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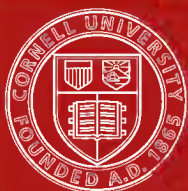


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UNIVERSITY OF
BUR. RY. ECON.

THE
RAILROADS OF THE UNITED STATES,
W. R. HOAG.

THEIR HISTORY AND STATISTICS:

COMPRISING

THE PROGRESS AND PRESENT CONDITION OF THE VARIOUS
LINES WITH THEIR EARNINGS AND EXPENSES,
AND SHOWING THEIR WONDERFUL POWER
IN DEVELOPING THE RESOURCES
OF THE COUNTRY.

TO WHICH ARE ADDED A

SYNOPSIS OF THE RAILROAD LAWS OF THE UNITED STATES,
AND AN ARTICLE ON THE COMPARATIVE MERITS OF
IRON AND STEEL RAILS.

BY

HENRY M. FLINT,

AUTHOR OF "THE LIFE OF STEPHEN A. DOUGLAS," "MEXICO UNDER
MAXIMILIAN," ETC. ETC.

"They build not merely roads of earth and stone, as of old, but they build iron roads:
and, not content with horses of flesh, they are building horses of iron, such as never faint
nor lose their breath."—*Dr. Bushnell.*

PHILADELPHIA:
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PREFACE.

THE work which is now submitted to the indulgence of a generous public, supplies, it is believed, to some extent, a want that has long been felt on both sides of the Atlantic. The absence of any authentic work which should give a connected and reliable history of the principal railroads in the United States, is a fact of which every intelligent person must be sensible. The preparation of such a work involves an immense amount of labor; but it was cheerfully undertaken and has been faithfully pursued, under the encouraging conviction that the results of that labor, as now laid before the public, would be fully appreciated.

The thanks of the author are due, and they are hereby most gratefully tendered, to the many gentlemen, prominently connected with the great railroads of the country, for the exceedingly kind manner in which they responded to his request for data and details in regard to many points, without which the work would have been incomplete. It is owing to this considerate kindness on their part, that the author is now enabled to present his work to the public as authentic and reliable upon every important point.

In a work of such extent, and embracing so many

ramifications, some errors may be detected. The author will be happy to correct these in a subsequent edition of the work, if pointed out by competent authority.

If there is any one fact which stands out in this work more prominently than another, it is the great and surprising effects that have followed the consolidation of several lines of railroad into one corporation. The New York and Erie road ; the New York Central road ; the Pennsylvania Railroad ; the Pittsburg, Fort Wayne, and Chicago road ; and the Chicago and North Western road, all afford striking illustrations of the vast benefits of judicious consolidation.

The effect of particular railroads in developing the resources of the country is a subject that has not been overlooked ; and the chapters on the condition of the Western country before the introduction of railroads, will show how vast a change has been wrought by these great promoters of civilization.

But, without further introduction, the work itself is committed to an indulgent public, as an humble contribution to the literature of the day.

H. M. F.

WASHINGTON, April, 1868.

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RAILROADS OF THE UNITED STATES.

CHAPTER I.

THE ORIGIN OF RAILROADS.

To that imperial people who colonized when they had conquered, England owes her first road, in the year 415. Wherever the Romans penetrated—into whatever distant countries their victorious legions marched, the arts went hand in hand with arms. The Roman camp required the Roman way: and it has been remarked that the general direction of those works, which excite and astonish the beholder, is closely allied to that of the modern railway.

In the Dark Ages, the roads of England were beset with danger and delay; and the age of chivalry was a terrible era for the traveller. The great highway of Watling Street, says Francis, was beset, even in the age of Edward the Confessor, by robbers and highwaymen. The highwayman, indeed, was a portion of the English roads until 1763, as he is now a portion of established English literature.

Seventy-five years ago tram-roads were extensively employed in many parts of England. They consisted of thin beams or rails of wood, upon which the wheels

of wagons rested, in their passage. The wooden rails, forming the tracks for the wagon wheels, were about four inches broad, supported on thicker pieces of timber laid at right angles to them, called sleepers, to which they were secured by wooden pins. Over a road thus constructed it was found that wagons, heavily loaded, could be drawn with ease. The friction of the wheels, however, passing over the rails, gradually wearing out the latter, new ones were substituted: and afterwards these tram-roads were made by laying down two rails, one above the other, so that when the upper rails were worn out, they could be easily replaced. These tramways were of especial value in mining and coal districts.

At the Colebrook Iron Works, in 1767, in order to protect these wooden rails still more, plates of iron were laid over them. These iron plates were four inches wide, one inch thick, and five feet long, and were made with holes through which spikes were driven to fasten them down. Tramways constructed in this manner were found to be so durable that their use became greatly extended, so that, in 1811, there were one hundred and eighty miles in operation in Wales alone. The first railroads that were constructed in the United States were little more than iron tram-roads of this kind.

In 1805 a tram-road was opened at Croydon, and the advantages which it presented were subjected to a practical test. A good horse, on an ordinary turnpike road, can draw two thousand pounds, or a ton. A party of gentlemen were invited to witness the experiment, that the superiority of the new road might

be established by ocular demonstration. Twelve wagons were loaded with stones, till each wagon weighed three tons, and the wagons were fastened together. A horse was then attached, which drew the twelve wagons with ease, six miles in two hours, having stopped four times, in order to show that he had the power of starting, as well as drawing this great load.

Horses continued to be used on these tram-ways for many years; and as long as the only motive power on these roads continued to be horses, few or no improvements were made in the construction of the roads themselves. But in 1820, Mr. Thomas Gray, of England, published a book in which he propounded a general iron railroad, or land steam conveyance, to supersede the necessity of horses in all public vehicles. This was a startling innovation; for steam had not yet begun to be used on railroads, or as a means of propulsion on land. Mr. Gray proposed that his plan should first be attempted between Liverpool and Manchester. He laid his plan before the capitalists of Manchester. But, although they owed their fortunes to steam, they could not appreciate the idea. Macaulay says: "There were fools then, as there are fools now; fools, who laughed at railways as they had laughed at canals; fools, who thought they evinced their wisdom by doubting what they could not understand."

In 1825, the first railroad in England, for the conveyance of passengers, was established. It was the Stockton and Darlington road, was thirty-seven miles long, and consisted of a single track with sidings. It

commenced by carrying five hundred or six hundred passengers every week, in coaches which carried six passengers inside, and twenty passengers outside. Each carriage was drawn by one horse, and the speed was ten miles per hour. To the success of this line, says an English writer, may be attributed the origin of all the others.

The proposal to construct a railroad between Liverpool and Manchester was made in 1822, but it was not till 1826 that the consent of Parliament was obtained. Of the land owners on the line of the road, one hundred and fifty-two were in favor of it, and eighty-six were opposed to its construction. When the works approached completion, it was necessary to decide what motive power should be used. Horse power was found to be altogether inadequate. In order to attract the attention of men of science to the undertaking, a premium of twenty-five hundred dollars was offered for the best locomotive engine that could be constructed. The company required that the engine should consume its own smoke, that it should be capable of drawing a train of twenty tons weight at ten miles per hour, and that its height should not exceed fifteen feet.

The successful engine was built by Mr. George Stephenson. This engine, on its trial trip, ran a distance of thirty miles twice, drawing the required load. The first time it performed the distance in two hours and fifteen minutes, the second time in two hours and seven minutes. It attained a speed of thirty miles an hour, and its average speed was fourteen miles an hour. Mr. Stephenson was immediately appointed to

construct all the engines that might be required for the new road. The cost of this road was one hundred and twenty thousand dollars per mile.

This line was formally opened on the 15th of September, 1830,* in the presence of a gay and very distinguished company, among whom were the Duke of Wellington and Lord Brougham. On returning from the opening excursion, the guests sat down to an elegant banquet provided by the company; and after the repast, Lord Brougham made a speech in his usual eloquent vein, in which he said of the excursion on the new road: "There I saw the difficulties of space overcome; I surveyed masses of solid rock pierced through; I saw mountains, on which it was barely possible, before, for man or beast to plant the sole of the foot, now traversed by a smooth and solid road; I saw valleys made practicable by the bridges of ample height and length which spanned them; saw the steam railway traversing the surface of the water at a height of sixty or seventy feet; saw the rocks excavated, and the gigantic power of man penetrating through miles of solid rock, and gaining a great, a lasting conquest, over the powers of nature."

This railroad carried seven hundred thousand persons during the first eighteen months after it was opened; being one thousand and seventy persons per day. The success of this line removed all doubt as to the possibilities of the railroad system. In 1838,

* The first division of the Baltimore and Ohio Railroad had been opened in May of the same year. In the same year, also, a locomotive and passenger cars were running on six miles of the Charleston and Georgia Railroad.

the road between London and Birmingham was completed and opened; and between the year 1840 and 1850, the other principal lines of railroad in England were constructed. In 1841, there were fifteen hundred and fifty miles of railroad in operation in England, and twenty millions of people safely transported during the year. In 1843, there were eighteen hundred miles of railroad in operation, and twenty-seven millions of people were transported. In 1844, there were nineteen hundred miles of railroad in operation, and thirty millions of passengers were transported.

Although £60,000,000 of capital had been invested in little more than ten years, in these now fashionable enterprises, all the principal lines paid large profits. Dividends of ten per cent. were declared, and the shares rose largely in value. The demand for these shares became a popular rage, but it was met with an abundant supply. In 1845, three hundred miles of new railroad were opened, and acts were passed by Parliament, sanctioning the construction of eighteen hundred miles more.

Ten years ago, a writer in the "London Economist" called attention to the £300,000,000 which, up to that time, had been embarked in railroad enterprises in England, as the largest aggregate property that was ever contributed to any one commercial object. And yet there could have been added to this sum the five hundred millions of dollars invested in the same commercial object in France; the six hundred and fifty millions of dollars similarly invested in the United States up to that time, and the relatively large amount contributed in Belgium, Germany, Spain, and

Italy. According to Mr. Stephenson, the lines constructed in England exceeded, in 1856, the aggregate length of the ten chief rivers of Europe—the Volga, the Danube, the Dnieper, the Rhine, the Dwina, the Loire, the Vistula, the Dniester, the Rhone, and the Guadalquivir; and, exclusive of the Thames and the Mersey, they undoubtedly carried more goods and passengers than were conveyed on all those rivers.

In the United States, there were at that time twenty-three thousand three hundred and forty-two miles of railroad in operation, the increase in the year 1855 alone having been three thousand four hundred and eight miles. When to these, then, are added the railroads of France, Germany, Belgium, Spain, and India, it becomes, says the writer above named, manifest, that railways constitute the greatest uniform work performed in a few years by the hand of man. All the highroads in Europe, though they were the work of many ages, sink into insignificance when brought into comparison with the railroads built within thirty years. All the vast pyramids, all the towering monuments and mighty walls of the ancients, all the spacious churches and proud cathedrals of the middle ages, were but trivial works, compared with the railroads that in a short period have sprung into existence, as if by the "conspiracy and the mighty magic" of one mind and one will, throughout the whole civilized world. It is remarkable, too, that this great work has been executed without any constraint, or any serious derangement of any other needful branch of industry. By saving time, and bringing remote lands into cultivation, it has increased capital

with all the means of subsistence, and multiplied employment whenever it has come into use. It has made the rich man its client, and the poor man its debtor. In the United States, by rapidly bringing the surplus produce of the interior to the seaboard, it saved a part of the population of Europe from starvation.

The railroads of the United States are by no means finished. The principal roads are constantly making improvements in their tracks and rolling stock, by which distance is shortened, speed increased, and the comfort and safety of passengers promoted. New roads, too, are being built; and the necessity for them is shown in the fact that the freight and traffic for them accumulate along the route, even before the track is laid.

CHAPTER II.

HOW A RAILROAD IS BUILT.

How little the railroad traveller, thoughtful only of speed, comfort, and cheapness, sees of the formidable works over and through which he is so safely and rapidly carried! How little he knows of the herculean labors that have been performed, the anxieties that have been borne, the skill and invention that have been brought into exercise, the desperate difficulties that have been surmounted, in order to provide for him those two parallel lines of iron over which he smoothly glides and peacefully snores. Yet for boldness of design, skill in construction, and success in completion, the gigantic achievements of engineering performed in the laying of great railroads, greatly surpass in magnitude as well as in utility, those that have left their own monuments from earlier ages.

The main object of the railroad engineer is to reduce his road as nearly as possible to a level. High grounds are to be cut down, and embankments raised across the lower lands. When a mountain intervenes, through which an open cut is impracticable, the expedient of a tunnel has to be adopted. When a deep valley lays in the way, and an embankment is not feasible, then there must be a viaduct. And when an arm of the sea, such as the Menai Straits, has to be

crossed, it must be overleaped on iron tubes swung in mid air. Of the eight thousand and fifty-five miles of railroad in operation in England six years ago, seventy miles passed through tunnels, and more than fifty miles over viaducts; while of railroad bridges there had been built some three thousand large and costly structures.

Incredible difficulties have been encountered by engineers in carrying embankments of earth across low grounds. These grounds, in many places, under a fair, green surface, have been found to conceal the remains of ancient bogs and swamps, sometimes of great depth. Thus, on one English railroad, about six hundred tons of stone and earth were daily used to form an embankment across a valley, and morning after morning, for many weeks, the material deposited on the preceding day was found to have disappeared. A still more remarkable instance, however, is said to have occurred on a road in the United States, where an embankment, which had been entirely constructed, suddenly disappeared from view, and was found to have sunk in thirty feet of water. The cause of this was ascribed to the fact that an extensive lake had, in the course of ages, been covered with various deposits, which at length formed a soil of sufficient stability to withstand the operations of agriculture without giving way; but being oppressed by the weight of so extraordinary a contrivance as a railroad embankment, it declined to be thus burdened, and sunk at last beneath the waters.

The Michigan Southern Railroad, to fill a "sink hole" of forty rods under its track in Northern Indiana, has

dumped in two acres of earth averaging ten feet in depth; three acres of timber and brushwood; the ditchings and scrapings of fifty miles of railroad track for about eight years past; the old ties of about one hundred miles of repaired track; and about three thousand car-loads of gravel; besides the forty rods of embankment, from four to six feet high, that were made before the sinking occurred. The work of filling seems now to have been accomplished.

TUNNELS.—In Chester County, England, the great Woodhead tunnel penetrates the mountain for a length of about three miles, under a dreary, barren moor, undisturbed save by the sportsman's gun. The usual shafts were sunk over the line of the tunnel, down towards its base. The average depth of the shafts was six hundred feet—but it was long, indeed, before the workmen could reach the bottom level. The sinking, blasting, and winding went on so slowly, that the tunnel was six years in progress. This was caused by the hardness of the material, and the immense quantity of water that flowed into the shafts. The operation of pumping continued incessantly for five years, during which time the engines brought up no less than eight millions of tons of water. At two of the shafts, where continuous pumping was kept up, not an inch was gained in nine months. In another, it took eleven months to sink fourteen yards. The water was never entirely conquered, until the under drift was blasted through the line of the tunnel, whereby the upper springs were tapped, and the water flowed out of the open end of the tunnel by its own gravity. The blasting in this tunnel was on so

enormous a scale, that not less than three thousand five hundred barrels of gunpowder, weighing about one hundred and sixty tons, were used in the operation.

More gunpowder, indeed, has been expended in railroad works than has been blown away in the recent Civil War in America, with the Crimean War added. Near Dover, in England, Sir William Cubit, in 1833, blew away, with one charge of nineteen thousand pounds of gunpowder, the entire mass of the Round Down Cliff, which rose to the height of three hundred and fifty feet above the level of the sea. This terrible blast, fired by galvanic electricity at several points instantaneously, at once hurled off from the cliff a mass of more than a million tons of chalk, which rolled down upon the beach—the dislodged masses of chalk covering and whitening a space of more than fifteen acres, as may still be seen, stretching towards the sea near the western base of the well-known Skakspeare's Cliff.

By means of a similar blast, on the Londonderry and Coleraine Railway, a hill was thrown into the sea by a charge of three thousand pounds of gunpowder; and thirty thousand tons of material were thus instantaneously removed from the line of the works.

A delicate piece of tunnel surveying and underground building was executed at Glasgow, in Scotland, where the Garnkirk Railroad passes, by means of a tunnel four hundred feet long, under the Monkland Canal, and over the tunnel of the Edinburgh and Glasgow Railroad. The two tunnels stand secure, tier over tier.

In Derbyshire, England, Mr. George Stephenson carried a railroad over a bridge which there spanned the river Amber, and at the same point, under the aqueduct of the Cromford Canal. River, bridge, railroad, and canal, were thus piled one above the other, four stories high. Such another curious complication in railroad engineering probably does not exist.

AMERICAN TUNNELS.—Most of the tunnels on American roads are on the lines crossing the Alleghany Mountains. Through the main Alleghany ridge, near its summit, a tunnel was completed in January, 1854, for the Pennsylvania Railroad, the length of which was three thousand six hundred and twelve feet, the width twenty-four feet, and the height twenty-two feet. To expedite the work, and facilitate the removal of the rocky material, four shafts were sunk, from the surface down to the level of the tunnel. One of these was thirteen feet wide, the others were ten feet wide. These shafts varied in depth, being one hundred and fifty, one hundred and fifty-four, one hundred and ninety-six, and one hundred and ninety-four feet deep respectively. The rocks were found to be the nearly horizontal strata of the coal measures, the tunnel in great part lying along a bed of fire clay, which, though easily excavated, caused considerable expense and much trouble in properly securing the walls and roof. The work was completed in two years, at a cost of nearly half a million of dollars (\$450,000).

Many fine tunnels are found on the line of the Baltimore and Ohio Railroad, particularly on the Parkersburg branch. On the main stem of this road, the

Kingwood and the Broadtree tunnels are works of superior magnitude and notable skill.

The Blue Ridge Railroad crosses the Blue Ridge in Virginia by a tunnel four thousand two hundred and seventy-three feet long, on a grade ascending seventy feet to the mile. Its height is twenty-one feet, its greatest width sixteen feet. The work was carried on from each end, at the rate of nearly a foot every twenty-four hours. It was commenced in 1850, and finished in 1857, without shafts, at a cost of nearly half a million of dollars (\$464,000). On the Blue Ridge Railroad in South Carolina, three tunnels were completed shortly before the war broke out in the Pickens district. One of these is six hundred and sixteen feet long, another over two thousand feet long, and the third, the Stump House Mountain tunnel, is five thousand eight hundred and sixty-four feet long. Four shafts were sunk from the summit of the mountains to expedite this work. In Georgia, on the same road, there are two more tunnels.

The Long Dock Tunnel in Bergen, New Jersey, opposite the city of New York, was completed in 1860. It passes through the Trap Hills that extend from the Palisades south, and is four thousand three hundred and eleven feet long, twenty-three feet high, and thirty feet wide. Eight large shafts, from seventy to ninety feet deep, were sunk from the summit down to its level.

The largest tunnel projected in the United States, is that through the Hoosic Mountain, in Massachusetts, between the Housatonic and Deerfield Rivers. Its total length is twenty-four thousand five hundred feet, or

more than a mile and a half long. The mountain is of mica slate and quartz rock, and rises seventeen hundred feet above the level of the tunnel, so that shafts have been considered entirely out of the question. In May, 1860, the work had progressed sixteen hundred and eighty-three feet on the east side, and eight hundred feet on the west side, with such imperfect ventilation that it would seem to be almost a hopeless undertaking; should the task of penetrating this mountain ever be accomplished, the distance from Troy to Boston will be reduced from two hundred and eight, to one hundred and sixty-five miles, with an important reduction, also, of high grades and sharp curves.

COST OF RAILROADS.—In Great Britain, in 1855, there were eight thousand two hundred and ninety-seven miles of railroad in operation, which had cost one million four hundred and eighty-seven thousand four hundred and twenty dollars. In France, in 1856, there were four thousand and thirty-eight miles, which had cost six hundred and sixteen millions one hundred and eighteen thousand nine hundred and ninety-five dollars. In the United States, in 1857, there were twenty-six thousand miles, which had cost nine hundred and twenty millions of dollars (\$920,000,000). British roads, therefore, cost one hundred and seventy-nine thousand dollars per mile; French roads one hundred and fifty-two thousand dollars per mile; and American roads, only thirty-five thousand dollars per mile. Ten years later, namely, at the present time, in 1868, there are thirty-eight thousand miles of railroads in operation in the United States, which have cost one billion five hundred and thirty-two millions, five hundred

thousand dollars; being an average cost of less than thirty thousand dollars per mile, namely, twenty-nine thousand three hundred and thirty dollars and fifty cents.

The average cost per mile of the railways of Pennsylvania is forty-five thousand one hundred and eighty-six dollars and ninety-one cents; of Illinois, thirty-seven thousand five hundred and thirty-eight dollars and thirteen cents; of Nebraska, nineteen thousand three hundred and thirty-four dollars and eighty-eight cents; of Missouri, thirty thousand one hundred and sixty-seven dollars and sixty-three cents; of Texas, sixty-two thousand two dollars and fifteen cents.

The low rates of cost, which these figures show, required for the construction of American railroads has naturally excited the surprise of the financier and the political economist. How is it that, with a territory so vast, such great railroads as the Baltimore and Ohio, the Pennsylvania Central, and the New York and Erie, can be built at so comparatively low a rate! It is due, first, to the general nature of the country; second, to the American mode of construction; and third, to the prevailing manner of working railroads in the United States.

The immense cost in the construction of English railroads is mainly derived from the extravagant prices which are demanded, and have to be paid at the outset for the land. The average of this item, for all the lines, has been rated at forty-three thousand dollars per mile, or more than the entire average cost of American roads. The parliamentary charges

incurred in procuring a charter, are also enormous—many roads having cost over ten thousand dollars per mile for this item alone.

After an English railroad is once built, however, it requires a far less expenditure to keep it in working order, than an American road requires. The cost of keeping an English road in perfect order has been demonstrated to be less than eleven cents per mile, annually; of French roads, eight cents per mile; while it costs to keep American roads in order twenty-five cents per mile, annually.

Except where the traffic is so considerable as to compel a double rail, American railroads are built with single tracks; and sidings at convenient stations answer all the requirements of safety and promptness in the passage of trains. In the structure of the roads themselves, principles attended with remarkable economy have been universally adopted. In laying out these lines, the engineers did not, as in England, impose on themselves the difficult and expensive condition of excluding all curves, except those of the most liberal radius. On the contrary, curves having a radius of one thousand feet are common, and occasionally those of five hundred feet are allowed. Every one will remember the two sharp curves just outside of the city of Baltimore, on the road from Washington to Philadelphia.

Nor are the grades restricted to the same low limits as in Europe. Acclivities rising at the rate of one foot in a hundred and thirty, are considered a moderate ascent; and there are not less than fifty lines, in which the gradients are laid down at a rate

varying from one foot in a hundred to one in seventy-five. Nevertheless, these lines are worked without difficulty by locomotives, and without the expedient of either assistant or stationary engines. The consequence of which has been to diminish the cost of earthworks, bridges, and viaducts, even in districts of country where the character of the surface is least favorable.

In Massachusetts, the Western Railroad ascends from Springfield to Pittsfield at the rate of eighty-three feet to the mile. The New York and Erie road has grades of sixty feet to the mile. The Baltimore and Ohio road climbs the Alleghanies from Piedmont to Altamont on grades of one hundred and sixteen feet to the mile. The Virginia Central road crosses the Blue Ridge by inclined planes of two hundred and fifty, and two hundred and ninety-five feet to the mile. The mountain pierced by the Kingwood tunnel, on the Baltimore and Ohio road, was temporarily surmounted by grades of five hundred feet to the mile, of which each separate car was drawn by a powerful locomotive.

In the *working* of American railroads the same studious regard for economy is observable. The engines are strongly built, perfectly safe, and sufficiently powerful; but they dispense with much of that elegance of exterior and fine workmanship, which engage to an expensive degree the pride of British builders.

The form and structure of the passenger cars constitute a means of considerable economy in the working of American roads. There are no first, second,

and third class carriages, as in England. Except the emigrant cars and the troop cars, all the passenger cars are of the same class; and for the purpose for which they are designed, they present many advantages. The simplicity of the structure renders the cost of their construction comparatively less than that of any class of carriages on European railroads. But a still greater source of saving is found in their operation. The proportion of dead weight to the paying weight is far less than in the first or second class carriages on the English railroads. It is true, they do not offer to the wealthy passenger all the luxurious accommodations which he finds in the best first class carriages on English roads, but they afford every necessary convenience and comfort, and are far preferable to the second class carriages on European lines.

Some very decided improvements in passenger cars have recently been introduced on some of the principal roads in the United States, which will be mentioned hereafter.

There is at present finished and in operation in the United States, thirty-eight thousand miles of railroads. Of this, Pennsylvania has four thousand and thirty-seven miles. Ohio is second in rank, having thirty-four hundred and two and $\frac{9.3}{100}$ miles; Illinois third, having thirty-two hundred and fifty and $\frac{0.5}{100}$ miles; New York fourth, having thirty hundred and twenty-five and $\frac{3.0}{100}$ miles; Indiana fifth, having twenty-four hundred and ninety and $\frac{4.7}{100}$ miles. Oregon ranks lowest in the number of miles of railway completed, having but nineteen and $\frac{5.0}{100}$ miles. East of the

Rocky Mountains, Rhode Island contains the fewest miles of railway, having but one hundred and nineteen and $\frac{24}{100}$ miles; Delaware has one hundred and fifty and $\frac{40}{100}$ miles; Arkansas, one hundred and ninety-one miles; Kansas, two hundred and forty; Nebraska, two hundred and seventy-five.

The total cost of these internal improvements is one billion five hundred and thirty-two millions five hundred thousand dollars—a vast sum, invested to keep us in motion and move what we produce and consume. It is alone a significant comment upon the development and magnitude of our domestic commerce.

The following is a statement of the earnings and operating expenses of some of the principal railroads in the United States:—

EARNINGS AND OPERATING EXPENSES.

NAME OF ROAD.	Miles Operated.	Earnings.	Expenses exclusive of State and Revenue Taxes.	Per Centage	Expenses, including Taxes.	Per Centage.	YEAR ENDING
Atlantic and Great Western Railway	507	\$4,833,489 86	\$3,324,274 29	68.77	\$3,522,460 23	72.80	Oct. 31, 1866
New York Central	657	13,975,524 39	10,882,358 09	77.87	11,220,809 94	80.29	Sept. 30, 1865
Do.	692	14,596,785 68	11,013,441 24	75.45	11,335,673 24	77.66	Do. 1866
Louisville and Frankfort	65	389,171 36	.....	...	280,263 18	72.00	June 30, 1866
Philadelphia and Reading	526	10,902,819 00	.....	...	6,738,747 00	61.80	Nov. 30, 1866
Cleveland, Columbus & Cincinnati	138	2,386,132 50	.....	...	1,550,622 29	74.90	Dec. 31, 1865
Bellefontaine	202	1,675,164 96	1,182,257 24	70.58	1,274,225 45	76.07	Do. 1865
Pittsburg, Ft. Wayne and Chicago.	483	7,467,217 56	.....	...	5,147,686 54	68.90	Do. 1865
Erie	797	15,434,774 72	10,368,264 02	67.20	11,154,930 46	72.27	Do. 1865
Cleveland and Pittsburg	225	2,351,905 83	.....	...	1,697,179 47	72.00	Nov. 30, 1866
Pennsylvania	559	17,459,169 49	.....	...	13,270,058 54	76.00	Dec. 31, 1865
Do.	559	16,583,882 49	.....	...	12,790,909 54	77.13	Do. 1866
Michigan Central	328	4,446,490 51	.....	...	2,808,375 92	63.20	May 31, 1866
Chicago and Northwestern	930	6,820,749 75	.....	...	4,621,361 84	67.75	Do. 1865
Ohio and Mississippi	340	3,793,005 45	.....	...	2,772,897 45	73.10	Dec. 31, 1865

The celebrated Scotch writer Mr. Wm. Chambers, after a tour through the United States some years ago, thus speaks of American Railroads: "The land on which they are built has often either been given for nothing or for a comparatively trifling consideration. The lines have generally no fences, and they go through populous towns along the open streets without fear of the consequences; the only care taken against accidents is for the engine-driver to ring a bell. The waiting rooms are generally of a poor description. All varieties of passengers travel together in one carriage; and there is a marked deficiency of porters and other officials, to give information or render assistance to passengers. The trains proceed at a comparatively slow rate, and seem to stop at the discretion of the conductor. The whole organization and management is, in fact, on a loose and primitive footing, though perhaps well adapted to the raw condition of a large part of the country.

"The absence of any classification of passengers strikes the Englishman as a curious feature in the system. This defect is felt to be a grievance by many Americans. * * * * * From this sketch it will be observed that the railroad system of the United States can in no way be brought into comparison with that of Great Britain, for the two things are constituted on very different principles. The chief desire in America has been to open up the country at all hazards to railroad communication, leaving improvements to be effected afterwards by the wealth which that communication is certain to create. On the contrary, in Great Britain, there has been no aim of this kind; the comfort of passengers and safety to the

public have, on the whole, at whatever cost, been matters of primary concern to the railroad companies.”

An article in the January, 1867, number of the “Edinburgh Review” says of American railroads:—

“Notwithstanding the diversity of circumstances between America and England, the results of a railway system initiated by private enterprise have proved, in the older and more settled States at least, on the whole very similar to those arrived at in this country. America imported her first locomotive engine from England in the year 1829, but unlike the States of the European continent, she did not wait for English experience, but at once struck out her own course. In the following year an engine of American manufacture was at work upon a railway in the Southern States designed to connect Charleston with Savannah. As in Europe, however, so in America, coal gave the great impetus to the construction of metal roads. The great mining State, Pennsylvania, took the lead, and, in the session of 1830, granted no less than twelve charters to as many corporations, while before three years had elapsed sixty-seven lines were opened within its borders. Virginia, and next Massachusetts and other Northern States, followed the example of Pennsylvania. Each State hastened to grant charters for its own purposes, but often refused to authorize a road lest it should benefit a neighbor, or give some special advantage to a portion of its own territory. Competition and self-defence, on the part both of States and corporations, also played a great part in the creation of Transatlantic railways. Boston first pushed a line westward to secure the traffic of the inland States, and New York

felt compelled to send out a similar line without delay. Pennsylvania was thus driven to carry her rails first over, and latterly through the Alleghanies, to Pittsburg and the regions beyond. Thereupon Baltimore, Charleston, Savannah, in turn, pressed on to reach the Mississippi, and their lines again obliged the Gulf cities, Mobile and New Orleans, to construct lines running north and south, lest the rival towns on the Atlantic seaboard should rob them of the trade of the great valley.

“American lines have thus, like the English, been laid out and constructed without reference to any definite or comprehensive system. In many instances they have been made with the deliberate intention of thwarting, rather than facilitating, continuous communication. One among numerous evils that have ensued, has been the introduction of a great diversity of gauges, varying from four feet ten inches in Ohio and New Jersey to six feet on the New York and Erie line. Owing mainly to the cheapness of land and the great extent of level country, the capital expenses of American roads have been less, but in consequence of their inferior construction, their working expenses are greater than those of English railways. Their embankments are usually narrow, their drainage neglected, the sleepers of unseasoned wood, and the iron of very indifferent quality. Their fares are indeed less than our own, but so also are their comfort, their speed, and their safety.”

CHAPTER III.

THE ORIGIN OF RAILROADS IN RUSSIA.

DURING the first few months after the opening of the first division of the Baltimore and Ohio Railroad, in 1830, the cars were drawn by horses and mules. Locomotive engines were not yet in use in England. It was at this time that a Mr. Thomas, of Baltimore, constructed a car, of which the propelling power consisted of sails. This car was called the Eolus, and it actually ran between Baltimore and Ellicott's Mills, propelled by the wind alone acting upon its sails. The Eolus had the honor, from time to time, of thus wafting on scientific excursions many passengers of distinction, Europeans as well as Americans. Among these, on one occasion, was the Baron Krudener, envoy to the United States from the Emperor of Russia, who made the trip in this novel land yacht, trimming the sails himself. On his return from the animating excursion, he expressed his lively gratification. He had never, he said, travelled so agreeably. Whereupon the President of the road, Philip E. Thomas, Esq., caused another car of this construction to be built, and fitted with the friction-wheels invented by Mr. Winans, of Baltimore. This car was presented to the Russian envoy, together with the several reports that had been published by the company, to be sent

to the Emperor of Russia. In acknowledging this happy compliment, the envoy wrote: "The nature and importance of the great undertaking to which you have devoted your exertions, cannot fail of giving a high degree of interest to the documents relating to its origin and progress; and I do not doubt that his majesty will find them, as well as the ingeniously improved principle on which the railroad car is constructed, deserving of serious attention." A few days after this a letter was received from the envoy, introducing a deputation of scientific men from Russia, who had been appointed by the Emperor to visit the United States. These gentlemen at once entered upon a minute examination of the railroad from Baltimore to Ellicott's Mills, and the machinery used upon it. On the return of the deputation to St. Petersburg, they communicated to the Russian government such minute information, and of so great value, relative to the material and management of the Baltimore and Ohio Railroad, that the Emperor extended an invitation to Ross Winans, Esq., of Baltimore, to superintend the construction, in Russia, of machinery for the extensive railroads even then contemplated by the Russian Emperor. The invitation was accepted; and thus, says a well-informed writer, "there is no doubt that the early introduction of railroads into Russia originated in the disclosures made to his court at this time by the Baron de Krudener." In a conversation between the envoy and Mr. Thomas, the President of the Baltimore and Ohio road, concerning the effects which the railroad system, then in its infancy, would produce, Mr. Thomas is said to have remarked that

“should our present anticipations of the efficiency of railroads be realized, a total change will be brought about in commercial and social intercourse in every country where these roads may be introduced; that the experiments already made had demonstrated them to be capable of affording to an extensive continent the facilities of inter-communication now incident to a small island; and that the discovery promised greater advantages to Russia and the United States than to any other countries.” He then further observed, that “should the Emperor introduce railroads into Russia, it would not be many years before a railroad would be constructed between the Baltic and the Black Sea, along the rivers Dwina and Dnieper; and that such a road would enable Russia to encircle in her arms, not only the entire northern, but also the eastern frontier of Europe, and thus to greatly extend her power and influence.” The extended foresight of Mr. Thomas was here again conspicuously manifested, for the year 1853 witnessed the completion of a large portion of the great railroads that are so rapidly stretching over the Russian continent. The great railroad from St. Petersburg to Moscow was completed and opened in 1852; and its continuation to Odessa, on the Black Sea, is now in progress of construction. It will be, when finished, sixteen hundred miles long, as far as from Boston to New Orleans, and will connect the Baltic and the Black Sea. Mr. Winans remains in Russia, superintending the construction of the machinery for these great roads.

ANECDOTES OF OPPOSITION TO RAILROADS.—It is related in the annals of English railroads, that one

man sold some land to a railroad company, and was loud and long in his outcries for compensation, expatiating on the damages which the formation of the line would bring, as he said, to his property. He was assured that the construction of the road would greatly increase the value of his property; but to this he would not listen for a moment. His complaints were only stopped by the payment of his demands. A few months afterwards, a little additional land was required of the same individual, when he actually demanded a much larger price for the new land than for that which he had first sold to the company. On surprise being expressed at his conduct, he coolly replied: "Oh, I made a mistake, then, in thinking the railroad would injure my property. It has increased its value, and of course you must pay an increased price for it."

On another occasion, a trial occurred in a court of justice, before a jury, in which an eminent land valuer was put into the witness box to swell the amount of damages, and he proceeded to expatiate on the injury committed by railroads in general, and especially by the one in question, in cutting up the properties which they invaded, &c. When he had finished the delivery of this weighty piece of evidence, the counsel for the company put a newspaper into his hand, and calling his attention to a certain advertisement therein, asked him whether he had inserted that advertisement! He was compelled to admit that he had. The counsel then proceeded to read the advertisement to the jury. Imagine the amusement of the latter, when the advertisement proved to be a declaration from the land

valuer himself, that the approach of the railroad which he had come there to oppose, would be exceedingly beneficial to the property in its immediate vicinity then for sale!

Chancellor Livingston, who was a man of distinction and thought, and who was even associated with his brother-in-law, Robert Fulton, in the endeavor to apply steam as a motive power to navigation by sea, was an unbeliever in the possibility of using it for travel by land. He believed that the railway could never compete with the canal. His letter on this subject may not be amiss in exhibiting how completely the last half century has revolutionized former ideas and opinions, and opened up the progress of improvement and civilization. It is quite refreshing in view of the present:—

“ALBANY, March 11, 1811.

“*Dear Sir*: I did not till yesterday receive yours of the 25th of February; where it has loitered on the road, I am at a loss to say. I had before read of your very ingenious proposition as to the railway communication. I fear, however, on mature reflection, that they will be liable to serious objections, and ultimately more expensive than a canal. They must be doubly so to prevent the danger of two such heavy bodies meeting. The walls on which they are placed must be at least four feet below the surface, and three above, and must be clamped with iron, and even then would hardly sustain so heavy a weight as you propose moving at the rate of four miles an hour on wheels. As to wood, it would not last a week. They must be covered with iron, and that, too, very thick

and strong. The means of stopping these heavy carriages without a great shock, and of preventing them from running upon each other—for there would be many running upon the road at once—would be very difficult. In cases of accidental stops or necessary stops to take wood and water, etc., many accidents would happen. The carriage of condensing water would be very troublesome. Upon the whole, I fear the expense would be much greater than that of canals, without being so convenient. R. R. LIVINGSTON."

USING RAILROADS ON SUNDAYS.—The opposition to the use of railroads on Sundays began with the first introduction of the railroad system, and it still prevails, notwithstanding the progress towards enlightenment which the world has made. One gentleman in England, mistakenly called Rev., speaks of all railroad travel on Sunday, as "trips to hell at 7s. 6d. per head." Awful denunciations were uttered on the sin of enjoying the Sabbath. Handbills, of which the following is a copy, were sent about the streets of London, and thrust into travellers hands: "Solemn Warning to Sabbath Breakers! God coming in Judgment! as revealed by the sudden destruction of nearly one hundred immortal beings on the Paris and Versailles Railroad, on Sabbath the 8th instant; and also in the destruction, by fire, of the Sabbath-breaking town of Hamburg!"

It is a great error to confound the Jewish with the Christian Sabbath. They who lived nearest to the time of Christ, made no such mistake. The apostles did not enjoin their followers to refrain from labor on

Sunday. Jesus himself showed his contempt for the Jewish Sabbath by openly violating the Jewish law of the Sabbath, and by commanding his disciples to "do well" on the Sabbath day. When the self-righteous Pharisees rebuked him for his open violation of the Jewish law of the Sabbath, he demonstrated the absurdity of that law, defended his own conduct on the ground of reason and common sense, and told them plainly, with all the authority of the Son of God, that the Sabbath had been instituted for the use and enjoyment of man. (See Mark, Chap. ii. 23-28. Matthew, Chap. xii. 1-13.) Peter no doubt worked at his tents on Sundays. During the first three centuries it was not regarded as a Sabbath: and the initiative step was only taken in the fourth century, by the half pagan Constantine closing the courts of law on that day. The most learned researches have shown that previous to this era there was no law binding to its strict observance. Eight hundred and twenty-nine years after Christ, it was determined by a council solemnly convened for the purpose, that the keeping of the Lord's day had no other ground but mere custom.

The benefits of railroads on Sundays are incalculable. In the cities, they carry thousands of persons comfortably to church, on wet and rainy days, and convey them safely to their homes, again, without injury to their health, nine-tenths of whom would otherwise have been compelled to remain at home. And even on fine days it enables thousands of persons to go to church, who live too far off to walk. They take the workman from his hot, close, loathsome neighborhood; carry him and his family, in an hour, to the purest

haunts of nature ; and for that one day thus passed in the pure air with those he loves, with the cool, refreshing breezes making music in the trees above his head, and with all the charms of nature spread out before him, he is a better man and a better citizen.

Wherever Sunday cars have been introduced, they have had to encounter the opposition of those persons in the community who pride themselves on their rigid Sabbath observances, and who cannot believe that any views of the observance of the Sabbath, different from their own, can be founded upon Christian principles. But these prejudices have always worn away : and the great mass of every community, where the cars run on Sunday, regard them as promoters of health and morality, and by no means antagonistic to religion.

CHAPTER IV.

PROGRESS OF RAILROADS IN THE UNITED STATES.

IN the year 1850, there were only eight thousand six hundred (8,600) miles of railroad finished and in operation in the United States, which had cost less than three hundred millions of dollars, namely, \$296,260,128. In 1860, there were thirty thousand six hundred (30,600) miles of railroad finished and in operation, which had cost over a thousand millions of dollars, namely, \$1,134,452,909.

Before the year 1850, there was only one line of railroad completed and in operation between tide water navigation and the great interior producing regions of the country. This line was formed of several links, which, now consolidated, form the New York Central Railroad, extending, with its water communications, from New York and Albany to Buffalo and the western shores of Lake Erie. There was another line opened soon afterwards, however, extending from Boston to Ogdensburg on the St. Lawrence River. This was completed in 1851. A large business at once sprang up along this line, by which Boston was greatly benefited. The New York and Erie Railroad, of which full mention will be made hereafter, was also opened in May, 1851. This great road extended from New York to Dunkirk on Lake Erie, and the great

fertility of the country through which it passes, at once furnished it with business fully equal to its capacity. The Pennsylvania Railroad, from Philadelphia to Pittsburg, was virtually completed in 1852, although it was not formally opened as a through route until 1854. It began at once to draw a very heavy passenger and freight business from the West. The Baltimore and Ohio Railroad, from Baltimore to Wheeling, was finished in 1853, and entered at once upon its subsequent career of prosperity.

“The Tennessee River, a tributary of the Mississippi, was reached, in 1850, by the Western and Atlantic Railroad of Georgia, and the Mississippi itself, by the Memphis and Charleston Railroad, in 1859. In the extreme north the Atlantic and St. Lawrence, now known as the Grand Trunk, was completed early in 1853. In 1858, the Virginia system was extended to a connection with the Memphis and Charleston and with the Nashville and Chattanooga Railroads.

“Previous to 1850, by far the greater portion of railroads constructed were in the States bordering the Atlantic, and, as before remarked, were for the most part isolated lines, whose limited traffics were altogether local. Up to the date named, the internal commerce of the country was conducted almost entirely through *water* lines, natural and artificial, and over ordinary highways. The period of the settlement of California marks really the commencement of the new era in the physical progress of the United States. The vast quantities of gold it produced imparted new life and activity to every portion of the Union, particularly the western States, the people of which, at the com-

mencement of 1850, were thoroughly aroused as to the value and importance of railroads. Each presented great facilities for the construction of such works, which promised to be almost equally productive. Enterprises were undertaken and speedily executed which have literally converted them into a net-work of lines, and secured their advantages to almost every farmer and producer.

“The only important line opened in the west, previous to 1850, was the one from Sandusky to Cincinnati, formed by the Mad River and Little Miami roads. But these pioneer works were rude, unsubstantial structures, compared with the finished works of the present day, and were employed almost wholly in the transportation of passengers. Within the decade, in place of this one line, railroads have been constructed radiating from Lakes Erie and Michigan, striking the Mississippi at *ten* and the Ohio at *eight* different points. These trunk lines are cut every few miles by cross lines, which, in the States east of the Mississippi, are sufficiently numerous to meet every public and private want, and to afford every needful encouragement to the development of the resources of this country.”*

The necessity of continuous lines of railroad from various points in the valley of the Mississippi and on the shores of the great lakes, will be at once apparent on examining the vast productive capacity of the western States. Illinois alone sends to New York two thousand head of beef cattle every week. Illinois alone produces every year one hundred thousand head

* **Censns of United States: 1860.**

of beef cattle, one hundred and twenty thousand head of sheep, two and a half million head of hogs, thirty millions of bushels of wheat, and one hundred and fifty millions of bushels of corn. Imagine for a moment the wealth there is, in these productions of a single State. But take the six western States of Illinois, Indiana, Iowa, Michigan, Wisconsin, and Minnesota. The productions of those States, in the year 1860, were as follows:—

	Head of Cattle.	Head of Sheep.	Head of Hogs.
Illinois	881,877	894,043	2,279,722
Indiana	582,990	1,122,493	2,498,528
Iowa	291,145	149,960	921,161
Michigan	267,683	746,435	374,664
Wisconsin	225,210	124,896	333,957
Minnesota	51,043	80	101,252
	<hr/>	<hr/>	<hr/>
	2,299,948	3,037,907	6,510,284

	Bushels of Wheat.	Bushels of Corn.
Illinois	24,159,500	115,296,779
Indiana	15,219,120	69,641,591
Iowa	8,433,205	41,116,994
Michigan	8,313,185	12,152,110
Wisconsin	15,812,625	7,565,290
Minnesota	2,195,812	2,987,570
	<hr/>	<hr/>
	73,133,447	238,760,334

PRINCIPAL TRUNK LINES.

The principal trunk lines of railroad in the United States are as follows:—

I. FROM BOSTON TO THE WEST.

From Boston to Chicago:

Miles.

1024

Namely, from Boston to Albany, by the Western Railroad of Massachusetts, two hun-

dred miles; from Albany to the Suspension Bridge and Niagara Falls, by the New York Central Railroad, three hundred and six miles; from the Suspension Bridge to Windsor, two hundred and twenty-nine miles; from Detroit to Chicago by the Michigan Central Railroad, two hundred and eighty-nine miles.

II. FROM NEW YORK TO THE WEST.

1. *From New York to Chicago* by the Erie Railroad: Miles.
958

Namely, from New York to Dunkirk, on the New York and Erie Railroad, four hundred and sixty miles; from Dunkirk to Toledo, by Lake Shore Railroad, two hundred and fifty-five; from Toledo to Chicago, two hundred and forty-three miles.

2. *From New York to Chicago* by way of Albany and the Central Railroads: 974

Namely, from New York to Albany by the Hudson River Railroad or New York and Harlem Railroad, one hundred and fifty miles; from Albany to Suspension Bridge, as above, three hundred and six miles; from Niagara Falls to Chicago by the Great Western Railroad of Canada and the Michigan Central, five hundred and nineteen miles.

3. *From New York to Chicago* by the Allentown and Pittsburg route: 899

Namely, from New York to Harrisburg, by the New Jersey Central road, one hundred and

eighty-two miles; from Harrisburg to Pittsburg, on the Pennsylvania road, two hundred and forty-nine miles; from Pittsburg to Chicago, on the Fort Wayne road, four hundred and sixty-eight miles.

4. *From New York to St. Louis by way of Dunkirk and Cleveland:* Miles. 1147

Namely, from New York to Dunkirk, on the Erie Railroad, four hundred and sixty miles; from Dunkirk to St. Louis, by the Bellefontaine line, passing through Cleveland, Crestline, Bellefontaine, Indianapolis, and Terre Haute, six hundred and eighty-seven miles.

5. *From New York to St. Louis by way of Salamanca and Cincinnati:* 1203

Namely, from New York to Salamanca, on the Erie Railroad, four hundred and fifteen miles; from Salamanca to Cincinnati, on the Atlantic and Great Western Railroad, four hundred and forty-eight miles; from Cincinnati to St. Louis, on the Ohio and Mississippi road, three hundred and forty miles.

6. *From New York to St. Louis by the Allentown route, Pittsburg, and Columbus:* 1084

Namely, from New York to Pittsburg, by the New Jersey Central Railroad to Harrisburg, and the Pennsylvania road, four hundred and thirty-one miles; from Pittsburg to Columbus, one hundred and ninety-three miles; from Columbus to Cincinnati, one hundred and twenty miles; from Cincinnati to St. Louis, as above, three hundred and forty miles.

7. *From New York to Cincinnati* by way of Dunkirk, Cleveland, and Columbus: Miles.
861

Namely, from New York to Dunkirk, on the New York and Erie road, four hundred and sixty miles; Dunkirk to Cleveland, one hundred and forty-three miles; Cleveland to Cincinnati, two hundred and fifty-eight miles.

8. *From New York to Cincinnati* by way of Salamanca, as above: 863

9. *From New York to Cincinnati*, by the Allentown route, Pittsburg, and Columbus, as above: 744

III. FROM PHILADELPHIA TO THE WEST.

1. *From Philadelphia to Chicago*: 823

Namely, from Philadelphia to Pittsburg, on the Pennsylvania Central Railroad, three hundred and fifty-five miles; from Pittsburg to Chicago, by the Pittsburg, Fort Wayne, and Chicago Railroad, four hundred and sixty-eight miles.

2. *From Philadelphia to St. Louis*: 998

Namely, from Philadelphia to Pittsburg, three hundred and fifty-five miles; from Pittsburg to Columbus, Ohio, one hundred and ninety-three miles; from Columbus to Indianapolis, one hundred and eighty-eight miles; from Indianapolis to St. Louis, by way of Terre Haute, two hundred and sixty-two miles.

IV. FROM BALTIMORE TO THE WEST.

1. *From Baltimore to St. Louis*: 928

Namely, from Baltimore to Parkersburg, by

the Baltimore and Ohio Railroad, three hundred and eighty-three miles; from Parkersburg to Cincinnati, by the Marietta and Cincinnati Railroad, two hundred and five miles; from Cincinnati to St. Louis, by the Ohio and Mississippi Railroad, three hundred and forty miles.

Miles.

2. *From Baltimore to Terre Haute:*

777

Namely, from Baltimore to Wheeling, on the Baltimore and Ohio Railroad, three hundred and seventy-nine miles; from Wheeling to Columbus, one hundred and thirty-seven miles; from Columbus to Indianapolis, one hundred and eighty-eight miles; from Indianapolis to Terre Haute, seventy-three miles.

V. FROM NEW YORK TO THE SOUTH.

1. *From New York to Memphis:*

1163

Namely, from New York to Washington, by way of Philadelphia and Baltimore, two hundred and thirty miles; from Washington to Lynchburg, by way of Manasses Junction and Gordonsville, one hundred and seventy-eight miles; from Lynchburg to Knoxville, by the Virginia and Tennessee Railroad, three hundred and thirty-four miles; from Knoxville to Chattanooga, one hundred and twelve miles; from Chattanooga to Memphis, by the Memphis and Charleston Railroad, three hundred and nine miles.

2. *From New York to New Orleans:*

1506

Namely, by the same route to Chattanooga, eight hundred and fifty-four miles; from Chat-

tanooga to Grand Junction, on the line between Mississippi and Tennessee, two hundred and fifty-seven miles; from Grand Junction to New Orleans, by way of Jackson, Mississippi, three hundred and ninety-five miles.

Miles.

3. *From New York to Mobile:*

1399

Namely, by the same route as above to Chattanooga; from Chattanooga to Corinth, in Mississippi, two hundred and sixteen miles; from Corinth to Mobile, by the Mobile and Ohio Railroad, three hundred and twenty-nine miles.

4. *From New York to Charleston and Savannah:*

Namely, from New York to Washington, two hundred and thirty miles; from Washington to Wilmington, in North Carolina, by way of Richmond, Weldon, and Goldsborough.

VI. FROM CHICAGO TO THE SOUTH.

1. *From Chicago to New Orleans:*

914

Namely, by the Illinois Central Railroad, from Chicago to Cairo, three hundred and sixty-five miles; from Cairo to Jackson, by the Mobile and Ohio road, ninety-seven miles; from Jackson to Canton, on the Mississippi Central road, two hundred and thirty-six miles; and from Canton to New Orleans, on the New Orleans and Jackson road, two hundred and six miles.

2. *From Chicago to Mobile:*

858

Namely, by the Illinois Central Railroad from Chicago to Cairo, three hundred and

sixty-five miles; and from Cairo to Mobile, by the Mobile and Ohio road, four hundred and ninety-two miles.

VII. FROM CHICAGO TO THE WEST.

From Chicago towards the Rocky Mountains, nine hundred and ninety miles: namely, from Chicago to Council Bluffs, on the Missouri River, by the Chicago and Northwestern Railroad, four hundred and ninety miles, by way of Geneva, Cedar Rapids, and Boonsboro; crossing the Mississippi River at Clinton, in Iowa; and from Council Bluffs, five hundred miles west of Omaha. This is the eastern end of the Pacific Railroad.

VIII. CHICAGO TO THE NORTHWEST.

<i>Chicago to La Crosse, in Wisconsin</i> , by the Chicago and Northwestern Railroad from Chicago, by way of Janesville and Watertown:	Miles. 280
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IX. CHICAGO TO THE SOUTH WEST.

From Chicago to Texas, by the Chicago and St. Louis Railroad to St. Louis; from St. Louis to Van Buren in Arkansas, on the Arkansas River, by the Southwest branch of the Pacific Railroad; and from Van Buren, across the Red River to the interior of Texas.

CHAPTER V.

THE BALTIMORE AND OHIO RAILROAD.

THE through route between Baltimore and St. Louis consists of three roads, namely, the Baltimore and Ohio, from Baltimore to Parkersburg; the Cincinnati and Marietta, from Parkersburg to Cincinnati; and the Ohio and Mississippi, from Cincinnati to St. Louis. The entire distance from Baltimore to St. Louis is nine-hundred and twenty-eight miles. There are only two changes of cars: namely, at the Ohio River, and at Cincinnati.

The Washington Branch of this road, from Baltimore to Washington, a distance of forty miles, constitutes part of the great through route between New York and Washington. The whole line consists of the New Jersey Railroad, from New York to Philadelphia; the Philadelphia, Wilmington and Baltimore Railroad, from Philadelphia to Baltimore; and the Baltimore and Ohio road, from Baltimore to Washington. The whole distance is two hundred and twenty-six miles, and the time consumed in the trip is ten hours, or twenty-three miles per hour.

Over the main line of the Baltimore and Ohio Railroad, from Baltimore to the Ohio River, there are four trains per day, two running from the east, and two from the west.

The depot of the road at Washington is not exactly what it ought to be; but probably in a few years a more elegant structure will be erected. The depot at Baltimore, however, known as "Camden Station," is one of the handsomest and most commodious depot buildings in the United States. Besides containing all the necessary offices for the Company, it contains waiting-rooms for ladies and gentlemen, dining-rooms, wash-rooms, closets, and every convenience and comfort that passengers could desire.

The President of the road, JOHN W. GARRETT, Esq., of Baltimore, has held that responsible position for the last eight years, the greater part of which period has been a very trying time to the Company. And yet the prosperity of the road and its present enviable position are unquestionably due, first, to the good sense and discrimination of the Board of Directors in successively re-electing Mr. Garrett President; and, second, in the remarkable good fortune and tact of Mr. Garrett himself, in having under him a body of officers who faithfully carried out his policy, and who have proved themselves to be zealously devoted to the interests of the road. Of these, two gentlemen deserve especial mention, namely, Wm. Prescott Smith, Esq., for many years Master of Transportation of the road, and John L. Wilson, Esq., who at present occupies that important and responsible position.

THE BALTIMORE AND OHIO RAILROAD was the first road ever constructed in America for the conveyance of passengers. The first division of the road was opened and put in operation in 1830, the same year in which the Liverpool and Manchester Railroad was

opened in England. In the year 1826, Philip E. Thomas, the founder of railroads in America, resigned the position which he had held as a commissioner on the part of Maryland in the Chesapeake and Ohio Canal Company, and from that time, in connection with George Brown, he devoted all his energies to the formation of the Baltimore and Ohio Railroad Company, and to the construction of the road. These gentlemen prevailed upon the merchants and leading men of Baltimore to hold a public meeting, at which it was resolved to build a railroad to connect the navigable waters of Chesapeake Bay with those of the Ohio River. This was the origin of the Baltimore and Ohio Railroad Company.

The actual construction of the road was commenced on the 4th of July, 1828. The people of Baltimore were deeply interested in the work. All business was suspended, and a vast crowd of the citizens assembled near the southwestern boundary of the city where the work was to commence. The day was bright and beautiful. Strains of martial music floated through the air, and a military and Masonic procession approached the designated spot. A carriage drives slowly between the opening lines, and from it descends the venerable Charles Carroll of Carrollton, then over ninety years of age, but still strong and vigorous. Every head is uncovered, and bowed in respectful salutation, as the honored patriot, accompanied by the Directors of the road, proceeds with the ceremonies of inaugurating the great work. The first sod was turned, and the first stone laid, by the distinguished Revolutionary patriot: and then a discharge of artillery an-

nounced that the mighty enterprise was commenced. Then, turning to the people, Mr. Carroll made a very short and appropriate address, containing these memorable words: "I consider what I have just now done to be among the most important acts of my life, second only to my signing the Declaration of Independence, if, indeed, it be even second to that." Mr. Carroll, therefore, with prophetic foresight, foresaw what was to be the future of this road; that was the meaning of his remarkable and impressive words.

The first division of the road, from Baltimore to Ellicott's Mills, was completed and opened for travel in the year 1830. In January, 1831, the Company offered the sum of four thousand dollars for the most approved locomotive engine of American manufacture, and three thousand for the second best. By the engine which was accepted, a speed of thirty miles per hour, on straight lines, was obtained. On the 9th of March, 1833, the charter for the construction of the branch railroad from Baltimore to Washington was obtained. It stipulated that one fifth of the gross earnings from passengers should be paid to the Treasurer, for the benefit of the State of Maryland, the amount so paid not to be less than twenty-five cents from each passenger. The construction of this branch was soon commenced; surveys of the route having been previously made. It was opened to Bladensburg on the 20th of July, and to Washington on the 25th of August, 1835. Previous to this period, Washington had had no railroad communication with the north. In 1834, the main road was completed and opened to Harper's Ferry. In 1836, surveys were made for the extension of the road to

Cumberland and Wheeling. In 1836 the viaduct over the Potomac, at Harper's Ferry, was completed. The road was completed and opened to Cumberland in 1842.

At this time the great National road was in operation, and was in its full glory. It was a magnificent turnpike road, built in the very best style of McAdamized roads, and it extended from the Capitol at Washington, to St. Louis in Missouri, passing through Rockville, Frederick, Hagerstown, and Cumberland, in Maryland; Uniontown and Washington in Pennsylvania; Wheeling in Virginia, and crossing the Ohio River at that point; Columbus in Ohio; Indianapolis and Terre Haute in Indiana, and crossing the Wabash River at the latter point, by means of a ferry-boat; and Vandalia in Illinois, the former capital of that State.

This great road was built by the authority of Congress, and it was intended to be the great means of communication between the east and the west. And so it was, for many long years before the railroad system of the United States got into use. From 1837 to 1850, thousands after thousands of emigrants from Pennsylvania, Maryland, Virginia, New York, New Jersey, and New England, with their wagons, their horses, their cattle, and their household goods, struck this road about Cumberland or Wheeling, and moved over it slowly, but securely and comfortably, to their new homes in Indiana, Illinois, Wisconsin, and Missouri.

The mails were also carried on this route, in handsome mail-coaches, each drawn by four horses, and each coach carrying from six to nine passengers and

their baggage. These coaches generally made about sixty miles per day.

But to return to the Baltimore and Ohio Railroad. The road was completed to Wheeling in 1853; and the Parkersburg branch was completed and opened to Parkersburg on the 1st of May, 1857.

The entire length of the Baltimore and Ohio road, including the Washington and Parkersburg branches, is five hundred and twenty-three miles. The distance from Baltimore to Wheeling is three hundred and seventy-nine miles; from Baltimore to Parkersburg three hundred and eighty-three miles. At Grafton, in Taylor County in Virginia, the road forks; one track leading to Wheeling, and the other to Parkersburg.

The Baltimore and Ohio Railroad Company, however, has recently purchased the Central Ohio Railroad, from Columbus to Wheeling, a distance of one hundred and thirty-seven miles, so that it will be worked in future, as a continuation of the main stem of the Baltimore and Ohio road. The latter road will then virtually extend from Baltimore to Columbus, a distance of five hundred and sixteen miles. This new addition to their road will be of vast service to the Baltimore and Ohio Railroad Company, as will be seen by the examination of a good railroad map. The various railroads from the west and northwest seem to meet at Columbus as at a focus; and it will be strange, indeed, if the energy and enterprise which control the operations of the Baltimore and Ohio road, do not, in a few years, draw to that road a large share of the business of those rich regions.

During the year 1859, the Columbus and Piqua Railroad, in Ohio, was completed, which gave the Baltimore and Ohio Company an additional important and useful connection with Chicago and the northwest, both for passengers and freight. Merchandise loaded in Baltimore could now be sent promptly through to Chicago with only one change of cars, and the benefits of this trade, which began in 1859, have increased every year since.

In 1859 the Company had in constant use two hundred and thirty-five locomotive engines, of which one hundred and seventy were of the first class.

The services which the Baltimore and Ohio Railroad Company rendered to the government during the recent war, in the rapid transportation of large bodies of troops, were very great, and of the highest importance. The destruction of this road, therefore, became an object of the first importance to the Confederates; and it was, at several times during the war, wholly or in part in their possession, the track destroyed for many miles, and hundreds of its cars and locomotives ruined. On the 28th of May, 1861, general possession was taken, by the Confederate forces, of more than one hundred miles of the road, embracing chiefly the region between the Point of Rocks and Cumberland.

Occasional movements were also made, accompanied by considerable destruction, upon the road between Cumberland and Wheeling, and between Grafton and Parkersburg, during the same year. The protection of the United States Government was not restored throughout the line until March, 1862, when the work of reconstruction was undertaken and pressed with

great energy, and the road was reopened on the 29th of that month. Before that period, the destruction of the property, bridges, and tracks of the Company was of the most extensive and serious character. The large and costly machine shops and engine houses at Martinsburg were greatly damaged. Fourteen locomotives and tenders, and a large number of cars, much machinery from the shops, and the separated portions of nine additional locomotive engines, were taken from the road, and transported, by the aid of horses, oxen, and mules, over turnpikes and common roads, to southern railroads, and thus entirely lost to the Company.

Forty-two locomotives and tenders, three hundred and eighty-six cars, twenty-three bridges, including three between Cumberland and Wheeling, three between Parkersburg and Grafton, and the great bridge at Harper's Ferry, embracing one hundred and twenty-seven spans and a total length of four thousand seven hundred and thirteen feet, were also destroyed by fire; and numerous other engines and cars were thrown into the Potomac, the Opequan, and other streams. The rails of thirty-six miles of track were torn up, and the rails and track fixtures were removed for use on southern roads. The lines of telegraph for one hundred and two miles, two water stations, and much other valuable property were also destroyed.

At the close of the year 1862, the Confederate forces continued in possession of a portion of the road, upon which the tracks, bridges, and property of the Company were generally destroyed. Much of the region between Hancock and Harper's Ferry was thus held until

the 29th of December, 1862. At the earliest practicable moment large forces commenced the work of reconstruction, which was pressed with great vigor from the east and west. On the 6th of January, 1863, the restoration of the bridges and tracks was completed, and the entire route again reopened. From the 1st of October, 1861, to March 29, 1862, a period of six months, the road was in operation only at its extremities, one hundred miles of it, between Harper's Ferry and Cumberland, being virtually out of use. This was the result of the first general destruction of the road by Stonewall Jackson, when forty miles of the track were torn up and destroyed, and numerous bridges and buildings burned, some of them a second or third time.

The road was only permitted to be in operation from the 29th of March to the 25th of May, 1862, on which day Gen. Banks retreated from Winchester, through Martinsburg, and the line of the road was again occupied by the Confederates. Its possession, however, was soon recovered, and on the 15th of June it was again reopened throughout its entire length. It was once more fully interrupted, on the 5th of September, by the retreat of Gen. Julius White from Winchester, and by the first invasion of Maryland by General Lee's army, between Harper's Ferry and the Monocacy, now known as the Antietam campaign. The entire road was thus in the Company's possession only a little more than four months of the year 1862. During the same period minor interruptions occurred, of greater or less extent, west of Cumberland, near New Creek and Rowlesburg, and between Parkersburg and Grafton.

Many periods of alarm were also passed through, when the road was merely threatened; in all of which, however, the regular business of the line was seriously affected.

The work of destruction on this road, during the war, was not confined to the Confederate troops. Much damage, also, was done to the track, and to the equipment of the road, by United States troops, under the plea of military necessity.

The present equipment of the road consists of three hundred and fifty locomotive engines, seventy-six stationary engines, two hundred and fifty passenger cars, and six thousand freight cars. The length of finished track is one thousand miles, as follows: Baltimore to Wheeling, three hundred and seventy-nine miles; Washington Junction to Washington, thirty-one miles; Grafton to Parkersburg, one hundred and four miles; Monocacy to Frederick, three miles: Double track, two hundred and thirty-seven miles; sidings, ninety miles; Central Ohio Divisions, one hundred and thirty-seven miles; sidings nineteen miles.

The length of the roads under construction is sixty-six and a half miles, as follows: Hagerstown to Knoxville, twenty-three miles; Washington to Point of Rocks, forty-two miles; South Paca Street, in Baltimore, to Deep Cut, one and a half mile. The length of the proposed lines is as follows: Virginia Valley Railroad, from Winchester to Salem, one hundred and seventy-eight miles; Pittsburg and Connellsville Railroad, from Pittsburg to Connellsville, one hundred and forty-nine

miles. (Seventy-two miles of this road are completed and in operation.)

Distance from Washington to Pittsburg by Metropolitan Branch and the Pittsburg and Connellsville Railroads.

	Miles.
Washington to Point of Rocks	42
Point of Rocks to Cumberland	109
Cumberland to Pittsburg	149
Washington to Pittsburg—Total	300

Distance from Baltimore to Pittsburg via the Pittsburg and Connellsville Railroad.

	Miles.
Baltimore to Cumberland	178
Cumberland to Pittsburg	149
Baltimore to Pittsburg—Total	327

Through Distances between Eastern and Western points by the Baltimore and Ohio Railroad and Connections.

FROM—	TO WHEELING.	BRNWOOD.	PARKERSBURG.
Baltimore	377	373	381
Washington (via Met. Br.)	351	347	355
Philadelphia	475	371	479
New York	562	558	564

	COLUMBUS, DAYTON.	CINCINNATI.
Baltimore	510	580
		{ via Columbns 629 “ Wilm'g 614 “ Parkersb'g 583
Washington (via Met. Br.)	484	554
Philadelphia	608	678
New York	695	765

FROM—	LOUISVILLE.	INDIANAPOLIS.	ST. LOUIS.
Baltimore	720	720	923
		{ via Col. 691 “ Cin. 698	
Washington (via Met. Br.)	694	665	897
Philadelphia	818	789	1021
New York	905	876	1108

64 RAILROADS OF THE UNITED STATES.

	CLEVELAND.	TOLEDO.	CHICAGO.
Baltimore . . .	515	627	826
Washington . . .	489	601	800
	NASHVILLE.	CAIRO.	MEMPHIS.
Baltimore . . .	905	979	1097
Washington (via Met. Br.)	879	953	1071
Philadelphia . . .	1003	1077	1195
New York . . .	1090	1164	1282
	KANSAS. LEAVENWORTH.		OMAHA.
Baltimore . . .	1205	1234	} via P. &c. R. R. 1187 Met. Br. 1161
Washington (via Met. Br.)	1179	1228	

Baltimore to New Orleans, by the proposed Virginia Valley Railroad, thirteen hundred miles.

