

PITTSBURGH AND CASTLE SHANNON RAILROAD  
(Overbrook Trolley Line)  
South Hills Junction  
Pittsburgh  
Allegheny County  
Pennsylvania

HAER NO. PA-410

HAER  
PA  
2-PITBU  
76-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD  
National Park Service  
Philadelphia Support Office  
U.S. Custom House  
200 Chestnut Street  
Philadelphia, PA 19106

HISTORIC AMERICAN ENGINEERING RECORD  
PITTSBURGH & CASTLE SHANNON RAILROAD  
(Overbrook Trolley Line)

HAER  
PA  
2-PITBU,  
76-

HAER NO. PA-410

Location: South Hills Junction  
Pittsburgh  
Allegheny County, Pennsylvania

Quad: Pittsburgh West, PA  
UTM: 44.74770.584280

Dates of Construction: Ca. 1872-1874

Engineer, etc.: Pittsburgh Coal Company, Pittsburgh and Castle Shannon  
Railroad Company, Pittsburgh Railways, and Port Authority of  
Allegheny County.

Present Owner(s): Port Authority of Allegheny County  
Pittsburgh, Pennsylvania 15233-1080

Present Use: Out of service trolley line

Significance: This former 40-inch, narrow-gauge railroad was purchased in 1871  
by the Pittsburgh & Castle Shannon Railroad Company. In 1909,  
Pittsburgh Railways Company, lessee, began electrifying and  
converting the line into a suburban trolley system. In 1964, the  
Port Authority of Allegheny County acquired the rail line and  
continued its operation until 1993. This system represents the  
evolution of rail transportation from steam to electric trolley  
service.

Project Information: The Stage II LRT Project is an in-place modernization of  
the existing Overbrook, Drake, and Library trolley lines. The  
replacement of the Warrington Avenue Bridge, McKinley Park  
Bridge, Oak Viaduct, and Reflectorville Viaduct are also within the  
project's scope.

Shelley Birdsong, Historian  
Michael Baker Jr., Inc.  
501 Parkway View Drive  
Pittsburgh, PA 15205

## Introduction

The evolution of Pittsburgh's transportation system, from the 1850s to the modern day, is illustrated through the history of the Pittsburgh & Castle Shannon Railroad (P. & C.S.R.R.) route from South Hills Junction to Castle Shannon, Pennsylvania. The P. & C.S.R.R. Company began by purchasing a line in 1871, that had been constructed in the ante-bellum period as a coal road. The rail corridor, located in Pittsburgh's South Hills area, started at the top of Coal Hill (Mount Washington) at the Beltzhoover coal mine, opened in 1825.<sup>1</sup> In 1861, the route continued south, one and one-half miles from the original mine opening and remained this length until 1871, when the P. & C.S.R.R. Company began extending the 40-inch narrow-gauge railroad to Castle Shannon. The company chose this terminus because the company had acquired options on 1,000 acres of real estate at this location.

Hilton, in *American Narrow Gauge Railroads*, states that once this 40-inch narrow gauge came under the control of the P. & C.S.R.R., it may have been the "first American common carrier narrow gauge."<sup>2</sup> Also desirous to profit from the growing coal trade in Pittsburgh, the company sought to add additional powers to its charter as early as 1872. This HAER report centers on the evolution of Pittsburgh's Saw Mill Run Valley transportation system and the forces behind its development. Specifically, the report provides the history of the Pittsburgh & Castle Shannon Railroad within this context.

## The Pittsburgh District-1850 to the 1870s

By 1850, Pittsburgh had grown into a commercial center as the Monongahela, Ohio and Allegheny Rivers provided for the transportation of products to a large regional market. Pittsburgh's coal supply, first tapped in the earlier settlement period, became the driving force behind the establishment and growth of heavy industries such as iron, glass, textiles, and foundry work. The development of industry brought a new work force to the city.

The City of Pittsburgh was incorporated in 1816 with a population totaling over six thousand. The construction of five bridges across the Monongahela and Allegheny Rivers, in addition to the introduction of a new work force caused Pittsburgh to grow "into a prosperous commercial and industrial center of 46,601 people," by 1850.<sup>3</sup> If the aggregate population of the seven contiguous towns surrounding Pittsburgh was included, then the population of Pittsburgh increased to over 80,000 for the "metropolitan area."<sup>4</sup>

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<sup>1</sup>J. Sutton Wall, *Second Geological Survey of Pennsylvania, Report on the Coal Mines of the Monongahela River Region from the West Virginia State Line to Pittsburgh*, (Harrisburg, Pennsylvania: Board of Commissions for the Second Geological Survey, 1884), K-179. (Hereinafter cited as Second Geological Survey).

<sup>2</sup>George W. Hilton, *American Narrow Gauge Railroads*, (Stanford, CA: Stanford University Press, 1990), 493-494.

<sup>3</sup>Joel Arthur Tarr, *Transportation Innovation and Changing Spatial Patterns in Pittsburgh, 1850-1934*, (Chicago, Illinois: Public Works Historical Society, 1978), 2. (Hereinafter cited as *Transportation Innovation*)

<sup>4</sup>*Ibid.*

As in most nineteenth-century industrial centers, the lack of transportation in the early development of the city caused workers, both management and labor, to live close to work. Thus, early Pittsburgh was known as a "walking city."<sup>5</sup> In the 1850s, Pittsburgh experienced the growth and development of four transportation technologies to include the omnibus, commuter railroad, the horsecar, and the inclined plane. The combination of these four innovations developed into Pittsburgh's mass transportation system from 1870 to 1930. In addition, transportation improvements allowed for the transformation of Pittsburgh into clearly distinguished residential, commercial, and industrial sectors.<sup>6</sup>

The innovation and later availability of timely transport into the commercial centers allowed more affluent individuals to move beyond the core city. This is reflected in Tarr's claim that the development of the horsecar lines beyond the city was causing a building boom in Pittsburgh's outlying wards between 1870 and 1900. "The extension of horsecar lines and the increase in commuter railroad service facilitated the spread of population through the city. Wards within less than an hour's horsecar ride of the downtown core experienced heavy population growth. . . But the outlying wards, an hour or more horsecar ride from the core, saw only scattered development."<sup>7</sup>

### **Feeding an Industry with Coal and a Route into the Valley**

The industrial need for the coal resources available in the South Hills dominated the development of the area. The first settlement began in Pittsburgh's South Side, along the northern foot of Mount Washington, as towns such as Birmingham, South Pittsburgh, and East Birmingham. Unlike this region and the annexed East End, access to the South Hills was more difficult because of the imposing Mount Washington dividing it from the core city. With the installation and operation of the first passenger inclined plane along Mount Washington in 1870, the area began experiencing scattered development.

Prior to the 1870s, development of the South Hills was limited to that associated with coal mining activities. The early discovery of coal and the beginning of coal mining at Mount Washington occurred during the British occupation of Fort Pitt in 1765. Arthur Lee recorded the earliest domestic use of coal in this area in 1784 as the inhabitants of the region considered the coal "good."<sup>8</sup> Before inclines were used, mine operators used several methods to transport coal to the South Side. One method early operators used was the use of a sled-car. The sled-car was made of two oak saplings framed together to form shafts for the horse to work in, and a box fastened on the other end that would haul almost fifteen bushels of coal.<sup>9</sup>

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<sup>5</sup> *Ibid.*, 2-3.

<sup>6</sup> Timothy Zinn, "Stage II Light Rail Transit Planning Analysis/Environmental Assessment--Historic Context of the Pittsburgh Railways Company Line," (Pittsburgh, PA: Michael Baker Jr., Inc, 1994), 2-3.

<sup>7</sup> Tarr, *Transportation Innovation*, 11.

<sup>8</sup> Wall, *Second Geological Survey*, xviii-xiv, 166.

<sup>9</sup> *Ibid.*, xxi.

Coal mining, as related to the development of the railroad which became the P. & C.S.R.R., began in 1825 along the northern face of Mount Washington, under the direction of Jacob Beltzhoover. After Beltzhoover sold the mine to a John Griffith and later, in 1835, to John D. Miller, the property passed to Bailey, McKain and Company in 1856. James M. Bailey continued operation until the opening was exhausted in 1861.<sup>10</sup> The Pittsburgh Coal Company continued laying tracks southward into the Saw Mill Run Valley, one and one-half miles to a coal mine on the south bank of Saw Mill Run.<sup>11</sup> This was the road that would become the P. & C.S.R.R..

### **The Formation of the Pittsburgh and Castle Shannon Railroad, 1871 to 1873**

The Commonwealth of Pennsylvania incorporated the P. & C.S.R.R. as a common carrier on September 21, 1871. The company's Articles of Association stated that the railroad was to be constructed a total distance of seventeen miles from South Pittsburgh, Allegheny County, Pennsylvania to Finleyville, Washington County, Pennsylvania. The company was capitalized for one million dollars; a value distributed in five hundred stock shares. The company's real and personal estate was not to exceed three million dollars in value. The P. & C.S.R.R. Company received its charter on October 9, 1871, and designated Milton D. Hays as president.<sup>12</sup>

Formally established, the company began to acquire right-of-way. Since the company held options on one-thousand acres of land that eventually became the villages of Fair Haven and Castle Shannon,<sup>13</sup> the ideal right-of-way would connect this property to the City of Pittsburgh. In November 1871, the company purchased the Coal Hill coal railroad from the Pittsburgh Coal Company through James M. Bailey, acting as Pittsburgh Coal's agent, for \$225,000. In addition, the P. & C.S.R.R. Company assumed a \$50,000 debt Bailey had accrued on coal land acquisitions. The acquisition of property included the following Pittsburgh Coal Company property:

All the coal company's railroad buildings, fixtures and machinery, sidings, check houses, oil houses, steam pumps and pump house, water station and tanks, inclines, three locomotives, 280 coal cars, six horses and harness, five tunnel mules, fourteen pit mules, four two-horse coal wagons, three stables, eight coke ovens, and an office with furnishings; the Coal Company's mineral rights; and the

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<sup>10</sup> *Ibid.*

<sup>11</sup> F. Herbert Snow, "P. & C.S.R.R. Company, Historical Cost," 1918, 430. Original manuscript used in the preparation of a report of valuation for the Public Service Commission of the Commonwealth of Pennsylvania, August 1919. Located in the Pittsburgh Railways Company Papers, AIS 74:29, Series II-Box 2, Book 15. Archives for Industrial Society, University of Pittsburgh, Pittsburgh, Pennsylvania. (Hereinafter cited as the Snow Report)

<sup>12</sup> *Ibid.*; John D. Weinhold, "Milton Hays and His Railroads." *Canal History and Technology Proceedings* 15(March 1996), 53. (Hereinafter cited as "Milton Hays").

