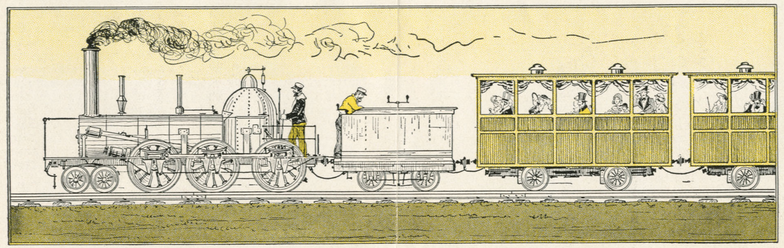


AS AN example, the Pennsylvania Railroad System, in the last ten years, has distributed, or put in circulation, nearly six billions of dollars through these various channels.

In that period Pennsylvania System employes received approximately $3,300,000,000 in wages. Purchases from mines and industries amounted to $1,350,000,000, of which the greater part also ultimately went to pay wages. Taxes for the support of government totaled $400,000,000. Interest paid to savings funds, insurance companies, educational and charitable institutions, and other bondholders, aggregated $450,000,000. Stockholders received in dividends $400,000,000. These payments were substantial aids to business activity and sustaining employment.

The Pennsylvania Railroad's Exhibit

One of the purposes of the Pennsylvania Railroad's exhibit at the Century of Progress International Exposition is to remind the public of the fact that the railroads render service of a character not performed, or capable of being performed, by other transportation agencies.

Four "dioramas"—scenic arrangements giving the effects of depth, or space in three dimensions—symbolize the fact that the railroads operate day and night and in all seasons, giving the only dependable, continuous form of transportation. A Spring scene represents agricultural districts. A Summer scene appeals to the vacationists, portraying the beauties and attractions of seashore, mountain, lake and country. Autumn is depicted in a night

1850

scene representing industry, steel mills, factories and the metropolis. The Winter scene is of a lumber camp, in territory such as is reached by some of the northern lines of the Pennsylvania Railroad.

In the foreground of these "dioramas" is a miniature four-track railroad upon which accurate models of passenger and freight trains of all classes operate continually.

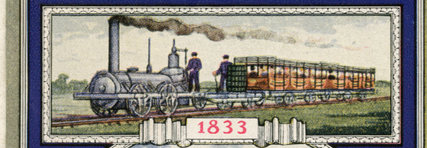
IN THE centre is a full-sized steel locomotive cab, with complete boiler head, showing the valves, gauges, etc., and the "cab signals" which the Pennsylvania Railroad uses to reproduce in the engine cab the indications of the wayside signals. On either side of the exhibit space are full sized road signals of the "position light" type, in which the indications are given by rows of electric bulbs.

Five mural paintings illustrate the steamship, the truck, the car-ferry, the bus and the airplane. Their purpose is to symbolize the fact that railroads not only furnish an unmatchable and dependable transportation service by rail lines, but are looking forward to a full coordination of all means of transportation.

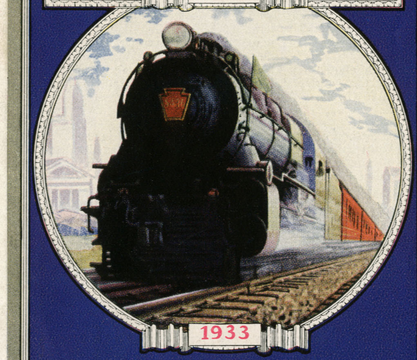
In a frieze around the exhibit space are set wood carvings depicting the Indian travois, the pack mule, the ox sled, the Conestoga wagon, the stage coach, the first car on rails, the "John Bull" train, and the modern train. At one side of the exhibit space a driving wheel from the original "John Bull" locomotive is displayed, rotating a fraction of an inch above the rail on an actual section of road-bed of 100 years ago. This shows the first T-rail spiked to the original stone blocks instead of wooden ties. On the opposite side is displayed a section of the most modern road-bed—the Pennsylvania Railroad's standard—built up on a base of three feet of cinders, with stone ballast, wooden ties, and rail weighing 152 pounds to the yard, the Pennsylvania's latest design for the densest main line traffic, and for sustaining axle loads above 80,000 pounds at speeds of 90 to 100 miles per hour. Above this rotates an 80-inch driving wheel of a modern locomotive.

The color schemes of the entire exhibit follows the Pennsylvania Railroad's standard of red and gold, and the lighting is in harmony with the Exposition's indirect illumination and play of lights.

