

THE RAILROADS OF PENNSYLVANIA: A GEOGRAPHIC INTERPRETATION

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ABSTRACT: The first railroad in Pennsylvania was constructed in 1826, probably the earliest railroad to operate in the United States. By 1918, there were 12,000 miles of track with freight and passenger service to all but one county. From that peak year, track mileage declined to 10,000 in 1970 and a present total of approximately 5,000. The system has always been complex; the patterns of routes reflect the nature of the terrain, locations of mineral resources, industrial concentrations and the extension of pass routes through the physiographic subregions of the Appalachian Mountains. Seventeen major railroad companies or systems established corridor routes north-south or east-west while scores of local or short line companies served as collector lines for the major roads. These collector lines tended to be regionalized by their economic service function such as coal mine operations, quarrying, lumbering, agriculture and industrial concentrations. The pass route, or corridor lines cut across the grain of the Appalachians, overcoming steep gradients and bridging deep narrow valleys. The Horseshoe Curve, Sandpatch Grade, Tunkhannock Viaduct and Rockville Bridge are engineering works that attest to the problems of railroad operations in a mountainous terrain. The use of river valley routes by the corridor roads confirms the importance of the Delaware, Susquehanna and Ohio River valleys in the development of the economy of the state. This study identifies the corridor routes, the regional collector systems and the urban-industrial rail concentrations. Maps of the resulting patterns illustrate a proposed regional classification of the Pennsylvania rail network.

Railroad corporations are almost invariably named for geographic locations or regions, certainly more so than any other category of industrial activity. While some railroads in their corporate titles envisioned wide horizons, such as the Pacific Great Eastern, others were usually identified with a more limited area; and such was the case with the Pennsylvania Railroad. Although its trackage extended to 13 states, it was to residents of the state of Pennsylvania the primary transportation company. There were, however, competitors who carved out subregions of their own within the boundaries of the state. Peter Maiken has described the overall pattern thusly:

"On a map of Class I railroads in Pennsylvania, the state looked like a rectangular snapshot mounted at its four corners by, on the upper left, the New York Central, Nickle Plate, and Erie; on the upper right by the Lehigh Valley, Lackawanna and Erie; and on the two lower corners by the B & O and the B & O/Reading. The picture itself, only minor hyperbole intended, was of the Pennsylvania Railroad going everywhere else in the state. The mighty Pennsylvania did not wear its symbolic keystone or respected name for either light or transient reasons: It was the railroad of Pennsylvania. It was an archetypal Philadelphia corporation, dignified and circumspect."¹

The history of railroading in Pennsylvania is a good deal more than the study of a single corporation; Pennsylvania is believed to have had more railroads/railroad corporations than any other state, possibly 2500 in all categories of operations. The first railroad in Pennsylvania was constructed in 1826, probably the earliest railroad to operate in the United States. By 1918, there were 12,000 miles of track with freight and passenger service to all but one county. From that peak year, track mileage declined to 10,000 in 1970 and a present total of approximately 5,000. The magnitude of the railroad industry in Pennsylvania suggests that certain physical and economic factors may offer explanations for this concentration of railroad operations within the borders of the state. Research data for the industry has existed in many forms: Studies of specific rail companies, corporate records and government agency reports. Recently a monograph of great importance has become available, authored by a noted rail historian, Thomas T. Taber, III.²

Taber's study, "RAILROADS OF PENNSYLVANIA: ENCYCLOPEDIA AND ATLAS", was published by the author in 1987 as a limited edition. The volume is divided into two sections: Listings of all railroad corporations and/or operations by county and a section listing those railroads that operated in several counties or in interstate routings. The latter category identifies the seventeen operations which are categorized as "Major Railroads". The criteria for inclusion of data in this study fall into six categories:

1. Those companies independently organized, built and operated.
2. Wholly owned subsidiaries incorporated by parent companies.
3. Independently organized and built but acquired by another railroad prior to completion.
4. Unincorporated railroads operating on the property of the owner.
5. Incorporated industrial plant railroads.
6. Incorporated but never built (paper railroads) of which there were 1200 to 1300.