<sup>13</sup> Snow Report, 430.

coal business, which included a coal yard at the corner of present-day East Carson Street and Arlington Avenue in Pittsburgh's Southside.<sup>14</sup>

Separate from the transaction, the Pittsburgh & Castle Shannon Railroad Company obtained the remaining forty-years and four-months lease first signed by the Pittsburgh Coal Company. Mrs. Mary Ann Bailey, mother of James M. Bailey, held a lease for the following: the 275-foot parcel fronting on the south side of Carson Street, the 850-foot long Coal Incline<sup>15</sup> extending from a point near Carson Street to the northern portal of the Mount Washington Coal Tunnel,<sup>16</sup> the 1,700 foot Coal Tunnel to the south side of Mount Washington, and the railroad tracks known as horse-shoe curve and continuing along Washington (present-day Warrington Avenue).<sup>17</sup> The terms of the lease required the P. & C.S.R.R. Company to pay a royalty not less than \$2,500 a year or one-tenth of a cent per bushel of coal carried over the leased property. Excess amounts over \$2,500 were to be paid at half of the above mentioned rate. In addition, the company was to pay for all required city improvements, not to exceed \$1,000 per year.<sup>18</sup>

The company's acquisition of this lease was interesting when considering the location of the rail corridor and its prior use. In 1871, the South Hills of Pittsburgh was not exceedingly developed. In fact, the few inhabitants south of Mount Washington dedicated most acreage to agricultural business.<sup>19</sup> The Act under which the P. & C.S.R.R. was chartered did not allow for the transport and sale of coal, or real estate development, only the "conveyance of persons and property."<sup>20</sup> Considering the low number of passengers and lack of residential property in the area between 1871 and 1873, the railroad needed the coal trade to supplement its earnings.

When Pittsburgh Coal exclusively used this 40-inch narrow gauge railroad for coal transport, the gauge was not important. Yet, when the P. & C.S.R.R. acquired this line for passenger service, the 40-inch narrow gauge did not match any additional passenger lines in Pittsburgh during the early 1870s. This did not afford the P. & C.S.R.R. an opportunity to link into developing commuter railroad routes. In addition, because of the location of the route, there was no opportunity for the existing railroad to connect with another railroad in order to generate revenues. The route's northern terminus was on the face of Mount Washington while its

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<sup>14</sup>Weinhold, "Milton Hays," 53.

<sup>15</sup>Built prior to 1861, the coal incline was used by Bailey to transport his coal from his mine to Carson Street below.

<sup>16</sup>The Coal Tunnel is the incidental result of Bailey's mining. As he worked his main heading further into the hillside, it was eventually exhausted and resulted in the formation of a tunnel. As the mine became deeper, Bailey laid track into the tunnel to expedite coal transport to the incline.

<sup>17</sup>Weinhold, "Milton Hays," 53.

<sup>18</sup>Snow Report, 430.

<sup>19</sup> Pittsburgh Neighborhood Alliance, *An Atlas of the Beltzhoover Neighborhood of Pittsburgh*. (Pittsburgh, PA: Pittsburgh Neighborhood Alliance, 1977) 2. Vertical Files, the Carnegie Library of Pittsburgh, the Pennsylvania Room, Pittsburgh, PA.

<sup>20</sup> Snow Report, 429. This defined carrier service is the result of the Act authorizing the formation and regulation of a railroad corporation, approved April 4, 1868, by the Commonwealth of Pennsylvania.

southern terminus was located at the Pittsburgh Coal Company mine. Lastly, there was no hope of improved freight haulage as the line had no producers along its routes other than mines. These factors made the success of the Pittsburgh and Castle Shannon questionable at best, particularly under the terms of its Articles of Association.<sup>21</sup>

In 1872, the P. & C.S.R.R. Company petitioned the Pennsylvania General Assembly for the inclusion of additional corporate powers in its charter. The General Assembly approved the petition on February 21, 1872, as Act Number 139. The act allowed the P. & C.S.R.R. the right to grant and receive all types of property, up to two-thousand acres. Furthermore, the company could improve their holdings to obtain coal and other valuable minerals through mining or lease, and also to erect houses and other buildings as the practice was profitable to the company. Another provision of the act was the allowance that the company could dispose of or encumber its property as necessary for any purpose.<sup>22</sup> This allowance gave the Pittsburgh & Castle Shannon the opportunity to fully exploit its holdings. Coal mining and coal transportation, as a result, became the center of P. & C.S.R.R. operations.

The new company, as a result of the passage of this act grew between 1872 and 1873. The company petitioned the state legislature again for an extension of its powers to include the construction, erection, maintenance, and regulation of an inclined plane or planes at any point along the line in 1873. This act also provided for a time extension for completing road construction,<sup>23</sup> allowing for the completion of the railroad from Saw Mill Run to Castle Shannon for a total length of six miles. Captain Isaac J. MacKinley, P. & C.S.R.R.'s chief engineer in October 1873, designed the road's extension.

### **The Pittsburgh and Castle Shannon 1872-1877**

In 1872, the company began extending its line from present-day McKinley Park south to Reflectorville. The Pittsburgh Coal Company's original southern terminus became a spur line to access the South Bank coal mines. The railroad then continued to Oak Viaduct which crossed Saw Mill Run and placed the railroad on the southern bank of Saw Mill Run. The railroad, via Oak Viaduct, accessed the Fair Haven neighborhood; one of two Pittsburgh & Castle Shannon Railroad Company planned suburbs. The line then continued south, passing coal mines which were located on both sides of the Saw Mill Run Valley, eventually ending at Castle Shannon, 6 miles away from the present-day Mount Washington trolley tunnel. The completion of the line to Castle Shannon led to the beginning of commuter rail service into the South Hills of Pittsburgh.

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<sup>21</sup>Weinhold, "Milton Hays," 54.

<sup>22</sup> Commonwealth of Pennsylvania, *Laws of Pennsylvania, of the Session of 1872*, "Number 139, An Act, passed on 21 February 1872," 142-143.

<sup>23</sup> Commonwealth of Pennsylvania, *Laws of Pennsylvania, of the Session of 1873*, "Number 573, An Act, passed on 5 April 1873," 546-547.

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The P. & C.S.R.R. planned and advertised home lots in Fair Haven and Castle Shannon, soon after the passage of the 1872 enabling act. The first neighborhood was Fair Haven. In 1872, the company recorded its plat for Fair Haven (present-day Overbrook), at the Allegheny County's Clerk Office. *The Pittsburgh Evening Chronicle* published an article on April 17, 1872, promoting the sale of lots in Fair Haven. The P. & C.S.R.R offered sixty lots divided from the former F. Briggs farm, according to the article. The article further stated that the "company [offered] their lots especially to their workmen and those who desire to [be] located convenient to their new mines. The company designed the plan of lots to furnish homes for such of their employees and others who may desire to embrace this rare opportunity."<sup>24</sup> The P. & C.S.R.R. offered new residents a brief, fifteen minute commute to the city.<sup>25</sup> The terms of sale were ten-percent down and five dollars per month with interest. This was P.& C.S.R.R.'s first advertised suburb in the South Hills.

In 1873, P. & C.S.R.R. recorded its Castle Shannon Plat at the Allegheny County's Clerk Office. The property obtained for lot division were local farms and orchards. The railroad advertised the sale of these Castle Shannon lots trying to attract new residents into an area, six miles outside the City of Pittsburgh.<sup>26</sup> An 1873 newspaper article published a travelogue of the route to the new subdivision. The article aesthetically described the passengers' ride on the railroad's early route as follows:

After a minute or two enveloped in Egyptian darkness, you come out into the valley of Saw Mill Run, which stream foams below you a good distance. The scenery is very fine, in fact well worthy of being visited for its own sake. The railroad descends at a grade of seventy-six feet to the mile, a very pretty bend, a miniature counterfeit of the celebrated Horse Shoe Bend near Altoona. At Allentown you cross the city line, and one of the oldest roads in Western Pennsylvania. . . .About a mile further south Fair Haven is reached. . . .But the track we are on keeps along the right bank of the stream until Castle Shannon is reached.<sup>27</sup>

The article continues to describe the village of Castle Shannon and the bucolic scenes the visitor would encounter. The advertisement described the large lots "running no less than four or five times the size of city lots," and the accessibility provided by the Pittsburgh and Castle Shannon commuter railroad and its timely forty-five minute trip to Pittsburgh.<sup>28</sup> The Castle Shannon subdivision was not popular with Pittsburghers. The historic record is not clear as to why, yet

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<sup>24</sup>"Pittsburgh and Castle Shannon Railroad Company's Fair Haven Plan of Lots," *Pittsburgh Evening Chronicle*, 17 April 1872.

<sup>25</sup>*Ibid.*

<sup>26</sup>"Castle Shannon," *Pittsburgh Post Gazette*, 26 September 1936.

<sup>27</sup>"Castle Shannon," *Pittsburgh Evening Chronicle*, 15 May 1873, 3.

<sup>28</sup>*Ibid.*

the distance from the city and complete reliance on the railroad for travel outside the immediate area contributed to Castle Shannon's lack of popularity. The sparse population of the Saw Mill Run Valley continued into the twentieth century.

In an effort to increase ridership, the Pittsburgh and Castle Shannon opened a zoological garden, picnic areas, and a church camp meeting ground along its new route. According to Tarr the construction of rail-side amusement parks on the city's periphery was a common method employed by early transportation companies to boost ridership.<sup>29</sup> The Pittsburgh and Castle Shannon was no different as the company opened the Castle Shannon picnic grove on Memorial Day 1872.<sup>30</sup> This venture spurred the development of Wildwood Grove, Linden Grove, and the Zoological Gardens between 1873 and 1876.<sup>31</sup> The most interesting of these attractions was the Zoological Gardens.