CHAPTER VI.

BALTIMORE AND OHIO RAILROAD: CONTINUED.

ON the 12th of Dec. 1866, Mr. Garrett having been for the eighth year in succession elected President of the Company, made an address to the Directors, from which the following interesting extracts are made, as showing the present condition of the road:—

“During the past year, extensive and satisfactory progress has been made in many important improvements. In addition to the regular employees engaged in the working departments of the road, more than two thousand men have been employed in constructing double track, tunnels, bridges, buildings, &c. These large forces have accomplished rapid and marked results. The President has the satisfaction to announce that since October 1st, 1865, eighty miles of first class second track have been constructed, and are now in use. In accomplishing this construction many difficulties and obstacles were encountered, embracing such heavy work in rock, grading, and embankments.

“It was found that a portion of the tunnels constructed for double track were not of sufficient capacity for the large cars now used, and the tunnel at Marriottsville was consequently enlarged to the requisite size. The tunnel at Paw Paw is also being enlarged.

“ Besides the construction of these eighty miles of double track, a large amount of grading and other work has been done upon the remaining part of the line east of Piedmont; and we have the satisfaction of being able to state that the entire line from Baltimore to Piedmont (a distance of two hundred and six miles) will be completed with a superior double track during the next year.

“ It was found, that in order to insure safety and reliability at the difficult passage near the Point of Rocks—where the Chesapeake and Ohio Canal borders of the Potomac River, and the great mountain of rock rises directly from the bed of the present single track—it would be essential to construct a tunnel of eight hundred feet in length through the hard rock formation of that mountain. This costly and difficult work was commenced on the 16th of December, 1865, and by the employment of the largest forces which could be used, working from each end and from a side drift, thus working from four different points, working also day and night—more than half of this work has already been accomplished, and in the course of the month of February, 1867, it is expected, the heading will be through, and that by August, 1867, the double track can be laid through this rock-tunnel, and the exposed line upon the banks of the canal at this point be abandoned. The rock from this excavation, which is exceedingly hard and durable, is broken chiefly by an improved steam ballast-crusher, and is used in ballasting the new second track.

“ To avoid the sharp curve near the canal at Williams's Point, west of the tunnel described, it will be

necessary to construct an additional tunnel. Preparations are being made to commence this work, and large forces will be placed at all points along the line of the canal, as soon as the navigation thereon ceases. Thus, during the winter, this construction can be safely performed without interference with that work.

"It has been the policy of the Company at this and other points, recognizing that the vast and increasing business of the route requires the best possible and permanent improvements, to hesitate at no cost in giving to the line those perfections which skill and enterprise can command. It has also been an object continuously of the Road Department to improve the curvatures whilst constructing the double track, and, at all points where practicable, to undertake the necessary expense to straighten the line. Excellent results have attended this policy, and very decided improvements of this character have been and are being made.

"Since the destruction of the wooden and other bridges upon its line during the war, twelve first class iron bridges, aggregating three thousand four hundred and seventy-five feet, with twenty-seven spans, varying from seventy-eight to two hundred and five feet in length, and of very costly character, have been built at the Mount Clare workshops, placed upon superior masonry, and are now in successful use.

"The increasing business having demonstrated the advantages of much larger buildings than those heretofore used by the Machinery Department, the Company has erected at Mount Clare a fire-proof brick machine shop, two stories in height, with slate roof, and one hundred and ninety-nine feet in length by sixty feet in

width. Schroeder's Run has been securely arched, the stone tunnel being of twelve feet span for its entire distance through the Company's property at Mount Clare; and, by filling over this arch, large and valuable additions have been made to the available grounds at this important station. A very extensive blacksmith shop, five hundred and sixty-eight feet in length by seventy-five feet in width, and a wheel-house one hundred by fifty feet, have been built of brick, with slate roofs, in the most substantial manner, and are nearly completed.

"At Martinsburg, an engine house for sixteen locomotives, and a machine shop one hundred and eighty-four by sixty feet, of similar character to that at Mount Clare, have been completed. A shop for car purposes at that point, one hundred by two hundred feet, constructed also of brick, with slate roof, is now approaching completion. At Piedmont, a new passenger station has been erected, and the engine-house, blacksmith, car and other shops have been completed, and are in use. At Grafton, a superior engine-house for sixteen engines, built of brick, upon stone foundations, thirty-three feet in height, is nearly completed, and will be used during the present season. Additional buildings have also been erected, and are being constructed at Parkersburg, Wheeling, and other important and desirable points.

"A large amount of difficult work has been done upon the Parkersburg branch. Three hundred and twenty men are now employed in arching the tunnels on that road. It is gratifying to announce that the arching of three of these tunnels will be completed in the most substantial manner during the present month.

In addition to this work, one thousand and ten feet of Eaton's tunnel have been securely arched. The arching of three additional tunnels upon this line will be immediately commenced. Although the remainder of these tunnels are quite securely timbered, yet it is the policy and determination of the Company, in view of the important and large business of this branch, and our desire to develop its advantages in every possible form, to press energetically the work of arching every tunnel upon the lines as rapidly as it can be judiciously performed.

"The arrangements of this line extend from Baltimore, via Parkersburg, and the Marietta and Cincinnati road, to Cincinnati and the Southwest, and via Bellair and the Central Ohio road to Columbus, and all points in the West and Northwest. The rapid improvements effected by heavy expenditures upon the Parkersburg branch, and the approaching completion of the arching of its tunnels, combined with the great improvements effected upon the line of the Marietta and Cincinnati road, especially in connection with the use of the direct line into the western part of the city of Cincinnati, will enable this Company, with these connections, during the next season, to furnish the best and shortest possible line for passengers and freight between Cincinnati and Baltimore and Cincinnati and Washington.

"The establishment of the line of steamships between Baltimore and Liverpool has answered the most sanguine expectations formed in regard to this enterprise. During this period, our steamers have made fourteen voyages with passengers and full cargoes to Liverpool,

and twelve voyages with full cargoes and large numbers of passengers from Liverpool. It was anticipated that arrangements would have been made prior to this time for a line of large ships, which the increasing business of the port requires; but in consequence of the derangements caused by the European war, the requisite arrangements were deferred. Negotiations are again pending, which it is hoped will result in securing large iron steamers, of a capacity and character suitable for the extensive business now offering for the line."

In order to shorten the distance between Washington and the West, the Company have long entertained the design of constructing a road from Point of Rocks, near Harper's Ferry, direct to Washington. The route for this line has been surveyed, and it is the intention of the Company to proceed with the construction of the road as soon as possible.

The following statement shows the total earnings of the road, the total expenses, and the net earnings of the road, for a series of years. It is certainly a most gratifying exhibit for the stockholders.

Earnings of the Baltimore and Ohio Railroad, including the Washington and Parkersburg branches.

	Total Earnings.	Total Expenses.	Net Earnings.
1856	\$4,830,172	\$2,593,056	\$2,237,116
1857	5,145,682	3,004,938	2,140,744
1858	4,573,912	2,986,906	1,587,006
1859	4,301,009	2,056,948	2,244,061
1860	4,654,286	1,984,245	2,670,041
1861	4,000,097	1,817,432	2,182,665
1862	5,624,297	1,847,704	3,776,593
1863	7,659,289	2,643,176	5,016,113
1864	10,138,876	4,446,195	5,692,681

The following is a list of the officers of the Company :—

John W. Garrett, President; John King, Vice-President; J. J. Atkinson, Treasurer; J. L. Wilson, Master of Transportation; G. R. Blanchard, General Freight Agent; L. M. Cole, General Ticket Agent; John W. Brown, General Passenger Agent.

There are three great railroads in America, on which the courage and skill of the engineer have surmounted, with peculiar triumph, the tremendous barriers to his advance which Nature had set up. These roads are the New York and Erie; the Pennsylvania Central as it crosses the Alleghany Mountains; and the Baltimore and Ohio. We shall proceed to speak of some examples on the latter road.

At Tunnelton, nineteen miles east of Grafton, the grand scenery of the Cheat River region begins (to the traveller going eastward). It is at this part of the road, also, that some of the greatest feats of railway engineering have been achieved. Those who desire to understand the power of science in conquering nature by means of iron and steam, will here find abundant examples. Here is a great railroad, which, at the will of man, has been made to pass over, under, and around, the rugged Alleghany Mountains. To the unscientific eye, it would appear impossible that a railroad could be built so as to cross the mountains in this region, under any circumstances, so proudly do they lift their heads into the clouds, and so steep and precipitous are their tempest-washed sides. But not so thought the engineer of the road, Benjamin H. Latrobe. Day after day did this enthusiastic votary

of railroad science spend in reconnoitring these mountain steeps, and in wandering through what was then an unbroken solitude. Victory rewarded him at last. The great Kingwood tunnel is only one of the monuments of his genius. It is four thousand one hundred feet long, and its construction cost the Company a million of dollars. Between Tunnelton and Rowelsburg there is a constant succession of marvels of railway work. The Tray Run Viaduct is one of these; a light and graceful structure, yet so firm in its welded strength that thousands of tons of merchandise pass over it daily without causing the least oscillation of its airy arches. This viaduct is built entirely of iron. It is six hundred feet long: it rests upon a massive base of masonry as firm as the mountain itself; and it is one hundred and fifty feet above the water in the little stream beneath.

For several miles, on this part of the line, the road runs along the steep mountain side, presenting a succession of the most delightful landscapes. At Cranberry Summit, two hundred and forty-two miles west of Baltimore, the traveller will nearly have reached the top of the Alleghany Mountains. Here, looking back to the westward, can be seen the grand panorama of the long, gradual sweep of the Alleghanies towards the Ohio River, up which, to the present surprising altitude, the traveller has climbed, without effort, and almost unconscious of the ascent. At Oakland, two hundred and thirty-two miles west of Baltimore, the traveller will be tempted to stop for a short time, if his journey is in the summer, at the Glades Hotel. "The Glades" are the mountain meadows, a region on the

high table land at the summit of the Alleghany Mountains. At this height the air is extremely rarefied and cool, during the heats of summer. The landscape abounds in groves of the beautiful white oak, and in copious streams of the purest and clearest water, kept full and fresh by the clouds that condense around the summits; and abounding with delicious trout. It pastures innumerable herds of sheep, the tenderness and flavor of whose flesh rival that of the deer which abound in the woods. Wild turkeys and pheasants hide among its oaks, beeches, walnuts, and magnolias; the groves of sugar-maple trees resound with the songs of larks, thrushes and mocking birds; while a profusion of wild flowers completes the attractions of this mountain paradise. It is no wonder that many families from Baltimore come to the Glades Hotel to spend a few weeks in the hot summer months.

At Altamont, two hundred and twenty-three miles west of Baltimore, the traveller finds himself at the surprising altitude of two thousand seven hundred feet above that city, and upon the extreme summit of the Alleghany Mountains. It is here that the mountain streams divide, flowing in one direction towards the Potomac River, the Chesapeake Bay, and the Atlantic Ocean, and in the other towards the Ohio River, the Mississippi, and the Gulf of Mexico. Mr. Prescott Smith, lately and for many years the Master of Transportation of the Baltimore and Ohio Railroad, who is as poetical as he is practical, has made the beautiful suggestion that these waters, thus divided on the summit of the Alleghany Mountains, unite again in the broad Atlantic, amid the turbid waves of the Gulf Stream. Nor

is this beautiful theory at all improbable, for the vast volume of water which the Mississippi pours into the Gulf Stream is, as is well known, carried, with all the velocity of that mysterious ocean current, northwards past the mouth of Chesapeake Bay, where it receives the waters from the eastward-flowing streams.

From Altamont the grade of the road begins to descend, and at Piedmont, two hundred and six miles west of Baltimore, the traveller reaches, as its name implies, the foot of the Alleghany Mountains. Here, if he be at all of a contemplative turn of mind, he will pause, and consider for a moment the wonderful engineering skill that has thus carried this great railroad across such mighty obstacles.

There are in all sixteen tunnels on this road, measuring in all nearly thirteen thousand feet in length, namely, twelve thousand eight hundred and four feet, or which twelve thousand and seventy-two feet are arched with substantial masonry, and seven hundred and thirty-two feet are cut through solid rock.

In June, 1856, a party of tourists, among whom was the historian Bancroft, were taken over the road in a special train. Brantz Mayer, the author, was among them, and he thus describes some of the beautiful features along the route:—

“No one, I am sure, has ever looked westward from this point without wondering how the passage is to be effected; yet no one has made the journey without equal surprise at the seeming ease by which science and energy have overcome every impediment. As you pass forward from Piedmont, the impression is that you are about to run a tilt against the mountain flank

with blind and aimless impulse; but a graceful curve winds the train out of harm, and you move securely into the primeval forest, feeling the engine begin to tug up the steeps as it strikes the edge of Savage River, which boils down the western shoulder of Savage Mountain. The transit from the world to the wilderness is instantaneous. Mr. Bancroft and I mounted the engine at this spot so as to enjoy an unobstructed view of the scenery during the ascent; and although a gust began to growl over the mountains, with frequent flashes of lightning and thunder, we kept our post, finding the grandeur of the prospect enhanced by the rush of the storm as we rose higher and higher on the mountain flank.

“No one has observed fine scenery without acknowledging the difficulty of its description; for its impression is purely *emotional*, and emotion is so evanescent that the effort to condense it into language destroys the sentiment as breath destroys the prisms of a snow-flake. We may give a catalogue of pines, precipices, rocks, torrents, ledges, overarching trees, and all the elements that make one ‘feel the sublimity of a stern solitude;’ but I have never been able to convey, by words, the exact impression of such scenes, nor do I believe we can obtain what is somewhere called ‘a realizing sense’ in the descriptions of others. In this respect, music and painting have more power than language; music has the spirituality which painting lacks, and painting the body in which music is deficient; but, as their effects can never be completely united, we must despair of influencing the mind at second hand from Nature.

“And so we rolled resistlessly upward, for seventeen

miles along the broad ledges, seeing the tree-tops sinking as we swooped into the air, which freshened as we arose; seeing the vale grow less and less, and the summits that were just now above us come closer and closer till we touched their level; seeing the river whence we started shrink into a film into its bed; and seeing the narrow upward, imprisoning glimpse widen into a downward, distant reach.

“On we hurried without halting but once, till we turned from the Savage Valley into the Crabtree Gorge, along the flank of the great Alleghany Backbone; and a few miles above Frankville (an eyrie among the summits, some one thousand eight hundred feet above tide, and one thousand one hundred feet above Cumberland), cast our eyes back toward the northeast for a rapid glimpse of one of the grandest views in the mountains. The gloomy masses of Savage Mountain tower on the right, fold upon fold, and the eastern slopes of Meadow Mountain, with its spurs, on the left; while between them the Savage River winds away for miles and miles in a silvery trail till it is lost in the distance. Throughout the whole passage from Piedmont to Altamont (two thousand six hundred and twenty feet above tide, and the greatest elevation along the route) the road constantly and almost insensibly ascends, in every portion filling the mind with a sense of as perfect security as if the transit were made in a coach.

“At Altamont we dipped over the eastern edge of the Alleghanies, and by a slight descent entered the highland basin of the old mountain lakes, which extends over many thousand acres, and is known as the

'Glades.' There the Youghiogheny takes its rise, while the dividing ridge of the great Backbone sends the water on one side into the Gulf of Mexico, and on the other into the Chesapeake. These beautiful glades, or mountain meadows, are not connected in a level field like our western prairies, but lie in broken outlines, with small wooded ranges between them, or jutting out from their midst in moderate elevations. At this height the air is extremely rarefied and cool throughout the summer; so that, although the country is not adapted for agriculture, it is calculated for every species of animal and vegetable life that is disposed to run wild and take the world as it finds it.

"We slept at Oakland. The mists hung high over these highlands long after sunrise, and the air was so bracing that we found overcoats necessary as we bowled across the great Youghiogheny, on a single arch of timber and iron, and passed the picturesque Falls of Snowy Creek, where the road quits the prairie and strikes a glen through which the stream brawls in foam, contrasting bravely with the hemlocks and laurels that line the pass.

"At Cranberry Summit the mountain-levels and gladelands terminate, at an elevation of two thousand five hundred and fifty feet above tide, and only seventy-six feet lower than Altamont, where we entered the field, twenty miles back.

"From this elevated point we catch the first grand glimpse of the 'Western World,' in a long gradual sweep down the Alleghanies toward the affluents of the Ohio. The descent begins instantly, along the slopes of Saltlick Creek, through a mass of excava-

tions, two tunnels, and fifty feet of viaduct. Downward and downward we swept as comfortably as on a plain, till an easy and almost imperceptible descent of twelve miles, through a forest of firs and pines, brought us to the dark waters of Cheat River. After the difficulties of ascending, crossing the Backbone of the Alleghany, and descending its first western slope—all of which, like Columbus's discovery, 'seem so easy' now that they are overcome—a new marvel has been accomplished in the preservation of a high level by massive viaducts and by boring the mountains with tunnels. On Cheat River, at the bottom of this descent, we approached the first of these marvels, two noble arches of iron, firm and substantial as the mountains they join. Then comes the ascent of Cheat River Hill. Next are the slopes of Laurel, and its spurs, with the river on the right; till the dell of Kyer's Run is passed on an embankment, and Buckeye Hollow crossed on a solid work whose foundations are laid deeply below the level of the road. Both of these splendid structures have walls of masonry, built of the adjacent rock.

"Beyond this we reach Tray Run, which is passed by an iron viaduct, six hundred feet in length, founded on a massive base of masonry as firm as the mountain itself. All these remarkable works—chiefly designed by Mr. Fink—have borne the trial of heat and frost, travel and transportation for several years; and when closely inspected, their immense solidity, security and strength, are as easily tested by the eye as they have been by use and time.

"These beautiful structures had hardly been passed

when we wound upward across Buckthorne branch, and, half a mile further, left the declivities of Cheat River, with its brown waters dyed by the roots of laurel and hemlock, and bordered by the bright flowers of the rhododendron. Our last glimpse of this mountain river was through a tall arch of forest, rounding off, far below, in its dark valley of uninhabited wilderness.

“Beyond Cassidy’s Ridge, we encountered another, and perhaps the most remarkable of these gigantic works. The road can only escape from its mountain prison by bursting the wall. Up hill and down hill, through brake and ravine, it has cleft its way from Piedmont, like a prisoner seeking release from his bars, till at last it finds a bold barrier of two hundred and twenty feet abruptly opposed to its departure! For a while (before the entire completion of the road) engineering skill led a track *over this steep by an ascent of five hundred feet in a mile*; but finally the giant has been subdued, and the last great wall of the Alleghanies passed by piercing the mountain. For nearly three years crowds of laborers were engaged in blasting through solid rock the four thousand one hundred feet of the Kingwood Tunnel, and a year and a half more was spent in shielding it with iron and brick, so as to make its walls more solid, if possible, than the original hills.

“For five miles from the western end of this tunnel, we descended to the broader valleys about Raccoon Creek, and gliding through another tunnel of two hundred and fifty feet, followed the water till we entered the Tygart River Valley, at Grafton, where the

Northwestern Railway diverges to Parkersburg, on the Ohio, ninety-five miles below Wheeling. The establishments of the Company at this point are erected in the most substantial way for the comfort and security of all who may visit this interesting region.

“There are few routes of travel in America—and none, probably, by rail—worthier of attention than the region between the slopes of the western gladeland to the mountain exit at Kingwood. It is all absolute mountain, absolute forest, absolute solitude. In winter it is the very soul of desolation, when the trees are iced, like huge stalactites, from top to bottom, and the ravines among the cliffs blocked with drifted snow. But in spring or summer it presents splendid bits of forest scenery. The glens are narrow, and there are few distant prospects; but there is everywhere the same ragged bloom—the same overarching hemlocks and firs—the same torrent roar, foaming over rocky beds—the same fringing of thick-leaved laurel—the same oozy plashes of morass, rank with dark vegetation—the same black mountain face—the same absence of people and farms—the same sense of absolute solitude.

“But in Tygart’s Valley the landscape softens and becomes more human, with the marks of agriculture and habitation, and the road seems to bound along more gayly, as if exulting in its release from the mountain. The river winds gently through rounder and lower hills and broader meadows, broken only by ‘the Falls,’ which, in a few steep pitches, tumble seventy feet in the distance of a mile. Not far from this point, Tygart River and the West Fork unite to

form the Monongahela, which, a quarter of a mile below the junction, is crossed by an iron viaduct of six hundred and fifty feet long—the largest iron bridge in America, and due to the engineering skill of Mr. Fink.

“In these central solitudes everything seems to be the property of the wilderness—a wilderness incapable of yielding to any mastery but that of an engineer; and it may fairly become a matter of *national* pride, that scientific men were found in our country bold enough to venture on grades by which any mountain may be passed. Where ground was wanted, Nature seemed to have scooped it away; where it was not wanted, Nature seemed to have stacked it up for future purposes. There are considerable difficulties between Baltimore and Cumberland; yet, in a country which rises only six hundred and thirty-nine feet above tide in one hundred and seventy-nine miles, a road may be constructed by ordinary perseverance and skill. But they who desire to understand the power of science in conquering nature by steam and iron, must climb and cross the Alleghanies between Piedmont and Kingwood. The success of this, the most difficult portion of the enterprise, is due to the engineering of Mr. Latrobe, and the financial energy of Mr. Garrett and Mr. Swann.

“As the pioneer of such internal improvements in the Union, it has been the school for subsequent railways, and deserves the gratitude of scientific men for the true principles of location and construction. The bridging and tunnelling along the whole route amount to about *five and a quarter miles*; the laborers and

employees form almost five regiments in number ; and, when we take into consideration the depots, tanks, engines, rails, station-houses, and innumerable cars for freight and travel, as well as the two lines of telegraph wires, belonging exclusively to the Company, which keep every portion in communication and successful operation throughout the line, one no longer wonders that twenty-five millions were expended on the structure, but is only surprised that the people of a small, single State, could accomplish so colossal an enterprise."

This chapter was written in July, 1867, at which time several great improvements were in progress along the line of the road. These are now, for the most part, finished ; but on those yet in progress, and in the workshops of the Company, there are employed ten thousand men. Mr. Garrett has been elected President for the tenth time, and is now in the tenth year of his office as President of the road. This is a very great, but richly deserved compliment, paid to one of the first railroad men of the age.

CHAPTER VII.

OHIO AND MISSISSIPPI RAILROAD.

THE through route between Baltimore and St. Louis is nine hundred and twenty-eight miles long. It is composed of the Baltimore and Ohio road, from Baltimore to Parkersburg, three hundred and eighty-three miles; the Marietta and Cincinnati road, from Marietta to Cincinnati, two hundred and five miles; and the Ohio and Mississippi road, from Cincinnati to St. Louis, three hundred and forty miles. The Baltimore and Ohio Railroad Company are about to build two bridges of stone and iron, over the Ohio River, one at Wheeling and one at Parkersburg; indeed the work on the former is already in a good state of forwardness. But in the meantime passengers cross the river at Parkersburg on a steamboat, and take the cars on the other side at Marietta.

The Ohio and Mississippi Railroad Company was chartered in 1848, and its chartered powers were extended in 1849 and 1851. A contract was made by the Board of Directors on the 22d of November, 1851, with Hezekiah C. Lyman, of New York, to construct and complete the road from Cincinnati to Vincennes, on the Wabash River, in Indiana, a distance of one hundred and ninety-two miles, for six and a half millions of dollars (\$6,500,000). Owing

to Mr. Lyman's death, the contract passed into other hands. After several years of perplexing embarrassments, an agreement was made in May, 1856, with William H. Aspinwall, of New York, and his associates, to complete the work. Under that agreement the road was constructed, and was opened to Vincennes on the 15th of April, 1857. The western division of the road from Vincennes to St. Louis, a distance of one hundred and forty-eight miles, was constructed between the years 1856 and 1859, and the whole road was in full operation early in 1860.

This road possesses some remarkable advantages. It runs in nearly a straight line, has no sharp curves, and is nearly on a level. It connects two of the great cities of the West, and the running time between them is only sixteen hours. It runs through the great hog-raising district of the West. Finally, the following great roads, which cross and intersect it, act as feeders to it, namely, the road from Lafayette to Lawrenceburg; the road from Michigan City to Mitchell Station; the road from Terre Haute to Evansville; the two roads of the Illinois Central line, from Chicago and Galena; and the road from Indianapolis to Louisville. With all these advantages, it ought to be, and no doubt will be, one of the best paying roads in the country. It has been, hitherto, highly prosperous. But its business has not been half so great as it might have been, owing to the fact that it is worked in two divisions, and to all intents and purposes as two roads. When it is worked as one great road, under one set of officers, its revenues, great as they are now, will become doubled.

Passengers from Cincinnati, on arriving at the Mississippi River, opposite St. Louis, are subjected to serious inconvenience. They are transported across the river in a ferry boat, the motion of which is imperceptible, so smoothly does the machinery work. But the boat itself is ugly, dirty, smoky, and has no accommodations. The passengers, however, are seated in long omnibuses, each drawn by four horses, in which they have been driven on board the boat. On arriving at the St. Louis side of the river, these omnibuses are driven up the steep levee, into the city. Instead of being driven straight up the hill, however, they are driven *sideways*, so that one side of the omnibus is much lower than the other. This sensation is anything but pleasant, and the passengers are in constant fear of the omnibus upsetting. To see the omnibuses leaning over during the whole distance up the long hill, they seem to be in fact, on the point of capsizing every moment. It is certainly a very dangerous practice.

The reader will be glad to learn, however, that arrangements are in progress for building a substantial stone and iron bridge over the Mississippi at St. Louis, so that trains can pass directly over, and deposit their passengers in the city. The bridge will be two thousand seven hundred feet long.

In December, 1867, a new election of Directors was held, and Wm. D. Griswold, Esq., was elected President of the Company. The prosperity of the road will now, no doubt, be greatly enhanced.

CHAPTER VIII.

THE PENNSYLVANIA RAILROAD.

THE lines of railroad owned and worked by the Pennsylvania Railroad Company, consist of the Pennsylvania Railroad, from Philadelphia to Pittsburg, and the Philadelphia and Erie Railroad, formerly and more properly called the Sunbury and Erie road, from Harrisburg to Erie. The consolidation of these two great railroads has been productive of the most beneficial effects, as will be presently seen. The canals of the State of Pennsylvania are also owned and worked by the Pennsylvania Railroad Company.

The great through route between Philadelphia and Chicago consists of two railroads, namely, the Pennsylvania Central, from Philadelphia to Pittsburg, and the Pittsburg, Fort Wayne and Chicago, from Pittsburg to Chicago. There is only one change of cars on the route, namely, at Pittsburg, and here the passengers only have to walk a few steps, under the same roof, in changing from one train of cars to another.

The entire length of the Pennsylvania Central Railroad is three hundred and fifty-five miles. It was commenced in 1831, as the Philadelphia and Columbia Railroad, intending to terminate at Columbia, on the Susquehanna River. In September, 1832, twenty miles of the road were ready for use. In April, 1834,

a single track was completed, and opened for travel, from Philadelphia to Columbia. In October, 1834, the double track was completed and opened for public use.

This road crossed the Schuylkill River, at Philadelphia, on a wooden viaduct nine hundred and eighty-four feet long, fifty feet wide, and thirty-eight feet above the water. The road then immediately ascended an inclined plane, two thousand eight hundred and five feet long, and one hundred and eighty-seven feet high. Between Philadelphia and Lancaster the grades were very steep, some of them being forty-five feet to the mile, and none being less than thirty feet. The deepest cuttings on the road were from thirty to forty feet deep; the highest embankments were eighty feet high. The road entered Columbia by an inclined plane eighteen hundred feet long and ninety feet high. Efforts were soon made to avoid these inclined planes; but it was some years before these efforts were successful. In the mean time they were ascended with ease, by means of stationary engines. At the inclined plane near the Schuylkill, a building at the head of the ascent contained a stationary engine of sixty horse power. An endless rope, three inches in diameter, was used to draw the cars up. One train passed up, while another train passed down.

Another division of what afterwards became the Pennsylvania Central Railroad, from Hollidaysburg to Johnstown, a distance of thirty-seven miles, was soon after completed. There was one viaduct on this road, built of stone, having a single arch of eighty-foot span. It was seventy feet above the water, and cost fifty-four

thousand five hundred dollars. There were two very long inclined planes, at the top of each of which two stationary engines were placed, and were worked with the usual endless rope. Four cars were drawn up and four were let down at the same time. A safety-car attended each trip, and could stop all the cars, in case of accident to the rope. The track of this road was made of English iron, which cost one hundred and eighteen thousand eight hundred and eighty-nine dollars for the first track that was laid. The double track was made with the same kind of iron, which cost eighty-seven thousand four hundred and ninety-five dollars, or forty-eight dollars and fifty cents per ton. This road attained an elevation of two thousand four hundred and ninety-one feet above the level of the Atlantic Ocean. It was completed March 18th, 1834.

In a little work entitled "Pleasant Peregrinations through the Prettiest Parts of Pennsylvania, by Peregrine Prolix," now entirely out of print, we find the following amusing and interesting account of a journey from Philadelphia to Pittsburg, before this great road was completed:—

"The omnibus being now full, we proceeded to the depot at Broad Street (in Philadelphia), to be transferred to a railroad car. Two cars, filled with passengers and covered with their baggage, are drawn by four horses for four miles, to the foot of an inclined plane, which is on the western bank of the Schuylkill River, and is approached by a spacious viaduct, extending across the river, built of strong timber, and covered with a roof. The ride to the foot of the

inclined plane is very interesting, first passing through a deep cut made forty years ago, for a canal that was never finished, and then by a number of beautiful country-seats on the eastern bank of the Schuylkill; affording occasional glimpses of the romantic river itself, and the lovely scenery on its western bank. The view from the viaduct towards the north is particularly fine, embracing a long reach of the river with a beautiful green island in the foreground, and the banks on both sides rising into bold hills crowned with romantic villas.

“At the foot of the inclined plane the horses were loosed from the cars. Several cars were then fastened to an endless rope, and presently began to mount the steep acclivity at a speed of five miles per hour. When the cars had all arrived at the top of the plane, fourteen of them were strung together like beads, and were lowered down the other side of the plane, in the same manner. We arrived at Lancaster at three P. M., dined well, and slept comfortably. On the next morning we left Lancaster at five o'clock, in a railroad car drawn by two horses, and arrived at Columbia at half past six the same morning.” Here were twenty-two hours consumed in travelling eighty-two miles, a portion of the road that is now traversed in four hours! But we will let this pleasant traveller resume, and tell his story in his own way. Columbia, on the Susquehanna River, he says, “is the western termination of the railroad; and goods from the seaboard, for the great West, are here transshipped into canal boats. At four in the afternoon we went on board the canal boat, to ascend the canal which follows the eastern bank of the Sus-

quehanna. A canal packet-boat is eighty feet long and twelve feet wide. It has a house built in it, that extends to within six feet of stem and stern. Thirty-six feet of this space are used as a cabin by day and a dormitory by night; the forward twelve feet being cut off by a thick curtain, for the accommodation of ladies. In front of this is the ladies' dressing-room, six feet by ten. At nine o'clock in the evening, the steward and his satellites begin the work of arranging the sleeping apparatus (much after the manner of a modern sleeping car). Aft the cabin is the pantry and kitchen, where an escaped slave from Virginia usually performs the part of cook. The breakfasts, dinners, and suppers on board these boats are excellent, thirty-seven cents being charged for the dinners, and twenty-five cents each for the other meals." (It may be remarked that it is only within a few years past that travellers have been systematically robbed, by being charged fifty cents, and even seventy-five cents, for breakfasts and suppers, and a dollar and one dollar and twenty-five cents for dinner, at stations on many of the railroads. The meals that are given to travellers at these places could be furnished at thirty-seven and fifty cents each, and still leave a handsome profit. It may safely be said, for instance, that the "dinner" for which the traveller pays a dollar, does not cost the landlord more than fifteen cents. The people who keep these eating-houses at railroad stations, make immense fortunes in a very few years. But to resume our traveller's narrative): "This machine, and all that it inhabit, is dragged through the water at the rate of four miles per hour, by three

horses. The rope, which is two hundred feet long, is fastened to the deck, twenty feet from the bows, so that it can be loosed from the boat by touching a spring. The horses are changed every three hours, and seem to be much jaded by their work." The traveller, appreciating the beauties of the scenery, here laments the custom of travelling at night, and urges the establishment of a line of canal packet-boats travelling only by day, at five miles per hour; starting at six A. M. and stopping at seven P. M. at good hotels in pleasant places, and furnishing them excellent and appetizing breakfasts and dinners on board.

"At five in the morning," he says, "we rose, determined to land on Duncan's Island, which we were now approaching. The scenery around us was a combination of the magnificence of nature in her grandest and wildest mood, and of the ingenuity of art in some of her greatest efforts. The canal here runs along the southwest side of a mountain, in whose basement of rock a bed is partly cut; and is separated from the Susquehanna by an enormous wall of stone. Through a wide opening of solid masonry it debouches into the mighty river, here converted into a lake by an immense dam. As the boat entered the river at this point, the horses ascended to a gallery high in the air, attached to the side of a great bridge of timber, which here extends its numerous and expanded arches across the river, and thus drew us across the wide expanse of water. Having passed the river, the boat entered the canal on the southwest side of Duncan's Island, through a superb lock of solid masonry: the romantic river Juniata discharging its limpid waters into the

Susquehanna, close on the left. The boat stopped, and we landed and took up our quarters at Mrs. Duncan's, whose spacious mansion stands on the island, three hundred feet from the canal." Here the discriminating traveller goes into raptures about Mrs. Duncan's house and its comforts, the excellent bread, the fragrant butter, the profusion of rich cream, the variety of preserved fruits, &c., and then says, more prosaically: "The island itself is situated at the confluence of the Susquehanna and Juniata, and contains three hundred and sixty acres. It is elevated twenty-five feet above the river. At six the next morning we embarked on another canal boat, and resumed our journey. The canal here passes along the bank of the island for a mile, and then crosses the Juniata on a substantial aqueduct. We had now reached a most romantic region, having the Juniata, and the ever-changing scenery of its bold and picturesque banks constantly in view. We arrived at Lewistown at sunset, but did not stop there. We passed a comfortable night on board the boat, and arrived at Huntington at seven the next morning, and at Hollidaysburg at half-past six that evening.

"In the artificial canal basin, at Hollidaysburg, which is large and commodious, terminates that part of the Pennsylvania Canal which lies east of the Alleghany Mountains. The goods and merchandise destined for the west are here taken from the canal boats, and placed in freight cars, which are to carry them over the mountains by means of the Alleghany Portage Railroad.

"At half past eight the next morning we left Holli-

daysburg in a stage coach with four horses. After jolting twenty-one miles in the mud, which occupied six hours, we stopped at a village tavern kept, as the sign informed us, by P. Amich." Here the traveller goes into raptures again over the bountiful and delicious dinner to which he and his companions sat down. He praises the snow white table cloth, the glittering glasses, the juicy ham, the tender turkey, the roast beef cooked to a turn, the preserved fruits and cream, and the fragrant coffee; and for all this, oh! reader, the travellers were charged just thirty-seven cents each!

"On the next morning," continues our cheerful friend, "we found ourselves, at six o'clock, in motion in the railroad cars, again, on the first level, as it is called, of four miles long leading to the foot of the first inclined plane. This level has an ascent of one hundred feet, and we passed over it in horse cars, at the rate of six miles per hour. The passengers and cars were now to be raised eleven hundred and fifty-two feet of perpendicular height, and then to be lowered fourteen hundred feet in perpendicular descent. This was to be done by means of complicated and powerful machinery, and we were thus to pass over a mountain, in six hours, which, with a similar weight, three years ago, would have required three days. The idea of rising so rapidly in the world, particularly by steam and a rope, is very agitating. As soon as we arrived at the foot of the inclined plane, the horses were unhitched, and the cars were fastened to a rope, which passes up the middle of one track, and down the middle of the other. The stationary steam engine at the head of the plane was then started, and the cars moved ma-

jestically up the steep and long acclivity in four minutes. The length of this plane is sixteen hundred and eight feet, and its height one hundred and fifty feet. The cars were now attached to horses, and drawn through a magnificent tunnel nine hundred feet long, having two tracks through it, and being cut through the solid rock.

“The valley of the Conemaugh is now passed, on a viaduct of most beautiful construction. It is of one arch, a perfect semicircle, with a diameter of eighty feet. It is built of cut stone; and its entire height from the foundation, is seventy-eight feet. The fourteen miles of the second level are passed in an hour, and the train arrives at the foot of the second inclined plane, which is seventeen hundred and sixty feet long, and one hundred and thirty-two feet high. The third level is nearly two miles long. The third inclined plane is fourteen hundred and eighty feet long, and one hundred and thirty feet high. The fourth level is two miles long. The fourth plane is two thousand one hundred and ninety-six feet long, and one hundred and eighty-eight feet high. The fifth level is three miles long. The fifth plane is two thousand six hundred and twenty-nine feet long, and two hundred feet high. This brings us to the top of the mountain. We are now two thousand three hundred and ninety-seven feet above the ocean. At this elevation, in the midst of summer, you breath an air like that of spring, clear, cool, and refreshing. The length of the road on the top of the mountain is nearly two miles. There are five planes and five levels also,

on the other side of the mountain, by which you descend."

Such was the mode of travel, on this delightful route, before the Pennsylvania Railroad was finished. It must be confessed, that, if the rate of progress was slow, the journey was attended by many pleasures. But the great increase of travel, the rapid settlement of the Western States, and the enormous freight business that gradually sprang up between the east and the west, demanded a far more rapid means of communication, and this the Pennsylvania Central Railroad Company proceeded to furnish.

The work was a stupendous one, and could not have been accomplished in the magnificent manner in which the road now exists, without talents and abilities of the very first order on the part of the chief officers of the Company. Of these, the Company is more indebted to J. Edgar Thomson and Thomas A. Scott, the present President and Vice-President of the road, than to any others. Mr. Thomson was for many years Chief Engineer and General Superintendent of the road; and the untiring energy and judicious enterprise of Mr. Scott, always directed to the right object, have secured for the Company the most brilliant results.

CHAPTER IX.

PENNSYLVANIA RAILROAD, CONTINUED.

THAT part of the road between Harrisburg and Lewistown, a distance of sixty-one miles, was completed and opened on the 1st of September, 1848; and good progress had been made, up to that time, upon the section between the mouth of the Little Juniata and the base of the Alleghany Mountains. At this time the railroad over the Alleghany Mountains, by means of the inclined planes described above, was called the Alleghany Portage Road, and was not owned by the Pennsylvania Railroad Company. The Eastern Division of the Pennsylvania Road had, however, been completed to the Tyrone Forge, from whence it was continued along the route designated by the preliminary surveys, to the summit, where the town of Altoona is now situated. From that point, it was proposed that the main line should commence the ascent of the eastern slope of the Alleghany Mountains. In the mean time a branch six miles long connected the road with the Alleghany Portage, making a continuous road two hundred and seventy-nine miles long, from Philadelphia to the point now known as Johnstown, seventy-eight miles east of Pittsburg.

In the Second Annual Report which he made to the Company, on the 15th of November, 1849, J. Edgar

Thomson, Esq., then the Chief Engineer and General Superintendent of the road, stated that during the preceding summer, an actual location of the main line of the road had been "made from Altoona to the summit of the mountain. The ascent is accomplished in twelve miles and a quarter, by a maximum gradient of eighty-four feet six inches on straight lines. From the Laurel Swamp Summit, the road descends along the valley of the Conemaugh to Johnstown, at a maximum inclination of fifty feet per mile. The most important obstacle to be overcome is a tunnel seven hundred feet long.

"In the descent of the western slope of the mountain, the direction of our line is generally in the immediate vicinity of the Portage Railroad; crossing it five times by bridges, and once upon a level. When our whole line on the western side is finished, the two roads can be advantageously joined, at the summit of the Portage, by a steep ascending gradient from the vicinity of Laurel Swamp Summit, less than two miles long, by which means all the western planes will be avoided."

The condition of the whole route, as it existed on the 1st of January 1852, is very clearly set forth in the report of the General Superintendent, as follows:—

"GENTLEMEN: The commencement of the last fiscal year found the Pennsylvania Railroad in operation as far as the western termination of the Eastern Division of the Pennsylvania Railroad, with a connection with the Alleghany Portage Railroad, near Hollidaysburg; since that time portions of the Western division have been brought into operation, and transportation be-

tween Philadelphia and Pittsburg is now conducted over several separate links, forming a broken, and, to some extent, unsatisfactory chain of communication between the two extreme termini of the line.

“The first, or eastern portion of the route, is formed by that part of the Philadelphia and Columbia Railroad which lies east of Dillerville; the length of which is seventy-one miles. This improvement is owned and operated by the Commonwealth of Pennsylvania, and is controlled and managed by the Board of Canal Commissioners, and officers appointed by them. The State furnishes motive power, but participates in no other way, in the conduct of transportation upon the road, which is open to the free use of individual transporters.

“The Lancaster and Harrisburg Railroad, from its intersection with the Columbia Railroad, at Dillerville, is thirty-six miles in length, and is operated by the Pennsylvania Railroad Company, under a contract with the company owning the road. The Pennsylvania Railroad Company furnish all the motive power, and the cars used in their own business, but do not attend to the repairs of track or bridges.

“The Eastern Division of the Pennsylvania Railroad extends from Harrisburg to Altoona, a distance of one hundred and thirty-two miles, from which a branch of six miles connects it temporarily with the Alleghany Portage Railroad, at a point about one and a quarter miles west of Hollidaysburg.

“The Portage Railroad is owned by the Commonwealth of Pennsylvania, and forms part of the main line of railroad and canal connecting the cities of Phil-

adelphia and Pittsburg; its length from the intersection with the Pennsylvania Railroad is thirty-four miles, and the ascent and descent of the mountain are each effected by five inclined planes. Two miles east of Johnstown, a connection was made on the 25th of August, 1851, with the Portage Railroad, and twenty miles of the Western Division of the Pennsylvania Railroad, extending to Lockport, was brought into use."

During the year 1851, fifty seven miles of the road were built, including twelve miles from Pittsburg eastward. The completion of this portion of the road left a gap in the Western Division of only twenty-eight miles to be filled up. To facilitate the completion of the heavy work near Greensburg, a tunnel six hundred feet long was constructed, being cut through solid rock.

Mr. J. Edgar Thomson, the Chief Engineer, in his fourth annual report, January 15th, 1852, says:—

"That portion of this division between Johnstown's and the stone viaduct, avoiding inclined plane No. 1, of the Portage Railroad, will not be ready for use before the opening of navigation, when it is expected that plane No. 2, and shortly afterwards plane No. 3, will be avoided at the expense of the Commonwealth, thus leaving but seven of these impediments to rapid transit upon the line of that work—all contained in a space of ten miles. This will enable the business of the Portage Road to be better systematized, and greatly facilitate its operations, reducing the time consumed in its passage to three hours.

"The whole of the grading upon the Mountain Divi-

sion is now under contract, and is progressing with considerable rapidity. The Alleghany Tunnel at Sugar Run Summit, which forms the greatest obstacle to the completion of this division, has been commenced at each end and at two of the shafts, making six points of operation. The progress made at the shafts, and at the approaches, has not been as great as anticipated, in consequence of the great flow of water encountered; which has caused, for the present, the abandonment of the third shaft. The contractors still feel confident that they will be able to permit the passage of trains through it during the summer of 1853. But I cannot anticipate so early a termination of our labors at this difficult and uncertain job, though it can scarcely throw us into the use of the Portage for a third winter. The material to be removed is for the most part easily excavated, but a considerable portion of it, probably one-third, will require arching, which will add materially to its cost. The unreliable character of the excavation exposed in opening the eastern approach to the tunnel, induced me to increase the gradient upon the eastern slope of the mountain from ninety-two to ninety-five feet per mile on straight lines, and eighty-two upon curves of minimum radii. This arrangement reduces the length of the tunnel to three thousand and five hundred and seventy feet, and the maximum gradient to nine and three-fourths miles in length, commencing about one and a half miles west of Altoona, and extending to the east end of the tunnel; overcoming in that distance a rise of eight hundred and ninety-six feet, equal to an average of ninety-one and six-tenths feet per mile. By continu-

ing the maximum gradient of the *Western* Division through the tunnel, we obtain the incidental advantage, if it should at a future period become desirable to avail ourselves of it, of overcoming the mountain by a single inclined plane, worked by stationary power, to be used by freight trains, instead of assistant locomotives, upon the steep gradient. This arrangement would make the maximum locomotive gradient west of Altoona fifty-two and eight-tenths feet per mile on straight lines. Below that point, it has been before stated that the steepest ascent against the heavy trade is but ten and a half feet per mile. Our high gradient is, however, twenty-one feet per mile less, and five and one-fourth miles shorter than the similar ascent of the Alleghany Mountain on the Baltimore and Ohio Railroad. Upon which road the descent upon the west side of this barrier is at the same inclination as the ascent; while ours does not exceed fifty-two and eight-tenths feet per mile. In addition to the Alleghany Mountain, the Baltimore route passes Laurel Hill—which we avoid—by a gradient on each side, of one hundred and five feet per mile.

“The difference in elevation overcome at the summit of the Alleghanies, by each route, is four hundred and forty-four feet; theirs being two thousand six hundred and twenty feet above tide, and that of the Pennsylvania Railroad two thousand one hundred and seventy-six feet. These facts are not presented with a view of disparaging that important work. There is sufficient business for both roads.”

Mr. Thomson then presents a detailed and very

interesting estimate of the cost of the whole road, with a single track, which he fixes, including the equipment then required, at about eleven and a half millions of dollars; and including additional machinery which would be required as soon as the Mountain Division should be completed, at twelve millions of dollars. "To widen the grading," says Mr. Thompson, "where it has been prepared for a single track, and lay down a double track from Harrisburg to Pittsburg, will require an additional expenditure of three millions six hundred thousand dollars."

At this early date, the experience of the Company had already demonstrated that it was better for them, and cheaper, to build their own cars, than to have them built by contract; and it was determined to erect, at Altoona, those extensive car-works and machine shops which have since turned out such fine specimens of railway architecture, if it may be so called.

The passenger travel over this road had greatly increased during the year 1851. The General Superintendent, in his report made January 1st, 1852, states that the extent of the passenger business requires that every attention should be paid to their proper accommodation, at the terminal depots, and offers the following admirable practical suggestions, all of which were soon after acted upon and carried into effect, and which now contribute so much to the comfort and convenience of travellers. "Baggage," he says, "could be delivered by responsible parties, under contract with the Company, at any place agreed upon with the passenger, and at moderate expense—an arrangement which is now in operation. Each of the principal ho-

tels could have an omnibus in attendance, on the arrival of the cars, as in Baltimore, Boston, and other cities, and it would be to the interest of other companies to provide conveyances to their boats or depots, for passengers who did not wish to remain in the city.

“ If this arrangement should not be acceptable, a contract could be made to convey passengers in omnibuses, at a fixed charge, to any of the hotels, depots, or private residences within the limits of the city; the baggage being sent either by separate conveyance, as already explained, or carried on the omnibus, at the pleasure of the passenger. Parties not wishing to be separated from their baggage, could retain their checks, and employ a hack or cab, many of which would always be in attendance. Imposition from hackmen could be prevented by proper regulations. Passengers arriving in the night, and wishing conveyance to private residences in inconvenient localities, would employ hacks; passengers leaving the city from any of the principal hotels could be carried, with their baggage, in omnibuses or hacks; from second rate hotels, or private residences, hacks could be employed.

“ A ticket office, with a convenient baggage-room, should be secured in some central location. Baggage brought to this office could be checked, and sent to West Philadelphia in a wagon; passengers could collect at this point, and be removed at short intervals by omnibuses running to the outer depot.

“ With a complete system similar to that described, or any other that may be considered preferable, the inconvenience of the location at West Philadelphia would not be serious, and the annoyance, delay, and

expense of hauling passengers through the streets in cars would be avoided."

At this time some of the railroads leading from Pittsburg westward were already in progress of construction. There was a railroad completed between Pittsburg and Cleveland, a distance of one hundred and forty miles. The Pennsylvania and Ohio Railroad was also completed from Pittsburg to Alliance, a distance of eighty-two miles. This afterwards became a part of the Pittsburg, Fort Wayne, and Chicago road.

In January, 1853, J. Edgar Thomson, Esq., was elected President of the Company; and this high trust has been conferred upon him annually ever since. A continuous railroad from Philadelphia to Pittsburg had been completed on the 10th of December, 1852. Mr. Thomson, in his report made January 31st, 1853, says: "The Portage Railroad, over which we exercise no control, at present forms a part of this continuous line; and it is still obstructed by seven inclined planes." It will be remembered that there were, originally, ten of these planes. Three of them had already been avoided by the construction of additional new portions of the Company's road, west of Altoona, as suggested by Mr. Thomson, in his report as Chief Engineer, November 15th, 1849.

The most formidable work on this portion of the route is the Summit Tunnel through the Alleghany Mountains. Its length is three thousand five hundred and seventy feet. It was worked from both ends at once, and also from three working shafts, two of which are each two hundred feet deep. Steam en-

gines were required at all the shafts; and at the middle one the water was so abundant that a powerful pumping engine, of fifty horse power, had to be resorted to.

It was by this time evident that the early completion of several of the roads leading from Pittsburg westward would be of great advantage to the Pennsylvania road, in drawing to the latter much valuable business. The Board of Directors therefore agreed to subscribe three hundred thousand dollars to aid in the construction of the road from Crestline in Ohio to Fort Wayne in Indiana, with the understanding that this road was to be continued eastward to Alliance, and westward to Chicago. The Pennsylvania and Ohio road was, in fact, at this time finished nearly to Crestline.

On the 15th of February, 1854, the whole line of the road from Harrisburg to Pittsburg was completed and opened for business, entirely avoiding all of the inclined planes on the Alleghany Mountains. Three passenger trains per day were now run over the road, between Philadelphia and Pittsburg: one, leaving Philadelphia at eight A. M., reached Pittsburg in seventeen hours, stopping at all the way stations; the second, leaving Philadelphia at one P. M., reached Pittsburg in thirteen hours; the third, leaving Philadelphia at eleven at night, reached Pittsburg in fifteen hours; and three trains per day, likewise, ran from Pittsburg to Philadelphia.

By the year 1857, the passenger traffic of the road had become greatly increased, by the completion of several roads from the west, centring at Pittsburg.

But on arriving at Pittsburg, or rather on arriving at Alleghany City, opposite Pittsburg, on the western side of the Alleghany River, western passengers, bound for Philadelphia, found themselves exposed to a serious annoyance. Alighting from the cars, the passengers were compelled to enter omnibuses, and were jolted across the river on a long, rickety wooden bridge. To obviate this difficulty, a fine railroad bridge was built across the Alleghany River, by the joint exertions of this Company and the Pennsylvania and Ohio Railroad Company. It was completed and used in 1858. In the year 1858 there were transported over the road one million and thirty thousand passengers. In this year, too, all trains arriving at or departing from Pittsburg began to use the Union Depot in that city.

CHAPTER X.

PENNSYLVANIA RAILROAD: CONTINUED.

BY the year 1862, considerable progress had been made in the construction of the Philadelphia and Erie Railroad, which was designed to extend from Philadelphia to Lake Erie. The road properly and really extended from Erie to Sunbury, passing through Lock Haven and Williamsport and following the general direction of the west branch of the Susquehanna River. It was thought by the Directors of the Pennsylvania Railroad Company, that its interests would be advanced, by being in possession of this road, as it would constitute, in fact, a branch of their own road, diverging from it at Harrisburg; and accordingly an arrangement was made, by which the Philadelphia and Erie Railroad Company leased their road, for a long term of years, to the Pennsylvania Railroad Company. The arrangement has been found to work most admirably, and to the entire satisfaction of all parties concerned. The management of the Philadelphia and Erie road was committed to the charge of Joseph D. Potts, Esq., who successfully conducted its affairs until within a recent period. At the beginning of the year 1866 the business of this road had increased to be twice what it had been estimated, at the time when the stockholders of the Pennsylvania road had been

asked to authorize its lease. Alfred L. Tyler, Esq., had become General Superintendent of the road, and under his energetic and judicious management, its affairs were being most admirably conducted.

A correspondent of the "New York Tribune" gives the following description of a portion of the country through which this road passes:—

"The western branch of the Susquehanna, running far between the spurs of the Alleghanies, has been the highway thither, while for many years it has borne on its waters logs and lumber bound for the known world. The lumbermen were a hardy race; in the valleys they raised a little grain, and for meat they depended much on venison, bear, and speckled trout. Several new counties have been organized out of this region, and named Cameron, Elk, and Forest; but portions of it still are included in the counties of Potter, McKean, Clinton, Clarion, and Jefferson. It may be roughly estimated as one hundred miles long and sixty wide, and it contains the head-springs of the Susquehanna, the Alleghany, and Genesee Rivers. Not a single important road passed through from the north, south, east, or west: the country towns were insignificant hamlets, reached after days or weeks of travel. It required years for a new fashion to be introduced. The most important men were the lawyers. Almost always, a lawyer was a special agent for non-resident land-owners: he had a good salary; his duty was limited to preventing the land from being stripped of timber.

"A large part of the land is owned by capitalists in New York and Philadelphia, but perhaps the heaviest

owners are well known banking-houses in Europe, and their possessions include millions of acres. The title originally was in the Holland Land Company, and these foreign proprietors now properly represent that organization. The leading idea has been that some day this land would be valuable, and that there could be no safer or more profitable investment. Coal and iron were known to exist, and there might be other minerals. Still, here and there small tracts of a few thousands acres each were held by persons of limited means; sometimes they sold their land, sometimes the sheriff sold it for them, and a few settlers gained a foothold. After the railroad reached Williamsport, there was some activity, and a few new settlers went up the Susquehanna with goods, and their families in canoes, while one of their number drove a yoke of oxen along the valley. When the river became too shallow to be navigated, the canoe was abandoned, a sled was constructed, regardless as to whether the ground was bare or covered with snow, and they pushed on through the wilderness to the waters of the Alleghany, and selected locations where the railroad was to come. But they had to wait many years; some did not live to see their hopes realized. Their children seldom went to meeting, never to school, and all looked back with sad hearts to the land they had left behind. I was told of one man who had lived in a valley fifteen years, waiting for the railroad; when it did come, he improved the first good chance to sell out and return to his native place to educate his children.

“In passing through this country, I saw many signs

of recent improvement. There are good saw-mills, and at least one first-class tannery newly put in operation, with a fine prospect, for bark is plentiful, and several valuable coal mines are shipping large quantities of coal. Beyond Saint Mary's is a mine of cannel coal, so named from 'candle,' as it was used by the miners in England instead of candles. I saw it burning in a grate, and it left a residuum similar to the ashes of hard wood. Perhaps this is the only coal of the kind in our country, unless it be in the Breckinridge mines of Kentucky.

"I was told that the soil in the narrow valleys is inclined to leach; that for this reason grass does not do well; but that on the mountain levels it is retentive, of fine quality, and excellent for grass, oats, potatoes, and perhaps other crops; but lumbermen pay little attention to farming. From many sources I learned that the amount of level flat land is considerable, and that, if the saw timber has been cut off, it can be bought very cheap.

"It is a recent discovery that an acre of good grass land is worth any acre of choice plough land. More than this; the grass land is destined to increase in value, because the climate in which it is natural is limited to a few degrees of latitude. Philadelphia does not lie within it, nor any place south of it, unless sufficiently elevated to make a climate corresponding to a higher degree of latitude.

"On the continent of North America, there are more degrees of latitude in which the climate is suited to figs, oranges, lemons, cotton, and sugar-cane, than to grass. Now, while dairy products are limited to a

belt not exceeding three hundred miles wide, and a part of which must always be devoted to other crops, the importance of developing all our grass land is apparent. The increased demand for butter and cheese, owing to the increase of our population, and the great profits arising from this source, make a grass farm of especial value. It is of no consequence that pastures shall be level; still, the land to be mown should not be too rough. It is a well-known fact that the grass of mountain regions is more nutritious than that in the low lands.

“Now, this Pennsylvania wilderness is surrounded on every side by the most fruitful regions in the world. On the east are the famous wheat and clover regions; on the south the counties of Centre and Indiana; on the west the great dairy and fruit regions of Ohio; and on the north Chautauqua, Cattaraugus, and Alleghany Counties, where the farms are as valuable as in any part of the world. Some twenty or thirty years ago, these western counties were lightly esteemed, for the reason that they were so frosty, and the winters were so long. Perhaps it has been discovered that in countries where cattle have to be foddered seven months in the year grass enough grows to feed them, and that where the winters are mild the summers are so hot the grass will not grow at all. Boston folks are very particular, and if any people know how to pick out things good to eat, they do. The very best beef in their market comes from the State of Maine.

“Innumerable streams of cold, pure water come down through the hills: on the upland levels springs are

frequent, and in the small rivulets trout are abundant. Snow falls early and remains all winter, and, when it melts in April, the ground is unfrozen. Hence, here is a region supposed similar to Labrador, but in the heart of all that is fruitful and choice in this happy land, where winter stiffens the soil less than it does at Nashville, where verbenas, tender roses, dahlias, and other flower bulbs and delicate shrubbery, as well as vines, need no more protection from the frost than they would at Natchez or Vicksburg.

“For health, these localities can hardly be surpassed. Now that a railroad penetrates them, they will be valued as summer resorts. Pure air and water will work all the wonders said to be wrought by sulphurous and carbonic acid gas springs.

“Within twenty years, progress in every branch of mechanics and agriculture has been so great that localities once considered of little value are now taking a respectable, some a first rank. Not only is it possible now, but it is easy, to develop regions which, in the last generation, presented obstacles too great for mortal men to overcome. And then, when the development is made, advantages which no one suspected are presented.

“Of course, the country I am speaking of is rough. One first passing through will think farming impossible. But there are places more or less remote from stations, and perhaps difficult to reach, where good farms can be made. Many are known only to the hunters or to the lumbermen.

“Among these, I came across one locality where hundreds of farms can be made all adjoining each other;

and the whole tract is so level that a good trotting road can be made from one end to another.

“The railroad runs through this land. The timber is maple, beech, white wood, and a sprinkle of hemlock. The greater part is a succession of sugar maple groves. I was reminded of some townships on the Ohio Western Reserve, as I saw them in an early day. But I must reserve a further description for another letter.”

The writer of this letter does not do justice to the subject. Since the opening of the railroad between Lock Haven and Erie, a great improvement has taken place in the condition of the country. New settlements have sprung up all along the line of the road. Hundreds of farms have been purchased, in good locations, not only within a mile of the road, but as far back as five or ten miles from the line of the road, and are now under good cultivation. All the towns and villages on the line of the road have greatly increased in population. Lock Haven and Jersey Shore have nearly doubled their population and the wealth of their citizens, during the last five years, in consequence of the increased business brought to them by the railroad.

In the months of June and July, 1863, the operations of the Pennsylvania Railroad were somewhat interrupted by the invasion of the State of Pennsylvania by a portion of the Confederate army. The track, however, was not damaged, nor were any bridges on the line of the road in any way injured.

During the year 1864, the number of passengers transported over the road was considerably over two

millions, namely: two millions three hundred and sixty-six thousand two hundred and thirteen.

In the year 1857, the Pennsylvania Railroad Company became the owners of the Pennsylvania canals, and have worked them ever since.

The construction of the Pennsylvania Railroad has proved to be a greater work even than was at first anticipated. During the progress of the work, and particularly during the last few years, the Company have found it necessary to extend their aid, and that to a very liberal extent, to assist in the completion of similar works in Ohio and Pennsylvania, and to become the lessees and virtual owners of the Philadelphia and Erie road. The circumstances under which these extended operations took place, and the results of those operations, are thus clearly set forth, in the report of J. Edgar Thomson, Esq., President of the Company, made Feb. 19, 1867.

“The Company has been placed in this strong position, while it has, at the same time, to a larger extent than any other corporation of the kind, promoted the development of the interior of the State of Pennsylvania, by aiding the completion and extension of other railroads where private capital would not incur the risks of such investments. The Pennsylvania Railroad was commenced under the sanguine hope that it could be completed and equipped without incurring any debt. The efforts of the Company in this direction, in view of the great abuse that had attended the financial operations of the earlier corporations of Pennsylvania, were eminently wise, and worthy of an earnest effort to carry them into effect. But after

some years of persistent labor, it became evident that the enterprise was too great for the local capital of Philadelphia, without submitting to a delay in its completion, which neither the commercial prosperity of that city nor the interest of the shareholders of the Company would justify. This policy was therefore abandoned for one which limited the mortgage indebtedness of the Company to its capital stock.

“At the commencement of its work, the views of the Company extended only to the construction of a railway between Harrisburg and Pittsburg. But in operating such a line in connection with the uncertain and frequently adverse management of the Philadelphia and Columbia Railroad, under the State authorities, it became evident that it must fail to meet the just expectations of its projectors, unless an independent connection could be made with its commercial depot, or a lease or purchase of the existing lines effected. After many abortive efforts, this object was accomplished by a lease of the Harrisburg and Lancaster Railroad, and the purchase of the State improvements at a high price, but upon a satisfactory credit. The great point, however, of securing harmonious action throughout the line, from Philadelphia to Pittsburg, was accomplished, which at once imparted new life and vigor to the enterprise, and insured its prosperity.

“It was early foreseen that a trunk line, intended to accommodate the traffic between the East and West, would fail in its object if wholly dependent upon the uncertain navigation of the Ohio River as a feeder. The earlier commencement of the other trunk lines had

already diverted the routes of the railroads in progress from the commercial centres of the West towards the East, to their works. To overcome this disadvantage, it became essential that other lines connecting your road with these trade centres of the West should be commenced, and to effect this, direct and efficient aid by this Company towards their construction was necessary. So fully impressed were the shareholders of this Company, at the time, of the importance of this movement, that, in voting such aid, they exceeded the views of the directors. The three principal lines selected for such aid were one to Cincinnati, a second to the centre of Ohio, at Columbus, and a third towards Chicago. The connection with Cincinnati via Marietta was adopted, and failed from the inadequate means provided to construct a line over what proved to be an unexpectedly rugged country. The line to Chicago was only saved as an investment, after the failure of the credit of that Company, by much labor and large additional outlays by this Company to secure its completion. These efforts were crowned with entire success, and the enterprise, both financially and as a feeder of your main line, has met our most sanguine expectations.

“The line to Columbus—which also afforded an equally good connection with Cincinnati as that via Marietta, though leaving a large district of country tributary to another railway—after long delays, growing mainly out of a failure to procure adequate legislation in Virginia, has recently been brought into efficient use, and promises satisfactory results. The Pennsylvania Railroad Company will own as a pre-

ferred shareholder more than half of the capital stock of this line.

"The eastern end of this line, known as the Pittsburg and Steubenville Railroad, extending from Pittsburg to the Virginia State line, was commenced under the patronage of the city of Pittsburg and Alleghany County, but owing to the absence of any legal right to extend its road to the Steubenville and Indiana Railroad across Virginia, it failed to obtain a credit that would justify any responsible individuals in undertaking its construction. A further increase of its capital stock was therefore impracticable.

"A contract was entered into by the Pittsburg and Steubenville Railroad Company, with parties of insufficient capital for the completion of this line, which, as might have been expected, only resulted in still further embarrassing the condition of the Company by a disproportionate increase of its indebtedness, compared with the work done. After further efforts to secure other parties to build the road, a contract was entered into with the Western Transportation Company for that object—a corporation in which this Company became the chief shareholder—and through its instrumentality a concession was obtained from Western Virginia, permitting the construction of a railroad across that State. From this period the work was pushed with as much vigor as the condition of the labor market would permit, notwithstanding the extraordinary advance that had taken place in every element that entered into the cost of constructing railways. Under this contract, the work has been opened for use for more than a year. In view of the expenditures that

had been made upon the line, and those directed to be made under the commutation act, it was, at the time, deemed best to advance the means required to complete this line; but, in consequence of the unexpectedly large amount required, it would have probably been better to have permitted the road to have been sold, and thus divested it of the complications surrounding it and which now render such a sale essential to ascertain the relation of its creditors. There is much work still to be done, to complete this road in a manner that will enable it to meet the demands of its traffic.

“The Marietta line, which had enlisted the warmest support from the shareholders and the merchants of this city, of either of the lines mentioned, became so hopelessly involved that the funds advanced by this Company, for the construction of that part of the road between Marietta and Wheeling, were taken without our assent, to meet its debts incurred upon the line west of that point. In consequence of this misapplication of the means furnished by this Company, and the immense sums that would have been absorbed in carrying out the original plan, it was not deemed prudent to make any attempt to save the amount invested in the enterprise, under your instructions. This amount was accordingly charged to profit and loss, and its stock no longer appears among your assets.

“The interest of the Company in the Chicago line has nearly all been disposed of, at a profit to this Company fully equal to its loss upon the Marietta line. But for the timely aid afforded by this Company, it

would have proved, as an investment, nearly as unproductive.

“The completion of the Columbus route having, in consequence of want of legal authority in Virginia, been thrown into a period of inflated prices, its cost has so far exceeded our anticipations that it will require a long time for it to repay this Company in direct returns for the outlays incurred. For these expenditures it has received various securities, some of which have been disposed of, and on the remainder there will probably be no loss except a few years of interest, for which the indirect advantages gained by the Company must be its compensation.

“The shareholders will perceive, from this *résumé* of the operations of the Company, the extent of the means required, and the labor and responsibility incurred to save the original investments made under your instructions, to build up lines to connect yours with the trade centres of the West—expenditures that were necessary to the success of your own work, but which a few years' earlier commencement of it would have rendered unnecessary, as the tendency of the Western lines would probably then have been towards Pittsburg.

“These expenditures have frequently been referred to by shareholders as unwise, without reflecting that they were the result of their own action, and that the officers of the Company are really the parties to complain of the immense unrequited labor and responsibility they have had to assume to save the object the Company had in view in making these investments, and in providing the means necessary to effect them.

That they have required outlays, to secure the original objects, far exceeding any just expectation at the time they were entered into, is quite true; but this has arisen from the inadequate stock basis furnished by their shareholders for the completion of these works and the subsequent increased cost of building railways. The result, however, we think will justify the policy of this Company.

