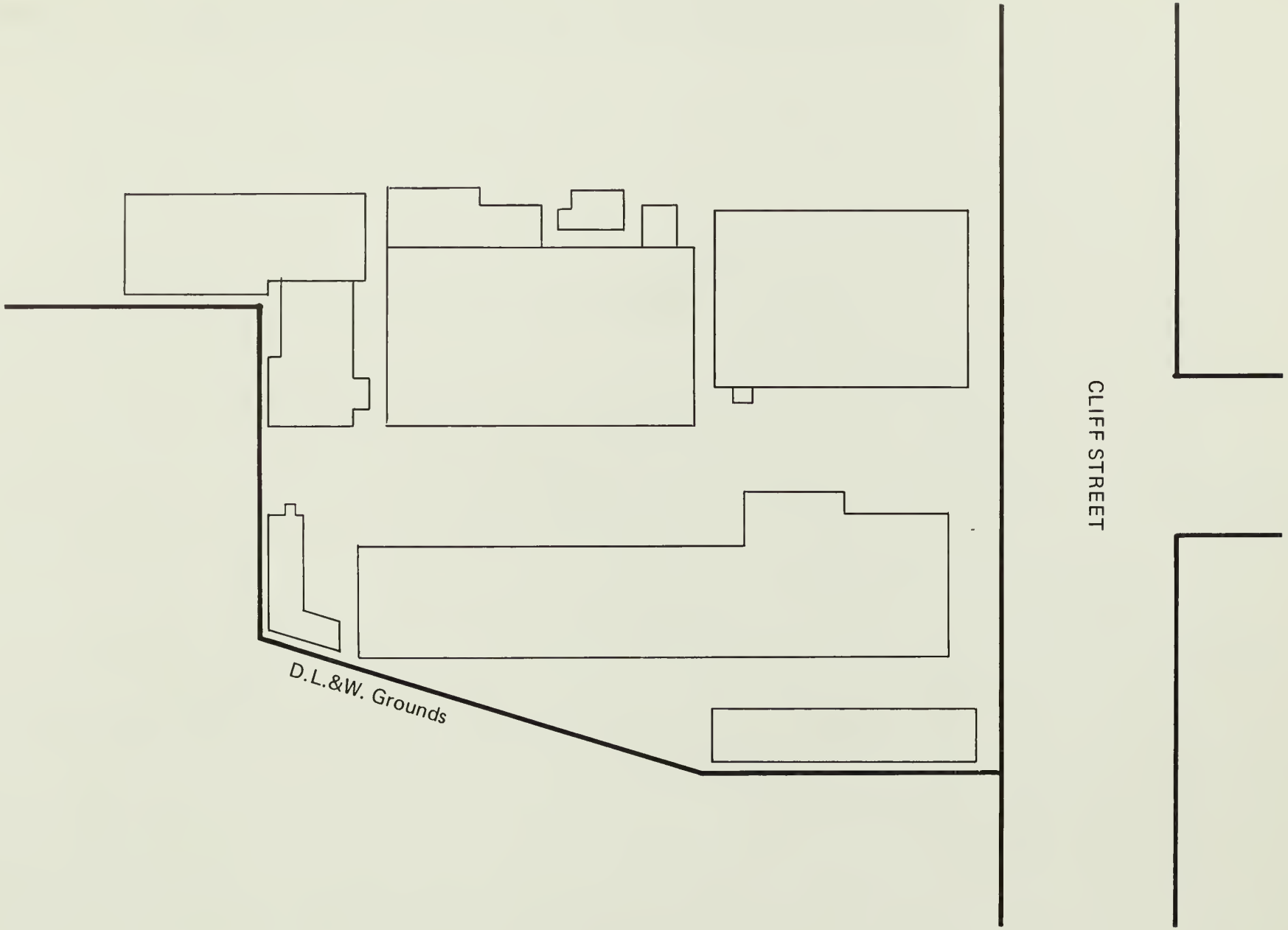

Figure 19 — 1906 SITE OF DICKSON LOCOMOTIVE SHOP
(OWNED BY THE AMERICAN LOCOMOTIVE COMPANY)