The P. & C.S.R.R. built the Zoological Gardens at the Castle Shannon picnic grove. The attraction drew between 2,000 and 3,000 people at its grand opening on Memorial Day, 1876. According to Zinn, by August 1876, the zoo advertised over 100 varieties of birds and animals. The Zoological Gardens also contained a museum building that housed a variety of curiosities.<sup>32</sup> To ensure the return of paying customers, the company planned special events, including demonstrations and lectures.<sup>33</sup>

In addition to this most unusual endeavor, the P. & C.S.R.R. induced the Methodist Protestant Church to conduct its summer camp meeting at Castle Shannon. P. & C.S.R.R. offered company-owned land on which, "[t]hree South Side sawmills and lumber yards and a boat yard were employed to construct 21 cottages, a hotel, a boardwalk, and canopy. At the end of the 10 days [of building], the camp site was completed and opened as the Castle Shannon Camp Meeting Grounds of the Castle Shannon Methodist Camp Meeting Association."<sup>34</sup> These types of events did result in a short-term gain in route ridership, yet the rolling stock inventory reported by the company in 1874 to the Secretary of Internal Affairs of the Commonwealth of Pennsylvania indicated that these gains were temporary.

In the 1874 *Annual Report to the Secretary of Internal Affairs*, P. & C.S.R.R. officials reported the line's features. The report stated that the company had laid the six miles of track to Castle Shannon, but the line was not double-tracked. There were 1.41 miles of branch railroads

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<sup>29</sup>Tarr, *Transportation Innovations*, 12.

<sup>30</sup>This date is questionable since the line was not completed to Castle Shannon until May 1873.

<sup>31</sup>Zinn, "Historic Context of the Pittsburgh Railways Company," 13.

<sup>32</sup>*Ibid.*

<sup>33</sup>John Weinhold, "The Zoological Gardens At Castle Shannon, Draft," Vertical File, Community Library of Castle Shannon, Castle Shannon, PA, 1986.

<sup>34</sup>Weinhold, "Zoological Gardens," 25-26 and Paul D Jonas, "Twin Tubes Project recalls Castle Shannon Evolution," *The Pittsburgh Dispatch*, Vertical Files, Community Library of Castle Shannon, Castle Shannon, PA. As paraphrased in Zinn, "Historic Context of the Pittsburgh Railways Company," 14.

constructed by the company and six wooden bridges with an aggregate length of 1,929 feet. The number of bridges decreased to four soon after beginning operations.<sup>35</sup> Facilities along the route included fourteen main stations for passenger and freight service.

Another expenditure listed in the 1874 report was the company's improvements to the railroad's facilities. When the P. & C.S.R.R. leased the coal tunnel from Bailey, the opening was only 5.5 feet high to accommodate the passage of coal cars. In 1874, the P. & C.S.R.R. expanded the tunnel to 12.5 feet to accommodate passenger and freight cars. Along with the tunnel improvements, the company erected a locomotive shop at Castle Shannon. Yet, the rolling stock inventory for the company did not reflect a large amount of ridership. According to the report, the company owned five locomotives, two first-class passenger cars, five second-class cars, one freight car, and 320 coal cars. The value of all the real estate held by the company totaled \$292,294.92.<sup>36</sup> The difference in the number of passenger cars and coal cars, continued to indicate the strong dependent relationship the P. & C.S.R.R. had with the Saw Mill Run Valley's coal trade.

The first information on the P. & C.S.R.R. mines became available in 1877. The P. & C.S.R.R. coal mines sold some of the finest coal on the market, according to the coal report of the Commonwealth of Pennsylvania's Secretary of Internal Affairs. The report continued to describe the company's two mines. The P. & C.S.R.R. Company located its first mine at the mouth of Big Saw Mill Run. The mine had three drift openings and produced the much sought after Pittsburgh Seam coal. One opening was exhausted, but the number three drift, which represented the remaining coal in this area, was three hundred feet long, had a face heading five hundred yards long, and three cross headings.<sup>37</sup>

The P. & C.S.R.R. located their other mine at Fair Haven, one-mile south of the old opening. The mine had two main headings three hundred yards apart and three hundred yards long, with three cross headings. Two of the cross-headings were driven through to the Number Two mine main heading, and one was connected with the shaft to assist with ventilation. The Fair Haven mine produced 68,500 short tons of coal in 1877 and employed 134 persons.<sup>38</sup>

### **The Pittsburgh & Castle Shannon and the Castle Shannon Railroad War**

The early success of the P. & C.S.R.R. spurred speculation into other southern transportation routes. To a large extent, the P. & C.S.R.R.'s inability to complete its line to Finleyville allowed for the formation of a new company. Milton D. Hays, then president of the

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<sup>35</sup>Snow Report, 432.

<sup>36</sup>*Ibid.*

<sup>37</sup>Commonwealth of Pennsylvania, *Annual Reports of the Secretary of Internal Affairs of the Commonwealth of Pennsylvania, Part 3, Industrial Statistics, (1877-1878)*, 72. (Hereinafter cited as *Annual Reports, Part 3*).

<sup>38</sup>*Ibid.*

P. & C.S.R.R., founded the Pittsburgh Southern Railroad while maintaining his earlier corporate involvement. This action would result in a riot known as the Castle Shannon Railroad War.

Milton D. Hays was a Pittsburgh entrepreneur born in 1844. He became the president of the P. & C.S.R.R. Company at age 27. Before that time, he became involved in several other pursuits, including his father's lumber business. It appears that Hays' interest in railroads was spurred by his father, Jacob Hays and his involvement in the early development of the Pittsburgh and Monongahela Valley Railroad. While there is no record of the Pittsburgh and Monongahela Valley Railroad's construction, its successor, the Pittsburgh, Virginia and Charleston Railroad provided service to the Pittsburgh area and later became part of the Pennsylvania Railroad system.<sup>39</sup>

Milton Hays became involved in the promotion of a new railroad in 1876, which was to travel south to Washington, Pennsylvania, via the P. & C.S.R.R. Initially called the Pittsburgh, Castle Shannon, and Washington Railroad, representatives held several public meetings in the region and subscription to the road started in 1877. The Commonwealth of Pennsylvania granted a charter to the company in mid-1877.<sup>40</sup> On April 12, 1878, the railroad changed its name to the Pittsburgh Southern Railroad Company and merged with the Washington Railroad Company and the Pittsburgh Railroad Company. This new company opened what was considered to be the extension of the P. & C.S.R.R. from Castle Shannon to Washington. The railroad was thirty-six miles long and transported coal, petroleum, iron, stone, lime, agricultural products, livestock, and lumber between Washington and Pittsburgh.<sup>41</sup>

According to the *Pittsburgh Commercial Gazette*, the Pittsburgh Southern, though considered a continuation of the P. & C.S.R.R., was operated by separate companies with separate interest. It appeared, however, that the P. & C.S.R.R. was unwilling, or financially unable, to accept any financial obligations for the southern extension. In addition, the Pittsburgh Southern announced a larger scope in which the city would be reached by way of the Little Saw Mill Run Railroad. It was here trouble began between the two railroads.<sup>42</sup>

In order to access this new outlet, the Pittsburgh Southern began laying a third track to accommodate the Little Saw Mill Run's 30-inch gauge on Southern's tracks. In addition, the Pittsburgh Southern began construction on a three-mile connector from the Little Saw Mill Run Railroad, south to Castle Shannon where the two roads would meet and continue south toward Washington, Pennsylvania. Prior to this new construction though, the Pittsburgh Southern continued to use a one-mile right-of-way of the P. & C.S.R.R. This connection allowed by

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<sup>39</sup>Weinhold, "Milton Hays," 49-53.

<sup>40</sup>*Ibid.*, 57-59.

<sup>41</sup>Commonwealth of Pennsylvania, *Annual Report, Part 3*, (1880-1881), 149.

<sup>42</sup>N. A. Critchett, "Two Railroads Struggling for Supremacy: Both Have the Same Man as President," *Railroad Stories*, (November 1935), 111-112.

agreement for one-year, was ended abruptly when the Board of Directors of the P. & C.S.R.R. decided it was no longer advantageous to continue the partnership. As a result, the Board stopped accepting the Pittsburgh Southern's tickets for continued passage into the city leaving customers and freight stranded at Castle Shannon. According to Critchett, the Board thought these actions would end the rival railroad and allow for the economical purchase of the extension for their profit.<sup>43</sup>

Hays began searching for 36-inch narrow gauge stock, since he was unable to purchase 40-inch narrow gauge locomotives or rolling stock.<sup>44</sup> He located the necessary locomotive at the Pittsburgh Locomotive Works and the required rolling stock from a northwestern Pennsylvania line. With the purchases made, it was essential that Hays install a third rail before his agreement with the Pittsburgh and Castle Shannon expired. If he did not fulfill this requirement, the lease with the Little Saw Mill Run Railroad would be useless. Successful in constructing the changes, Hays debuted his new railroad to the Pittsburgh and Castle Shannon Board on Sunday, May 12, 1878.<sup>45</sup>

Eager to stop Hays before the expiration of their lease, the P. & C.S.R.R. sent a construction crew out to spike the final switch<sup>46</sup> before the Pittsburgh Southern Railroad and Little Saw Mill Run Railroad were joined. The P. & C.S.R.R. crew failed in their endeavor though and a battle began in Castle Shannon over the one-mile track shared by the two companies. According to Critchett, Hays was knocked out in the fight. Local papers reported that master mechanic, Matt Rapp gave Hays a black eye and bloody nose in the scuffle. The article continued stating that "a few blows were exchanged, and then several revolvers were drawn. It was evident, however, that the Pittsburgh Southern forces were too large to combat and the Rapp party withdrew from the contest."<sup>47</sup>

Hays resigned the next morning from the Pittsburgh and Castle Shannon and chose to focus his attention on the Pittsburgh Southern. The 1880 *Annual Report of the Secretary of Internal Affairs* did not list Hays in a Board of Directors position at the P. & C.S.R.R. The Pittsburgh Southern continued for several more years, always operating at a deficit. This ended on November 20, 1884 though as the Baltimore & Ohio Railroad purchased the route for \$50,000.

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<sup>43</sup>*Ibid.*, 112.

<sup>44</sup>*Ibid.* The Pittsburgh Southern and Pittsburgh and Castle Shannon were, according to Critchett, perhaps the only two 40-inch narrow gauge railroads left in the nation in 1878.

<sup>45</sup>*Ibid.*, 113-114.

<sup>46</sup>Spiking a switch means to anchor the switch into one position so that a train could only travel in one direction or along only one track route.

<sup>47</sup>"A Narrow Gauge War," *Pittsburgh Commercial Gazette*, 13 May 1878.