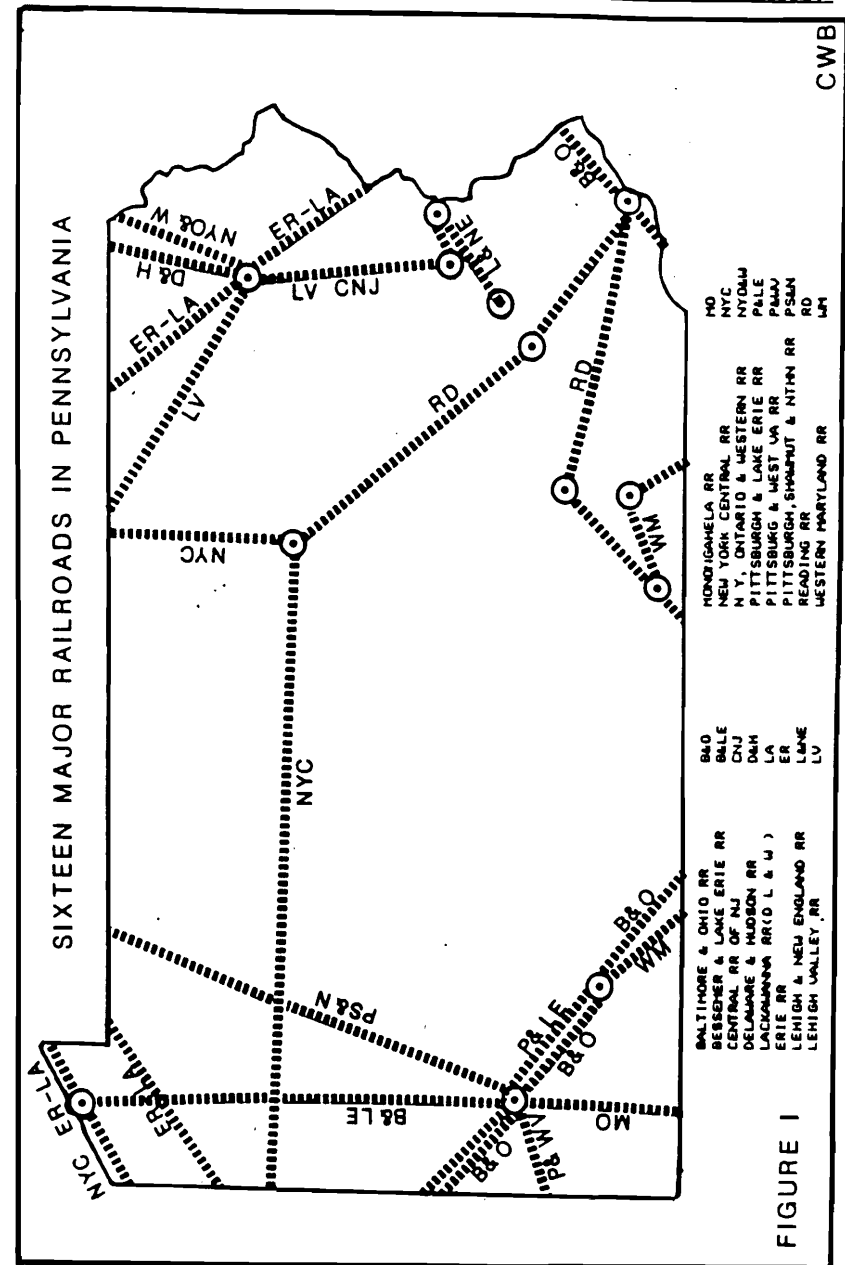
The Atlas aspect of the publication consists of a sketch map of each county and a system map of each of the major companies' lines within the state. All trackage is identified as are all important towns and junction points; the only locational control for the maps are the political boundaries of the counties and the state and major rivers. In the Preface to the volume, the author states that no compromise was made on the information but production of professional-looking maps would have been prohibitively expensive for the limited market which the book commanded. The volume is now out of print; fewer than five hundred copies were printed. Taber's research and sources are authoritative and exhaustive.