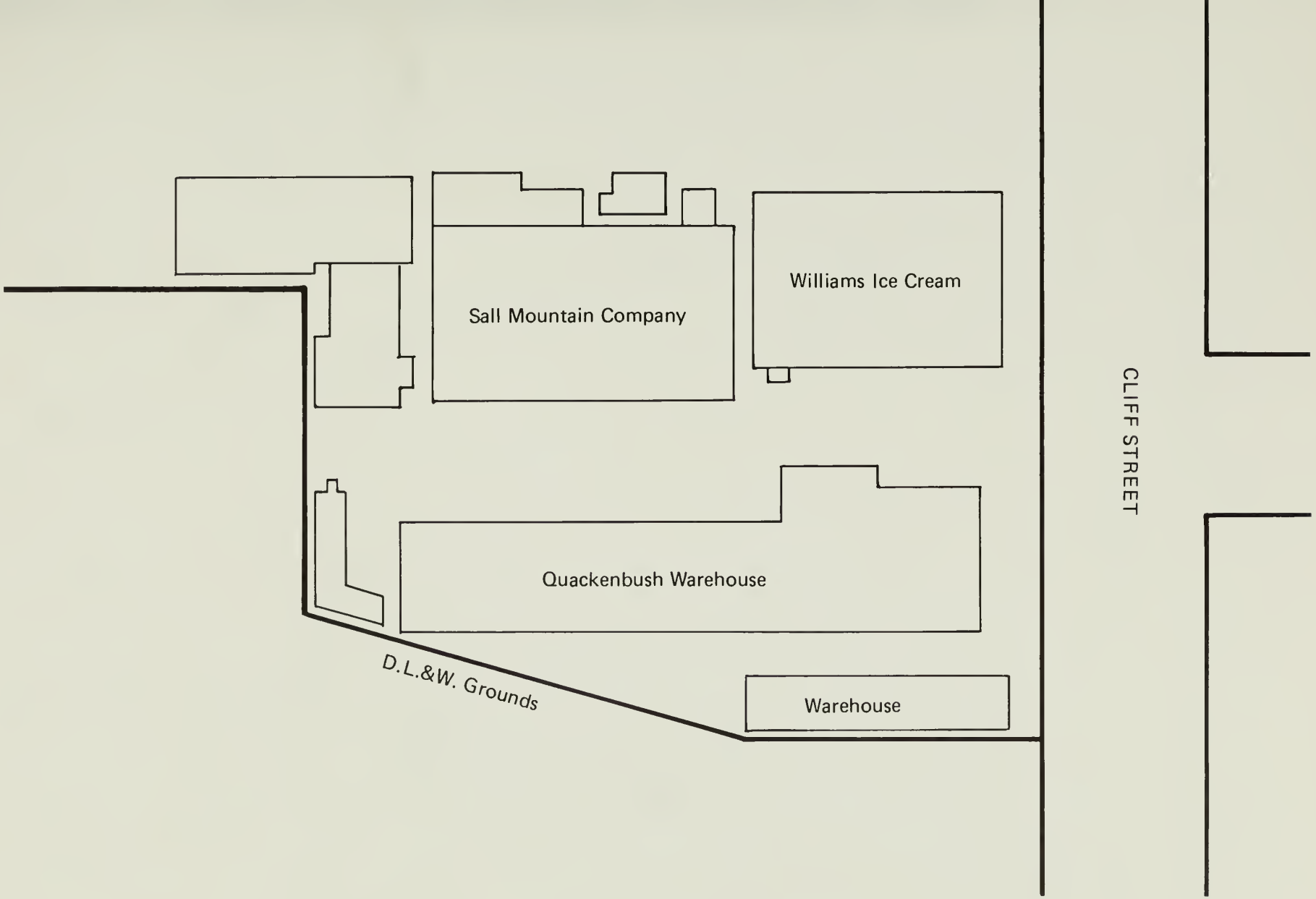

Figure 20 — 1912 SITE OF DICKSON LOCOMOTIVE SHOP

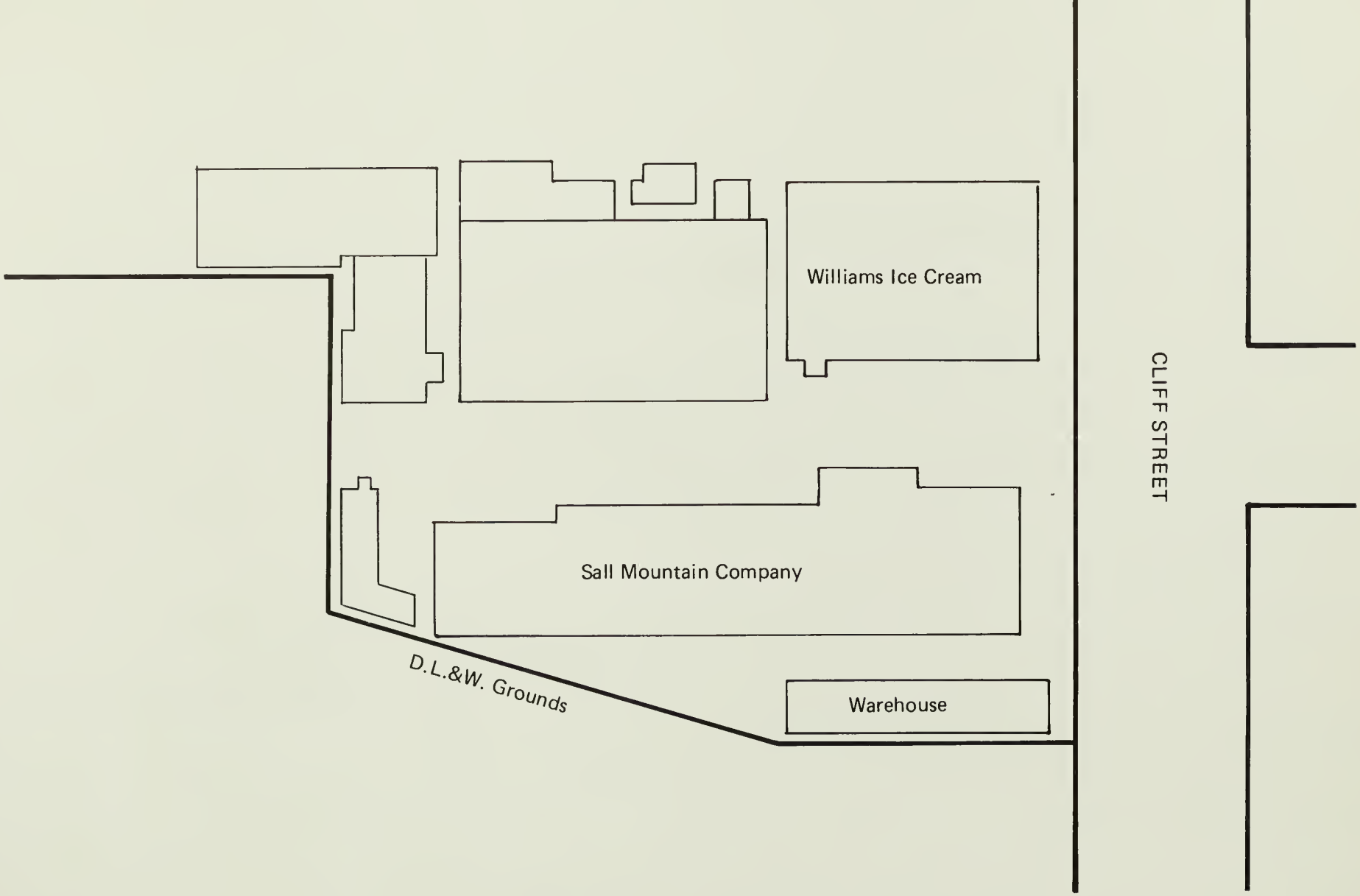

Figure 21 — 1920 SITE OF DICKSON LOCOMOTIVE SHOP

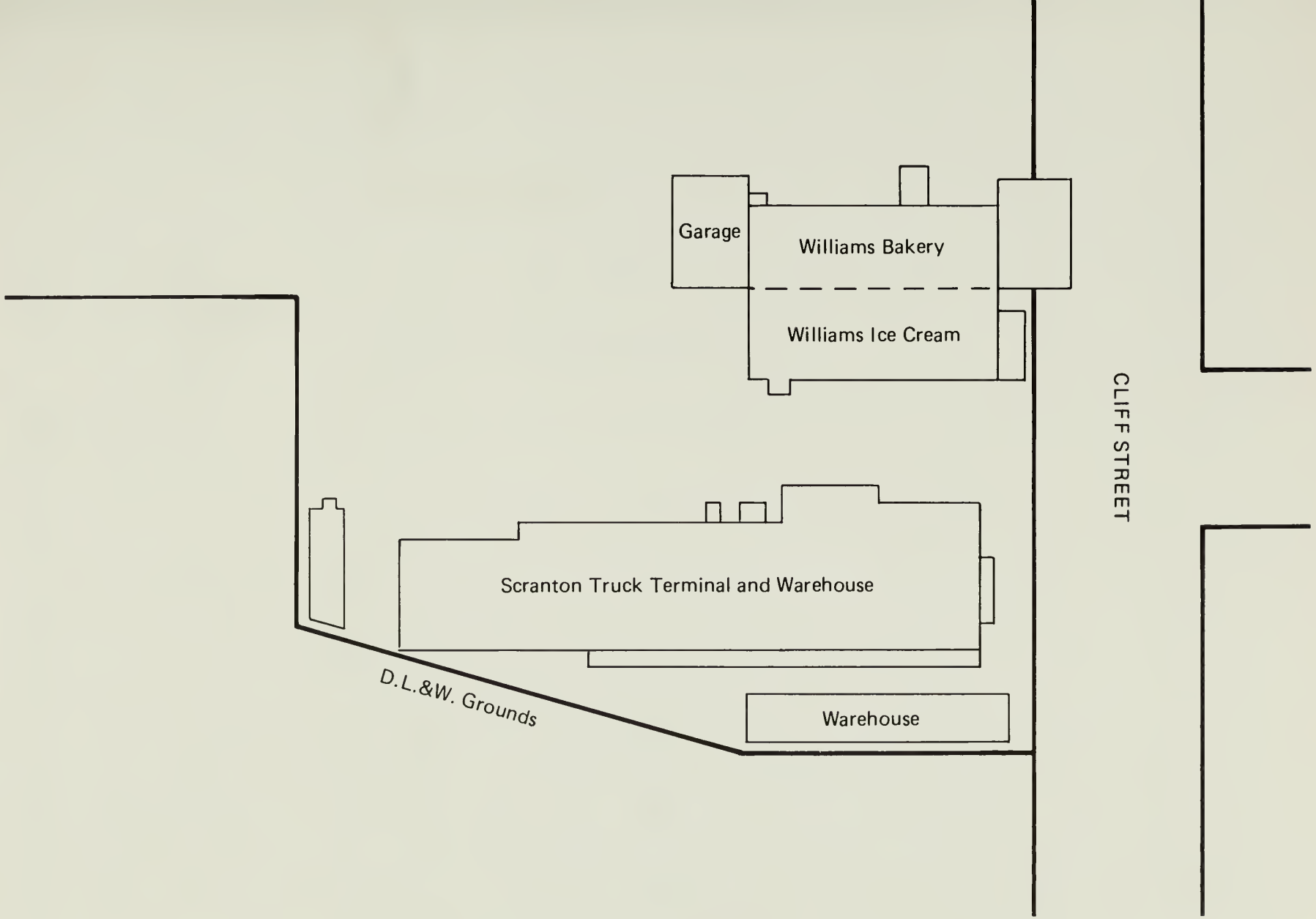

Figure 22 — 1931 SITE OF DICKSON LOCOMOTIVE SHOP

Richards Motor Freight Lines acquired the building for a warehouse. Its occupancy extended to 1958. During that time Richards Motor Freight made some alterations (figure 23).[41]

In the period 1933 to 1951 the Williams Company made numerous changes to its structures. By 1933 it removed the garage to make room for a boiler room (figure 23). That building was enlarged in 1945 to include an incinerator. Several extensions were made to the bakery in the period 1937-1951. In addition the Williams company moved its ice cream operation in 1936 and converted the entire building into a bakery.[42]

After the Richards Motor Freight Lines vacated their warehouse in 1958 a number of firms occupied the structure. These companies included the Scranton Warehouse Company in 1959, the Columbia Distributing Company (wholesale floor covering) from 1960 to 1962, the Eureka Speciality Printing Company from 1963 to 1967, Kane Warehouse from 1968 to 1974, vacant 1975-79, and Kane Warehouse from 1980 to 1985. Since that time a plastics manufacturing firm, Laminations Incorporated, has occupied the structure (figure 24). Kane Warehouse made several alterations to the building in 1970.[43]

The last major alterations that Williams Bakery made to its structure occurred in 1954 because a hurricane had damaged it. The combined boiler room and incinerator building was removed except for a small attached structure which became freestanding. A garage and shipping

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41. Scranton City Directories, 1922-1958; Building Permit Nos. A835, B1132, C1924, and E3062, City Hall, Scranton, Pennsylvania.

42. Scranton City Directories, 1922-1958; Building Permit Nos. D1993, D2098, E1815, E4457, F514, F1251, F3255, and F4907, City Hall, Scranton, Pennsylvania.