“These extraordinary outlays were commenced while the traffic of this line was comparatively small, and burthened by a heavy impost duty levied by the State, and assessed upon no other competing line, greatly diminishing its ability to meet these necessary expenditures to insure the prosperity of the State—and from which burden it was only released upon condition that the Company would apply the unpaid instalment towards the construction of the Mifflin and Centre County, Bedford, Bald Eagle Valley, Tyrone and Clearfield, Ebensburg and Cresson, Western Pennsylvania, and the Pittsburg and Steubenville Railroads—all improvements within the commonwealth. The effect of this mandate was the same as that which followed the appropriations made by the stockholders to Western lines, already stated, entailing upon this Company either the loss of the whole investment directed to be made, or advances of the additional amounts required to complete these works. The Board saw no other alternative but to meet this difficulty by the adoption of a liberal and active policy, and thus bring all of these lines into productive use as speedily as practicable. The outlays necessary to secure this object, from the causes already

referred to, have been very large, but the results have proved much more satisfactory than if the original expenditures had been suffered to remain unproductive, as would have been the case if they had simply fulfilled the requirements of the law. The further extension of some of these lines will still be necessary, to enable them to become productive and meet the wants of the districts they were built to accommodate.

“ We have thus presented to you the extent, and the causes for the unusually heavy expenditures made by this Company on account of its tributaries. Their magnitude has made it necessary, not only to protect the investments made in them, but also to secure the control of other lines important to their success. This policy has eventuated in a system which includes the Philadelphia and Erie and Northern Central Railroads, by which the Company’s cars find their way over continuous and unbroken lines, under one control, from Columbus, Erie and Pittsburg to Philadelphia and Baltimore.

“ The earnings of the Company’s canals were, in 1866:—

From Susquehanna Division	. . . . .	\$252,681 42
“ Juniata	“	35,175 32
“ miscellaneous sources	. . . . .	10,010 42
		\$297,867 16
Total earnings	. . . . .	\$297,867 16

Against \$181,015 38 for 1865.

“ The cost of maintaining, enlarging and operating the canals, was:—

For Susquehanna Division	\$130,212 93
“ Juniata “	101,501 50
“ Western “	1,723 55
	<hr/>
Total expenses	\$233,437 98

“Showing a net profit during 1866 of \$64,429 18.

“Estimating the value of these canals when purchased at one million of dollars, they now stand this Company, including interest and the cost of their renewals and enlargement as far as it has progressed, at about two millions seven hundred and fifty thousand dollars, for which sum they will be sold to the Pennsylvania Canal Company for stock in said Company, in pursuance of the policy sanctioned at your last annual meeting.”

During the year 1865, there were transported over the Pennsylvania Railroad nearly three millions of passengers, namely (2,861,836); and during the year 1866, more than two and a half millions, namely (2,673,568).

The revenue of the Pennsylvania Railroad Company from its several lines during the year 1866, is as follows:—

From the Pennsylvania Railroad and branches	\$16,583,882 84
“ “ Canals	297,867 16
“ Philadelphia and Erie Railroad	2,541,051 79
	<hr/>
	\$19,422,801 79

On railroads having so great a traffic as that which is daily carried over the Pennsylvania road the destruction of the iron rails has been found to be very rapid. The constant friction of the car-wheels causes the iron of the rails to peel off, in thin flakes, and

although this is almost imperceptible, yet in time it actually wears away the iron rail, and makes frequent renewals of the rails necessary. On this subject Mr. Thomson, in his report says:—

“Every effort to materially improve the quality of the iron to meet the wants of the augmenting traffic of the trunk lines having heretofore failed, attention was directed to the introduction of steel rails, and, with a view to test their efficiency, the President, while in England, in 1862, ordered a few hundred tons for trial. These proved so satisfactory that larger importations have been made of Bessemer steel rails, which have entirely confirmed our expectations of their success. The cost of steel rails is at present about twice the price of the best iron rails, while their durability is fully eight times greater. It is confidently believed, however, that with enlarged works, increased knowledge of the ores required to produce the best quality of this metal, and greater experience in its production, they will be successfully manufactured at home and the price very largely reduced. At present the demand is equal to the supply, and prices are maintained. To avoid the heavy annual outlays that a change from a cheap to a dearer material would necessarily entail upon your revenues, it is proposed to continue for the present to re-roll the worn-out rails, and replace the annual wear and tear with steel rails. The general introduction of steel rails is now wholly a commercial question, in which the cost of the increased capital required for their purchase becomes the chief impediment to their general adoption. While the business of a line is small, it will still be economy

to use iron rails, at an ordinary rate of interest upon capital, until the cost of producing steel is reduced to its minimum. When this result is accomplished, the general public will be materially benefited by the reduced cost of transportation which the introduction of steel rails will enable railway companies to afford."

The following statement exhibits the earnings of the Company for a series of years:—

Earnings of the Pennsylvania Railroad Company.

1851				\$1,039,565
1854				3,512,295
1856				4,720,193
1857				4,855,669
1858				5,185,330
1859				5,362,355
1860				5,932,701
1861				7,300,000
1862*	\$413,000; and canals			10,969,239
1863*	727,669; and canals			12,906,239
1864*	1,131,147; and canals	308,615		16,198,820
1865*	2,074,140; and canals	181,015		19,714,325
1866 as per page 149				19,422,801

The "Philadelphia News" of May 9, 1867, says:—

"In accordance with the policy adopted by the Pennsylvania Railroad Company, the Board of Directors have declared a semi-annual cash dividend of three per cent. on the capital stock, and an extra dividend of five per cent., which will be paid to the stockholders in the shares of the Company, both clear of National and State tax. The extra dividend is derived from earnings of the road prior to January 1, and it is quite probable that the surplus earnings

* Including Philadelphia and Erie Railroad.

above six per cent. for the current year, will enable the Board to declare a like extra dividend in November."

The officers of the Company are as follows:—

President, J. Edgar Thomson; Vice-Presidents, Thomas A. Scott, and H. J. Lombaert; Treasurer, Thos. T. Firth; Secretary, Edmund Smith.

We have thus endeavored to present a sketch of the history, operations, and prospects of this great road, which is justly regarded with pride by every citizen of Pennsylvania. The amazing success which has attended all the operations of the Company, and the bright prospects that lie before it in the future, are almost entirely due to the good sense on the part of the Directors, in re-electing and keeping in office Mr. Thomson and Mr. Scott, the chief officers of the Company. The occasions have been frequent, particularly during the last few years, when the rare executive and administrative qualities of these gentlemen not only saved the Company from heavy losses, but brought about results that are now seen in the enviable position which the road and the Company occupy.

The Pennsylvania Railroad Company has recently purchased the Pan-Handle, or Steubenville Railroad, extending from Pittsburg to Newark in Ohio; so that the Company's cars can now run on its own road, from Philadelphia nearly to the Capital of Ohio. The western operations of the Company will be greatly facilitated by this purchase; as it now has the virtual control of an uninterrupted line from Philadelphia to Cincinnati.

CHAPTER XI.

PITTSBURG, FORT WAYNE, AND CHICAGO RAILROAD.

THIS great road affords an excellent example of the benefits of railroad consolidation; of the good effects of which we shall meet with so many examples in the progress of this work.

The distance between Philadelphia and Chicago is eight hundred and twenty-three miles. Previous to the year 1856, there was no direct railroad communication between these two cities. The through line is now composed of two roads, namely, the Pennsylvania Central from Philadelphia to Pittsburg; and the Pittsburg, Fort Wayne, and Chicago, from Pittsburg to Chicago. The construction of the latter road was formally commenced by breaking ground at the boundary line between the States of Pennsylvania and Ohio, on the 4th of July, 1849, the work having been commenced by the Ohio and Pennsylvania Railroad Company, of which Gen. Wm. Robinson, Jr., was the first and then President, and S. W. Roberts, Esq., the Chief Engineer. The Ohio and Pennsylvania Railroad Company was incorporated by an Act of the Legislature of Ohio, passed 24th of February, 1848; and the Legislature of Pennsylvania, by an Act of the 11th of April of the same year, concurrently made the Company a corporation of Pennsylvania. The Act

of Incorporation gave the Company "power to construct a railroad from the town of Mansfield, in Richland County, eastward by the way of the towns of Wooster, Massillon, and Canton, to some point in the eastern boundary of Ohio, within the county of Columbiana, as hereinafter provided; thence to the city of Pittsburg, in the State of Pennsylvania; and from the said town of Mansfield westwardly by way of Bucyrus, in Crawford County, until it intersects the west line of the State of Ohio." Under this authority the preliminary surveys for the road were commenced in Pennsylvania, on the bank of the Ohio River, at the mouth of Big Beaver River, on the 11th of July, 1848. The surveys were pressed forward with much energy, and completed for the whole line in less than two years. The work of construction was commenced in the last half of 1849, and the entire track was laid and the road opened for use between Pittsburg (Alleghany City) and Crestline, a distance of one hundred and eighty seven miles, on the 11th of April, 1853. Although the Company was authorized to extend its road to the western boundary of the State of Ohio, the Board of Directors did, as early as 1850, make Crestline the western terminus of the road. This action was taken in view of the certainty that the line would be practically carried to the western boundary of Ohio by the building of the Ohio and Indiana Railroad in the direction of Fort Wayne, and the building of the Bellefontaine and Indiana Railroad in the direction of Indianapolis.

The means for building the Ohio and Pennsylvania road were derived from the sale of shares, bonds, and

temporary loans. A large proportion of the shares was subscribed for by municipal and other corporations, and not paid for in cash, but in the bonds of the corporations subscribing. These had to be sold at a discount by the Railroad Company, and the loss sustained by it, thereby adding to the cost of the road. The shares subscribed for by individuals were paid for in cash, or by contractors' work, the latter being to the Company as good as cash, so far as the work was contracted for at cash rates. The actual cash, however, paid into the treasury of the Company by shareholders was only about one-fifth of the cost of the road and equipment.

The great desire to have pushed forward to early completion a continuous railway from Pittsburg to Chicago induced parties the most interested to organize new companies, believing their object could be reached more speedily by several corporations than by one. In furtherance of this view, the Legislature of Ohio, on the 20th of March, 1850, passed an Act incorporating the Ohio and Indiana Railroad Company, with "power to construct a railroad commencing at a suitable point, to be selected by said Company, on the Cleveland, Columbus, and Cincinnati Railroad, near Seltzer's tavern, in the county of Richland; thence to Bucyrus, in the county of Crawford; thence to Upper Sandusky, in the county of Wyandotte, and thence, on such route as the Directors of said Company, or a majority of them may select, to the west line of the State of Ohio; and thence to Fort Wayne, in the State of Indiana." This Company was made a corporation of Indiana by concurrent legislation of that State with

Ohio, by an Act of the State approved January 15th, 1851. The organization of the Company was completed at Bucyrus on the 4th of July, 1850, by the election of a Board of Directors, which met as soon as elected and selected Dr. Willis Merriman as President. On the 10th of the same month, J. R. Straughan was elected, by the Board, Chief Engineer; who at once organized his Engineer Corps and commenced making the necessary surveys for the location of the road.

On the 18th of September of the same year, the Board of Directors fixed the eastern terminus of the road at *Crestline*, the point where the Ohio and Pennsylvania Railroad intersects the Cleveland, Columbus, and Cincinnati Railroad.

On the 28th of January, 1852, the Board of Directors awarded to Wm. Mitchell & Co. the contract for building the entire road (the Company furnishing the rails) from Crestline to Fort Wayne, a distance of one hundred and thirty-one miles. These contractors commenced the work soon after, and prosecuted it to completion with such commendable energy as to have it ready for passing trains over the whole road on the first of November, 1854.

The means for building this road were obtained, as in the case of the Ohio and Pennsylvania Road, by sales of shares and bonds, and temporary loans. But a small amount of the money expended in the construction of this road was realized by a direct payment of cash into the treasury. Large subscriptions to the stock were made by municipal and other corporations, and paid for in the bonds of the corporations so subscribing; which bonds were sold at a discount, and at

the loss of the Ohio and Indiana Railroad Company. The contractors also received stock in part payment for work; or, in other words, stock was paid for in contract work. In some instances stock was paid for in uncultivated lands, in farms, town lots, and the products of the farm; and the proceeds realized from the sale of stock thus paid for in the various ways made available in the payments for building the road. The amount of cash paid into the treasury by the shareholders of this Company was less than five per cent. of the cost of the road and its equipment.

Before either of the two companies building roads east of Fort Wayne had half completed the works they had in charge, the people in the counties between Fort Wayne and Chicago determined on an independent effort to build the last link in the chain between Philadelphia and Chicago. To accomplish it, a Convention was held at Warsaw, Kosciusko County, Indiana, on the 14th of September, 1852, "to make arrangements for extending the Ohio and Indiana Railroad westerly." Delegates were in attendance from Pennsylvania, Ohio, Indiana, and Illinios, representing large, varied, and important interests, from the seaboard to the Mississippi River. A good degree of unanimity and much earnestness characterized the proceedings.

During the sitting of the Convention "Articles of Association" were formed in the manner prescribed by an Act of the Legislature of Indiana, entitled "An Act to provide for the Incorporation of Railroad Companies," approved May 11th, 1852. Two hundred and thirteen individuals and firms, mostly members of the

Convention, subscribed, in the aggregate, for one thousand shares of the stock of this corporation, just formed under the style of the "Fort Wayne and Chicago Railroad Company." The names of the persons to constitute the first Board of Directors were incorporated into the "Articles of Association," and therefore their election, and the legal existence of the corporation, date from the 14th of September, 1852. The Board of Directors was formally organized at a meeting held at Warsaw, September 24th, 1852, by electing Hon. Samuel Hanna, of Fort Wayne, President. At the same meeting, J. R. Straughan, Esq., was appointed Chief Engineer. By an Act of the Legislature of Illinois, approved February 5th, 1853, and entitled "An Act to Incorporate the Fort Wayne and Chicago Railroad Company," the Indiana corporation was given legal existence in Illinois.

An engineer corps was organized and the location of the line commenced during the fall of 1852, and so far progressed in as to enable the Board, on the 8th of June, 1853, to put under contract the entire road from Fort Wayne to Chicago, excepting the seven miles at the west end, the final location of which depended upon the selection of the station grounds in the city of Chicago, which had not yet been made. The means of the Company to prosecute the work was to be derived from the sale of stocks and bonds. The stock subscriptions which were paid in cash into the treasury of the Company were very small—amounting, perhaps, in all, to less than *three per cent.* on the final cost of building and equipping the road between Fort Wayne and Chicago. The stock subscriptions were

paid for mostly in uncultivated lands, farms, town lots, and labor upon the road. A large portion of the real estate thus conveyed to the Company in payment of subscriptions to stock (over one million of dollars in value) was mortgaged by the Company to obtain the necessary cash means to pay for grading the roadway, &c. The balance of the cash means of the Company was derived from the sale of bonds.

The Company, having only a very small cash subscription to its stock, and not being able to make a free sale of its securities, progressed slowly with the work of construction during the years 1853, 1854, and 1855. In 1855, the work was confined almost exclusively to the portion between Fort Wayne and Columbia City, a distance of twenty miles; and that piece was completed and opened for business in February, 1856.

We have now reached a point in the history of these corporations when it became evident to the Managers that, to secure the early completion of the line to Chicago, and the ultimate success of the three roads, some plan for harmonizing all interests, and creating a unit for management, would have to be devised. The Ohio and Pennsylvania Railroad Company was at this time in fair working order from Alleghany City to Crestline, a distance of one hundred and eighty-seven miles, with a business sufficient to pay the interest on her debt, but no dividends on the stock. The Company had yet to build its track into the city of Pittsburg, across the Alleghany River, and provide station grounds and buildings in that city, which would involve an outlay of four hundred thousand dollars. Its

western terminus rested on the Cleveland, Columbus and Cincinnati Railroad, at a point sixty miles north of the southern terminus of that road; which made the Ohio and Pennsylvania Railroad dependent upon a Company, whose interests were adverse, for the Cincinnati and Southwestern trade. It was also at this time quite certain that four other lines, then building, would in time compete for the Southwest trade, with advantages in all cases equal, and in some superior, to any that the Ohio and Pennsylvania road could ever enjoy. The direct Western business of the road was by means of the so-called Bellefontaine line, reaching from Galion, a point four miles south of Crestline, on the Cleveland, Columbus and Cincinnati Railroad, to Indianapolis; which line was owned by two corporations. The business of this connection had to be filtered through four miles of an adverse corporation, owning the road between Crestline and Galion. The proximity of the eastern terminus (eighty miles) of the Bellefontaine line to Lake Erie, aided by a large Cleveland interest in the Bellefontaine and Indiana Railroad Company, caused the larger portion of the business of that line to gravitate towards the lakes. The Northwestern trade of the Ohio and Pennsylvania road, however much or little it might be, could have but one avenue—over the line through Fort Wayne, then building by corporations embarrassed in their finances. Even on the completion of this line, the Ohio and Pennsylvania road would stand in the same relation to it as the Cleveland, Columbus and Cincinnati Railroad, or any other intersecting, road. In all previous contracts between the parties, this princi-

ple had been clearly recognized and set forth, by which the Ohio and Indiana and the Fort Wayne and Chicago Companies were at liberty to give to any connecting road or roads the same rates, facilities and rights as to the Ohio and Pennsylvania road. Nothing could be more evident to any one conversant with railway strategy and the laws of trade, than that the position of the Ohio and Pennsylvania road would soon become secondary, as compared with the leading lines in the West, and would degenerate into a local road, dependent on way-local business; or, if competing for through traffic, would have to do so under circumstances which would leave no profit to result therefrom. To become a portion of one of the great trunk lines controlling the traffic between the East and West, was the only security to the shareholders of the Company that their interests would, at a future day, be of any value. And it was this view as to the probable future value of the property which induced the Managers and Stockholders to assent to the terms of consolidation, which were agreed to and consummated on the first day of August, 1856.

At this same period the Ohio and Indiana Railroad was unable to earn sufficient to pay the interest on the funded debt and improve the track, which was in very bad order. The hope of this Company was in the completion of the whole line to Chicago, and it appearing evident to the Managers and Shareholders that a consolidation of the three Corporations into one would effect this object, they were the first to urge consolidation.

The Fort Wayne and Chicago Railroad Company

had now been brought to a stand still for want of cash means, although they had their iron purchased and paid for, and large but unavailable assets. The pressure of the times, with an acquiescence in the policy that the line from Chicago to Pittsburg should be a unit, made the Managers and Shareholders of that Company the advocates of consolidation. Thus, with great unanimity, the Shareholders of these three Corporations voted in favor of the consolidation of the three Corporations into the Pittsburg, Fort Wayne, and Chicago Railroad Company; the existence of which Corporation dates from August 1st, 1856.

Before the final consummation of the consolidation, and in anticipation of it, arrangements were made to improve the condition of the track of the Ohio and Indiana road, and put to active work the contractors on the portion of the Fort Wayne and Chicago road between Columbia City and Plymouth, a distance of forty-five miles. The work was pushed forward with energy, under the direction of Jesse L. Williams, Esq., the Chief Engineer; so that, on the 10th of November following, a period of about ninety days, the road was open to travel. The portion of the Cincinnati, Peru, and Chicago road between Plymouth and La Porte was opened about the same day; so that on the 10th of November, 1856, a line was opened between Pittsburg and Chicago, by way of La Porte, which brought into use, for the traffic of the Northwest, three hundred and eighty-four miles of the Consolidated line. This result was accomplished by temporary loans and credits made and given by the Pennsylvania Railroad Company, and the Harrisburg and Lancaster Railroad Company.

Although the struggle for the completion of the line to Chicago was tedious, and protracted beyond what was anticipated, and the financial difficulties embarrassing, yet all these obstacles were overcome by the energy and enterprise of the gentlemen engaged in the undertaking; and the shareholders and bondholders have now the satisfaction of knowing that they own a property the great value and controlling importance of which is assured beyond a question. Without such a consolidation as was made in 1856, this result could never have been attained.

On the first of January, 1857, the new Company executed a mortgage on their entire property for ten millions of dollars, to secure an issue of ten millions of thirty-year bonds. These bonds were divided into two classes of three and one-half and six and one-half millions of dollars, respectively. The first were denominated construction bonds, and were to be used in the construction and equipment of the road; the second were denominated redemption bonds, and were to be used for redeeming or relieving all the issues of the old corporations. The discredit which had fallen upon railway securities, and the diminished traffic at this period of the leading railways of the West, made it impossible to realize the expectations which had been formed for thus obtaining the means to complete the road to Chicago. During the year 1857, and the early part of 1858, therefore, no great progress was made in the work of construction, and all that was done was paid for by the operations of the road, and at the expense of the transportation department.

In the spring of 1858 arrangements were made for

deferring the interest on the bonded debt; which, with aid from the Pennsylvania Railroad Company, enabled the Company, by the close of the year, to complete their track to Chicago. The means and credit of the Company were entirely exhausted, and a large floating debt incurred, in the effort which accomplished the completion of the road to Chicago. This burden was beyond the ability of the revenue derived from transportation to remove in the time demanded by the creditors of the Company. Efforts were made to convert the floating debt into funded debt, and thus relieve the Company; but the difference of views of creditors, and the anxiety of all to get more money than the Company possessed, delayed the accomplishment of any plan until the bondholders, in December, 1859, commenced proceedings for foreclosure, and put the property in the hands of a receiver. Soon after, a plan was perfected by which the whole property was to be sold under legal proceedings in the several States, and purchased in for the benefit of all classes of creditors assenting to the arrangement. A new corporation was to be created to hold the property, and by means of which all interests were to receive their respective portions, as agreed upon previous to the sale. The plan has been successfully executed.

At a future day it will be a marvel, as it is now difficult to realize, how so long a line of road—the longest in the United States between terminal stations—much of it built through a country sparsely inhabited and but little improved, could be built, and at last rest on a solid foundation of business and credit, with so small amount of cash means contributed by the

shareholders of the Company. Of the eighteen million six hundred and sixty-three thousand eight hundred and seventy-six dollars now representing the cost of the road, equipment, &c., the shareholders contributed in cash only about *ten per cent.*, or less than two millions of dollars; and their contributions in cash, bonds, notes, lands and personal property, labor, &c., to something less than four millions of dollars, or rather more than twenty per cent. of the present cost of the work. The difference between this sum and the capital stock, as now shown by the books of the Company, is made up of dividends which were paid in stock, interest on stock paid in stock, premium on stock of Ohio and Pennsylvania and Fort Wayne and Chicago Railroad Companies, allowed to the stockholders therein at the time of the consolidation, which was paid in stock, and a balance of stock still held by the Trustees.

It is a satisfaction to be able to say, that from the commencement of this great enterprise in 1849, to the consummation of the plan of re-organization in 1862, no creditor of the Company was ever required to abate one dollar from any just claim, but that all such debts, with interest, have been paid in cash, or in the bonds of the Company, which are now recognized as among the best railway securities in this country.

The completion of the last link in the road, from Plymouth to Valparaiso and thence to Chicago, was an event of no small importance to the latter city. It gave her one more grand trunk line to the east, and a direct, air-line route to Pittsburg and Philadelphia. Her citizens were not slow to avail themselves of these

advantages; and the passenger and freight traffic of the road, from Chicago, large from the first, has been steadily increasing every year.

The effect of the opening of the road, upon the prosperity of the country through which it passes, was most remarkable. In Indiana and Ohio particularly, new settlements sprung up all along the line of the road, while all the older towns along the route rapidly increased in population. Hundreds of farms lying within a mile or two of the road, which before had been regarded as nearly valueless, were now eagerly sought for, were sold at good prices, and were immediately put under a system of high cultivation. The result of this state of things soon showed itself. The production of grain and cattle increased enormously all over the region alluded to; lands rose in value; and the wealth and prosperity of the country have been ever since increasing.

The present organization of the Pittsburg, Fort Wayne, and Chicago Railroad Company, under the new arrangement, was effected on the 26th of February, 1862, when George W. Cass, Esq., of Pittsburg, was elected President. The Directors have shown their appreciation of the value of the services of Mr. Cass, and his eminent fitness for this responsible position, by re-electing him President at every subsequent annual election. Under the wise and judicious management of Mr. Cass, the affairs of the road have greatly prospered. During the last six years, the business of the road has steadily increased.

The running time of the through trains between Philadelphia and Chicago is about thirty-five hours,

or two days and a night. There is only one change of cars, and that at Pittsburg. The depot here is so admirably arranged that the traveller has only a few steps to walk, under the same roof, in order to enter the cars in which he wishes to continue his journey. Many persons who travel on this line, who are opposed to sleeping cars, and who do not like to travel at night, spend the intervening two nights of the journey either at Altoona, Pittsburg, Crestline, or Fort Wayne; at all of which places excellent accommodations are found.

The earnings of the railway since the consolidation of the three original Corporations have been from year to year as follows:—

In 1857,	.	.	.	.	.	.	\$1,660,424	89
" 1858,	.	.	.	.	.	.	1,567,232	22
" 1859,	.	.	.	.	.	.	1,965,987	80
" 1860,	.	.	.	.	.	.	2,335,353	83
" 1861,	.	.	.	.	.	.	3,031,887	42
" 1862,	.	.	.	.	.	.	3,734,390	43
" 1863,	.	.	.	.	.	.	5,132,933	74
" 1864,	.	.	.	.	.	.	7,120,465	76
" 1865,	.	.	.	.	.	.	8,489,062	56

In 1866 the earnings of the road amounted to seven million four hundred and sixty-seven thousand two hundred and eighteen dollars; and the expenses to five million one hundred and forty-seven thousand six hundred and eighty-six dollars.

The officers of the Company are George W. Cass, President; Samuel Hanna, Vice-President; J. N. McCullough, General Superintendent; H. A. Gardner, Chief Engineer; John B. Jarvis, Consulting Engineer; J. P. Henderson, Treasurer; F. M. Hutchinson, Secretary.

CHAPTER XII.

NORTHERN CENTRAL RAILROAD.

THE route between Washington and Niagara Falls consists of the following railroads namely:—

	Miles
The Baltimore and Ohio, from Washington to Baltimore	40
The Northern Central road, from Baltimore to Canandaigua	315
New York Central road, from Canandaigua to Suspension Bridge	106
Total	461

The Northern Central Railroad, as originally built, extended only from Baltimore to Sunbury. Previous to the year 1853, its business was confined to the region between these two points. The passenger traffic between Harrisburg and Baltimore was always good, and generally taxed the capacity of the rolling stock of the Company to its full extent. Between Sunbury and Baltimore the freight traffic was principally in coal, of which immense quantities were dug from the mines near Sunbury. In 1854 a portion of the Sunbury and Erie Railroad was completed; and that part between Williamsport and Sunbury was thrown open to the public. This proved to be of great service to

the Northern Central Railroad. Williamsport is a large and growing town, and has a very extensive trade in lumber and iron machinery of various kinds. . Besides the usual county courts, the United States District Court is also held here. Its inhabitants embrace many persons of wealth, culture, and refinement, and of great enterprise and public spirit. The opening of the Sunbury and Erie Railroad, connecting it with Sunbury, and thence with Baltimore and Philadelphia, gave a new impetus to all branches of business in the place, and during the ten years succeeding 1855, Williamsport increased rapidly in wealth and population. The Northern Central Railroad felt an immediate improvement in its business in consequence, and this has been every year increasing.

The Williamsport and Elmira Railroad, from Williamsport to Elmira, had been built and was in operation about the year 1846. Its business, however, was small and unremunerative, until it became consolidated with the Northern Central Railroad. From that time a remarkable change took place in its affairs. The whole consolidated line, from Canandaigua to Baltimore, is now in the best possible condition. It is regarded as one road, and is under one management. Particular pains are taken to keep the track in perfect order. It is constantly examined, and the rails renewed as often as necessary. The locomotives are the best and most powerful that can be procured, and the passenger cars are models of cleanliness and comfort.

The enormous amount of the passenger travel over this road may be judged from the fact that during the

year 1866, eight hundred and eighty-five thousand passengers passed over it. The present equipment of the road includes ninety-five locomotives, sixty passenger cars, thirty-seven baggage cars, and three thousand six hundred and eighty-six freight cars. The total earnings of the year 1866 were over four millions of dollars (namely, \$4,042,125); and the net earnings were over a million of dollars (namely, \$1,295,288). The prosperity of the road, for a series of years past, is chiefly due to the energy and great experience of J. N. Du Barry, Esq., the General Superintendent, who has given his personal attention to all the details of the service.

The officers of the Company are as follows:—

James D. Cameron, President; J. N. Du Barry, General Superintendent; Edward L. Du Barry, Assistant Superintendent; J. S. Leib, Treasurer; R. S. Hollins, Secretary.

The Company are at present engaged in building four new bridges between Sunbury and Shamokin in Pennsylvania, in order to run a through train between New York and Sunbury. The new portion of the route, and the through trains, will be in operation by next March.

CHAPTER XIII.

NEW YORK CENTRAL RAILROAD.

THE great through route between New York and Chicago, by way of Albany and Niagara Falls, consists of the following lines of railroad:—

	Miles.
The Hudson River Railroad, from New York to Albany	144
The New York Central Railroad, from Albany to Suspension Bridge	304
The Great Western Railroad of Canada, from Suspension Bridge to Detroit	229
The Michigan Central Railroad, from Detroit to Chicago	274
Total	951

The whole length of the New York Central Railroad is five hundred and fifty-six miles.

The whole length of the first track, laid on main lines and branches measuring the length of the road exclusive of second tracks and sidings, is as above	Miles. 555.88
The length of the second track, laid on main lines and branches (exclusive of sidings and turnouts less than one mile in length) is	280.51

The length of sidings, turnouts, and switches laid on main lines and branches is . . .	Miles	152.27
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The total length of equivalent single track, laid on main lines and branches, adding to the length of the first track the length of the second track, of the sidings and of the turnouts, is		988.66
The length of lines leased by the New York Central Railroad Company is as follows:—		
Niagara Bridge and Canandaigua Rail- road, from Suspension Bridge to	Miles	
Canandaigua,		98.46
Sidings, turnouts, and switches,		3.42
	Miles	101.88
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Saratoga and Hudson River Railroad, from Junction, east of Schenectady, to Athens,		37.87
Sidings, turnouts, and switches,		5.32
		43.19
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Total length of equivalent single track,		145.07
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Total length of equivalent single track on lines owned and lines leased,		1,133.73

The New York Central Railroad Company was organized under an Act of the Legislature of the State of New York (Chap. 76 of the Laws of 1853), entitled "An act to authorize the consolidation of certain railroad companies," whereby the Albany and Schenectady, the Schenectady and Troy, the Utica and Schenectady, the Syracuse and Utica, the Rochester and Syracuse, the Buffalo and Lockport, the Mohawk Val-

ley, the Syracuse and Utica direct, the Buffalo and Rochester, and the Rochester, Lockport, and Niagara Falls Railroad Companies, were authorized at any time to consolidate the said companies into a single corporation.

Articles of agreement were accordingly entered into by the said several companies, bearing date the 17th day of May, 1853, which were duly executed in duplicate, and a copy filed in the office of the Secretary of the State of New York, as required by the said act of the Legislature, by which the said several companies were consolidated into one corporation, under the name of "*The New York Central Railroad Company.*"

The first Board of Directors of the new Company were elected on the sixth day of July, 1853, and the Company then organized. The officers of the former companies continued to receive the income of the several lines of road of which they are in charge, until the first day of August, 1853.

The first railroad ever constructed in the State of New York was the Mohawk and Hudson road. It was chartered in 1826, commenced in 1830, and finished in 1831. It was one of the first railroads in the United States, to use locomotive engines. Horse power was employed upon it for a few months at first, but two locomotives were placed upon it soon after its completion, to which we will refer again. There were considerable elevations at both ends of the road, but these were overcome by stationary engines, operating on inclined planes. The plane at Albany was three thousand one hundred and three feet long; that

at Schenectady two thousand and forty-six feet long. The road was built in a very primitive style, in conformity to the crude and defective stage of railway enterprise at that early day. Instead of the massive and durable rail of modern times, weighing seventy-five pounds to the yard, a flat bar was used not quite three-quarters of an inch thick, and two and a half inches wide.

At that time the Erie Canal was the principal medium of communication between all points along its line, from Albany to Buffalo. The great number of locks, however, between Troy and Schenectady, and the slow progress made by the canal boats, made the journey anything but desirable. Before the year 1831, a regular line of stage coaches ran between Albany and Schenectady, and these were well patronized by the travelling public. But when the railway was first built, it was found to be a great convenience, and it soon crowded the line of stage coaches off the track.

Early in the year 1830, the Mohawk and Hudson Railroad Company made an engagement with John B. Jervis, Esq., who afterwards became so celebrated as a civil engineer, and whose merits in that capacity, even then, began to be appreciated. Mr. Jervis at once entered upon his duties, as chief engineer of the road. In July, 1830, the grading of the road was put under contract, and the work of laying the track was commenced in the spring of 1831. About mid-summer of that year, the rails were so far laid as to allow coaches for passengers to run from the head of the inclined plane at Schenectady, to the junction of the western turnpike road, about two miles west of

Albany. This section, of about twelve miles, was then operated for passengers, mostly by horse-power. Two locomotive engines were put on, soon afterwards; one of them an English engine, and one of American manufacture.

The latter was built in New York, by the West Point Foundry Association. The American engine was quite light, not over six tons weight, but was able to haul a train of eighty or a hundred passengers. The English engine was larger, weighing about eight tons, and was able to haul a train of one hundred and twenty-five, or one hundred and fifty passengers from twenty to twenty-five miles an hour. The line of the railroad was very straight, with light grades. The above was the utmost capacity of these two engines. The sharpest grade between the heads of the inclined planes was twenty-six feet per mile for a distance of about two miles. The formation of the country was abrupt at both ends of the railway, and at that day a railway was regarded as impracticable without the use of inclined planes with stationary engines, where the elevation to be overcome was so great as on this road. Hence the use of inclined planes of great length on the Pennsylvania railroad, which were continued to as late a period as the year 1853.

Subsequent experience, of course, has demonstrated that this idea was erroneous, and it has been corrected for many years. It is proper, however, to remark, that the line eventually adopted for this part of what afterwards became the New York Central Railroad, could not have been established in the commencement of the work, on account of the opposition to a location

in the heart of the city, of a railroad to be operated by locomotive engines. The history of railroads in this country has shown that this kind of influence has often been powerful and very embarrassing, although in time it has generally yielded. Mr. Jervis was one of the commissioners who subsequently established the present line of that part of the New York Central Railroad, doing away with the inclined planes, and he has often remarked, since, that he was very much impressed with the manifest difference in public opinion on such a question. What would have been impracticable in the original proceedings, was now sought as a public benefit.

It was truly interesting to observe the change of views in regard to inclined planes, on which a great controversy grew up, both in England and America. In the course of this controversy, and of the experiments which it involved, it was soon found that inclined planes were a serious impediment to the passenger traffic, and they are now, it is believed, entirely dispensed with, and are only used on roads during a heavy freight traffic mostly in minerals. For the latter, they are still regarded in mountainous districts as being very advantageous for cheap transport.

To return to the Mohawk and Hudson Railroad: A branch railway was made from the junction of the western turnpike, along that turnpike and through State Street, in Albany, to a station a short distance below the Capitol. This was afterwards extended to the foot of State Street. It was operated by horse power for several years, and then abandoned. Finally

the inclined planes were abandoned, and the road was operated entirely by locomotive engines.

The rails of the track were originally composed of plate iron laid on yellow pine stringers. The iron plate had a flange, to give it more stiffness, and to hold the plate more firmly to the stringer. The plate was nearly three-quarters of an inch thick, and two and a half inches wide. The stringer timbers were six inches square.

Over embankments, the rail was supported by cedar cross-ties, on which two cast-iron chairs were fastened, to receive the rail stringer, and were secured by a key or wedge. In excavations, the stringers rested on stone blocks, secured in the same way, by cast-iron chairs. The stone blocks were then regarded as the best kind of foundation for railways, and they were very generally adopted in England, and were extensively used in this country. This railroad, at the time it was constructed, was regarded as a first class road.

The coaches were hung on through braces, like a stage coach, and passed over the road very smoothly. But it did not require very long use of even the comparatively small engines that were then used, to demonstrate the importance of securing, if possible, some changes in the locomotives. The English engine, before alluded to, was on four wheels, which were all driving wheels. According to the impression at that time prevailing, it was necessary to gear the wheels as near together as possible, in order to facilitate the movement in curves. This required the engine to project about four feet beyond the point of support in the

axles. This again gave a good deal of vertical motion at the ends of the machine, whenever it passed inequalities in the track. The attention of Mr. Jervis, and of other gentlemen connected with the road, was drawn to this circumstance, and some means to remedy this evil were diligently sought. It also appeared very important to distribute the weight on a greater number of wheels, in order to reduce it on any one point of the rail. The result desired was, to obtain more wheels and so to arrange the plan of the machine that it would be supported near its ends, and so give more ease to the rail, and a greater degree of steadiness to the motion. These ends were finally accomplished, and a great and most beneficial change effected, by the genius of Mr. Jervis.

After a good deal of reflection, it appeared to Mr. Jervis that a truck might be placed under the forward end of the frame and so support it, and by means of a centre pin the truck would play freely under the frame. In this it appeared that the truck, moving freely under the frame, could be geared so as to work most favorably around the curves, and thus secure a guide to the whole machine, and allow it to be a support near, or at the end of the engine, by which the greatest practicable steadiness would be secured. At that time there was little experience in railway machinery; and it was generally considered that a truck in this situation would not be safe for high speed, and therefore unfit for passenger work. This idea prevailed in England in 1850.

They called these engines bog-engines; and although there was at one time, several of them introduced on

English railroads, the impression of unsafety was so strong that they abandoned them. Having from careful reflection become strongly impressed in his own mind with the practicability of the truck plan, Mr. Jervis made drawings and a working model of the same. A contract for a truck engine was then made with the West Point Foundry Association in New York. This engine was completed according to the plans of Mr. Jervis, and was put upon the Mohawk and Hudson Railroad in 1832. Mr. Jervis also attempted to combine a boiler with a furnace adapted to the use of anthracite coal as a fuel. In regard to coal burning it was a failure, and it was not well adapted to the use of wood as a fuel. Mr. Jervis succeeded, however, in running it with wood, sufficiently to test the principle of the truck. In the following winter a new boiler was put in, adapted to the use of wood as a fuel, and it did good service.

Mr. Jervis was at the same time chief engineer of the Schenectady and Saratoga Railroad; and as soon as he had ascertained that his improved truck could be relied on, he made the plans and drawings for an engine for that railway, with truck and the most approved boiler for the use of wood as a fuel. The plans were sent to England, and a contract made with the celebrated English engineers, George Stephenson & Co., in the autumn of 1832. This engine arrived safely at New York, and was put on the Schenectady and Saratoga Railroad in the spring of 1833. Even to this late day, Mr. Jervis well remembers the pleasure he enjoyed in riding on that engine, as com-

pared with the motion of the four-wheeled engine before referred to.

The railroads in the Eastern States were slow to adopt the improved truck ; and for several years afterwards the Western Railroad of Massachusetts and other railroads in New England continued to use four-wheeled engines. Now, however, the truck is used in all the railroads of the United States, and its utility and value are universally acknowledged. The principle of the truck, moreover, is carried into practical operation in both passenger coaches and freight cars, on more than thirty thousand miles of railroad.

It is no more than what is due to Mr. Jervis, and to the Mohawk and Hudson Railroad Company, that this acknowledgment should be made, of the great benefits which railroads have derived from the introduction of the truck on this small railway, at a time when the idea was met with great scepticism as to its probable success. It is due to the directors of the Company to say, that they uniformly supported the proceedings of Mr. Jervis, and gave him every facility that he needed, in carrying out the experiment.

Mr. Jervis, although now somewhat advanced in life, is still actively engaged in professional duties, and is now consulting engineer of the Pittsburg, Fort Wayne, and Chicago Railroad. At his advanced age, it must be a great pleasure to him to notice the extensive use of his early invention ; and the more so, that this, like all the other improvements that he has made in railway works and machinery, has been freely given to the public, without any attempt on his part

to secure to himself any special advantage or pecuniary benefits from patent rights.

The success of the Mohawk and Hudson road created a revolution in public sentiment in relation to railroads, and an effort was soon made to extend the road up the valley of the Mohawk. The construction of the Utica and Schenectady road was soon afterwards commenced, and it was completed and opened in 1836; the distance being seventy-eight miles. It was built as cheaply as possible, the flat, thin iron bar being then in universal use for railroads; but it was a richly-paying road from the commencement. In fact it was one of the most productive railroad enterprises then in operation in the whole country, the annual dividends averaging ten per cent., up to the period of its consolidation with the New York Central road. Utica was a great point of concentration from the North, the South, the East, and the West, and the cars were crowded throughout the year.

The Buffalo and Niagara Falls Railroad, twenty-two miles in length, was constructed in 1836, and opened for business in 1837. The Tonawanda road, running from Rochester to Attica, a distance of forty-two miles, was put in operation in 1837, and these two roads at once found as much business as they could attend to. In the mean time, another link in what afterwards became the New York Central road, was being built. This was the Utica and Syracuse Railroad, by way of Rome, fifty-three miles long, which was completed and opened in the year 1839. The business of this road was very great from the first. The annual dividends, for a long series of years,

reached about ten per cent. Still another link, the Auburn and Syracuse Railroad, twenty-six miles in length, was commenced in 1836, and opened in 1838. Until 1840 it was operated with horse-power coaches on a wooden rail. In 1840 the wooden rail was superseded by the iron strap rail, and the road was operated by steam. In 1843 the first saloon, or long car with seats having reversible backs, used on the New York Central Railroad, was placed upon the Auburn and Syracuse Railroad, and would hold between thirty and forty passengers.

The Auburn and Rochester Railroad was begun in 1838, and completed with iron rail, and operated by steam in 1843, a portion of the road (from Rochester to Canandaigua) having been opened two or three years before. This road crosses the northern extremity of Cayuga Lake near the site of the famous old Cayuga Bridge, over which, before the Erie Canal was built, thirty crowded stage coaches thundered each way daily on the route between Albany and Buffalo. The site of this old bridge is now marked by rows of piles that formerly supported the roadway.

CHAPTER XIV.

NEW YORK CENTRAL RAILROAD: CONTINUED.

THE two roads last mentioned formed the zigzag line between Rochester and Syracuse, by way of Canandaigua, Auburn, and Geneva. The route was exceedingly crooked and indirect, but it was necessarily so, on account of the financial difficulties that were encountered in the inception of the enterprise. At that time money was very scarce, and could only be obtained at very high rates; and capitalists were reluctant to embark in enterprises the success of which was not fully assured. The towns and villages near the proposed line, however, strained their means to assist the work; and it has been truly said that the zigzag course of the track shows that they exerted a commanding influence in determining its course. This road was used until it was superseded by the Rochester and Syracuse direct road in 1853.

The short, but important road from Troy to Schenectady, was built in 1841 and 1842. It was a losing concern from the outset. It never paid any dividends, and was never profitable until it was consolidated with the Central road.

The Attica and Buffalo Railroad, thirty miles in length, was opened in 1844, and the next year a gap of about a quarter of a mile between the Auburn and

Rochester Railroad and the Tonawanda Railroad was closed, which completed the connection by rail of Albany with Buffalo.

All the railroads now forming the New York Central were operated by steam from their opening except the Mohawk and Hudson, Auburn and Syracuse, and the Lockport and Niagara Falls Railroad, which were for a short time operated by horse-power.

Thus the connection of the waters of the Hudson River with Lake Erie by railroad was now complete with the exception of the gaps between the roads composing the line. These gaps made it necessary for the passengers to change cars five or six times in the course of the journey. Baggage checks had not yet been invented, and the vexation and annoyance attending these frequent transfers of baggage, the great delay consequent, and the extortion of hackmen, all conspired to produce great impatience and dissatisfaction. The running time of course was very slow. The train which left Buffalo at seven in the morning reached Rochester at one o'clock in the afternoon, Auburn at seven in the evening, and Syracuse at nine o'clock at night. It was customary for most of the passengers to remain at Syracuse over night. Sleeping cars had not then been invented; and after riding fourteen hours in the uncomfortable cars then in use, some rest seemed to be indispensably necessary. In the summer, two trains daily were run each way, but in the winter only one train each way daily. The trains from Albany to the west usually stopped at Syracuse over night, while those from Buffalo to Albany usually stopped at Auburn. Snow-storms fre-

quently blocked up the road, and it was no unusual thing for travel to be interrupted for three or four days at a time.

In the year 1849, an entire revolution in the mode of travel took place. The different railway companies on the line, united their tracks, took up the thin bar iron rail, and put down a heavy uniform T rail on the whole track. New locomotives, and cars of an improved construction, were put upon the track, and the trains began to run at a very high rate of speed. From twenty miles an hour the speed was increased to twenty-five, and then to thirty. After running some weeks at thirty miles an hour, the speed was still further increased to thirty-five, then to forty, and finally to forty-five miles per hour. The frightful velocity of the latter rate of speed was kept up for some months, but it was finally reduced to thirty miles an hour, and kept at that rate.

In 1850 the Auburn and Syracuse, and Auburn and Rochester Railroad, were consolidated under the title of the Rochester and Syracuse Railroad, and immediately commenced the construction of a more direct line between the two cities, called the Rochester and Syracuse Direct Railroad, and opened it in 1853, making a saving in distance over the old line of twenty-one miles.

About the same time (1850) the Tonawanda Railroad was consolidated with the Attica and Buffalo Railroad, under the title of the Buffalo and Rochester Railroad, and in 1852 opened a more direct line between Buffalo and Batavia, making a saving of five miles over the old line. Upon the opening of the new

line between Buffalo and Rochester, the portion of the old line between Attica and Buffalo was sold to the Buffalo and New York City Railroad Company. The Rochester, Lockport, and Niagara Falls Railroad, was opened in 1852, having bought out the franchises of the old Lockport and Niagara Falls Railroad.

The Buffalo and Lockport Railroad was opened in 1853, and since then the Buffalo and Lockport Railroad and the Buffalo and Niagara Falls Railroad, have used the same track from Buffalo to Tonawanda, eleven miles.

As heretofore stated, the several railroads comprising the entire line between Albany and Buffalo were consolidated in the year 1853, under the name of the New York Central Railroad Company. The bill for the consolidation was strenuously opposed by the New York legislature, but it finally passed by a handsome majority. It has proved to be a wise and excellent measure. The public convenience, and the interest of the stockholders were alike consulted by the gentlemen through whose exertions it was consummated; and it is well known that its opponents now cheerfully acknowledge the great advantages that have resulted from it.

Immediately after consolidation, the New York Central Railroad leased for the term of their respective charters, the Buffalo and Niagara Falls Railroad, the Lewiston Railroad (opened in 1854), and the Rochester and Lake Ontario Railroad; and under an act of the legislature, passed in 1855, these roads became practically consolidated with the New York Central Railroad, by exchange or conversion of the stock of the

companies for stock of the New York Central Railroad.

The Canandaigua and Niagara Falls Railroad was opened as a broad gauge Railroad from Canandaigua to Batavia (fifty miles) in 1853, and to Suspension Bridge, forty-nine miles further, in 1854, and was intended to furnish a broad gauge line from New York *via* New York and Erie, Canandaigua and Elmira Railroads, connecting with the Great Western Railroad of Canada at Suspension Bridge, but not proving a success financially, it was sold to satisfy mortgages in 1857. A new company was formed under the title of the Niagara Bridge and Canandaigua Railroad, and in 1858 it was leased in perpetuity to the New York Central Railroad Company, who at once changed the gauge to four feet eight and a half inches, and since then the Buffalo and Niagara Falls Railroad has been run upon the track of this railroad, between Tonawanda and Niagara Falls.

The whole of the original line of the Buffalo and Niagara Falls Railroad which was for nearly the whole distance within the limits of the travelled highway, is now abandoned, the track of the Buffalo and Lockport Railroad being used between Buffalo and Tonawanda, and the track of the Niagara Bridge and Canandaigua Railroad between Tonawanda and Niagara Falls.

The Saratoga and Hudson River Railroad was begun in 1864, and opened in the spring of 1866. This railroad runs from the village of Athens on the west side of the Hudson River opposite the city of Hudson and about thirty miles below Albany, to a

point on the line of the New York Central Railroad about three and a half miles east of Schenectady, and is thirty-seven and a half miles long. It was designed to give the traffic upon the New York Central, an outlet upon the river below the shoals and shifting channel between that point and Albany, which have in years past made the navigation of the river by large vessels and steamers somewhat uncertain. This railroad is leased and operated by the New York Central Railroad Company.

The main trunk of the New York Central Railroad *via* Mohawk and Hudson Railroad, Utica and Schenectady Railroad, Syracuse and Utica Railroad, Rochester and Syracuse Direct Railroad, and Buffalo and Rochester Railroad, is double tracked the whole distance. The other lines are all single tracked.

Thus thirteen distinct corporations have been united, under the consolidation act, to form the present New York Central Railroad Company.

The capital stock of the Company is twenty-four millions five hundred and ninety-one thousand dollars. The Company has no floating debt. The entire cost of the construction and equipment of the road has been thirty-four millions one hundred and thirty-three thousand nine hundred and eleven dollars.

In 1855, the equipment of the road consisted of one hundred and eighty-eight locomotive, two hundred and sixty-three passenger cars, and two thousand one hundred and sixty-two freight cars. Additions to this equipment have been made every subsequent year. In 1866 the equipment consisted of two hundred and seventy-six locomotives, two hundred and ninety-two

passenger cars, and four thousand nine hundred and fifty-nine freight cars. In 1854, the number of passengers carried was about two and a half million (namely, 2,556,874) persons. This number somewhat increased until the year 1858, when it fell off in consequence of competing roads, to a little over two million (namely, 2,124,439) persons. Since that time the number of passengers has steadily and largely increased, and in the year 1863 it had amounted to nearly three millions, and in 1864 to three and a half millions. In 1866 the number of passengers reached the enormous number of three million seven hundred and forty thousand, one hundred and fifty-six.

The earnings of the road in 1854 amounted to nearly six millions of dollars (namely, \$5,918,334). The earnings of the road have steadily increased every subsequent year, except in 1858 and 1859, in both of which years, however, they were over six millions. In the year 1862 they were over nine millions of dollars; in 1863 nearly eleven millions; in 1864 nearly thirteen millions; 1865 nearly fourteen millions; and in 1866 the earnings of the road amounted to over fourteen and a half millions of dollars (namely, \$14,596,786).

The engraving at the beginning of this chapter is an accurate representation of the first train of passenger cars that ever ran on the New York Central Railroad. In 1831, as before stated, that part of the road then known as the Mohawk and Hudson, being completed, the Company had a locomotive built in New York by the West Point Foundry Association, which is accurately represented in the engraving. It was called the De Witt Clinton, and made its first trip in July. The

cylinders were five and a half inches in diameter, with sixteen inch stroke. The wheels were four and a half feet in diameter. The boiler had thirty copper tubes, five feet long and four inches in diameter. The connecting rods worked on double cranks in the front axle. John Thompson, an Englishman, was the engineer.

The profiles in the engraving are life portraits of the passengers who took passage in the first trip over the road, and the names of all have been preserved. The fourth from the engine, counting the engineer one, is Thurlow Weed, and the likeness can easily be recognized. It will be observed that the cars are built like stage coaches, and hung on springs in stage coach fashion.

In another chapter of this work, we have spoken of the New York Central Railroad as a part of the great through route between Chicago and Boston. Previous to the year 1865, however, passengers on arriving at Albany were compelled to change cars, and to cross the Hudson River on a ferry boat. In that year the great railroad bridge across the Hudson was built by the New York Central Railroad Company. It was completed, and opened for use, on the 22d of February, 1866, and since that time trains from both New York and Boston have run through to Buffalo and Suspension Bridge, without the transfer of either passengers or freight.

The New York Central Railroad Company has been peculiarly fortunate in having for its officers, for some years past, a body of gentlemen who are emphatically the right men in the right places. It is owing to their

fidelity in the discharge of their respective duties, that this road has gained such an enviable reputation as it has long enjoyed. And without making any invidious distinctions, it is no more than an act of simple justice to say that the labors of Mr. H. W. Chittenden, the General Superintendent, and of Mr. Charles Hilton, the Chief Engineer, have made the road what it is: one of the best constructed, best managed, and best paying roads in the United States.

In November, 1867, the Stockholders of the Company became convinced that the interests of so vast a corporation required at its head a person of no ordinary abilities. They did not have to look outside of the circle of their own members to find the man they needed. Commodore Vanderbilt was already one of the largest stockholders. His remarkable administrative talents, and his great experience in the management of railroads, pointed him out as the man for the crisis. The stockholders holding thirteen millions of stock, therefore, placed their proxies in the hands of Commodore Vanderbilt, which enabled him to select such a board of directors as he deemed suitable. Mr. Vanderbilt accepted the trust; and the board of directors thus chosen, elected him as president.

The following table exhibits in a condensed shape, the financial history of the road from the year 1853 to 1867:—

	No. of Engines in use.	No. of Passenger cars in use.	No. of Passengers Carried.	Passenger Earnings.	Freight Earnings.	Total Earnings.	Cost of Road and Equipment to Date.	No. of Freight Cars in use.	Net Earnings.
1853	147	211	465,203	\$720,672	\$353,003	\$1,073,675	\$25,907,374		
1854	175	242	2,556,874	3,151,514	2,479,821	5,918,334			
1855	188	263	2,717,477	3,242,229	3,189,603	6,563,581	27,360,731	2,162	
1856	209	265	2,729,613	3,229,752	4,371,389	7,773,069	29,786,372	2,380	
1857	218	270	2,609,947	3,147,637	4,559,276	8,027,251	30,515,815	2,770	\$2,489,570
1858	218	258	2,124,439	2,532,646	3,700,270	6,528,412	30,732,517	2,870	1,951,633
1859	211	240	2,256,647	2,566,370	3,337,148	6,200,849	30,840,714	2,320	1,704,606
1860	216	235	2,261,136	2,569,265	4,095,933	6,957,241	31,106,095	2,705	1,517,862
1861	215	206	2,153,944	2,315,933	4,664,449	7,309,042	31,524,226	2,320	1,484,121
1862	229	229	2,276,977	2,389,724	6,607,331	9,356,827	31,787,398	3,305	2,553,916
1863	239	255	2,723,954	2,930,341	7,498,508	10,897,631	32,740,068	4,074	2,884,798
1864	241	256	3,554,254	3,923,151	8,543,371	12,997,890	32,879,251	4,674	2,368,798
1865	258	284	3,783,263	4,521,454	8,776,028	13,975,524	33,701,920	4,986	1,609,363
1866	276	292	3,740,156	4,360,248	9,671,920	14,596,786	34,133,911	4,959	2,039,014

The officers of the Company are C. Vanderbilt, President; R. M. Blatchford, Vice President; E. D. Worcester, Treasurer; Harlow W. Chittenden, General Superintendent; Charles Hilton, Chief Engineer; Julius A. Spencer, Assistant Superintendent.

The election of Commodore Vanderbilt as president of the Company, in December, 1867, marks the commencement of a new era in the history of this great road. With its well-constructed track and road-bed, its powerful and gigantic locomotives, and its superb passenger cars, fitted up with state-rooms and with every luxury and comfort, it would seem that the road was all that could be desired; while the steady increase of its passenger and freight business, during the last ten years, sufficiently indicates its popularity. But Commodore Vanderbilt and the new Board of Directors believe that the road and its management is susceptible of still further improvements—improvements that will greatly increase the comfort and safety of passengers, and that will greatly augment the revenues of the Company. These improvements will be immediately carried out; and when we consider the great experience of Mr. Vanderbilt in railroad matters, and the energetic character of the gentlemen composing the new Board of Directors, it cannot be doubted that the contemplated improvements will lead to the most happy results.

CHAPTER XV.

MICHIGAN CENTRAL RAILROAD; AND GREAT WESTERN
RAILROAD OF CANADA.

THE New York Central Railroad terminates at the famous iron Suspension Bridge, at Niagara Falls. This bridge crosses the Niagara River at a point two miles below the Falls, and was built in order to carry the New York Central Railroad across the river at this point. It is constructed of iron wires bound together, and presents an exceedingly light and graceful appearance. It is eight hundred and twenty-one feet long, and consists of two main passages, a roadway for horses and carriages, and a track for the railroad, the latter being uppermost. The elevation of the railway track above the water is two hundred and forty-five feet. This bridge was completed in 1855, and has been in daily use ever since. The heaviest trains have passed over it daily, yet it is, so far as the most scientific investigation can show, as strong now as when first constructed.

Crossing this fine bridge, with the bottomless waters of the Niagara River two hundred and forty-five feet beneath our feet, we find ourselves on the

GREAT WESTERN RAILROAD OF CANADA.—This road extends from Niagara Falls to Detroit, and is two hundred and thirty miles long. The total re-

ceipts of this road, since its completion have amounted to nearly twenty-six millions of dollars (namely, \$25,843,906). The Company has recently completed and launched a new car ferry boat, on the Detroit River, by which trains of cars can be safely and speedily transported across the river to Detroit, without making it necessary for the passengers to leave their seats.

MICHIGAN CENTRAL RAILROAD.—The Michigan Central Railroad extends from Chicago to Detroit, a distance of two hundred and eighty-four miles. It has a wide track, and has the reputation of being one of the best constructed roads in the United States. The passenger cars are certainly all that could be desired, being models of comfort and convenience. Four trains are run daily, from Chicago to Detroit, and four also from Detroit to Chicago. The trains from the east leave Detroit on the arrival of the cars on the Great Western Railroad of Canada from Niagara Falls, about 7 and 10.30 A. M., and 5.30 and 11 P. M., and arrive at Chicago at about 8 and 11 P. M., and 6 A. M., and 12.30 at noon; the running time being thirteen hours. Trains for the east leave the depot of the Illinois Central Railroad, at Chicago about 4 and 6 A. M., and 5.30 and 10 P. M., and arrive at Detroit in time to connect with the trains for Suspension Bridge.

In May, 1849, the Michigan Central Railroad was completed and in operation from Detroit to New Buffalo. New Buffalo was a small village at the southern extremity of Lake Michigan, a few miles east of the

present Michigan City. It has now entirely disappeared from the map. The Michigan Central Railroad terminated there, and from this point two daily lines of steamers ran to Chicago, a distance of nearly forty-five miles. The time between Chicago and New York became thus reduced to two and a half days. The population of Chicago in 1850 was twenty-eight thousand. The Galena Railroad of Illinois was at that time completed and in operation from Chicago to Elgin, a distance of forty-two miles. The Galena Railroad Company for a time entertained the design of completing the Michigan Central road from New Buffalo into Chicago, but that was finally done by the Michigan Central Railroad Company themselves.

The following statement shows the earnings from passengers, freight, &c., and the proportion of earnings consumed in operating expenses of this road, for a series of years.

Year ending May 31,	Passenger Earnings.	Freight Earnings.	Miscellaneous Earnings.	Per ct of earnings used in operating expenses, exclusive of tax.
1857	\$1,610,415 75	\$1,413,492 47	\$80,694 47	64 $\frac{6}{10}$
1858	1,321,039 56	1,033,748 32	73,969 64	59 $\frac{6}{10}$
1859	938,609 39	831,435 46	68,084 82	53 $\frac{4}{10}$
1860	803,507 97	962,621 70	66,815 19	53 $\frac{7}{10}$
1861	775,228 53	1,218,186 29	64,637 79	51
1862	724,915 48	1,559,060 98	77,264 96	45 $\frac{1}{10}$
1863	889,682 28	1,983,757 35	73,120 92	40 $\frac{4}{10}$
1864	1,262,415 07	2,073,274 71	98,858 85	47 $\frac{6}{10}$
1865	1,771,813 60	2,233,529 47	140,076 50	55 $\frac{8}{10}$
1866	2,061,335 05	2,208,591 82	176,563 64	61

The following table shows the earnings and expenses of the last two years:—

	1865.	1866.
Passenger earnings . . .	\$1,771,813 60	\$2,061,335 05
Freight earnings . . .	2,233,529 47	2,208,591 82
Miscellaneous earnings . . .	140,076 50	176,563 64
Total earnings . . .	\$4,145,419 57	\$4,446,490 51
Operating expenses, including taxes	2,406,149 63	2,808,375 92
Net earnings . . .	\$1,739,269 94	\$1,638,114 59
Ratio of expenses, less taxes, to earnings	55 $\frac{8}{10}$	61

HOTEL CARS.—On the whole of this route, between New York and Chicago, by way of Albany and Suspension Bridge, are to be found the elegant new sleeping cars of Mr. Pullman, which are as much superior to the sleeping cars in recent use, as the present mode of railroad travelling is superior to the old stage coach. Here are no dirty bed-clothing reeking with foul smells; no unclean mattresses; no foul air; in a word, none of the features that make the traveller turn away in disgust. No; here everything is beautifully clean, fresh, and sweet. The cars are divided into compartments, each one as private as a room in a hotel, and quite as comfortable. In each there is a sofa, a table, and two arm-chairs. At night the sofa and chairs are made up into three double berths, with plenty of room above and below, and plenty of ventilation. The traveller gets up in the morning refreshed with a comfortable sleep, finds all the conveniences for washing, rings his bell, orders

his breakfast from a printed bill of fare, and has it brought to him hot, in warm plates, and with clean linen, bright glasses and silver forks. The meals are cooked on board, and are served up in delicious style, and the traveller eats them at his leisure. Such is the hotel car which has just been introduced, and which will add so much to the comfort of travellers. A lady writes, in regard to the meals on these cars:—

“Our breakfast consisted of delicious porter-house steak, eggs, toast, hot rolls, and splendid tea and coffee, and the dinner was made up of chickens, roast beef, potatoes, sweet corn, currie, with a dessert of nicely canned peaches, and other nice things. The tables set in the car remind one of a table at Delmonico’s. All is cooked in the baggage car.”

The admirable and successful management of this important road, the Michigan Central, is due in a great measure to the personal exertions and great experience of the General Superintendent, R. N. Rice, Esq., who resides at Detroit, and who exercises the most vigilant supervision over all the departments of the service.

The Company has just erected a new freight building at Detroit, which is one of the finest structures of the kind in the country.

The officers of the Company are John W. Brooks President; R. B. Forbes, Vice-President; Isaac Livermore, Treasurer, R. N. Rice, General Superintendent.

CHAPTER XVI.

NEW YORK AND ERIE RAILROAD.

THE main line of the Erie Railway is four hundred and sixty miles in length, and passes through portions of the most important valleys of the Atlantic Slope. From the valley of the Hudson it crosses the Shawangunk Mountains into the valley of the Delaware. From Susquehanna to Waverley it runs along the banks of the north branch of the Susquehanna. Next on the Genesee it is found in the valley of the lower St. Lawrence. From Olean to Salamanca it runs for twenty miles on the margin of a river which flows into the Mississippi, and its western terminus is on the shore of the system of lakes which forms the upper St. Lawrence. Except the great Pacific road, no other road in the country has a better right to the title of national.

Before the Erie Canal was completed projects were agitated for the improvement of the means of communication through the southern tier of counties in the State of New York; and soon after that great work was opened application was made to the General Government for a corps of engineers to survey the proposed route. The application at first promised to be completely successful, but the aid was ultimately limited to the services of one officer on terms

which were availed of only by the counties of Orange, Rochester, and Sullivan.

This reconnoissance was made in the year 1832, under the superintendence of Col. De Witt Clinton, Jr. and, though not made at the request of the corporation by whom the road was eventually constructed, it proved to be of great service to them, demonstrating that the supposed obstacles had been exaggerated, and it identified the name of Clinton with the Erie Railway as indelibly as it had been identified with that of the Erie Canal.

In the season of 1832, the Legislature of New York incorporated the New York and Erie Railroad Company, with authority to construct a railroad with single, double, or treble tracks from the Hudson River to Lake Erie through the southern tier of counties of the State. With the sectional state jealousy which distinguished the legislation of that time, the Corporation was specially forbidden to connect their road with any road in the State of New Jersey.

It was not until May, 1833, that steps were taken to act under this charter; when a notice of the opening of the books and the terms of subscription of the stock was issued, signed by such men as Morgan Lewis, Isaac Lawrence, Stephen Whitney, John Haggerty, Elisha Riggs, Gideon Lee, John Duer, and others. The pamphlet which accompanied this notice, extravagant as it doubtless seemed to some of the signers, will bring a smile on the face of the reader of 1867. They say "there can be no extravagance in the opinion that the proposed railway would be altogether the most important and most productive

thoroughfare from the coast to the interior in any part of the country, whether we regard the present amount of trade and intercourse to be accommodated, or that which a few years would exhibit, requiring thirty or forty hours only for the passage hence to Lake Erie." "A single railway of sufficient strength and solidity to be used with advantage and economy by animal power can be constructed for less than three millions of dollars." "A railroad of this description would be most satisfactory to the inhabitants on and near the route," and "although on railways designed for the use of steam, heavier loads may be drawn and greater speed attained than on those for animal power," yet "it is to be considered that a railway for horses on the route in view would be as much superior in both these respects to any existing or *probable* means of communication as steam is in any respect to animal power," and for these reasons the gentlemen who issue the notice "entertain the most entire confidence that the stock of a railroad of the description proposed would be both safe and productive."

By July, 1833, the very modest promises held out in the call from which we have quoted had induced gentlemen to subscribe to the stock of the new Company to the amount one million of dollars, and the New York and Erie Railroad Company was organized and went into business, and on the 29th of September, 1835, the Directors made their first annual report to the Stockholders. During the interim a new survey of the route had been made under directions of the State of New York by Mr. Wright, the engineer ap-

pointed by Governor Marcy, and as the result of that it was announced that the estimates were increased to six millions of dollars, and that the road was to be constructed entirely for transportation by steam. The Board further stated to the Stockholders in italics, in order to mark the importance of the announcement, that they had the gratification of announcing the following result, to wit, "that loads of sixty tons gross (or deducting the weight of the cars, forty tons net) may be drawn in a single train from the Hudson River to Lake Erie at an average speed of from twelve to fourteen miles to the hour; that with the rate of speed augmented one-half a locomotive engine will nevertheless suffice to transport two hundred passengers and their baggage; that no stationary engine will be requisite on any part of the work, and that one or at most two auxiliary engines only will be requisite on the whole length of the line." The Directors further advised the Stockholders that they proposed at once to commence the construction of the road and to rely for means upon increasing the stock subscription to three millions, borrowing the other three millions either from foreign capitalists or from the State. The stock subscriptions were actually increased so as to net about one million five hundred and eighty thousand dollars, and a loan of three millions of dollars was obtained from the State of New York under a law passed in 1836 and subsequently modified.