From the more than 2000 entries, 605 were utilized in the preparation of this paper. Obviously none of the "paper railroads" are included, and railroads that were incorporated into other railroads or were wholly-owned subsidiaries are treated as a single operation thus reducing the total numbers to a more workable pattern in an attempt to identify any regional concentrations that might have existed. Fortunately, the data is sufficiently detailed to permit a series of sub-categories by function.

The categories thus abstracted from the Taber compendium are:

1. Mineral roads; those companies operating to serve coal mines, ore mines, quarries and petroleum fields.

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2. Logging roads; rail lines built to transport logs to mills and finished lumber to connecting points for interchange with other systems.
3. Common carrier roads; companies that carried freight and/or passengers intended to serve a specified region.
4. Industrial roads; systems that served a single large industrial plant or company.
5. Recent regional roads; companies formed in the post Conrail/deregulation era (since 1973).
6. Historic/Tourist/Resort roads; companies with these highly specialized functions.

The patterns of operation of the 605 companies are best appreciated when the regional operations of the seventeen "major" companies are mapped. Figure I locates the regions of operation of sixteen of these companies, excluding the Pennsylvania Railroad which seemed to overlap all operating regions. Essentially, this map identifies the competitors of the Pennsylvania and their locales.³ Figure II is a map of the main lines of the Pennsylvania Railroad in the post World War II era; not all branch lines are shown but the dominance of the company in the state is apparent.⁴

The distribution of rail operations based on the 605 non-major listings reveals two regional patterns of interest. Figure III presents the country totals for the logging industry. With few exceptions the statewide pattern conforms to the areas that were cut over in the latter part of the 19th century. The absence of such roads in the southeastern portion of the state indicates that much of the timber was cut in an earlier period. The total of 374 operations is the single largest of the six categories.

Figure IV presents the country totals for the Mineral extraction railroads, a total of 134 companies. The distribution reflects the various mineral resource areas of the state. The absence of large numbers of operating companies in the eastern anthracite fields is related to the dominance of the Reading Company and others of the Major railroad companies.

Figure V, the Industrial group, is somewhat surprising because of the absence of companies in the traditional industrial concentration centers such as Philadelphia. In part, this is explained by the practice of large plants that operated rail facilities on premises but did not incorporate them as a separate entity. Most large manufacturing companies owned sidings, switching and storage tracks and locomotives for in-plant operations. They do not, however, appear as railroad companies in the corporate records of the state. The map shows a total of 53 companies.

The relatively low numbers of other categories do not seem to warrant cartographic treatment. The totals for these groupings are as follows: Common carriers 52, Recent regional roads 24, and Historic/Tourist/Resort 18. These operations are widely scattered and do not reveal any significant regional patterns.

The complexity of the railroad systems of Pennsylvania appears to be the result of the nature of the terrain, the locations of various mineral resources, certain large urban-industrial concentrations and the extensions of pass routes through the physiographic subregions of the Appalachian Mountain system. Only the Delaware Valley in the southeast and the Lake Erie Plain in the northwest afford true water-level through routes. Both locales are utilized by major rail systems for north-south and east-west corridors, respectively. The most important east-west