### Transportation Innovation and the Pittsburgh & Castle Shannon in the 1880s

The beginning of the 1880s were difficult for the P. & C.S.R.R. Between May 1, 1879, and April 1, 1880, the railroad was placed in receivership. This did not end the railroad, though, as the stockholders of the company managed to liquidate the company's holdings and pay the accumulated funded debt.<sup>48</sup> Lost during the receivership were five parcels of land totaling 359 acres and including the lands of Hillside and Wildwood groves, the Zoological Gardens, the camp meeting grounds, and the unsold lots in the Castle Shannon plan.<sup>49</sup> After the receivership, the railroad enjoyed a period of growth from 1880 to 1890. Coal continued to be the largest contributor to the company's coffers, as the subdivisions in Fair Haven and Castle Shannon did not experience a large increase in population and the loss of the attractions during receivership eliminated the major source of the P. & C.S.R.R. passenger traffic.<sup>50</sup> In the 1881 Annual Report, the value of company real estate was reported as \$35,270.00. The line transported 18,162 passengers that year and 134,450 short tons of coal. The fare rate for passengers was 2 1/2 cents per mile, but 5 cents per mile if the passenger used the incline. The company transported freight for 33 1/3 cents per ton, per mile.<sup>51</sup>

Through the 1880s, it appears that the Pittsburgh and Castle Shannon changed very little, though the technology used by Pittsburgh transportation systems began evolving during this period. Between 1888 and 1890, Pittsburgh traction companies began to explore alternatives to animal motive power. The first innovation introduced was the use of cable cars. The cable allowed for a larger passenger car, provided a smoother ride, and increased travel speeds.<sup>52</sup> Cable drawn cars developed mainly in the east end lines of the city. While the cable car was popular in the city, they were not installed in the South Side or the South Hills. The reason for this distinction was the capital intensive operation of cable drawn streetcars. A streetcar operator, in order to profit from such an expenditure, required a route located along a highly populated area. This condition did not exist in the South Side or the South Hills.<sup>53</sup>

The next innovation was the use of the electric motor. The use of electricity to propel rail cars began in the mid-nineteenth century with the perfection of the dynamo<sup>54</sup> for electrical generation. It was during this period of discovery that Dr. Joseph R. Finney of Pittsburgh began designing his electric railway. By 1882, he successfully tested his overhead wire prototype in the

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<sup>48</sup> Snow Report, 432.

<sup>49</sup> Weinhold, "Milton Hays," 65.

<sup>50</sup> *Ibid.*

<sup>51</sup> Commonwealth of Pennsylvania, *Annual Reports of the Secretary of Internal Affairs, Part 4, Canals, Railroads, Telegraphs*, (1880), 601-607. (Hereinafter cited as *Annual Reports, Part 4*)

<sup>52</sup> Zinn, "Historic Context of Pittsburgh Railways Company," 4.

<sup>53</sup> Craig Semsel, "The Mechanization of Pittsburgh Street Railways, 1886-1897," *Pittsburgh History* 77 (Summer 1994), 61. (Hereinafter cited as "Mechanization").

<sup>54</sup> A dynamo is a machine for converting energy from a mechanical into an electric form by the use of electromagnets.

Union Passenger Railroad Yards in Pittsburgh. Yet, the Finney system was not marketed successfully during the 1880s, in Pittsburgh or elsewhere.<sup>55</sup>

Instead, Pittsburgh's railway companies adopted the Sprague system. Frank J. Sprague, a Naval Academy graduate in electrical engineering, also envisioned the greater applications of electricity to public transportation. Sprague did not invent a new electric railway technology, but synthesized several pieces from unsuccessful systems to formulate a workable innovation. The Sprague system was first demonstrated during 1888 in Richmond, Virginia and was soon after introduced to the Pittsburgh region. The Sprague system, very similar to the Finney's invention, was an overhead wire system. The overhead wire system operated with a single wire suspended from brackets and arms fastened to poles set along the tracks. The success of the system led to its installation in Boston, Massachusetts in 1889. According to Semsel, "[t]he first major street railway in Pittsburgh to electrify was the Pittsburgh, Knoxville, and St. Clair Railway,"<sup>56</sup> operating by March, 1888. This route was the predecessor of today's Allentown Light Rail Transit Line. By June 1891, seven railway systems in Pittsburgh began experimentation with electric motive power.<sup>57</sup> "Within two years of the opening of the Richmond system, the number [of trolley systems in the United States] had increased to well over half of them equipped by the Sprague firm."<sup>58</sup>

### **The 1890s--The New Inclines and the Fate of the Pittsburgh & Castle Shannon**

While the P. & C.S.R.R. was making capital improvements in the 1890s, it continued to operate a steam railroad, not taking advantage of the newer technologies available. The *Annual Reports of the Secretary of Internal Affairs* reported that by 1889, the P. & C.S.R.R. Company began construction on the Samuel Diescher designed passenger and freight inclined plane, or funicular on the northern face of Mount Washington. Located between Carson Street and Bailey Avenue, the structure was to be known as Incline Number One, or the Front Incline.<sup>59</sup> It was erected on a leased parcel of land and was 1,375 feet long rising to an elevation of 451 feet above Carson Street. The projected total cost of the project was \$156,000, which the company funded with bond sales.<sup>60</sup> The incline opened on March 7, 1891. The final cost, including right-of-way was \$161,815.94.<sup>61</sup>

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<sup>55</sup>George K. Bradley, "Thomas A. Edison, Leo Daft, Edward M. Betley, Walter H. Knight, and Others Who Were Pioneer Electric Railway Inventors," Published in John R. Stevens, ed. *Pioneers of Electric Railroading, Their Story in Words and Pictures*, (New York: Electric Railroaders' Association, Inc, 1991), 55-56.

<sup>56</sup>Semsel, "Mechanization," 60.

<sup>57</sup>*Ibid.*

<sup>58</sup>William D. Middleton, *The Time of the Trolley*, (San Marino, CA: Golden West Books, 1987), 73.

<sup>59</sup>Commonwealth of Pennsylvania, *Annual Reports, Part 4*, (1889-1890), 373. Anonymous, *A Century of Inclines*, 1976, reprinted from *The Street Railway Journal Souvenir*, (October 1891). Vertical File, The Carnegie Library of Pennsylvania, the Pennsylvania Room, Pittsburgh, PA.

<sup>60</sup>Commonwealth of Pennsylvania, *Annual Reports of the Secretary, Part 4*, (1889-1890), 373.

<sup>61</sup>*Ibid.*, 1892, 421.

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To connect this plane with the railroad, the company erected a second incline between Bailey Avenue and Washington Avenue. The P. & C.S.R.R. again hired Samuel Diescher to design Incline Number Two, or the Back Incline, between 1890 and 1892.<sup>62</sup> The incline was to raise and lower cars by cables operated from an engine room on the northern side of Bailey Avenue. The cables were supported by wheels or pulleys affixed to the ties in such a manner that the cables were about eight inches or ten inches above the ties. The incline was operated so that there was always a cable stretched along and over the track. The specifications for the final design in 1890 called for a cable road, 2,112 feet distant, to be erected from Washington Avenue to Bailey Avenue. The rate of fall for the cable road was to be 176 feet within the length of the incline. The company projected the cost at \$60,000.<sup>63</sup> In 1891, the design of the funicular changed as its length decreased to 2,100 feet with a 196 foot rise. The annual report of the company indicated that \$15,751.76 was spent and projected an additional \$40,000 was necessary to complete the job.<sup>64</sup> When the incline was opened on August 20, 1892, its final length was 2,562 feet and its cost \$58,000.<sup>65</sup>

The purpose behind the construction of the new funiculars was to shorten the distance to Carson Street.<sup>66</sup> It was also in response to the Coal Tunnel being declared unsafe for public use.<sup>67</sup> Until 1893, the enlarged Coal Tunnel, and subsequently the Coal Incline transported passengers, freight, and coal around the horseshoe curve and through the tunnel. The Front and Back Inclines, also popularly known as the Castle Shannon Incline Number 1 and Castle Shannon Incline Number 2, allowed for the expeditious transport of passengers without the use of the dark, smoky tunnel. Upon completion of the inclines, the company used the horseshoe curve and tunnel exclusively for transporting coal to the Pittsburgh and Castle Shannon coal yards unless an accident closed the inclines.<sup>68</sup>

The Panic of 1893 affected all of the Pittsburgh railroads. According to the state Internal Affairs Office, the effect on Pennsylvania railroads was severe as 156 operational roads were in the hands of receivers, of which 106 passed from the control of the shareholders to the bondholders.<sup>69</sup> This period of economic dissolution resulted in the emergence of several consolidated transportation systems in Pittsburgh. As a direct result of the Panic of 1893 though, the board of directors lost control of the P. & C.S.R.R. at the end of the century. In 1900, the Pittsburgh Coal Company regained control of the road they once sold to Milton D. Hays and his financiers, by acquiring a controlling share of the company's stock, 7,756 shares. This stock

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<sup>62</sup> Snow Report, 434. *A Century of Inclines*, 1976 reprint.

<sup>63</sup> *Ibid.*, 435.

<sup>64</sup> *Ibid.*

<sup>65</sup> Commonwealth of Pennsylvania, *Annual Reports, Part 4*, (1893-1894), 273.

<sup>66</sup> Snow Report, 434.

<sup>67</sup> Bryant T. Schumde, Correspondence to Paul Dujak, ND, as paraphrased by Zinn, "Historic Context of the Pittsburgh Railways Company," 15.

<sup>68</sup> Snow Report, 434.

<sup>69</sup> Commonwealth of Pennsylvania, *Annual Reports, Part 4*, (1895), xxvii.

takeover, however, did not result in the dissolution of the P. & C.S.R.R. Company though, as it continued to exist as a real estate and coal mine holdings company. The coal company operated the road between 1900 and 1905. Then, in 1905, the Pittsburgh Railways Company leased the P. & C.S.R.R. and made plans to convert the steam railroad into an electric interurban route.<sup>70</sup>

### **Railway Company Mergers and the Pittsburgh Railways Company 1895-1905**

Beginning in the late-nineteenth century, Pittsburgh street railway companies started a vertical consolidation. In the regional market, most companies recognized the inefficiency of having numerous competitive companies. The result was the consolidation and formation of three traction companies including The Consolidated Traction Company, The United Traction Company, and The Southern Traction Company.<sup>71</sup> The first consolidation, though did not appear to reduce competition as lines continued to be constructed to unprofitable areas and new transportation routes opened only after expensive construction.<sup>72</sup>

The first consolidation in the Pittsburgh area was the formation of The Consolidated Traction Company. The Commonwealth of Pennsylvania authorized a charter for this company on July 24, 1895, and "by lease, purchase of stock or assumption of prior obligations, the company secured the control of 187 miles of trackage."<sup>73</sup> United Traction developed the same way, receiving its charter on July 27, 1896. The Southern Traction Company was the last of these consolidations, being chartered in 1900 and unifying the West End Traction Company lines. In total, these three companies held 392 track miles in Pittsburgh.<sup>74</sup>

Even after the first consolidation of the Pittsburgh Trolley System, it appears that mass transit remained an unprofitable business. Therefore, large holding companies entered the street railway business in Pittsburgh in 1899. One company that developed into Pittsburgh's largest streetcar operator was The Philadelphia Company, organized in 1884, was primarily invested in public utilities including gas and electrical services. In 1901, The Philadelphia Company acquired all the capital stock in The Southern Traction Company.