The construction of the road was commenced and continued from these and other sources until April, 1842, when the Company, being without further

means and without credit, voluntarily suspended work, and made an assignment of all their property to assignees for the benefit of their creditors. This assignment was subsequently held by the Supreme Court of New York to be invalid. At the time of the assignment the estimated total cost had increased up to twelve millions four hundred and twenty-two thousand eight hundred and ninety dollars, of which eight million two hundred and eighty-one thousand dollars were still to be raised. Application was made to the Legislature for State aid, which was granted, but with conditions attached that made it useless. The city of New York was applied to and refused to lend its credit. New books of subscription were opened, but no one applied.

At length, in 1845, the act of the State of New York was passed under which the construction of the road was resumed and completed. The Stockholders were required to surrender and cancel one-half of their shares, and to increase their subscriptions by three millions of dollars new subscriptions; in consideration of which the State relinquished entirely its claims for the return of the three millions of dollars already loaned, and agreed to virtually become a trustee for the holders of new first mortgage bonds to the like amount secured upon the whole property. The conditions were all complied with, the construction of the work was resumed, and on the 22d day of April, 1851, the road was opened for travel from Piermont to Lake Erie, a distance of four hundred and fifty-one miles, with a branch from Gray Court to Newburgh, a distance of nineteen miles.

In order to secure a terminus at New York, the Company, in 1852, acquired by lease, the Paterson and Hudson River Railroad and the Paterson and Ramapo Railroad of New Jersey, and the Union Railroad of New York, by means of which their passenger trains were enabled to reach the Hudson River at the station of the New Jersey Railroad and Transportation Company. But this was soon found insufficient accommodation, and a contract was in 1856 made with the Long Dock Company, by which that Company undertook to acquire all the lands and water rights necessary for an independent terminus at Jersey City, and to construct a railroad thence to the Paterson and Hudson River Railroad, tunnelling the Bergen Hill, which contract was carried out so that freight and passenger trains commenced discharging at the Long Dock in 1862.

In April, 1859, the New York and Erie Railroad Company went to protest upon its mortgage interest, and in the following July proceedings were commenced for the foreclosure of two of the mortgages, and a receiver of all the property was appointed by the court. The creditors and stockholders having succeeded in making an amicable arrangement, applied to the Legislature for authority to carry it out, and the formation of the present Erie Railway Company was authorized by an act passed in 1860. This Company was duly organized in 1861, and in 1862 the road, property, and franchises of the old New York and Erie Railroad Company having been sold to trustees under a decree for the foreclosure of the fifth mort-

gage, was conveyed to the new company by the trustees. The same trustees also conveyed to the Erie Railway Company sixty miles of road between Hornellsville and Attica, which they had purchased during their trusteeship. Since January 1st, 1862, the day on which the new company entered into possession of their property, the Erie Railway Company has also acquired by leases the Buffalo, New York and Erie Railroad and the Buffalo, Bradford, and Pittsburg Railroad, and they now operate, including the main line and all its branches, seven hundred and seventy-three miles of road, of which three hundred and fifty miles are double track. Their equipment consists of three hundred and seventy-one locomotives, three hundred and five passenger and baggage cars, and five thousand seven hundred and seventeen freight cars.

The aggregate population of the counties of Rockland, Orange, Sullivan, Delaware, Broome, Tioga, Chemung, Steuben, Alleghany, Cattaraugus, and Chautauque, in the State of New York, through which only the New York and Erie Railroad, as originally projected, was to run, was in 1830 two hundred and thirty-four thousand one hundred and fifty-three.

The present population of the territory tributary to the road and branches, including terminal stations, is probably not short of two millions.

The estimated cost of construction was three million dollars. The actual cost, exclusive of rentals, has been forty-eight million eight hundred and eighty-five thousand seven hundred and thirty-eight dollars.

The estimated revenue on which the projectors invited the public to invest in its shares was—

From passengers	\$900,000
“ freight	1,069,088
	<u>\$1,969,088</u>
Less operating expenses	\$919,088
“ repairs	144,000
	<u>1,063,088</u>
Net profits	\$906 000

The actual results for 1866 were, as reported by the Company—

From passengers	\$3,148,290
“ freight	11,261,641
	<u>\$14,409,931</u>
Operating expenses and Repairs	10,853,140
Surplus	\$3,556,791

The local business of the road was very large, from the first opening of this great thoroughfare. The country through which it passes is one of remarkable fertility, and it was already thickly settled, and all the farms along the route in a state of high cultivation. The railroad, however, afforded the farmers what they had not before, namely, the means of getting their produce quickly and cheaply to market. They eagerly embraced the opportunity, and the production of grain, fruit, and cattle, all along the route, became greatly stimulated.

The value of the road was further seen, in the rapid growth of the towns along the route. Elmira, Binghamton, Owego, and Corning, were all small towns, when the road was commenced. Now they are

all flourishing cities, and their wealth and population have steadily increased.

But it was as a through route between the East and the West, that the New York and Erie Railroad acquired its greatest celebrity, and gained its greatest wealth. The Michigan Southern Railroad was opened to Chicago in 1852, and the Lake Shore Railroads, from Dunkirk to Toledo, in 1853. In connection with these roads, the New York and Erie road at once began to carry passengers, and this route between New York and Chicago became immediately popular. The passenger traffic over this through route increased rapidly, year after year, from 1854 to 1860; and during these six years the revenues of the New York and Erie Railroad, from passengers, were enormous. Freight, of course, followed the same route; and the freight business of the road, between New York and Chicago, increased rapidly year after year.

The great trouble with regard to freight was, that it all had to be unloaded at Erie, and transhipped into other cars. This was owing to the difference of gauge in the roads west of Erie, from that in use on the New York and Erie road. After some years, however, this difference was obviated, but not until a serious riot had taken place at Erie, in consequence of the attempt to equalize the grades. Since that time there has been no difficulty on this point, and loaded freight cars now go through, between New York and Chicago, without breaking bulk.

This road has an eastern terminus at Newburg, as well as at New York. It will be connected at Newburg, in a few months, with the Boston, Hartford, and

Erie Railroad, which is now completed, except a distance of twenty-six miles, east of Newburg. This road, when completed, will extend from Boston to Newburg, passing through Hartford, and several other important towns in Connecticut. It will prove a most valuable feeder to the New York and Erie road, and will add greatly to the business of the latter.

The Erie Railway, for convenience in operating, is divided in four divisions, while the branches leading from the main line to Buffalo constitute a fifth division, each under the charge of an assistant, or division superintendent.

The Eastern Division, extending from Jersey City to Port Jervis, $87\frac{1}{4}$ miles, is double-tracked the entire distance, the last completed portion of the second track (near Hohokus) having been brought into use early in March, 1866.

The Delaware Division, extending from Port Jervis to Susquehanna, a distance of one hundred and four miles, has nineteen and a half miles of double track, and fifteen miles have been graded for a second track. It is the intention of the Company that nothing shall be allowed to interfere with the steady prosecution of this important and essential work, until the double track is completed over the whole division. The Susquehanna Division extends from Susquehanna to Hornellsville, one hundred and thirty-nine miles, and of this one hundred miles are supplied with double track. The Western Division extends from Hornellsville to Dunkirk, one hundred and twenty-eight miles, and a single track has been found sufficient. The Buffalo and Northwestern Divisions, united under the

charge of one Division Superintendent, comprise the road from Buffalo to Corning, one hundred and forty-two miles; from Attica to Hornellsville, sixty miles; and from Avon to Rochester, eighteen miles, making two hundred and twenty miles of single track road.

In the year 1861, the earnings of the road were, from passengers one million eighty-five thousand nine hundred and sixty-nine dollars; from freight five millions eleven thousand six hundred and sixty-one dollars. The total earnings were six million two hundred and fourteen thousand one hundred and eighty-two dollars, and the net earnings were two million four hundred and twenty-nine thousand six hundred and ninety-eight dollars.

On the 1st of January, 1862, the whole property of the road, and its management, passed from the hands of the Supreme Court into the possession of the present New York and Erie Railroad Company. For two years and a-half previously, the road had been operated by a receiver appointed by the court; but all liabilities and claims against the Company and its property having been paid or satisfactorily adjusted, by arrangement between the shareholders and creditors, he was discharged. On handing over the property to the new Company, the receiver said: "With the ability to earn more income than ever before, it is hoped the early return of peace and prosperity to the country will so increase the traffic that the road will hereafter earn full interest on the entire capital and debt of the Company." This hope, so far only as the earnings of the road are concerned, has been fully realized. The road has not only earned more than the

interest on its entire cost to the Company, but is in a condition so improved in its permanent way and rolling stock as to be able to earn still larger income, subject only to the state of the times and the degree of the general prosperity of the country.

During the year 1862 the road bed was very much improved by widening cuts, deepening ditches, adding new culverts, and raising the grade in places exposed to floods, substituting stone ballast for gravel, and increasing the number and size of cross-ties. The whole road was now fenced for the first time, on both sides, along its entire length. The rolling stock consisted of two hundred and twenty-six locomotives, one hundred passenger cars, and three thousand one hundred and fifty freight cars. The net earnings of the road were three million five hundred and thirty-nine thousand five hundred and eighty-six dollars.

During the year 1863 the efficiency of the rolling stock was largely increased by the addition of seventeen fine locomotives and two hundred and fifty-seven cars.

INCREASE OF MEANS TO OPERATE THE ROAD.—
The report of the President for this year says:—

“The necessity for more equipment both of locomotives and cars, as well as additional double track, machine shops, station accommodations and turnouts, is strongly impressed upon the minds of the Board of Directors. In order to increase the earnings, or even to maintain the rate of last year for any considerable time, these increased facilities are indispensable. The large earnings of 1863 were produced by working the machinery almost to its utmost capacity, and far beyond the limits of economy; while some parts of the

single track were so constantly filled with trains as to render delays, always costly, unavoidable. The earnings of 1863 were ten million four hundred and sixty-nine thousand against five million three hundred and forty-two thousand dollars in 1860, while the increase in the number of locomotives was comparatively small. In 1863 there were two hundred and forty-three against two hundred and twenty in 1860. Of this increase, less than one-half were in use the whole of last year. The increase of freight cars has been somewhat greater in proportion, though the present stock is quite inadequate. With a moderate increase of equipment the earnings of last year would have been at least one million dollars larger than they were, while the expenses would not have been proportionately increased.

“In view of these facts the Directors have authorized the President to contract for as many locomotives, and to build in the shops of the Company as many cars as the Executive Committee and the officers shall judge necessary. Under this authority forty first-class freight locomotives have been ordered and are in course of delivery. The whole number will probably be completed by the first of June. The building of cars is going on in the Company’s shops. Additions to the double track, new turnouts, machine shops, engine houses, and station houses will be commenced in the spring. To provide the means to meet the cost of these improvements, the Board of Directors have only two resources—either to use the earnings of the road, or to raise new capital.”

They determined in favor of the latter, and obtained

legislative authority to increase the capital stock five millions of dollars.

In this year the rolling stock of the road consisted of two hundred and forty-three locomotives, one hundred and nine passenger cars, and three thousand five hundred freight cars. The net earnings of the road were four million eighty-eight thousand nine hundred and seventy dollars.

The report of the President for the year 1864 stated that, although the road was now very well supplied with cars, except passenger cars, there was "still a great deficiency of engines. The engines have been, for the last three years, worked night and day without any intermission.

"In addition to the extra service required of the engines the shops of the Company were found inadequate to repair them when they could be spared for that purpose, and it has been found absolutely necessary to provide more shops and larger accommodations for the repairs of engines and cars. The room provided did not anticipate so large an increase in the rolling stock as has been found necessary to do the increased, and constantly increasing business offered.

"To meet this want the Company have nearly completed a new machine shop, at Susquehanna, which will much facilitate the repairs of engines now so much needed, and give accommodations for building new ones.

"There would have been a much more economical working of the road if the motive power had been greater and in first-rate working order.

“To provide for this deficiency contracts have been made to furnish sixty-seven (67) engines of the most approved pattern, to burn coal.”

In this year the rolling stock of the Company consisted of two hundred and seventy-six locomotives, one hundred and fourteen passenger cars, and four thousand and eighty-seven locomotives. The net earnings of the road were four millions five hundred and ninety-four thousand two hundred and twenty-five dollars. In 1865, the rolling stock consisted of three hundred and thirty-two locomotives, one hundred and thirty-three passenger cars, and four thousand two hundred freight cars. The net earnings reached the enormous sum of five millions of dollars, namely, five million sixty-six thousand five hundred and eleven dollars.

OPERATIONS OF THE ROAD FOR THE YEAR 1866.—The earnings of the road for the year 1866 were four-fourteen million five hundred and ninety-six thousand four hundred and thirteen dollars; and the expenses ten million eight hundred and fifty-three thousand one hundred and forty dollars.

The expenses of operating the road in 1865 were	\$11,754,395
“ “ “ “ “ “ “ 1866 “	10,853,140
Decrease of expenses in 1866	\$901,255

It is no more than just to state that this large decrease in the working expenses of the road was not made at the expense of the condition of the track, or the efficiency of the equipment.

FINANCIAL CONDITION.—The financial condition of the Company, December 31, 1866, was:—

Capital stock issued	\$25,111,210 00
Funded debt	22,429,920 00
Accounts payable, current business	4,894,452 04
Accrued interest on bonds, not yet due	624,107 04
Earnings for preferred stock, payable January 21, 1867	567,304 85
Balance of "income account,"	660,880 56
	<hr/>
	\$54,287,874 49

These amounts are represented by—

Cost of road and equipments	\$48,885,738 73
Hawley branch	236,946 99
Cash and cash items	994,150 73
Materials and fuel (as per tables)	2,606,494 99
Accounts receivable, current business	1,191,556 21
Long Dock Company	280,488 51
Buffalo, Bradford, and Pittsburg Railroad	60,073 09
Twenty-third Street property	32,425 24
	<hr/>
	\$54,287,874 49

The three million first mortgage bonds mature and become payable on the first of July next. Previous to their maturity it is the intention of the Company to invite proposals for their extension for a period of thirty years, at seven per cent., per annum; authority being given to the Company, by a statute of the State of New York, to extend any or all of its mortgage bonds, in the order of their respective priorities.

These bonds being a first mortgage on the entire property of the Company, must be regarded as a very desirable investment, and the Company will undoubtedly be able to negotiate for their extension on advantageous terms.

The passenger travel over this road for the last ten years has been immense, and seems to be steadily

increasing every year. It forms a part of one of the favorite routes between New York and Chicago, the other roads on the route being the Michigan Southern, and the Lake Shore line. The distance from New York to Chicago, by this route, is nine hundred and fifty-eight miles, and the running time about thirty-six hours. Four passenger trains leave New York daily, from the depot at the foot of Chambers Street, at about eight and ten A. M., and five and seven P. M., passing through Hornellsville, Dunkirk, Erie, Cleveland, and Toledo, and arriving at Chicago at about six and eleven A. M. and eight P. M. The trains run into the new depot of the Michigan Southern road, on the corner of Van Buren and Sherman Streets.

Harper's Guide Book of the Erie Railroad says: "We would suggest to the traveller that he make his first day's journey extend as far as Port Jervis, and go the next day to Susquehanna, drive down to Lanesburg, and pass the night at the quiet little inn there, and devote the next morning to an examination of the viaduct and the cascade bridge. He can then take an afternoon train for Binghampton or Elmira, where he can pass the night. The next day he should go to Hornellsville, and the next to Dunkirk. The question is frequently asked, which side of the car is preferable to sit on? It is impossible to select one side as preferable for the entire route, for one side is often hidden for many miles by mountains, while from the other side the view is good. From Middleton to Mount Hope, where the road returns from Pennsylvania to New York across the Delaware River, the right hand side presents one continuous scene of

beauty, grandeur, and magnificence; while, from the left side almost nothing is visible. From this bridge to Deposit, the left hand side is to be chosen, as the right is hidden by mountains all the way. From Deposit to Susquehanna, the right hand side is to be selected."

The officers of the Company are John S. Eldridge, President; Alexander S. Diven, Vice-President; Samuel Marsh, Honorary Vice-President; H. N. Otis, Secretary; E. W. Brown, Treasurer.

The following is a statement of the earnings of the road for the last thirteen years:—

EARNINGS FOR YEARS ENDING DECEMBER, 31.

EARNINGS.	1854.	1855.	1856.	1857.	1858.
From Freight	\$ 503,036 55	\$3,919,553 60	\$4,480,999 75	\$3,937,014 69	\$3,794,331 96
" Passengers	1,738,595 18	1,678,609 27	1,597,399 50	1,411,917 31	1,161,270 08
" Mails	116,628 84	116,628 84	116,628 84	110,868 13	94,892 25
" Other Sources	100,336 03	21,147 10	31,876 34	34,467 41	31,330 27
Total Earnings	\$5,458,596 65	\$5,735,938 81	\$6,226,904 43	\$5,494,267 54	\$5,081,824 56

EARNINGS.	1859.	1860.	1861.	1862.
From Freight	\$3,289,918 18	\$4,021,487 10	\$5,011,349 09	\$7,065,363 07
" Passengers	1,153,001 13	1,212,288 71	1,085,969 22	1,200,450 21
" Mails	98,929 74	97,961 83	98,821 65	101,652 04
" Other Sources	35,181 19	10,657 30	18,042 00	32,868 99
Total Earnings	\$4,577,030 24	\$5,342,394 94	\$6,214,181 96	\$8,400,334 31

EARNINGS.	1863.	1864.	1865.	1866.
From Freight	\$8,476,810 18	\$10,242,897 61	\$11,926,540 14	\$11,261,641 58
" Passengers	1,850,984 49	3,002,197 70	4,401,354 36	3,148,290 08
" Mails	101,052 04	101,352 04	101,352 04	129,455 93
" Other Sources	40,634 58	83,196 19	32,981 36	57,025 50
Total Earnings	\$10,469,481 29	\$13,429,643 54	\$16,462,227 90	\$14,596,413 09

CHAPTER XVII.

ATLANTIC AND GREAT WESTERN RAILROAD.

THE broad-gauge through route between New York and St. Louis, by way of Cincinnati, consists of the New York and Erie road, from New York to Salamanca, four hundred and fifteen miles; the Atlantic and Great Western road, from Salamanca to Cincinnati, by way of Akron, Mansfield, Galion and Dayton, five hundred and seven miles; and the Ohio and Mississippi road, from Cincinnati to St. Louis, by way of Vincennes, three hundred and forty miles; total, twelve hundred and sixty-two miles. The running time for the entire distance is forty-eight hours.

The Atlantic and Great Western Railroad affords us another example of the benefits of railroad consolidation. It is only about six years since this enterprise was commenced, and it has now five hundred and seven miles in operation. The rapid progress made in the construction of this fine road has seldom been surpassed. Up to the year 1850, the New York and Erie Railroad had only been extended as far west as Hornellsville. In September of that year, a meeting of the citizens of Western New York was held at Jamestown, to discuss the project of building a railroad from Salamanca to the town of Erie in Pennsylvania, on Lake Erie. The attention of the directors of the

New York and Erie road, then in its infancy, had been frequently called to the importance of extending their road to the harbor of Erie: and the route by way of Salamanca and Jamestown was found to be feasible. Surveys of the route were made in November and December, 1850, at the instance and expense of the Hon. Benj. Chamberlain, T. S. Sheldon, Esq.; Wm. Hall, Esq.; Samuel Barrett, Esq.; Mr. Henry Baker, and Mr. A. F. Allen, well known in Western New York for their energy and liberality. In July, 1851, a company was organized under the title of the Erie and New York City Railroad Company, and in March, 1852, the line of the road was located. In May, 1853, the whole line from Salamanca to Ashville, a distance of thirty-eight miles, was under contract for construction, and the grading progressing favorably. On account of financial difficulties the work was very much retarded. The work of grading however was pushed along with energy till January, 1855.

In July, 1857, the citizens of Meadville, in Crawford County, Pennsylvania, organized a Railroad Company, under the name of the Meadville Railroad Company, in order to construct a road through the counties of Crawford and Mercer. The gentleman prominently concerned in the enterprise were Wm. Reynolds, Esq., John Dick, Hon. Gaylord Church, James R. Dick, and Hon. D. A. Finney. In pursuance of the powers granted to this Company in their charter, they purchased all the property and franchises of the Pittsburg and Erie Railroad Company within these two counties.

In June, 1851, a company was organized in Ohio,

for the purpose of building a railroad under the name of the Franklin and Warren Railroad, from Warren, in Trumbull County, to Dayton in Montgomery County. In July, 1853, operations were actively commenced on the eastern end of the line, and, during the year 1854, that part of the road between Akron and Warren was completed.

During the summer of 1852, some gentlemen in Pennsylvania and Ohio proposed the project of continuing the broad-gauge of the Ohio and Mississippi Railroad through Ohio and Pennsylvania, so as to connect with the New York and Erie Railroad. This grand plan for a broad-gauge through line from New York to St. Louis, one thousand two hundred miles long, was submitted, in November, 1856, to the directors of the three local companies above referred to, and was favorably considered.

In the month of May, 1859, a company was organized in the State of New York, under the name of the Atlantic and Great Western Railroad Company. In 1860, this Company purchased the track, road-bed, property and franchises of the Erie and New York City Railroad, extending for thirty-eight miles, and extended the track for a distance of eleven miles further, so as to join the track of the Franklin and Warren Company.

Negotiations were commenced in Europe, in the fall of 1858, with James McHenry, Esq., for the necessary means to carry on the work. In the fall of that year, at the instance of Mr. McHenry, T. W. Kennard, Esq., a civil engineer of prominence in England, came out to make an exploration of the entire line. He per-

formed his work most thoroughly; and, upon the receipt of his report by Mr. McHenry, preparations were made for actively commencing operations. Mr. Kennard came out as the agent and attorney of Mr. McHenry, and also as engineer-in-chief of the whole work.

On the 20th day of April, 1860, a corps of engineers commenced their labors at Jamestown, N. Y., and on the 26th day of the same month a second corps commenced at the junction with the New York and Erie Railroad at Salamanca. On the 27th the contractors commenced grading, and May 8th, 1860, the first rail was laid, and the first spike driven. During the same month a construction train was put on the work, and on July 3d, of the same year, seventeen miles of track were laid to Randolph, N. Y. On the 5th day of August following, the track was laid across Main Street, in the village of Jamestown, N. Y., thirty-four miles from Salamanca; and in the afternoon of that day an excursion train arrived from the city of New York, containing the chief officers of the New York and Erie Railroad Company, and other gentlemen. In May, 1861, another link was opened, from Jamestown, N. Y., to Corry, Pa., a distance of twenty-seven miles from the former place, and sixty-one miles from Salamanca. On the 27th day of the same month regular trains commenced running over this portion of the road.

In 1861 the contracts for the completion of the entire line passed into the hands of Mr. McHenry; but the work was suspended from June 1st, 1861, to March 13th, 1862, when the engineers were again placed upon the line in Pennsylvania. The construction was now

driven forward with energy under the immediate supervision of Mr. Kennard. On the 21st day of October, 1862, the road was opened to Meadville, Pa., forty-one miles distant from Corry, and one hundred and two miles from Salamanca.

During this time the work was progressing in Ohio, not very rapidly, however ; but in the spring of 1862 it was energetically commenced.

January 4th, 1863, another section of the road was opened, from Meadville, Pa., to Warren, O., fifty-nine miles from the former place, and one hundred and sixty-one miles from Salamanca.

February 23d following, the track-laying was completed to Ravenna, and on the 18th of May express trains commenced running regularly to this point ; and eight days subsequently, the broad gauge cars reached Akron, two hundred and two miles from Salamanca.

On the 30th of this same month the track-layers completed the track on the Franklin Branch (Meadville to Franklin Pa.), twenty-five miles.

The work accomplished during the year, so briefly referred to, is without parallel in the history of railroads. When we consider the great scarcity of laborers, the army absorbing able-bodied men, to the extent that it became necessary to keep agents in Canada and Ireland to send them out for this particular work by the ship-load, the building and bringing into active operation so many miles of road in so short a period of time may well be called a wonderful achievement.

During the whole of this time the Meadville Railroad Company and the Franklin and Warren Railroad Company were working in harmony with the Atlantic

and Great Western Railroad Company, under the same name as the latter, and with the view of ultimate consolidation. Indeed, the three companies may henceforth be regarded as one corporation, and we shall speak of them as one.

In October, 1863, the Company leased for ninety-nine years the Cleveland and Mahoning Railroad, extending from Cleveland to Youngstown, sixty-seven miles. This road had been built on the narrow gauge, but the Company laid down an additional rail outside of the track, thus converting it into a broad-gauge railroad. On the 3d of November, 1863, trains began to arrive at Cleveland, by way of this new track and the New York and Erie Railroad, the broad-gauge being unbroken during the entire distance.

On the 27th of December, 1863, the last rail between Akron and Galion was spiked, eighty-two miles of additional road being thereby brought into use. In June, 1864, a special train reached Dayton, and a connection was made with the Ohio and Mississippi road at Cincinnati, over the broad-gauge track of the Cincinnati, Hamilton, and Dayton Railroad, which had been provided by that Company for the business of the Atlantic and Great Western road.

In August, 1865, the companies of the three roads were consolidated under the provisions of Acts of Consolidation passed by the respective Legislatures of the three States of New York, Pennsylvania, and Ohio. Included in the consolidation is a branch road, heretofore known as "The Buffalo Extension of the Atlantic and Great Western Railway Company," leaving the main line of the consolidated roads at Randolph, New

York, seventeen miles west of Salamanca, and extending to Buffalo, a distance of about sixty-seven miles. This branch was to have been completed in 1866, and will, when built, form a connection with the Erie and Niagara Railroad in Canada, crossing the Niagara River near Buffalo.

The present condition of the road will be apparent from the following facts: That part of the road between Salamanca and Meadville requires considerable repairs, although it was greatly improved during the year 1866. Owing to the hasty and temporary manner in which some parts of the road were at first constructed, the destruction of the permanent way has been very great, requiring almost a total renewal of the track material, and the substitution of permanent structures for temporary ones. There were placed upon this part of the road during the year 1866, one hundred thousand five hundred and seventy-five cross-ties and ten miles of re-rolled iron rails, besides four new bridges. During the year 1867, thirty miles of re-rolled iron rails were laid down, besides fifty thousand cross-ties.

On that part of the road between Meadville and Kent, the track is not in first-class condition, for the same reasons. The character of the material in the road-bed here is much worse than that mentioned above. Nothing less than a thorough re-ballasting of the track between Meadville and Leavittsburg, sixty-three miles, will be safe to rely upon. From Leavittsburg to Kent, the road is much better, although a considerable quantity of new iron is needed. During the year 1866, twenty thousand cross-ties and six miles of re-rolled iron rails have been laid down on this part

of the road. In respect to drainage and ditching, a very important consideration, this portion of the road is in far better condition than at any previous time. During the year 1867, twenty-seven miles of re-rolled iron rails, fifty thousand cross-ties, and fifty thousand cubic yards of ballasting, were laid down on this part of the road.

That portion of the road between Kent and Galion, a distance of ninety-two miles, is in very good condition. The same may also be said of that portion of the road between Dayton and Galion, a distance of one hundred and four miles; and of that portion of the road between Cleveland and Levittsburg, a distance of fifty miles.

The General Superintendent of the road, D. McLaren, Esq., says in his last annual report:—

“Permit me to say in connection with this, that the subject of iron should engage the most serious attention of railway managers, as the cost of renewal of iron is far the heaviest item of expense in the maintenance of a road. The experience of the American railways proves that the average life of iron (needing in the meantime re-rolling) does not exceed ten years, requiring, therefore, the renewal of at least ten per cent. of the entire quantity each year from the commencement of its use. Of this road, sixty miles, from Salamanca to Corry, has been used six years. One hundred and thirty miles, from Corry to Akron, four years. Two hundred and thirty-six miles, from Akron to Dayton and broad-gauge of the Mahoning Branch, three years. The narrow gauge of the Mahoning Branch, from Cleveland to Youngstown, ten years, and the Franklin

Branch, from Meadville to Oil City, thirty-three miles, two years; making an average of four and one-half years upon the entire amount of iron upon the road, or nearly one-half the life of the whole. But a very inconsiderable amount of this has been renewed—twenty-two miles in all—during the past year, or barely four per cent., leaving ninety-six per cent., of iron one-half worn out. From this it will appear that forty-one per cent., equal to two hundred and five miles, should be added to the iron at once to make the depreciation good.

“The large expenditure for repairs of track and roadway, for the past year, and requirements for the future have arisen from the incomplete manner in which part of the road was originally constructed. The cuttings in many instances were too narrow, thereby obstructing the drainage and covering the track with mud, and requiring a constant outlay in widening and ditching. The embankments are still, in many places, too narrow to retain ballast and furnish sufficient bearing for the cross-ties. No portion of the line, except the Fourth Division, has ever been sufficiently ballasted. Many miles on the other divisions, up to this time, have never been ballasted. The cross ties originally were insufficient in number and size to sustain the rail under the pressure of the heavy machinery used upon the line. A large per cent. of the cross-ties were furnished from poor material—about one hundred and seventy-five miles of track being laid almost exclusively with hemlock ties, which we are discarding, and using, for the most part, white oak of the best quality; and none other should be used in the future

as a matter of economy. Four years being the extent of the life of hemlock ties as proven by our experience, while white oak ties are good for eight years.

“A number of temporary structures were erected in the original construction. Those upon the first and a portion of the second divisions are of an inferior character of material, requiring their substitution by masonry and embankments. It is owing to these facts that your track material has so rapidly depreciated, and at the same time requiring an extraordinary expense in repairs of the road and machinery.

“The pattern of iron used in our renewals is a sixty pound fish-plate rail, making a very excellent road, requiring very small expense in laying, avoiding the continuous pounding and jar of joints, approaching as near as anything yet adopted to a continuous rail.”

The managers of the Company, in a pamphlet recently put forth by them, make the following statement in regard to the expenses of working the road:—

“The cost on the Atlantic and Great Western Railway is 72.80 per cent., while on the Pennsylvania the cost of operating in 1865 was 76 per cent., and in 1866, 77.13 per cent. The expenses of the New York Central for 1865, inclusive of taxes, was 80.29 per cent., and in 1866, 77.66 per cent. The Ohio and Mississippi was operated in 1865 at a cost of 73.10 per cent., and the Erie Railway 72.27 per cent. In 1866, the expenses of the Erie Railway, including taxes, were 78.10 per cent., and of the Philadelphia and Erie Railroad 82 per cent. The working expenses of the Boston and Worcester Railroad for 1866 were 74 $\frac{4}{8}$ per cent. All the roads named have been made for years,

and are free from many of the extraordinary expenses of operating a new line of railway, especially a line so hastily and in very many respects poorly constructed as the Atlantic and Great Western, and yet their average percentage is much greater. These figures are taken from the official reports of the several companies, and are, therefore, reliable. Added to this we have the exhibit made by the Auditor General's Report of the Railroads of Pennsylvania, for 1866, which shows that the average cost of operating all the lines in the State is 66.58 per cent. The Pennsylvania and the New York Central, two of the oldest, best equipped and managed roads in the country, are operated at a greater cost than any of the other lines. Certainly the Atlantic and Great Western does not suffer by comparison with these old and well-established routes. Furthermore, it should be borne in mind that this road is a new competitor for the traffic between the west and the seaboard, and in the outset is subject to more than ordinary expenses to attract business. Moreover, the reports of many of the leading railways indicate that the cost of supplies and materials in transportation expenses has increased enormously during the past two or three years. The New York Central, in view of this fact, has been seeking legislation to enable them to charge one-half cent more per mile on all passengers, and their exhibit made to the investigating committee shows that the increase of cost of most supplies is from 60 to 200 per cent. The annual report of the Michigan Southern Railroad Company shows that the increase in transportation expenses on that

line has been from 4 to 5 per cent. during the past year.

“So far, therefore, as the charge of expensive management enters into the controversy, these facts and figures dispose of that.”

COMPARISON OF BUSINESS FOR 1866 AND 1865.—
Statement showing the earnings and expenses of running the road for the ten months ending October 31st, 1866, compared with the corresponding period in the year 1865, viz:—

1866.	Earnings	.	.	\$4,833,489 86	
	Expenses	.	.	3,522,460 23	
	Net Earnings	.	.		\$1,311,029 63
1865.	Earnings	.	.	\$4,614,727 38	
	Expenses	.	.	2,804,474 38	
	Net Earnings	.	.		\$1,810,253 00

The expenses in 1865 were $63\frac{3}{10}$ per cent. of the gross earnings. The expenses in 1866 were $72\frac{8}{10}$ per cent. of the gross earnings.

The total number of passengers carried during the year 1865 was eight hundred and forty-seven thousand six hundred and eight, giving a revenue of one million two hundred and ninety-one thousand four hundred and seventy-six dollars and sixty-one cents, or an average fare per passenger of one dollar and fifty-two cents.

In the year 1866 the total number of passengers carried was seven hundred and forty-two thousand and seventy-seven, giving a revenue of one million one hundred and twelve thousand five hundred and

seventeen dollars and thirty cents, or an average from each passenger of one dollar and fifty cents.

The equipment of the road at present consists of about one hundred and eighty locomotives, one hundred passenger cars, and about two thousand freight cars.

The officers of the Company are S. S. L'Hommedieu, President; J. J. Shyrock, Vice-President; J. M. Dick, Treasurer; J. C. Calhoun, Secretary; L. D. Rucker, General Superintendent; T. W. Kennard, Chief Engineer.

During the year 1867, the increased prosperity of the New York and Erie road was fully shared by its western continuation, the Atlantic and Great Western. The great improvements that have recently been made in the track and road-bed of the latter, and its comfortable, wide coaches, render it a most pleasant road to ride upon; and the through trains upon it between New York and Cincinnati are always full of passengers. The road is excellently managed, and every precaution is taken to guard against accidents, with the most happy results. The President of the road, Mr. L'Hommedieu, and the General Superintendent, L. D. Rucker, Esq., are emphatically the right men in the right places; and it is chiefly to their untiring energy and great railroad experience that the road has won such an enviable degree of popularity.

CHAPTER XVIII.

THE MICHIGAN SOUTHERN RAILROAD.

PREVIOUS to the year 1852, there was no complete and uninterrupted line of railroad between Chicago and the eastern cities. In that year, the Michigan Southern Railroad was opened, in connection with the lake shore lines, and these roads, with the New York and Erie road, began that career of usefulness which has ever since added so much to the convenience of the travelling public.

The Michigan Southern Railroad extends from Chicago to Toledo, a distance of two hundred and forty-three miles. Three trains leave Chicago daily, from the new depot on the corner of Van Buren and Sherman Streets, namely, at 7 A. M. and 5 and 10 P. M., arriving at Toledo at 4 and 9 A. M., and 4.30 P. M.

The history of this road affords another example of the benefits of railroad consolidation.

The Michigan Southern and Northern Indiana Railroad Company was formed on the 25th of April, 1855, by the consolidation of two railroads which had existed for some time previously, namely, the Michigan Southern Railroad, and the Northern Indiana Railroad. The Northern Indiana Railroad, as it existed at the time of its consolidation with the Michigan Southern Railroad Company in 1855, originated in a

Company formed in Indiana, as early as 1835, under a charter from that State, as the Buffalo and Mississippi Railroad Company. The Northern Indiana Railroad Company commenced its operations in the year 1852, under the provisions of a charter from the State of Ohio, which was granted on the 3d of March, 1851. The Northern Indiana and Chicago Railroad had also commenced its operations about the same time, under a charter from the State of Illinois. The three roads last named became merged into one about the year 1854, under the name of the Northern Railroad Company.

The Michigan Southern Railroad Company was formed under a charter from the State of Michigan, on the 9th of May, 1846, and in pursuance of an act authorizing the sale to them of the existing Michigan Southern Railroad and the Jackson and Tecumseh Branch thereof, which were both owned and operated by the State of Michigan. The organization was completed, and the conditions of the act were complied with, in December, 1846, so that the Michigan Southern Railroad Company entered into possession of the railroad and its branch that year. The railroad, from Monroe westward, was commenced by the State of Michigan about 1838, but it was only finished as far as to Hillsdale at the time of its sale to the Michigan Southern Railroad Company, in 1846. It was extended by that Company, in 1852, to the Indiana State line, near Middlebury, and was connected there with the Northern Indiana Railroad. The latter road was completed to Chicago in June, 1852.

The Jackson and Tecumseh Branch was extended

to Jackson in 1855, and a branch was built from Constantine, which was the terminus of the old Michigan Southern Railroad, to Three Rivers, in Michigan, in 1853. The Goshen Branch forms part of the Goshen air-line from Toledo to Elkhart, where it makes connection with the old line from Chicago to Monroe.

The Erie and Kalamazoo Railroad, from Toledo to Adrian, leased from the Erie and Kalamazoo Railroad Company, is run and used as part of the main line of the Michigan Southern Railroad from Chicago to Toledo. Part of the Detroit, Monroe, and Toledo Railroad, which was mostly built by the Michigan Southern Railroad Company, and is exclusively controlled and operated by them, is used as far as Monroe as part of the Michigan Southern Railroad from Chicago to Detroit. The Detroit, Monroe, and Toledo road is also used as a line from Detroit to Toledo, connecting at Toledo with roads to Cincinnati and Cleveland.

The number of miles of road now owned and operated by the Michigan Southern and Northern Indiana Railroad Company is as follows:—

Toledo to Chicago, <i>via</i> old line	243
Toledo to Elkhart, air line	132
Detroit to Toledo	65
Monroe to Adrian	33
Jackson Branch	42
Three Rivers Branch, sub-leased	12
Total miles	<hr/> 527

In September, 1849, soon after the organization of the Michigan Southern Railroad Company, a statement

was submitted to the Stockholders by the Board of Directors, exhibiting the condition of the road and the finances of the Company, and soliciting a new subscription of a quarter of a million of dollars to provide means for extending the road west from Hillsdale. A portion of the stock was subscribed, and in the spring of 1850 the line from Hillsdale to Coldwater, a distance of twenty-two miles, was put under contract. The road then in operation from Monroe to Hillsdale, a distance of sixty-nine miles, was that which had been originally constructed by the State of Michigan. It had a wooden rail covered by a flat bar of iron. The Company had leased the Erie and Kalamazoo road, extending from Adrian to Toledo, thirty-three miles in length, making a total of one hundred and eleven miles then operated by the Company.

In the original grading of these roads the crossing of the valleys was effected, for the most part, by bridges of timber. Since that time, however, the whole extent of the tracks on these roads has been re-laid with heavy rails, and the valleys on the route have been filled with permanent embankments, with new bridges and culverts for the streams and water-courses. Heavy expenses have also been incurred in providing abundant station accommodation all along the line.

In the summer of 1850, the line was put under contract from Coldwater to Sturgis, a distance of twenty-three miles, and in March, 1851, this portion of the road was completed and opened. Some delay was experienced in determining upon the location of the

line west of Sturgis, and contracts for the remainder of the road in Michigan were not made until May, 1851. During the winter and spring of 1851, the Indiana road was put under contract. The Michigan Southern road was opened to White Pigeon in the latter part of July, 1851. The Northern Indiana road was opened in successive stages: During the fall of 1851, to South Bend, and on the 9th of January, 1852, to La Porte. In February, 1852, the road was opened from Michigan City to Ainsworth, in Illinois, and to Chicago in March, 1852. On the 22d of May, 1852, the entire line was opened, and a passenger train went through from Toledo to Chicago. Thus, in the space of twenty months, embracing two severe winters, the Company constructed one hundred and sixty miles of new road, and relaid, and nearly rebuilt, fifty miles of old road.

The last act of legislation necessary to the consolidation of the companies owning the Michigan Southern and the Northern Indiana lines of railroad was passed by the Michigan Legislature on the 13th of February, 1855; full authority therefor having previously been given by the States of Illinois, Indiana, and Ohio. Immediately after the passage of the last-mentioned act, the necessary measures were taken to carry the same into effect, and on the 26th of April, 1855, the articles of consolidation were finally sanctioned and approved by the unanimous vote of the stockholders of the respective corporations.

Improvements of every kind at once sprang up in all directions, through the region in which the roads run. At Toledo, the new depot grounds were soon

brought into use, and the whole business of that terminus was transferred to them. These grounds are situated on the Maumee River. At this point the Cleveland and Toledo Railroad unites with the Michigan Southern. The inconvenient ferry which formerly existed at this point has long since been dispensed with, and in place of it a handsome bridge has been erected. This point is also the eastern terminus of the Toledo, Wabash and Western Railroad, whose trains run into the passenger depot of the Michigan Southern road. This depot is a very handsome and commodious structure, built of brick, four hundred and eighty feet long and one hundred and sixty feet wide. These depot grounds cover an area of twenty-six acres, and the Company has expended one million of dollars upon them in improvements. The depot and station buildings, freight houses, and grain elevators, that have been built by the Company upon these grounds, are very extensive and complete, and are admirably adapted to the accommodation of the business for which they were constructed, and which is concentrated at this point.

In the location and planning of these grounds and buildings, they were made accessible to other important railroads terminating at Toledo, an arrangement which has been found to be exceedingly convenient to these other railroads, and at the same time very profitable to the Michigan Southern Railroad. In addition to the improvements already enumerated, the Company in 1855, erected at Toledo two very large warehouses for the storage of grain and its transfer in bulk to vessels. They both front upon the river, and will hold four hundred thousand bushels of grain. Soon after

the Michigan Southern Railroad got into operation, it was found that the immense production of wheat and corn along the line of the road rendered such warehouse accommodation indispensable.

The rolling stock of the Company, in 1855, consisted of seventy-four locomotives, ninety-eight passenger cars, twenty-five baggage cars, seven hundred and twenty-two freight cars.

The earnings of the road in 1854 were two million one hundred and fifty-eight thousand three hundred and twelve dollars; in 1855, they were two million five hundred and ninety-five thousand six hundred and thirty dollars; and in 1856, they were two million seven hundred and fourteen thousand eight hundred and forty-eight dollars. In 1857, the earnings were two million three hundred and nine thousand four hundred and eighty-seven dollars; and in 1858, they were two million two hundred and twenty-seven thousand eight hundred and ninety-four dollars. In 1860, the earnings were two million seventy-five thousand four hundred and fifty-nine dollars; in 1861, they were two million two hundred and twenty-six thousand two hundred and ninety-nine dollars; in 1862, they were two million eight hundred and thirteen thousand eight hundred and thirty-one dollars; in 1863, they were three million three hundred and eighty-four thousand two hundred and ninety-four dollars; in 1864, they were four million two hundred and eighty-nine thousand four hundred and sixty-six dollars; in 1865, they were four million six hundred and eighty-six thousand four hundred and forty-five dollars; and in 1866, they were

four million six hundred and forty-seven thousand five hundred and twenty-eight dollars.

During the year 1866, one hundred and three miles of the road were relaid with new and re-rolled iron, and one hundred and thirty-one miles were relaid with new cross-ties.

During the year 1866, the new passenger depot at Chicago and the new freight depot there were completed, and the Company has been at the expense of the grading of the streets in their immediate vicinity.

In the matter of other permanent improvements, a large expenditure has been made in the substitution of stone structures in place of wooden bridging, for new stations, woodsheds, and other conveniences upon the line, as well as the increase in number and length of side tracks.

In February, 1868, a contract was entered into with the Erie Railway, of New York, by the terms of which that Company guarantees the building a broad gauge railroad from a point on the Atlantic and Great Western Railway, near Akron, Ohio, to Toledo, Ohio, less than one hundred miles. The Michigan Southern and Northern Indiana Railroad agree to lay a third rail on their line to Chicago, thus to perfect a broad gauge route from Chicago to New York by one of the shortest lines. The new road will be completed within a year, and will effect a revolution in travel between New York and Chicago, as the wide and comfortable cars of the Erie road can then carry passengers from one city to the other without change.

The road carried during the last year eight hundred and forty-six thousand six hundred and ninety-eight

passengers and six hundred and ninety-nine thousand seven hundred and sixty-five tons of freight. It has five hundred and twenty-three miles of road in use, and owns one thousand three hundred and sixty freight cars, one hundred and ten passenger cars, and one hundred and twenty-one locomotives.

The new passenger depot of the Company is one of the handsomest buildings in Chicago, and one of the largest and finest depot buildings in the United States. It is used in common with the Chicago and Rock Island Railroad Company. It occupies the whole square of ground between Harrison and Van Buren Streets, and between Griswold and Sherman Streets, and is five hundred and fifty-two feet long, and one hundred and sixty feet wide. It is built of rough faced stone, with a slate roof. Besides all the necessary offices for the Company's business, the depot contains commodious waiting rooms for passengers, dining rooms, baggage rooms, &c.

To the south of the passenger depot is the old engine house of the Michigan Southern road, and immediately south of this building the new freight house. It is built of stone, and has a slate roof. The length is six hundred feet, by fifty-two in width and about fifty in height. Considering that each car will occupy about thirty feet, this house is able to accommodate twenty cars at a time. It has storage room for two hundred cars, which, at ten tons to the car, will give a total of two thousand tons, though these figures are practically greatly increased, from the fact that the freight is moving during the entire day. One of the noticeable features of this building is the presence of

an improved transfer table, by which cars can be sent from the shed to the track outside with little labor and without interfering with other cars. The offices are in the south end of the building.

Both of these fine depots were constructed by Mr. W. W. Boyington, an eminent architect of Chicago.

The officers of the Company are E. B. Phillips, President; Charles F. Hatch, General Superintendent; Charles Paine, Chief Engineer; Legrand Lockwood, Treasurer; C. P. Leland, General Passenger Agent; Charles Gray, General Freight Agent; S. C. Hough, Western Passenger Agent.

The business of the road for the year 1867 was large and remunerative; much more so, in fact, than in previous years. The condition of the track and road-bed is now all that could be desired, and the passenger cars are furnished with every requisite for comfort. The time-tables and arrangements for the running of through trains on this route between Chicago and New York, in connection with the New York and Erie road, afford every desirable accommodation and facility to the travelling public; and these advantages are fully appreciated by the latter. All the indications, in fact, point to a steady increase in the income of the road, from year to year.

CHAPTER XIX.

RAILROADS OF NEW ENGLAND.

A RAILROAD map shows that the New England States are covered with a perfect network of railroads. They are all, however, short roads, each one extending only a few miles in length. All the long lines, such as the Boston, Hartford and Erie, the Vermont Central, and the Western of Massachusetts, as well as the lines from Boston to Ogdensburg and from New Haven to Montreal, are composed of short links, constructed at different times, by different corporations, and with different and often conflicting interests in view. Generally, when a consolidation of these short roads was proposed, it has been found very difficult, and sometimes impossible, to reconcile these conflicting interests.

We have heretofore given a complete list of these short roads, and need only refer to the list here. The history of these roads affords very little of interest to the reader. They were generally well built, and were moderately supplied with rolling stock of the best construction. Previous to the year 1845, the railroads of New England were almost exclusively of this character. By that time, indeed as early as 1840, the necessity of having direct railroad communication with the West, became apparent. The Vermont Central Rail-

road was thereupon built, connecting Boston with Ogdensburg on the St. Lawrence River, and making a line three hundred and eighty-two miles long. Or rather, four railroads, which had been built a short time previously, were consolidated, and formed the line from Boston to Ogdensburg. These were, first, the road from Boston to Concord, seventy-five miles long, which had been built a number of years, and had always enjoyed an immense local traffic; second, the road from Concord to Montpelier, one hundred and thirteen miles, which had also been in operation for some years, and was doing well in connection with the road to Boston; third, the road from Montpelier to Rouse's Point, seventy-six miles long, a road which soon became a favorite with travellers, on account of the fine scenery along its route; and fourth, the road from Rouse's Point to Ogdensburg, one hundred and eighteen miles. The whole of this line was completed and in operation in 1851.

The country through which the greater part of this road passes is not remarkable for its fertility. Indeed, compared with the rich soil of the western country, or even with that through which the New York and Erie and New York Central road passes, it is a barren and sterile region. And yet the local business of the line has increased year after year, and the local traffic of the whole line is now profitable. The design in opening the line as a through route, was to draw western produce, arriving at Ogdensburg from Buffalo and Chicago, to Boston; and this object was attained to a reasonable extent.

Another line, which was constructed about the same

time, is the "Western" Railroad, as it is called, extending from Boston to Albany, a distance of two hundred miles. This line, also, is formed by the consolidation of four short roads, namely, first, the Boston and Worcester road, forty-four miles long; second, the Worcester and Springfield road, fifty-four miles long; third, the Springfield and Pittsfield road, fifty-three miles long; and fourth, the Pittsfield and Hudson River road, seventy-five miles long, and terminating at Albany. This line runs across the whole length of the State of Massachusetts, and is exclusively a Massachusetts road. It was built mainly by Massachusetts capital; and Massachusetts men are justly entitled to the credit of the enterprise. The object of the consolidation of the four roads was to form a connection with the New York Central road; and in this it has been remarkably successful. Passengers from Chicago to Boston find in the great depot of the Illinois Central Railroad at Chicago, a train of cars made up, with this sign alongside: "These cars for Boston." Once in these cars, they are all right. They are whirled along on the Michigan Central road to Detroit; thence, on the Great Western Railroad of Canada, to Niagara Falls; thence, after crossing the Suspension Bridge, on the New York Central road, through Rochester, Canandaigua, and Syracuse, to Albany; and thence, crossing the Hudson River, on the Western Railroad of Massachusetts, to Boston. Freight from the West to Boston, of course, took the same route; and, very soon after it was opened, the Western Railroad of Massachusetts became profitable. Its local business, particularly between Boston

and Pittsfield, has always been good. Its affairs are managed with a great deal of tact and ability. The officers of the Company are C. W. Chapin, President; C. O. Russell, Superintendent; and J. B. Chapin, Assistant Superintendent.

Some time afterwards, the line from New Haven to Montreal was opened, to run in connection with the Grand Trunk Railroad of Canada, from Detroit. This line was made up by consolidating no less than seven different short roads, namely, first the road from New Haven to Hartford; second, the road from Hartford to Springfield; third, the road from Springfield to Bellows Falls; fourth, the road from Bellows Falls to Lebanon; fifth, the road from Lebanon to Montpelier; sixth, the road from Montpelier to Rouse's Point; and seventh, the road from Rouse's Point to Montreal. The business of this road has been fair, and on the whole satisfactory, but not equal to some others. There are too many conflicting interests connected with it, which are as yet unharmonized. It runs, however, through the richest and most fertile portion of New England, and its revenues, large as they are, can be probably doubled.

The Boston and Maine Railroad, extending from Boston to Bangor, in Maine, was constructed at a later period, and at once became remunerative. It passes through Portsmouth, Portland, and Augusta, and its local and through traffic are both very large.

The Boston, Hartford and Erie Railroad Company, of which I shall speak in detail presently, applied to the legislature of Massachusetts during the winter of 1867, for some material aid. Their interests were very ably

managed by an eminent lawyer whom they had retained for that purpose. In the course of his argument before the legislature, he gave the following reminiscences in relation to that and other railroads in Massachusetts:—

“I have spoken freely, Mr. Chairman and gentlemen, of the present state of things in this Commonwealth, because I have very decided opinions on the subject, opinions founded on a careful consideration of facts and fortified by the observation of thirty years, while engaged in active business in this city, and because it is well for us to look at the other side of the fancy picture so constantly presented to us. We all take pride in the material prosperity of the Commonwealth, and are fond, perhaps too fond, of making comparisons between our own position and that of less favored communities. But are we not dwelling a little too much on this, or rather are we not resting too confidently on the laurels won in former years, on the prestige secured for us by the efforts of eminent men who have now passed away? Those who have carefully watched the course of legislation and of business operations for the past ten years, and have instituted a comparison between this Commonwealth and some other States in the Union, are by no means so confident of our position as men who never go abroad even with their eyes and who are content to let well enough alone. To stand still in these matters is to fall behind. Let us glance a moment at the State of Maine, the daughter of Massachusetts and bound to us by many other ties than those of mere business relationship. We shall find

that while the State of Maine was formerly apparently insensible to its great natural advantages, its magnificent harbors, its extended seacoast, and its unrivalled facilities for manufacturing operations, there has been of late years a most marked change. In point of energy, sagacity and ability, she now more than rivals our own Commonwealth; while in comprehensive, wise, and sensible legislation in matters affecting her material interests, she is excelled by none of her sister States. In former years, Massachusetts bore the palm in this respect. In the active years of Webster (who was a most thorough and sagacious business man for everybody but himself), Everett, Lawrence, Appleton, Davis, Briggs, Dwight, the most enlarged views were prevalent, and the most judicious and even artistic plans were made to secure the capital of the Commonwealth within its own borders, to develop our own resources, and to attract the labor, the skill and the industry of the whole country here. To this end our State legislation was carefully shaped. The most favorable system of corporations was originated here. Our plan was peculiar. There never was anything like it before in the world. The English system was quite different. The great idea was to draw into effective operation capital from all quarters. The rich and the poor acted in the same interest. Any man who could raise the amount of a single share was to that extent enabled to compete with the millionaire; while, on the other hand, the man of wealth had at risk only that which he put into the concern. This all seems very simple to us now, but it was in its day a grand and original idea. It was the subject of

constant assault. The great division of the two parties was on this very point—one of them insisting on the encouragement of these manufacturing corporations and the other resisting it.

“The same feeling extended to railroads. It was early perceived by these able and intelligent men, that, from the position of our State, its poor soil, its small extent, we must not only create a market, but we must afford extraordinary facilities for customers to reach it. The natural tendency of the West was to the South, to New York, Baltimore, and Philadelphia. They would not reach Boston unless we held out extraordinary inducements. Accordingly the policy was adopted of making these great highways for travel and for traffic. Not only were most liberal charters granted, but the State made express grants of money. When the Western Railroad was projected, the project excited ridicule. But the Commonwealth subscribed one million dollars to the stock. In a year or two afterwards, it advanced two million one hundred thousand dollars more. Then another and another million, and so on to five million dollars. All this time, or at first certainly, there was no serious expectation of any return for these grants. The idea was not an investment for the sake of dividends; but for the sake of communication with the West, for the sake of opening a market for our manufactures, for the sake of an avenue for trade. The return was to be indirect and remote and not direct or immediate. Nor was this all. Our wise legislators, not satisfied with one route to the West, desired several. They also desired to reach the North and the East. In 1837, they assisted the Andover

and Haverhill (now the Boston and Maine) Railroad by a loan of one hundred thousand dollars. In the same year, the Eastern, by five hundred thousand dollars. The Norwich and Worcester by four hundred thousand dollars. In 1838, the Eastern by ninety thousand dollars. The Nashua and Lowell by fifty thousand dollars. In 1839, the Boston and Portland (now Boston and Maine) by fifty thousand dollars. And subsequently the Troy and Greenfield by two million dollars; and so on. The State has never yet lost a cent. It has gained immensely in wealth, in population, and in influence and importance. It has even made millions of dollars by its investments. Even the promoters of these projects have been astonished at the results, for they never expected to be made whole by *direct* returns from these grants.

“These things were not done without opposition. Of course not! The croakers are not a recent race; nor, it may be added, are the fools all dead. Politicians perambulated the State. They advised the dear people that every man’s farm was mortgaged to these grasping corporations. We all remember the pother that was made because the Legislature laid a State tax for the enormous sum of seventy-five thousand dollars! The matter was debated in this hall several days, and a great many declared that the passage of the act would change the politics of the State. On one occasion a surveying party, in making a triangulation of the Commonwealth for the great map, were taking some observations on a hill in Berkshire, when some village politicians created a great excitement by the cry that they were *surveyors sent up to set off the*

town for our enormous State debt, which had been contracted for these rich corporations."

We now come to speak of the Boston, Hartford and Erie Railroad itself; an enterprise worthy of the energies of the people of a great State, and destined to add greatly to the wealth and influence of Massachusetts. Yet in order to illustrate still further the peculiar character of the short railroads of New England, we will make another extract from the able speech of the eminent lawyer quoted above. He says, in speaking of the consolidated line:—

"Our franchise covers various roads. Several of them are in operation. They are doing fairly. But our operations are necessarily and essentially fragmentary. The business now is purely local, and on short routes and a small scale. In one sense, we begin nowhere and end nowhere. Essential links are wanting.

"As I said before, all this is fragmentary. The road consists of isolated tracks. There is and there can be no system, no order, no definite and profitable arrangements until certain important links are made. It is as though the Worcester road only ran to Westborough, or the Western ran from Albany to Palmer, or the Eastern from Boston to Ipswich.

"In this state of things," he says, "we present our case. We show you a road already built and in operation two hundred and thirty-three miles. We exhibit to you an air line to the Hudson River. We present to you a route almost straight to St. Louis and across the continent. We ask you to aid this magnificent route to the extent of *twenty-six miles of road,*

already partly graded. And we ask this on the express condition that another party shall put in twice as much as you advance. We also desire assistance in making a second track and further equipment."

Probably no railway that leads out of Boston is so little understood as the one now under consideration. We all know that a new line was projected several years ago between Boston and New York City, and between Boston and some point on the Hudson River below Albany. We all know that this general project had been split up into a variety of lesser schemes—some sensible and some foolish—that there have been several Corporations, a great deal of contention between them, considerable bitterness, and, in general, a state of things that effectually prevented any energetic, concentrated and vigorous action to accomplish the great purpose of a new route to the West.

There was the New York and Hartford Railroad Company, chartered in 1845, the Manchester road in 1833, the Hartford and Providence in 1847; these were merged in the New York and Hartford road and made one corporation by the name of the Providence, Hartford and Fishkill Company. These were companies of Connecticut, indicative of a policy of uniting by railroads with the city of New York on the southwest, and with the New York and Erie Railroad on the west.

In 1850, the legislature of Massachusetts entered upon the ground, and the Midland, the Norfolk County, and the Southridge and Blackstone roads were authorized to unite with the Willimantic, and the Providence,

Hartford and Fishkill roads (all these were very short roads), and form one corporation. In 1846, the State of Rhode Island granted a charter to the Providence and Plainfield Railroad Company, and in 1852, authorized a consolidation with the Providence, Hartford and Fishkill Company. These rival corporations have ever since been very quarrelsome, and have fought each other, New England Railroad men say, with all the fury of the Kilkenny cats. The result of such a condition of things was destructive of all successful operations.

Meanwhile the grand project of a new and shorter route to New York and the West continued to occupy the minds of many enterprising citizens of Massachusetts. As the result of their efforts, in 1863, the present corporation was created, by the name of the Boston, Hartford and Erie Railroad Company, and they were authorized to purchase, contract with, or lease the whole or part of any railways whose lines form part of railway lines from Boston and from Providence, westwardly across the State of Connecticut.

Under this charter and other suitable legislation by the States of Massachusetts, Rhode Island, Connecticut, and New York, the various companies have been united in one grand corporation, which now includes all the various projected enterprises that have hitherto been in an antagonistical position, and effectually extinguished all rivalries and buried all jealousies and animosities.

“What then,” says the eloquent lawyer from whose speech I have so freely quoted: “What then does the

franchise of the Boston, Hartford and Erie Railroad cover?" I answer:—

1. A line from Boston to New York City shorter than any other.

2. A line from Boston to Fishkill, on the Hudson River, about midway between Albany and New York City, two hundred and twenty-five miles in length, passing through Blackstone, Hartford, and Waterbury, one of the wealthiest sections of country in the United States.

3. A line from Providence to Fishkill. These lines centre at Willimantic, in Connecticut, from which the roads branch eastward to Providence and Boston, and westward to New York City and Fishkill.

4. A branch to Webster and Southbridge, and other rich manufacturing villages in Massachusetts.

5. It embraces what is known as the Air-line road which commences at Brookline and is completed and in operation to Woonsocket in Rhode Island.

"Now, it is unnecessary to say that this is a grand enterprise; that this franchise embraces the very richest part of New England, and that this road when completed will be one of the most important in the whole country.

"It is astonishing how little the subject is generally understood. They know about it better in Rhode Island and Connecticut than we do in Massachusetts. The scheme is far better understood in Hartford than it is in Boston. The various old corporations have fought each other so much, and have called each other such hard names, that some of the public have taken them at their word and have regarded the whole

thing as a visionary affair that would never come to any good. But to a great majority of the people there has been the greatest difficulty of understanding the various projects or the precise character and purpose of the consolidated road which we now represent before the Committee. And in point of fact it is only quite recently that the consolidation of the various routes and a harmonious adjustment of conflicting interests have been effected, so that the projectors could appeal to the public with any hope of being fully appreciated. The new corporation is now in a position where it can stand a severe scrutiny, and can satisfy the most skeptical that, with suitable management, it will command the confidence of the public.

“Let me now state a few facts that have been proved before the Committee.

“In the first place, this corporation has more miles of road in actual operation than the Western Railroad.

Boston to Woonsocket . . .	34.00
Boston to Mechanicville . . .	59.57
Boston to Waterbury . . .	122.50
Southbridge Branch . . .	17.50
	<hr/>
	233.57

“TWO HUNDRED AND THIRTY-THREE MILES OF ROAD IN ACTUAL OPERATION.—Longer than both the Boston and Maine and the Eastern. Five times as long as the Boston and Worcester. Ten times as long as the Boston and Lowell. Almost as long again as the Western. At this moment in operation and connecting Boston with the Patchcoag Valley and the rich manufactur-

ing towns of Rhode Island and Connecticut, and the immense quantities of coal, iron, lumber and farming productions of New York and Pennsylvania. The Southbridge Branch, connecting Boston with that thriving manufacturing town, is sixty miles long, actually longer than any railroad that leads out of Boston, except the Boston and Maine.

“The *equipment* of the road, as shown by the testimony in the case, is thirty-nine engines, thirty-two passenger cars, fifteen baggage and express cars, three hundred and sixteen eight-wheel freight cars, thirteen four-wheel freight cars, one hundred and sixty-five four-wheel coal cars—not so much by one-half as it should be, but for a *Boston road* pretty well. *Two hundred and thirty-three miles in good running order and fairly equipped.*”

“And how much do we ask the Commonwealth to do? Why, to aid us in furnishing a better equipment than we now have, to enable us to serve the public better, and in the completion with a double track of the small space between Willimantic and Putman, about twenty-six miles, a part of which is already graded. That is the whole of it. There will then remain the portion between Waterbury and the Hudson River, seventy-six miles, the completion of which will be provided for otherwise. So that if the Commonwealth will aid in the partial building of twenty-six miles of road, we shall have an entirely new and independent route to the West, with easy grades, with a large local business, and connecting with the New York and Erie Railroad, the most important trunk line in the United States. **All this can be accomplished in two years.**”

“Now let us take a glance at the prospective business of the new route, as it is proved and estimated before the Committee. The main trunk and branches, when completed, will pass through one of the most thriving portions of New England, about midway between Long Island Sound and the ‘Western’ Railroad, crossing and connecting with all the roads—not less than eleven in number, running north and south through Rhode Island, Connecticut, and the eastern part of New York, making connections through them, with the lines running north into Massachusetts, New Hampshire, and Vermont, and opening direct communication with all the important manufacturing cities and towns in New England.

“The great article of local traffic will be coal. The road will connect a considerable portion of New England with the great coal fields of Pennsylvania. At present and heretofore, vast quantities of coal for New England are shipped to New York and Philadelphia, come round by water in the summer through the Sound, and are sent into the interior by the railroads running north. A great amount of coal is required for manufacturing operations, in the States of Massachusetts Rhode Island, Connecticut, and Vermont. For a very large portion of this coal, our railroad will be the natural channel. We have had the field carefully examined by a competent engineer, whose clear and satisfactory statement on the subject you have heard. His estimate of freight from coal alone is five hundred and fifty-four tons, and he places the freight at one million six hundred and eighty-six thousand dollars, from this one article. You have from another and

distinct source the evidence that upon careful inquiry it appears that four hundred and fifty thousand tons of coal were sent by railroad from ports on Long Island Sound, during last year, to ports in Connecticut, Rhode Island, and Massachusetts, all of which could be supplied from Newburg, if our own road were opened to the Hudson, at lower rates than is now done. Lowell, Nashua, and Manchester consume more than one hundred thousand tons annually. The consumption of coal is rapidly increasing throughout New England, by the constant building of new mills and factories, and by the more general use of coal for domestic purposes.

“But this is not all. The amount that the road may earn for its stockholders is but a small portion of its probable benefit to the public. You must bear in mind that this road connects the capital of Massachusetts with *the* great railroad of the country. This road is to make the station on Summer Street an important outlet to the sea for the great New York and Erie Railroad—in fact, by building this twenty-six miles of road, you connect Boston with St. Louis by the shortest, easiest, and best route.”

This link of twenty-six miles has not yet been completed. It is, however, in active progress, and, when finished, it will constitute the eastern continuation of the New York and Erie road, which will then extend in an unbroken line from Buffalo to Boston, crossing the Hudson River at Newburg.

CHAPTER XX.

RAILROADS IN NEW JERSEY.

THE great through route between New York and Washington consists, first, of the Railroads in New Jersey between New York and Philadelphia, namely, the Camden and Amboy road, and the New Jersey Railroad; second, of the Philadelphia, Wilmington, and Baltimore Railroad, from Philadelphia to Baltimore; and third, the Washington Branch of the Baltimore and Ohio Railroad, from Baltimore to Washington. Passengers who take the Camden and Amboy line have a fine sail between New York and Amboy. They have to cross the Delaware River at Camden, but there is now no delay in making connections at Philadelphia. By the New Jersey Railroad, also, there is now neither delay nor detention. By crossing the Delaware River on the railroad bridge at Trenton, and by passing to the west of Philadelphia, the delay which was formerly experienced at that city is now avoided; and by the recent construction of the fine railroad bridge over the Susquehanna at Havre de Grace, the delay which was formerly experienced at the ferry there is now avoided; so that the trip might be made, and ought to be made now, by express trains, in seven hours, which would be thirty-three miles per hour. This rate of speed is maintained on some roads in the

United States; and in Europe forty miles per hour, for express trains, is not unusual.

There is a delay of about half an hour at Baltimore, which ought to be avoided. On arriving at the Philadelphia depot, at President Street, the passengers are not required to leave their seats, but the locomotive is detached, the train is broken up, and each car is drawn separately by five horses, through Pratt Street, to the Washington depot, on Eutaw Street. Here the train is made up afresh, the passengers from Baltimore are hitched on in additional cars, a fresh locomotive is furnished, and the train takes a fresh start for Washington. There is a double track between Baltimore and Washington, and between these two cities there are fourteen passenger trains daily; seven running each way. Between Washington and New York there are eight trains per day, four running each way.