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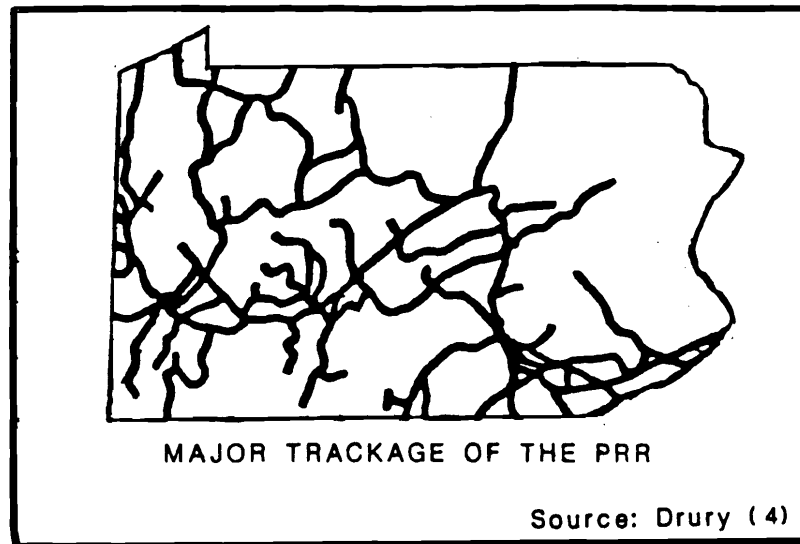


FIGURE II

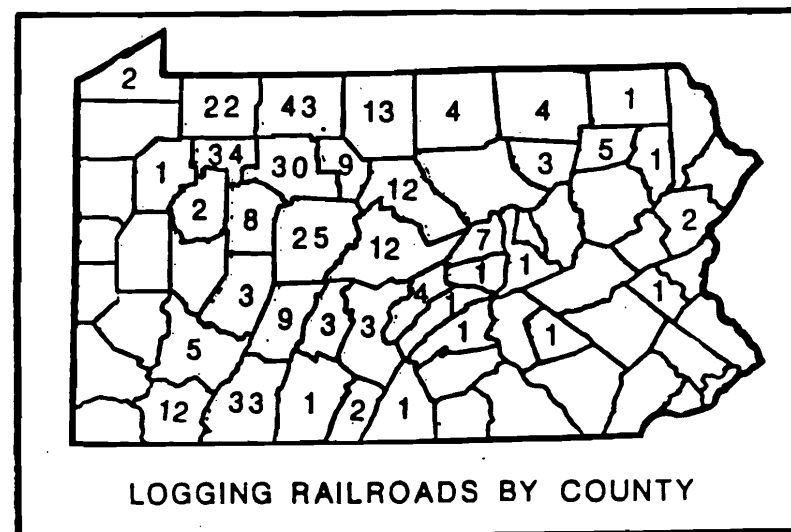


FIGURE III

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pass route is that of the Pennsylvania Railroad which follows the Susquehanna/Juniata valley route to the Appalachian Front, then climbs the front to descend to the Allegheny headwaters system. The construction of the Horseshoe Curve in 1856 along the face of the Front above Altoona ranks as one of the principal engineering achievements of the era of westward rail expansion. It is not the only remarkable railroad engineering construction in the state; the Baltimore and Ohio's "Sand Patch" grade in Somerset County and the long grade from Emporium to Port Allegheny are other examples of the challenges offered by the mountains of Pennsylvania. Valleys, too, presented engineering problems; the Starucca and Tunkhannock Viaducts in Susquehanna County and the Rockville Bridge north of Harrisburg are further evidence of the resistance of the Pennsylvania landscape to the passage of the rails.

Other than the great east-west corridor of the Pennsylvania Railroad, the major railroads cut diagonally across the mountains or pursue a more north-south orientation. In the decade of the 1920's, competition and changing demands for mineral resources began a steady trend of reduction in total mileage. The maps show that the railroad industry was overbuilt by the close of the first world war and was particularly vulnerable to the rapid highway expansion of the following decades. Milk trains and farmers' branch lines quickly followed the logging and mineral roads, passenger services declined and the long distance Pullman Limiteds could not compete with the airlines. The present day total mileage of approximately 5000 is a critical figure. Nearly all competing operations have been minimized; further abandonment of trackage could seriously hamper movement of bulk commodities and service to industry.