43. Scranton City Directories, 1959-1985; Building Permit Nos. K4568 and K4569, City Hall, Scranton, Pennsylvania.

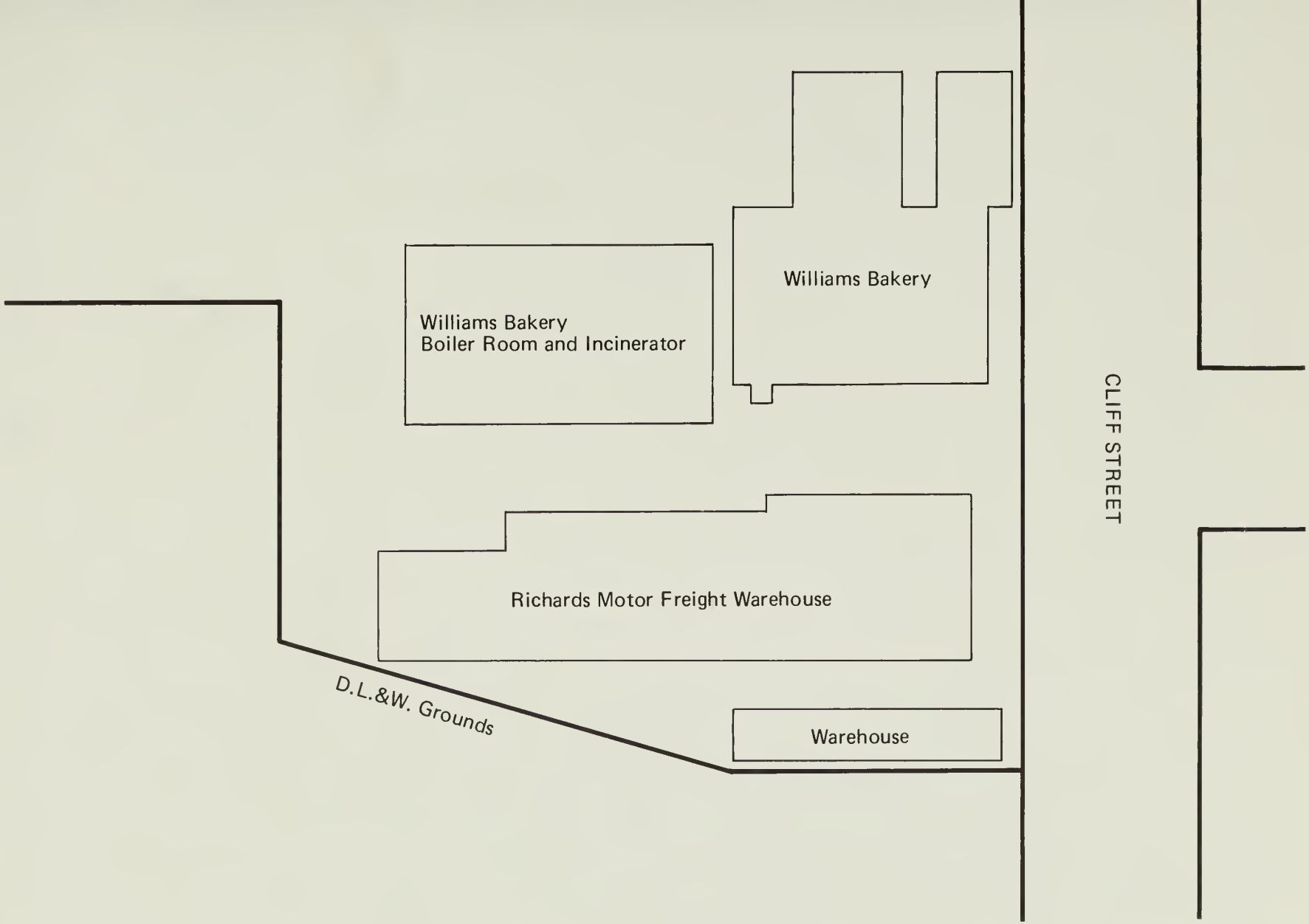

Figure 23 — 1951 SITE OF DICKSON LOCOMOTIVE SHOP

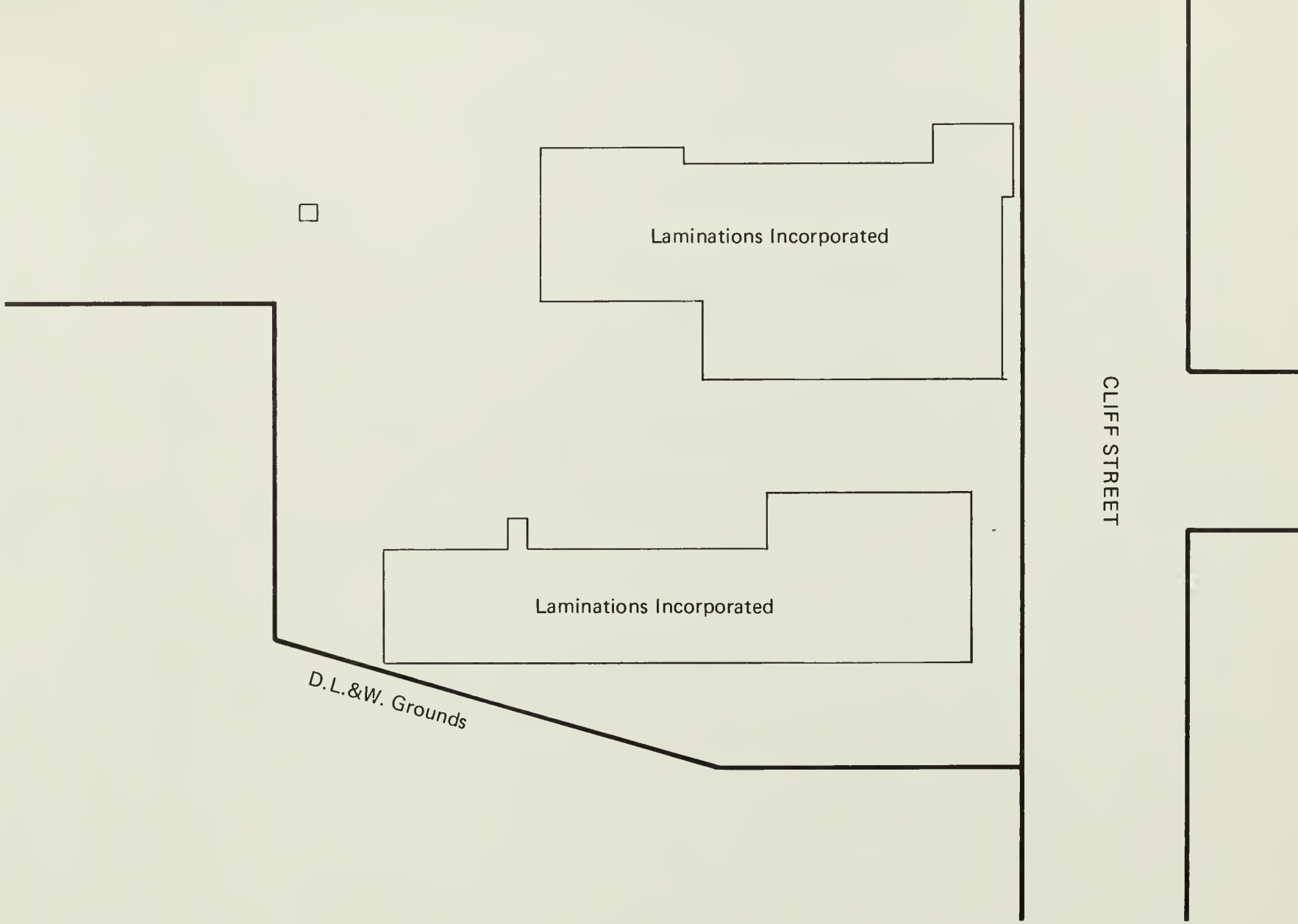

Figure 24 — PRESENT-DAY SITE OF DICKSON LOCOMOTIVE SHOP

dock were attached to the bakery. The Williams Company continued to operate its bakery until 1979. In 1980 the King Window and Door Wholesale Company moved into the structure. It departed in 1985 and the building became part of the plastics manufacturing concern (figure 10).[44]

The structures which occupy the old Dickson Locomotive Shop area have been altered over time. In fact the structure which served as the Williams Bakery for many years is not part of the Dickson Works, but mostly stems from the Williams period. Part of the other building, which served mainly as a warehouse in the twentieth century, contains elements of the 1850s Cook Company structure and the 1875 post fire construction of the Dickson Company, but it has sustained sufficient alterations to have lost much of its integrity.

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44. Scranton City Directories, 1951-1985; Building Permit No. H456, City Hall, Scranton, Pennsylvania.

CHAPTER V: EVALUATION OF THE DELAWARE, LACKAWANNA AND WESTERN RAILROAD YARD, DICKSON SITE, AND THE RIGHT-OF-WAY TO POCONO SUMMIT

The United States Congress created a dilemma in October 1986 when it designated a part of the Delaware, Lackawanna and Western railroad yard in Scranton, along with the Steamtown Foundation collection, a National Historic Site. In addition the legislation called for interpreting the theme of regional steam-era railroading. The Scranton yard belonged to a railroad which lacked national significance, for even at its height it had slightly under 1,000 miles of track in three states. With the exception of one DL&W locomotive in the Steamtown collection, the locomotives and rolling stock have no historical relationship to the Scranton yard. Most of this equipment possesses national significance. The theme of regional steam-era railroading also has a national significance, for the birth of railroading occurred in the northeastern United States and several railroads there grew into major trunk lines extending into the Midwest. To superimpose unrelated locomotives and rolling stock as well as a theme of national significance on part of a railroad yard lacking such significance, and much of its integrity, presents a problem because it inadvertently grants greater significance to the yard than it deserves. At best it has state significance. However, had it not been designated a National Historic Site by Act of Congress, its condition probably would have resulted in its not being considered for the National Register of Historic Places.

Most of the structures in the portion of the Scranton railroad yard designated a National Historic Site exist in part or have been altered to meet the needs of a later diesel era. As a result, the integrity of many of these buildings inhibits their being considered as contributing to a National Register site. Four important twentieth century steam era maintenance structures located on one end of the historical yard were not included in the Steamtown National Historic Site since they are owned by the United States Army and are used in the manufacture of artillery shell

casings. These four buildings possess their external integrity. In addition, to adequately interpret day-to-day operations in a steam era railroad yard requires the presence of several facilities which no longer exist in the Steamtown section of the Scranton yard. These facilities include a coal trestle with chutes for fueling locomotives, a cinder pit for removing ashes from locomotives, water cranes for putting water in locomotives, a more complete sand facility beyond the existing sand dryer, and a locomotive washer.

The following structures or parts thereof remain in the portion of the yard designated as Steamtown National Historic Site, along the right-of-way to Pocono Summit, and on the former Dickson Site (see the historical base map for yard locations). A National Register of Historic Places form has been prepared incorporating the area into a historic district.

Gas Works--This 56- by 64-foot, two-story concrete structure was erected in 1909. It maintains its integrity as a steam-era maintenance facility structure, but its importance is connected with the buildings across Washington Avenue which are owned by the United States Army. It provided gas for maintenance work in those structures (figure 25).

Remains of Scrap Bin--This 400-foot-long concrete and brick foundation and floor is all that remains of a scrap bin that was constructed in 1909 and covered in 1914. Like the gas works, it was tied to the buildings currently owned by the army. It was here that scrap material from maintenance activity in the structures across Washington Avenue was stored. This remains has lost its integrity (figure 26).

Office and Storage Building--This 84- by 335-foot, steel and concrete building with brick facing was erected in 1909. It has three stories with a fourth floor on one end which was historically used for office space. A subway system connects the structure to the army owned buildings across Washington Avenue. It maintains its integrity as a steam era storage and office facility, but again its importance lies in connection with the army owned buildings across Washington Avenue (figure 27).

Figure 25

Gas House 1987
This two-story, concrete structure was built in 1909.

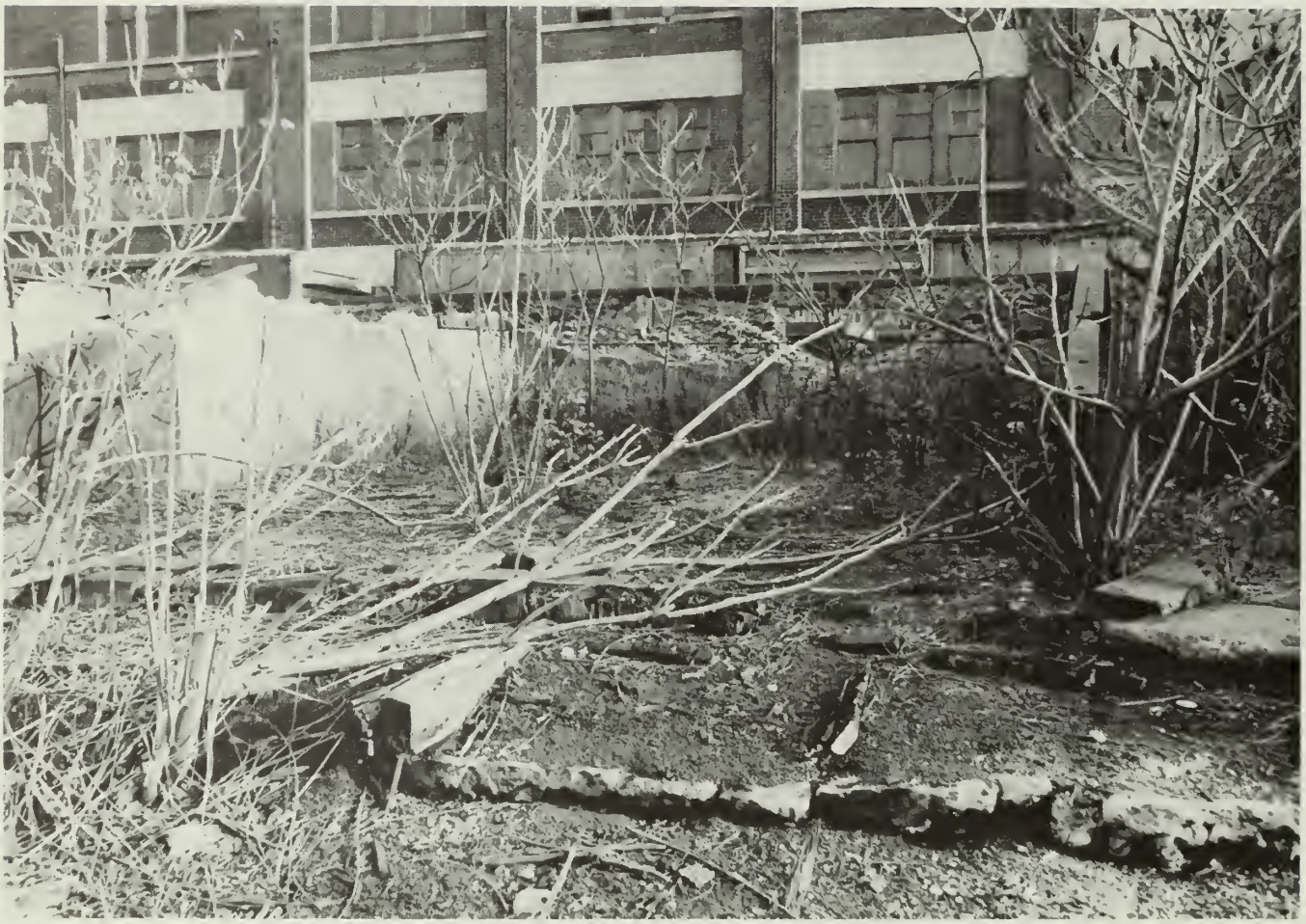

Figure 26

Remains of Scrap Bin 1987
Now overgrown with brush all that remains from this 400 feet long scrap bin is the concrete and brick foundation and floor.