In 1901, Southern Traction obtained a new charter and was renamed the Pittsburgh Railways Company. Pittsburgh Railways Company assumed control of all streetcar properties leased or owned by The Philadelphia Company, except the Beaver Valley Traction Company.<sup>75</sup> According to Middleton, "[w]hat is probably some sort of record in this respect was set by the Pittsburgh Railways Company which represented the amalgamation of some 114 underlying

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<sup>70</sup> Snow Report, 435

<sup>71</sup> Bion Arnold, *Report on the Pittsburgh Transportation Problem*, (Pittsburgh, PA: City of Pittsburgh, 1910), 43. (Hereinafter cited as *Transportation Problem*).

<sup>72</sup> Tarr, *Transportation Innovation*, 17 as paraphrased by Zinn, "Historic Context of Pittsburgh Railways Company," 19.

<sup>73</sup> *Ibid.*

<sup>74</sup> *Ibid.*

<sup>75</sup> John Moody, *Moody's Public Utilities, 1924*, (New York: Moody's Investor Service, 1924), 491, 508-509.

properties.”<sup>76</sup> Soon after the final consolidation of the Pittsburgh street railway companies, Pittsburgh Railways began the construction of the Mount Washington Trolley Tunnel. Excavation of the 3,492 foot long, 6.1 percent grade tunnel began October 6, 1902. With the excavation complete within the year, the heading of the tunnel began, followed by the lining of the tunnel which was completed in 1904.<sup>77</sup> The tunnel was officially opened December 1, 1904 and provided the leased P. & C.S.R.R. with its first direct route into downtown Pittsburgh.

Funding the unprofitable line, the Philadelphia Company continued to back Pittsburgh Railways until it was taken over in 1906 by The United Railways Investment Company. In that year, the United Railways Investment Company, located in New Jersey, acquired 72.8 percent of the common stock of the Philadelphia Company. Under their management, Pittsburgh Railways began growing, consolidating, and improving its holdings. In particular, large contributions of United Railways Investment monies provided for the upgrade of the leased P. & C.S.R.R. beginning in 1909.<sup>78</sup> This seemingly unlimited funding would be stopped by the Interstate Commerce Commission in the early 1920s.

### **The Leasing of the Pittsburgh and Castle Shannon Line**

In 1905, the Pittsburgh Railways Company entered into a ninety-nine year lease with the P. & C.S.R.R. The lease conveyed the use of the mainline and its equipment to Pittsburgh Railways, but reserved the mining operations and narrow-gauge access to the mainline for the P. & C.S.R.R. Company's transportation of coal to Carson Street at a rental fee of \$15,000 per year. The lessor allowed the lessee to change the gauge of the railroad providing the 40-inch narrow gauge remained available for the coal cars.<sup>79</sup>

The Pittsburgh Railways Company began studying the feasibility of double tracking and electrifying the line. Electrification was required, as the company was planning to operate a series of interurbans from Pittsburgh to Washington and Charleroi. Under Construction Order 512, the company began converting the P. & C.S.R.R. to accommodate its future plans. This modernization began in April 1909 and was finished in December 1910 at a total cost of \$112, 584.59. Work undertaken by Pittsburgh Railways included the refitting of all the bridges and the line with a third rail to accommodate the Pennsylvania Broad Gauge of 5'-2 1/2”<sup>80</sup> and the installation of electrical equipment along the line.

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<sup>76</sup>William D. Middleton, *The Time of the Trolley*, (San Marion, CA: Golden West Books, 1987), 78.

<sup>77</sup>Robert M. Parker, "History of Pittsburgh Area Transit Since 1840 and PA Transit 1964-1974" 1976, 6. Unpublished manuscript available from Port Authority of Allegheny County, Pittsburgh, Pennsylvania.

<sup>78</sup>Arnold, *Transportation Problem*, (Pittsburgh, PA: City of Pittsburgh, 1910), 44.

<sup>79</sup>Snow Report, 438-448.

<sup>80</sup>The American and European standard gauge was 4'-8 1/2". Many Pennsylvania cities adopted a non-standard gauge out of a municipal government's fear that the railroads would buy the street railways and use them for

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The interurban was an extension of the city street railway, designed to convey passengers longer distances and whisk them comfortably from their suburban or rural homes to their jobs or errands in the city. According to Middleton, the interurban became possible after innovators developed a way to transmit electrical power over a long distance. The 1896 introduction of "distribution systems which employed high-voltage alternating-current transmission lines and substations which converted the power to the necessary low-voltage direct current for use by electric railway cars,"<sup>81</sup> allowed an electric trolley to travel farther between power supplies.

These innovations altered travel patterns for the rural residents wanting to travel to the city. The electric interurban, a change from the usually grimy local steam railroad service, offered an expansion of services to include regular schedules, the ability to stop anywhere, and cheaper fares. Middleton credits the interurban with filling a travel void for much of America.<sup>82</sup> The Washington and Charleroi Interurban Lines offered these improvements. The Washington Interurban was developed from the merging of the P. & C.S.R.R. with a portion of the Pittsburgh and Charleroi Street Railway Company.<sup>83</sup>

Nostalgically, some local residents lamented the passing of the steam railroad in a 1909 newspaper article. Printed in *The Pittsburgh Press*, the article announced the conversion to a trolley line stating, "Pittsburgh's last old-time transportation line, a narrow-gauge steam railroad, is about to pass into history. Workmen are busy preparing plans to change the system into a trolley route. Poles have been put into position from a point near Washington Avenue to Reflectorville. By April 1, the big cars of the Charleroi and Canonsburg lines will run to the city via the old roadbed. . . ."<sup>84</sup> The first electric cars traversed the line on July 15, 1909.<sup>85</sup>

The P. & C.S.R.R. continued to operate its mines between 1909 and 1912, running coal cars at night along the route. The lease for the horseshoe curve, the coal tunnel, and the coal incline was scheduled to expire with the Baileys' in 1912. When the lease expired, the Pittsburgh Railways Company purchased the rights to the parcel of land. According to the Snow Report, "subsequent to the expiration thereof, the Pittsburgh Railways Company purchased title to the strip of land on which said back incline was so located and operated, from Reade W. Bailey, Frank B. Nimick, and David G. Stewart, Trustees, under the last will and testament of James M. Bailey, deceased, and Katharine Bailey, widow of John H. Bailey, decd., the then

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switching freight cars in the city streets. George W. Hilton and John F. Due, *The Electric Interurban Railways in America*, (Stanford, CA: Stanford University Press, 1960), 51.

<sup>81</sup>William D. Middleton, *The Interurban Era*, (Milwaukee, WI: Kalmbach Publishing Company, 1975), 12.

<sup>82</sup>*Ibid.*, 13.

<sup>83</sup>John Baxter, "Pittsburgh Railways Interurban Division," *Electric Railroads* 20(July 1952) 3-4.

<sup>84</sup>"Old Castle Shannon Narrow Gauge Line Will Soon Pass Into History," *The Pittsburgh Press*, 10 January 1909, 6. (Hereinafter cited as "Old Castle Shannon Narrow Gauge").

<sup>85</sup>Snow Report, 464.

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owners of the property.”<sup>86</sup> The grantors conveyed title to the company for the consideration of \$12,000.<sup>87</sup>

This sale signaled the end of the narrow gauge line. Since the reservation afforded the P. & C.S.R.R. Company was no longer necessary, the Pittsburgh Railways Company began removing the narrow gauge track from the right-of-way. The narrow gauge remained only on the bridge approaches and bridges as safety rails. The end of the Pittsburgh and Castle Shannon lease, though, did not signify the end of the company. The company continued “to exist as a coal land holding company for the Pittsburgh Coal Company and for the purpose of collecting rental fees on their property.”<sup>88</sup> The P. & C.S.R.R. route rights-of-way were not sold to Pittsburgh Railways for several more years.

In summary, Snow assessed the cost of the Pittsburgh Railways electrification efforts between 1905 and 1912 in a report to the Public Service Commission in 1918. According to his report, the Pittsburgh Railways Company laid track along the right-of-way of the Castle Shannon Railroad from Castle Shannon to the Mount Washington Tunnel, a length of 27,480 feet. Laid principally at a 62 1/2 inch gauge, each rail was five-inch, eighty-pound tee rail. The actual cost of the track and roadway work was \$112,584.59. The entire cost of electrification between 1909 and 1912 was \$161,440.63.<sup>89</sup>

The plan to double track the right-of-way, to accommodate the anticipated increase in traffic, was also a point of public concern. In the same article it stated:

Rumor has it that within a year the new line will be double-tracked. This will require some grading, the widening of several extensive bridges, etc. However, the Fair Haven and Castle Shannon valleys are building up rapidly and a single track line will not be able to accommodate the increased traffic. The steam road has been tested beyond its capacity for a couple of years past.<sup>90</sup>

The old Pittsburgh and Castle Shannon right-of-way was double-tracked from Oak Station to Castle Shannon by the Pittsburgh Railways Company in 1913. The work involved in this expansion included the replacement or installation of masonry and culverts, and some bridge improvements began on the Warrington Avenue, McKinley Park, Reflectorville, and Oak structures. The Pittsburgh Railways began work in 1912 and finished in 1916, at a cost of \$240,187.07.<sup>91</sup>

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<sup>86</sup> *Ibid.*, 467.

<sup>87</sup> *Ibid.*

<sup>88</sup> Weinhold, “Milton Hays,” 70.

<sup>89</sup> Snow Report, 465-466, 474.

<sup>90</sup> “Old Castle Shannon Narrow Gauge,” 6.

<sup>91</sup> Snow Report, 466.

The Pittsburgh Railways Company awarded the electrification contracts of the Castle Shannon Inclines to The Otis Elevator Company in 1914. Otis Elevator provided Pittsburgh Railways with controllers, motors, gears, wiring, and labor for the Back Incline at the cost of \$20,535.57. This system replaced the original steam plant that had been operating since 1892. The Front Incline was improved by The Otis Elevator Company in 1918 at a cost of \$27,209.99.