The physical modification of the landscape and the associated structure of the railroad corridors tend to disappear rapidly. The rails are removed, the embankments graded, factories construct trucking docks and remove sidings. Many buildings become relics and stand empty and decaying. When railroads cease operation, the cultural and physical landscape closes over the abandoned right of way; and we lose a portion of our economic viability. Pennsylvania, having been the site of more railroad operations than any other state, has lost more than its historic and geographic heritage. The State can ill afford further reduction in its rail service capacity if a competitive economic climate is to be maintained.

ENDNOTES

1. Maiken, Peter T., *Night Trains: The Pullman System in the Golden Years of American Rail Travel*. 1989, Lakme Press, Chicago. Page 49.
2. Taber, Thomas T. III, *Railroads of Pennsylvania: Encyclopedia and Atlas*. 1987, Privately Published, Muncy, PA.
3. Cartographic source: *The Official Guide of the Railways*, August 1971, New York. System timetable maps.
4. Cartographic source: Drury, George H., *The Historical Guide to North American Railroads*. 1991, Kalmbach Publishing, Waukesha, WI. Page 253.

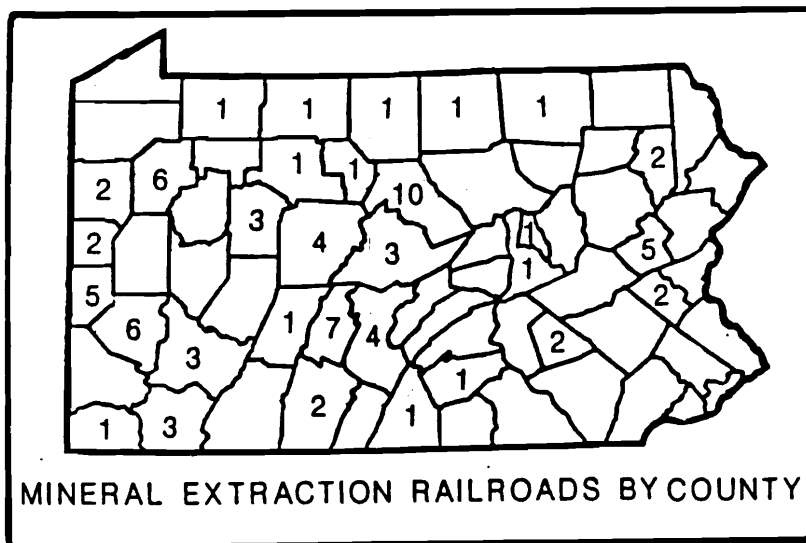


FIGURE IV

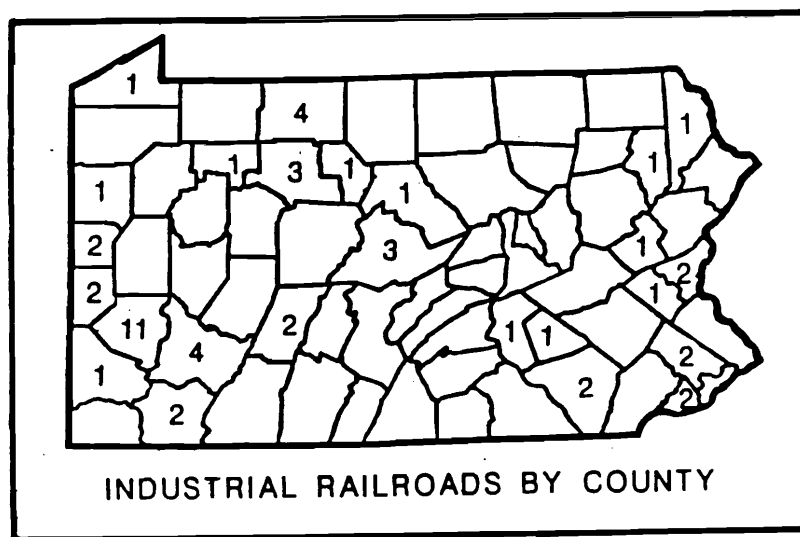


FIGURE V