Figure 27

Office and Storage Building 1987
This concrete and steel structure with brick facing
was built in 1909.

Maintenance-of-Way Building--This one-story structure with brick facing has a 102- by 65-foot front portion and a 64- by 160-foot rear section. This building was constructed during the diesel-era in 1952 and, therefore, outside the period of significance (figure 28).

Storage Building--This 54 by 209-1/3-foot, two-story brick building was constructed in 1899-1900. One year after the Office and Storage Building was completed nearby, this structure was converted into a record storage facility. The platform which once surrounded it has been removed on three sides. About 1980 the upper floor burned causing the roof to collapse. The building, however, retains the same configuration as it did when built in the steam-era (figure 29).

Green Sand Storage Bin and Dryer--This 50-foot diameter, concrete structure with a wood frame elevator housing attached on the south side was built in 1917. It could hold ninety cars of sand. Drying was accomplished by use of steam heat. Then compressed air was used to blow the sand into the sand structure which stood at the end of the coal trestle and chutes. From there the sand was placed in the locomotives. This is a rare structure since few sand facilities of this type remain in the country. Although the wood frame portion needs reapir, it retains its integrity to twentieth century steam-era railroading (figure 30).

Four Circular Concrete Enclosures for Diesel Fuel Tanks--Three of these enclosures were built in 1945 while the fourth was erected in the early 1950s. They were built for protection and safety around diesel fuel tanks. The tanks were removed in 1985. These four enclosures represent the diesel-era and, therefore, outside the period of significance.

Maintenance Shop--This building has sustained several changes and additions. Originally, it was a brick and wood frame, two-story, U-shaped structure with a gable roof built in 1865. At that time the main part measured 270- by 100-feet and the wings were 200- by 75-feet. In 1902 the wings were removed and the 270- by 100-foot main portion was

Figure 28

Maintenance-of-Way Building 1987
This structure was built in 1952.

Figure 29

Storage Building 1987
This two-story brick structure was erected in 1899-1900.
Its upper floor has burned causing the roof to collapse.

Figure 30

Green Sand Storage Bin and Dryer 1987
This fifty feet in diameter concrete structure with an attached wood frame elevator house was erected in 1917. It is unique for few such facilities remain.

lengthened to 370- by 100-feet. The upper floor was removed from most of the main portion in that year and was replaced by a gable roof with a clerestory. About 1910 the remainder of the second story was detached. In 1944 the structure was converted into a diesel locomotive repair facility. At the time 129 feet of the front wall was removed starting at the southeast corner and a 129- by 70-foot extension was placed there. Another addition of 49- by 108-feet was made on the southwest side. The old clerestory in the 129-foot section was raised thirteen feet and replaced with a new clerestory. Two more additions were made in 1949. These included a 46- by 43-foot brick and steel room on the east side and a 72-by 184-foot brick and steel section on the south end (figures 31 and 32).

Foundation of Coal Trestle with Chutes--Only the concrete foundation remains from the 900-foot-long, 25-foot-wide wooden coal trestle with chutes which had been constructed in 1906. It, therefore, makes no contribution to the period of significance.

Roundhouse and Turntable Foundation--Three sections of the second roundhouse to stand on this site remain. When constructed in 1902, it had a 348-foot diameter with eighty feet under cover for forty-eight stalls. The sixty-six-foot, electrically operated turntable from the previous roundhouse was left in place. As steam locomotives grew larger, the size of the roundhouse was increased. In the 1912-13 period twelve stalls were lengthened to have ninety-one feet under cover. The sixty-six-foot diameter turntable was removed at this time and replaced with an American Bridge Company one that was ninety feet in diameter. In 1915-16 an additional twelve stalls were extended in the same manner. Twenty-one of the roundhouse stalls were rebuilt after being destroyed by fire in Septmeber 1917. All but a small portion of the roundhouse was again enlarged in diameter in 1937. With the coming of the diesel age after the Second World War, a roundhouse was not as necessary to house diesel locomotives. As a result, about two-thirds of the roundhouse was razed in the 1950s leaving three separate sections. The largest part is a brick remnant of the 1937 extension. Next to it is a brick section from

Figure 31

Maintenance Shop 1987
Here one can see the distinction between the older steam era portion of the building on the right with the diesel era section on the left.

Figure 32

Maintenance Shop 1987
The doorways in the older section were enclosed with brick and glass in 1944 at the time a diesel maintenance addition was erected. Here one can see the 1902 clerestory on the right with the 1944 clerestory on the left.

the original 1902 roundhouse. In the 1950s this portion was converted into an employee wash house and locker room. The final and smallest brick remnant from the 1902 era functioned as an office and storeroom attachment. A fire has caused the roof to collapse. Although only about one-third of the roundhouse remains, it is useful to show the 1902 and 1937 construction periods. In the 1970s the turntable was removed leaving only the pit and foundation (figures 33, 34, and 35).

Oil Shed--This 45- by 62-foot concrete, one-story structure was built in 1912. Lubricating oil was kept here. The building retains its integrity to the steam-era (figure 36).

Two Small Structures--These two wood frame structures, one 9- by 12-feet and the other 9- by 6-feet, probably served as a switchman shanty and a scale house. There is no known construction date, but they appear to have integrity with the twentieth century steam age.

Signal and Control Tower--This 42- by 22-foot, three-story brick structure was built in 1953. Located at the west end of the yard, it housed the switching equipment to permit a man to control the yard traffic. Designed for the diesel period, it is outside the period of significance (figure 37).

Bridge 60--Built in 1907, this steel bridge is the third one on this location. It crosses the Lackawanna River and permits traffic to enter or exit the west end of the yard. It represents the need for stronger bridges as locomotives grew in weight in the early twentieth century steam era; therefore, it has integrity to that period (figure 38).

"China Wall"--This inclined area on the north side of the yard was so constructed to permit locomotives to move trains out of the yard. It also carries the six through tracks. Such an incline existed from the first days of the yard. The current "China Wall" was enlarged in 1907 and has integrity to the steam locomotive period.

Figure 33

Roundhouse 1987
This picture shows a part of the 1937 extension.

Figure 34

Roundhouse 1987
This photograph shows the 1902 section.

Figure 35

Turntable Foundation 1987
All that remains of the American Bridge Company ninety-foot turntable installed in 1912 is the concrete pit and foundation.

Figure 36

Oil Shed 1987
This one-story, concrete shed was built in 1912
to store lubricating oil.

Figure 37

Signal and Control Tower 1987
This structure, located near Bridge 60, was constructed in 1953.

Mattes Street Signal Tower--This small, three-story signal tower was constructed in 1908 after the "China Wall" was enlarged. Traffic on the through lines was controlled from this tower. It retains its exterior appearance although the interior was converted to house a small, electrical substation soon after the beginning of the diesel-era.

Yard Tracks--The current track arrangement represents, for the most part, that which evolved by the latter 1930s. Later exceptions are found in the track which leads to the Maintenance-of-Way building, tracks which go to the diesel maintenance shop, and the removed track to and from the roundhouse. While track location reflects integrity with the steam-era for the most part, the rails themselves probably have no integrity. Rail changes have occurred over the years as well as a gauge change. The first rails used by the Delaware, Lackawanna and Western Railroad were iron ones laid to a six-foot gauge. In 1876 the rails were narrowed to the standard 4 feet 8-1/2 inch gauge. About this time they were probably changed to steel rails, for the smelters in Scranton began to produce steel rails in 1875. These fifty-six-pound per yard rails were replaced by ones of seventy-five pounds per yard by 1890 and, in turn, by rails of eighty-pounds per yard in 1902 to permit using locomotives of increased weight. No record was found to indicate further rail weight changes, but the Delaware, Lackawanna and Western undoubtedly followed the procedure of the nation's other railroads and changed to heavier rails as equipment grew larger. In 1920 rails averaged ninety pounds per yard. By 1940 the average weight per yard for rails had increased to ninety-six pounds. Twenty years later this average had risen to 100-pounds per yard. Date nails indicate some rails in the yard were laid in 1949. Some through rails reflect the 1960s period since they weigh 130 pounds per yard. As a result, the rails in the Scranton yard reflect the diesel-era weight.

Right-of-Way from Scranton Yard to Pocono Summit--The right-of-way from the Scranton yard to Pocono Summit follows the historic right-of way acquired by the Delaware, Lackawanna and Western Railroad in 1851 when that line purchased the unconstructed Delaware and Cobb's Gap

Figure 38

Bridge 60 in 1908
Photograph courtesy of the George Arents Research Library, Syracuse University

This photograph shows the steel Bridge 60 which was built in 1907 to cross the Lackawanna River. The signal and control tower attached to its side was removed in 1953 with the building of a new facility nearby. This bridge was the third such structure on the site.


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Railroad. As a result, it has integrity to the steam-era. The rails, like those in the yard, no doubt represent the diesel-era.

Passenger Depot (Hilton Hotel)--Just east of the Scranton yard is the last passenger depot constructed by the Delaware, Lackawanna and Western. This structure, built in the 1906-08 period, has been placed on the National Register of Historic Places. The Comprehensive Management Plan proposes to include this fine, steam-era building within the preservation zone. It currently serves as a Hilton Hotel.

Moscow, Tobyhanna, and Pocono Summit Depots--Three depots are also included in the right-of-way at the towns of Moscow, Tobyhanna, and Pocono Summit. Each of these wood frame structures was built about 1912. They served both passengers and freight. With little alteration, and still including the green tile roofs, these buildings have integrity with the steam-era by representing typical small town depots of that period.

Dickson Site

The locomotive construction which occurred on this acreage from 1862-1902 had no relationship to the activities in the adjacent Delaware, Lackawanna and Western railroad yard. Currently, this area is owned by a plastics manufacturing concern called Laminations Incorporated. It consists of five structures.

Laminations Incorporated Plant--This structure was principally built between 1927 and 1954. It served for most of its existence as a bakery and has become the main structure for a plastics manufacturing concern since 1986. The building, therefore, has no connection with locomotive manufacturing.

