

**THIRTY-FIFTH ANNUAL REPORT
OF THE RAILROAD
COMMISSIONERS OF THE STATE
OF NEW HAMPSHIRE, 1879**

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Thirty-Fifth Annual Report of the Railroad Commissioners of the State of New Hampshire, 1879
by Various

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OF THE
STATE OF NEW HAMPSHIRE,

1879.

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RAILROAD COMMISSIONERS' REPORT.

The railroad commissioners respectfully submit their thirty-fifth annual report.

As the present is the proper semi-centennial railroad year,* a brief retrospective survey of the origin and estab-

* The scheme of a railway traversed with steam locomotive carriages was not introduced into this or any other country till 1825, which is known as "the great railroad year," in railway history. The importance of a smooth, hard road-bed was doubtless apparent as soon as wheel-carriages came into use. The fragments of tracks formed of stone blocks, over which the immense stones of the Egyptian pyramids were transported; the remains of the Appian Way of the ancient Romans, formed with wheel-tracks of nicely-jointed stones; the magnificent ruins of the great roads of Peru, one of them built with well-cut porphyritic stone, and another, described by Humboldt and Prescott, built of heavy flags of freestone covered in part at least with cement, which time has rendered harder than the stone itself, both the work of the ancient Incas, twenty feet wide, the latter-named scaling the Cordilleras, and nearly two thousand miles long,—all show the steps towards the railway by the civilized nations of antiquity, the device of the Appian Way being used in London, Milan, and other continental cities, in modern times. Wooden rails were first used in England as early as 1672, at the collieries near Newcastle-upon-Tyne. In 1738 iron rails were introduced on a road at Whitehaven, Eng., and in 1776 another iron railway was laid down at Sheffield, but torn up by the colliers. The first iron railway was built at the iron works of Colebrookdale in 1786. These were, in fact, roads with wooden rails strapped with iron, the straps on the last-named road being cast-iron five feet long, four inches wide, and one and three-fourths inches thick, with flanges on the outer edge to hold the wheels on the track. These roads were called tramways, a name derived, as some say, from the name of a Mr. Outram prominently identified with one of the earliest of the roads; and, as others say, from the name of the coal-wagons, which were called trams. Upon these tramways one horse could do the work of forty on a common road. An improvement of this rail, known as the fish-bellied rail from its form, long continued in use even after the introduction of the wrought-iron rolled rail, which was first used in 1808, but not brought into much use till machinery in 1820 was invented for rolling rails into other than flat

lishment of the scheme of steam-railway locomotion, which in its first half-century has produced results so stupendous

shapes. Horses and mules were almost exclusively used for the motive power down to 1829, a railway period of more than a hundred and fifty years. The only exceptions were a few roads on which the force of gravity was used on inclined planes, the descending wagons hauling back to the collieries the empty carriages, by means of ropes and windlasses.

STEAM-CARRIAGES.

Cugnot, an engineer of the French army, constructed an engine at Paris as early as 1763, and in 1769 built a steam-carriage to run on a common road at the expense of the French monarch, regarded at the time as a creditable piece of work; and in the Paris museum is preserved a steam-carriage made by him in 1790. In England Watt suggested steam-carriages in 1759, was at work on the contrivance in 1774, and patented one in 1784. Oliver Evans of Philadelphia patented a steam-carriage in 1782, sending his drawings and specifications to England in 1787 and again in 1794-95. In 1784 Murdock, Watt's assistant, built a working model of Watt's carriage. In 1802 Tremenhick and Vivian patented, and in 1804 built, a high-pressure locomotive-engine for a railway in Wales, which did well with light loads on a level surface and moderate grades, but when more severely tasked the wheels slipped without advancing, a formidable obstacle to be overcome till 1831, when Horatio Allen, the ingenious engineer of the South Carolina Railroad, put into efficient operation on that road the important device of two four-wheeled trucks or bogies for engines and passenger cars, the first use of such an arrangement on any railroad, and which without essential change, including the application of pedestals to the springs, has ever since been used on all the roads in this country. Gridley Bryant, the engineer of the Quincy Granite Railway in Massachusetts, had constructed an eight-wheeled carriage for hauling long blocks of granite on his road about 1826; and Ross Winans of Baltimore, in connection with Peter Cooper, then of Baltimore, now of New York, who began experiments in view of designing a carriage which would traverse well the short curves of the Baltimore and Ohio Railroad, ultimately brought out and put upon that road substantially the same double-truck system which was already in use on Bryant's and Allen's roads. Winans obtained a patent, but failed to sustain it against Bryant's claims. There had been persistent effort in France and England, beginning as early as 1769, to establish steam-locomotive conveyance on common roads, and when the success of steam-locomotion on railroads was demonstrated in 1829 there were many steam-carriages in operation on common roads in England.