It is difficult to realize what the condition of the country was between New York and Washington before these railroads were built. It was a good six days' distance between the two cities, and few persons made the journey in less than eight days. There was an excellent turnpike road, and a daily line of stage coaches. But the more wealthy people made the trip in their carriages, and many persons travelled on horseback. The country, except immediately along the line of the road, was comparatively rude and uncultivated; and the best lands were held at a low figure compared with the prices which they now command. The soil was not worked to one-quarter of its capacity, because its capacity was not known. Of New

Jersey, for instance, which is now one of the most fertile and fruitful States in the Union, it was supposed that the soil of the whole State was either all sand, or all pine. A recent writer says that the State was "traversed by the old high-road between Philadelphia and New York, laid out by the British Government in colonial days, and protected at various points by block-houses and barracks, in which garrisons of troops were stationed. Some of these block-houses remain to this day. Along this royal highway passed all the early travel between the New England Colonies, and those south and west of the Delaware and the Potomac. After the colonies had been severed from the parent country, this road continued to be, up to the advent of steamboats and railroads, the only thoroughfare between the two cities of Philadelphia and New York. Stage coaches occupied five weary days between them, the horses exhausted and jaded by wading through a deep, tenacious sand in summer, or the still deeper and more sticky mud through which they floundered in winter. On many miles of this road the sand was frightful. No local authorities worked it, no merciful builder of turnpikes ever thought of reclaiming it. It lay, from generation to generation, as waste and wild as when the native pines were first cleared away. Access was so difficult and laborious, that few strangers visited the region through which it passed; and the land was held in large tracts, whereon but few settlers had made any clearings. Everybody judged the soil to be as worthless as the deep sand in the highway. Where some adventurous settler had cleared up a farm, his

labors presented no inviting spectacle to the passing traveller. If manure was known in those days, the farmer did not appear to value it, for he neither manufactured nor used it. Phosphates and fertilizers had not been dreamed of. If the farmer spread any fertilizer over his fields, it was but a starveling ration; hence his corn crop was a harvest of small, worthless ears; and this again gave the soil of New Jersey a bad name.

“Wheat he never thought of raising. Rye was the sole winter grain; and rye-bread, rye-mush, and rye pie-crust, held uncontested dominion, squalid condiments as they usually are, in every squalid farm-house. Ragweed and pigweed took alternate possession of the fields; cultivation was at its last point of attenuation; none grew rich, while all became poor; and as autumn came on, even the ordinarily thoughtless grasshopper climbed feebly up to the abounding mullein stalk, and with tears in his eyes surveyed the melancholy picture of desolation around him.” Such is a true picture of the condition of New Jersey up to the building of the railroads of that State.

“No wonder,” says this graceful writer, “that the great public who passed over this road should think that the whole State of New Jersey was all sand, seeing that in their passage through it they beheld but little else. The sandy road alone was seen, while the green and fertile tracts that lay beyond and around it were unknown, because unseen.”

All this was changed, as if by enchantment, as soon as the New Jersey Railroad, and the Camden and Amboy Railroad had been built. “Every mile of the

old highway," says the writer from whom we have quoted, "is now a splendid gravel turnpike, intersected by a dozen similar roads, which stretch in every direction through the State. As good roads invite settlement, so population, the great promoter of the value of land, has come in rapidly, and changed the aspect of every farm-house. Good fences line the roadside, rank hedge-rows have disappeared. new farm-houses have everywhere been built, low lands have been drained, manures have been imported from the cities, and wheat is now the staple winter grain."

All this has been owing, in a great measure, to the construction of the Camden and Amboy, and the New Jersey Railroads. Terminating at New York and Philadelphia, they opened up a cash market among thousands asking for daily bread. When these railroads were first opened, their annual way-freight yielded less than one hundred dollars a year. But their managers wisely built station-houses at every cross-road, as the farmers called for them. To these railroad stations the produce of entire townships quickly gathered in astonishing quantities. A cash market being thus brought to the very doors of the farmers, an immense stimulus to production was created, and a new spirit was infused into the whole region. Hundreds of farms were renovated, cleared of foul weeds, drained, and liberally manured. New vegetables were cultivated. Tomatoes, peas, rhubarb, and early potatoes rose to be the prime staples. From one county, corn for the table is now taken in July, to the extent of two thousand tons daily. Way-trains are run for the sole accommodation of this business of the farmers,

stopping every two or three miles to take in the fresh vegetables and fruit that have been collected at these stations. This traffic, thus grown up within the last ten years, has proved highly remunerative, both to the railroad and the farmer. These way-freights, thus wisely cultivated by the railroad, now amount to many thousands annually, and are steadily growing larger.

It must be manifest that crops of fruit and vegetables, of such magnitude as are now produced in New Jersey, cannot be produced on mere sand. Men do not grow rich upon a barren desert, such as this region has been described. Yet the farmers who occupy this State are notoriously becoming rich.

A great deal of growling is often heard against the Camden and Amboy, and the New Jersey railroads, because, it is said, they are monopolies. But if the growlers will remember in future what vast benefits these railroads have conferred upon the State and people of New Jersey, perhaps they will be more just in their observations about the roads.

The officers of the New Jersey Railroad are A. L. Dennis, President, and F. W. Jackson, General Superintendent. Of the Camden and Amboy Railroad, E. A. Stevens, President, and A. Welch, Vice-President. Of the Philadelphia and Trenton Railroad, V. L. Bradford, President, and R. S. Van Rensselaer, General Superintendent.

CHAPTER XXI

CENTRAL RAILROAD OF NEW JERSEY.

THE Central Railroad of New Jersey forms a part of what has become a very popular route between New York and the west, by way of Pittsburg. The whole route consists of the Central Railroad of New Jersey, from New York to Allentown, by way of Easton on the Delaware River, ninety-two miles; the Lehigh Valley road, from Allentown to Harrisburg, ninety miles; and the Pennsylvania Railroad from Harrisburg to Pittsburg, two hundred and forty-nine miles; total, four hundred and thirty-one miles.

Three express trains leave New York, daily, on this route.

The early history of the New Jersey Central Railroad presents a striking example of perseverance in overcoming obstacles. That part of the road from Elizabethport to Somerville was built by a company of that name between the years 1832 and 1842. It was first opened to Plainfield, and then to Bound Brook, and finally to Somerville, by a desperate effort, resulting in the failure of the Company and the foreclosure of the mortgage on the road. In 1846 the road was sold. The strap rail was taken up by the new organization, the track relaid with heavy rails, and preparations were made for a large business. A

new company was chartered in 1847, to extend the road from Somerville to Easton, called the Somerville and Easton Company. The same year that part of the road between Somerville and White House was put under contract, and in the fall of 1848 it was completed and opened to White House. In 1849 the Company obtained authority to purchase the Elizabeth and Somerville Railway, and the name of the consolidated Company was changed to that of the Central Railroad Company of New Jersey. In 1850 the existing roads were brought under one management, and immediately after the spring of 1850 the remainder of the route, to Philipsburg on the Delaware River, opposite Easton, was put under contract. The road as far as to Clinton was opened in May, 1852, and the entire road was completed and opened in July, 1852. The railroad bridge over the Delaware River at Easton belongs to the Lehigh Valley Railroad Company.

In 1860 the Central Railroad of New Jersey obtained authority to extend its road eastward to Jersey City, and this was done. In 1855, the Lehigh Valley road was opened from Easton to Allentown. During this year, also, the Delaware, Lackawana, and Western Railroad Company completed their line from New Hampton to Scranton, the centre of the Lackawana coal region, and a convenient depot for coal transportation. By means of these two roads, the products of the richest anthracite mines in Pennsylvania were brought to the Central Railroad of New Jersey for transportation to New York.

The Lackawana connection requiring a six feet gauge, the Central Railroad Company anticipated this

necessity by laying a third rail on the track. The value of these connecting lines may be appreciated from the fact that during the first year after their completion the business of the Central Railroad of New Jersey was nearly doubled.

In 1858, the Pennsylvania Railroad was opened to Allentown and Reading, establishing a direct line with unbroken gauge to Harrisburg, Pittsburg, and the West. From Somerville a branch road has recently been opened to Flemington, which gives another route to Philadelphia.

During the last ten years, the business of the New Jersey Central Railroad has been constantly increasing. The freight traffic has increased so rapidly as to require large additions to the freight cars, each year. As a part of the through route between New York and the West, by way of Pittsburg, its popularity has steadily increased. It is truly a wonderful sight, to see the three express trains full of passengers every day moving westward, and the same number coming in the opposite direction. The financial condition of the Company of course is all that could be desired.

The President of the Company is J. T. Johnston, Esq., and the General Superintendent is J. O. Stearns, Esq., both of them gentlemen of great experience and ability in railroad matters.

CHAPTER XXII.

CONDITION OF THE WESTERN COUNTRY BEFORE THE
INTRODUCTION OF RAILROADS.

It may not be inappropriate, in this place, to make some observations upon the peculiar manners and customs, modes of dress, religious observances, amusements, and social features, of the people of Illinois and Indiana, at the period just before the general introduction of railroads. The territory comprised within the limits of these two States is of immense extent, reaching for three hundred and fifty miles from east to west, and the same distance from north to south. The northern and southern portions of the two States were settled by people of widely different views and habits of life; and the southern parts of the States were populous and flourishing while the northern counties were but little more than an untrodden wilderness. Keeping these facts in view, we proceed to notice first the manners and customs of the early settlers of Illinois; those who founded Kaskaskia and other towns in what are now the counties of Randolph, Jackson, and Monroe. These being Frenchmen, brought with them to Illinois the light-hearted gaiety and cheerful manners of the French people. They were Roman Catholics, and their priests shared with them the innocent gayeties of life. They were followed by hundreds of families from Vir-

ginia, Maryland, North Carolina, Georgia, Alabama, Tennessee, and Kentucky, who spread themselves all over the southern and middle parts of the State, and made numerous settlements in the counties of Champaign, Macon, Sangamon, Marion, Washington, Jefferson, Franklin, and Pope; and at points along the Ohio and Wabash Rivers. They brought with them the manners and customs, and the institutions, of the Southern States, and proved to be a most valuable acquisition to the wealth and growth of the State. They commenced the cultivation of cotton, but did not carry it to any great extent, and finally abandoned it. Their slaves assisted them in the cultivation of the soil; but it soon became evident that the products of Illinois were not adapted to slave labor. Consequently, these southern settlers took no measures to promote the increase of their slaves, and as the latter gradually died off, replaced them by hired white laborers from the New England States and from Germany and Ireland.

As is the case in all new countries, the early settlers of Illinois paid very little attention to dress. Utility, durability, and comfort were the only requisites thought necessary in the dress of either sex. Broadcloth, satin, velvet, fine linen, silks, and rich dress goods were rarely seen, and were only worn by the rich, and on extraordinary occasions. These, together with delains, merinos, French calico, and, indeed, any dress fabrics of eastern manufacture, were called "store goods," and were bought and used but sparingly. Linsey woolsey, Kentucky jeans, and a coarse and strong linen were manufactured in the looms of the

settlers themselves, and were made up into garments by their wives and daughters. The dressed skins of the sheep and the deer were also frequently made into trowsers, which were found extremely serviceable. The skins of the deer, and of several other wild animals were also dressed with the fur left on, and were made into overcoats, which, for real comfort and utility, have never been surpassed by any modern tailor work. The gloves made by the women, from the skins of the raccoon, wild-cat, mink, martin, fitch, otter, squirrel, and rabbit, were certainly as warm and comfortable as any that are now sold in the stores of New York or Philadelphia for five to ten dollars a pair.

The summer dress of the early settlers of Illinois was more remarkable for simplicity than for adherence to the rules of fashion. A shirt of tow linen, trowsers of the same, or of linsey woolsey, and coarse shoes, or none at all, completed the attire. On Sundays a coat made of linsey woolsey, and cut in a style that would have sent a fashionable tailor into convulsions, was added. The women were attired with equal simplicity. On Sundays alone, the taste for finery inherent in the sex everywhere, was indulged to a moderate extent. Hoops were unknown. The ladies wore linsey woolsey dresses which their own hands had made, dyed with colors as various and as brilliant as the rainbow hues. Their bonnets, some of them real leghorns, which had been handed down from generation to generation, were trimmed with ribbons of fabulous width, and of colors that were sure to be in striking contrast with the rest of the dress. She who could wear a

ribbon on her bonnet an inch or two wider than her neighbors, was sure to be envied by all who saw her.

The people of Illinois were not unmindful of their religious duties. In the Catholic settlements, the priests were regarded with unbounded love and reverence. Their authority was paramount. They used this authority with moderation, and there is no instance on record of its being abused. The people were devotedly attached to the church, and were scrupulous in their regard for all its requirements. They have been distinguished, in every period in the history of the State, for their obedience to the laws, and for their reverence for the constituted authorities.

The Protestant settlements in the State were not so well supplied with ministers of the gospel, and with what are called "the means of grace." The Methodists made the first efforts for the conversion of the people. They sent out their preachers; and as there were few churches built, these preachers frequently used to hold meetings in groves, in the open air, which the people were invited to attend. Oftentimes, when the vociferous preaching of these missionaries seemed to be attended with more than usual excitement (or as the preachers themselves expressed it, when their preaching was attended by an outpouring of the spirit), these meetings were protracted from day to day, and frequently lasted for two or three weeks at a time. They were then called camp-meetings. It must not be supposed, however, that the same people attended these meetings during the whole time. Parties consisting of a few families from the same neighborhood would go together, taking with them provisions and cooking

utensils, stay three or four days, camp out at night, and then return home. The scenes that took place at these camp-meetings were strange indeed. A tin horn would be blown to call the people together for worship, three or four times in the course of the day. Forth from their tents would come men, women, and children, and seat themselves on the rude benches in front of the preacher's stand. If it was the evening service, innumerable lights gleamed from torches of pine and other resinous wood, lighting up the scene with a strange and fitful glare. The preachers ascend the rude pulpit. One of them begins to sing one of those hymns peculiar to the Methodists, in which he is soon joined by the whole congregation.

The sound of so many voices blended together echoes and re-echoes through the forest, and forms a wild and not displeasing melody. The hymn being over, one of the preachers kneels down and prays. He prays loudly and with fervor. He prays that the Lord would open the blind eyes, and carry conviction to the heart of every sinner present. He prays that the Lord would come down with mighty power, and bring every sinner to repentance, and turn the hearts of the people, even as the rivers of water are turned. He waxes importunate, uses the most familiar language, and insists that the Lord shall not wait one instant, but come right down at once. By the time he is done, he is in a profuse perspiration, and his voice is entirely gone. Another preacher now rises, and preaches the sermon. This was usually a wild rhapsody, filled with denunciations of the wicked, assurances of God's wrath against sinners, and urgent appeals to the people to flee

from the wrath to come, and seek refuge in the ark of safety. The people become worked up to the highest pitch of excitement. One after another would rise, and go forward to the "mourning bench." This was an inclosed space immediately in front of the pulpit, and strewn plentifully with straw. Upon this straw, men and women would throw themselves indiscriminately, and roll about in paroxysms of excitement. The loud tones of the preacher's voice would now be mingled with shouts of Amen! Glory to God! Hallelujah! &c., from the congregation; and with groans and cries from the persons in the straw. When the latter fancied that they had "got religion," as they expressed it, they would leap up, dance about, throw up their hats, shout and sing, embrace each other, and go through other antics equally ridiculous.

It may well be doubted whether any permanent good ever resulted from these meetings. The excitement quickly vanished, and the feelings to which it gave rise soon disappeared. The meetings, however, served to give to the preachers of the Methodist denomination a power and consequence among the people not enjoyed by the ministers of any other sect. As new villages sprang up, and as the towns increased in size, the Methodists began to build churches; and as these increased in number, camp-meetings began to decline, and were held less frequently.

The early Methodist preachers were, for the most part, illiterate men, who passed six days of the week in secular labor. They were unsparing in the ridicule which they cast upon the ministers of other sects, who began to come into the State about the year 1837. They

spoke of them in the most contemptuous manner, and said they had brought with them barrels of old sermons that had been preached a hundred years ago. It is much to be regretted that few authentic reports exist of the sermons preached by these pioneer preachers. One extract, however, has been handed down to posterity, the authenticity of which was beyond dispute. The preacher was addressing a congregation which had become somewhat sleepy, and in order to waken them up he used the following language:—

“I would ask you a strange question. Who is the most diligent man in the whole country; that surpasseth all the rest in doing of his office? I can tell, for I know him, who it is. I know him well. But now I think I see you listening and hearkening that I should name him. There is one that surpasseth all others, and is the most diligent man in all the West. And will you know who it is? It is not you, Brother Watson, nor you, Farmer Hodge, nor is it honest John Thompson the blacksmith. It is—the devil! Among all the pack of you, the devil is the man for my money, for he fulfilleth his business. Therefore, ye idle men and women, learn of the devil to be diligent in your office. If ye will not learn of God, for shame’s sake learn of the devil.”

The amusements of the people were for the most part of a nature to develop the physical more than the intellectual qualities. Hunting was pursued with avidity, both for the sport and game it afforded, as well as from the necessity of clearing the State of troublesome wild animals. The custom of collecting at the shop of the village blacksmith, and pitching quoits or

horseshoes, promised at one time to become a popular amusement, but happily it was frowned down, and never got much into vogue. It was justly regarded as an idle and unprofitable waste of time. In the winter time, sleighing parties and dancing parties were much in vogue among the inhabitants. These innocent and healthful amusements were the means of bringing together the young people for miles around, and of promoting refinement and good manners. The music for the dancing was furnished by the fiddles played by negro slaves. Senator Douglas and Lyman Trumbull, when young men, frequently danced at these parties, to the music played by these slaves.

Military trainings were kept up in the ancient fashion till as late a period as the year 1838, and in some counties in the State, for some years later. These "trainings," were little more than assemblages of all the able-bodied men in the community, required by law to be made on two days in the year. It was the design of the law that the men should be "trained" on those days in the use of arms, and in military evolutions. But this design was completely defeated by the ignorance of the officers themselves in regard to military matters, and by the lack of arms. Thus the only use in these "trainings" was in keeping up the enrolment of the men able to perform military duty. For all other purposes, these trainings were the broadest farces. The field and staff officers (!!) pranced about on fiery, untamed plough-horses, gorgeous in tinsel, feathers, and fancy uniforms. The men wore their common clothes. Those who had guns or rifles brought them, but these were less than half of the whole number.

The rest actually carried wooden guns, sticks, and even corn-stalks. Some carried umbrellas; and if the sun was hot or the day rainy, did not scruple to raise them in the ranks. The "officers" made a show of instructing the men in the manual exercise, and in marching;—but the instruction did not amount to much. Those who had rifles were usually good marksman; but all the others were the veriest rabble. It will be remembered that we are speaking now of the period between 1835 and 1840, during which time most of the settlers in Illinois came there without arms, because there was little or no use for them. Those who lived in the State in 1831–2, at the time of the Black Hawk War, were well armed, and made excellent soldiers. And by the year 1840 volunteer military companies began to be formed in various parts of the State, and as these were uniformed, and arms furnished to them by the government, the ridiculous features of the trainings soon began to disappear. It may be mentioned here, though greatly in anticipation of the order of time, that the great improvements in fire-arms that were introduced in 1858, did not find their way to Illinois till the close of the year 1860, when the Chicago Light Guard were supplied with the Minie musket.

CHAPTER XXIII.

CONDITION OF THE WESTERN COUNTRY BEFORE THE
INTRODUCTION OF RAILROADS: CONTINUED.

PREVIOUS to the adoption of the system of Public Schools, during the administration of Gov. Mattison in 1853, no adequate provision was made for the education of the rising generation. The schools throughout the State were generally under the District School system of the older States. The teachers were usually young gentlemen from the Eastern States, who had come to the west with the ultimate intention of practising law, but who were willing to devote a few months or a year or two, to teaching school. They were generally well educated and honorable, and made excellent teachers. The custom of the teacher "boarding around" prevailed to some extent. In other localities, the teacher was engaged by the trustees of the district for a certain stipulated sum, and was then at liberty to engage board for himself at any house convenient to the scene of his labors. The schoolhouses were almost invariably built of logs, and if they kept out the rain and the cold, they were thought sufficiently comfortable. The seats were made of logs split in two, and the desks were similarly constructed, both being supported by stakes set in auger holes. Boys and girls attended these schools together. The studies pursued

were usually the lower English branches. Reading, spelling, writing, arithmetic, English grammar, and geography, were the branches usually taught. It was not till several years later that classes were formed in some of the schools for the study of Natural Philosophy, Chemistry, Astronomy, and Algebra. Occasionally, however, some teacher, anxious to foster a taste for a more enlarged view of education, would deliver a course of lectures, on one evening in the week, on Chemistry, Astronomy, and Natural Philosophy. These lectures were of course free, and were attended by the older pupils, and their parents and friends. They were generally delivered in the school-room, but sometimes in the village church. If the teacher were the fortunate possessor of a telescope of moderate power, or an electrical machine, or of a limited chemical apparatus, it lent additional interest to his lectures, and caused him to be regarded with a feeling approaching to reverence.

Many anecdotes are current among the people, relating to these early schools. The recital of half of them would fill many pages, and we select therefore only two. One of the schools was taught by a young gentleman who was a graduate of one of the military schools in the Eastern States. Among his pupils there was one big boy, the bully of the school, who was the only one who gave the teacher any trouble. He was refractory from the first, openly set at defiance the rules of the school, and the admonition of the teacher, and had often been heard to declare that he would whip the teacher if the latter dared to punish him. He was eighteen years old, and was much larger than the

teacher, who was twenty-two. One morning he had committed some offence of a more glaring nature than usual, and at the morning recess had "absquatulated." When the afternoon session had begun, he stalked in, and stood in an attitude of defiance in front of the fireplace. The master sternly bade him come forward to the desk. He muttered, but so loudly that all in the room heard him, that he would come when he got ready, and then taking up a stick of wood from the hearth, and suiting the action to the word, he exclaimed, "Shoulder arms!" Now the master had succeeded hitherto in maintaining good order in his school, and such daring rebellion as this threw the whole school into consternation. Every one wondered what was coming next, and not a few thought that the authority of the master was at an end, and that he would have to succumb before the big boy who thus defied him. If he had done so, his authority would have been at an end, the school would have been a pandemonium, and he would have been compelled to retire from the school with ignominy. These thoughts passed through his mind in one moment. The next, he was by the side of the big boy, and had taken up another stick of wood. The fireplace was of the old-fashioned, large, and open kind, and the wood provided for it was in sticks four feet long, and of all sizes, from large back-logs to small round sticks two inches thick. It was the latter kind that the master and the boy now held respectively. "Shoulder arms!" the big boy had just exclaimed. "Ah!" replied the master, "military, hey? I understand those tactics myself. Ground arms!" and with a rapid motion of *his* stick, he sent that of the big boy flying out of his hand,

and the next instant the big boy found himself sprawling on the floor. Bullies are always cowards; and when the big boy saw that he was conquered, he begged piteously for mercy. The master had no more trouble in his school. The big boy subsequently went to California, fell into evil courses, and finally became a victim to justice as administered by a Vigilance Committee. The master was, soon after the close of his school, admitted to practise law, and is now an eminent lawyer.

The other anecdote is of a quick-witted lad, John Thomas by name, who always had a ready answer to help him out of any difficulty. The wood for the school-house fire was furnished by the families of the district in turn; each one supplying the fuel for a week. The fires were made by the boys in rotation, each one making it for three days in succession. Some of the farmers sent good wood, but others sent the poorest they had, and one man sent a load of brushwood and small twigs, although he had plenty of good wood. It was the turn of the boy of whom we have spoken to make the fire; but one morning, the skating being good, John Thomas spent the morning in skating, and at nine o'clock, when the master came, there was no fire, the school-house was cold, the girls were shivering around the fireplace, and John Thomas was just bringing in an armful of farmer Plowder's twigs. "How is this, John?" said the master. "No fire yet?" Now John, among his other accomplishments, was an incorrigible stutterer, but a lad of great good humor. "No, sir," he replied. "I've been here ever since daylight, k-k-keeping the snow b-b-birds from k-k-k-carrying away Mr. Plowder's wood!"

The schools in the towns were often of a higher grade of excellence, and by the year 1840 there began to be many private or select schools. These schools were really excellent. Many of the teachers were men of great erudition, and gave instruction in the Latin and Greek languages, in the sciences, mathematics, and the higher English branches. At the close of their sessions they usually gave a public exhibition of the progress of their pupils. At some of these exhibitions, little dramas used to be performed by the pupils.

Railroads did not begin to exist (except a few short ones in the southern part of the State) before the year 1845. All the travel was by the common country roads; and the travel was necessarily slow. Taverns and public houses quickly sprang up on all the principal routes of travel, but the accommodations they afforded were, almost without exception, of the most inferior description. It was impossible to get a comfortable or wholesome meal at any of them. Hot and doughy biscuit and ill-cooked meats formed the unvarying repast. The beds were hard and uncomfortable, stuffed with dried husks of corn, and the sheets and blankets anything but clean. During "court weeks" the taverns at the county seats would be crowded, and late comers found it difficult to obtain rooms at all. A good anecdote is related of a distinguished member of the bar, and a prominent Whig, who came late one day to one of these taverns. It was in the year 1851. The landlord told him that all his rooms were occupied, but that he could give him a bed in a room with some other gentlemen. "It is the room, sir," said the landlord, "that Judge Douglas

occupied when he was here." "Oh, well," said the lawyer, "I am quite willing to sleep in any room that Judge Douglas has occupied." So the landlord took him up, showed him the door of the room, and bade him good night. The lawyer advanced, candle in hand, and opened the door. The sight that met his astonished gaze was one that might well cause him to start back in amazement. There were six beds in the room. Each bed had two occupants, save one, in which there was *room* for the astonished lawyer. The rafters overhead re-echoed with the snoring of the eleven sleepers. Twenty-two boots, twenty-two socks, eleven coats and eleven pair of trowsers lay strewn over the floor. A large table in the middle of the floor was covered with empty brandy bottles and tumblers. On the floor were four enormous spittoons, each one filled with that for which they were designed, and with the stumps of cigars. The atmosphere of the room was impregnated with an odor that can be more easily imagined than described. The lawyer took in the whole at a glance. But a glance was sufficient. Rushing down to the bar (office was then unknown), he called frantically for the landlord. The latter came, with wonder on his face, a nightcap on his head, and a mug of lager beer in his hand. "Sir," said the lawyer, "I said I would sleep with Judge Douglas; but I'll be hanged if I'll sleep with the whole Democratic party!"

But to return to country taverns: On the cross-roads, and in the more newly-settled districts, where there were no taverns, the traveller fared really better than where they were. The houses of the farmers of

all degrees were freely opened to the traveller, and the hospitable host invariably declined to receive any remuneration. The beds in the farm-houses were always clean and comfortable, and the meals plentiful and wholesome. Happy the traveller whose fortune it was to come across one of these abodes of real comfort; for there he had an opportunity to see real country life in Illinois.

The sun, rising in the early summer at four or five o'clock, would find the farmer's family all astir even at that early hour. The animals were all fed, and the cows milked and sent out to pasture, and at five or six o'clock the family assembled for breakfast. At this meal, large, fat, juicy beef-steaks, potatoes, excellent bread of wheat, of rye, and of corn, delicious butter, and rich milk, with "store coffee" for such as preferred it, constituted the basis of a substantial repast: and fastidious indeed must have been the taste that would not have done justice to it. Breakfast over, the men hied to the fields, to attend to the various avocations of the season. There was prairie land to be ploughed, ditches to be dug for draining the land, seeds to be sown, corn planted, hay to be cut, grain to be cradled, wheat to be threshed, corn to be shelled, colts to be broken, fences to be made, and an endless variety of employments. At noon, a horn loudly blown summoned all hands to dinner. This meal surpassed in profusion the morning repast. Boiled or roast beef, lamb, veal, or mutton, fresh or salt pork, potatoes, turnips, cabbage, beets, and parsneps, formed the staple of the bill of fare. Water alone was drunk, or perhaps milk or cider. Soup was a rare dish, and when

made it was usually meagre, tasteless, and without nourishment. The meal concluded with a variety of simple but excellent pies or puddings. The dinner was quickly dispatched, the time spent at table not exceeding half an hour. The intervening time before one o'clock was spent in some cool or shady spot, where, with jovial conversation, the nooning hour passed quickly away. The afternoon labors, commencing at one, terminated at sunset, when a hearty supper, spread with the same profusion as the other meals, restored the strength of the honest sons of toil. The evenings were usually spent by the farmers at their own firesides, in reading the newspapers of the day, or such books as they possessed, or in the instruction of their children. The village "store," however, was an institution by no means neglected by those who lived near enough. This store, which was frequently the post-office also, was furnished with seats or benches in front of the counters, where as many as twenty men could sit. Every evening these benches would be occupied by a dozen or more of the neighboring farmers, who met here to get their newspapers, hear the news, talk politics, and discuss farming.

One more western institution remains to be described; namely, the barbecue. This was usually a compliment to some eminent public man; but was also frequently arranged as a means of affording the people an opportunity to hear both sides of the political questions of the day discussed. A spot of ground was selected, where a prairie was skirted by a grove of timber free from underbush. A platform and rude seats were constructed. Deep trenches were dug in the ground, and large fires made in them. On these beds of coals

all sorts of meats were cooked; roast beef, turkeys, chickens, beef-steaks &c. Tables were set provided with everything necessary in profusion. Dozens of barrels of cider were provided, with plenty of tin cups and gourds. The people of all political parties assembled; and not only the men, but the ladies also came. Then, if the barbecue was given as a compliment to some distinguished man, that individual would address the multitude. If it was to be a discussion between two rival candidates to Congress, one of them would speak in the morning, and then, after dinner, his antagonist would reply. These entertainments were free to all; and the presence of the ladies prevented any improper conduct.

What has been heretofore said, has had reference to the mode of life in the middle and southern parts of the State. The northern counties were settled by very different people. They were, for the most part, from the New England States, and brought with them, to Illinois, much of sour austerity, gloomy puritanism, and sectional fanaticism. They were chiefly Congregationalists, but many were Presbyterians, some Baptists, and a few Universalists and Unitarians. Many of them were abolitionists of the most bigoted class.

The foregoing observations, although written mainly with reference to Illinois, apply with equal truth, for the most part, to Indiana.

With the introduction of railroads into all parts of the States came a vast change in the habits of life, manners, and customs of the people. The paths trodden by the footsteps of the Indian and the pioneer settler were broken up, and were crossed and recrossed by the iron track of an advancing civilization. Old

things were passing away; all things were to become new. The old hunters were dying; the log-cabin and the old Catholic church were crumbling into ruins; and all the forms and modes of life in old Illinois were passing away, never to return. People in all the Eastern States began to hear of the wonderful fertility of the plains of Illinois and Indiana, and emigrated there by hundreds. It required three weeks of constant travel, even by persons unencumbered with flocks and herds, to reach the prairie land.

The author, then a mere child, made the journey in the year 1837. By railroad and canal from Philadelphia to Pittsburg, thence down the Ohio to Cincinnati, thence by stage-coach through Columbus, Richmond, Indianopolis, Terre Haute, and St. Louis. The memory of that journey still remains, but how changed is everything on the route. The wild and uncultivated country, the road here winding along some lonely stream, there stretching in a straight line for miles without a sign of a human habitation, the log-huts of the pioneer settlers, the herds of deer, the tall grass of the prairies waving in the breeze like the billows of the ocean; all these are now gone like an unsubstantial pageant faded, and left not a trace behind.

Between us of the year 1868 and Old Illinois there lies a chasm which the prose of the historian can never bridge. Only when we are out on the Grand Prairie, in the month of June, far from the busy hum of men, out of sight of all the works of man's hands, with the bright prairie flowers around us, and no object in view but the vast plain at our feet and the blue sky over our heads, can we realize what Illinois was in 1836.

CHAPTER XXIV.

THE RAILROADS OF ILLINOIS.

IN 1836, the whole country was wild on the subject of internal improvement, and the people of Illinois partook of the prevailing excitement. The legislature passed acts incorporating the following railroad companies:—

	Miles.
The Illinois Central, to extend . . .	300
The Galena and Chicago Union . . .	175
The Chicago and Vincennes . . .	240
The Springfield and St. Louis . . .	80
The St. Louis, Wabash and Lake Erie	250

Besides twenty-one other roads; extending, in all, three thousand two hundred and eighty-seven miles. The twenty-one other roads were never built.

Mr. Stephen A. Douglas, afterwards the illustrious Senator from Illinois, was at that time a member of the State legislature. He was opposed to any system of internal improvements to which the State of Illinois was to be merely a party. But he favored a plan by which the State was to select some of the most important works, which were to be owned, constructed, and operated by the agents of the State Government. The following resolution, submitted by Mr. Douglas, indicates his policy:—

Resolved, That the Committee on Internal Improvements be instructed to report a bill for the commencement of a general system of internal improvements, as follows:—

1. For the completion of the Illinois and Michigan Canal, to connect Lake Michigan with the waters of the Mississippi, by means of the Illinois River.

2. For the construction of a railroad from the termination of the above canal, which was about at Ottawa, in La Salle County, at the head of steamboat navigation on the Illinois River, to the point now occupied by Cairo, at the mouth of the Ohio River. A glance at the map will show that this was the route which was afterwards taken by the Illinois Central Railroad, from La Salle, on the Illinois River, to Cairo; although the road extended much further northward.

3. For the construction of a railroad from Quincy, on the Mississippi River, about one hundred and thirty miles above St. Louis, eastward to the State line, in the direction of the Wabash and Erie Canal. This road was never built. The Wabash and Erie Canal extends from Toledo, in Ohio, through Indiana, along the upper waters of the Wabash River, to Terre Haute. It was of vast benefit to the inhabitants of Ohio and Indiana, and if this proposed railroad had been constructed at that time, Illinois would have been greatly enriched and benefited by the business which it would have brought to the State.

4. For the improvement of the navigation of the Illinois and Wabash Rivers. These rivers are both navigable for steamboats; the Illinois River, from its

mouth to Ottawa, a distance of two hundred and fifty miles; the Wabash, from its mouth to Lafayette, also a distance of two hundred and fifty miles. It was of the first importance that the navigation of these rivers should be improved.

Resolved, That as the basis of the system, the improvements shall be constructed and owned exclusively by the State.

But the plan of Mr. Douglas was rejected, because the people at that time were wild with excitement, and his proposal seemed to them to be entirely too moderate. The people, in accordance with the gigantic views of the day, demanded a hundred railroads, crossing and interlacing each other in every direction. In the year 1837, the gigantic system of internal improvements, increase of banking capital, and subscription to railroad stock by the State, which afterwards involved the State in such trouble, was adopted by the legislature. The act provided for the construction of nine long railroads, and made large appropriations in order to aid in their construction. The appropriation for what afterwards became the Illinois Central Railroad, from Cairo to Galena, by way of Centralia, Decatur, Bloomington, La Salle, and Freeport, was three million five hundred thousand dollars. The other eight railroads were never built. Among them all there was no provision made for any railroad to or from Chicago. The northern part of the State was as yet very thinly settled, and Chicago was an insignificant village. Few persons at that time dreamed of the brilliant destiny that was in store for that wonderful city.

RAILROADS NOW IN OPERATION.—The principal railroads in Illinois now in operation, are the following:—

1. The Michigan Central, from Chicago to Detroit, two hundred and eighty-two miles.

2. The Michigan Southern, from Chicago to Toledo, two hundred and forty-two miles.

3. The Pittsburg, Fort Wayne, and Chicago, from Chicago to Pittsburg, four hundred and sixty-seven miles.

4. The Great Western Railroad of Illinois begins at Quincy on the Mississippi River, and runs nearly east through the State, passing through Springfield and Decatur, and joining the Toledo, Wabash, and Western Railroad, which extends to Toledo, passing through Lafayette and Fort Wayne, in Indiana.

5. The Terre Haute and St. Louis Railroad, from St. Louis to Terre Haute, directly across the State, and crossing both branches of the Illinois Central Road.

6. The Ohio and Mississippi Railroad, from St. Louis to Cincinnati, running directly across the State, and crossing the Illinois Central Road a little above the fork, at Centralia.

7. The Illinois Central Railroad, from Chicago to Cairo on the Mississippi River; and from Centralia to Dunleith. The entire length of the road is seven hundred and eight miles, all within the State of Illinois. The Illinois Central Railroad Company pays seven per cent. of its earnings to the State.

8. The Chicago and St. Louis Railroad, from Chicago to St. Louis, two hundred and eighty-four miles, passing through Bloomington and Springfield.

9. The Chicago, Burlington, and Quincy Railroad, from Chicago to Quincy, on the Mississippi River, five hundred and fifteen miles, including a branch to Burlington.

10. The Chicago and Rock Island Railroad, from Chicago to Rock Island, on the Mississippi River, one hundred and eighty-two miles; since extended some distance west of Iowa City.

11. The Chicago and Milwaukee Railroad, from Chicago to Milwaukee, eighty-five miles; extended thence to La Crosse.

12. The Chicago and North Western Railroad, from Chicago to Oshkash, two hundred and thirty miles.

13. The Galena and Chicago Union Railroad, from Chicago to Dunleith, one hundred and forty-one miles. This road has paid as high as twenty-one per cent. in dividends to its stockholders, in a single year.

14. The Chicago and Fulton Air Line Railroad, from Chicago to Fulton, on the Mississippi River, one hundred and thirty-six miles.

The last four great roads have been consolidated for some years past, and have been worked under admirable management and with great success, as the Chicago and Northwestern Railroad. The President is Hon. Wm. B. Ogden; and the General Superintendent is George L. Dunlap, Esq., two of the most accomplished and efficient railroad men in the world, and men of the same stamp for energy and enterprise as John W. Garrett, of the Baltimore and Ohio road.

CHAPTER XXV.

THE RAILROADS OF CHICAGO.

THERE is nothing more wonderful in the history of the United States than the growth of the City of Chicago. Forty years ago, Chicago was a howling wilderness, where the red man and the buffalo roamed undisturbed. Thirty years ago, there were white people at Chicago, but it was a mere straggling village, the population being one thousand four hundred and seventy inhabitants. It was scarcely known then, even by name in the Eastern and Middle States. Two years later, in the year 1837, it was incorporated as a city, with the Hon. Wm. B. Ogden as mayor; but the population then was only four thousand one hundred and seventy souls. The city grew slowly at first. In 1840, when General Harrison was elected President of the United States, the population of Chicago was four thousand four hundred and eighty-nine. In 1843, the population was seven thousand five hundred and eighty; in 1844 it was eight thousand eight hundred and fifty; and in 1845 it was twelve thousand. Even in 1847, twenty years ago, the population was only seventeen thousand. In 1849 the population amounted to twenty-three thousand, and from that time it has increased rapidly. Its commercial advantages began then to be appreciated, and from

that time a steady stream of enterprising persons from the east and south began to come to Chicago to settle. At that time, too, the railroads of Illinois began to be built, and some of them were fairly under way.

In 1850, when the Galena Railroad had been completed to Freeport, the population of Chicago was twenty-eight thousand. In 1853, when the Michigan Central and Michigan Southern Railroads had been completed to Chicago; when considerable progress had been made in the construction of the Illinois Central Railroad; and when the Rock Island Railroad had been commenced, the population of Chicago had increased to sixty-six thousand. In 1854 it had increased to seventy-four thousand five hundred. In 1855, when the Chicago, Burlington, and Quincy, the Dixon air line, and the Chicago and Rock Island Railroads were all completed, the population of Chicago had increased to eighty-two thousand seven hundred and fifty; and in 1856 to ninety thousand.

At the present time, Chicago has a population of nearly two hundred thousand; its streets are well-paved, and well-lighted at night, and it has an admirable system of drainage. Its commerce amounts to two hundred and fifty millions of dollars annually; its harbor is one of the finest and most capacious in the west, and is constantly crowded with vessels; it is the largest grain market, pork market, and lumber market in the world; many of its churches and public buildings, and private dwelling-houses, are equal to, if they do not surpass, any similar buildings in New York or Philadelphia; two of its railroad depots far

surpass any similar buildings in the United States; and its best hotel, the Tremont House, is probably the best in the United States, except the far-famed Continental, of Philadelphia.

In the year 1866, there were manufactured at Chicago four hundred and forty-four thousand five hundred and twenty-four barrels of flour; and during the same year, one million seven hundred and eighty-four thousand barrels were exported. The receipts of wheat during the same year amounted to twelve million eight hundred and seventy-four thousand nine hundred and thirty-four bushels; and the exports of wheat to nine million seven hundred and eleven thousand two hundred and twenty-six bushels. The receipts of corn in the same year amounted to thirty-three million and seventy-three thousand bushels; and the exports of corn to thirty-three million five hundred and forty thousand bushels.

Such is Chicago in its commercial aspect; and she owes her unexampled growth, and the rapid development of her resources, almost entirely to her railroads, which traversing the whole State, and indeed the whole northwest, bring to her, and pour into her lap, the rich treasures of those fertile regions.

TRUNK LINES, CENTERING AT CHICAGO.—There are thirteen grand lines of railroads starting out from Chicago from seven principal depots, as follows:—

1. **TO THE EAST.**—The Michigan Central Railroad, to Niagara Falls, New York, and Boston, by way of Detroit, Suspension Bridge, and the New York Central Railroad. Four trains daily leave the Depot of the Illinois Central Railroad, at the foot of Lake Street,

at about 6 and 8 A. M., and at 5 and 10 P. M. Distance to Detroit two hundred and eighty-four miles. Running time twelve hours. Fare, eight dollars and twenty-five cents.

2. TO THE EAST.—The Michigan Southern Railroad, to New York by way of Toledo, Cleveland, Dunkirk, and the New York and Erie Railroad. Four trains leave Chicago daily, at about 7 and 9 A. M., and 5 and 10 P. M. Distance to Toledo two hundred and forty-four miles. Running time eleven hours. Depot corner Van Buren and Sherman Streets.

3. TO THE EAST.—The Pittsburg, Fort Wayne, and Chicago Railroad, to Philadelphia, by way of Fort Wayne, Crestline, Alliance, Pittsburg, Altoona, Harrisburg, and Lancaster. Three trains daily, leave the depot at Chicago, near Madison Street bridge on the west side, at about 7 A. M., and 5 and 10 P. M. Distance to Pittsburg, four hundred and sixty-eight miles. Running time twenty hours, or about twenty-three miles per hour. This is also a very popular route from Chicago to New York, as the time and distance are shorter than by any other route, and there is only one change of cars between Chicago and New York. Three express trains daily leave the depot of the Pittsburg, Fort Wayne, and Chicago Railroad, near Madison Street bridge, and proceed as above to Harrisburg, and thence to New York by way of Allentown and Easton. Distance from Chicago to New York by this route, eight hundred and ninety-nine miles.

4. TO THE SOUTHEAST.—Chicago and Great Eastern Railroad to Cincinnati, by way of Logansport and

Richmond. Distance two hundred and ninety-four miles. Running-time, fifteen hours. Two trains daily leave Chicago at about 6 A. M. and 9 P. M. Fare, eleven dollars and forty-five cents.

5. TO THE SOUTH.—The Louisville, New Albany, and Chicago Railroad, to Louisville, by way of Lafayette, Crawfordsville, Green Castle, and New Albany. Two trains per day.

6. TO THE SOUTH.—The Illinois Central Railroad to New Orleans, Mobile, and Memphis. Two trains daily leave the Illinois Central Depot, foot of Lake Street, at about 9 A. M. and 10 P. M. Running time to Cairo, nineteen hours; distance three hundred and sixty-five miles.

7. TO THE SOUTHWEST.—The Chicago and St. Louis Railroad, to St. Louis, by way of Bloomington, Springfield, and Alton. Two trains daily leave Chicago, from depot on West Division, near Madison Street bridge, at about 8 A. M. and 8 P. M. Distance to St. Louis, two hundred and eighty miles. Running time, thirteen hours.

8. TO THE WEST.—Chicago, Rock Island and Pacific Railroad, to Fort Des Moines, by way of Davenport and Iowa City. Distance to Kellogg Station, which is seventy-six miles west of Iowa City, three hundred and fifteen miles. Two trains daily leave Chicago for Rock Island and Davenport, on the Mississippi River, one of which runs through to Kellogg. Running time to Rock Island, eight hours and a half. The depot at Chicago is on the corner of Van Buren and Sherman Streets.

9. TO THE WEST.—The Chicago, Burlington, and Quincy Railroad, to the towns of Burlington and Quin-

cy, on the Mississippi River. Distance to Burlington, two hundred and ten miles; to Quincy, two hundred and sixty-five miles. Running time to Burlington, eleven hours. Two trains leave Chicago daily, about 8 A. M., and 10 P. M. Fare to Burlington eight dollars.

10. TO THE WEST.—The Chicago, Council Bluffs, and Omaha line of the Chicago and Northwestern Railway, to Council Bluffs, Iowa, on the Missouri River, without change of cars. Distance to Council Bluffs, four hundred and eighty-eight miles. Two trains leave Chicago daily at about three and eleven P. M., crossing the Mississippi River on a fine railroad bridge. This is really the commencement, or eastern section, of the Pacific Railroad.

11. TO THE WEST.—The Galena and Chicago Union Railroad, to Dubuque, by way of Freeport. Two trains leave Chicago daily, at about 9 A. M. and 10 P. M. from the depot corner of Wells and Water Streets, in the North Division, near Wells Street bridge. Distance to Freeport, one hundred and twenty miles. Running time, six hours and a half.

12. TO THE NORTHWEST.—The Chicago and Northwestern Railroad, to Fort Howard, at the head of Green Bay in Wisconsin, by way of Crystal Lake, Janesville, Fond-du-lac, and Oshkash. Distance to Fort Howard, two hundred and forty-two miles. Running time, twelve hours and a half. Two trains leave Chicago daily, from the depot in Kinzie Street, in the North Division, north of Lake Street Bridge, at about 9 A. M., and 4.30 P. M. The trains for Beloit leaves at 4.30 P. M.

13. TO THE NORTH.—The Milwaukee Division of the Chicago and Northwestern Railway. Six passenger trains leave Chicago daily on this road, namely: for Milwaukee at 9 A. M., 3.45 P. M., and 11.45 P. M.; for Evanston at 1.30 P. M.; for Kenosha at 4.40 P. M.; and for Waukegan at 5.30 P. M.

The four roads last mentioned are embraced among those of the consolidated Chicago and Northwestern Railroad Company.

CHAPTER XXVI.

CHICAGO AND NORTHWESTERN RAILROAD.

WE will now present to the reader the most remarkable illustration of the benefits of railroad consolidation which this volume affords.

The Pacific Railroad—for there is only one, as will be presently shown, in another Chapter on “The Pacific Railroad”—the Pacific Railroad begins at Chicago, on what was formally the Dixon and Fulton Air-line Railroad; crosses the Mississippi River at Fulton; runs across the whole State of Iowa on what was formerly the Chicago, Iowa, and Nebraska Railroad, to Council Bluffs, and there crosses the Missouri River at Omaha. It then proceeds along the north side of the Platte River, and through Nebraska to Salt Lake City. The distance from Chicago to Council Bluffs is about five hundred miles, and this forms a part of the Chicago and Northwestern Railroad.

The lines of railroad which are now consolidated, and worked as the Chicago and Northwestern Railroad, are as follows:—

1. The Wisconsin Division, being the old main line of the road, extending from Chicago to Fort Howard, at the head of Green Bay, by way of Janesville, Fond du Lac, Oshkosh, and Appleton Miles. 242

	Miles.
2. The Kenosha Division, extending from Kenosha on Lake Michigan, to Rockford, the point of junction with the old Galena road	73
3. The Galena Division, consisting, first of the original Galena and Chicago Union Railroad, extending from the Junction, a point thirty miles west of Chicago, to Freeport, by way of Elgin, Belvidere, and Rockford, ninety-one miles; second, of the Dixon and Fulton Air-line Railroad, extending from Chicago due west to Clinton on the Mississippi River, by way of the Junction, Geneva, and Dixon, one hundred and thirty-eight miles; and third, the road from Elgin to Richmond, thirty-three miles, and the South Branch track at Chicago, five miles, making in all	268
4. The Madison Division, being the Beloit and Madison Railroad, from Belvidere to Madison, by way of Beloit	69
5. The Iowa Division, consisting of the Cedar Rapids and Missouri River Railroad, extending from Clinton on the Mississippi River, one hundred and thirty-seven miles west of Chicago, to Council Bluffs, on the Missouri River, in Iowa, by way of Cedar Rapids and Boonsboro	352
6. The Milwaukee Division, from Chicago to Milwaukee	85
7. The Peninsula Division, consisting of the Peninsula Railroad of Michigan, extending from the harbor of Escanaba, at the mouth of Green Bay, to the Cleveland and Great Jackson iron mines	72
Total	<u>1160</u>

The above railroads constitute five great lines radiating from Chicago from west to north, as follows:—

	Miles.
1. The road from Chicago to Milwaukee	85
2. The road from Chicago to the head of Green Bay	242
3. The road from Chicago to Madison, by way of Elgin, Belvidere, and Beloit	147
4. The road from Chicago to Freeport, by way of Elgin, Belvidere, and Rockford	121
5. The road from Chicago to Council Bluffs on the Missouri River, by way of Dixon, Fulton, Clinton, Cedar Rapids, and Boonsboro, crossing the Mississippi River at Clinton	491

If the reader will now examine a map of the States of Illinois, Wisconsin, and Iowa, he will see that these railroads traverse and completely drain the richest and most fertile portion of the great northwest. These three States, as has been shown on a previous page, are the great wheat growing, corn growing, and hog raising States of the West; and the whole of Iowa, the southern half of Wisconsin, and the northern half of Illinois, are drained of their rich productions, by these long lines of railroads, with their lateral branches.

The consolidation of the above railroads under one organization, dates from a recent period; and it will be necessary therefore to speak of the origin of each road separately.

The bright future that lay before the Western States was clearly perceived, at a very early period, by the first settlers of those wild and uncultivated regions.

In the year 1836, travellers who came to Chicago by land, entered that village, as it was then, in the Great Eastern mail stage, which was sometimes an actual stage coach, and at others a common wagon with a canvas cover. This stage coach, with a baggage wagon added sometimes, brought all the travellers from the east, except those who came on the lake schooners. Chicago was then a primitive village, with 1470 inhabitants. A wooden block-house, called Fort Dearborn, at the mouth of the Chicago River, and which was still standing as late as 1856, was the headquarters of a garrison of United States troops, whose presence was absolutely necessary to protect the people from the attacks of Indians. The latter were quite numerous in the neighborhood, and were of an exceedingly treacherous and bloodthirsty disposition.

In the fall of 1836, there were farming settlements near Kenosha, Racine, and Milwaukee. There were probably twenty families on Fox River, from Burlington to Waukesha. There were twenty-seven in Walworth County. On Rock River, there were five families at Beloit, three at Watertown, two at or near Janesville, and two at Fort Atkinson. The number of souls, at that time, from the settlements by the Lake Shore to Mineral Point and Dodgeville, could not have exceeded three hundred and fifty, nearly all of whom came in the same season. Travellers from place to place made their way by Indian trails, which were numerous, and about six inches in depth and eighteen in width.

During the years 1836 and 1837, there was not a gospel minister residing between the villages on the

shore of Lake Michigan and the mineral region, a distance of one hundred and twenty-five miles.

At that early day, the project of constructing a railroad from Chicago westward across the northern part of the State of Illinois, to the Mississippi River, was conceived by some of the citizens of Chicago. They applied to the legislature of the State, and obtained a charter for that purpose, under the name of the Galena and Chicago Union Railroad Company. At that time there were less than a thousand miles of railroad constructed in the United States. The Baltimore and Ohio Road had been built from Baltimore to Washington, and from Baltimore to Harper's Ferry, and had been surveyed as far as Cumberland. The Pennsylvania Railroad had been built from Philadelphia to Columbia, on the Susquehanna River; and there were a few short railroads in the south.

Their charter gave the Galena and Chicago Union Railroad Company of Illinois power to construct a railroad from Chicago to Galena, and to construct, maintain, and use such other lateral routes of road as the Company might deem advantageous, expedient, and necessary. The corporation was authorized to unite (the word "consolidate" not having at that time been applied to railroads) with any other railroad company already incorporated, or which might be incorporated, on such terms as might be agreed upon by the directors of the companies so uniting; and also to construct such other lateral routes as might be necessary to connect these united roads with any other railroad routes that might be deemed expedient.

Under this charter, the Galena and Chicago Union

Railroad Company, in 1847, commenced the construction of the present line of road from Chicago, *via* Elgin, Belvidere, and Rockford, to Freeport, and by February, 1850, had completed its first forty-two miles from Chicago to Elgin, and thereafter extended that line of its road to Rockford and to Freeport, from whence it yielded its right of construction to Galena to the "Illinois Central Railroad," and unfortunately lost thereby the control of the direction of the business of the Mississippi River at Dunleith and Galena.

Soon after completing the road to Freeport, the error in losing the control of the Mississippi River business, by surrendering it to the "Illinois Central Railroad," became so apparent, and the Mississippi River connection so important, that the Galena and Chicago Union Railroad Company sought a remedy and relief in the construction of another line of road, as authorized under their charter, from the Junction, so called, about thirty miles west of Chicago, on a line due west through Geneva and Dixon to the Mississippi River at Fulton, now commonly called the "Dixon Air-Line," and an air-line it almost literally is, reducing the distance from Chicago to the Mississippi River, on this now much the most important line of road, then owned by the Galena Company, to less than one hundred and thirty-eight miles.

While constructing this air-line road, the Galena Company thought proper to consolidate with the Mississippi and Rock River Junction Railroad Company, which latter Company was incorporated by the State of Illinois on the 15th of February, 1851, and its charter amended by an act approved June 21st, 1852,

and again on the 28th of February, 1854, and whose charter contained powers at that time desirable to possess, including ample powers of consolidation.

By an act of the Legislature of the State of Illinois, approved February 25th, 1854, the Galena and Chicago Union Railroad Company was authorized to connect its (air-line) road by lease, purchase, or consolidation, with any railroad extending to the Mississippi River at or near Fulton. Under these powers, and under the general law of the State of Illinois authorizing the consolidation of railroads, the Galena and Chicago Union Railroad Company and the Mississippi and Rock River Junction Railroad Company, on the 9th of January, 1855, united and consolidated their roads, under the name of the Galena and Chicago Union Railroad Company.

Under this consolidation, the air-line road was constructed to Fulton; and by an act of the Legislature of the State of Illinois, approved February 15th, 1855, the articles of agreement and consolidation, made and executed between the two companies, were not only sanctioned, confirmed, and approved, but it was especially declared in the act that thenceforward all the immunities, franchises, and privileges granted to either of the two companies should be united and consolidated in the one consolidated company, and the capital stock of the two companies should be blended in one capital stock.

Under the powers possessed by the Mississippi and Rock River Junction Railroad Company, which powers were by the act of February 15, 1855, declared to be conferred upon the consolidated Galena and Chicago

Union Railroad Company, the last-named Company acquired and exercised a right which it did not otherwise possess, to increase its capital stock, and also the right to consolidate its stock and franchises with the stock and franchises of any other railroad company.

After completing its air line of road to the Mississippi River at Fulton, and about the 3d of July, 1862, the Galena Company obtained a perpetual lease of the franchises of the Albany Bridge Company, having the right to maintain a ferry or build a bridge across the Mississippi River, from a point near Fulton, to Clinton in the State of Iowa; and also a lease of the Chicago, Iowa, and Nebraska Railroad, extending west from Clinton, on the west bank of the Mississippi River, to Cedar Rapids, in Iowa, a distance of eighty-two miles, and also a lease of the Cedar Rapids and Missouri River Railroad, the line of which extends westward from Cedar Rapids to the Missouri River opposite Omaha, and opposite the Pacific Railroad Depot at Omaha.

Only a small portion of the Cedar Rapids and Missouri River Railroad, however, was constructed at the time of making the lease; but the whole road has since been fully completed to Council Bluffs, on the Missouri River.

These leased roads and the ferry were operated by the Galena Company from and after the date of the leases.

Just previous to the consolidation of the Galena Company with the Chicago and Northwestern Railroad Company, in June, 1864, the Galena Company had commenced the construction of a bridge over the Mis-

Mississippi River at Clinton, which bridge has since been completed by the Chicago and Northwestern Company, and is the second bridge built over that river below St. Paul, the bridge at Rock Island being the first.

The extension of the Cedar Rapids and Missouri River Railroad to Boonsboro', and to the abundant coal fields on the Des Moines River, in that vicinity, is a matter of great value and importance to the Company in the economical operation of this entire line of road, running through a country so rich in productions and so destitute of wood.

The Company now enjoys in this direction a continuous and almost air-line of road, running due west through a country of extraordinary richness and fertility, from Chicago to Council Bluffs, on the Missouri River, a distance of four hundred and ninety-one miles.

In 1847, the route of the Galena Railroad, from Chicago to Freeport, was surveyed by Richard P. Morgan, an eminent engineer, who says in his interesting report:—

“Instead of crossing high mountains and barren plains, the Galena and Chicago Railroad passes through one of the most fertile countries on the globe, where every man will rejoice in its construction and contribute all he is able for the purpose. Instead of stagnation and opposition, as in Massachusetts, during the interval between its commencement and completion, its population and wealth will increase by anticipation, and the accumulated products of industry and enterprise will throng the railroad immediately upon its going into operation. Settlers now avoid coming on

to lands of the utmost fertility and possessing every good quality they can wish for, if compelled to sacrifice all they can make in hauling their products to market. It is a fact well known, and frequently adverted to, that a farmer near Rock River expends as much in getting his wheat to market as all other expenses of ploughing, sowing, harvesting and threshing. To build the Galena Road is to offer an annuity of one hundred and fifty dollars to every farmer within twenty miles of it, who lives forty miles from Chicago. If it could be completed by 1850, and if it could be known that such would be the case, it is a moral certainty that an amount of agricultural and mineral products would be awaiting its operation, equal to what is assumed in the estimate as the business of a large portion of the year. It is not, however, from these causes alone that the increase of population, instead of going on in a decreasing ratio, will proceed with as much rapidity as for years past; the railroad will offer a thousand inducements to enterprise that cannot now exist; much fine water power lying useless will be applied to various purposes; a new stimulus will be given to manufacturing and mechanical labor, and by establishing numerous branches of business, which could not otherwise exist, will continue to create new traffic and rapidly accelerate the period when Northern Illinois will take the first rank in wealth and importance."

These anticipations were more than realized, even in the first few years after the completion of the road.

The road was completed to Freeport, one hundred and twenty-one miles from Chicago, in September, 1851.

In 1850 the number of passengers carried was sixty-nine thousand seven hundred and eighty-two, their fare amounting to fifty-six thousand four hundred and seventy-two dollars; and the whole receipts of the road being one hundred and twenty-seven thousand six hundred and eighty-seven dollars. In 1851, the number of passengers carried was ninety-one thousand nine hundred and twenty. The amount received from passengers was eighty-five thousand one hundred and seventy-six dollars, and from freight one hundred and twenty-five thousand eight hundred and five dollars; and the total receipts of the road were two hundred and twelve thousand three hundred and ten dollars. Now mark the increase. In 1852, the number of passengers was two hundred and thirty-eight thousand two hundred and ninety-six; the amount received from passengers was three hundred and thirty-nine thousand nine hundred and ninety-six dollars; from freight four hundred and fifty-nine thousand and seventeen dollars; and the total receipts of the road were seven hundred and ninety-nine thousand and thirteen dollars. Such a result was truly gratifying and encouraging. Twenty-one miles of the Beloit branch of the road were completed and opened for business during this year. The equipment of the road at this time consisted of thirty locomotives, thirty passenger cars, and about four hundred freight cars.

CHAPTER XXVII.

CHICAGO AND NORTHWESTERN RAILROAD: CONTINUED.

THE business of the road for 1853 was equally good, and in 1854 there was another large increase. The number of passengers carried was four hundred and six thousand six hundred and ninety-eight; the amount received from passengers was six hundred and twenty-nine thousand six hundred and ninety-two dollars; and from freight eight hundred and seventy-seven thousand and seventeen dollars; and the total receipts of the road were a million and a half of dollars (namely, \$1,506,710). The business of the road steadily increased during the succeeding two years. In 1855, the receipts from passengers were eight hundred and eighty thousand four hundred and ten dollars; and from freight nearly a million and a half of dollars (namely, \$1,435,376); and the total receipts of the road were considerably over two millions of dollars (namely, \$2,315,787). In 1856, the receipts from passengers were nearly a million of dollars (namely, \$906,069); and from freight a million and a half of dollars (namely, \$1,510,275); and the total receipts of the road were nearly two millions and a half of dollars (namely, \$2,416,344).

In 1857, the great financial panic took place in the west, and of course this railroad was seriously affected by it. During this year, the receipts from passengers

were only half a million of dollars (namely, \$522,187) and from freight a little over a million dollars (namely, 1,118,620); and the total receipts of the road were one million six hundred and forty thousand eight hundred and seven dollars. The equipment of the road at this time included sixty locomotives, fifty passenger cars, and twelve hundred freight cars.

Large expenditures had been made, each year, in the improvement of the track and buildings, and everything about the road was by this time in splendid order. The fencing of the entire line was completed. It had been found that in the winter, during heavy snow storms, the snow drifted many feet high, and covered the track in certain places. These places, therefore, were protected by building a high and strong board fence on each side of the track, behind which the snow drifted, instead of covering the track.

The financial depression continued during the year 1858, and was aggravated by a scanty crop of wheat in the Western States. The receipts from passengers during this year were four hundred and seventy-two thousand two hundred and sixty-nine dollars; from freight one million seventy-five thousand two hundred and ninety-two dollars; and the total receipts were one million five hundred and forty-seven thousand five hundred and sixty-one dollars. The receipts for the succeeding years were as follows:—

	Passengers.	Freight and Mails.	Total.
1858 . . .	\$472,269	\$1,075,292	\$1,547,561
1859 . . .	397,402	972,039	1,369,441
1860 . . .	341,384	1,120,367	1,462,752
1861 . . .	338,851	1,381,845	1,720,396
1862 . . .	389,833	1,387,708	1,777,541
1863 . . .	496,316	1,696,979	2,193,295

Previous to the year 1854, the Galena and Chicago Railroad Company constructed and completed the road from Belvidere to Beloit, a distance of twenty-one miles, calling it the Beloit Branch; and in 1854 they entered into a contract or lease with the Beloit and Madison Railroad Company, for the construction of the line from Beloit to Madison, the capital of Wisconsin, a distance of forty-seven miles. That Company, although materially aided by the Galena Company, failed to complete its road, and was subsequently leased to the Galena and Chicago Company in perpetuity. The lease bound the latter Company to equip and maintain the road permanently.

The Company also, previous to 1857, became identified with the construction of the Fox River Valley Railroad, and in fact became the lessees of that road. Its name, at the time of the lease, was changed to that of the Elgin and State Line Railroad. It extends from Elgin, northward, to Richmond, near the north line of the State of Illinois. It is thirty-three miles long, and by the consolidation of the Chicago and Northwestern Railroad Company with the Galena Company, is now the property of, and is controlled by the former Company.

The Galena and Chicago Union Railroad Company, also, some years since purchased the entire rights and franchises of the St. Charles and Mississippi Air-Line Railroad Company, including all its road and track then constructed, and its right of way and depot grounds, paying a large price for the same. Only about nine miles of this road from the south branch of the Chicago River to Harlem, on the Galena road, was ever

constructed, and this the Galena road used chiefly as a connecting track with the other roads in the city of Chicago.

That part of this St. Charles and Mississippi Air-Line Railroad which extended between the western limits of the city of Chicago and Harlem, has been removed by the Chicago and Northwestern Railroad Company, since its consolidation with the Galena; and a new track, commencing near the west line of the city of Chicago, at the present western terminus of this St. Charles road, and extending north parallel with, and a little west of and outside of the western limits of the city, to the main track of the Galena road, has been constructed, making a shorter and more convenient connection with other roads than formerly existed by way of Harlem. This connecting track is now being extended still farther north, to the track of the original Chicago and Northwestern Railroad, now the Wisconsin Division of the present Chicago and Northwestern Railroad, and to the track of the Milwaukee Division of the same road (formerly the Chicago and Milwaukee Railroad). It will thus form a very complete and desirable outside connection between all the railroads of the city.

The long-continued, unwise, and injurious competition which existed between the Galena and the Northwestern Railroads at their several points of contact, and which seemed to be chronic, and not likely to terminate, and which induced the companies to give too much of their time and attention to the control or construction of inferior, rival, and illegitimate lines, naturally gave rise to proposals for the combination of these

two lines as the only certain and permanent remedy for the loss of earnings and increase of expenses resulting from the senseless but apparently unavoidable competition which existed. The stockholders of both roads were consulted. They very generally and cordially consented to and approved of a consolidation, in the manner and on the terms on which it was effected and carried out on the 2d of June, 1864.

In making the consolidation, these two companies had the benefit of the example of some of the oldest and wealthiest roads in the United States. The first great leading example of railroad consolidation was the New York Central Railroad, which corporation now includes not less than ten original different railroad companies, some of which were utterly worthless as sources of income previous to consolidation; all of which are, by consolidation, made valuable and highly appreciated income paying property.

The great New York and Erie Railroad was never a reliable dividend paying road, until the various roads leading from it to New York, to Buffalo, and to other places, had been consolidated with it. The Pittsburg, Fort Wayne, and Chicago Railroad, now paying full interest upon all its securities, and ten per cent. dividends upon all its stock, and with a large surplus of net earnings beyond, with which it is constantly perfecting itself and adding to its machinery and facilities for doing business, is largely indebted for its great prosperity and success to the consolidation and reorganization into it of the several original, comparatively inferior, and non-dividend paying companies which now compose it. The same is eminently

the case with the now largely profitable Chicago and St. Louis Railroad, now paying handsome dividends to its stockholders.

The great Pennsylvania Central Railroad, now comprising the most extensive combination of railroad lines under one control in the United States, is indebted, in good part, for its present great prosperity, and for the enormous earnings upon its main line of nearly forty thousand dollars per mile every year, to the business secured to it by the control which it has acquired over its various extensions and lateral routes.

The Chicago, Burlington, and Quincy Railroad, through its series of consolidations, purchases, and construction, has made itself one of the largest earning and best paying roads in the United States.

To the Chicago and Northwestern Railroad itself, the advantages that have resulted from the consolidation have proved to be all that were anticipated. By it the management of the respective roads and of the consolidated line has been improved, the uses of the engines and cars extended, and the earnings of the road largely increased, and the ability of the Company to transfer their engines and cars to the different lines of the road, where they are most required, has proved a great benefit to its interests. The general facilities of the consolidated roads in the way of connections with all other roads terminating in Chicago, for the interchange and transfer of freight, cars, and engines, and for the general interchange of all business transactions with those roads, have been largely increased and much economized by the consolidation. It is the intention of the Company to establish one general Central

Depot and Passenger House for the accommodation of its different lines of road. As soon as this is done the business of them all can be conducted there with the ease of one road, and with a very large reduction in the expense of management incurred by these lines previous to consolidation.