Laminations Incorporated Warehouse--This structure is located on the land purchased by the William Cook Company in 1849. In the early 1850s

that concern opened a plant where stationary steam engines were manufactured. It sold the property to the Dickson Manufacturing Company in 1862. That firm used the site to manufacture steam locomotives. After a fire in February 1875 the Dickson Company rebuilt and expanded its operation. Evidently, most of the old Cook building remained usable after the fire and was incorporated into a larger structure.

The Dickson Manufacturing Company used the building for twenty-seven years before selling it to the American Locomotive Company in 1902. Presumably, it served the same function during the eight years the American Locomotive Company operated the plant. In the seventy-seven succeeding years, the structure has served as a warehouse except for the period 1920-31 when the Sall Mountain Company used the building as a location for the manufacture of asbestos roofing and pipe covering.

In the last seventy-seven years most of the historic windows and doors have been infilled with brick. Some new doorways have been opened. Several additions have been made to its south side, while a loading dock has been attached to the west end. The roof has been covered with asphalt shingles. Sometime within the last ten years the structure's exterior walls have been covered with a thick stucco coat. Because of the above actions, it has lost its visual integrity to its historic exterior appearance would require the removal of the later additions, asphalt roof, brick infilling, and the stucco. Removing the stucco would so damage the brick surface that rapid deterioration would follow. At the same time interpreting it in its current condition would be visually confusing.

Based upon an interior examination of this structure, the wood roof trusses in the east end appear to be from the 1850s period when the William Cook Company occupied the site. Some charring on these trusses suggests that the 1875 Dickson fire may have touched them. The preponderance of the remaining roof trusses are also wood and reflect

1875 construction by the Dickson Manufacturing Company. The several additions since 1920 are easily identified for their more modern construction style.

While the old roof trusses have merit, they cannot redeem a buiding whose visual exterior integrity has been compromised. To attach significance to a structure solely on the basis of one interior architectural feature cannot justify proclaiming it to be a contributing building.

Shed--This small concrete block structure was originally attached to the Willaims Bakery incinerator and power house structure when it was expanded in 1945. It became freestanding when the latter structure was removed in 1954. As a result, the shed is outside the period of significance.

Laminations Incorporated Warehouse (west of Cliff Street)--This one-story brick structure with a two-story segment on part of the rear was originally several freestanding structures. Located west of Cliff Street the northern part was built ca. 1875 as a machine shop for the Dickson Manufacturing Company. That same firm built the southern part for a workshop in 1901. Each of these structures had the same style with an English bond style in the brick walls. In 1902 the American Locomotive Company purchased the buildings. They presumably served the same function. Three years after American Locomotive closed its operation in 1910, the Scranton Silk Company moved into the northern structure and occupied it to 1920. The southern building was purchased by the United Silk Mills in 1918. That concern manufactured silk textiles until it went bankrupt late in 1925. The new owner filled the space between the two buildings in 1926 with an English bond style brick walls and thus the two buildings became one structure. Since 1926, it has served as a warehouse. Although one part of the structure dates from a later period than the Dickson ownership, the entire structure exhibits its original style with matching English bond brick walls.

Laminations Incorporated Garage--This brick building was erected by the Economy Light, Heat, and Power Company for a power house in 1896. The structure was sold in 1923 and was converted into a garage in 1926. It has functioned as a garage ever since that time. At an unknown date, probably around 1960 much of its exterior brick walls were removed and rebuilt with modern brick. Laminations Incorporated currently operates it for its garage.

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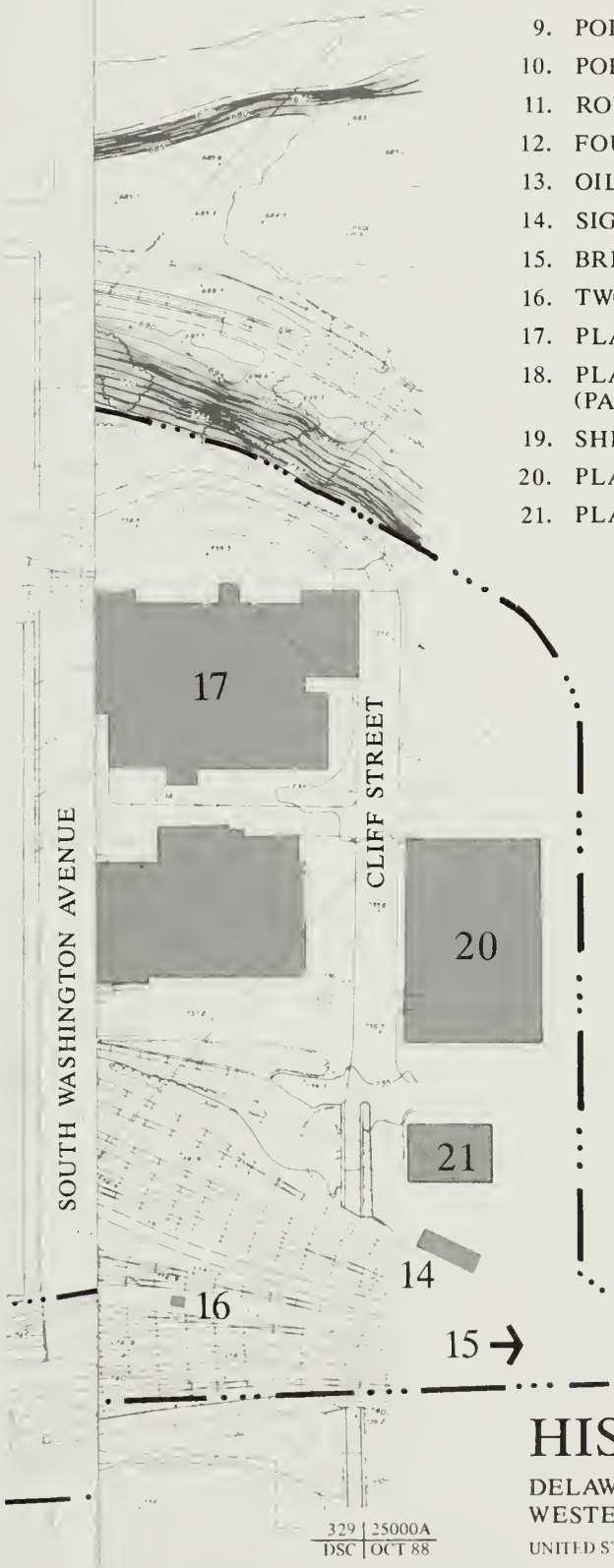

1. GAS HOUSE 1909
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3. STORAGE AND OFFICE BUILDING 1909
4. MAINTENANCE OF WAY BUILDING 1952
5. STORAGE BUILDING 1899–1900
6. DIESEL FUEL TANK ENCLOSURES 1945–1952
7. GREEN SAND STORAGE AND DRYER 1917
8. MAINTENANCE SHOP 1865, 1945–1949
9. PORTION OF ROUNDHOUSE 1937
10. PORTION OF ROUNDHOUSE 1902
11. ROUNDHOUSE OFFICE 1902
12. FOUNDATION OF COAL TRESTLE 1906
13. OIL HOUSE 1912
14. SIGNAL TOWER 1953
15. BRIDGE 60 1907
16. TWO SHEDS
17. PLASTICS MANUFACTURING
18. PLASTICS MANUFACTURING (PARTLY DICKSON BUILDING)
19. SHED 1945
20. PLASTICS MANUFACTURING (WAREHOUSE)
21. PLASTICS MANUFACTURING (GARAGE)

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HISTORICAL BASE MAP

DELAWARE, LACKAWANNA AND
WESTERN RAILROAD YARD AND DICKSON SITE

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1. GAS HOUSE 1909
2. STORAGE BIN FOUNDATION 1909
3. STORAGE AND OFFICE BUILDING 1909
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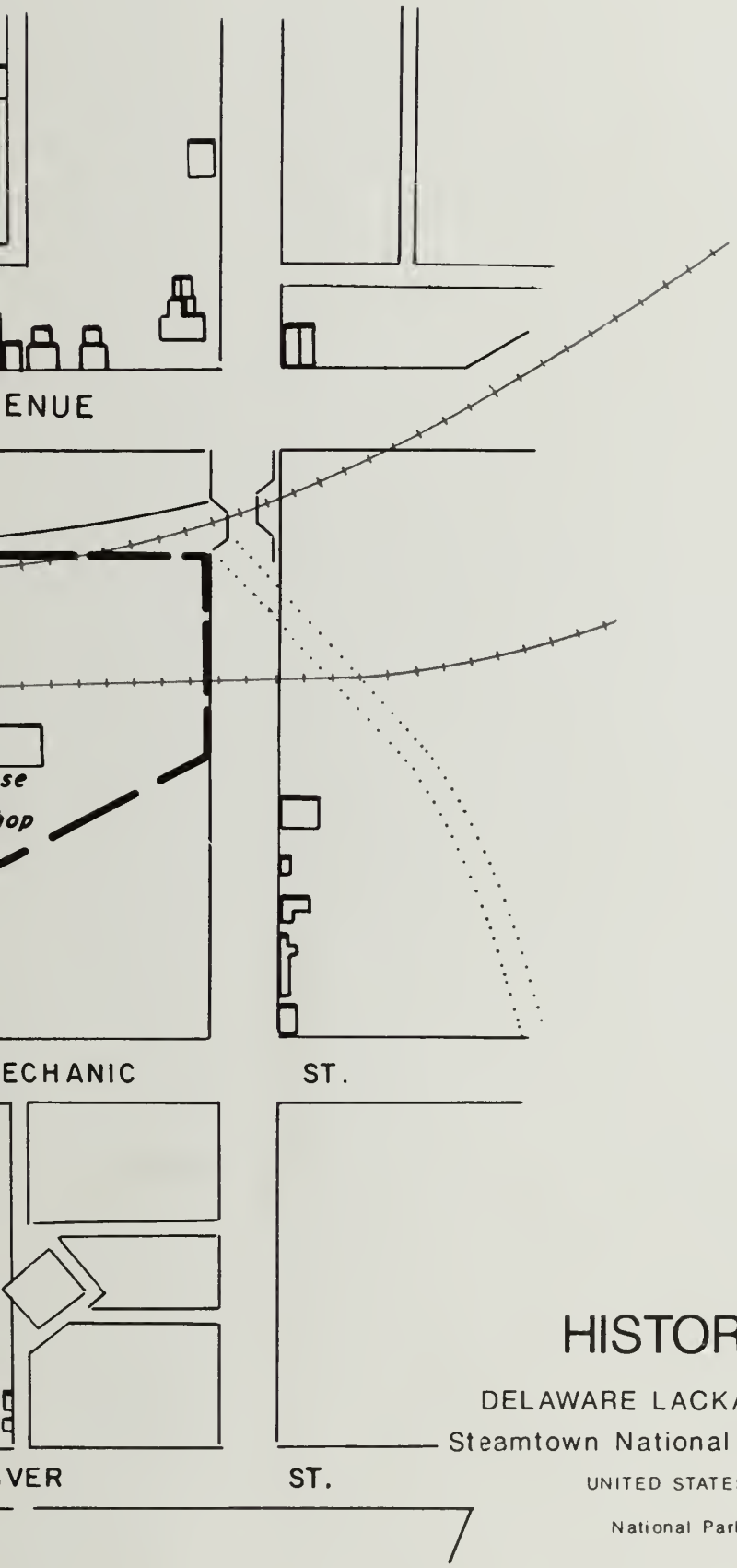