The first completely successful steam-locomotive was put into use on a railway at the Hatton colliery in England in 1825, a road changed from horse to steam power in 1819, and upon which five steam-locomotives were put into work in 1822. The machines were, however, adapted only to slow rates of speed. The first railroad in England for conveying passengers was opened in 1825, and was worked with horse-power. In 1825 Stephenson and Booth built the Rocket for the Liverpool and Manchester Railroad, a locomotive weighing eight thousand and five hundred pounds, which ran at an average speed of fourteen miles an hour with a

and so salutary throughout the domains of civilization, seems to be not inappropriate in this place.

SEMI-CENTENNIAL SKETCH.

Fifty years ago there was no steam-locomotive upon a railroad in America. No railroad designed for steam-locomotion had then been built in this country, nor, with the solitary exception of the South Carolina Railroad, upon which work was commenced in 1829, had any railroad at that time been chartered with the use of steam-locomotion expressly in view.

Railways in a rude form, upon which to move coal by horse-power, were in use at the English collieries for nearly two centuries prior to the first English settlements in this country; and much earnest investigation, aiming to utilize steam in propelling land-carriages, was prosecuted both in England and France as well as in this country, previous to the American Revolution, but with no practical success. About the beginning of the present century ingenious minds in England and America began to show by their contrivances that steam would ultimately be utilized as the motive power in railway transportation, though the experiments at that period were not without serious discouragements. The first completely successful experiment was on a railroad at the Hatton colliery in England in 1822, a road which had been changed from horse to steam power in 1819, and upon which five steam-locomotives, built by George Stephenson, were put into operation in 1822. The Liverpool and Manchester Railway Company, chartered in 1825, began to build the same year; but as late as 1828 a special committee of the company reported in favor of stationary engines; but when the road was opened in 1829, a locomotive built

gross load of seventeen tons; and in 1830 steam-carriages were in regular operation on this road, which, when its construction was begun in 1825, was intended for stationary engines to be placed along the route. Thus was inaugurated the system of steam-locomotion, which has produced such vast results in modern civilization.

expressly for the road by Stephenson was used, attaining a speed of twenty-nine miles an hour on the trial trip, and from this success Stephenson has been styled the "Father of the Locomotive System." The earliest railway legislation in England was the charter of the "Surry Iron Tramroad,"* granted by Parliament in 1801. In the United States,

THE FIRST RAILROAD LEGISLATION AND RAILROADS

originated at a later period. The legislature of Pennsylvania on this subject incorporated a road from Philadelphia to Columbia, March 31, 1823, but the charter lapsed, as the grantees did not enter upon the work of building the road, according to the act; and in 1826 the State, in its corporate capacity, assumed the project as a portion of the stupendous undertaking in which the commonwealth that year embarked, to unite Philadelphia and Pittsburg by a continuous line of railway and canal communication, and which was finished in 1834,—comprising 122 miles of railroad and 277 miles of canal, at a cost of more than fourteen millions of dollars,—a gigantic achievement for that period, honorable to the statesmanship and courageous public spirit of that great State, in which, at the close of 1826, 6 railroads had been chartered, 28 at the close of 1830, and 39 at the close of 1831. The Baltimore and Ohio Railroad was chartered by Maryland and Virginia in 1828, and the corner-stone of the vast work was laid July 4, 1828, at Baltimore, with imposing ceremonies. Charles Carroll of Carrollton, then over ninety years of age, and the only surviving signer of the Declaration of Independence, officiated on the occasion, and in his address uttered these memorable, far-sighted words: "I consider this among the