In conclusion, by April 18, 1918, the Pittsburgh Railways Company had spent \$428,836.99 on right-of-way upgrades and improvements. The company replaced or reinforced bridges to accommodate the heavier interurban cars, installed double-tracking, and installed electricity to completely renovate the line and its service for the communities of the South Hills. The value of the land and right-of-way during this period was \$210,000.<sup>92</sup> Pittsburgh Railways continued to operate, though at a deficit. According to Tarr, Pittsburgh Railways managed to increase passenger traffic on its street railway lines by 21 percent from 1910 until its peak in 1918. During this period, though Pittsburgh Railways appeared to be enjoying some success, the "company's financial situation disintegrated, and in 1918 the [company] went into receivership."<sup>93</sup> This "financial situation" may have been exacerbated by an Interstate Commerce Commission directive instructing holding companies, like United Railways Investment Corporation, to divest its trolley interest.

### **The 1920s to the Modern Era**

Pittsburgh Railways continued operation of the trolley line into the 1920s and beyond as an intricate piece of the Charleroi and Washington interurban lines. *Moody's 1924 Report on Public Utilities* reported that the receivership remained in place until February 1, 1924, when Federal Judge Thompson of Pittsburgh ordered the return of the property to the company.<sup>94</sup> During this period, the Pittsburgh Railways Company performed only the routine maintenance required along the road. Soon after the receivership was lifted, a series of highway improvements required the company to alter the Warrington Avenue Bridge, McKinley Park Bridge, and Oak Viaduct. The McKinley Park Bridge and Oak Viaduct were affected by the widening of roadways which passed underneath the structures. The Warrington Avenue Bridge was altered when the Pittsburgh Department of Public Works insisted upon the removal of a bridge support from the center of Warrington Avenue. The route's alignment after this construction continued along the general path of the original right-of-way.

Highway construction was encouraged by the proliferation of the automobile in the region beginning in the 1920s. Though an automobile was owned by one in every 201 persons in the United States during 1910, Allegheny County had only 1,601 vehicles registered, or "one car

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<sup>92</sup>*Ibid.*, 467

<sup>93</sup>Tarr, *Transportation Innovation*, 23.

<sup>94</sup>Moody, *Moody's Public Utilities*, (New York: Moody's Investment Services, 1924), 509.

for every 636 persons.”<sup>95</sup> Thus, the residents of outlying areas continued to rely on Pittsburgh Railways to travel between home and work, as 600,000 passengers traveled the 581 track miles of the company.<sup>96</sup> Along the P. & C.S.R.R. the importance of the trolley during the early twentieth century is illustrated by the layout of Castle Shannon. The Castle Shannon business district is spatially defined by the trolley tracks traversing through the center of town.

The introduction of private bus transit offered Allegheny County residents another transportation alternative. Buses became increasingly available after the Public Utilities Commission directed bus companies to reduce their rates in the 1930s. Realizing the advantages of buses for public transportation, Pittsburgh Railways began converting some trolley lines into bus routes beginning in 1932.<sup>97</sup>

Trolley ridership declined slowly in the 1930s. Throughout the 1920s, Allegheny County began developing a viable road system to connect outlying residential areas with the city. These infrastructure improvements continued into 1930 as “six federal and state highways served Pittsburgh.”<sup>98</sup> The sparsely populated South Hills area was opened to downtown Pittsburgh with the connection of State Route 51 with Saw Mill Run Boulevard and the subsequent construction and opening of the Liberty Tunnels and Liberty Bridge in 1928.<sup>99</sup> This construction, in addition to other highway development is directly correlated with an increase in Allegheny County automobile registration. According to Tarr, the number of car registrations in the county increased from 1,601 in 1910 to 205,905 in 1930.<sup>100</sup> By 1934, 25.5 percent of wage earners, residing outside of the Pittsburgh City Limits, were using their automobiles to travel to and from work, while 20.2 percent used the streetcar system.<sup>101</sup> There are no figures available from the 1920s for a further comparison.

In 1942, ridership returned to 1920s levels because of the American war effort. The rationing of gasoline, rubber, and other materials necessary for wartime production discouraged private automobile use and increased ridership on the trolley lines. With aging conventional equipment and restored popularity, the Pittsburgh Railways Company “converted some standard

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<sup>95</sup>Tarr, *Transportation Innovation*, 24.

<sup>96</sup>Oliver Miller, “Review of Operation 1964-1986, Port Authority of Allegheny County, Pittsburgh, Pennsylvania,” 1986. Unpublished manuscript available from Port Authority of Allegheny County, Pittsburgh Pennsylvania. (Hereinafter cited as Miller, “Review of Operations.”).

<sup>97</sup>Edward Lybarger, Interview, 23 April 1996. Mr. Lybarger is the archivist at the Pennsylvania Trolley Museum and has studied the subject for a number of years.

<sup>98</sup>Tarr, *Transportation Innovation*, 24.

<sup>99</sup>*Ibid.*, 28-30.

<sup>100</sup>*Ibid.*, 31.

<sup>101</sup>Tarr, *Transportation Innovation*, 36.

PCC cars for interurban use in 1946, and bought 25 [cars] for interurban service in 1949.”<sup>102</sup> Yet, by the end of the war, ridership declined again and never returned to 1942 levels.<sup>103</sup>

Soon after the war, Allegheny County residents returned to their automobiles. With the removal of rationing and the arrival of the first new automobiles since 1942, more residents began utilizing their vehicles in all aspects of their lives. Additionally, the continued construction of new roads and the interstate highway system and the rising affluence of workers encouraged settlement into new suburbs, such as Monroeville, which were located outside all existing public transit alternatives. Furthermore, three strikes during the 1950s disrupted Pittsburgh Railways services.<sup>104</sup> These factors led to further financial difficulties for the company.

In 1950, Pittsburgh Railways reorganized to emerge from receivership and reduce debts. The 1950 reorganization entailed the Pittsburgh Railways merger with the Pittsburgh Motor Coach Company and the purchase of the P. & C.S.R.R. right-of-way. The formation of the Pittsburgh Motor Coach Company represents the first significant transition to bus service, as the company provided feeder routes to transport passengers between trolley trunk lines. In June 1953, Pittsburgh Railways retired the Charleroi Interurban route from service, soon followed by the Washington Interurban in August.<sup>105</sup> The first major conversion of streetcar lines to bus routes were the West End lines when the Point Bridge was replaced by the Fort Pitt Bridge in 1959.

The Commonwealth of Pennsylvania created the Port Authority of Allegheny County on April 6, 1956, for the planning and developing of port facilities to serve the Pittsburgh area. In 1959, the powers of the Port Authority were amended to allow for the acquisition of “privately-owned transit facilities and to own and operate the public mass transit system.”<sup>106</sup> In 1960, the Port Authority began planning for an integrated transit system for the County. Three years after completing the study, the Allegheny County Commissioners accepted the report recommendations and the Port Authority began purchasing the thirty independent bus companies, Pittsburgh Railways Company, and two inclined plane companies.<sup>107</sup> The Port Authority obtained possession of all Allegheny County public transportation services in 1964.

The Port Authority exercised eminent domain for the first time on March 1, 1964 in its acquisition of Pittsburgh Railways. This action resulted in a lengthy court battle between the entities. The final decision of the court was a purchase price of \$14.2 million dollars for

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<sup>102</sup>George W. Hilton and John F. Due, *The Electric Interurban Railways in America*, (Stanford, CA: Stanford University Press, 1960), 299.

<sup>103</sup>Lybarger interview, April 1996..

<sup>104</sup>Miller, “Review of Operations.”

<sup>105</sup>*Ibid.*

<sup>106</sup>Miller, “Review of Operations.”

<sup>107</sup>*Ibid.*

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Pittsburgh Railways' holdings.<sup>108</sup> When the Port Authority assumed control in 1964, there were 32 trolley lines operating in the "East End, near eastern suburbs, North Side, South Side, South Hills, and West View, Bellvue and Avalon."<sup>109</sup> Eventually, most of these trolley lines were replaced with diesel bus service in the 1970s. By 1971, the only remaining trolleys operating as part of the Pittsburgh transit system were the Drake, Library, Castle Shannon, Mount Lebanon, and Arlington lines. These routes became the basis for the existing light rail transit system. Those lines using the old P. & C.S.R.R. route were the Shannon, Drake, and Library lines. In the 1980s, the Drake and Library lines operated on new routings with the introduction of the Stage I Light Rail Transit System and remain in operation.<sup>110</sup>

The Overbrook Line utilized the entire length of the old P. & C.S.R.R. grade, operating between South Hills Junction and Castle Shannon. The line remained popular into the 1990s. The conversion of the trolley line to a bus route occurred in 1993 due to cost of extensive renovations needed to keep the bridges safely operational. The proposed Stage II Light Rail Transit Project will reopen the old P. & C.S.R.R. right-of-way after a complete in-place modernization. The planned project includes the in-place replacement of the Warrington Avenue Bridge, McKinley Park Bridge, Reflectorville Viaduct, and Oak Viaduct. The P. & C.S.R.R. grade continues to evolve to serve transportation needs to this day.

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<sup>108</sup> *Ibid.*

<sup>109</sup> Anonymous correspondence from David E. Wohlwill, Port Authority of Allegheny County.

<sup>110</sup> Miller, "Review of Operations."