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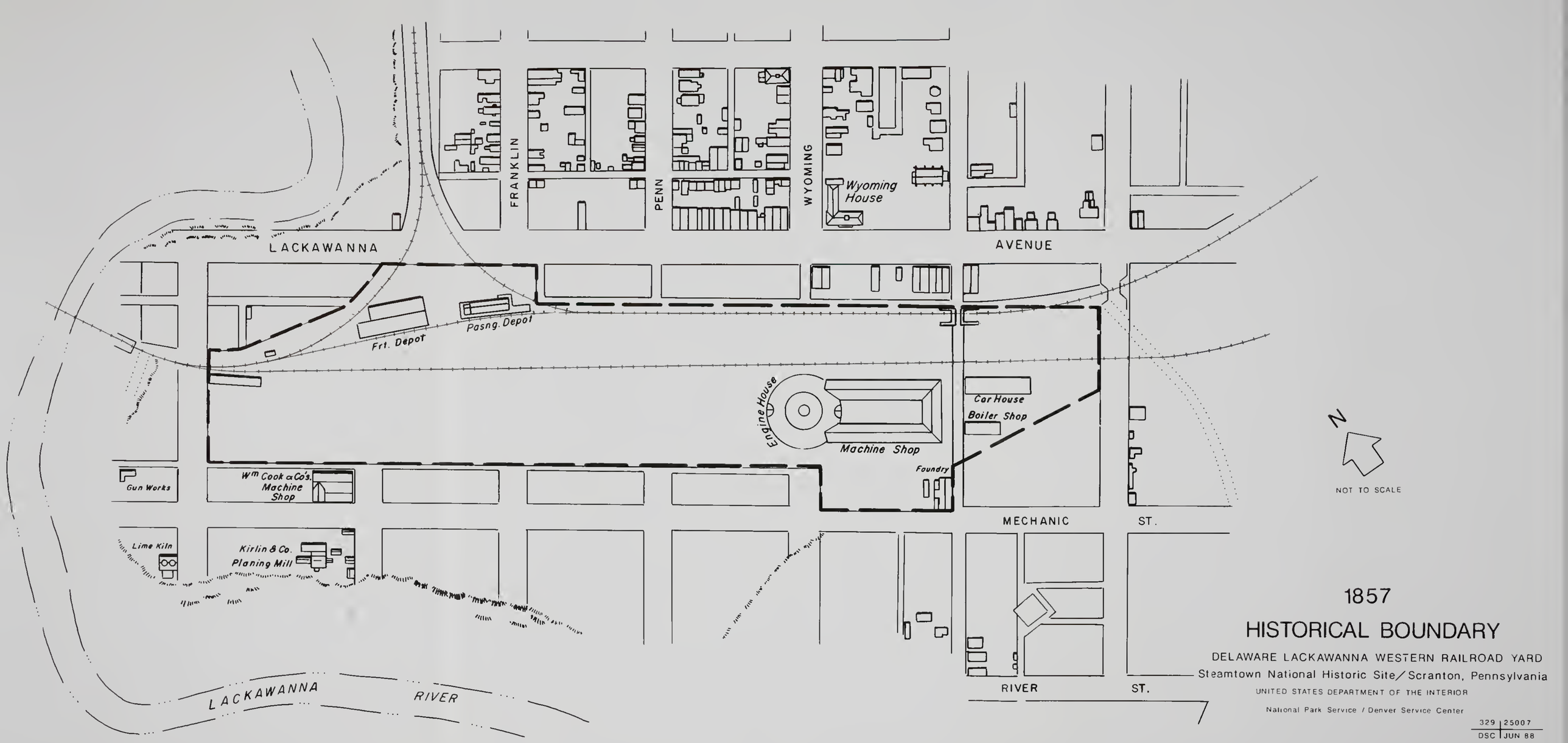

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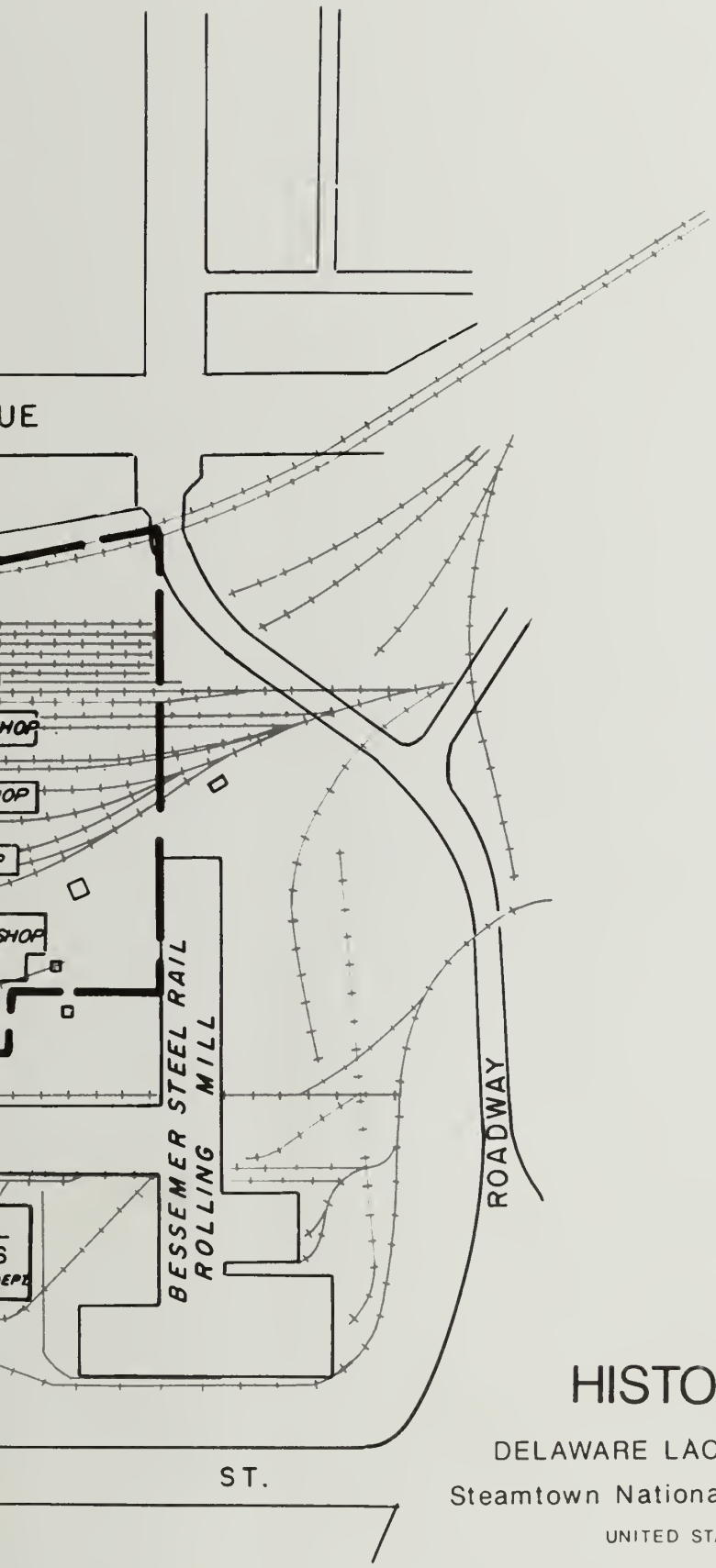

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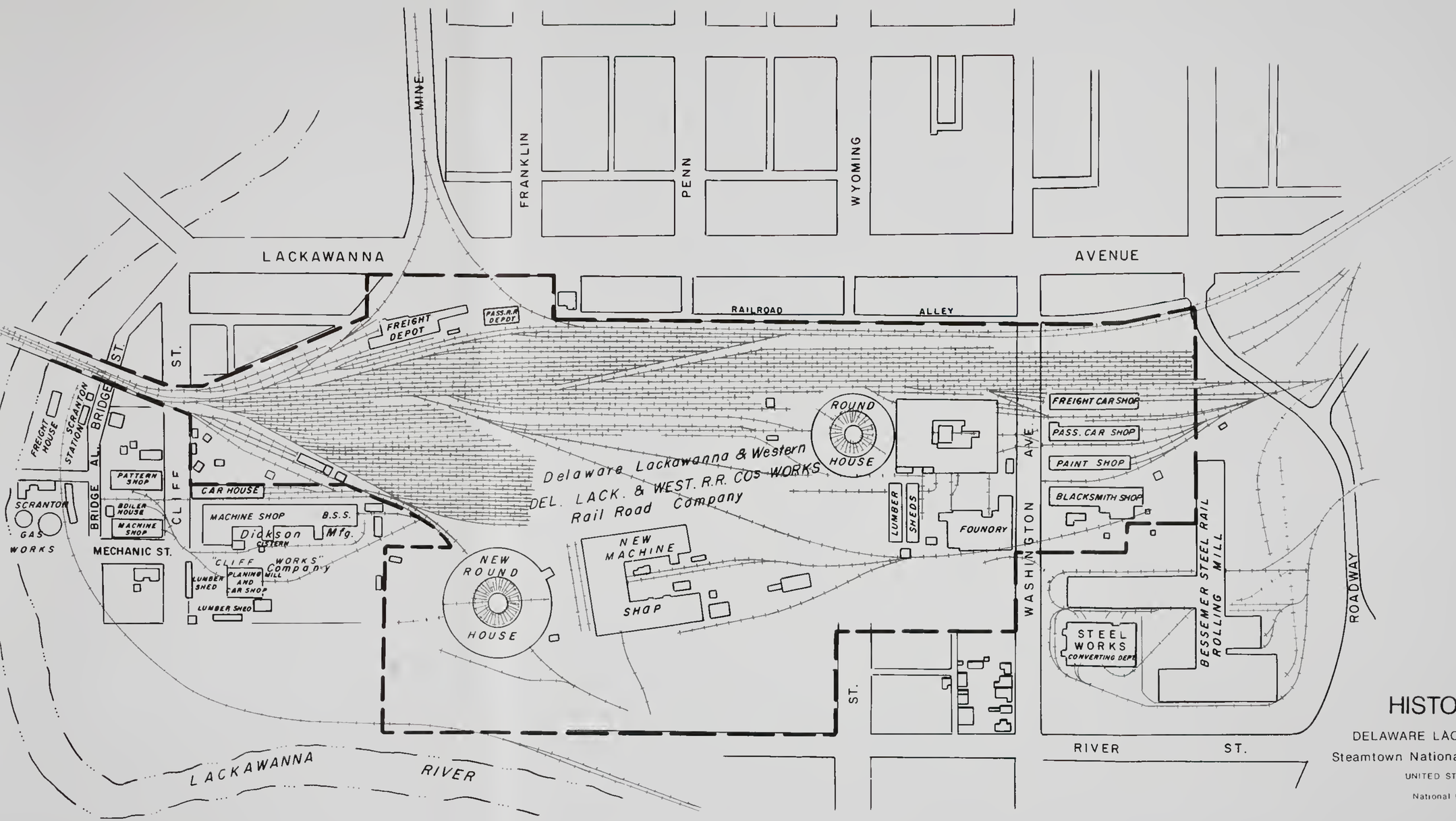