The increased earnings of these roads since the consolidation, and in great part resulting from it, clearly indicate the wisdom and good policy of that step, and the officers of the Company are perfectly confident that when they shall have perfected their new organizations and appointments, and the economical plans for the conduct of the business of the consolidated roads, and as soon as labor and material shall return to fair prices, they will be enabled, if supplied with an equipment sufficient to transact the business offering, to reduce their tariff on freight and passengers to a very moderate rate, and to furnish increased facilities for trade and travel to all the country and people doing business with them to their entire satisfaction; and yet be able to make full and regular payments of interests and dividends to all of their bond-holders and stock-holders.

Soon after the commencement of the construction of the Galena road, in 1847, the officers of that Company visited Janesville, Mineral Point, and other places in Wisconsin, soliciting aid and co-operation in their efforts, and proposing branches and extensions of their line of road, from the line between Chicago and Galena then in process of construction to Beloit, Janesville, Madison and beyond, being substantially the same

lateral route subsequently adopted and now occupied by the Chicago and Northwestern Railway.

Incited by these offers and promises of co-operation, the people of Wisconsin, living upon the line of the route of road above suggested, were prompted to procure an act incorporating the Madison and Beloit Railroad Company of Wisconsin, which act was approved August 19th, 1848.

Under this act, and the several acts amendatory thereof, containing full and ample powers, said Company was authorized to construct and operate a railroad from Beloit, or from any other point on the north line of the State of Illinois, *via* Janesville, Madison, and La Crosse, to a point on the Mississippi River, at the line of territory, now State of Minnesota, near St. Paul, and also from Janesville to Fond du Lac. And by an act of the Legislature of the State of Wisconsin, approved February 9th, 1850, the name of the Madison and Beloit Railroad Company was changed to that of the Rock River Valley Union Railroad Company, and its powers extended.

The officers of this Company repeatedly sought interviews with the Galena Company, for the purpose of securing the proposed co-operation of that Company in the construction of the proposed branch or lateral line of road from the Galena and Chicago line, then in process of construction, to the State line of Wisconsin, there to connect with the said Madison and Beloit or Rock River Valley Company of Wisconsin.

Becoming, finally, displeased with the result of these interviews, the officers of the Wisconsin Company sought and obtained, from the legislature of the State

of Illinois, an act, approved February 12th, 1851, incorporating the Illinois and Wisconsin Railroad Company, with powers under the said act, and the several acts amendatory thereof, to construct and operate a railroad from the city of Chicago to the north line of the State of Illinois, and to unite and consolidate with any railroad company then incorporated, or which might be thereafter incorporated in the State of Wisconsin; and the work of construction upon this line of road, from Chicago northwest to the State line of Wisconsin, was commenced.

By a subsequent act of the State of Wisconsin, approved March 10th, 1855, the Illinois and Wisconsin Railroad Company and the Rock River Valley Union Railroad Company were authorized to consolidate the stock property and franchises of the two corporations, and to take such corporate name as the Board of Directors of the consolidated corporation might select, and all the powers, franchises and immunities possessed by either of said corporations were granted to the consolidated corporation.

On the 30th March, 1855, the consolidation of these two roads was perfected, and all the powers, property and franchises of the two corporations thereupon became vested in the consolidated corporation thereby created and called the Chicago, St. Paul, and Fond du Lac Railroad Company.

The object and desire of the Chicago, St. Paul, and Fond du Lac Railroad Company from the beginning was the extension of their line of road from Janesville northwest, *via* Madison and La Crosse, to St. Paul, and from Janesville north along the valley of Rock River

to Fond du Lac, and to the great iron and copper regions of Lake Superior.

Application was made to Congress for a grant of lands in aid of both these lines of road, which grant, chiefly through the efforts of the Chicago, St. Paul, and Fond du Lac Railroad Company, was obtained in June, 1856, at which time Congress granted six sections (three thousand eight hundred and forty acres) per mile to the State of Wisconsin, to be used in aid of the construction of those lines of road.

An extra session of the legislature of the State of Wisconsin was called in September or October, 1856, at which a contest arose between different railroad companies seeking to have these lands conferred upon them by the State.

The result was, that the lands upon the northwestern line were given by the State to the La Crosse and Milwaukee Railroad Company, and the lands upon the northern line, from Fond du Lac to the north line of the State, in the direction of Lake Superior, were granted by the State to the Wisconsin and Superior Railroad Company, a corporation created at that session of the legislature of the State of Wisconsin, by an act approved October 11th, 1856, thus depriving the Chicago, St. Paul, and Fond du Lac Railroad Company of the grant of lands mainly if not wholly obtained by their efforts, and granted in aid of the lines adopted and then in process of construction by said Company.

The charter of the Wisconsin and Superior Railroad Company, which contained very broad general, detailed and extraordinary powers, and which authorized the

construction of a railroad from the city of Fond du Lac to the north line of the State of Wisconsin, and a branch from the main line to some point on the Michigan State line, also authorized the consolidation of the rights and franchises of the Wisconsin and Superior Railroad Company with any railroad company in the State of Michigan; and by the general railroad law of the State of Michigan, any railroad company of that State was authorized to consolidate its stock and franchises with any other railroad company in or out of said State, forming together a continuous line.

By virtue of an act of the legislature of Wisconsin, approved February 12, and amended February 28, 1857, the Wisconsin and Superior Railroad Company and the consolidated corporation called the Chicago, St. Paul and Fond du Lac Railroad Company were authorized to consolidate their rights, property, land and franchises, under the name of the corporation last mentioned, with all the powers and franchises possessed by either of said corporations; and on the 5th day of March, 1857, the said corporations were so consolidated, retaining the name of the Chicago, St. Paul and Fond du Lac Railroad Company, and all the lands granted by Congress to the State of Wisconsin, and by the State of Wisconsin to the Wisconsin and Superior Railroad Company, were by this consolidation secured to the Chicago, St. Paul and Fond du Lac Railroad Company.

In June, 1856, Congress also granted lands to the State of Michigan in aid of a road from Marquette, on Lake Superior, southerly to the State line of Wisconsin, and also from Ontonagon, on Lake Superior, to the

said State line of Wisconsin, in contemplation of the connection of these roads at the State line with the northern line of road of the Chicago, St. Paul and Fond du Lac Railroad Company.

Subsequently railroad companies were organized from Marquette to the State line, and from Ontonagon to the State line of Wisconsin, with a view to a union and consolidation with the Chicago, St. Paul and Fond du Lac Railroad Company; and the grants of public land to the State of Michigan to aid in the construction of these roads were conferred upon them, and they were consolidated with the Chicago, St. Paul and Fond du Lac Railroad Company, forming with it a complete line of road from Chicago to Marquette and the great Iron Mountain regions of Lake Superior, and to Ontonagon, on Lake Superior, and the extensive copper regions in its vicinity.

The great financial revulsion of 1857, which prostrated so many railroads in the country in process of construction, carried down with it and suspended for a time all further progress of the Chicago, St. Paul and Fond du Lac Railroad Company,

In consequence of the financial misfortunes of the Chicago, St. Paul and Fond du Lac Railroad Company in 1857, the consolidation of the Marquette and Ontonagon Railroads with it were defeated, and the public lands conferred upon those companies reverted to the State of Michigan.

CHAPTER XXVIII.

CHICAGO AND NORTHWESTERN RAILROAD: CONTINUED.

IN February, 1859, at a meeting held in New York of the bond-holders, stock-holders, and creditors of the Chicago, St. Paul and Fond du Lac Railroad Company, a plan for the organization, extension, and ultimate completion of that Company's road was agreed upon; which plan provided for a sale of the road, under both its outstanding mortgage deeds of trust; for the purchase of the same by the duly appointed agents of the Company, provided they could make a satisfactory purchase of the road. Legislation was applied for in order to carry into effect this proposed plan of reorganization, and by an act of the legislature of the State of Illinois, approved February 19th, 1859, and by an act of the legislature of the State of Wisconsin, approved March 14th, 1859, and by a general law of the State of Wisconsin, approved October 10th, 1856, such persons as might become the purchasers of the road and property of the Chicago, St. Paul and Fond du Lac Railroad Company, were authorized to organize a corporation, under such name as they might elect, with all the powers, rights, and franchises before possessed by that corporation, by virtue of all existing laws and charters of both Illinois and Wisconsin.

On the 2d of June, 1859, in pursuance of these laws

and powers, the bond-holders, by their agents, purchased the entire road and property of the Chicago, St. Paul and Fond du Lac Railroad Company. These agents proceeded immediately to the further execution of the trust reposed in them, and on the 6th of June, 1859, organized a corporation, under the more comprehensive and desirable name of the Chicago and Northwestern Railroad Company, having all the powers, rights, and franchises theretofore possessed by the Chicago, St. Paul and Fond du Lac Railroad Company, or by any of the railroads of the States of Illinois or Wisconsin previously consolidated into it, including the full power to consolidate its stock, franchises, and property with the stock, franchises, and property of any other railroad company with which its line of road might connect or intersect, in the States of Illinois, Wisconsin, and Michigan respectively; and the law of Illinois of February 19th, 1859, specially conferred upon this Company the right to exercise and enjoy, in the State of Illinois, all the rights, powers, privileges and franchises theretofore granted by the States of Wisconsin or Michigan to the Chicago, St. Paul and Fond du Lac Railroad Company, or to the previously existing companies consolidated into it.

The Chicago and Northwestern Railway Company was authorized, by a law of Wisconsin, approved April 10th, 1861, to locate the line of its road, or a branch thereof, by the way of Fort Howard or Green Bay, northerly to the north line of the State at the Menominee River, still retaining its grants of lands on the original line to aid in the construction of this changed line.

And by an act of said State, approved March 8th, 1862, it was further authorized to locate, construct, and operate a line of road to the Michigan State line, and this act expressly confers all the rights, privileges, powers, and authority contained in the charter of said Chicago and Northwestern Railway Company, or in the charter of the Chicago, St. Paul and Fond du Lac Railroad Company, or in the charter of the Wisconsin and Superior Railroad Company, upon the Chicago and Northwestern Railway Company; and the Chicago and Northwestern Railway Company was declared to be the successor to all the rights and franchises of the said railroad companies.

By an act of the legislature of the State of Illinois, approved February 13th, 1863, the Chicago and Northwestern Railway Company was recognized as an existing corporation; and it and every other railroad company with which it might connect or intersect were respectively authorized to make running connections with each other, and to consolidate their respective stocks and property in such manner and upon such terms as might be agreed upon between said companies.

Supported and authorized by all these manifold charters and varied powers, and often repeated enactments of the States of Illinois, Wisconsin, and of Michigan, the Chicago and Northwestern Railway Company entered upon its renewed corporate existence under the before mentioned reorganization of June 2d, 1859.

In accordance with the provisions of its plan of reorganization, as agreed upon by bond-holders, stock-holders, and creditors in February, 1859, a general

seven per cent. first mortgage was created upon the Chicago and Northwestern line of railway from Chicago to Oshkosh, one hundred and ninety-four miles, to secure three million six hundred thousand dollars of general first mortgage bonds, to be issued to the holders of outstanding first mortgage bonds of the old Chicago, St. Paul and Fond du Lac Railroad Company in exchange for said old bonds, and the interest accrued thereon; and one million two hundred and fifty thousand dollars preferred sinking fund bonds were issued to pay and remove special existing incumbrances, and to be disposed of at their par value in money to subscribers for them under provisions of the said plan of reorganization, and were also secured in priority by said first mortgage.

A second six per cent. mortgage was also issued, to secure two million dollars of six per cent. second mortgage bonds.

These latter bonds (subsequently exchanged for preferred stock), together with about one hundred and fifty thousand acres of land, acquired by the Company under grants of Congress for portions of the road already constructed, were used and disposed of in exchange for about three million dollars of outstanding eight per cent. land grant bonds of the old Fond du Lac Company, and upon which land grant bonds some eight hundred thousand dollars of interest had accumulated.

The plan also authorized the organizing committee, in their discretion, within a time, and in a manner fixed and limited, to cause stock of the new Company to be issued at par in payment of such debts of the old

Company as they should think just and equitable, at seventy-five cents for the dollar of said debts; and further authorized them to cause the stock of the new Company to be issued at par in exchange for stock of the old Company, at sixty cents on the dollar of said old stock.

The plan further required that the holders of the bonds of the old Company should subscribe for and take the new sinking fund bonds at par to the extent of ten per cent. of the old bonds held by them, on receiving new bonds in exchange for said old bonds. This provision of the plan furnished the new Company with about six hundred thousand dollars in money, with which they constructed, in the summer and fall of 1859, fifty-seven miles of road, from Janesville to Minnesota Junction, which completed their entire line from Chicago to Oshkosh, one hundred and ninety-four miles.

From this relation it will be seen that the stock and bond capital of the Chicago and Northwestern Railway Company did not represent any actual cost and disbursement of money by said new Company, but constituted an amount which was then considered to represent the actual and in part prospective value of the road and property of the Company; and which was equitably distributed among the bond and stockholders and creditors of the old Chicago, St. Paul, and Fond du Lac Railroad Company, and which amounted to a sum much larger than it would have then cost to build the road from Chicago to Oshkosh.

It was because of this large amount of representative capital, issued by the Chicago and Northwestern Rail-

way Company, at the time and subsequent to its reorganization, that the additional common stock was issued to the stockholders of the Galena Company at the time of the Chicago and Northwestern Railway Company's consolidation with it, in order to equalize the interests of the owners of the two companies in the consolidated roads.

In the fall of 1860 and early in 1861, the Chicago and Northwestern Railway Company extended its line of road from Oshkosh to Appleton, over twenty miles; at a very low cost, issuing but one hundred and eighty-four thousand dollars of Appleton Extension seven per cent. first mortgage bonds, and some thirty thousand dollars of the common stock of the Company, in exchange at par for Appleton and Neenah bonds, to cover the cost of its construction.

In 1862, the Chicago and Northwestern Railway Company issued three hundred thousand dollars of Green Bay Extension seven per cent. first mortgage bonds, and about sixty-five thousand dollars of its common stock in exchange, at par, for bonds of Brown County and the town of Fort Howard, at Green Bay, with the proceeds of which bonds and stock it constructed and extended its line of road from Appleton to Green Bay, about twenty-eight miles.

The Appleton and Green Bay Extension bonds, issued as above mentioned, were secured respectively upon the portion of road for the construction of which they were issued, and upon the portion of public lands granted to the Company in aid of such constructions, which lands, amounting to a little more than two hun-

dred thousand acres, are still held by the Company in security for said bonds.

In addition to the general grant of lands conferred upon the Company in aid of the construction of its line of road from Fond du Lac to Green Bay, and to the northerly line of the State of Wisconsin, Congress made a special grant of eighty acres of land, out of its Fort Howard reservation, for the depot grounds of this Company at Green Bay, which grant, from its favorable location, large water-front and ample dimensions, is of great value and convenience to the Company.

The length of the said Company's road from Chicago, *via* Fond du Lac and Appleton, to Green Bay, is two hundred and forty-two miles.

In the summer of 1863 the "Kenosha, Rockford, and Rock Island Railroad Company," with its road recently completed and in operation from Kenosha, on Lake Michigan, to Rockford (one of the most important towns and stations on the Galena road), about seventy-three miles in length, and diagonally crossing the Chicago and Northwestern Railway at Harvard, about sixty miles northwest from Chicago, and which was at that time in competition with the Galena, and a valuable feeder to the business of the Northwestern Road from Rockford and in that direction, became embarrassed, and parties controlling its securities were desirous of disposing of them to the Galena Company, or to the Chicago and Northwestern Company, carrying with them the control of that road.

To have, at that time, allowed that control to pass into the hands of the Galena Company would have deprived the Chicago and Northwestern Railway of a

very considerable source of revenue, derived through its connection with this road. An arrangement was, therefore, made, whereby several large holders of these securities, and such capitalists as could be induced to purchase them in the interest of the Northwestern Railway Company, associated themselves to purchase and recognize the Kenosha Railroad, embracing nearly all the first mortgage bonds.

A foreclosure sale of the road having taken place, and a reorganization being effected, consolidation was made in accordance with the provisions of the laws of the States of Illinois and Wisconsin.

It had been originally proposed that bonds of the Chicago and Northwestern Railway Company, secured by a mortgage upon the Kenosha line, and to be called the "Chicago and Northwestern Railway Kenosha Extension bonds," should be issued to an amount, which, at the market value of similar securities of the Company, would reimburse the cost to the new parties, of the bonds purchased by them, and that the old holders should accept bonds at the same rate, so that these new Kenosha Extension bonds would be disposed of in payment for the Kenosha road at cost, at a better rate than the whole issue could be sold at in the market, and the line would then cost this Company about eight hundred thousand dollars in its Kenosha Extension bonds, at par, or less than eleven thousand dollars per mile, in bonds, at par.

But instead of issuing these Kenosha bonds, it was subsequently agreed to issue one million four hundred thousand dollars of the common stock of this Company, then considered equivalent to the cost of said road to

the owners thereof, in full consideration for this seventy-three miles of a new and well-ironed road, and for its equipment, consisting of six engines and one hundred cars, and including also an amount of about one hundred and fifty thousand dollars, surplus of cash assets, resulting to this Company in the transaction.

The preceding account of the Northwestern Railway brings its history down to the period of consolidation with the Galena and Chicago Union Railroad Company, June 2d, 1864, except so far as relates to its preliminary action, in connection with the Peninsula Railroad Company, which is referred to hereafter, in the history of that road.

At the time of consolidation with the Galena, on the 2d of June, 1864, the Chicago and Northwestern Railway comprised the following lines of roads, to wit:—

Its main line, or "Wisconsin Division," as now called, extending from Chicago <i>via</i> Janesville, Fond du Lac, Oshkosh, and Appleton, to Green Bay	Miles. 242
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Its "Kenosha Division," extending from the town of Kenosha, on Lake Michigan, to its junction at Rockford, on the Rock River, with the old Galena road	73
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Total length of railroad line owned by Chicago and Northwestern Railway at the time of consolidation with the Galena, aforesaid	315
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To which add the lines of road owned by the Galena at the time of consolidation	294
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Length of Galena leased lines of road at the time of consolidation	227
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Galena extensions of leased roads since con- solidation	Miles. 24
Total length of roads owned and leased at the time of consolidation	860

HISTORY OF THE PENINSULA RAILROAD.—As has been already observed, it was always a part of the original plan and desire of the Chicago and Northwestern Railway Company to reach the business, trade, and travel of the important and growing mineral regions of Lake Superior, and the board of directors scarcely failed in their annual reports, for years past, to urge upon the attention of their stockholders the importance of securing that trade and traffic.

In the extension of the road to Green Bay this object was prominent.

The enlarged operations of the copper and iron mines of Lake Superior for the last few years, and their promise of still greater increase of business in the future, was beginning to attract the attention of railroad parties not in the interests of this Company, so seriously that it became important to secure, without delay, this business to the long line of railroad of this Company, already extending from Chicago to Green Bay, two hundred and forty-two miles; and it became apparent, also, that unless, at least, that portion of the line of road between Little Bay de Noquet, on Green Bay, now called "Escanaba," and the Iron Mines, was secured and built in the interests of the Chicago and Northwestern Railway Company, it would be constructed by others having adverse interests and connections, threatening ultimately to entirely deprive the

Chicago and Northwestern Railway Company of its valuable Lake Superior business, now so perfectly secured to it by the Peninsula Railway, besides otherwise materially and injuriously affecting it.

The Northwestern Railway Company having, about that time, with considerable effort, completed its line of road to Green Bay, the Board hesitated in regard to immediate proposals for further efforts, by the Company, in that direction.

Capitalists, in the main unconnected with the Chicago and Northwestern Railway Company, were appealed to, to furnish the funds and build a road across the Upper Peninsula of Michigan, as of itself a desirable investment. The appeal was successful, and the result was the prompt construction of the "Peninsula Railroad of Michigan," commenced in 1863 and opened in December, 1864, by a company duly organized under the general laws of that State; said road extending from Escanaba, on Green Bay, to nearly all the great iron mines of Lake Superior, and connecting at the Jackson Mine with the railroad from Marquette to the mines, thus making a through line to Lake Superior.

The length of the Peninsula road, from the harbor and ore-docks at Escanaba to the great Jackson mine at Negaunee, and to its junction with the Marquette road at that point, is about sixty-two miles, and its extension from that point to the end of the Peninsula road, at the Cleveland Iron Mountain and the New York Company's mines, is about three miles further.

Branches from the main line to some five or six other mines recently opened, and to the neighborhood

of others proposed to be opened, amount in all to about five miles more of track, making the entire length of the Peninsula road extension and branches full seventy miles, besides several miles of side track, including ore-dock tracks at Escanaba.

The large ore-dock at Escanaba, thirty-two feet high, thirty-seven feet wide and a quarter of a mile long, constructed for receiving and holding some twenty to thirty thousand tons of ore in pockets, at a time, and for shunting it thence into the holds of ships without re-handling, seems a perfect success, and great saving of time and money in shipping ores, and offers superior inducements to shippers over anything of the kind known to be in use elsewhere. Its cost was very considerable, near two hundred thousand dollars; but its efficiency and economy, in the expense of handling and shipping ores, is very satisfactory, and the facilities it furnishes invite shippers, and insure business and ample returns.

The ample, perfectly safe, deep, and desirable harbor for ships at Escanaba, with its easy, unobstructed, broad, and liberal entrance, also greatly attracts shippers and purchasers of iron ores to that point. Vessels can make nearly or quite two trips from Cleveland or Buffalo to Escanaba in the time required to make one to Marquette, on Lake Superior, the only point heretofore from which iron ore was shipped. The season for shipping is also much longer from Escanaba, and the St. Mary's River and canal are avoided by going there, and large vessels can load much heavier and deeper at Escanaba.

The engines and cars for this road were contracted

for just previous to the great rise in these articles during the war, on very favorable terms: the contracts for construction were let favorably also; but labor became so high and inefficient, and the difficulties of construction through such an entire wilderness as the road traverses, being greater than was anticipated, considerable extra expenses was incurred before the road was finally opened in December, 1864.

The length of the through line from Escanaba, on Green Bay, to Marquette, on Lake Superior, is about seventy-five miles—sixty-two miles of which is over the Peninsula Railroad, from Escanaba to its junction with the Marquette Road, at the Jackson Iron Mines, at the village of Negaunee, and thence thirteen miles over the Marquette and Bay de Noquet Railroad to Marquette, on Lake Superior.

The securities of the Peninsula Road rose rapidly, with the increase in value of the equipment materials and work which had already been provided, and were in brisk demand for near a year before its completion, the stock reaching eighty and ninety cents for the dollar, and the bonds were sought for and sold at par. There was danger that they might pass into the hands of holders having interests adverse to the Northwestern, and again expose that Company to the hazard of losing the benefits of a close connection with it, as the key to the Lake Superior business, so important to the long line of road already extended in that direction.

Efforts were made from time to time by the Northwestern, previous to its consolidation with the Galena, to secure a permanent connection or consolidation with

this road, but were unsuccessful, the owners of it then being indisposed except at too high rates.

Meanwhile, at the annual meeting, at the time of consolidation between the Galena and Northwestern Railroads, in June, 1864, authority was conferred upon the Board of Directors by the stockholders to consolidate with the Peninsula, if terms acceptable could be obtained.

Subsequently better terms were obtained, and in October, 1864, after the consolidation between the Galena and Northwestern, a consolidation was effected with the Peninsula Railroad Company, by an exchange of one-half share of the common stock and one-half share of the preferred stock of this Company, for one full share of the stock of the Peninsula Railroad Company.

The agreement of consolidation contained a provision, however, in accordance with the law of the State of Wisconsin, approved March 26, 1864, authorizing this Company to create and issue different classes of preferred and special stock, under which provision holders of Peninsula Railroad stock might, if they elected so to do, continue to hold their Peninsula stock, and receive any dividends thereon which might be declared from the special earnings of that road, instead of exchanging it in the manner above stated; and a portion of the Peninsula stockholders still continue to hold their stock, preferring to rely upon the earnings of that road for dividends upon it, rather than upon the general earnings of the consolidated Company.

Some months previous to the opening of the Peninsula Railroad from Escanaba to the Iron Mines, re-

peated efforts were made and branch roads offered to induce the Sault St. Mary Canal Mineral Land Company, who held a large body of superior, heavily timbered mineral lands, containing valuable iron ores, and situate at and near the northern termini of the Peninsula Railroad, to open and work their iron mines, or to lease them to others who would open and work them. That Company, however, declined either to work or lease them, but, finally, determined to sell them in a body.

It was of great importance to the business of the Peninsula Railroad that these mines should be promptly and amply developed; and just before its completion, parties engaged in the production or manufacture of iron in various parts of the United States and others, were induced to make the purchase of these mineral lands.

Large expenses were immediately incurred by the new owners in the development of these new mines in which great progress has already been and is still being made.

Branches of the Peninsula Railroad have been extended to these new mines, and they are so situated that the only outlet for their ores to market is over the Peninsula road, to which their supply of iron ores for transportation will hereafter be large, constituting, no doubt, one of the main sources of the business of that road.

The temporary paralysis which the close of the war produced in the iron trade, prevented the "Peninsula Division" of the Chicago and Northwestern Railway Company from opening the present season with the

amount of local business anticipated. Latterly, however, it has been occupied to the extent of capacity of its machinery in the transportation of iron ore, and promises to be so occupied to the close of navigation.

A line of steamboats is established between Green Bay and Escanaba, adding, in connection with the Peninsula road, large numbers of through passengers and business, both ways, to this Company's line between Green Bay and Chicago, and promising in the future all that was ever expected from this connection.

A matter of great value and importance, in connection with this Peninsula road, is the grants to it (and to an extension of it south to the Michigan State line at the Menominee River, in the direction of Green Bay, about sixty miles) by Congress and by the State of Michigan together, of about a million of acres of land, if the same can be found in alternate sections, of Government lands and in lands of the State, within twenty miles of either side of the line of the road.

The old grant of six sections, three thousand eight hundred and forty acres to the mile, to the Chicago and Northwestern Railroad Company, in aid of the extension of its line of road from Green Bay to the State line of Michigan, at the Menominee River, about fifty miles, and to its point of connection there with the Peninsula road, is still extant and valid; and both these grants were extended at a recent session of Congress for five years from June, 1866, within which time, aided by these lands, the Chicago and Northwestern Railroad Company can, if it shall think proper, readily and easily construct this only remaining con-

necting link from Green Bay, by way of the Menominee River, to Escanaba, about one hundred and ten miles, from the proceeds of bonds to be secured upon it, and of stock subscriptions and donations that will be made along the line of it.

The report of the Hon. Wm. B. Ogden, President of the consolidated Company, made in October, 1865, says:—

“Notwithstanding the large increase of equipment, secured during the past year, this Company is still in great need of at least five hundred further and additional cars. A much greater number and additional engines could at this time be fully and profitably employed, and the prospect of the continuance of an enlarged business throughout the year is at present very encouraging.

“Every month, since the first of June last, our earnings would have been increased from fifty to one hundred and fifty thousand dollars per month, and probably some months to a still greater sum, by additional machinery, sufficient to earn that increased sum; and the only reason why the earnings of September, October, and even November, of this year, will fall short of a million and more per month, if they do fail to reach that amount, will be because our present equipment is insufficient and incapable of earning more than it now does.

“The earnings of this Company’s roads for the past fiscal year, ending May 31st, 1865, exceeded, it will be seen, those of the previous year, two million one hundred and thirty-eight thousand nine hundred and forty-two dollars and thirty-five cents, being 45.69 per cent.

increase. The earnings for the first four months, June, July, August, and September of the present year, show a still further increase over the same months of last year of nine hundred and thirty thousand and eighty-three dollars, being 41.62 per cent., making the earnings of these four months more than twice the amount earned in the same months but two years since, and without any material additional earnings from new additional or extended lines of road."

The equipment and rolling stock of the Company, in May, 1865, included one hundred and fifty-four locomotives, ninety-four passenger cars, eighty baggage cars, and two thousand nine hundred and eighty-seven freight cars.

The earnings of the Company for two years were as follows:—

Year ending May 31.	Passengers.	Freight, &c.	Total.
1864 . . .	\$1,321,819	\$3,359,988	\$4,681,807
1865 . . .	2,167,902	4,652,848	6,820,750

This does not include the earnings of the Milwaukee Division.

The total expenses of the Company for the year ending May 31, 1865, were six million one hundred and forty-one thousand eight hundred and twenty dollars, including four million two hundred and ninety-five thousand four hundred and seventy-three dollars for operating expenses.

The officers of the consolidated Company are William B. Ogden, President; George L. Dunlap, General Superintendent; P. H. Smith, Vice-President; James R. Young, Secretary; George P. Lee, Treasurer.

THE ILLINOIS CENTRAL RAILROAD.

CHAPTER XXIX.

ILLINOIS CENTRAL RAILROAD.

THE rapid development of the State of Illinois, and its wealth and population, is owing in a great measure to the existence and early completion of the Illinois Central Railroad. This magnificent road, for structure truly is, is seven hundred and eight miles long, extending the entire length of the State, from Chicago to Cairo, and from Centralia to Dubuque. The road, after the route was surveyed and agreed upon, was constructed in a shorter time than is usual in a work of such magnitude, and it owes its rapid completion to the indefatigable exertions of the late Senator Douglas, through whose efforts Congress was prevailed upon to grant to the State of Illinois, in 1850, two million five hundred and ninety-five thousand acres of land to aid in its construction. It was not without difficulty that the bill granting these lands, valued at thirty millions of dollars, to the State of Illinois, was passed by both houses of Congress. It will be seen, by reference to the "Congressional Globe" for the years 1848, 1849, and 1850, that the bill was opposed, on various grounds. The consideration probably, which finally secured its passage was, that the lands thus granted to the State would secure the building of the road, and that a road thus built a

the whole length of the State would secure the sale, at an advanced price, of all the public lands in the State. The public lands in the interior of the State of Illinois had been in the market for many years, and although they were known to be rich and fertile, nobody would buy them, because, after the farmer had raised his crops, there would be no means for him to get it to market. In one of his great speeches in the Senate, in favor of the bill, Senator Douglas said ; " These lands have been in the market for about twenty-three years ; but they will not sell even at the usual government price of one dollar and a quarter per acre, because they are distant from any navigable stream or a market for produce. A railroad will make the lands saleable even at double the usual price, because the improvement made by the State will make them valuable."

All these anticipations were realized. The lands thus granted to the State of Illinois were made over to the Illinois Central Railroad Company, upon certain conditions, and the road was built. The construction of the road, and its massive and substantial buildings, has probably cost thirty millions of dollars.

The surveys for the location of the road were commenced June 1st, 1851, and on the 1st of January, 1852, the entire line was located. For convenience, the road was divided into twelve Divisions, as follows:—

	Miles.
1st Division, from Cairo to the Big Muddy River,	60
2d " " Big Muddy River to Centralia	52
3d " " Centralia to Ramsey	39

	Miles.
4th Division, from Ramsey to Decatur . . .	53
5th " " Decatur to Bloomington . . .	43
6th " " Bloomington to La Salle . . .	61
7th " " La Salle to Freeport . . .	78
8th " " Freeport to Dunleith . . .	68
9th " " Chicago to Kankakee . . .	56
10th " " Kankakee to Urbana . . .	72
11th " " Urbana to Mattoon . . .	45
12th " " Mattoon to Centralia . . .	77

On the 15th of March, 1852, a portion of the 9th Division, from Chicago to Calumet, was put under contract, being sixteen miles. On the 19th of June, 1852, the 1st, 2d, 6th, 8th, 10th, and the remainder of the 9th Divisions were put under contract. On the 14th of October, 1852, the 3d, 4th, 5th, 7th, 11th, and 12th Divisions were put under contract. By the end of the year 1853, one hundred and thirty-two miles of the road had been constructed. By the end of 1854, four hundred and thirty-two miles had been constructed. By the end of 1855, six hundred and twenty-seven miles were completed; and the remainder of the road was finished in 1857. The road was put in operation:—

From Chicago to Calumet in June, 1852.

" La Salle to Bloomington in June, 1853.

" La Salle to Mendota in the fall of 1853.

" Chicago to Kankakee, July 4, 1854.

During the year 1854, the road was opened from Chicago to Urbana, one hundred and twenty-eight miles; also a considerable portion of the distance from

Cairo to Centralia, about ninety miles; and a portion of the distance between Bloomington and Decatur, and from Freeport west. On the 28th of December, 1855, the last rail was laid on the main line of the road, about ten miles south of Vandalia, and the entire main line was then in operation. During the year 1855, the road was opened from Chicago to Mattoon, one hundred and seventy-three miles. In 1857, the whole line was completed and in operation.

The larger portion of the rails originally laid, were of English or Welsh manufacture, and although they cost a high price, yet they proved to be fully worth all that was paid for them. They wore remarkably well, and did excellent service. The rails that have been used in renewals have been principally made in England, and at Trenton, in New Jersey. A large amount of worn-out rails have been rerolled, at the rolling mills at Chicago.

The principal difficulties which were encountered in constructing the road arose from the newness of the country, the few settlements near the line of the road, the difficulty of procuring men and of supplying them, and the difficulty of getting engines, cars, and iron, at points where they were first wanted. In order to procure men, agents were sent to New York, New Orleans, and Montreal: and in many cases the fare and expenses of the men were paid, in order to get them on the work. Flour and pork were transported in wagons, over the rude country roads, seventy miles, in order to supply them with food. The country at that time was so new that in several places it was forty miles between

the settlements, and in one case there was only one settlement within seventy miles.

In one case an engine was sent from New York to Cincinnati, and then taken on a flat-bottomed boat and taken down the Ohio River to the mouth of Cache River, thence up the Cache, and landed on the track, ten miles north of Cairo. Another engine, sent from New York to Chicago, was thence taken through the Illinois and Michigan Canal to La Salle, and then down the Illinois and Mississippi Rivers to the mouth of the Big Muddy River, south of St. Louis, thence up the Big Muddy to the line of the road. Other engines were sent by the way of St. Louis, Alton, Naples, La Salle, and Galena: and in each case, of course, the transportation of them to the line of the road was attended with heavy expense. The cars were manufactured at Chicago, and were sent to all points on the road where they were needed. The rails for the track were purchased in England, landed at New York and New Orleans, brought thence to Chicago and Cairo, and therefrom distributed at La Salle, Naples, Galena, St. Louis, Alton, Dunleith, the mouth of the Big Muddy, and at other convenient points.

The most expensive portion of the work was in crossing and cutting through the high bluffs on each side of the Illinois River. At this point there is a bridge twenty-eight hundred feet long, and seventy-five feet above low water. The next most expensive part of the work was from Cairo to the Big Muddy River; and from Freeport to Galena.

Ever since the road has been in operation, the Company has devoted much attention to securing a

proper degree of elasticity in the track. Nothing is more destructive, both to the rails and the cars, than a perfectly hard and solid track: and all railroad tracks become so, unless the proper means are used to prevent it. On this road, whenever the ballast becomes hard and packed to such an extent as to render the track unelastic, the ballast is broken up, and the whole track is raised slightly, say two inches. This gives a new and uniform bearing to each crosstie, and renders the track perfectly elastic and easy. In order to keep a road in perfect order, this should be done every three or five years, depending upon the character of the ballast, a portion being thus treated each year. There are portions of this road that are not ballasted, the nature of the soil on which the track is laid not requiring it. When such a road bed is dry, and the track put up in good condition, it is found that there is less wearing of the rails than where the track is ballasted. This is due to the greater natural elasticity of the unballasted road bed.

By the construction of this road the vast and hitherto desert prairie lands of Illinois have been transformed into well cultivated farms, which are now, and for years past have been annually contributing many millions of bushels of grain; and which present the prospect of much larger crops in future. The lands of the Company extend on both sides of the road, in a breadth of about thirty miles. They are usually well watered by small streams, and water is abundant. Coal also is found in abundance at almost all points along the road. The rich, black soil of the country is five feet deep.

No sooner were the lands of the Company thrown

open to sale, than plenty of purchasers at once offered themselves, and the number of these soon rapidly increased. From August, 1854, to December 31st, 1855, five hundred and twenty-eight thousand eight hundred and sixty-three acres were sold for five million five hundred and ninety-eight thousand five hundred and seventy-seven dollars. By December 1st, 1856, eight hundred and nineteen thousand one hundred and thirty-eight acres had been sold for ten million thirty-three thousand four hundred and eighty-six dollars, leaving at that time one million seven hundred and seventy-five thousand eight hundred and sixty-one acres unsold.

In 1866, the Company announced that they had sold, during the previous ten years, one million four hundred thousand acres, to more than twenty thousand actual settlers. During the year 1865, two hundred and sixty-four thousand four hundred and twenty-two acres were sold. Up to the present time, the sales have amounted to about one million seven hundred and fifty thousand acres, leaving about eight hundred and sixty thousand acres of the best and most eligible lands of the Company still unsold.

But what did the United State Government gain by this magnificent grant of lands? The Government realized far more than had been promised by Senator Douglas. The grant to the State of Illinois was not of every section, but of *every alternate section*. The alternate sections the Government reserved to itself: and raising the price of them from one dollar and a quarter to two dollars and a half per acre, threw them upon the market. What was the result? The Illinois Central Railroad Company was hard at work, construct-

ing their road. It was easy to see that in a few years the whole condition of things in the State would be changed; that there would be a great highway in existence between the north and the south; and that lands along the line of the road would be worth, not two dollars and a half, nor even five dollars, but ten dollars, twenty dollars, and even thirty dollars per acre.

The consequence was that there was a perfect rush for these reserved sections of land, particularly between the years 1853 and 1857; and the Government readily disposed of all the land which it owned in Illinois at from two dollars and a half to seven dollars per acre; for the price did not long remain at two dollars and a half. As Mr. Yates said, in a recent speech in the Senate:—

“It is a well-known fact that for some of these reserved lands the Government received as high as seven dollars per acre. How was this? Why, sir, because this much-abused road made that half of the lands reserved by the Government far more valuable than the whole by bringing them nearer to market, and by attracting an industrious and energetic population to purchase and settle them. By this grant the Government was the greatest gainer, and it got early purchasers for lands which for thirty years had lain unsought and undesirable in a wilderness prairie? Stately cities, a thousand prosperous villages, comfortable mansions, and highly cultivated farms have sprung up along the line of this railroad in the wilderness prairie where before wolves howled and the rank grass waved untrodden.

“It is said, however, that the Company has realized

far more than two million dollars for these lands. This is true; but through whose agency? Not that of the Government, surely. No, sir; the Company, by investing millions of money and by great energy and wise management, opened these lands to market and settlement and made them valuable. Is the United States, after granting these lands, and after they are made valuable, to set up a claim on the road on account of the increased value?

“The road was located for the benefit of the State and the United States, and very much to the pecuniary prejudice of the stockholders of the Company. The road was, by the charter, made to run, not between important commercial points, such as Chicago and St. Louis, nor along any of the lines of trade and traffic running east and west, nor through the settled portions of the State, but north and south, through the wild and unsettled lands of the United States; the sale, settlement, and improvement of these lands being the chief consideration which influenced Congress to make the grant. At the date of the grant the settlements had been principally confined to the public highways or stage routes, and mainly to the timber lands, leaving the prairies to bloom in their native wilderness. Flourishing little villages and a considerably dense population had sprung up along these thoroughfares and natural channels of intercommunication, which, from the beginning, have furnished travel and traffic and most remunerative profits to the roads which have since been constructed along them. On the other hand, the Central Railroad had to build up its own settlements, its own towns and farms, and to create its own trade, travel, and business.”

CHAPTER XXX.

ILLINOIS CENTRAL RAILROAD: CONTINUED.

IN 1850, when the route for the railroad was surveyed, the population of the forty-nine counties through which it passes was three hundred and fifty-one thousand eight hundred and eighty-seven. In 1865, the population of those counties had increased to one million one hundred and twenty-seven thousand and eighty-seven, *being more than half the population of the entire State!*

Until within the last two or three years, the Company did not require any payment to be made, for lands sold by them, during the first two years; a long credit was given, and interest on the payments was computed at only 3 per cent. The prices of the lands varied then from five dollars to twenty-five dollars per acre; as they do now from eight dollars to thirty dollars. Interest for the payments of the first two years was paid upon making the contract. The first instalment of the purchase money, one-fifth of the whole amount, became due at the expiration of two years from the time the contract was made, and another fifth at the close of each subsequent year, with 3 per cent. interest on the unpaid instalment, so that the last instalment became due at the end of six years. At present the Company permit a cash pay-

ment of one-quarter of the whole amount of the purchase money to be paid at once, on making the contract together with interest at 6 per cent. on the remaining three instalments due. At the end of the first year, another quarter of the whole amount of the purchase money must be paid, with interest for one year on the remaining one half of the whole purchase money. At the end of the second year, the purchaser must pay another quarter of the whole amount, with interest on the sole remaining one quarter. At the end of the third year, the purchaser pays the remaining one quarter of the purchase money, without interest, and the Company gives him a deed in fee simple for his land.

In the year 1857, the Illinois Central Railroad Company, overwhelmed by a floating debt of several millions of dollars, was compelled to make an assignment. At that time the interest of the funded debt largely exceeded the receipts from the sales of land and from the earnings of the railroad. The financial crisis, then prevalent, and which produced so much and so great distress at the west, aggravated by a short crop of grain, deprived the owners of the Company's lands of the means of meeting the payments due on their notes; land sales fell off, traffic declined, and altogether the prospect for the future was about as gloomy as can be imagined. But, fortunately for the Company, its interests were in the hands of men whom no difficulties could discourage. They bent all their energies to the task of saving the road and restoring its former prosperity, and success at last crowned their efforts.

Three years elapsed, and a wonderful change had been wrought in the condition of the affairs of the Company. Not only had the former prosperity of the road been restored, but the entire floating debt of the Company had been paid. The whole history of railroads, in Europe and America, does not furnish so striking an example of misfortune so nobly overcome, or so encouraging an illustration of the results of energy and indomitable perseverance. By the year 1860 the Illinois Central Railroad Company could and did face the world, with all their obligations fairly met, and without a dollar of floating debt. Its condition was as follows:—

	CR.
By cost of railroad	\$27,000,000
“ land notes in hand	12,598,600
“ value of 1,334,727 acres of land unsold, at \$15	20,020,905
Total	59,618,905

	DR.
To Capital stock	\$15,655,000
“ Funded debt	15,672,000
“ Floating debt	none
“ Ultimate profit	28,417,000—\$59,804,000

In other words, it was now plainly evident that, as had been foreseen by the early promoters of the enterprise, the stockholders would eventually get all their money back, and would also own a magnificent railroad, seven hundred miles long, besides. The land notes above referred to, amounting to twelve million five hundred and ninety-eight thousand dollars, were all secured by mortgage on the lands sold; and the Company, at this time, could have made money by foreclosing the mortgages, and resuming possession of

the land, in cases when the notes were not met at maturity. The Company, however, have always found it good policy to pursue an indulgent course towards the persons who have settled on their lands. Two good crops enable a farmer in Illinois to pay for his land, and sooner or later all these notes were paid, with interest.

The above estimate of the land unsold in 1860, one million three hundred and thirty-four thousand seven hundred and twenty seven acres, at fifteen dollars per acre, was rather less than the average price at which lands were then selling. As these lands became settled too, they became of course more valuable. The President of the Company, in his report in 1860, recommended the Company gradually to advance the price, according to the following sliding scale, which makes their aggregate value twenty-seven million six hundred and thirty-six thousand three hundred and fifty, instead of twenty million twenty thousand nine hundred and five dollars, as above estimated:—

200,000 acres to be sold at \$13	.	.	.	.	\$2,600,000
200,000 " " "	15	.	.	.	3,000,000
200,000 " " "	16	.	.	.	3,200,000
200,000 " " "	18	.	.	.	3,600,000
200,000 " " "	20	.	.	.	4,000,000
100,000 " " "	25	.	.	.	2,500,000
100,000 " " "	30	.	.	.	3,000,000
100,000 " " "	40	.	.	.	4,000,000
34,727 " " "	50	.	.	.	1,736,350
<hr/>					
1,334,727					\$27,636,350

The gross earnings of the road for the year 1860 were two million seven hundred and twenty-one thousand five hundred and ninety dollars; the operat-

ing expenses were one million six hundred and ninety-three thousand four hundred and three dollars; and the net earnings were one million twenty-eight thousand one hundred and eighty-seven dollars. Out of this the State tax of one hundred and seventy-seven thousand five hundred and fifty-seven dollars was paid, which left eight hundred and fifty thousand six hundred and thirty dollars as the clear gains of the road for the year.

The following table will show the amount, for six years, of the interest paid on construction bonds, of the net revenue from the road and of the revenue from the lands:—

Year.	Interest paid on construction bonds.	Net earnings of road.	Cash received in land depa't.
1855	\$1,099,723	527,952	234,439
1856	1,095,187	938,436	422,811
1857	1,081,318	391,473	791,718
1858	1,110,610	424,618	588,237
1859	1,055,085	492,765	523,310
1860	1,026,507	850,765	653,312

The history of the road, since 1860, has been one continued scene of prosperity. The lands of the Company have been steadily sold, and every year thousands of new acres have been brought under enlightened cultivation. New settlements have sprung up all along the line of the road; and churches, schools and academies have everywhere been built. Every year, too, a better class of people come and settle upon the Company's lands: in many cases men of education and refinement, who bring with them not only wealth but all the modern improvements in agriculture.

The regular business of the road steadily increased year after year. The earnings of the road, from freight

and passengers alone, in 1863, were over four and a half millions of dollars; in 1864, they were nearly six and a half millions, and in 1865, they were over seven millions of dollars. In 1866, as we shall see presently, the net earnings of the road exceeded those of 1865.

The operations of the road during the year 1866 were highly satisfactory, enabling the Company to pay two dividends to the stockholders, of five per cent. each in February and August, amounting, with the government tax, to nearly two and a half millions of dollars (namely, \$2,459,679). The earnings of the road for the year 1866 were over six and a half millions of dollars (namely, 6,546,741). The operating expenses were four million three hundred and seventy-one thousand two hundred and ninety-four dollars, being six hundred and thirty-four thousand nine hundred and ninety dollars less than in 1865. The net earnings for the year were over two millions of dollars (namely, \$2,175,447), which is a slight increase over the net earnings of 1865, which were two million one hundred and seventy-four thousand nine hundred and twenty-four. The income from passengers, during the year 1866, was nearly two millions of dollars (namely, \$1,987,705). The income from this source would have been much greater, had it not been for the fact that the Southern States have not yet recovered from the ravages of war sufficiently to give to the road the business which must, in time, come from that source. Sadly desolated by the war, and by the evils that the war brought in its train, with its system of labor utterly disorganized, with a very general disinclination on the part of the negroes to work, and with great distress prevailing in consequence,

it is not strange that the reconstruction of southern industry has been so slow that the vast and hitherto fruitful country below the southern terminus of the road has contributed, since the war, little or nothing to the resources of the Company. It is much to be hoped that the lapse of a year or two will change this for the better.

The income for freight, during the year 1866, was four million three hundred and fourteen thousand one hundred and sixty dollars, showing a healthy growth in the local business of the road, the earnings from freight in 1865 having been four million two hundred and forty-one thousand one hundred and seventy-nine dollars, being an increase for 1866 of seventy-two thousand nine hundred and eighty-eight dollars.

During the year 1866, the Company laid six thousand tons of new and re-rolled rails in the track. The equipment of the road was increased by the addition of two new locomotives, seven passenger coaches, and one hundred and fifty cars for the transportation of cattle, built at the workshops of the Company at Chicago at a cost of two hundred and twenty-five thousand four hundred and seventy-four dollars. A new wharf boat has been built at Cairo, and is found to be a great convenience. At one place on the road, where the grade was eighty-five feet to the mile, it has been reduced, by cutting through solid rock, to forty feet to the mile, at a cost of fifty-six thousand three hundred and seventy-four dollars. The whole of the track has been carefully examined, repairs made wherever needed, and the whole road is now in better condition than ever before.

The Company commenced the year 1867 with a

balance on hand of over two millions of dollars (namely, \$2,029,319), out of which the semi-annual dividend of Feb. 1st, 1867, has since been paid to the stockholders, leaving a balance on hand in March, 1867, of eight hundred thousand dollars. The dividend of 5 per cent. in August, 1867, was also paid as usual.

The amount of care and attention which is bestowed upon the condition of the road may be inferred from the fact that, during the year 1866, the sum of one million two hundred and ninety-nine thousand nine hundred and sixty-three dollars was expended on the item of "Maintenance of Way," which consists in keeping the track in order, &c.

The number of locomotive engines now in use by the Company is one hundred and fifty; number of passenger cars seventy-seven; besides seven sleeping cars; number of baggage cars thirty-five; number of freight cars three thousand four hundred and eighty-seven.

The sales of the Company's land, during the year 1866, amounted to one hundred and fifty-eight thousand acres. This was sold to two thousand two hundred and eighteen different persons, at an average of ten dollars and sixty-five cents per acre, and amounting in the aggregate to over a million and a half of dollars (namely, \$1,683,694). The total number of acres now remaining unsold is eight hundred and sixty-eight thousand eight hundred and forty-one, geographically situated as follows:—

On Main Line.

Between Cairo and the Ohio and Mississippi R. R.	. 313,987.78
Between the Ohio and Mississippi R. R. and Decatur	. 95,384.77
Between Decatur and Dixon	85,398.30
Between Dixon and Dunleith	33,962.33

On Chicago Branch.

Between the Ohio and Mississippi R. R. and Tolono	85,903.47
Between Tolono and Chicago	254,204.82

A considerable quantity of these lands, it will be seen, lies between Chicago and Centralia, in the rich and populous counties of Kankakee, Ford, Iroquois, Vermilion, Platt, and Champaign, in the centre of the most favored climate in the State, and almost at the very door of the great market of Chicago. For raising grain and cattle, these lands present unsurpassed advantages, and every year these advantages are becoming better appreciated. The impression long prevailed that Illinois was not adapted to the raising of fruit; but experience has demonstrated the contrary. Young orchards of apples, pears, and peaches, which were set out only a few years ago, now produce every year the most abundant crops, and the fruit is of the finest quality and of the most delicious flavor. Nor is this all. Strawberries, grapes, and raspberries were formerly not cultivated in Illinois, simply because the proper mode of cultivating them was not understood. Enterprising men, however, have taken the matter in hand, and have demonstrated that with the proper care and attention, the finest flavored and the largest strawberries and raspberries, as well as grapes, can be raised in all parts of the State.

This business, however, is yet in its infancy: and the demand for these fine fruits in Chicago always exceeds the supply. The business of raising fruit for Chicago, however, has already assumed so much importance that special fruit trains are now run on the Illinois Central Railroad to meet its requirements. Persons,

therefore, who are hesitating whether to buy a farm in New Jersey or in Illinois, should not forget these facts. A little farm in New Jersey, of only ten acres, if it is worth anything at all, cannot be bought for less than a thousand dollars. A farm of forty acres in Illinois, on the line of the Illinois Central Railroad, with the land incomparably richer than in New Jersey, can be bought for five hundred dollars, in four annual payments. On this farm can be raised every kind of fruit and vegetables that can be grown in New Jersey, in the same perfection, and which can be sold at equally good prices at Chicago.

A farm of fifty acres, of the rich lands of the Company, can be bought for eight hundred dollars: or a farm of one hundred acres for ten hundred dollars. On these larger farms in Illinois, any man who is prudent, industrious, and intelligent, cannot fail to grow rich in a few years.

The following statement shows the total earnings of the road, the amount of sales of land, and the operating expenses, for the last four years:—

	Total earnings.	Land sales.	Operating expenses.
1863 . . .	\$4,636,827		\$2,151,786
1864 . . .	6,403,034	\$2,939,733	3,460,739
1865 . . .	7,264,010	2,191,630	4,509,794
1866 . . .	6,621,741	1,683,691	3,944,218

The officers of the Company are: President, John M. Douglas; Land Commissioner, John B. Calhoun; Treasurer, Thomas E. Walker; General Superintendent, Marvin Hughitt; General Passenger Agent, W. P. Johnson.

CHAPTER XXXI.

CHICAGO AND ST. LOUIS RAILROAD.

TOLEDO, WABASH, AND WESTERN RAILROAD.

THE Chicago and St. Louis Railroad presents a most remarkable illustration of the good effects of proper railroad management. It extends from Chicago to St. Louis, a distance of two hundred and eighty miles, and the running time between the two cities is fourteen hours. It encounters two powerful rivals in the Illinois Central and the Chicago, Burlington, and Quincy roads, as will be seen by the examination of a railroad map. And yet, so admirable has the management of the road been, that its local freight business has always exceeded the capacity of its rolling stock. The latter has recently been largely increased. The track of this road is one of the best in the country. The enormous traffic that passes over it was found to wear out the ordinary iron rails in a very short time. The Directors, therefore, have begun to relay the track with steel rails, and in the mean time are using iron rails of an improved construction. The rolling stock now in use on the road includes seventy locomotives, forty passenger cars, and twelve hundred freight cars. The Company, in connection with the Pittsburg, Fort Wayne, and Chicago Railroad Company, is about to erect a

handsome and commodious passenger depot at Chicago, near Madison Street bridge, in the West Division.

The total earnings of the road in 1865 were nearly four millions of dollars (namely, \$3,840,092), of which over a million and a half of dollars were from passengers (namely, \$1,604,188). The entire expenses of the road were two millions of dollars (namely, \$2,006,574), leaving the net earnings of the year nearly two millions of dollars (namely, \$1,833,517). The total income of the road, during the year 1865, including these net earnings, was two million six hundred and nineteen thousand seven hundred and ninety-two dollars, and the total disbursements one million three hundred and twenty-eight thousand three hundred and ninety-four dollars, leaving as the net balance on hand over a million of dollars (namely, \$1,291,398). The total earnings of the road in 1866 were three million six hundred and ninety five thousand one hundred and fifty-three dollars; and the total expenses two million two hundred and ten thousand five hundred and thirty-six dollars, leaving the net earnings one million four hundred and eighty-four thousand six hundred and sixteen dollars. The total income of the road, including these earnings, was two million seven hundred and seventy-six thousand and fourteen dollars, and the total disbursements one million two hundred and seventy-eight thousand and fifty-nine dollars, leaving the net balance on hand of one million four hundred and ninety-seven thousand nine hundred and fifty-five dollars. Such a result of two years' work may well be considered gratifying by the stock-

holders, particularly when they realize the splendid condition at present of the track, road-bed, and equipment of the road. The present officers are as follows:—

T. B. Blackstone, President; Robt. Hale, General Superintendent; W. M. Larrabee, Secretary and Treasurer.

THE TOLEDO, WABASH, AND WESTERN RAILROAD.—This is one of the greatest railroads in the western country. It is composed of the Toledo and Wabash Railroad, the Great Western Railroad, the Quincy and Toledo Railroad, and the Illinois and Southern Iowa Railroad, which were consolidated and merged into one, July 1st, 1865. The present Company is operating a great, direct, through line of railroad commencing at Toledo, in Ohio, and terminating at Quincy, Illinois, with branches to Naples and Keokuk, making the entire length of road operated, five hundred and twenty miles. The capital stock of the Company amounts to twenty millions of dollars.

The entire revenues of the road, for the eighteen months ending Dec. 31, 1866, amount to five million seven hundred and fifty thousand dollars; and the operating expenses to four million two hundred and ninety-eight thousand dollars; leaving the net earnings during this period to be nearly a million and a half of dollars (namely, \$1,451,971). The number of locomotives in use upon the road is one hundred and two, number of passenger cars forty-seven, number of freight cars, one thousand and forty.

The Company is at present engaged in the construc-

tion of an iron railroad bridge across the Mississippi River at Quincy. It is expected that this bridge will be ready for the passage of trains before the close of the year 1867. The Company have also contracted for the construction of another railroad bridge across the Mississippi River, at Keokuk. The President says, in his report: "The accomplishment of this important undertaking, the success of which is already quite assured, places our line without competition or rivalry in direct railway connection with the Des Moines Valley Railroad, thereby affording us easy and favorable access to the vast grain and stock business of Central and Northern Iowa, one of the most productive" and greatest wheat growing regions of the west.

During the past year, the Company have expended three millions of dollars in improving their road and in adding to its equipment. Sixty-one miles of entirely new track have been laid, twenty-one new first-class locomotives have been purchased, and six elegant passenger coaches have been built, at the Company's shops. Four new passenger depots have been built, and three large freight buildings. Several new bridges have been built, besides those over the Mississippi River; among them is a wrought iron bridge over the Wea River, west of Lafayette, in Indiana, at a cost of fifty thousand dollars.

The President's Report says:—

"The Elevators used by our Company at Toledo, with a storage capacity of one million four hundred and fifty-two thousand bushels, are now in good repair and efficient working condition, and their present manage-

ment seems to secure the entire confidence and approbation of all doing business with them. Upon the completion of the track now in process of building through Elevator 'No. 3,' the unloading facilities will be fully equal to two hundred and fifty cars daily, which, in emergencies, can be increased to four hundred daily, thus assuring us against delays and detentions in times of a great pressure of business."

The machine shops of the Company at Toledo are very extensive, and are admirably managed. All the necessary repairs to cars and locomotives are done here, and the shops turn out, besides, two new freight cars daily. Four new and elegantly arranged sleeping cars were put upon the route in the spring of 1867.

The officers of the Company are Azariah Boody, President; Warren Colburn, Vice-President; E. A. Chapin, General Superintendent; John N. Drummond, Secretary and Treasurer.

CHAPTER XXXII.

CHICAGO, ROCK ISLAND, AND PACIFIC RAILROAD.

CHICAGO, BURLINGTON, AND QUINCY RAILROAD.

THE CHICAGO AND ROCK ISLAND RAILROAD was one of the earliest roads completed from Chicago to the west. It extends from Chicago to Rock Island on the Mississippi River, which it crosses on a fine bridge. The distance is one hundred and eighty-two miles. It owes its construction, and the success of its early management, particularly up to the year 1860, to the energy, enterprise, and liberality of Henry Farnum, Esq., the former President of the Company. The road is constructed in the best possible manner, and its equipment and rolling stock are not surpassed by that of any road in the western country. The passenger depot of the Company, at Chicago, is at the corner of Van Buren and Sherman Streets, and is one of the finest railroad buildings in the country.

The Chicago and Rock Island Railroad was virtually completed as early as the year 1854, and was in full operation in 1855. It runs through a very rich and fertile portion of the State of Illinois, passing through the flourishing towns of Joliet, La Salle, and Bureau. These were all small villages at the time the road was laid out, but their growth was very rapid immediately after the road went into operation. Many other settle-

ments also sprung up along the line of the road, and have since grown to be large and flourishing towns. But it was in the improvement of the country along the route of the road, that the change was most marked and gratifying. Much of the land, especially between La Salle and Rock Island, was still uncultivated at the time when the road was completed. But it no longer remained so. Hundreds of industrious and enterprising men at once settled themselves on farms near the line of the road, where the land, although cheap, was of unsurpassed fertility, and at once devoted all their energies to the raising of wheat and cattle.

In a short time every farm along the line of the road, and for miles on each side of it, was under a high state of cultivation. The result of this state of things was soon apparent in the increased business of the railroad. From the year 1856 to the year 1861, the receipts of wheat at Chicago, over this road, continued to increase rapidly, and finally became enormous in amount.

By the year 1857, the Mississippi and Missouri Railroad, beginning at Davenport, opposite Rock Island, had been extended to Iowa City. It has since been completed to Fort Des Moines, on the Des Moines River, one hundred and fifty miles west of the Mississippi River. The whole of this road is in progress to the Missouri River, and will probably be completed to Council Bluffs in a few months. The road will be run and worked by the Chicago, Rock Island, and Pacific Company, in pursuance of a contract to that effect. The latter Company recently advanced half a million of dollars to the Mississippi and Missouri Company, to

aid the latter in the construction of their road to the Missouri River.

The increasing prosperity of the Chicago and Rock Island Railroad Company, for the last six years, is mainly due to the energy and enterprise of Charles W. Durant, the President, and John F. Tracy, the Vice-President of the Company. The latter gentleman particularly, living at Chicago, and devoting his personal attention to the interests of the road in all its details, has had the satisfaction to see, as the result of his labors, a steady improvement in the condition of the affairs of the Company, year after year.

The Company are the owners of a large tract of land about three miles west of Chicago, on which they are erecting this summer very extensive buildings for the use of the road. There will be a machine shop three hundred and thirty-six feet long, a blacksmith shop two hundred and fifty-two feet long, a boiler shop ninety-two feet long, and engine-house of two hundred and seventy-eight feet in diameter, a car shop two hundred and fifty-two feet long, and a painting house one hundred and two feet long. In these buildings constant employment will be given to six hundred men.

The earnings of the Rock Island Railroad for the year ending March 31, 1866, were three million one hundred and fifty-four thousand two hundred and thirty-six dollars, and the operating expenses one million seven hundred and eleven thousand four hundred and fifty-five dollars, leaving one million four hundred and forty-two thousand seven hundred and eighty-one dollars, as the net earnings of the road. Various payments, however, amounting to one million

one hundred and nine thousand and ninety-nine dollars, reduced the net earnings to three hundred and thirty-three thousand six hundred and eighty-two dollars, which is considered in every way satisfactory.

The President of the Company is Charles W. Durant, Esq.; Vice-President, John F. Tracy, Esq.

CHICAGO, BURLINGTON, AND QUINCY RAILROAD.—This railroad, one of the most important roads of the west, and at the same time one of the most wealthy, is comparatively unknown at the east, except among railroad men. The reader will presently see that it deserves to be as well known as any railroad mentioned in this volume. The road extends from Chicago, in a general southwest direction, to Galesburg, where it forks. One branch reaches the Mississippi River at Burlington, and the other at Quincy. At Quincy, after crossing the Mississippi River, the road makes connection with the Hannibal and St. Joseph Railroad, which extends from Quincy to the town of St. Joseph on the Missouri River.

At Burlington, after crossing the Mississippi River, the road makes connection with the Burlington and Missouri Railroad, a road designed to extend from Burlington on the Mississippi River to Council Bluffs on the Missouri. The latter road is now completed to a distance of one hundred and thirty-two miles west of Burlington, which is fifty-seven miles west of the station marked Ottumwa, on the railroad maps. This one hundred and thirty-two miles of the Burlington and Missouri Railroad runs through the richest and most fertile part of Iowa, a part of that State which is

rapidly increasing in population. The business to and from this part of Iowa passes over the Chicago, Burlington, and Quincy Railroad alone, and is, therefore, of great importance to it. It is generally through business on the latter road, between Burlington and Chicago, and is therefore of a very valuable nature.

The Hannibal and St. Joseph Railroad, although a new road, is already somewhat known. It extends through a very rich and fertile portion of the State of Missouri, and its local freight traffic has increased amazingly during the last eighteen months. During the last year, particularly, it has poured a vast stream of business upon the Chicago, Burlington, and Quincy Railroad, draining, for this purpose, fully one-third of the State of Missouri of its most valuable products. It was to secure such rich traffic as this that the Chicago, Burlington, and Quincy Railroad was built.

But what shall we say of the country through which the latter road itself passes? Starting from Chicago, the road passes through the counties of Cook, Du Page, Kane, Kendall, De Kalb, La Salle, Bureau, Henry, Knox, Warren, Henderson, McDonough, Hancock, Adams, Peoria, and Fulton. If the reader will cast his eye over that portion of the State of Illinois, he will see that it comprises the very best farming land in the State. It is in these counties, and in those through which the Illinois Central Railroad runs that the immense crops of wheat and corn are raised that have made that State so celebrated. Coal also abounds in the counties that we have named, of the very best quality. The engines on the Chicago, Burlington, and Quincy road are mostly run by coal.

On the line of the road many cities and large towns have grown up.

At Quincy, a city of twenty thousand inhabitants, the railroad Company has boats constructed like the Steamer Baltimore, at Havre de Grace, to transmit loaded cars across the Mississippi River without detention or the breaking of bulk. This ingenious contrivance greatly shortens the time of transporting grain to market and in getting quick returns of cash for it; and has largely increased the business of the Company. For example, a train of freight cars is loaded with wheat raised in Missouri at St. Joseph, or at Cameron, or at La Clede, one hundred or two hundred miles west of Quincy, and four hundred miles west of Chicago. It is of great importance that it should reach Chicago as soon as possible. On arriving at Quincy, instead of unloading the cars and transshipping the grain the cars are run directly on-board of these large ferry boats, the train is quickly made up again on the eastern side of the river, and it starts off for Chicago without having been delayed a single hour.

At Aurora, another city on the line of the Chicago, Burlington, and Quincy Railroad, of twelve thousand inhabitants, the Company have their machine shops and workshops, and employ a large number of men. The sum of six hundred thousand dollars was paid out there for work and material, during the year 1866. At Galesburg, also, the Company have very extensive works.

During the year 1866 a large addition was made to the equipment and rolling stock of the Company, consisting of six locomotives, eight passenger coaches, two

elegant sleeping cars, and one hundred and thirty-one freight cars. During this year, too, fifty-three miles of the track have been relaid with new and re-rolled iron, being about one-eighth of the whole track.

The Chicago, Burlington, and Quincy Railroad was laid out and surveyed in the year 1853. The work of construction was commenced in 1854, and in 1855, the road was completed according to the original design, namely, from Galesburg to the junction of the Galena Road, thirty miles west of Chicago, a distance of one hundred and forty miles. From the Junction to Chicago, the cars of the Company were run over the track of the Galena Railroad. In 1856 the road was extended to Burlington; in 1857 the branch to Peoria was completed; and in 1858 the road was finished to Quincy. In 1860, the Company constructed a track of their own, from Chicago to Aurora, forty miles, and the route by way of the junction was thenceforth abandoned. The whole road is nearly four hundred miles long, namely, from Chicago to Quincy, two hundred and sixty-five miles; from Galesburg to Burlington, forty-five miles; from Peoria to Galesburg fifty-three miles; from Lewistown to Yates City, thirty miles, total three hundred and ninety-three miles. Four passenger trains leave Chicago daily, for the west, over this road, starting from the depot of the Illinois Central Railroad, at the foot of Lake Street.