100 YEARS OF PROGRESS IN MODERN RAILROADING



1833



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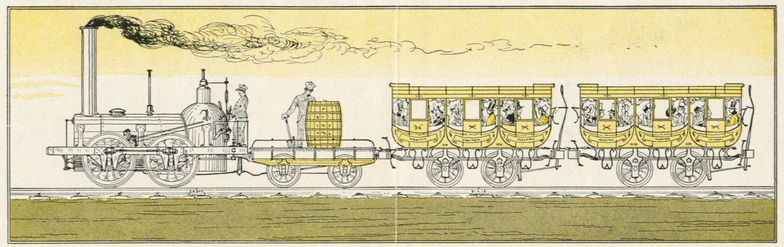
PENNSYLVANIA RAILROAD



1833

THE growth of American railroads covers a little more than the period represented by the "Century of Progress," but the entire evolution of transportation, from the floating log and the bough-sled, to railroads, motor cars and airplanes, has extended over an unknown number of centuries. Its beginnings are far older than recorded history.

Science tells us that all life had its origin in the water, and that ages passed before living things learned to breathe air and exist upon the land. The precursors of mankind, therefore, swam long before they walked. For many generations after human beings appeared, walking was their only means of going from place to place, and they carried their own burdens until they began to utilize domesticated animals and the buoyant properties of water as aids. Probably the first form of transportation was the use of a log afloat upon a stream too deep to be waded. From that developed the crude raft consisting of several logs bound together by vines. A hollowed log was the first boat. There is no record of the beginning of the use of sails, but the sailing vessel reached its highest perfection many years after the beginning of steam navigation, and was an active competitor of the steamship in the world carrying trade well into the present century.

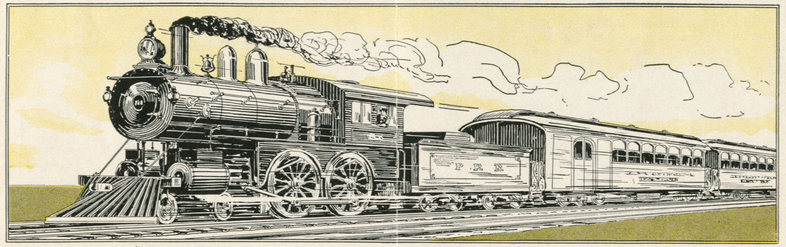
On land the various forms of drags, sleds and packs, and the use of horses, oxen and other animals for both hauling and riding were the means of transportation until the invention of the wheel produced the cart and chariot. The ancient Romans developed highway transportation to an advanced degree and built the most enduring roads the world has ever seen. These famous ways gridironed all portions of the great Empire, including the British Isles, and some of them are in use today after twenty centuries.

FOLLOWING the patenting of the principles of the modern steam engine by James Watt in 1769 and 1774, steam power was for many years used only for such purposes as mine pumping and the operation of the very simple machines which marked the beginning of the industrial era. Steam power in transportation was put to practical use in propelling ships some years before it was employed on railroads. The world's first steam railway, the Stockton and Darlington, began operating in England in 1825. The first steam locomotive used in the United States was the "Stourbridge Lion," imported from England. It had its trial trip on the gravity road of the Delaware & Hudson Company, built to carry anthracite coal from Carbondale to Honesdale, Pa.

In 1835 there were 1,098 miles of railroad in the United States. By 1860 this had increased to 30,635 miles. Following the close of the Civil War there was a period of extremely rapid railroad building, and the opening of the twentieth century found the country with nearly 200,000 miles of railroad line. The present mileage is about 240,000.

The United States, with 6% of the world's population and 5% of its area, has nearly one-third of the world's railroad mileage. It has three-quarters of the world's motor cars, and in recent years has made more progress in air transport than any other nation.

Over 2,000 miles of railroad line and 5,000 miles of track, on the railroads of the United States, are electrified. Practically all of the electrification has been completed since 1905. In that year, the first major project, that of electrifying the Long Island Railroad, now a part of the Pennsylvania system, was inaugurated.