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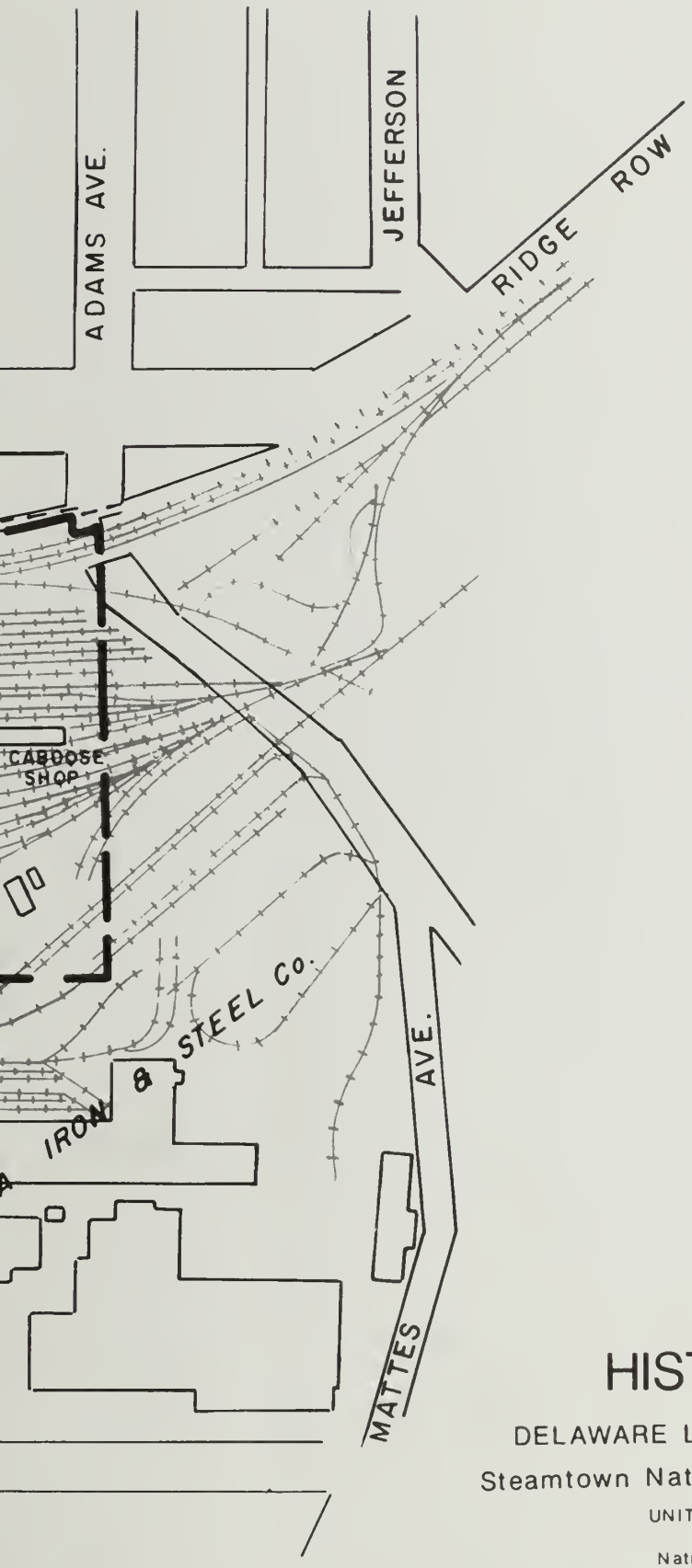

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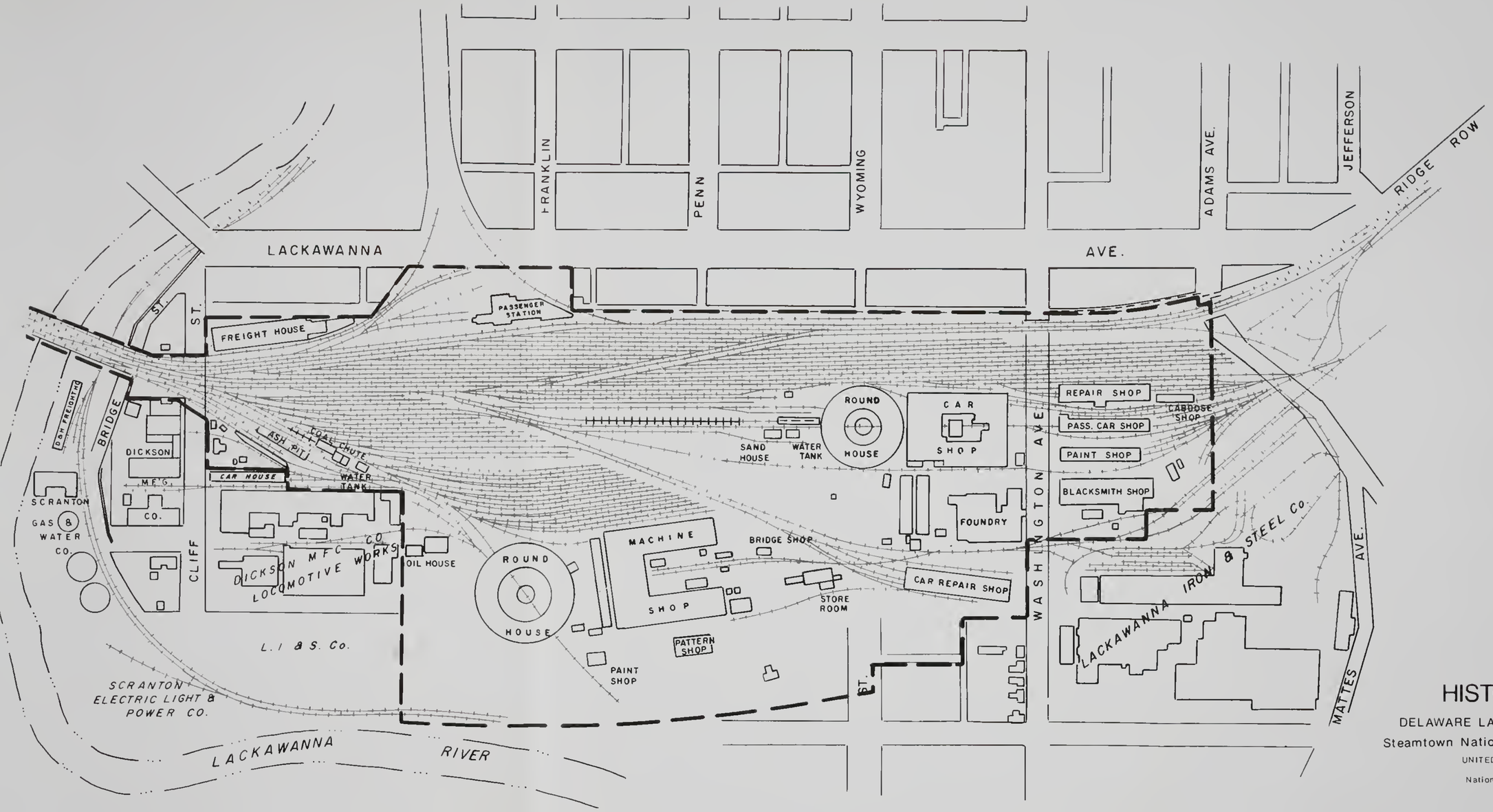

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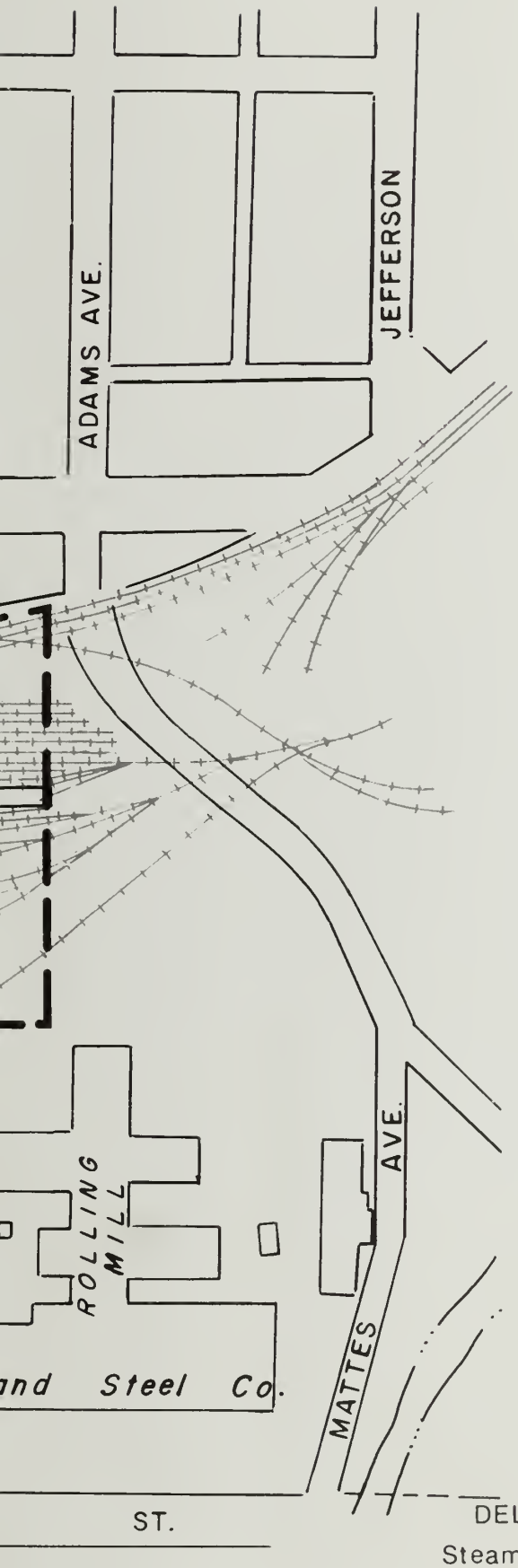