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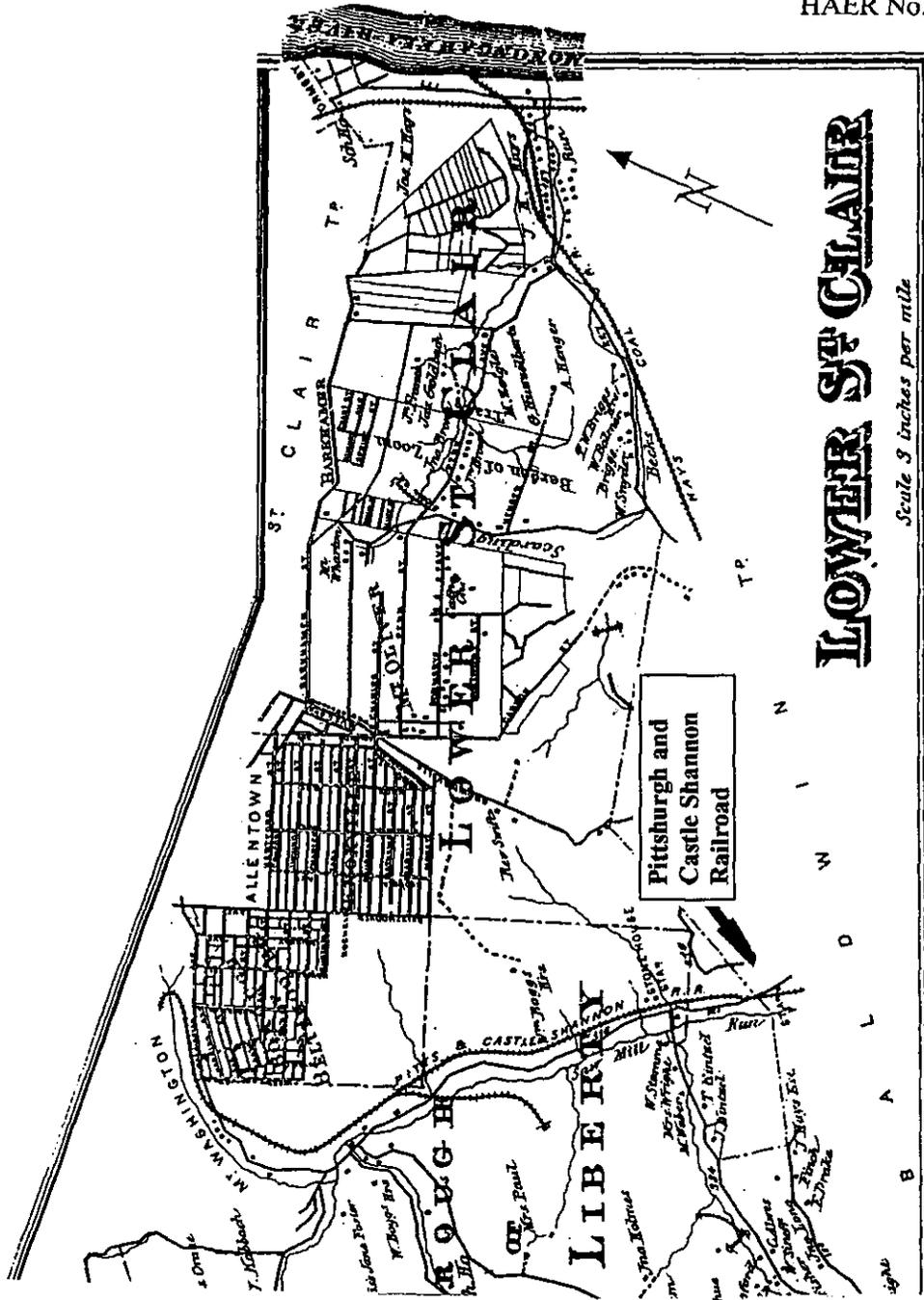
The Port Authority of Allegheny County is transferring the original drawings of the Pittsburgh & Castle Shannon Railroad to the Pennsylvania Trolley Museum in Washington, Pennsylvania. This transfer will take place by October 1996.

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Chris DeRose	Port Authority of Allegheny County
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The staff at the Archives for Industrial Society, Hillman Library, University of Pittsburgh

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Scale 3" = 1 mile

Map of Lower St. Clair Township, 1876

Showing the Location of the Pittsburgh & Castle Shannon Railroad  
 and the Lack of Development Around the Route

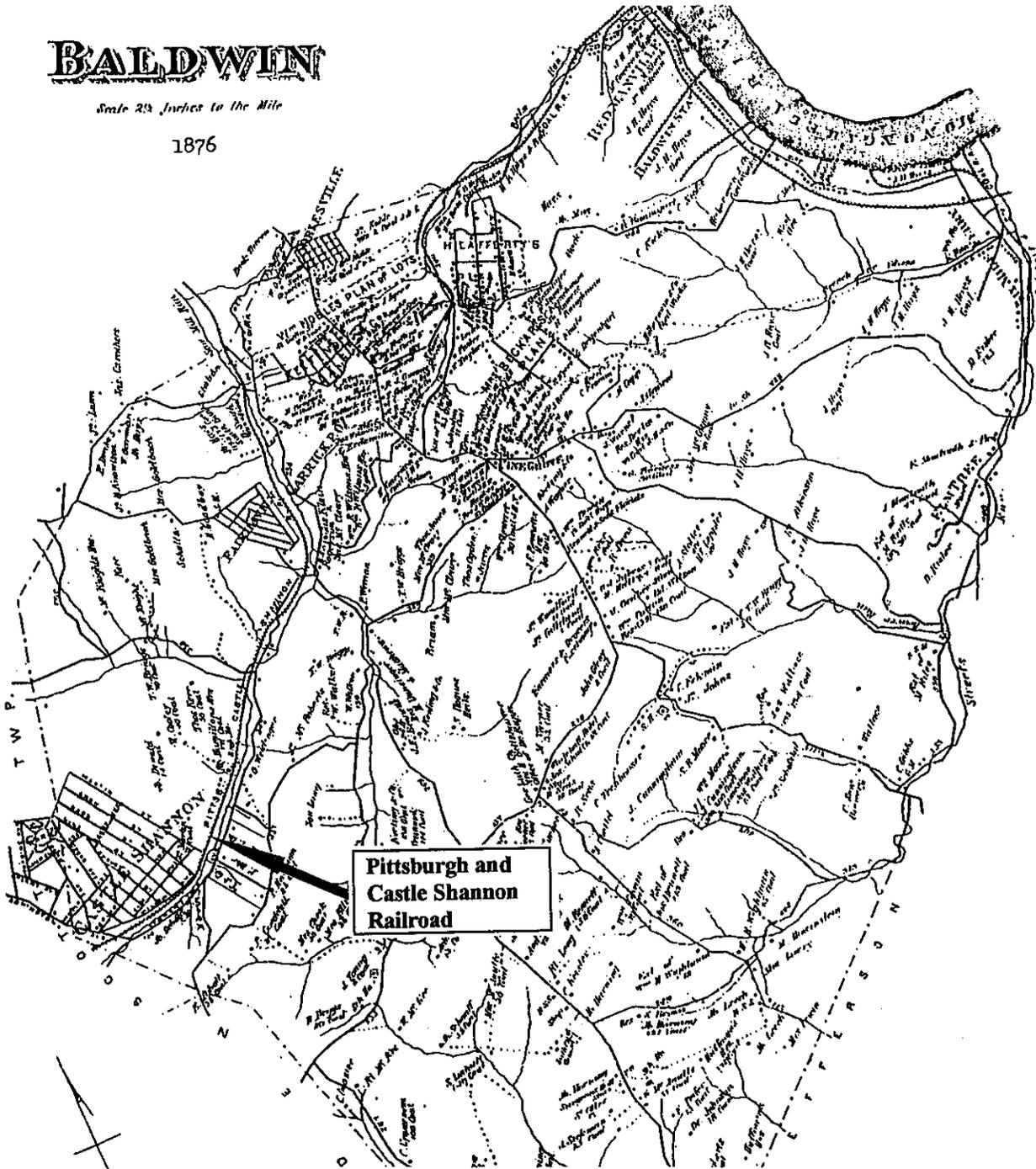
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**BALDWIN**

Scale 2 1/2 Inches to the Mile

1876



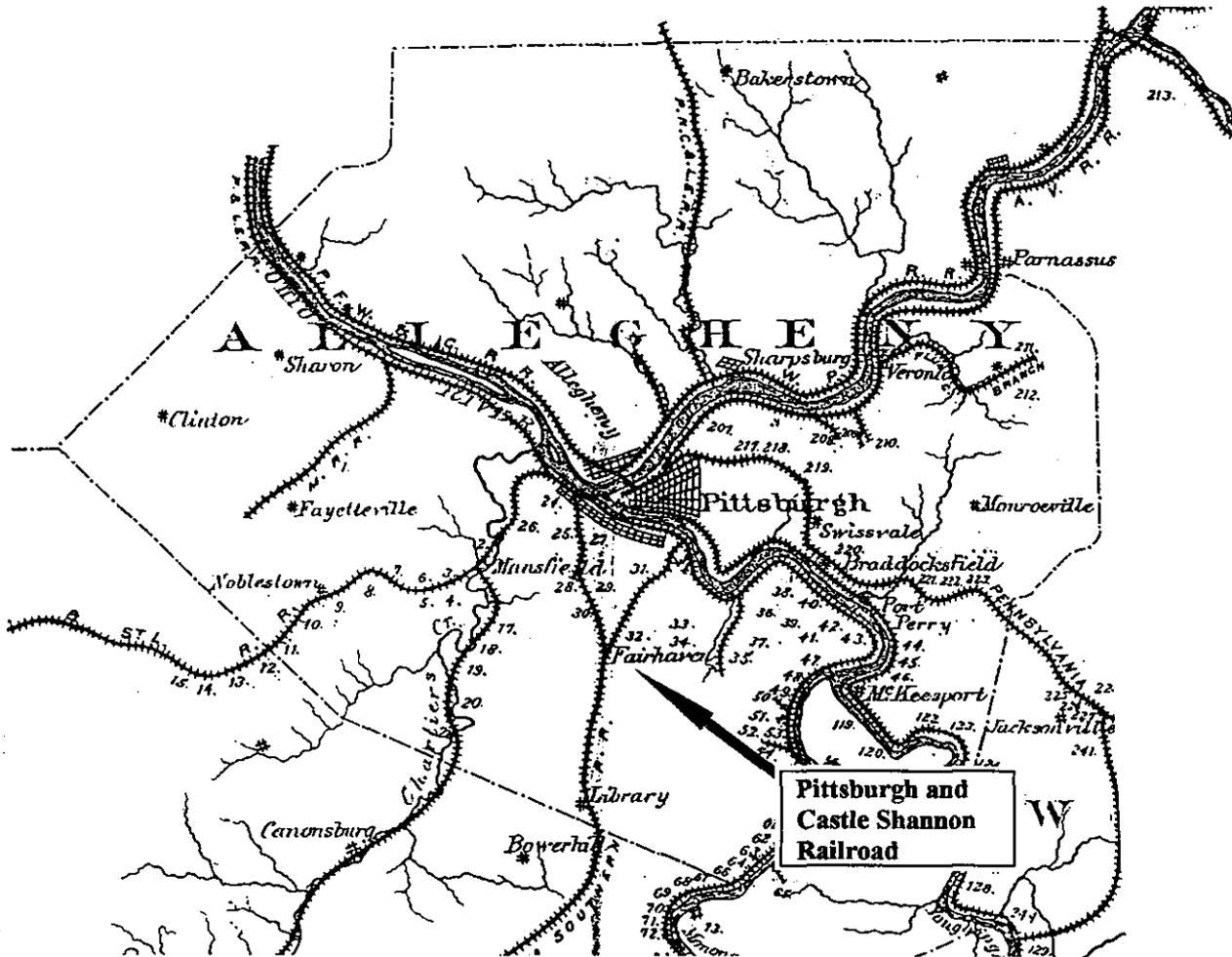
Scale 3" = 1 mile

Map of Baldwin Township, 1876

Showing the Pittsburgh & Castle Shannon Railroad and the Company's  
Planned Communities of Fair Haven and Castle Shannon