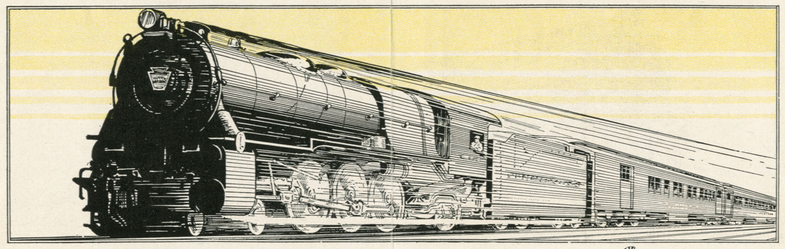


The Pennsylvania Railroad's "Century of Progress"

WHILE the charter of The Pennsylvania Railroad Company dates from 1846, the earliest of the lines now embraced in it—that extending from Philadelphia to Columbia, Pa.—was located in 1828 and construction was started in 1829. A portion of it was opened for travel in 1832. It was a State-owned project built to connect the City and Port of Philadelphia with the State system of canals on the Susquehanna and Juniata Rivers, by which the boats were moved to the foot of the Allegheny Mountains at Hollidaysburg, Pa. From that point the canal boats were drawn across the mountains on wheeled trucks, by means of stationary engines and cables, and placed in another canal extending to Pittsburgh. The purpose was to give Philadelphia a commercial route to and from the new West, via the Ohio and Mississippi Rivers.

This method of transportation, however, proved inadequate, particularly as the canals were closed by ice for several months every winter. The merchants and other progressive citizens of Philadelphia soon started a movement for an all-rail line to Pittsburgh, and it was for this purpose that the Pennsylvania Railroad was financed and organized. Its through line was opened in 1854.

Long before this event, it became apparent to far-seeing men that the West would be developed by railroads and not by canal and river transportation. The Pennsylvania management, therefore, early acquired interests in lines extending from Pittsburgh to Chicago, St. Louis and other growing cities. Later, additional important lines were pushed laterally into the Southern States and northward toward the Canadian border. Thus were laid the foundations of the present network of the Pennsylvania Railroad System.



AS IT stands today, the Pennsylvania is the largest transportation system in America, measured by the freight and passengers carried, the extent of facilities operated and the investment in road and equipment. It is owned by 250,000 stockholders—more than any other railroad in the world—and the stockholders have received a return on their investment in every year since 1847. Based on the Interstate Commerce Commission's valuation figures, the Pennsylvania System represents an investment in facilities and resources of more than three billions of dollars. In such a year as 1927 it performed public service equivalent to transporting one ton of freight 45 billion miles, and one passenger 6 billion miles; it employed an average of 200,000 men and women, and paid them $367,000,000 in wages; it paid the government $40,000,000 in taxes.

Approximately half the population of the country lives in territory accessible to the lines of the Pennsylvania system, and at least two-thirds of the total wealth and resources of the Nation are located in the thirteen States and District of Columbia which its lines serve.

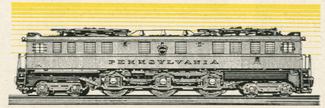
Prior to 1871, the eastern terminus of the Pennsylvania Railroad was still the City of Philadelphia. In that year, by lease of lines in northern New Jersey, it extended its operations to the Port of New York on the New Jersey side of the Hudson River. In 1903 it began the work of tunneling the Hudson, and in 1910 opened Pennsylvania Station in the heart of Manhattan Island, with tunnels extending eastward across the city and underneath the East River to connect with the Long Island lines. In 1917, jointly with the New Haven Railroad, it opened the Hell Gate Bridge Route, by which New England is afforded a direct rail outlet to the Middle States, West and South.

At present the Pennsylvania Railroad is engaged in electrifying its lines, for both passenger and freight service, all the way from New York to Washington, a distance of 227 miles. The purpose is to facilitate the movement of both passengers and freight by operating faster schedules and adding to the traffic-handling capacity of the line. Electric operation will also permit greater efficiency by making possible the operation of longer trains. Work has progressed to the point where the passenger service is now electrically operated from New York, through Philadelphia, to Wilmington, Del., a distance of 117 miles. In connection with the New Haven Railroad System, through electric passenger train operation is now provided from Wilmington to New Haven, Conn.

All of the suburban lines of the Pennsylvania System serving Philadelphia have been electrified in connection with the new main passenger station which is being constructed there.

When the through electrification between New York and Washington has been carried out, the Pennsylvania Railroad System will have a total of over 2,200 miles of track electrically operated, or two-fifths of all the electrified railroad trackage in the United States.

The very earliest Pennsylvania Railroad electrification project was that of the short Burlington and Mount Holly Branch, in New Jersey, in 1895.

Contributions to Work and Prosperity

One of the most important public benefits experienced from the operation of a large railroad system results from the creation of useful employment upon a very large scale, thus supplying income and purchasing power to many workers and their families. The railroads are also the largest customers of mines and basic industries. They pay great sums in taxes to sustain the activities of government. Through bond interest and dividends they supply a considerable proportion of the income of public institutions and individual holders.