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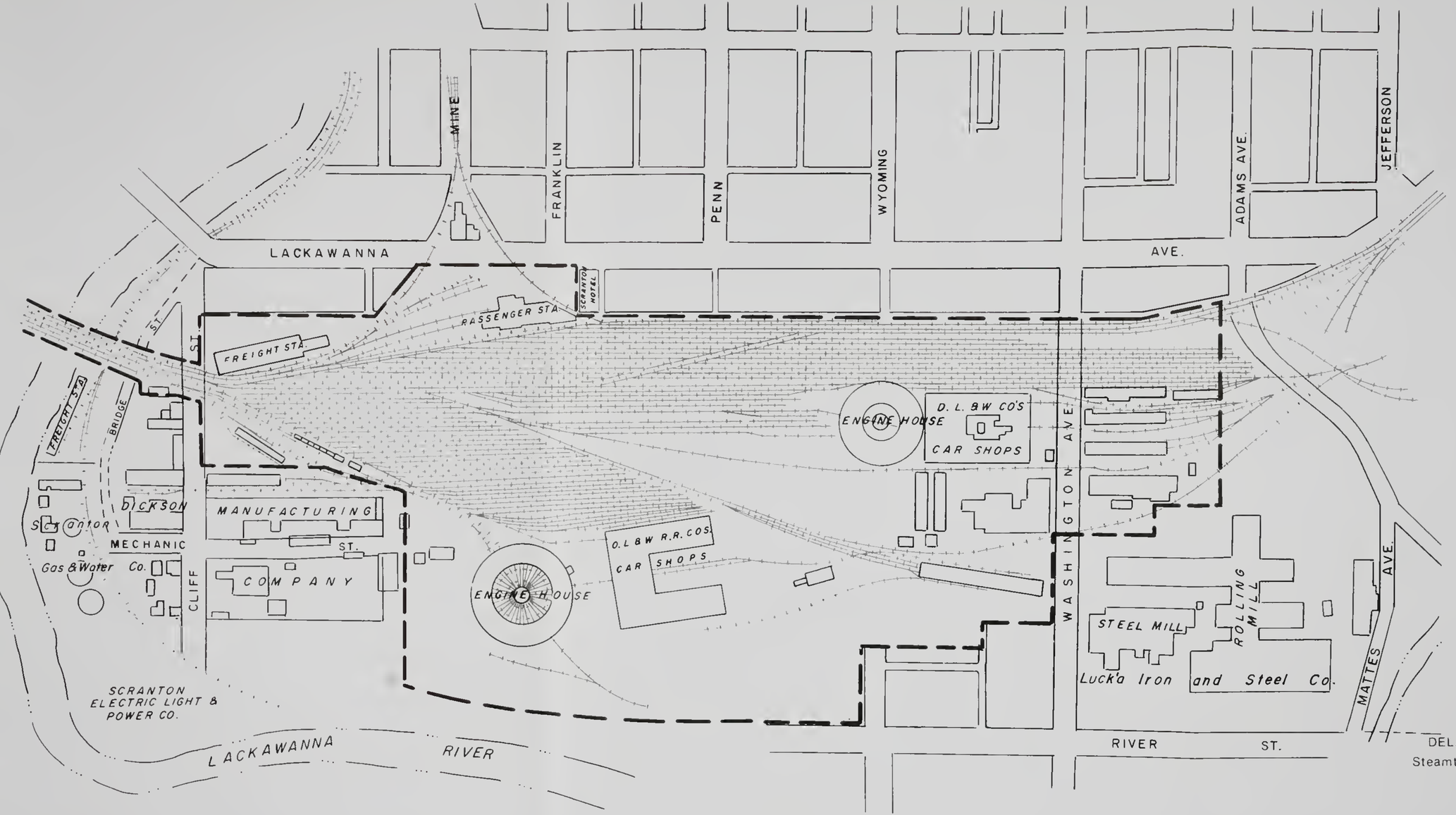

1898
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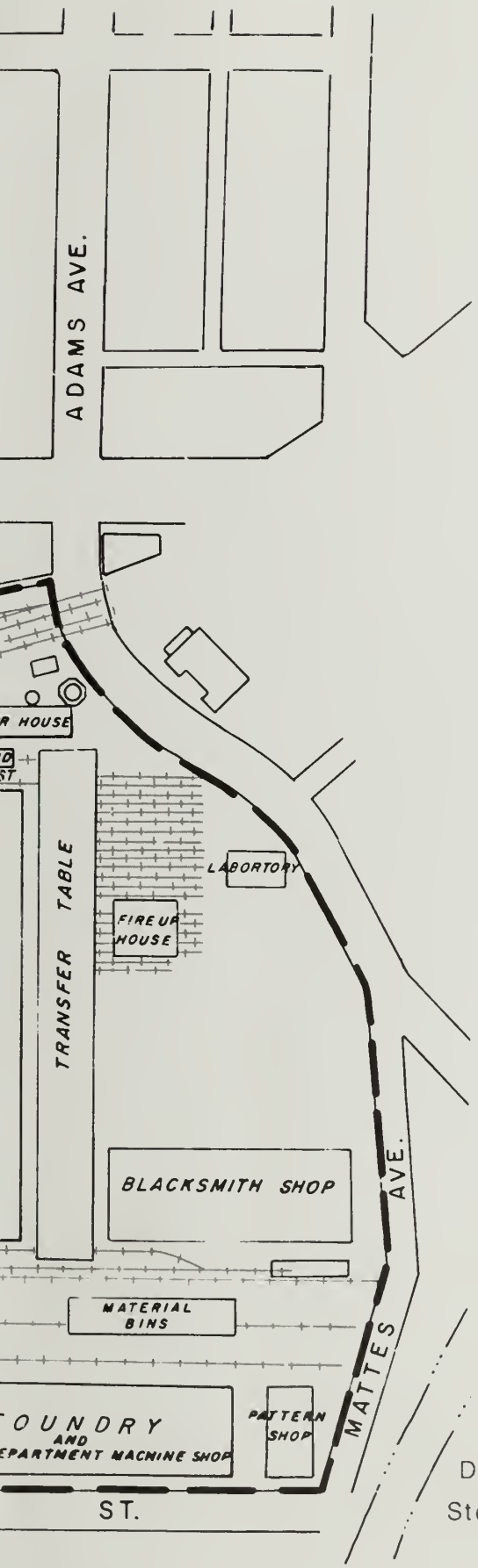

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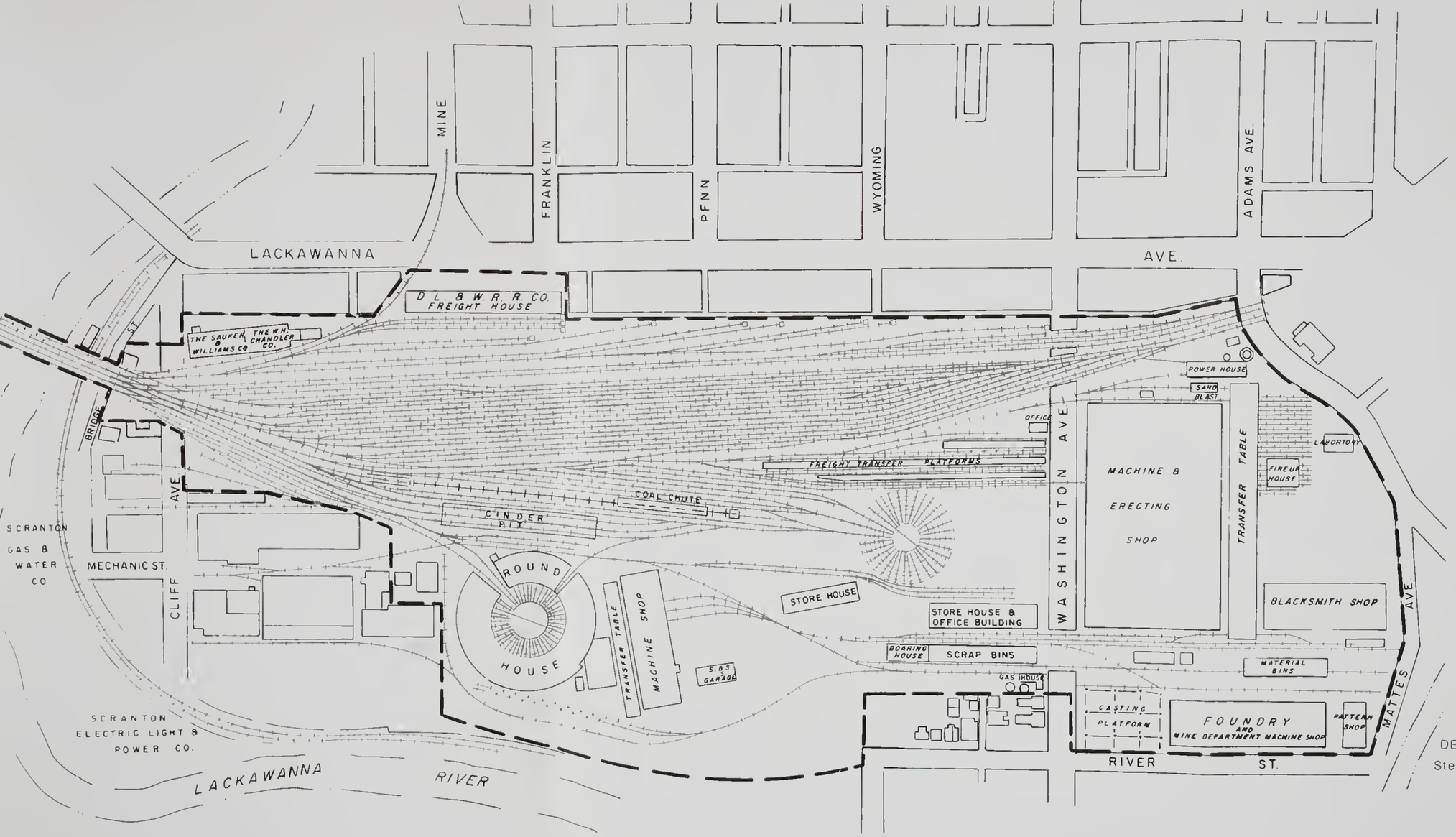

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NOT TO SCALE

1918
HISTORICAL BOUNDARY

DELAWARE LACKAWANNA WESTERN RAILROAD YARD
Steamtown National Historic Site / Scranton, Pennsylvania
UNITED STATES DEPARTMENT OF THE INTERIOR
National Park Service / Denver Service Center

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As the nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, parks and recreation areas, and to ensure the wise use of all these resources. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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