The present equipment of the road includes one hundred and twelve locomotives, fifty-four passenger coaches, twenty-five baggage cars, and two thousand freight cars. This equipment, although large, is inadequate to the business of the road, and will be greatly

increased this year. There is now building for the Company eight new locomotives, twelve passenger coaches, and two hundred freight cars, which will be added to the rolling stock of the road before the close of the present year. During the year 1866, the number of passengers who passed over the road was nearly a million (namely, 939,201). The earnings of the road during the year 1866 were over six millions of dollars, of which one million seven hundred and fifty-seven thousand three hundred and eighty-eight dollars were from passengers, and four million four hundred and eighteen thousand dollars were from freight; total, six million one hundred and seventy-five thousand five hundred and fifty-three dollars; while the net earnings were nearly three millions of dollars (namely, 2,799,435). The capital stock of the Company now amounts to over ten millions of dollars (namely, 10,193,010).

The officers of the Company are: James F. Joy, President; Robert Harris, General Superintendent; H. Hitchcock, Assistant Superintendent; A. N. Towne, Assistant Superintendent; Samuel Powell, General Ticket Agent; E. R. Wadsworth, General Freight Agent.

CHAPTER XXXIII.

RAILROADS IN THE SOUTHERN STATES.

NEW ORLEANS, JACKSON, AND GREAT NORTHERN RAILROAD.

RAILROADS IN THE SOUTHERN STATES.—The citizens of Charleston and Savannah were quick to appreciate the importance of connecting their harbors with the productive districts of the interior, by railroads; and when these had penetrated their own States, the line, of equal importance to both, was extended through Georgia into Tennessee, connecting, in 1849, Chattanooga with those cities. All these advances into the valleys watered by the branches of the Mississippi, affected the cities near the Gulf of Mexico; and New Orleans and Mobile hastened forward the completion of the lines which, in the early years of American railroads, they had projected for securing to themselves the trade of these rich valleys. From Mobile, a road directed towards the mouth of the Ohio was completed into Mississippi: and from New Orleans, through the central part of Mississippi, and across Tennessee and Kentucky, the Ohio River was reached at Paducah, a few miles above its mouth.

Railroad operations in South Carolina were commenced in 1829, on a road designed to connect Charleston with Hamburg on the Savannah River. Six miles

were completed from Charleston that year. It is a fact worthy of remark, that, before the use of locomotives was established in Great Britain, and before they were even known in the United States, the directors of this road in South Carolina determined, under the advice of their engineer, Mr. Horatio Allen, to make locomotive engines exclusively their motive power. Their road was so constructed as to be wholly dependent upon locomotives, being built, often for miles together, upon piles, and often at great height from the ground.

In the winter of 1829-30, Mr. C. E. Detmold made the drawings of the first American steam locomotive, which was planned by Mr. E. L. Miller, of Charleston, and constructed by the Kembles of New York. It was placed on the road which has just been described in the summer of 1830. It was a small, four-wheeled engine, with upright boiler, the flames circulating around the water flues. It worked successfully for two years, when it exploded, and was rebuilt with a flue boiler, the other parts having been uninjured by the explosion.

On this road was introduced, in 1831, for the first time on any railroad, either in Europe or the United States, the important arrangement of two four-wheeled trucks for locomotives and long passenger cars. These were built from plans designed by Mr. Horatio Allen in 1830; and with no essential change, his system of double-truck running-gear, including the application of pedestals to the springs, has been ever since adopted upon all the roads in the United States.

Virginia, seeking the trade of the same region, also reached Tennessee by the road from Richmond, through

Lynchburg to Knoxville and Chattanooga, whence the western line, already completed to Memphis on the Mississippi, crossed the Mississippi Railroad at Grand Junction on the Southern line of Tennessee, and with this made the communication complete from Alexandria, Norfolk, and Richmond to New Orleans. The connection between the cities on the Atlantic Coast was completed soon afterwards, by independent railroads, planned originally from one city to the next. Between Portland in Maine, and Philadelphia, several nearly parallel railroads were afterwards constructed.

During the period between the years 1850 and 1860, the Southern States manifested remarkable vigor in the prosecution of all public enterprises, and especially in the construction of railroads. Virginia particularly, threw herself into the work of extending her railroads, with great energy; and during the period named, she nearly trebled the extent of her existing railroads, and increased her railroad investments seven fold. At the same time Georgia, Alabama, and Mississippi competed with each other in spirited manifestations of railroad progress.

Thus Macon and Atlanta became railroad centres of considerable importance. At Macon, trains arrived daily from Savannah on the east and Montgomery on the west; from Atlanta and Tennessee on the north, and from the southern part of Georgia. At Atlanta, also, trains arrived daily from Charleston on the east, from Knoxville and Memphis on the north and west, and from Savannah and Montgomery on the south. The prosperity of these cities was built up, in a good degree, by the increasing business of all these rail-

roads, and when the war broke out, in 1861, all the roads were doing an excellent business, and these two cities were on the highroad to advancement. How much they suffered during the war has never yet been fully realized; but the calamities that swept over the south reduced hundreds of wealthy persons to poverty.

Since the close of the war, and since the southern railroads have again got into operation, they have recovered, in some measure, from the shock of war. The citizens, in spite of their reverses, have moved with commendable public spirit in reconstructing those of their buildings that were destroyed, and in restoring their cities to that degree of elegance which was so marked a feature before the war. The editor of the "Macon Telegraph" recently visited Atlanta, and he thus speaks of matters connected with railroads there:—

"Atlanta has risen as if by magic from the desolation and ashes of war. There has been nothing like it in the past, and the matchless energy that has thus spoken a large city, with massive and costly blocks for business and every necessary public building on a grand scale, into sudden existence, is passing all comprehension. Such enterprise need not stagger at any undertaking. It has been, too, a most beneficent movement. Thousands would have suffered and hundreds starved but for the labor opened up to them in the rebuilding of the city. We would be glad to specify many new structures and comment on them and their purpose, but fear to make this hasty sketch too long.

"The extensive iron works and rolling mills of J.

D. Gray & Co., on the State road, about a mile and a half from the city, were visited and attracted much attention by their novelty. Many of our party had never witnessed the operation of the powerful machinery used in such establishments, and were wonder-struck at the facility with which a glowing and jagged mass was converted into smooth and solid rods or bars.

“The Marietta paper mills have undergone complete reconstruction, and are now prepared to supply the press and dealers with any amount and quality of paper.

“On Friday afternoon the association was complimented with an excursion by special train over the State road to Marietta, a courtesy for which we were indebted to the accomplished Superintendent, Major Campbell Wallace. Mr. J. B. Peck, Master of Transportation; Ira E. Taylor, Auditor; and Mr. John Flynn, Master Machinist; accompanied the party on the trip, which was in all respects a most delightful one. The road and rolling stock are in better condition than we have ever seen them before, and reflect the highest credit upon those officers. There are no rough places in the track, the engines are kept bright and clean as if just from the manufacturer's hands, and even the freight cars are well painted and in an excellent state of preservation. The road, too, is pouring thousands monthly into the treasury, thus proving the hitherto disputed fact that there is more than *one* man in Georgia who has the ability to manage it successfully. In Mr. Wallace and Mr. Peck the Governor has found real treasures, and we hope no inducement will be wanting

to keep them on the road. The railroad depot and offices and all the neighboring buildings, with nearly the whole of the Public Square at Marietta, were destroyed by Sherman's army when they evacuated it. It was a hard and undeserved fate for that beautiful little city, but we are glad to see that it is slowly rising from its ashes."

NEW ORLEANS, JACKSON, AND GREAT NORTHERN RAILROAD.—The great through route between New Orleans and Chicago, which is nine hundred and fourteen miles long, is composed of the following lines of railroad:—

The New Orleans, Jackson and Great Northern Railroad, from New Orleans to Canton, in Mississippi	Miles. 206
The Mississippi Central Railroad, from Canton to Jackson, in Tennessee	236
The northern part of the Mobile and Ohio Railroad, from Jackson in Tennessee to Columbus, in Kentucky, on the Mississippi River	87
Steamboat on the Mississippi River, from Columbus to Cairo	20
The Illinois Central Railroad, Cairo to Chicago	365
Total	914

It was originally intended that the New Orleans, Jackson, and Great Northern Railroad should connect New Orleans with Nashville, in Tennessee, and, in order to accomplish this end, the route, as surveyed, was made to run from Canton in a northeast direction

towards Nashville, until it struck the State line of Tennessee, or the Tennessee River, at the northwest corner of Alabama. That portion of the road, however, between Canton and the Tennessee River, has never been constructed. The route has been surveyed, however, and a portion of it graded. As it presents no formidable engineering obstacles, it may possibly be completed at some future period, if the prosperity of the south should justify the undertaking.

By the first of December, 1860, the road had been completed with a single track, together with the necessary side-tracks, depot buildings, and water stations, from New Orleans to Canton, in Mississippi, a distance of two hundred and six miles, in a substantial and permanent manner, equal to any railroad in the United States.

On that portion above Canton, known as the extension, twenty-six miles had been graded, at a cost of two hundred and twenty thousand dollars, and an additional section of fourteen miles to the town of Kosciusko was under contract, and was completed during the year 1861; another section, extending south from Aberdeen, Mississippi, to the intersection of the Mobile and Ohio Railroad nine miles, was under contract, the grading of which was nearly completed and ready for the rails. In addition to the work done on the above nine miles, more or less work had been done upon about forty miles of the line through Munroe County, above and below Aberdeen, at an expense of about eighty-five thousand five hundred dollars.

The amount expended in the construction of the road from New Orleans to Canton, Mississippi, including

the right of way, real estate, depot buildings, station houses, iron rails, wood and water stations, and workmanship of all kinds, up to December 1st, 1860, was \$5,549,211 81

For locomotive engines, cars, tools, etc., in the machine shop 1,044,661 20

For grading, right of way, and real estate, etc., north of Canton 445,000, 00

Total cost of road and rolling stock \$7,038,873 01

The amount of indebtedness for money borrowed upon first mortgage bonds was \$2,645,000 00

Loans from the State of Mississippi 205,000 00

Amount of bills payable 735,335 73

Total loans and bills payable \$3,585,335 73

The net earnings of the road, for the year 1860, were over half a million of dollars (namely, 556,712). The equipment of the road, at that time, amounted to forty-five locomotives, thirty-seven passenger cars, nine baggage cars, and five hundred and three freight cars.

The total earnings of the road, from freight, passengers and mails, for the—

Twelve months ending	Dec. 31st, 1857, were	\$277,088 24
" " "	" 31st, 1858, were	593,093 69
" " "	Nov. 30th, 1859, were	954,951 56
" " "	" 30th, 1860, were	1,272,862 87

Showing a regular increase of more than three hundred thousand dollars each year since 1857, notwithstanding the interruptions to the traffic from the extra-

ordinary storms, crevasses, and short crops of the years 1859 and 1860.

On the 1st of January, 1862, the whole road from New Orleans to Canton, Mississippi, was in the best possible condition, being better than any railroad in the south, as regards capacity, rolling stock, &c.

The earnings of the road from the transportation of freight and passengers, during the year 1861, were over a million of dollars (namely, 1,128,537). The cost for the same, including repairs of the road, engines, cars, &c., was five hundred and thirty-one thousand five hundred and ninety dollars, yielding a net revenue of five hundred and ninety-six thousand nine hundred and forty-seven dollars, which was applied to the reduction of the floating debt, payment of interest on loans, and the extension of the road.

On the 24th of April, 1862, the rolling stock and locomotives of the Company were taken possession of by Major-General Lovell, and removed to that part of the road north of Ponchatoula, where it remained under his absolute control for twenty days. It was then returned to the control of the officers of the road, who continued to manage the same during the years 1862, 1863, 1864, and a portion of 1865, up to the date of the surrender of the department by General Taylor. On the 27th of August, 1862, the Directors, who were then in Mississippi, met in the town of Canton, and fixed the temporary domicile of the Company at that place. They held regular board meetings, and their attention was given to the business of the Company for a period of eight months, subject to the control of the Confederate military authorities.

About the middle of April, 1863, the country through which the road passes was disturbed by the raid of General Grierson, and subsequently by the invasion of General Grant, and General Sherman, in May. At that time, Jackson, the capital of Mississippi, was captured, and much of the road in its vicinity was torn up and destroyed. In the years 1863 and 1864, the rolling stock and locomotives belonging to the road were destroyed by the contending forces, or rendered unfit for service.

On the 7th of June, 1865, an order was obtained from Major-General Canby, directed to the proper officers, to turn over that portion of the road and some of the rolling stock then in their hands, to the possession and control of the President and Directors of the Company. The severe illness of Colonel Holabird, the officer in charge, delayed the execution of this order until the 24th of June, when that portion of the road in their possession, and some of the rolling stock, were received for the use of the Company. Shortly afterwards the machine shop was given up and the tools in the same restored to the use of the Company.

At the time the road was turned over to the Board of Directors, it was being used, and was in good condition as far as Ponchatoula, forty-seven miles north of New Orleans. From that point to Brookhaven, a distance of eighty-one miles, the road had not been used since the spring of 1863, as most of the bridges, between those points had been destroyed by the different armed forces traversing that section of the country. That portion of the road not having received any attention since 1862, it became enveloped

with briars, bushes, and grass, the undisturbed growth of three years, thus causing, by shade and moisture, the decay of the pine timber used in its construction. There was scarcely a single bridge on that section that was not wholly or in part destroyed by fire, or rendered unfit for use by decay. Of the cross-ties on this section, fully three-fourths had to be replaced to render the road safe for the transit of cars and locomotives. From Brookhaven to Jackson—a distance of fifty-five miles—the road, though dilapidated, was in use, save some two and a half miles immediately south of the latter place, where the road-bed had been torn up and bridges and cross-ties burnt.

From Jackson to Canton, the present terminus of the road, a distance of twenty-three miles, the road, though much out of repair, having been often torn up and destroyed, was still being used. Of the splendidly equipped road of 1861 and '62, of the forty-nine locomotives, thirty-seven passenger cars (many of which had never been used), and five hundred and fifty freight, baggage, and gravel cars, there remained fit for use, though in a damaged condition, between Jackson and Canton, one locomotive, two second class passenger cars, one first class passenger car, one baggage and one provision car, two stock and two flat cars.

On the section between Jackson and Brookhaven, there were in use two locomotives, damaged, having been partly burned; four box cars, one of which was used for passengers, and nine flat cars. All the other locomotives had been burned or damaged by time and exposure and rendered unfit for service. The amount of rolling stock turned over to the Company by the mili-

tary authorities at New Orleans consisted of one locomotive, one passenger car, four box and ten flat cars, one baggage and two cattle cars.

Of all the depot buildings and platforms attached, wood-sheds and water stations, and division houses, which were in complete repair in 1862, there remained only the buildings at Osyka, Magnolia, and Summit; the remainder having all, from time to time, been destroyed by the armed forces in their vicinity.

Such was the general condition of the road, and the amount of rolling stock and motive power, when it was placed under the control of the present Board of Directors, on the 24th of June, 1865. Of its financial condition, it need only be said, there was not a dollar of available funds in its treasury. To rebuild the road and restore its shattered finances was the first work to which the Directors addressed themselves. Workmen were immediately employed to rebuild the bridges, commencing directly north of Pontchatoula. Other portions of the road were also undergoing repairs, and every effort, commensurate with their ability, was used to render the road, in its entire length, fit for use at the earliest day. On the 3d of July, the President of the Company was directed to go to Washington to negotiate with the Government for rolling stock, and to make postal arrangements for the transmission of mails over the road. Contracts for mail service were made on the same terms as with other southern roads at this time. The negotiations for rolling stock and locomotives resulted in a promise on the part of the Government, that when the stock belonging to the Government was sold, the

several roads in the south would be permitted to purchase, for their respective Companies, amounts according to the length of road. Since that time there have been purchased, for this road, ten locomotives and one hundred and ninety freight cars.

Since the 24th of June, 1865, the date of the possession of the road in its entire length by the Company, there have been built and repaired ninety bridges, measuring three thousand five hundred feet; fifty thousand cross-ties have been purchased and placed in the road-bed; all of which, together with the large increase of rolling stock, tools &c., has been done with the earnings of the road during the time, and without borrowing a dollar, or incurring any debt, except the one to the United States Government for engines and cars.

On the 2d of November, 1865, the Board of Directors elected General Beauregard as President of the Company; and he was re-elected in February, 1867. General Beauregard has devoted his whole time, with well-known energy and ability, to restore the road to its former high position, as one of the most substantial and permanent in the country.

By the end of the year 1866, under the energetic management of General Beauregard, the condition of the road had become very much improved. Many of the depots and section houses destroyed during the war had been rebuilt; and passenger trains ran regularly from New Orleans to Canton, two hundred and six miles, in thirteen hours. The rolling stock now includes twenty-seven locomotives, thirty passenger cars, nine baggage cars, and two hundred and

fifty freight cars. The earnings of the road for the year 1866 were over a million and a half of dollars (namely, \$1,628,134). The present indebtedness of the Company amounts to about the same sum.

In May, 1866, General Beauregard, the President of the road, and two of the directors, were appointed commissioners to confer with the Northern and European first mortgage bondholders relative to the outstanding coupons and interests due them, and which the Company was unable to meet. This inability was solely owing to the troubles which had prevailed in this country, and which had left the road in a most dilapidated condition. The Commissioners repaired immediately, by way of New York and Liverpool, to London, where they met and conferred with some of the most prominent bondholders. They were everywhere received with great kindness and liberality, and the following agreement was entered into with the London bondholders, to be submitted to the other bondholders, namely: To deposit with trustees the matured coupons held by them of the first mortgage bonds of the Company, including the coupons due July 1st, 1865, and to receive, in lieu thereof, the second mortgage bonds of the Company at par. In case of failure on the part of the Company to meet their new obligations in the payment of the interest on the second mortgage bonds thus issued, or on the first mortgage bonds (commencing with the coupons due Jan. 1st, 1867), then the bondholders to reclaim their first mortgage bond coupons and surrender the second mortgage bonds which were issued for them, thus plac-

ing them in their original position with their first mortgage lien upon the road.

The Company has a large claim against the United States Government for railroad iron and other materials taken by the United States forces during the war, properly receipted for by the Government officers on taking possession of the same. This amount will no doubt be accepted by the Government in part payment of the sum of seventy-two thousand one hundred and seventy-three dollars, due by the Company to the Government, for rolling stock bought at New Orleans and Nashville since the close of the war.

Thus it will be seen that the monetary condition of the Company is most encouraging, and that, with continued watchfulness over its affairs, and economy in the expenditure of its constantly increasing receipts, the obligations of the Company towards its bondholders and other creditors will certainly be met at maturity; and that, before many years, the road will become a source of profit to the States of Louisiana and Mississippi, the city of New Orleans, and the other stockholders.

CHAPTER XXXIV.

MEMPHIS AND CHARLESTON RAILROAD.

THE through route between Memphis and Charleston, in South Carolina, which is seven hundred and fifty-six miles long, is composed of the following railroads:—

Memphis and Charleston Railroad, from Memphis to Stephenson, in Alabama	Miles. 272
The southern part of the Nashville and Chattanooga Railroad, from Stephenson to Chattanooga.	38
The Western and Atlantic Railroad, from Chattanooga to Atlanta, in Georgia	138
The Georgia Railroad, from Atlanta to Augusta, on the Savannah River	171
The South Carolina Railroad, from Augusta, in Georgia, to Charleston	137
Total	756

The Memphis and Charleston Railroad was designed, at first, to furnish an air line route between those two cities, and in order to accomplish this, a route was selected and surveyed between Decatur, in Alabama, on the Tennessee River, and Atlanta. But this road, as thus surveyed, has never been built. The route in use at present, although reasonably direct, is not an air line. The road from Memphis to Stephenson, two hundred and seventy-two miles, was built about the year 1850, and was in full operation in 1851. From

that time till 1861, its operations were conducted with great success, and to the entire satisfaction of the stockholders. The want of such a road had long been felt, and its completion, together with the subsequent completion of its extensions to Charleston, as above, gave the planters along its route the means of rapidly transporting their crops, at reasonable rates, to Charleston, whence they were shipped to New York and Liverpool by steamers. The completion of the road, and the facilities that it thus afforded, acted as a powerful stimulus to production. All the plantations, for miles on each side of the route, were worked to their fullest extent, and thousands of acres were added to the cultivated lands, each succeeding year. The productions of the southern part of Tennessee, and of the northern part of Mississippi and Alabama, rapidly increased each year: and the prosperity of the road itself, owing to its increased business, became so much enhanced by the year 1860, that the project of commencing to build the air line connection, between Decatur and Atlanta, was seriously entertained. This project, perhaps, would have been carried out at that time, had it not been for the breaking out of the war. That event, however, disarranged all plans of this kind.

The road, however, was operated as usual until the eleventh of April, 1862, and proved to be of great use to the south, in the transportation of troops and military supplies during the first year of the war. On the 9th of January, 1862, the directors were able to declare a dividend of $33\frac{1}{3}$ per cent. on the profits of the road.

On the eleventh of April, 1862, the United States

military forces, under Gen. Mitchell, occupied Huntsville, Alabama, and took possession of the road from Stephenson to Tusculumbia, together with eighteen locomotives, one hundred freight cars, a large number of passenger cars and some baggage cars, the shop at Huntsville with its tools and material, and a large amount of wood, cross-ties, and other valuable property on the line of the road between Decatur and Stephenson. Five days before this capture, the bloody battle of Shiloh had been fought near the line of the road, north of Corinth. The Confederate troops were falling back to their intrenchments at Corinth, and the Federal army was pressing up the line of the road near Big Bear Creek.

Immediately after the capture of Huntsville, the Confederate commander at Corinth gave orders for the remainder of the rolling stock west of Huntsville to be concentrated at and west of Corinth with the least possible delay. The Federal army was then moving rapidly in order to frustrate this movement, and, under the excitement and haste attending the surrounding scenes, it was made in great confusion, and much loss of property necessarily took place. The pressing necessity for railroad aid, and the exciting scenes in and around Corinth from the eleventh of April, to the 30th of May, incident to a heavy and determined siege, and the concentration of two immense and hostile armies, taxed the road, its rolling stock, and the energies of its officers and men to their utmost capacity, day and night.

On the 29th of May, 1862, the Confederate forces at Corinth, and on the line of the railroad, retired south-

ward, and by the order of the military authorities of the Confederacy, all the machinery and rolling stock were carried to points further south, by way of the Mobile and Ohio, and Ohio and Mississippi Central Railroads.

Before the last trains leaving Corinth could reach Cypress Creek, thirteen miles west of Corinth, the bridge across that stream was burned, preventing the further progress of trains, which, by military order, were abandoned and partially destroyed. The road lost four locomotives, one passenger car, and thirty-two freight cars.

A subsequent order located the machinery and rolling stock at Marion Station, on the Mobile and Ohio Railroad, five miles north of Meridian, in Mississippi, at which place the Company erected a temporary shop. The repairs of engines and cars were commenced here, and continued till June, 1863, during which time military requisitions were made, and the stock taken and distributed on the Selma and Meridian, and southern railroads. In July and August, 1863, nineteen locomotives and eighty-three passenger and freight cars were removed to Montgomery, in Alabama, by order of General Pemberton, incurring water transportation of twenty miles. After the arrival of the rolling stock, &c., at Montgomery, the Quartermaster-General of the Confederate States army distributed it all, except six passenger cars, on various southern roads, where it remained till the close of the war. The rolling stock, tools, and materials remaining at Montgomery, in Alabama, were all destroyed by General Wilson's United States forces. A large amount of the rolling stock on

the different roads in North Carolina, South Carolina, and Georgia, was subsequently burned and destroyed by the troops acting under Gen. Sherman.

In August, 1862, the northern part of Alabama was evacuated by the United States forces, and in the fall of that year, the road being clear from Decatur to Stephenson, the Company again resumed its possession by order of General Bragg, rebuilt the road between those points, and a portion of the shop machinery, all of which had been destroyed or badly damaged. As soon as rebuilt, they operated this portion of the road until July 1st, 1863, when they were again forced to evacuate by order of General Bragg, taking south what little machinery they had left. From this time until the close of the war, the railroad and most of its property remained in the hands of the Federal forces, being constantly attacked and injured by the Confederates. The contest over this section of the country was so hot that neither party was able to run the road through, after it was first cut, in April, 1862.

Immediately after the surrender of Gen. Taylor, the President of the road, Sam. Tate, Esq., proceeded to Washington and procured from President Johnson a special pardon. He then made application to the President for the restoration of the railroad property to its owners. President Johnson informed him that the property would be so restored as soon as the Company was reorganized, and a Board of Directors chosen whose loyalty was undoubted. Mr. Tate at once advertised for a meeting of the stockholders to elect a Board and reorganize the Company. This was done in July, 1865. Mr. Tate went to Washington and presented

the organization to the President, who approved it. On the 8th of August the President gave an order to the Military Commander of the Division of the Tennessee to turn over to the Company the railroad and property belonging to it. The President of the road then went to Nashville, to get the approval of Gen. Thomas, and an order for the surrender of the property which the President's order required.

This he succeeded in getting on the 1st of September, 1865, and on the 3d, the eastern division of the road, from Stevenson to Decatur, eighty-four miles, was turned over by the United States military authorities to the Company. On the 11th of September, the western division, from Memphis to Pocahontas, seventy-four miles, was likewise surrendered. This left the gap from Pocahontas to Decatur, one hundred and fourteen miles, almost entirely destroyed, except the road-bed, the iron rails being in very bad condition. Every bridge and trestle on this part of the route was destroyed, the cross-ties were rotten, the buildings burned, the water-tanks gone, the ditches and drains filled up, the track grown over with weeds and bushes. There was not a saw-mill near the line; and the labor system of the country was gone. About forty miles of the track was burned, the cross-ties entirely consumed, the rails bent and twisted, and many of them destroyed.

What little rolling stock the Company had left was principally scattered over the south, and had been run for four years without proper repairs; consequently it was not in a condition to be made available without heavy repairs. The Company was not in a condition

to undertake this. They had before them over one hundred miles of the road to rebuild, all the buildings to renew, and nearly three hundred miles of road to equip and run, with but little cash means, and less credit. It was not a very flattering prospect before the Company, to try to rebuild and equip the road, and put it in operation. But great as the embarrassments were, the Directors determined to overcome them, and restore the road to active use, in order that the country might get the benefit of it, and the investment again be made profitable.

In order to equip and run that portion of the road which had been turned over to them by the Government, it was necessary to purchase rolling stock, which could alone be had of the United States Government. They therefore availed themselves of the benefits of the President's order of August 8, 1865, which provided for the sale, to southern railroads, of certain government locomotives and cars. Under the provisions of this order, the Company purchased ten locomotives, two hundred and twenty-six freight cars fourteen passenger cars, tools for the shops at Huntsville and Memphis, and a large amount of road material and shop fixtures, amounting in all to four hundred and ninety-one thousand nine hundred and twenty dollars. By this purchase the road was organized once more on a working basis, and had time to get home such of their own rolling stock as could be found and have it repaired. The Government also turned over to the Company eighteen locomotives that had been seized on the road, which added much to the

ability of the Company to prosecute needed repairs, and do such business as was offered on the line.

The work of construction equipping and reorganizing the road, was prosecuted with all the vigor and energy that the means of the Company and the condition of the country and its labor would admit. It was operated as fast as repaired, and on the 6th of November, 1865, trains were run over the entire main line, with but one break, the bridge at Decatur, across the Tennessee River, over one thousand seven hundred feet long, having been destroyed.

The Company was compelled to transfer freight and passengers by steamer at that point. A contract was made in October, with Albert Fink, of Louisville, Ky., one of the most experienced and reliable bridge builders in the country, to rebuild the bridge at that point with the least possible delay, but the scarcity of suitable lumber, and the high water in winter retarded its progress to some extent, so that it was not completed and ready to pass trains over it until July 7th, 1866. It is a first-class bridge, of the Fink V. patent, with wrought iron bottom chords, and wooden top chords covered with tin, and wooden braces so arranged that any one of them can be removed without interruption to passing trains, combining, probably more strength, durability, and economy, than any bridge now constructed, with less liability to accident than any bridge except those built of iron.

For two years past, and ever since the completion of this bridge, the road has been operated with great regularity and success. It forms a part of the great through line between New York and Memphis, by

way of Washington, Lynchburg, Knoxville, and Chattanooga, and through trains on this route are now running daily. The distance from Memphis to New York, by this route, is eleven hundred and sixty-four miles. The road is now well supplied with rolling stock including locomotives and passenger cars of the most approved construction, and the track and road-bed are in perfect order. The management of the road is excellent. Every person employed by the Company is required to be of good character, and to be faithful and zealous in the Company's service.

In his Report, made July, 1, 1866, the President of the road urges the importance of constructing, at an early day, a branch of the road from Decatur to Montgomery, in Alabama, running nearly south from the former point. This enterprise seriously commends itself to the support of the citizens of Alabama, as it will be of immense advantage to them when completed, and it will no doubt be undertaken at no distant day.

Mr. Tate, also urges the resumption and completion of the road from Decatur to Atlanta, to which allusion has been made above. On this point he says that the distance will be "one hundred and forty to one hundred and seventy miles. This road completed, the Company would have an air-line from Memphis to Charleston on the shortest line that can ever be built between Charleston and the Mississippi River three-fourths of which is now completed, on what is practically an air-line. When this road is finished you can defy all competition for the imported goods from New York and other eastern cities, as well as the manufactured articles from New England and other northern

manufacturing districts, to be consumed in the Valley of the Mississippi south of the mouth of the Ohio, as well as for western produce, to be distributed over its entire line. By steamer from New York to Charleston you have the cheapest transportation for a like distance known. The time is two and a half days; the distance by this line to Memphis is six hundred and sixty-five miles, and could be run in two and a half days by a day and night freight schedule, allowing twenty-four hours for transfer at Charleston, and you have six days between New York and Memphis, and the shortest rail line that can ever be had between the points named. The time and the price would settle competition for all eastern goods to be consumed on the line, as well as at Memphis or south of that point, as low as the mouth of the Arkansas River.

“From St. Louis to Memphis is two days' run of steamer; goods can be placed on the cars at Memphis from St. Louis at twenty cents per hundred pounds; from that to Charleston the time would be two and a half days; allowing twelve hours for transfer, would give five days between St. Louis and Charleston. The time and price here would again give you loaded cars going East, every mile of the line requiring Western produce. These lines would all be then in one interest, and would be worked as one company, without change of cars—another great inducement, as it adds facility to transportation, saves labor and liability to damage and pillaging while transferring. The distance being sixteen miles nearer from Atlanta to Savannah than Charleston, the same advantages would accrue to you for the trade of that line. If this line was com-

pleted, the distance from Memphis to Atlanta would be three hundred and fifty-eight miles against four hundred and forty-seven, *via* Chattanooga. The distance by rail from Louisville to Atlanta is four hundred and seventy-four miles. Should Cincinnati ever build a line direct to Chattanooga, it will be at least four hundred and fifty miles from Cincinnati to Atlanta.

“I cannot urge upon you too strongly the importance of this connection, even if you had to build it unaided, whenever your finances would admit of it. The line is a practical one, and most of it can be built cheap, and when built, secures yours as one of the heaviest freight lines south of the Potomac and Ohio Rivers, and gives permanence to the value of your property, and secures your power as the great through line between the Atlantic Ocean and the Mississippi River, without a successful rival. The investment is bound to be profitable, and no fears need be entertained on that subject.

“New sources of labor and wealth will be established; your lands will be divided up into smaller plantations, accommodating a much larger population that will cultivate them to greater advantage, producing double what they now do, and supporting double the population; your rich mineral resources will invite capital from the North and elsewhere to develop your iron and coal fields, equalled in quantity, quality, or the ease and cheapness with which they can be worked, by none on this continent; your splendid water power, abundant provisions and healthy climate, will invite the cotton and woollen manufacturer to such points as

Shoal Creek and Cypress Creek, and the Muscle Shoals on the Tennessee, to build up manufacturing establishments, where the raw material and provisions can be grown within sight of the factory, and a home market for everything you produce be provided, thereby saving the heavy cost of transportation now paid to get the raw material to the factory and to return the manufactured product to the consumer, as well as the cost of transportation of provisions to feed the operatives. These inducements will soon produce the results named, and prosperity will spring up from all quarters. We will be astonished at the vast recuperative energies of a country and people who have so recently been overrun and their country desolated by the ruthless hand of war. Eventually your property will recover from its immense losses, and be much more valuable and permanently profitable than before the war; and finally, it is to be hoped, it will be proved to us that Providence, in its wisdom, has sent to us our misfortunes as blessings in disguise; and if we are not permitted to enjoy them ourselves, our children will be. Let us all go to work in good earnest; act our part well, and in good faith; do our duty to ourselves as well as others, and leave the consequences to Him who rules our destiny."

The officers of the Company are: Samuel Tate, President; W. J. Ross, General Superintendent; James L. Meigs, Chief Engineer.

CHAPTER XXXV

ORANGE AND ALEXANDRIA RAILROAD.

THIS road extends from Alexandria, in Virginia (near Washington), to Lynchburg, in the same State, a distance of one hundred and seventy-eight miles. It forms a part of the great through route between New York and New Orleans, by way of Philadelphia, Baltimore, Washington, Gordonsville, Knoxville, Chattanooga, Grand Junction, and Jackson, in Mississippi. The Company was chartered by the State of Virginia in March, 1848; and an extension of the charter was made in 1852. The branch road to Warrenton, which was very much needed, was completed in 1852, and proved of great benefit to the inhabitants. The road was finished from Alexandria to Gordonsville in 1854; and from Gordonsville to Lynchburg in January, 1860. The capital stock of the Company is two million sixty-three thousand six hundred and fifty-nine dollars. At Gordonsville, the road connects with the Virginia Central Railroad, running from Richmond to Covington, by way of Charlottesville and Staunton. At Lynchburg, the termination of the road, it connects with the Virginia and Tennessee Railroad for Knoxville; and with the Petersburg and Lynchburg Railroad for Richmond and Norfolk. It will also connect at Lynchburg with the Lynchburg and Danville Rail-

road, when the latter is completed to Danville, and will thus form an almost air-line route from Alexandria to Charlotte in North Carolina.

This railroad was of immense advantage to the Confederates during the recent war, as it enabled them to transport rapidly large bodies of troops from all points in the south to the line of the Potomac, which was, for so long a period, the frontier between the two contending parties. To destroy and cripple this road, therefore, became an object of the first importance on the part of commanders of the Federal troops. But, as the Confederates retained possession of the country between the Potomac and Rappahannock (except in the immediate vicinity of Washington) during the greater part of the time until General Grant began his overland campaign, there was no very favorable opportunity for extended destruction. On one or two occasions, indeed, parties of cavalry succeeded, in a few hours, in destroying several miles of the track, as well on this road as on the Virginia Central and the Petersburg and Richmond roads. But these occurrences were always provided for in advance. Supplies of new rails, and of all materials needed for repairs, were kept constantly on hand. Construction trains were instantly put in motion, and in a few days all the damage was repaired, and trains were running as usual.

The country through which the Orange and Alexandria Railroad runs was the great battle-ground of the war, during almost the whole contest, from the first of May, 1861, until the summer of 1864. On the 21st of July, 1861, the first battle of Bull Run was

fought near Manasses Junction; and from that time till February, 1862, the Confederate lines were advanced close to the vicinity of Washington. While General McClellan's Peninsula campaign was in progress, from March to August, 1862, the road was not used by either party. No sooner was General McClellan's army withdrawn from the Peninsula, however, than the road began to be again used by the Confederates, in moving troops towards Washington. General Pope used it also, for the transportation of the supplies for his army, from Alexandria to Culpepper, early in August, 1862. His disastrous defeats, the second battle of Bull Run on the 29th of August, and the retreat of the Federal army to Washington, followed; and then the road remained in the hands of the Confederates until the middle of November, 1862. At that time the army of the Potomac, under General Burnside, was at Warrenton Junction, on its march to Fredericksburg, and the use of the road was divided. The Confederate army ran their trains upon it from Lynchburg to Culpepper; and the Federal army used it for transporting *their* supplies, from Alexandria to Warrenton Junction. Thus matters remained till the 3d of May, 1863, when the army of the Potomac, under General Hooker, was defeated at Chancellorsville near Fredericksburg. The army under Hooker retreated to Washington early in June, and by the 16th of that month the whole road was in the possession of the Confederates.

The month of August, 1863, found both of the contending armies south of the Rappahannock. The invasion of Pennsylvania by General Lee, and the battle of

Gettysburg on the 3d of July, had taken place, and then General Lee, retiring into Virginia on the western side of the Blue Ridge, had taken up a very strong position south of the Rapidan. This position was known as Mine Run; and after making several ineffectual attempts to drive General Lee from it, General Meade, with the army of the Potomac, went into winter quarters near Culpepper. Thus matters remained until General Grant began his overland campaign against Richmond, on the 3d of May, 1864. The road from Washington to Culpepper was used by the Federal army, and from Lynchburg to Orange Court House by the Confederate army; and proved very useful to both, until the end of June, 1864, when General Grant began his operations against Petersburg. From that time to the end of the war the road was not used to any extent by the Federal army, as a military road, although it was used to a limited extent by the Confederates, until the fall of that year.

Since the close of the war, the track has been put in excellent order, and a daily train is run each way over it, carrying the great mail between New York and New Orleans. The business of the road is steadily increasing, and there is every prospect that the earnings for the year 1868 will be quite satisfactory to the stockholders. The officers of the Company are John S. Barbour, President; H. W. Vandegrift, Superintendent; Anthony McLean, Auditor.

CHAPTER XXXVI.

RAILROADS IN TEXAS.

THE vast and illimitable resources of Texas have scarcely yet begun to be developed; nor will they be fully developed, until the various railroads in that State which are now projected, and some of which are in progress, shall have been completed. Texas was an independent nation—an empire of itself—before it became one of the United States; and it yet possesses its imperial domain, of which Daniel Webster gave such a glowing description. When Texas was annexed to the United States, in 1845, it was stipulated in the articles of annexation, that, as the population increased, four other States might be made out of its immense territory, which States, when formed in the usual manner, were to be received into the Union on the same footing as the original States. Texas is quite large enough thus to make five States. It comprises two hundred and thirty-seven thousand square miles; equal, in territorial extent, to five States of the size of New York or Pennsylvania; or equal to the six States of New York, Pennsylvania, Maryland, Ohio, Indiana, and Illinois. It is already probably the greatest cattle raising State in the Union, and the soil and climate are admirably adapted to the raising of wheat and corn. The following remarks of Judge Robertson on this

subject, although spoken in reference to Louisiana, the adjoining State, apply equally well to Texas.

“ Our seed should come from Missouri, Tennessee, or Texas. The Mediterranean varieties would suit us best, perhaps. Wheat with us should be planted in September, October, or November. It is a beautiful season for preparing the ground. It may then be reaped in the last half of April and May, a time usually selected for making brick, on account of its fair weather. The daily quotations show that southern flour, raised in Missouri, Tennessee, and Virginia, brings from three to five dollars more per barrel than the best New York Genesee flour. Louisiana and Texas flour is far superior to the Tennessee, Virginia, or Missouri, owing to the superior dryness, and the fact that it contains more gluten and does not ferment so easily. Southern flour makes better dough and maccaroni than northern or western flour; it is better adapted for transportation over the sea, and keeps better in the tropics. It is, therefore, the flour that is sought after for Brazil, Central America, Mexico, and the West India market, which are at our doors.

“ A barrel of strictly southern flour will make twenty pounds more bread than Illinois flour, because, being so much drier, it takes up more water in making up. In addition to this vast superiority of our grain, we have other advantages over the Western States in grain-growing. Our climate advances the crop so rapidly that we can cut our wheat six weeks before a scythe is put into the fields of Illinois; and being so near the Gulf, we avoid the delays in shipping and the long transportation, the cost of which consumes nearly

one-half of the product of the West. These advantages, the superior quality of the flour, the earlier harvest, and the cheap and easy shipment, enable us absolutely to forestall the West in the foreign demand, which is now about forty millions of bushels annually, and is rapidly increasing, and also in the Atlantic seaboard trade.

“Massachusetts, it is calculated, raises not more than one month’s supply of flour for her vast population. New York, not six months’ supply for her population, and the other Atlantic States in like proportion. This vast deficit is now supplied by the Western States, and the trade has enriched the West, and has built railroads in every direction to carry toward the East the gold-producing grain. We can, if we choose, have a monopoly of this immense trade, and the time may not be far distant when, in the dispensation of Providence, the West, which contributed so largely to the uprooting of our servile system and the destruction of our property, will find that she has forced us into a rivalry against which she cannot compete, and that she will have to draw not only for supplies of cotton, sugar, and rice, but even her breadstuffs from the South.”

George Wilkes Kendall, Esq., the well-known and genial editor of the *New Orleans Picayune*, whose long residence in Texas made him perfectly familiar with the resources and capabilities of that superb country, thus speaks of the railroads of Texas, and the need of reliable labor there:—

“I find Indianola much improved since I was here in August last—new buildings up and going up, old

ones repaired and freshly painted, and numerous unmistakable signs of prosperity. I have heard, too, the joyous jingle of Mexican castings, as the silver dollars from the other side of the Rio Grande are called; they are ringing their merry chimes on all sides. And all is life and bustle, too, and the faces of men are glad and hopeful. One great cause of this, independent of a prosperous season, is the fixed fact that the railroad to Lavaca is soon to be built, and that the work beyond Victoria, in the direction of San Antonio, is immediately to be pushed forward. When called upon the other day for the sum of fifteen thousand dollars, to make up the amount necessary to commence work between this and Lavaca on the road which is already graded, sixteen thousand were subscribed in a single evening, and many have not as yet put down their names. Mr. Warner, who represents a company of rich British capitalists, and Mr. Julian, a competent English engineer, have just completed a thorough survey of the route between Indianola and both Austin and San Antonio, are perfectly satisfied, and are at once to leave for England with the intention of bringing out laborers, rails, and all the rolling stock necessary. As far as Concrete, in De Witt County, the road will soon be under construction, and once there, it will soon be branching off either to San Antonio or Austin—probably to both. I give you the common talk of the town, all jubilant over the flattering prospects for early railroad communication with the interior. If I have a leisure half-hour on the way up to San Antonio, I will drop you another line on this subject—certainly, after reaching that city. The introduction of English

laborers to work on the road is certainly important to Western Texas; they will all settle down after the railroad is completed, and help materially to develop the rich resources of the region.

“Messrs. Hughes & Lily, who have established a beef-packing establishment here on a large scale, are still unable to supply the great demand upon them. They are sending their beef to Mobile and Pensacola, as well as New Orleans, where it is pronounced equal, if not superior, to the same article sent down the Mississippi from the West. They are enterprising men, deserve success, and will undoubtedly achieve it.

“The steamship Mexico went out this evening with some four hundred and fifty head of cattle, for New Orleans. She returns immediately, and her next load of beeves will be taken to Havana. The time may come, and sooner than many expect, when our Cuban neighbors will be regularly supplied with Texan beef, and much cheaper than they can raise it at home. As I am now writing, a large drove of beeves is passing the door, to be shipped to-morrow for New Orleans.

“I must again recur to the subject of foreign emigration. Finding out, to my cost, that no contract made in Europe is binding in this country, under our present laws, would it not be well for our legislators immediately to pass an act by which we can enforce the terms of a regularly signed and stamped contract? If I understand the matter, our present law was passed to prevent the introduction of Coolies for a long term; it operates as an incentive to Germans, French, Irish, Scotch and all to openly violate the most solemn engagements, and after we have advanced them six

months' or a year's wages, and their passage across seas has been paid by us, they can snap their fingers in our faces, and laugh at us for our folly.

“Texas wants working emigrants; so does Louisiana, and all our Southern States. We want industrious laborers to take the places of the loafing and improvident negroes, who will not work—cannot be made to work under our present laws. The tide of German emigration, constantly increasing, all flows to New York, the great feeder of the West. In New York they want emigrants with money to pay their way across the ocean in the first place, their railroad fare out to Wisconsin, Minnesota, and other Western States in the second, and have enough left to purchase farms when they get to their journey's end. For the New Yorkers it is a money making business all round; to an extent they own the ships, the railroads, and the wild lands of the West—lands which, once under cultivation, furnish them with increased business. We of the South want emigrants who can pay their way and purchase their lands after they get here; but we cannot, to any extent, divert the great current setting towards New York. But one thing we can do, either by the exertions of individuals or the enactments of legislatures, and that is to bring over an immense number of stalwart laborers who are willing and most anxious to come, but who have not, and never can have, the means to pay their way. Hundreds of thousands, yes, millions of lusty laborers in the European States, who can barely earn enough, by working from daylight until dark, to keep starvation from their doors, would throw up their hats for joy could they have their pas-

sages paid to any Southern port. And for forty dollars a head, a sum which they could earn in four months in Texas, first-class laborers could be brought over, and the wealth their strong arms would add to the State would soon cover all this expense.

"In a conversation at Galveston the other day, with Mr. Flake, of the Bulletin, he told me that laborers, unable to pay their own way, could at once be thrown upon the prolific soil of Texas, if the State would but simply furnish the passage money. Ten thousand, or even five thousand of such laborers thrown into Texas this season, would be of incalculable advantage—would prove a greater source of stable wealth than the discovery of a gold mine richer than those of California.

"But how could Texas undertake such a job? This question will be asked. Surely there is legislative wisdom enough in the State to adopt some plan, some system which would be advantageous to the laborers, their employers, and the public coffers at the same time. The passage of a law that the State should simply hold a claim upon the services of the emigrants until the expense of bringing them over was refunded might do, and thousands of farmers and planters would cheerfully advance this amount if the service of the foreigner could be insured to them a single year, of course with the hope that he might, by kind treatment, be induced to work on for a longer period, or until he had secured the means to purchase a place of his own.

"The throwing of fifty thousand stout German laborers upon our soil would have a better effect upon the freedmen than any philanthropic acts of their

northern friends—so-called philanthropic. It would open wide their eyes to a fact that they now seem to ignore—the fact that we could get along without their labor. There is work, and more than work for all of them, and hundreds of thousands besides, and competition in the labor market would draw out whatever there may be of industry in them. Of this I am certain. A large number of negroes now congregating about our cities, towns, and villages, must die off—they cannot live from hand to mouth long. Among a class of them loafing is chronic; they are doomed, yet there are many who have not become hopelessly and irradicably indolent and worthless, and the influx of a large and industrious working element among them would have a most beneficial effect. At all events, there is no harm in introducing it.

“We came up from Lavaca last evening on the San Antonio and Mexican Gulf Railroad; starting at half-past four o'clock, we got over thirty miles by dark. The windows were wide open; thousands of cattle were seen feeding on the wide prairies; the evening air, after a hot and sultry day, was mild and balmy, and every hundred yards a brood of prairie chickens either ran off across the prairies, or else rose and flew a few yards to settle down again almost within gunshot. It was aggravating to one who has the sporting proclivities I claim to possess, to see covey after covey of these splendid birds so close, and without being able to pay my respects to them with the new breech-loader recently presented me by an old English friend; I could almost fancy I heard the gun rattling in its case, at the close proximity of such noble game, in its

eagerness to 'up and at them.' They may catch it one of these days.

"Some few weeks since the depot of the Company here in Victoria was burned, and the larger locomotive destroyed; but the smaller, a mustangy looking affair, brought us up safely, and more speedily than we anticipated. We should always speak well of the bridge that brings us well over.

"Among the passengers were Judge Paschal, Col. Sehleicher, Mr. J. C. French, of San Antonio, all representing the interests of the railroad, and from them I learned many interesting and cheering particulars in relation to the work they have so much at heart. For some weeks Mr. Warner and Mr. Jullian, the latter a practical English engineer of much experience, have been going over the country and along the route, and have been so well pleased with what they have seen that last evening, as I have previously stated in a letter from Lavaca, the former signed contracts with Messers. French, Paschal and others to set to work immediately to push the road forward to Cuero, thirty miles above this city, and near a fork in the Guadalupe, where there is a fine water-power, and all this to be done with British capital, which Mr. Warner, a gentleman of rare intelligence and driving industry, ably represents.

"The plan of operations is as follows: On the 1st of July the work is to be commenced both on the Indiana branch, which is already graded, and on the regular track between this city and Lavaca, which is now used, but is much out of repair. This part is to be regraded, new yellow pine ties are to be used, the whole route is

to be raised and gravelled, and deeper draining ditches are to be dug on either side. The work is to be done by laborers introduced from England, or in great part, and all is to be finished by this time next year, probably before. The work is then to be started vigorously on the route from this city to Cuero, and finished in less than two years. From Cuero the road will next run either to Austin, drawing the rich trade of that prolific section to Matagorda Bay, or else to San Antonio, and very probably to both. The entire work is to be well done—as well done as on any English railroad—and a rate of speed is to be attained equal to that on a parliamentary train, if not faster. Fancy the citizens of Austin being whirled through to the Gulf in three hours, and the legislative wisdom of Texas obtaining the fine flavored, luscious and most savory oysters of Matagorda Bay before the shells are well dry! And the San Antonio folk can go, come, and be supplied in even less time. Those who have journeyed over these routes on the outside of a pony, as I have often done, and occupied several weary days in doing it, can appreciate the difference when the iron horse jerks us through between a late breakfast and an early dinner.

“I am firmly convinced that such a necessity would follow the completion of railroad communication from the Gulf to Austin, and to San Antonio as well, that more British capital would be piling in upon us. Look at the vast region west, northwest, and north of San Antonio.”

CHAPTER XXXVII.

PROJECTED RAILROADS IN THE SOUTH AND WEST.
THE PACIFIC RAILROAD.

AN article in the January, 1867, number of the "Edinburgh Review," in speaking of some projected railroads in England, says:—

"The time is now come, or is close at hand, when railways may become the ordinary means of communication throughout the kingdom; when the locomotive, having superseded the mail coach and the stage wagon, may enter into competition with the omnibus and the carrier. Trains are no longer unwieldy saurians that can only drag their length along the level for which the spade and the pick must fill up the valley and

'Pare the mountain to the plain to leave an equal baseness.'

Lines can now adapt themselves to the natural features of the country, they can follow the sinuosities of the watercourse and ravine, scale the hill-top and wind down the mountain-side. *Opposuit natura Alpesque nivesque*—yet locomotive engines, ascending and descending by gradients of one in twelve, rolling round curves with a radius of one hundred and twenty feet, have proved themselves able to convey trains weighing from twenty to forty tons over Mount Cenis and the Semmering at the rate of twelve miles per hour and

upwards. Slight and cheap railways fitted to the character of the country they serve have already been constructed in Scotland. Even in France the local authorities have begun to apply to roads the power given them by law to make highways. The Council of the Bas-Rhin, with the aid of the communes concerned, within the last two years has planned and opened some subsidiary lines, and other departments are said to be preparing to follow the example thus set in Alsatia.

“That minor railways admit of being introduced in every part of the British Isles will scarcely be called in question. It is, indeed, estimated by competent engineers that a class of lines having a gauge of three or even three and a half feet, gradients of one in forty, and curves of three hundred feet radius, may be constructed at a cost of three to five thousand pounds a mile, the average cost of the existing English lines having been thirty thousand pounds a mile.”

PROJECTED RAILROADS IN THE SOUTH.—The present railroad route between New York and New Orleans is a very direct one, and nearly on a straight line, from New York to Chattanooga or Dalton, by way of Washington, Lynchburg, and Knoxville. From Chattanooga or Dalton to New Orleans, the route is a very circuitous and round-about one, by way of Grand Junction, on the Memphis Railroad. It is proposed, therefore, to build an air-line railroad from New Orleans to Dalton. The whole route of this proposed road has been surveyed, much of it has been graded between Dalton and Selma, and the track has actually

been laid from Selma to Jacksonville, in Alabama, a distance of one hundred and fifty miles. This portion of the road is in fact in operation, and is known as the Alabama and Tennessee River Railroad.

There remains to be constructed, of the proposed route, one hundred miles between Dalton and Jacksonville, and two hundred and fifty miles between New Orleans and Selma.

PROJECTED RAILROADS IN THE WEST.—Notwithstanding the amazing progress that has been made in the construction of railroads during the last ten years, in all probability the next ten years will see an equally remarkable increase. To say nothing of the railroads in Texas, there are several other important lines of railroad now in progress, and others in contemplation which will doubtless be undertaken, in the west. One of these is a railroad from Chicago to the seaport of Guaymas, on the Gulf of California. The proposed route is by the Chicago, Burlington, and Quincy Railroad to Quincy, on the Mississippi River, or else by the Chicago and St. Louis Railroad to St. Louis; thence by the Southern Pacific Railroad to Kansas City; thence by the general direction of the old Santa Fé trail to Santa Fé; thence down the valley of the Rio Grande to El Paso; and thence across the northern part of Mexico to Guaymas. The route from Kansas City to Santa Fé is said to have been surveyed.

A glance at the map will show to the reader that the route of this proposed railway is the shortest possible line between Chicago, the great commercial emporium of the west, and the Pacific. The distance

is at least one-fifth less than the distance by the most direct route between Chicago and San Francisco. The country through which the road would pass affords a more feasible route through the mountains than any yet found in a more northern latitude. Unlike the more northern Pacific railways, the route does not lay entirely through mountain wildernesses and uninhabited deserts. More than one-third of the whole distance is one of the oldest settled regions in America—a region where the European had “stuck his stake,” was cultivating his fields and feeding vast flocks and herds, while the red man was yet disputing with the Dutch settlers the possession of Manhattan Island.

A recent article in the “Chicago Times” says:—

“The Federal Congress has recently admitted Nebraska to the dignity, equality, and rights of a State, and the territory of Colorado stands knocking for admission, with a prospect that she also will soon be ushered in. The circumstance gives to Nebraska and Colorado an importance in the popular mind which does not really belong to them. People do not take the trouble to know that southward of Colorado lies a territory, equal in extent, having a free white population threefold that of Colorado or of Nebraska, and one-third greater than both of them together. Such, nevertheless, is the fact.

“The total white population of New Mexico in 1860 was eighty-two thousand nine hundred and seventy-nine. In addition to whites, there were ten thousand four hundred and fifty-two Indians, of a class rather superior to those who are allowed to vote under the constitution of Minnesota. There were also eighty-

five Ethiopians, making a total free population of ninety-three thousand five hundred and sixteen. The total population of Colorado, in the same year, including Indians who could be kept in one place long enough to count them, was thirty-four thousand two hundred and seventy-seven, and the total aggregate of Nebraska was twenty-eight thousand eight hundred and twenty-six. The population of Colorado is believed to have decreased, rather than increased, since the census was taken; that of Nebraska has probably somewhat increased; but the population of both together does not equal the present population of New Mexico.

“The comparison is yet more remarkable in other respects. The subjoined table will give some idea of the material and social condition of New Mexico as shown by the census of 1860:—

Occupied land, acres	1,326,470
Improved acres	149,415
Unimproved acres	1,177,055
Farm implements, value	\$194,005
Horses and mules, number	11,255
Milk cows, number	34,461
Oxen, number	26,104
Other cattle, number	29,228
Sheep, number	836,459
Wool product, lbs.	479,245
Wine product, gals.	8,201
Flour and meal, value	\$374,190
Copper, zinc, and nickel	415,000
Capital invested	2,081,900
Assessed value of real and personal property	\$20,838,780

“It will be seen, upon a comparison of these statistics with those of other Territories and States, that

not only was New Mexico far in advance of Colorado and Nebraska, but that in some particulars it was in advance of States long settled, highly civilized, and very radical in politics. The number of sheep in that territory exceeded the number in any State of the Republic, excepting only the States of California, Indiana, Kentucky, Michigan, Missouri, New York, Ohio, Pennsylvania, and Virginia, and the wool product was greater than in any one of the fifteen States now in the Union (including nine of the Southern States which are not now in the Union). The wool product seems to have been greatly disproportionate to the number of sheep, doubtless on account of the difficulty of getting that product to market.

“These statistics reveal the important fact that New Mexico, unlike Colorado, and regions in the same longitude, but of higher latitude, is already an agricultural and grazing country of no small importance. They reveal, moreover, that its inhabitants comprise a fixed population engaged in agricultural pursuits, and not made up, as in Colorado, of mere adventurers in pursuit of gold, here to-day and to-morrow gone. If the growth of the territory since it became an American possession has not been so rapid as some others, it has been at the same time less unhealthy. The population increased between 1850 and 1860 from sixty-one thousand to ninety-three thousand; at the same rate of increase it is not less at the present time than one hundred and twenty thousand.

“This large population, inhabiting one of the most fertile and romantic regions in America, is shut out, by distance and by want of facilities of communication,

from all the great markets of the continent. It needs no remarkable foresight to perceive that the first railway which penetrates New Mexico will find from the moment of its completion a large and remunerative traffic. And the construction of such a road will be the direct means of stimulating the productions of that country, upon a foundation already broadly and permanently laid, with a vigor and rapidity which no portion of America has hitherto surpassed. All that is needed is that New Mexico shall be connected by railway with Chicago. The field of enterprise which invites the attention of Chicago in that direction is one that has long been sown, and is already ripe with a golden harvest."

Another article in the same paper says:—

"Leavenworth now proposes to construct a railway link to connect that flourishing city which the great Chicago line through Northern Missouri, at Cameron. The distance between Leavenworth and Cameron is about the same as between Kansas City and Cameron. The two lines, with the Missouri River, form an acute triangle, the base of which is not more than twenty-five or thirty miles (the distance between Kansas City and Leavenworth). The rivalry between these two cities for commercial supremacy is already lively, and promises to be in future yet more active. Leavenworth has at present the advantage of greater age, greater numbers, and greater wealth than its energetic rival. But Kansas City has the advantage in position, save only in being located just within the border of Missouri. Commercially, it is a city of Kansas, and the most natural entrepot of the extensive region watered

by the Kansas River, as well as of the vast country southward of that stream, embracing two-thirds of the State—a region of prairie and woodland, generally well watered, and capable of sustaining a population as great as the southern half of Illinois. It is this region that the railway system of Kansas is destined mainly to penetrate. The Kansas City and Galveston line crosses it from north to south; the Union Pacific skirts its northern border; the great road already projected to New Mexico passes diagonally through it. These grand trunk lines all concentrate at Kansas City, giving to that point ulterior advantages which no other place on the Missouri River possesses. If Leavenworth expects to retain supremacy as the commercial emporium of Kansas, it is very evident that her inhabitants must be up and doing. This fact they are beginning to perceive.

“Leavenworth County, in Kansas, and the opposite County of Platte, in Missouri, have each voted five hundred thousand dollars to build the proposed link connecting Leavenworth by a direct route with Chicago. The distance is fifty miles; the amount subscribed is therefore twenty thousand dollars per mile, or about two-thirds of what will be required to complete the road. This is an energetic beginning, and looks like a determination to carry the enterprise to a speedy fulfilment.

“A committee of citizens of Leavenworth will arrive in Chicago to-day, to confer with the merchants and capitalists of this city, and solicit their interest in the enterprise. Nothing is or can be of greater importance to this city than the extension of its railway connec-

tions in Western Missouri and Kansas. Every connecting link with the railway system of Kansas is more important than two connections with Nebraska, or any half dozen connections with regions farther north. For roads extending southwestwardly from this city form, as it were, the base line of the vast region whose natural commercial nucleus is Chicago. It is the true policy of Chicago to give all the encouragement in her power to the extension of that base line in a southwesterly direction."

On the 21st of March, 1867, the following article appeared in the same paper:—

"The railway enterprises in Western Missouri and Kansas, having for their immediate object the connection of Kansas City and Leavenworth by direct railway lines with Chicago, are to be followed by an enterprise even more important to a large region of country than either. This is, the construction of a railway from Hannibal, Missouri, to a point on the North Missouri Road in Randolph County, called Mowberly, a distance, by direct line, of about sixty miles. From Mowberly, the route of the North Missouri Road is due west to Kansas City, and this part of the road, with the proposed link to Hannibal, will constitute an air-line from the latter place to Kansas City, and thence, by the south branch of the Pacific, an equally direct line to Fort Riley.

"The legislature of Missouri recently passed an act amending the charter of the Hannibal and St. Jo Road, by which the latter is bound to 'pro-rate' with any and all roads coming to Hannibal on the eastern bank of the Mississippi. This will insure the speedy com-

pletion of the Hannibal and Naples Road, in Illinois, which was all ready for the iron before the war commenced. From Naples to Jacksonville, and thence up the Illinois River Valley to Peoria, and onward by connecting lines to Chicago, trains are now daily running.

“The proposed road from Hannibal to Mowberly will give to Chicago, by the route indicated, the shortest and most direct line of railway to Kansas City—so much shorter than other routes that it will, not improbably, become the great thoroughfare of travel and trade from this point to Kansas, Colorado, and New Mexico. Much of the line from Mowberly to Kansas City is graded, and a large force of men is now at work on it. Over eighty miles of the distance (from the mouth of Grand River to Kansas City) has a grade of not over seven feet in the mile, and on the remainder of the route the grades do not exceed forty feet in the mile. The link from Mowberly to Hannibal is under survey.”

RAILROADS IN IOWA AND MINNESOTA.—The Iowa and Minnesota Railway Construction Company are rapidly progressing in the construction of their lines of road from New Oregon, Iowa, to Owatonna, Minnesota, about eighty-five miles. This line of railroad runs through the garden of Minnesota, and connects St. Paul by rail with Milwaukee and Chicago. It will be the first and nearest connection by rail. They have now in their employ constructing said road about one thousand men. It is expected it will be completed in October of this year, in time to move the crops of the

present season. In anticipation of its completion, the farmers on the line have put under cultivation many thousands of additional acres of wheat lands. The prospects of a large wheat crop tributary to this line of road were never better at this season of the year than at present. The line of road, when finished, will belong to the Milwaukee and St. Paul Railway Company.

RAILROAD TO THE PACIFIC OCEAN.—The railroad to the Pacific Ocean is now fairly under way, with a good prospect of ultimate success, unless unexpected obstacles develop themselves. The route commences at Chicago, on the Dixon and Fulton air-line Railroad, now a part of the Chicago and Northwestern Railroad, and crosses the Mississippi River at Clinton, on a fine, iron railroad bridge. It then proceeds, on the continuation of the Chicago and Northwestern Railroad, to Council Bluffs on the Missouri River, by way of Cedar Rapids and Boonsboro. At this point it crosses the Missouri River, the town of Omaha being on the western side. It then proceeds along the northern bank of the Platte River, through Nebraska, for a distance of about three hundred miles. It is expected that the road will be extended to the base of the Rocky Mountains by the summer of 1868. In the mean time the work is being prosecuted with energy, although not with equal rapidity, from the western end. Starting at Sacramento, ninety-four miles are completed, to Cisco Station, which is twelve miles from the summit of the grand mountain chain of the Sierra Nevada. From Cisco to the summit, most of the heavy

rock cutting is now completed. The highest mountain on the ridge is being pierced by a tunnel which will be sixteen hundred and fifty-eight feet long. Only five hundred feet of this tunnel remain to be cut, and large parties of men are working at it day and night. East of the summit, the descent will be much easier, as the surveys have shown that the great interior basin of Nevada is elevated four thousand feet above the sea level.

The two working parties, working from the east and west, the one from Sacramento and the other from Omaha, are expected to meet each other at Salt Lake City about five years from the present time. A recent article in the *New York Express* says:—

“The necessity for a railroad to the Pacific has been recognized ever since the discoveries of gold on that coast drew thither large numbers of our most energetic people. The more recent discoveries of the precious metals, both in California and the contiguous territory; the demonstration of extraordinary agricultural capacities, and the prospect of a large trade with the Empires of Eastern Asia, have successively added to the original need for railroad communication with the Far West. There is a manifest disability in being obliged to send passengers, mails, and freight through the tropics, across a foreign territory, a distance of six thousand miles; or through the Antarctic Ocean, half round the world, when we might have a short road of our own. The commercial and social requirements of our Pacific Colonies—not to mention the military advantages to the national authority—would long ago have justified the Government in constructing such a

road, if the building of railroads were any part of its functions. The development of a considerable mining industry in the intermediate territories, and a growing population along the temperate belt across the continent, render it at this time a work of paramount importance; since railroads have become prime agencies in expanding our productive power, the arteries and veins of our social organism.

“To encourage such a work of internal improvement Congress granted to three separate routes large quantities of public lands; but the outbreak of war, and the diversion of capital to other channels, delayed the enterprise—which was all the while becoming more indispensable. At last, after examination, Congress came again to the relief of the only route which had made a fair beginning, and generously loaned its credit to an amount estimated to be half sufficient to build a continuous line of road from the Missouri to the Pacific; providing for the repayment by the services of the road, or a small percentage upon its future business. The route adopted for this subsidy, as is well-known, was the Central Route, undertaken by two separate corporations—the Union Pacific, building from this end forward; and the Central Pacific, building from the other end this way. The sum of fifty millions was set apart to be divided equally between these two companies, and a much smaller sum for an Eastern Branch, on this side of the Rocky Mountains; the two links of the main line to build as fast and as far as they could, till a junction was effected; the bonds of the Government being issued in proportion to the length done, and the difficulty of construction. The road is required to be first-

class, and the further grant of twelve thousand eight hundred acres of land per mile may be reckoned among its ulterior resources.

“Under this stimulus the two companies have made commendable progress within the past two years. At this end the Union Pacific had been stretched three hundred miles beyond the Missouri at Omaha, and expects to reach the base of the Rocky Mountains by the close of this year. The connection at the meeting point near Salt Lake City is set down for July, 1871, or six years earlier than the limit fixed by law. The Central Pacific Company, at the other end, being less affected by the war, and powerfully attracted by the immense traffic between California and the rich mining regions of Nevada and Idaho, has made even more gratifying progress; and is relatively at this day nearer completion than the Union. In November last it had ninety-four miles in running order, from Sacramento to Cisco; that is, to within twelve miles of the summit of the grand mountain chain of the Sierras. Grading has been done for some miles beyond, and a tunnel through the crest, now half cut, is all that delays the successful passage of the dreaded mountains. In August next, it is confidently expected the road will have reached the comparatively even surface of the inferior plains. The average ascent in the one hundred miles built is about seventy-one feet per mile; once gained, the elevation is never lost; the greatest elevation being seven thousand and forty-two feet above the sea-level. Nowhere are the grades heavier than on the Baltimore and Ohio, and it is quite practicable to cross with the locomotives at a high rate of speed at all seasons of the year.

“The costliest and heaviest portion of the Central Company’s grading is now done and passed. Iron is being hauled across the mountain summit to be laid at once. In July next, it is expected, the last rock will have been blown out of the mountain tunnels, and the locomotive will be shrieking its glad tidings at the Nevada boundary. The mountain section, of which each Company has one hundred and fifty miles, is so nearly completed on the part of the Central Pacific Railroad Company that the bulk of the difficulty is practically overcome as the course across the plains to Salt Lake is comparatively easy work.