Griffith Morgan Hopkins, "Map of Baldwin Township," *Atlas of Allegheny County, Pennsylvania*, (Philadelphia, Pennsylvania: G.M. Hopkins Company, 1876)

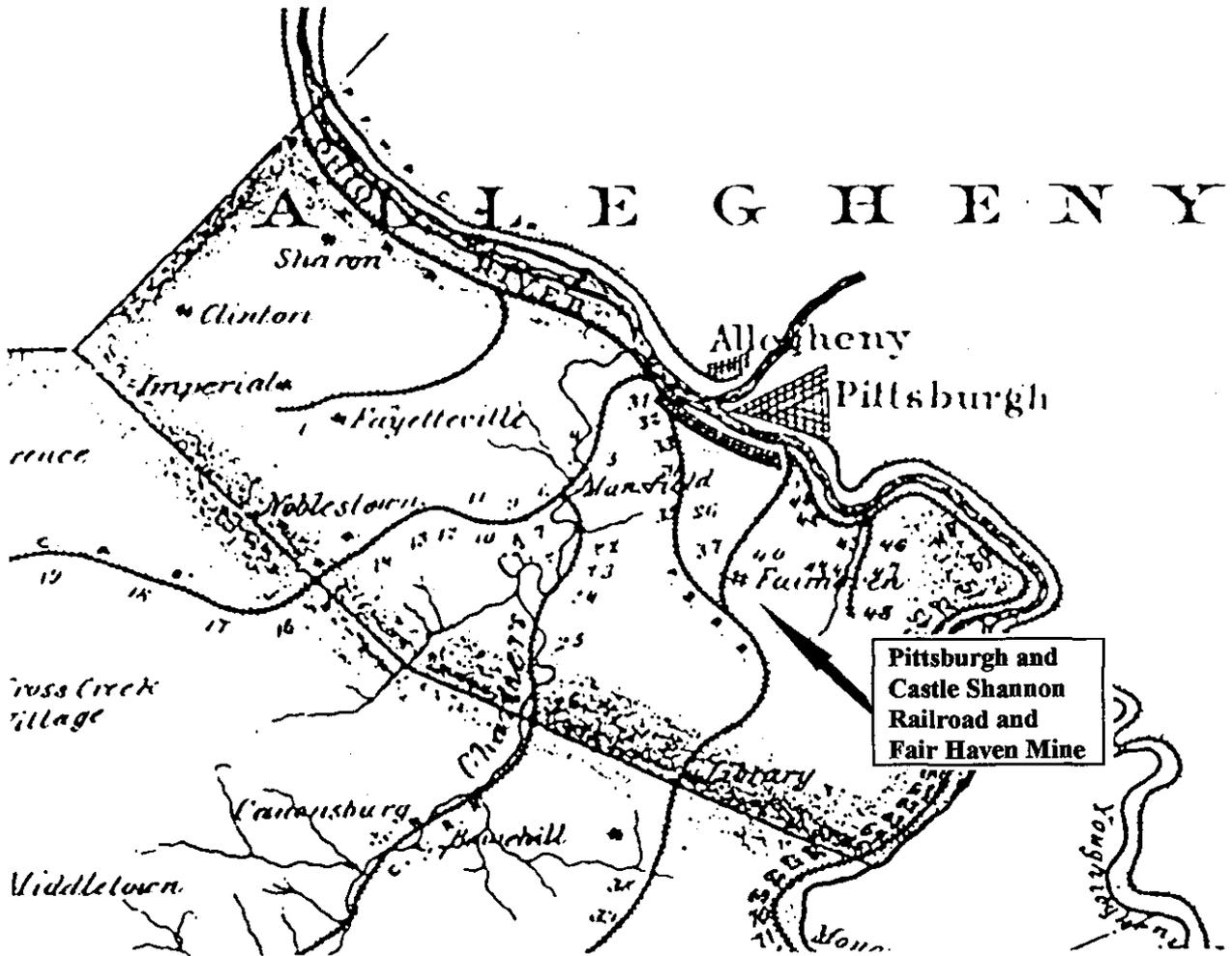
PITTSBURGH & CASTLE SHANNON RAILROAD  
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Scale 3/4 feet = 300,000 feet

Map of the First Bituminous Coal District of Pennsylvania, 1877  
 Showing The Pittsburgh & Castle Shannon Railroad and Company  
 Mine Number 31-"Old Mine" and Mine Number 32-"Fair Haven Mine"  
 William Wilcox, *Annual Reports of the Secretary of Internal Affairs of the Commonwealth of  
 Pennsylvania, Part 3, Industrial Statistics*  
 (Harrisburg, Pennsylvania: Lane S. Hart, State Printer, 1879)

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Scale 1" = 28,735 feet

Map of the First Bituminous Coal District of Pennsylvania, 1880  
 Showing The Pittsburgh & Castle Shannon Railroad and Company  
 Mine Number 40-"Fair Haven Mine"

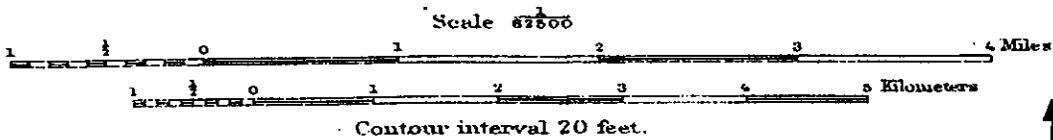
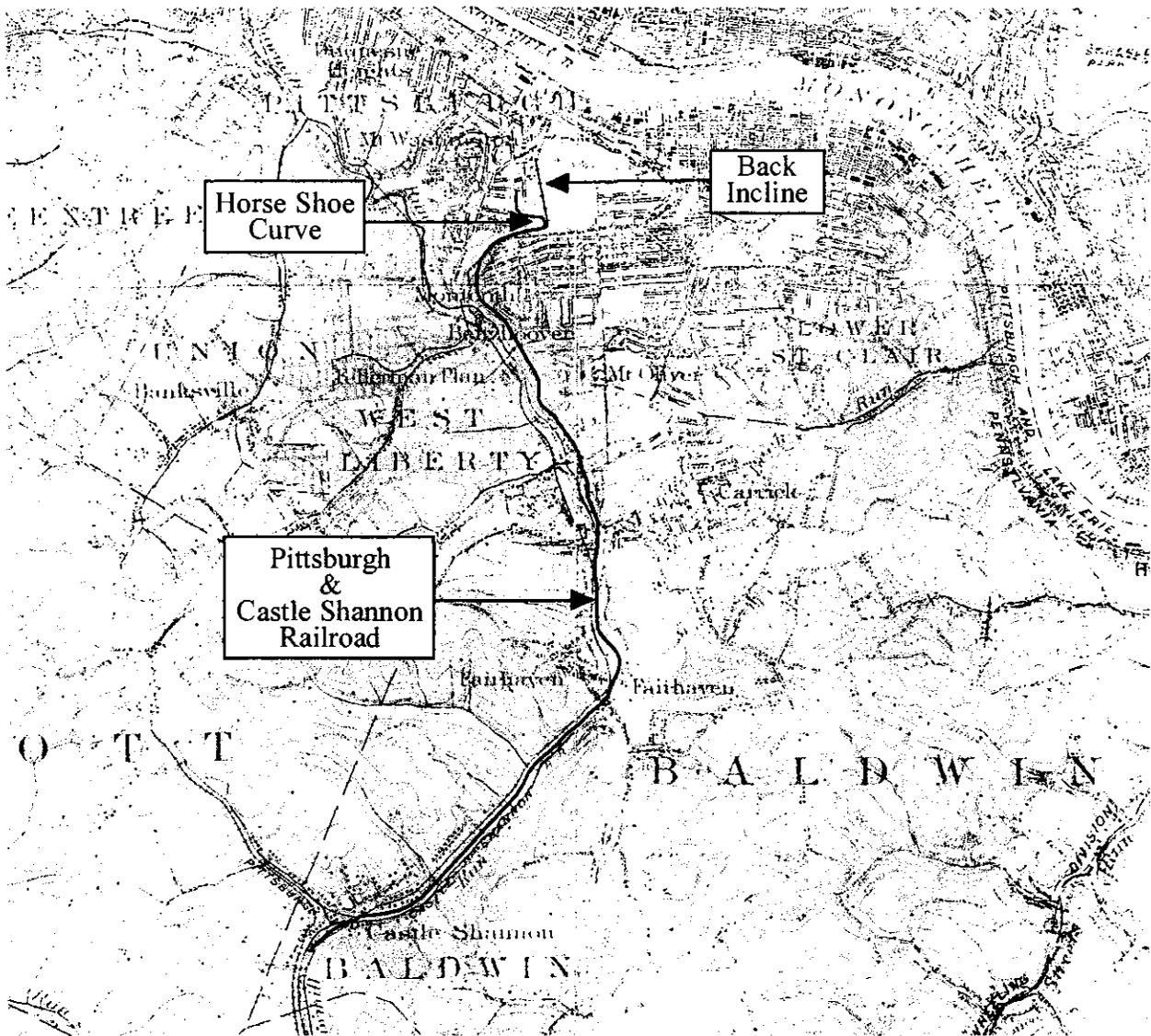
Original Map Scale 3/4 feet = 300,000 feet

William Wilcox, *Annual Reports of the Secretary of Internal Affairs of the Commonwealth of Pennsylvania, Part 3, Industrial Statistics*

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PITTSBURGH & CASTLE SHANNON RAILROAD  
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Scale 1:62,500  
 United States Geological Topographical Quadrangles, 7.5"  
 Pittsburgh, Pennsylvania Quadrangle, 1907  
 Carnegie, Pennsylvania Quadrangle, 1906  
 Depicting the Railroad and Growth Along the Pittsburgh & Castle Shannon Route