* The origin of this name is not certain. Some derive it from the name of a man prominently engaged in mining at Newcastle,—a Mr. Outram, who about 1787 built such a road. Others claim that it originated from tram, the name of a coal-wagon, such as was used on the Newcastle road; but this wagon is, on the other hand, alleged to have received its name from Outram.

most important acts of my life, second only to my signing the Declaration of Independence." This road was completed to Wheeling, 379 miles, in 1853, at a cost of nearly twenty-four millions of dollars; and this does not embrace its branches aggregating 382 miles, making a total of 761 miles,—“main stem and branches.” Maryland chartered 3 other railroads that year, and 2 in 1829. South Carolina entered early into the railroad enterprise; chartered the South Carolina Canal and Railroad Company in 1827, which in 1829 opened 6 miles of the railroad from Charleston toward the Savannah River; and in 1838 the State had chartered 12 other railroads, of which several had been completed. New York chartered the Mohawk and Hudson Railroad in 1826; it was finished in 1831, 16 miles long, the oldest railroad in the State; the motive power originally being stationary engines for heavy ascending grades, and horse-power elsewhere. It was the beginning of the New York Central and Hudson River Railroad. In 1828 there were no less than 10 railroads chartered in that State. The New York and Erie was not chartered till 1832.

RAILROADS IN NEW ENGLAND.

The first railroad legislation in New England was the charter of the Granite Railway Company, granted March 4, 1826, authorizing the building of a railroad from “the ledges of granite rock in Quincy to tide-water in Milton or Quincy,” with right of way 6 rods wide, under a franchise of 40 years, Amos Lawrence being one of the grantees. The road, 3 miles long, worked by horses, was finished in 1827, the rails being wood strapped with iron, resting on granite sleepers. It was the first railroad * for actual rail-

* Thomas Leiper built an experimental railway 21 yards long, in Philadelphia, in 1800; Silas Whitney built an experimental railway on Beacon Hill, Boston, in 1807,—a gravity road on which the descending car drew another up the hill; and in 1818 there was a railway in operation with wooden rails at an iron furnace in Pennsylvania. The Mauch Chunk Railroad in Pennsylvania, 9 miles long, was

road service, of anything more than mere local note, which was put into use in this country, and was a wonder of the time. Lithographs, representing in one part a single horse moving nimbly on the railway with three of the "granite carts" coupled together, with the driver mounted on top the front cart, and in another part three horses tugging along one such cart on an ordinary highway, were printed and disseminated through the country in 1826-27; one of these pictures being now in the possession of Mr. J. B. Winslow of Boston.* This road was sold to the Old Colony Railroad Company in 1846. The work published by the State of Pennsylvania in 1876, on "Pennsylvania and the Centennial Exhibition," compiled with great research and care, states in its chapter on railroads, vol. 1, p. 237, that "a short railroad with wooden rails is said to have been built at Nashua, N. H., in 1825," but the statement does not seem to be well founded.

The second railroad act in New England was a law passed in Rhode Island in 1828, authorizing the commonwealth of Massachusetts to build a railroad from the Massachusetts line to Providence. This act was repealed in 1831, when the Providence and Boston Railroad Company was incorporated in that State. In 1829, the Massachusetts Railroad from Boston to Albany, the Boston, Providence, and Taunton, and the Worcester, a short road from Worcester to

finished in 1827, but later in the season than the completion of the Granite Railway; it was in part a gravity road, one of the descending cars bringing down the mules which hauled back the empty wagons. It is due to the Granite Railway Company to add that their enterprise, by its great success, had much influence in awakening the public mind to the railroad subject. Daniel Webster was foremost among those full in the faith in the new scheme, and his powerful support aided essentially in securing from the legislature in 1827 the appointment of two commissioners and an engineer to select and survey the most eligible route for a railroad from Boston to the Hudson River, at or near Albany. Two routes were surveyed, and, as a consequence, the legislature in 1828 devoted great attention to railroad interests throughout the State.

* This statement is derived from an excellent historical address on railroads delivered at Concord, N. H., in 1869.