“The cost of building the road from Sacramento to the eastern base of the Sierra Nevadas will be, in round numbers, fifteen million six hundred thousand dollars; or at the rate of one hundred thousand dollars per mile. Five millions more will have been expended by the 1st of July, which will cover a very liberal equipment for that length of road and iron enough for one hundred and fifty miles additional. This is a good sum of money, but the Company has been favored by abundant revenues, viz:—

Donation of San Francisco Gold bearing Bonds	\$400,000 00
U. S. Government Bonds	7,336,000 00
First Mortgage Bonds	7,336,000 00
Convertible Bonds	1,500,000 00
California State Aid Bonds	1,500,000 00
Subscriptions to Capital stock (mostly in Gold)	3,000,000 00
Public Land, 2,000,000 acres	3,000,000 00
Net earnings after interest payments (gold 1865 and 1866)	708,664 42
Net earnings to July, 1867	386,818 27
Total resources for 156 miles	\$25,166,482 69

“It will be seen that only two of these items bear interest for the payment of which the Company is chargeable. The whole interest liability upon this schedule will be, for the present year, but five hundred and forty-five thousand one hundred and sixty dollars in gold; while its net earnings by a moderate estimate will be three or four times that sum.

“As a still further inducement to enlisting private capital in this semi public enterprise, the Central Pacific Company was authorized to issue its own first mortgage bonds to the same amount with the bonds issued by the United States for the purpose which *should have precedence over all others*; that is to say, they are made by law an absolute first lien upon the road, its franchises, improvements, &c. These bonds, it appears, the Central Pacific Company are now offering, to a limited amount (in order to finish the remainder of the road as rapidly as possible), at rates very advantageous to surplus capital. As they constitute a prior claim upon such a valuable property, and are offered at ten per cent. less than the Government bonds, bearing the same interest, they are one of the most profitable and certain investments to be found. So long as there are people, land, law, and property, there must be railroads; and a road lying athwart the continent, through the present centres of population of the Far West, with an immense through traffic waiting for it, is one of the most stable things in existence. These bonds, at the present rate of gold, will pay over eight per cent. and the business profit of the road upon a mere un-

finished fragment is more than four times the amount of interest upon its bonded debt."

An article in the "New York Tribune," on the same subject, says:—

"The chief difficulties apprehended in the construction of the great railroad to the Pacific, high mountain crossings and winter snow obstructions, prove, upon practical test, to be not at all formidable. The two mountain ranges have to be crossed at elevations of over seven thousand feet, or nearly three times the height of any railroad lines hitherto built on this continent. Experience shows that it is entirely practicable, and that the deep snows are not likely to prove very serious obstacles. The Central Pacific Railroad of California, the western end of the great national route, commencing at Sacramento (tide water) in 1863 encountered, at the outset of its career, the mountain difficulty in its worst form; the dreaded Sierras had to be overcome within the first hundred miles. In November last, however, it had carried its track nearly to the summit, and had demonstrated the feasibility of the whole mountain passage with less average engineering resistance than the Alleghanies are crossed, thus disposing of one of the twin fears. During an unusually severe winter just closed, it has successfully operated the road as far as built, and could have done so over the mountains with equal ease. It has had large working parties on the Summit Pass, so as to convince its officers that the other fear of impassable snow-drifts is equally needless. Only three days have the trains failed to make the regular trips, which is far

less interruption than has attended many of the Atlantic lines.

“The whole mountain ascent and descent is now in the hands of the contractors, and nearly graded, developing a feasible and favorable line, the most difficult portion of which is now running. From Sacramento to Cisco Station, the present terminus, is ninety-four miles, in which five thousand nine hundred and eleven of the total seven thousand and forty-two feet of ascent are made. This portion embraces the heaviest and costliest portion of the work. The ascent is continuous; once gained, it is never lost, the average rate being seventy-five feet to the mile; the maximum, one hundred and sixteen feet to the mile, of which there are but three and a half miles. The bulk of the heavy grade is at one hundred and five feet to the mile, with numerous level intervals interspersed. Thirty per cent. only of the distance is occupied by curves, none of which have a radius of less than five hundred and seventy-three feet, or ten degrees. The Baltimore and Ohio Railroad has seventeen miles, in two stretches, of one hundred and sixteen feet grade, with curves of four hundred feet radius; and the Virginia Central for many years worked with the unaided locomotive grades of two hundred and ninety-six feet to the mile, and ruling curves whose radii were three hundred feet. By crossing from one spur and ridge to another, piercing by a number of short tunnels and deep cuts where necessary, the line has been made available for passenger trains to run at twenty-five miles an hour, and freight trains at half that speed. The time consumed

in making the trip, including stoppages, is six hours, with ordinary engines and trains.

“From Cisco to the Summit most of the heavy rock cutting is now done. The crest of the ridge is pierced by a tunnel of one thousand six hundred and fifty-eight feet, the longest on the road, of which about five hundred feet remain uncut, and at which men are working night and day the week round, excavating at the rate of seven feet per day. East of the summit the descent is much easier, the great interior basin being elevated four thousand feet above the sea level. In fourteen miles there is a fall of one thousand one hundred feet, after which there is a gentle slope, nowhere exceeding forty-five feet to the mile, eastward toward Salt Lake. There are, including the Summit Tunnel, fourteen tunnels (in all two thousand feet) on the portion now grading, two-thirds of which have been cut out. The greater portion of the line is so sheltered by excavations that it will be necessary to erect sheds over it for two miles only, in order to shoot the snow-slides clear of the track. Provision is made in the larger tunnels and heavy cuttings for a double track, which, from present indications, will be necessary at no distant day to accommodate the growing traffic. Ten thousand men, mostly Chinese laborers, are employed on the work, the heavy parts of which are in a forward state, and it is confidently believed that in July next the locomotive will be traversing the plains of Nevada.

“The following table will show the rate of progress and the elevation above the sea level:—

	Miles.	Feet.
Jan. 1, 1865, to New Castle . . .	31	930
May 13, 1865, to Auburn . . .	36	
June 10, 1865, to Clipper Gap . . .	42	1,600
Sept. 4, 1865, to Colfax . . .	56	2,448
May 8, 1866, to Secret Town . . .	66	3,416
July 10, 1866, to Alta . . .	73	3,700
Nov. 29, 1866, to Cisco . . .	94	5,911
July, 1867, to Summit . . .	105	7,042
September, 1867, to Virginia Station . . .	150	5,800
January, 1868, to Big Meadow . . .	250	4,000
January, 1870, to Salt Lake City . . .	725	4,285

“The original estimated cost of building the road across the Sierras was slightly above that of the most expensive railroads in the country where the right of way had to be purchased at considerable cost; and compared as follows:—

Boston and Providence Railroad cost per mile . . .	\$81,273
Boston and Lowell Railroad cost per mile . . .	78,636
New York and Erie Railway about . . .	80,000
Hudson River Railroad about . . .	80,000
Pacific Central (Mountain Division) estimated . . .	88,400

“Up to the first of January last the Central Pacific Company had expended in building the ninety-four miles in operation together with about a third of the preparation upon twenty-five miles additional and for a liberal equipment of rolling stock, nearly fifteen millions of dollars (\$14,558,714). Fifty miles additional, or about one hundred and fifty in all, will, it is confidently expected, be running in July next, which brings the road to the comparatively smooth ground. The total construction cost of this mountain section will be about fifteen millions of dollars, or at the rate of one hundred thousand dollars per mile. The rest

of the distance to Salt Lake City, five hundred and seventy-five miles, can be constructed for about sixty thousand dollars per mile. The difference in the prices of labor and iron sufficiently accounts for the increase upon the original estimate. About five millions of dollars more will have been expended by mid-summer for iron rails and equipments, most of which are either on the other side or en route. The bulk of the engineering difficulties, it will be observed, has already been overcome; and by far the most costly and rugged resistance left behind. Rails are already being laid east of the summit, ready for the advance when the tunnel is opened.

“As might be anticipated, the Central Pacific is to be classed among the most expensive roads in the country. Such were the imperative demands of the local transportation between California and the mining regions east of the Sierras, that a steam road even at this cost was an economy. It has been estimated that the wagon freights across the mountains in a single year, before the commencement of a railroad, amounted to fully thirteen millions of dollars; which of itself would, without any increase, be a sufficient motive for building a railroad. If we consider the enormous through travel, which is to pass to and fro between China and Europe—the natural expansion of the Western States and Territories; the stimulation which must follow to mining enterprises; and the equally important national, military, social, and civilizing advantage to be reached—the railroad becomes a pressing necessity; and the liberal subsidies of the Government to such a work of internal improvement seem

eminently wise and proper. Thus far the California projectors have pushed on their half of the work with commendable vigor and steadiness; and in a few weeks will have easy work before them. The law requires that the road shall be substantially built, of the best American materials, and in such a way as befits its semi-national character.

“The following table will show the actual net earnings of the road as it progressed up the mountain side, after the payment of operating expenses, for the past three years, the earnings being stated in gold, the money of California, and the relation of the earnings to the interest charges assumed by the road, upon the supposition that the whole amount of bonds authorized will have been issued:—

Date.	Av. miles running.	Net earnings (gold).	Int. payable on bonded debt.	Av. net earnings p. mile.	Av. debt charges p. m.
1865	40	\$280,272	\$102,111	\$7,000	\$2,550
1866	75	655,883	125,380	8,750	1,672
1867	150	1,600,000	545,000	10,937	3,633

“Thus it will be seen that the road is abundantly able to pay the interest engagements upon the construction; but as the general Government and California corporations have assumed the larger portion of the interest bearing charge, the Company is able to carry over a handsome surplus to the construction fund. As the heaviest expenditure is now made, and every extension of the road adds to the value of the whole, by decreasing the ratio of operating expenses at the same time that it multiplies its own natural business, the point of financial difficulty has also been passed. Once across the mountains, a whole scheme of industrial enterprises in Nevada and

Idaho stand ready to be quickened into activity, which have hitherto been beyond the limit of profitable working. With the topographical, climatic, and financial difficulties subdued, the Pacific Railroad of California becomes a settled and imminent success. In its outlays, it is worthy to be noted, the Californians are fortunate in being able to command large numbers of cheap, serviceable Chinese laborers; and also in the fact that the iron and heavy freights can be shipped round the horn at less cost than it would take to send them to the Missouri River. We may look for some astonishing advances from the energetic people on the Pacific, in completing the great work which is to bring them two weeks nearer to their old homes."

A recent letter in the "New York Express," signed by the well-known initials "J. B.," gives the following lively account of the state of affairs on the Pacific Railroad in May, 1867:—

"We left Albany, a little party of us, about ten o'clock of a morning, in a Pullman's saloon parlor car, to go in it to Council Bluffs, on the Missouri River. The Central Railroad added on one of its splendid day cars, and gave us an extra locomotive, and we rolled—we flew to Niagara. The Canadian Great Western added on an official car of their own, and we rolled, and flew, at night, through Upper Canada. Our eyes opened in the morning on the clear waters of the Detroit River. The Michigan Central gave us another special locomotive, and we found ourselves in Chicago, near two P. M., not twenty-eight hours from Albany. Now, speed is something—but comfort is *the* thing. Pullman pro-

vided us with the best of beds, some, in state rooms, private and solitary, if not alone—some, in a saloon—*vo! presto*, converted by some machinery into bedrooms; and Kingsley—(honor be on his head forever, for he knows how to cook, and cooking is an art divine, that comes only from the gods)—and Kingsley gave us breakfasts and dinners and teas—and such breakfasts and dinners and teas as only the gods have in their symposia. He cooked his dinner in the car, in a little bit of a kitchen, about as big as a Saratoga trunk, and served it up on tables for two, or three, persons, between every seat of the car. We were eighty miles long eating one dinner, and you can judge, therefore, how good must have been such linked sweetness thus drawn out.

“Hence, I honor Kingsley. Great as we are—we, the mighty American People—capable, peradventure, of thrashing all mankind—‘galorious’ as is our eagle, ‘wide-spread,’ ‘broad-spread,’ ‘ever soaring,’ etc.—a beef steak or a mutton chop is yet beyond our genius, and a loaf of bread—not of dough—is among us a miracle. Great is a cook, therefore, in a cookless country; for more lives are to be saved, or to be prolonged by cookery than by all the arts of the Pharmacopœia. Feed us well, and there will be no dyspepsia, and no cross husbands, nor cross wives, nor cross children. Next to a Christian Missionary is a Christian Cook—and he best serves God in this country, who is teaching us—as Pullman and Kingsley are how to ride on a rail—and at peace, and at leisure, to be an hour eating breakfast—an hour or two for a dinner, and an hour or more for a tea. Think of how we rush in and

rush out of the eating houses *en route*, and think how we die, therefrom, of dyspepsia! 'Ten minutes for dinner,' cries the conductor. The bell rings, the waiters cry, and yell, and pull, and haul. 'Twenty minutes' is a luxury. More lives are cut short in this way, than by all the whiskey in the country. We eat and run. Both hands and arms pitch in. Here, there goes a slice of bacon; there, a lot of eggs, or a chicken, legs, wings, and all! there, corned beef as tough as hide; there, white-oak pies—all, all are pitched into the gullet, and the poor stomach raves and roars under the terrible burden. Pullman and Kingsley are to save us all therefrom, and God bless them.

"Chicago was left between ten and eleven A. M., and by three or four we were on the bridge over the Mississippi, at Clinton. The great father of waters—think of it, now, has to consent to be shackled by bridges, and locomotives, and cars! The common law made him a monarch of waters—but the locomotive, now, repeals and reverses such common laws. Water here is no match for fire. The boatmen growl, the raftsmen swear—but on strides the locomotive, from bank to bank, over mast and pipe—with an utter recklessness of all the craft below it. The Missouri is to be everywhere bridged, as well as the Mississippi, for trade runs East and West—and what trade wills, the laws obey—while the great waters of the West will soon be left only to the heavy freights of the common boatmen.

"And now, here at Omaha, we are on the track of the Great Pacific Railroad, which we had come to see and to ride over. If ever there was an audacious

enterprise on earth, it is this Pacific Road. We are one thousand eight hundred miles from New York by rail; and here, with no railroad connection east, when the work was begun; with a very imperfect and roundabout river communication on the Missouri; with no timber for ties; with iron to be transported all the way from Pennsylvania *via* Chicago and St. Joseph's (Mo.); with labor to be *improvised*, beyond the reach of bed and board, &c., far beyond all civilization; with car-houses on tracks for laborers to eat and sleep in; with cooking establishments, bed establishments, and all—a railroad is pushed on three hundred and seven miles west of Omaha, last year two miles per day, and this year, soon, two miles per day more. There never was anything like it 'in Greek or Roman fame.' Talk not of the Colossus of Rhodes—but a trifle at best—or even of the hanging gardens of Babylon, or of the Pyramids—for what were they all but the works of a great and civilized people, in the heart of high civilization, while here is the locomotive running where you can shoot the antelope from the engine, or prairie dogs, or wolves, that howl about at night? The tawny Pawnee, hanging about you here, is not the intelligent, cultivated, scientific Egyptian, that put up the Pyramids, but a lazy, loafing savage, ready for murder or robbery, if necessary; and hostile tribes of savages, Cheyennes, and Sioux, even now, not far off, are perpetrating horrible butcheries. To build a road then, such as the Union Pacific, over treeless prairies, where there is not even a stone for an abutment or a foundation, over rivers like the fierce Elkhorn and the wild Platte; where there is not a thing to eat, save the

antelope or the buffalo; to be pushing it on in front of, and in defiance of the Rocky Mountain Alpine summits and passes—*docs*, indeed, ‘eclipse all Greek and Roman fame.’ And, what is wonderful, the mind, the genius that conceives and directs the great work, is one thousand eight hundred miles from here, in Nassau Street, New York, where the telegraph is the daily messenger, that guides all things with success and safety. Mind and matter never before thus co-worked or worked better together. The Electric Thought of the Managing Director, T. C. Durant, in his New York office, flashes off orders and directions, one thousand eight hundred miles off, and all, seemingly, goes on well, as if he were on the spot, personally superintending the wonderful creation.

“Omaha is full of workshops. The locomotives are not built here, but completely kept in order and repair here. The cars of all kinds are made here. The workshops also manufacture all sorts of things necessary for a new country, and such as could not be brought from the East without too much delay and expense, the tin ware, the iron ware, the stoves, the furniture of the cars, &c.; things almost innumerable.

“Well, on a Tuesday morning, about ten A. M., we were rolled from the depot at Omaha—with a Committee of the Directors on board, Mr. Ames, the great shovel man of Massachusetts, Mr. Dillon, the great railroad contractor of the Jersey Central and other roads, now living in New York, with Mr. Duff, of Boston, the builder of the Hannibal and St. Joseph’s—with Mr. Cooke, the President of the Rock Island, and the Government Directors from Springfield, Illinois, Mr.

Carter—in a voyage of discovery, on the railroad and over the plains. These Directors were here, to receive from the *Credit Mobilier*, the work contracted for—and in an officers' car—with the now indispensable Kingsley—over the rough Elkhorn, and the boundless prairies and plains, we were rolling again till late in the evening. About the best dinner hungry man ever had was served up in the cars on the plains. We slept during the night, as if in the Fifth Avenue, New York, or in the Continental, Philadelphia. There was nothing to see but 'plain,' 'plain,' 'prairie,' 'prairie'—nothing save a depot here and there—no houses, no settlements, beyond the Elkhorn. We took from the armory of the cars rifles with sixteen shots in them, and banged away and away—and actually shot one antelope, while going thirty miles an hour. Night brought us up beyond the North Platte, on the great plain, where were workmen by hundreds, with long strings of cars, with rails and ties upon them, and provisions, construction houses, &c.—the laborers therefrom, rising with the sun, washing themselves in the muddy water of the ditches, and toiling on all the day, with tie over tie, and rail upon rail. The road makers expect to be two hundred miles from here, on the Rocky Mountain *plateaux*, before the next winter storms set in.

"I cannot end this long, rambling 'yarn,' without adding on, that we of the East are about a quarter of a century behind the West in cars, and the comforts and appliances of travelling. We have no such sleeping cars as Pullman is running over the Pacific road, through the very wilds of Nebraska.

'Westward the Star of Empire takes its way.'

CHAPTER XXXVIII.

ON THE COMPARATIVE MERITS OF IRON AND STEEL
RAILS.

An article in the "London Quarterly Review," for July, 1866, says:—

"The first wrought-iron rails laid down were only twenty-five pounds to the yard; but they were soon found too light for the loads they had to carry. When George Stephenson was examined by Mr. (afterwards Baron) Alderson, before the Committee on the Liverpool and Manchester Railway Bill, he was taken to task about the weakness of the Hetton Road, and the danger of travelling by railway, on the assumption of trains being run at the dangerous, but then hypothetical, speed of twelve miles an hour. The witness was asked—'Do not wrought-iron rails bend—take Hetton Colliery for instance?'—'They are wrought-iron, but they are weak rails.' 'Do you not know that those bend?'—'Perhaps they may bend, not being made sufficiently strong.' 'And if they are made sufficiently strong, that will involve an additional expense?'—'It will.' 'Then if you were to make them of *adamant*, that would be very expensive?'—'It does not require a very great expense to make them strong enough for heavier work.'

"That there might be no deficiency of strength in

the fish-bellied rails first laid down upon the Liverpool and Manchester line, they were made of the unusual weight of thirty-five pounds to the yard. But the extraordinary speed of the locomotive had not yet been discovered, and there is no doubt that the performances of the 'Rocket' surpassed the expectations of even George Stephenson himself. Although the engine weighed only four and a half tons, it proved too heavy—when running at high speeds—for the malleable rails; and as the traffic grew, and heavier engines were introduced on the line, the weight of the rails was increased from time to time, but not in like proportion to the weight of the locomotives. For while the malleable rails have been increased from twenty-eight pounds to seventy-five and even eighty-six pounds to the yard, the locomotive has been increased from four and a half tons, as in the 'Rocket,' to thirty and thirty-five tons, the weight of first-class express engines. The disproportion between the weight and force of the engine and the resistance of the rail has been constantly increasing; until the point has at length been reached at which no additional weight in the rails will enable them to resist the crushing load of the modern locomotive. As in the case of the battle between guns and iron plates, the weight of both has been increased, until at length, unless a new material—the 'adamant' imagined by Mr. Alderson—be employed, it is clear that as regards the locomotive and the iron road the latter will be vanquished in the contest. The defect is in the material, to which a crushing power is applied which ordinary iron is positively incapable of resisting. The points of contact of the wheels of a thirty ton loco-

motive with the rail are very minute, and upon these points, the whole weight of the engine presses. The effect is to squeeze and crush the iron and roll it off in laminæ, as any one may observe who examines a rail laid down on a line of heavy traffic that has borne a fair amount of work under the heavier class of engine.* On some of the metropolitan lines iron rails, especially if placed on sharp curves, will scarcely last a year. Hence the railroad has become even less 'permanent' now, with its rail of iron, than it was with its original rail of wood a hundred years ago. It has thus become absolutely necessary to introduce a new material, and that material is to be found in Steel.

"The greatly superior resistance which steel offers to crushing as compared with iron, may be learnt from the experiments made by Mr. William Fairbairn, with the object of ascertaining their respective strengths in this respect. A piece of cast-iron, both ends flat, was crushed by a pressure to which it was subjected of fifty-five tons to the square inch; and a piece of malleable iron of the same shape was flattened by a pressure of seventy-three tons to the square inch; while a piece of steel of the same shape resisted a pressure of one hundred and twenty tons per square inch without being

* "The friction between the driving wheels and the rails, when the engine is thundering along at high speed, is also very great, and the iron is ground off in minute particles, and thrown into the air. Dr. Angus Smith, when once travelling by railway, took the pains to collect some of the particles which floated about him in the carriage and seemed to shine with metallic lustre. On examination they were found to be in reality minute rolled plates of iron, which seemed to have been heavily pressed and torn up from the surface of the rails."

either crushed or flattened.* The result of certain American experiments, quoted by Mr. Mallett, was to a like effect. The mean resistance of cast steel to compression was found to be two hundred and ninety-five thousand pounds, of cast iron, one hundred and twenty-five thousand pounds, and of wrought iron eighty-three thousand five hundred pounds; while the tensile strength was forty tons for mild cast steel, twenty to twenty-five tons for wrought iron, and ten to twelve tons for cast iron. Thus in cast steel we find a material not only capable of resisting a far greater compressive force than any known metal can do, but also one whose tensile strength is nearly double that of wrought and more than three times that of cast iron.

“The comparatively perishable nature of wrought iron when subjected to the crushing load of the modern express locomotive, has necessarily led to a large increase in the annual cost for maintenance and renewal of railways. Thus, while the percentage of locomotive expenses on gross receipts has somewhat decreased on the Great Northern line during the last fourteen years, the cost of maintenance of way has increased during the same period more than two hundred per cent. In an excellent practical paper recently read by Mr. R. Price Williams† before the Institute of Civil Engineers, some striking facts were adduced in illustration of this rapid increase in the

* “Treatise on Iron Shipbuilding.” By Wm. Fairbairn, C. E. 1865. p. 48.

† On the maintenance and renewal of permanent way. Read by R. Price Williams, M.I.C.E., before the Institute of Civil Engineers, March 12, 1866.

tear and wear of permanent way of late years. It was shown that during a period of thirteen years, most of the Great Northern up-line between Potter's Bar and Hornsey, where there are heavy descending gradients, has been renewed not less than three times, giving an average of only three and a half years as the 'life of a rail' under heavy coal and passenger traffic worked at high speeds. That it is 'the pace that kills' as well as the weight, is obvious from another fact stated by Mr. Williams with respect to the Lancashire and Yorkshire line, where an equal number of trains of about the same tonnage as in the case of the Great Northern line, were worked at low speeds over a portion of railway between Bury and Accrington, but there the rails lasted as long as seven and a quarter years.

"The heavy cost of maintenance and renewals on the London and Northwestern Railway has for some time been a marked feature in the accounts of that Company. As the renewal of the road is properly chargeable against revenue, any large increase of expense on this account necessarily tells upon dividend; and hence, to relieve revenue against exceptionally heavy charges for renewals, the expedient of a suspense fund has been adopted by some of the larger companies. But, in 1857, the suspense renewal fund of the London and Northwestern Company was found to be so heavily in debt, that the only practical mode that could be devised for dealing with it was to write it off direct to capital to the amount of two hundred and fifty-six thousand five hundred and eighty-eight pounds; and since that date fifty-six thousand pounds have been charged to capital for renewals in like

manner. The Great Eastern Company also cut the same knot by charging eighty-six thousand pounds to capital instead of revenue only two years ago; while the Manchester, Sheffield, and Linconshire Company, between the years 1854 and 1861, judging by the accounts, charged renewals direct to capital, without even the pretence of a suspense account. The charge in respect of renewals is always exceedingly variable. During the first few years of working a railway, while materials are all new, the cost is comparatively light; no provision is made for replacing them when worn out; but as years pass on, and the rails, sleepers, and chairs have to be renewed, the outlay rapidly increases. Thus, in 1847, the charge for renewals on the London and Northwestern Railway was thirty-eight pounds per mile; in the next five years it was one hundred and one pounds per mile; and in the ten years following, two hundred pounds per mile; the total expenditure of the Company on renewals of way alone, during nineteen years, having amounted to one million nine hundred and six thousand eight hundred and fifty-eight pounds. 'The average annual expenditure of the Company for renewals since 1847,' says Mr. Williams, 'has amounted to one hundred and three thousand and seventy-four pounds. This represents something like seventy-three miles of single way of the main line broken up and entirely replaced annually during the period; chiefly in situations where the traffic was heaviest, and where consequently (owing to the short intervals between trains) the facilities for doing the work are the least, and the danger of accident the greatest.'

“The consideration of these circumstances led the officials of the London and Northwestern Company to direct their attention to the employment of some more durable material than ordinary wrought iron for rails, with the object of providing a more ‘permanent’ way than any that had yet been adopted. Mr. Woodhouse, the Superintendent of the permanent way department, induced the Directors, in 1861, to order five hundred tons of Bessemer steel rails, which were laid down at such parts of the line as were subject to the most rapid destruction, not only by the passage of the regular traffic, but the starting, stopping, shunting, and making up of trains. Some of these were laid down in the Crewe Station, and others at Camden Station. Perhaps there is no spot on any railway in Europe where the traffic is so great as at the latter place. At Chalk Farm Bridge there is a narrow throat in the line, at which the whole system of rails employed at the London termini of this great Company converges. There all the passenger, goods, and coal trains have to pass, and the shunting of carriages is constantly going on day and night. The iron rails laid down in this throat were rapidly ground to pieces by the enormous traffic. The face of a rail was usually worn away in little more than two months; and the traffic being so unintermitting, its stoppage for the purpose of changing the rails or renewing them was found most inconvenient as well as dangerous.

“Certainly no better spot could have been fixed upon for determining the durability of the Bessemer material. On the 2d of May, 1862, two steel rails were laid down precisely opposite two new iron rails

of the best quality, so that no engine or carriage could pass over the iron rails without also passing over the steel. When the iron rails were worn as far as the safety of the traffic would allow, they were turned, the lower side upwards, and the second face was worn off in like manner. The old rail was then replaced by a new one, and this process went on until the 22d of August, 1865, when one of the steel rails was taken up. It was computed by the engineer, that during the period that had elapsed since it was laid down (three years and about four months) not fewer than nine million five hundred and fifty thousand engines, carriages, and trucks, weighing ninety-five million five hundred and seventy-seven thousand two hundred and forty tons, had passed over one face of the steel rail, and worn it evenly down about a quarter of an inch, whilst it was still capable of enduring a good deal more of the same work. During the same time eight iron rails had been entirely worn out on both faces, and the seventeenth face was in use when the steel rail was taken up. The extraordinary endurance of the new material compared with the old was further proved at Crewe Station, along both sides of which steel rails were laid down, and after three years' wear not one of them required turning; whilst iron rails similarly placed had been removed or turned every few months.

“ These results were deemed quite conclusive on the subject; and, after mature consideration, the Directors of the Company were so satisfied of the advantages in an economical point of view, as well as on the ground of increased safety to the public, of using the strongest

and more durable material, that they wisely resolved on erecting extensive Bessemer steel works at Crewe, which are now in active and successful operation, turning out about four hundred tons per week. Mr. Ramsbottom, the Company's locomotive engineer at Crewe, had for some time before been gradually introducing steel in the construction of passenger-engines, wherever great strength and durability were required, as in the case of axles and wheel-tyres; and the results were so satisfactory, that steel is now employed by him in all such cases instead of iron. In designing the machinery and plant of the steel works at Crewe, Mr. Ramsbottom introduced many ingenious modifications and improvements, so that they may be regarded as models of their kind. One of his most valuable contrivances for working up the steel required for engine purposes, is his duplex hammer, which strikes a blow on both sides of the ingot at once in a horizontal direction, thus rendering unnecessary the enormous foundations required for ordinary hammers.

“The London and Northwestern Company have been very slowly, and at a great distance, followed by railway companies generally, who are for the most part content, so long as they can go forward on the old iron ways. But it seems to us quite clear that the days of iron as the material for main express lines are numbered; and that not only considerations of safety, but of economy, will, before long, lead to the general use of steel instead of iron. The Americans, who are quick to discern the merits of any new invention, have already recognized the important uses of

Bessemer steel to a much greater extent than English railway engineers have done. They are already substituting steel for wrought iron in almost every department of railway construction; and within the last few months orders have been received by a single Sheffield firm for about ten thousand tons of Bessemer steel rails for the Pennsylvania, Erie, Philadelphia, Baltimore and Ohio, and the Michigan Central Railroads.

“Another circumstance remains to be mentioned in favor of the substitution of steel for iron, which is, the great deterioration in the quality of modern-made iron. All the earlier experimenters on iron found greater strength in ordinary qualities than is now possessed by the very best. The rails made thirty years since possessed much more durability than those made now. Whether this arises from the greater rapidity of the processes now adopted—the use of squeezers, by which cinder and sand are pressed into the metal, instead of being beaten out by the tilt-hammer, as formerly—the use of the hot-blast, by means of which inferior ores are capable of being reduced—or the spirit of competition which induces iron manufacturers to turn out the largest possible quantity of iron at the cheapest possible rate—certain it is, that the manufacture of wrought iron in this country has undergone a serious deterioration during the last half century.

“Dr. Percy raises an important point for discussion, with reference to a supposed deterioration in the quality of iron resulting from the effects of percussion, which applies equally to steel. It has long been a moot point with engineers, whether, under repeated

light blows, or rapid vibration of machinery in action, iron becomes disintegrated and consequently brittle. This is undoubtedly the case with brass, which, when subjected to vibration, in a few weeks becomes as brittle as glass. When the frightful accident occurred on the Versailles Railway, some years since, occasioned by the breaking of a crank axle, the best men of science and practice in France were called upon to give evidence on the point; but they were by no means agreed. The whole subject was again discussed before the Commissioners appointed by our own Parliament, in 1849, to inquire into the application of iron to railway structures. Evidence was given to show that pieces of wrought iron exposed to vibration frequently break after long use, and exhibit a peculiar crystalline fracture and loss of tenacity; whilst other witnesses maintained that this peculiar structure was the result of an original fault in the process of manufacture, and that the internal constitution of the metal remained unaffected by vibration however rapid or long-continued. In opposition to the popular view as to the brittleness of iron being occasioned by vibration, Mr. Robert Stephenson pointed to the engine-beam of a Cornish engine which received a shock equal to about fifty-five tons eight or ten times a minute, and yet went on working for twenty years without apparent change. He also referred to the connecting-rod that communicates the power of the locomotive to the wheel and receives a violent jar eight times in a second at ordinary speed, and yet remains unaffected. He pointed out that in a case of that sort a rod that has

borne two hundred millions of such jars, will be found, on examination, to have retained its fibrinous structure.

“Where iron exhibits a crystalline appearance on breaking, Dr. Percy rightly points out that *time* plays a most important part in determining the character of the fracture. When the metal is broken with extreme rapidity, the fracture will be crystalline; when broken slowly, it will be of a fibrous appearance. In the case of the breakage of a crank-axle, we apprehend the cause to be torsion, not vibration. It was stated in evidence by a locomotive engineer, at the inquiry into the causes of the Bow accident on the Great Eastern Line, that the very first turn of a crank-axle begins the process of breaking; and that the final fracture—nearly always at the same place—is only a question of time.

“That the brittleness of iron is increased by frost is also a prevalent notion amongst engineers, similar to the popular impression that bones are more brittle in winter than in summer. But the railway accidents which occur in frosty weather are more probably attributable to the circumstance that at that time the road is hard and rigid, and the engines running over it at high speeds are much more strained, and consequently more liable to accident than they are in ordinary weather when the road is soft and yielding; just as in frosty weather we are more liable to falls, and consequently to fractured limbs, arising from the slipperiness of the roads rather than to the increased brittleness of our bones at that season. To put the matter to a practical test, however, Mr. Ramsbottom had a piece of rail taken up while covered with sharp frost and placed under the large steam-hammer at Crewe,

when it stood the blows necessary to double both ends together without showing the smallest indication of fracture. Nevertheless the suggestion of Dr. Percy is well worthy of consideration, in which he says, 'It is most desirable that the subject should be accurately investigated; and the Institution of Civil Engineers would render excellent service by conducting an elaborate inquiry into it.'

The President of the Northern Central Railroad of Pennsylvania, in his last Annual Report, in speaking of this subject, says:—

"We have, in common with all the railroads of the country, suffered very much from the rapidity with which the iron rails wear out. The average life of a rail has diminished fully fifty per cent. during the last ten years, they lasting now but about three years. This causes an expenditure in maintaining the road which tells severely upon the working expenses. We are not prepared to say that the railroad iron now manufactured in this country is inferior in quality, but the increase of speed by our passenger trains, and the increase in weight of engines, together with the increased tonnage, may account for their rapid destruction.

"Some of the principal railroads have been purchasing steel rails to a considerable extent. We purchased a small lot, sixty tons, in May last, and laid them on the heavy grade between Calvert Station and Bolton. So far they show no evidence of wear. If our means admitted, we would recommend the adoption of steel rails, as those now in use must be replaced. The Freedom Iron and Steel Company at Lewistown, Pa.,

and the Pennsylvania Steel Works at Harrisburg, and other rolling mills, we understand, will soon be prepared to furnish steel rails, at, we suppose, so small an advance upon the price now paid for iron that there will be no doubt about the propriety of adopting them on our road."

Steel rails are used to a limited extent, on both the New York Central, and the New York and Erie Railroads, and on many other railroads in the United States; and their use is every year becoming more general. They will, undoubtedly, in time, entirely supersede the iron rail. Where steel rails have been laid upon one side of a track, and iron rails upon the other, as an experiment, it has been found that the iron rails require to be renewed seventeen times before the steel rails begin to show any signs of wearing out.

CHAPTER XXXIX.

RAILROAD LAWS OF THE UNITED STATES.

THE basis of the railroad laws of New York is the Act of April 2, 1850. The following is a comprehensive summary of its provisions (the Act of 1848 is repealed):—

SECTION 1. Any number of persons, not less than twenty-five, may form a company for the purpose of constructing, maintaining and operating a railroad for public use in the conveyance of persons and property, or for the purpose of maintaining and operating any unincorporated railroad already constructed for the like public use; and for that purpose may make and sign articles of association, in which shall be stated the name of the company; the number of years the same is to continue; the places from and to which the road is to be constructed, or maintained and operated; the length of such road as near as may be, and the name of each county in this State through or into which it is made, or intended to be made; the amount of the capital stock of the company, which shall not be less than ten thousand dollars for every mile of road constructed, or proposed to be constructed, and the number of shares of which said capital stock shall consist and the names and places of residence of thirteen directors of the company, who shall manage its affairs

for the first year, and until others are chosen in their places. Each subscriber to such articles of association shall subscribe thereto his name, place of residence, and the number of shares of stock he agrees to take in said company. On compliance with the provisions of the next section, such articles of association may be filed in the office of the Secretary of State, who shall indorse thereon the day they are filed, and record the same in a book to be provided by him for that purpose; and thereupon the persons who have so subscribed such articles of association, and all persons who shall become stockholders in such company, shall be a corporation by the name specified in such articles of association, and shall possess the powers and privileges granted to corporations, and be subject to the provisions contained in title three of chapter eighteen of the first part of the Revised Statutes, except the provisions contained in the seventh section of the said title.

SEC. 5. Provides for a board of thirteen directors, to be chosen annually, by a majority of the stockholders.

SEC. 6. The directors shall appoint one of their number President.

SEC. 8. The stock of railroad companies shall be deemed personal estate.

SEC. 9. In case the capital stock of any company is found to be insufficient for constructing and operating its road, the company may increase it to any amount required for those purposes.

Section 10 has been amended by the Act of April 15, 1854, and now reads as follows:—

SEC. 10. Each stockholder of any company formed under this act shall be individually liable to the creditors of such company, to an amount equal to the amount unpaid on the stock held by him, for all the debts and liabilities of such company, until the whole amount of the capital stock so held by him shall have been paid to the company, and all the stockholders of any such company shall be jointly and severally liable for the debts due or owing to any of its laborers and servants other than contractors, for personal services for thirty days' service performed for such company, but shall not be liable to an action therefor before an execution shall be returned unsatisfied in whole or in part against the corporation, and the amount due on such executions shall be the amount recoverable with costs against such stockholders; before such laborer or servant shall charge such stockholder for such thirty days' services he shall give him notice in writing, within twenty days after the performance of such service, that he intends so to hold him liable, and shall commence such action therefor within thirty days after the return of such execution, unsatisfied, as above mentioned; and every such stockholder, against whom any such recovery by such laborer or servant shall have been had, shall have a right to recover the same of the other stockholders in said corporation, in ratable proportion to the amount of the stock they shall respectively hold with himself; and all laws whereby the stockholders, officers and agents of any railroad corporation are made individually liable for the debts or liabilities of such corporation beyond the provisions contained in the act entitled "An act to authorize the formation of railroad corpo-

rations, and to regulate the same," passed April 2, 1850, and the acts amending the same, are hereby repealed.

SEC. 11. No person holding stock in any such company, as executor, administrator, guardian or trustee, and no person holding such stock as collateral security, shall be personally subject to any liability as stockholders of such company; but the person pledging such stock shall be considered as holding the same, and shall be liable as a stockholder accordingly; and the estates and funds in the hands of such executor, administrator, guardian or trustee, shall be liable in like manner and to the same extent as the testator, or intestate, or the ward or person interested in such trust fund would have been, if he had been living and competent to act, and held the same stock in his own name.

SEC. 13. In case any company formed under this act is unable to agree for the purchase of any real estate required for the purposes of its incorporation, it shall have the right to acquire title to the same in the manner and by the special proceedings prescribed in this act.

SEC. 14. For the purpose of acquiring such title, the said company may present a petition, praying for the appointment of commissioners of appraisal, to the Supreme Court, at any general or special term thereof held in the district in which the real estate described in the petition is situated. Such petition shall be signed and verified according to the rules and practice of such court. It must contain a description of the real estate which the company seeks to acquire; and it

must, in effect, state that the company is duly incorporated, and that it is the intention of the company, in good faith, to construct and finish a railroad from and to the places named for that purpose in its articles of association; and the whole capital stock of the company has been in good faith subscribed as required by this act; that the company has surveyed the line or route of its proposed road, and made a map or survey thereof, by which such route or line is designated, and that they have located their said road according to such survey, and filed certificates of such location, signed by a majority of the directors of the company, in the clerks' office of the several counties through or into which the said road is to be constructed; that the land described in the petition is required for the purpose of constructing or operating the proposed road; and that the company has not been able to acquire title thereto, and the reason of such inability. The petition must also state the names and places of residence of the parties, so far as the same can by reasonable diligence be ascertained, who own or have, or claim to own or have estates or interests in the said real estate; and if any such persons are infants, their ages as near as may be, must be stated; and if any of such persons are idiots or persons of unsound mind, or are unknown, that fact must be stated, together with such other allegations and statements of liens or incumbrances on said real estate as the company may see fit to make. A copy of such petition, with a notice of the time and place the same will be presented to the Supreme Court, must be served on all persons whose

interests are to be affected by the proceedings, ten days before the presentation of the same to the court.

The section then describes the mode of service upon different classes of persons; and section fifteen provides for the appointment, by the Supreme Court, of Commissioners to ascertain the compensation to be made to the owners of the real estate proposed to be taken. This section has been amended by the act of April 15th, 1854, and now reads as follows:—

SEC. 15. On presenting such petition to the Supreme Court as aforesaid, with proof of service of a copy thereof and notice as aforesaid, all or any of the persons whose estates or interests are to be affected by the proceedings may show cause against granting the prayer of the petition, and may disprove any of the facts alleged in it. The court shall hear the proofs and allegations of the parties, and if no sufficient cause is shown against granting the prayer of the petition, it shall make an order for the appointment of three disinterested and competent freeholders, who reside in the county or some adjoining county where the premises to be appraised are situated, commissioners to ascertain and appraise the compensation to be made to the owners or persons interested in the real estate proposed to be taken in such county for the purpose of the company, and to fix the time and place for the first meeting of the commissioners.

SEC. 16 has also been amended by the act of April 15th, 1854, and now provides that the commissioners shall view the premises described in the petition, and hear the proofs and allegations of the parties, and reduce the testimony taken by them, if any, to writing,

and after the testimony in each case is closed, they or a majority of them, all being present, shall, without any unnecessary delay, and before proceeding to the examination of any other claim, ascertain and determine the compensation which ought justly to be made by the company to the owners or persons interested in the real estate appraised by them; and in fixing the amount of such compensation, said commissioners shall not make any allowance or deduction on account of any real or supposed benefits which the parties in interest may derive from the construction of the proposed railroad, or the construction of the proposed improvement connected with such road, for which such real estate may be taken.

SEC. 17. Makes it the duty of the commissioners to report their proceedings to the Supreme Court: which report and decision of the commissioners must be confirmed by the court, and an order made to that effect.

SEC. 18. A certified copy of the order so to be made as aforesaid, shall be recorded at full length in the clerk's office of the county in which the land described in it is situated; and thereupon, and on the payment or deposit by the company of the sums to be paid as compensation for the land, and for costs, expenses, and counsel fees as aforesaid, and as directed by said order, the company shall be entitled to enter upon, take possession of, and use the said land for the purposes of its incorporation.

SEC. 20. The court shall appoint some competent attorney to appear for, and protect the rights of any party in interest who is unknown, or whose residence

is unknown, and who has not appeared in the proceedings by an attorney or agent.

SEC. 23. The directors of every company formed under this act may, by a vote of two-thirds of their whole number, at any time alter or change the route or any part of the route of their road, if it shall appear to them that the line can be improved thereby; and they shall make and file in the clerk's office of the proper county, a survey, map, and certificate of such alteration or change; and shall have the same right and power to acquire title to any lands required for the purposes of the company, in such altered or changed route, as if the road had been located there in the first instance; and no such alteration shall be made in any city or village, after the road shall have been constructed, unless the same is sanctioned by a vote of two-thirds of the common council of said city or trustees of said village; and in case of any alteration made in the route of any railroad after the company has commenced grading, compensation shall be made to all persons for injury so done to any lands that may have been donated to the company. All the provisions of this act relative to the first location, and to acquiring title to land, shall apply to every such new or altered portion of the route.

SEC. 24. Whenever the track of a railroad constructed by a company formed under this act shall cross a railroad, a highway, turnpike or plank road, such highway, turnpike or plank road may be carried under or over the track, as may be found most expedient; and in cases where an embankment or cutting shall make a change in the line of such highway, turn-

pike or plank road desirable, with a view to a more easy ascent or descent, the said company may take such additional lands for the construction of such road, highway, turnpike or plank road on such new line as may be deemed requisite by the directors. Unless the lands so taken shall be purchased for the purposes aforesaid, compensation therefor shall be ascertained in the manner prescribed in this act for acquiring title to real estate, and duly made by said corporation to the owners and persons interested in such lands. The same, when so taken, shall become part of such intersecting highway, turnpike or plank road, in such manner and by such tenure as the adjacent parts of the same highway, turnpike or plank road may be held for highway purposes.

SEC. 27 (as amended by the act of April 22, 1862). No company formed under this act shall lay down or use in the construction of their road any iron rail of less weight than fifty-six pounds to the lineal yard, except for turnouts, sidings and switches and roads upon which steam power cannot by law be used; and on the last mentioned road such weight shall not be less than forty pounds to the lineal yard.

SEC. 28. Every railroad company shall have power to construct their road across, along, or upon any stream of water, street, road, or canal, which the route of its road shall interest; but the company shall restore the same to such a state as not to have impaired its usefulness. But no railroad bridge shall be erected across any stream navigated by steam boats or sail boats. Every railroad company shall have power to cross, intersect, join and unite its road with any other rail-

road, at any point on its route. Every company whose railroad, shall be intersected by any new railroad, shall unite with such new railroad in forming such intersections and connections, and grant the necessary facilities therefor.

Every railroad company shall have power—

7. To take and convey persons and property on their railroad by the power or force of steam or of animals, or by any mechanical power, and to receive compensation therefor.

8. To erect and maintain all necessary and convenient buildings, stations, fixtures and machinery for the accommodation and use of their passengers, freights and business.

9. To regulate the time and manner in which passengers and property shall be transported, and the compensation to be paid therefor; but such compensation, for any passenger and his ordinary baggage, shall not exceed three cents per mile.

10. From time to time to borrow such sums of money as may be necessary for completing and finishing or operating their railroad, and to issue and dispose of their bonds for any amount so borrowed, and to mortgage their corporate property and franchises to secure the payment of any debt contracted by the company for the purposes aforesaid; and the directors of the company may confer on any holder of any bond issued for money borrowed as aforesaid, the right to convert the principal due or owing thereon, into stock of said company, at any time not exceeding ten years from the date of the bond, under, such regulations as the directors may see fit to adopt.

SEC. 29. Whenever the railroad of any company formed under this act shall run parallel or nearly parallel to any canal of this State, and within thirty miles of such canal, the company owning such railroad shall pay to the canal fund, on all property transported upon its railroad other than the ordinary baggage of passengers, the same tolls upon that portion of the road running parallel to the canal, that would have been payable to the State if such property other than baggage had been transported on any such canal; and every such company shall make returns, at such times and in such manner as the commissioners of the canal fund shall prescribe, of all the property transported on its railroad, except ordinary baggage of passengers; and the same commissioners are authorized and required to prescribe the manner in which such tolls so payable to the canal fund by such company, shall be collected and paid, and to enforce the collection and payment thereof, and to make such regulations as they shall deem proper for that purpose; and every such company that shall neglect or refuse to comply with any such regulations, shall forfeit to the people of this State the sum of five hundred dollars for every day it shall so neglect or refuse; and in every case of such forfeiture, it shall be the duty of the attorney-general to prosecute such company for the penalty.

SEC. 30. Suitable uniforms and badges of office must be worn by every person employed.

SEC. 31. Every railroad company must make a comprehensive annual report to the State Engineer, under one hundred and five distinct heads; or else shall pay

to the State two hundred and fifty dollars for every report omitted.

SEC. 34. All railroad companies shall, when applied to by the Postmaster-General, convey the U. S. Mails. And in case the Postmaster-General shall require the mail to be carried at other hours, or at a higher speed than the passenger trains are run, the corporation shall furnish an extra train for the mail, and be allowed an extra compensation for the expenses, and wear and tear thereof, and for the service, to be fixed as aforesaid.

SEC. 37. A check shall be affixed to every parcel of baggage, when taken for transportation, by the agent or servant of such corporation, if there is a handle, loop or fixture, so that the same can be attached upon the parcel or baggage so offered for transportation, and a duplicate thereof given to the passenger or person delivering the same on his behalf; and if such check be refused on demand, the corporation shall pay to such passenger the sum of ten dollars, to be recovered in a civil action; and further, no fare or toll shall be collected or received from such passenger, and if such passenger shall have paid his fare, the same shall be refunded by the conductor in charge of the train; and on producing said check, if his baggage shall not be delivered to him, he may himself be a witness in any suit brought by him, to prove the contents and value of said baggage.

Several subsequent acts have been passed, the most important of which are those of Feb. 13, 1851; March 25, 1853; April 15, 1854; April 14, 1857; April 7, 1858; April 29, 1863; April 22, 1862; May 5, 1864;

and April 20, 1864. The amendments to the general railroad act of April 2, 1850, are noticed above, in the respective sections that have been amended.

RAILROAD LAWS OF PENNSYLVANIA.—Act of Feb. 19th, 1849. SEC. 1. Whenever a special act of the legislature shall be passed, authorizing the incorporation of a company for the construction of a railroad, any five of the commissioners named in the act shall have power to open subscription books. No subscription to railroad stock shall be valid, unless a payment of five dollars is made on every share subscribed, at the time of subscribing.

SEC. 2. When ten per cent. on the capital stock shall have been subscribed, and five dollars, as above, paid on each share, the governor shall (and this duty is discretionary, and not ministerial, and cannot be interfered with by injunction or mandamus) create and constitute the subscribers into a body politic and corporate, with the full powers of a railroad company. But they are not to purchase or hold any real estate, except such as may be necessary for constructing their railroad, &c.

SEC. 4. The stockholders shall elect a President and twelve Directors annually, on the second Monday in January.

SEC. 6. The President and Directors are authorized to exercise all the powers of the corporation.

SEC. 8. The capital stock shall be divided into shares of fifty dollars each.

SEC. 9. The dividends of so much of the profits as shall appear advisable to the directors, shall be declared

in January and July, in each year; but the dividends shall in no case exceed the amount of the net profits.

SEC. 10. The President shall make an annual report to the stockholders; and whenever required, shall furnish a full report to the legislature.

SEC. 11. The legislature may revoke the charter in case of abuse, and may take the road for public use, on making full compensation to the stockholders.

SEC. 12. The company may enter upon and occupy lands necessary for the road, not, however, passing through any burying ground or place of public worship, or any dwelling house without the owner's consent.

SEC. 13. When the company cannot agree with the owners of lands for the compensation, the Court of Common Pleas shall appoint seven freeholders of the county. Any five of them shall view the premises, and shall estimate and determine the amount of compensation, and make report to the court; and if the report be confirmed by the court, judgment shall be entered thereon, and execution may issue thirty days thereafter.

SEC. 17. Wherever it is necessary to cross any established road, the railroad shall be constructed across such road so as not to injure the use of the latter.

SEC. 19. (Act of Feb. 11, 1853.) Every railroad company is authorized to change the gauge of their road.

CONSOLIDATION OF RAILROAD COMPANIES.—Act of May 16, 1861.

SEC. 24. Railroad companies may consolidate, if the

articles of consolidation are ratified by the stockholders.

SEC. 36. (Act of April 2, 1859.) Every railroad company must make a full annual report to the auditor-general, on the 1st of December, under a penalty of five thousand dollars for each omission.

RAILROAD LAWS OF ILLINOIS.—The basis of the railroad laws of Illinois is the Act of November 5, 1849. It is voluminous, and very comprehensive in its provisions. Of these the following is a brief summary.

SEC. 1. Any number of persons, not less than twenty-five, may associate, take stock, pay ten per cent., sign articles, become incorporated, and construct and operate railroads. The articles of association must set forth the name of the company, the amount of the capital stock, the names of the directors, and the termini of the proposed road.

SEC. 6. No person can be a director unless he is a stockholder. Sec. 9 requires the President to make an annual report. Sec. 13 provides that the stock of the company shall be deemed personal property, and may be transferable.

SEC. 14. "All the stockholders shall be severally and individually liable, to an amount equal to the amount of stock held by them respectively, for all debts and contracts made by the company."

SEC. 21. Among the general powers of the company they are empowered to enter upon the lands of any person, but subject to responsibility for damages; to purchase, hold, and use all such real estate and other property as may be necessary for the construction and

maintenance of the road depots and stations; to construct their road upon or across any stream of water, road, railroad, or canal, which the route of its road shall intersect, but without impairing the usefulness of such stream, road, railroad or canal; "to cross, intersect, join, or unite its railroad with any other railroad, at any point on its route, and upon the grounds of such other railroad company; and every company whose railroad shall be intersected by any new railroad, shall unite with the owners of such new railroad in forming such connections, and shall grant the facilities aforesaid."

SEC. 24. Nothing in this act shall authorize any railroad company to make a location of their track within any city, without the consent of the common council.

SEC. 28. Every railroad company must make an annual and comprehensive report to the Secretary of State.

SEC. 29. Or may omit to make it, on payment of two hundred and fifty dollars for each omission, to be sued for by the State.

SEC. 31. The State shall have a lien upon all railroads and their appurtenances and stock, which shall take precedence of all judgments.

SEC. 33. All railroads must carry the U. S. Mail, if applied to by the Post-Master-General. In case the latter shall require the mail to be carried at other hours and at a higher speed than the passenger trains be run at, the railroad company shall furnish an extra train for the mail, and be allowed an extra compensation.

THE CONSOLIDATION ACT; PROVIDING FOR THE CONSOLIDATION OF RAILROAD COMPANIES.—Act of Feb. 28, 1854.

SEC. 1. All railroad companies and plank-road companies which have the termini fixed by law, whenever their roads intersect, may consolidate their property and stock, and may consolidate with companies out of the State, whenever their lines connect with the lines of such companies.

SEC. 2. Such consolidated companies are regarded, after consolidation, as one body corporate and politic.

SEC. 3. The consolidated corporation shall have power to increase their capital stock to any amount not exceeding the cost of the consolidated roads and works.

Other railroad laws have subsequently been passed by the legislature of Illinois, but none in conflict with the above.

To give even a synopsis of the railroad laws of the other States, would swell this volume to an unwieldy bulk. The above synopsis of the railroad laws of New York, Pennsylvania, and Illinois, will give a good general idea of those of the other States. And as a general rule, in regard to the railroad laws of the respective States, it may be observed 1st, that they confer every necessary power and privilege on railroad companies, and that to the fullest extent; and second, that they fully protect the rights of private individuals, and the public, from any invasion on the part of these corporations. Where these ends are both secured, no other legislation is necessary.

A P P E N D I X.

NOTE A.—NEW YORK AND ERIE RAILWAY.

DURING the year 1857, it was determined by the Board of Directors of this Company to replace iron with steel rails whenever renewals were made; and to lay a double track on the Delaware Division of the road, also with steel rails. The report of the General Superintendent, made March 3, 1868, is as follows:—

“OFFICE GENERAL SUPERINTENDENT,
NEW YORK, March 3, 1868.

HON. JOHN S. ELDRIDGE, *President Erie Railway.*

“SIR: On the 3d of December I addressed a communication to the Vice-President recommending the purchase of five thousand tons of steel rails, and at an interview with you I expressed the opinion that fifteen thousand to eighteen thousand tons of rails would be required for the repairs of track during the year 1868.

“Since that opinion was given we have passed through three months of unusually severe winter weather and moved more than an average winter tonnage, with the road-bed frozen solid as a rock, the rails encased in snow and ice, so that it has been impossible to do much in the way of repairs; the iron rails have broken, laminated and worn out beyond all precedent, until there is scarce a mile of your road, except that laid with steel rails, between Jersey City and Salamanca or Buffalo, where it is safe to run a train at the ordinary passenger-train speed, and many por-

(413).

tions of the road can only be traversed safely by reducing the speed of all trains to twelve or fifteen miles per hour, solely on account of the worn-out and rotten condition of the rails. Broken wheels, axles, engines, and trains off the track have been of daily, almost hourly, occurrence for the last two months, caused mostly by defective rails. Fully one thousand *broken rails* were taken from the track in the month of January, while the number removed on account of lamination, crushing, or wearing out, was much greater. February will show a still worse record than January.

“The failure of rails is confined to no particular make, although there is a difference, easily observed, between those made at Scranton and those re-rolled at Elmira. The former break readily into many pieces, and by so doing are pretty sure to throw a train from the track; a large number of these rails have broken with less than six months' service, some with scarce one month's wear.

“The Elmira re-rolled iron seldom breaks until very much worn, but it does not possess the hardness and durability found in the Scranton iron, when the latter has strength to resist breaking strains.

“With the ten miles laid with the John Brown Bessemer steel no fault need be found. Only one rail has broken during the winter, and no lamination and very little wear is perceptible. Twenty steel rails were laid in Jersey City yard last March; the iron rails adjoining, subject to the same wear, have been renewed four times since the steel was put down, and I have no doubt the steel rails will outlast three times as many more iron rails.

“This winter's experience has satisfied me that the quality and weight of the iron rails in use cannot be depended upon to sustain the traffic of the Erie Railway. Forty-two tons locomotives hauling trains of fifty and sixty loaded cars, and passenger engines weighing thirty-seven

tons, running at a speed of thirty to forty miles per hour, literally crush and grind out the iron rails beneath them. Instances have been reported to me of rails removed from track too much worn for safety, where the first imperfection was visible but the day before.

“In view of this state of things what is the remedy? Manifestly the adoption of steel rails as far as practicable, and iron rails of superior quality and heavier section, to be followed by the gradual reduction of the weight of engines and cars as new equipment becomes necessary. The tendency has been of late years to larger and more powerful locomotives, and heavier, stronger cars, and this has been carried to such an extent as to render them out of all proportion to the strength and durability of the track. Especially has this been the fact upon the Erie Railway.

“The condition of the iron at the present date is such as to give not much anxiety and apprehension for the safety of trains. We cannot and do not attempt to make the schedule time with our trains; nearly all lose from two to five hours in passing over the road, and it has been only by the exercise of extreme caution we have been able thus far to escape serious accident.

“A very large quantity of rails must be laid as soon as the weather will permit and they can be furnished.

“In conclusion, I desire to modify my estimate of the quantity of rails required for the current year. After a careful observation of the whole road, assisted by information obtained from Division Superintendents and Track Masters, I have come to the conclusion that twenty-five thousand tons of rail will be needed to keep up your track in 1868, and I would earnestly recommend that as large a proportion as possible shall be of steel.

“Very respectfully, your obedient servant,

H. RIDDLE,
General Superintendent.”

NOTE B.—PENNSYLVANIA RAILROAD.

The earnings of the Company during the year 1867 exceeded sixteen millions of dollars, being sixteen million three hundred and forty thousand one hundred and fifty-six dollars. Of this amount, nearly three and a half millions of dollars were from passengers. The expenses amounted to twelve millions of dollars (\$12,080,299); leaving as the net earnings of the road for the year 1867, four million two hundred and fifty-nine thousand eight hundred and fifty-six dollars; being an increase of two hundred and fifty-one thousand nine hundred and seventy-eight dollars, over the net earnings of 1866.

The general results of the year 1867 show a large increase in the business of the road.

The annual report of J. Edgar Thomson, Esq., President of the Company, made Feb. 15, 1868, says:—

“The Tyrone and Clearfield Railroad at present terminates at Phillipsburg. During the past year the road-bed has been graded to the town of Clearfield, and the track will be laid upon it in the ensuing spring and summer.

“That portion of the railway between Pittsburg and Columbus, Ohio, extending from Pittsburg to the Ohio River, across the State of West Virginia—in consequence of its great cost and long delay in its construction—became involved in inextricable financial difficulty, to free it from which it was sold under a decree of the Supreme Court. Arrangements are now being made to consolidate it with the Steubenville and Indiana Railroad, under the name of the Pittsburg, Cincinnati and St. Louis Railway Company, with a view to make but one corporation between Pittsburg and Columbus. In this line the Pennsylvania Railroad Company has a large interest in its shares, and we entertain the belief that its revenues will at once pay

an interest upon the amount *now* charged to that account. The chief motive, however, in incurring this expenditure was, as already mentioned, the advantage it afforded to this Company in securing the freight and travel to and from the Southwest, for which we had previously no independent connection. The line is now in full operation, and in this respect has met our expectation, gaining for the traveller a saving of several hours in his journey from Philadelphia and New York to Cincinnati, over any other route.

“ The Philadelphia and Erie Railroad Company, under the lease, is obliged to furnish the money to meet the expenditures for this object, but as it is without means or available credit, it devolves upon this Company to supply the deficiency or continue an unprofitable arrangement. As neither the public advantage nor the permanent interest of this Company will justify the latter alternative, the Board, with a view to apply the expenditures mentioned in a manner that will best promote the objects in view, has purchased and converted obligations that have accrued against that Company, into its capital stock to the extent of thirty-one thousand six hundred and thirty-six shares of Common, and forty-eight thousand of Preferred, amounting in all, at par, to nearly four million of dollars—sufficient to determine the future mode of managing the affairs of the Company.

“ This line and the Pennsylvania Railroad occupy the only routes within this Commonwealth upon which a railway for through business can be built, and yield a reasonable return upon the capital that may be expended in its construction. Upon all other routes, several additional mountain summits will be encountered, besides the increased cost hereafter of constructing such a work. With this knowledge we may safely make outlays for the development of their traffic. The extent to which this can be

done by a judicious enlargement of the field of operations of the Philadelphia and Erie line may be appreciated by referring to the history of our own railroad, which was only opened as a continuous railway in connection with the State road, between Philadelphia and Columbia, on the 15th of February, 1854—at which date the Eastern and Western Divisions of what was originally the Pennsylvania Railroad were united, avoiding the ten inclined planes, operated by stationary power, which had previously lifted the traffic over the Alleghanies. The revenues of this Company, from the whole line, from Philadelphia to Pittsburg, during 1854, the first year of its operation as a continuous line, were three million five hundred and twelve thousand two hundred and ninety-five dollars. In 1867, between the same points—with addition of the local business of the State railroad—they were sixteen million five hundred and eighty-three thousand dollars, an increase of nearly fivefold in money and much larger in tonnage.

“It is true the Pennsylvania Railroad traversed a country that had been partially developed by the State improvements, and a large local traffic became immediately available, but at that time the through business was of inconsiderable extent. It has since vastly increased by the rapid growth of the West, both in population and wealth, and is capable of still greater development by the introduction of rates of freight that will successfully compete with those charged upon the lakes and the New York canals.

“A line possessing a large mixed traffic, such as commanded by the Pennsylvania Railroad, cannot fully meet this requirement without the construction of a third track throughout its length, by which trains can be moved at a low rate of speed without serious interruption to the traffic that will pay for the cost of a more rapid movement.

Instead of a third track upon the Pennsylvania Railroad to meet this demand, as originally suggested, it has been proposed that the line of the Philadelphia and Erie Railroad, as far as practicable, be taken for such a thoroughfare. This line will cross the summit between the eastern and western waters where the elevation is fourteen hundred and fifty feet above tide, which may be overcome by gradients not exceeding a rise of a half of a foot in one hundred feet, passing through a region abounding in the best bituminous coal for fuel.

“A road built to accommodate the object contemplated must be located and constructed with a view to secure the lowest possible cost of movement of trains, and its locomotives and cars adapted to the business they are intended to move and the speed they will travel. Instead of changing locomotives at the end of each day’s service as at present, the trains under this system will be provided with double crews, alternating their time upon duty until their destination is completed and the return trip accomplished. The speed of the freight trains should not exceed an average of six miles per hour.

“As through travel and general merchandise will seek lines where the movement is more rapid, a railway operated upon this principle can only be introduced with advantage to the community and profit to its shareholders, where the traffic that it will command is very large. The profits upon the capital invested in such a line must be realized from a small margin over cost upon a very large tonnage to be moved. But few, if any, locations at present afford a business sufficient to justify the construction of a railway specially operated upon this principle, and one between the East and West will be sufficient to meet the public demand for many years. In New York the Erie Canal fulfils the objects of such a work not only for that

State but for through tonnage between the East and the West. No route in Pennsylvania or elsewhere between the seaboard and the West affords equal facilities for the introduction of this system as the line occupied by the Eastern portion of the Philadelphia and Erie Railroad, where a basis for it may be laid with confidence as to its affording favorable results. A railroad operated upon this plan will ultimately be extended to the Mississippi River across the table lands of Ohio, Indiana, and Illinois, south of the great lakes, which, when the tonnage is sufficient to justify its construction, will afford a medium of transportation at all seasons of the year, as cheap and more expeditious than *via* the lakes and Erie Canal, without materially interfering with the profits of existing lines. The general introduction of this system of railways to supersede the present lines can only end in a disastrous failure wherever tried."

NOTE C.—NORTHERN CENTRAL RAILROAD.

THE earnings of the road for the year 1867 were three million six hundred and ninety thousand eight hundred and sixty-eight dollars. The operating expenses were two million four hundred and seventy-eight thousand seven hundred and nine dollars; making the net revenue one million two hundred and twelve thousand one hundred and fifty-eight dollars.

The annual report of J. D. Cameron, Esq., President of the Company, made Feb. 20, 1868, for the year 1867, says:—

"Our business has grown so rapidly within a short space of time, and so much expenditure has been necessary to perfect the track, extend sidings and furnish equipment, that we have delayed, as far as we could, the building of

shops for the repair of engines and cars. Additional shops have now become an urgent necessity, and we propose to erect suitable buildings for that purpose at Sunbury. During this year we have added to the equipment seven locomotives, two passenger cars, two baggage cars, twenty-five box cars, twenty-nine gondolas, thirty-four lime cars, and three hundred and seventy-seven coal cars, at a cost of two hundred and sixty-five thousand one hundred and thirty-four dollars and forty-one cents, and we have already contracted to have delivered in the early part of this year ten locomotives, one hundred stock cars, and five hundred coal cars.

“ We have purchased and put into the track some additional steel rails. Our experience so far with steel rails has been satisfactory, and we regret that we have not the ability to use them exclusively in the renewal of the track. As the tires on the locomotives have worn out they have been replaced by steel tires, and the change has been found to be an economical one. The operations of the leased roads have been much more satisfactory than during the preceding year. The increase of tonnage from them has added materially to the business of the main line, and the arrangements lately consummated for securing additional trade from the West and Northwest are such that we feel the time is not far distant when we will be benefited, not only by the trade which they add to the main line, but that the increase will make them self-sustaining, and they will become a source of direct profit, as the Shamokin division has been since the commencement of its lease by this company.

“ As the receipts incident to the inflation of trade produced by the war are no longer perceptible in our business, a comparison of the business of this road for the year just

closed with that of the year immediately preceding the war, will be interesting.

In the year 1864 the entire receipts of the road were	\$964,621 30
The expenses were	<u>717,265 64</u>
And the net revenue was	<u>\$247,355 66</u>
In 1867 the gross receipts were	\$2,676,084 61
Expenses	<u>1,556,538 71</u>
Showing net earnings amounting to	<u>\$1,119,545 90</u>

“The net earnings of 1867 are one hundred and fifty-four thousand nine hundred and twenty-four dollars and sixty cents in excess of the entire earnings in 1860, and the comparison shows an increase of 177 per cent. in the gross earnings, and 452 per cent. in the profits. The number of passengers carried in 1860 was two hundred and eighty-seven thousand six hundred and thirty, while in 1867 we carried six hundred and fifty-five thousand six hundred and fifty-one.”

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