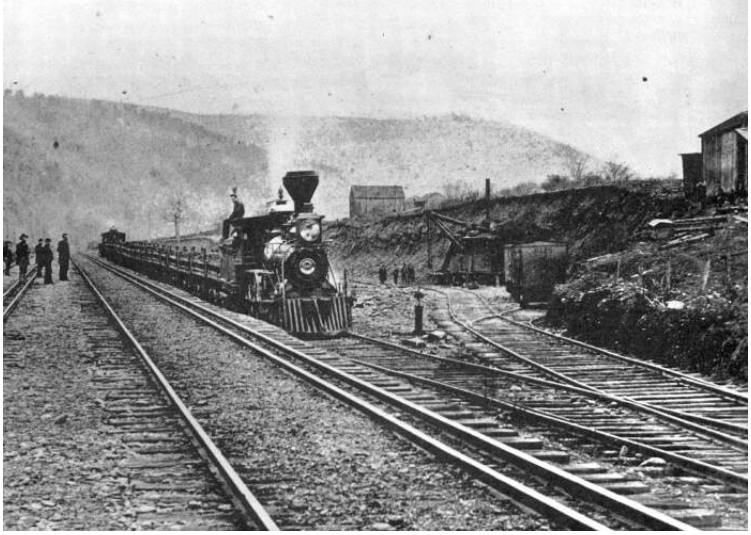

The Erie Third Rail - In 1876, the standard gauge Lehigh Valley advanced the Erie Railroad some $2 million to lay a third rail from Waverly to Buffalo so that freight no longer had to be broken at the former point and transferred to wide gauge cars. This view shows Erie engine 199 on the mainline next to the gravel pit at Cameron Mills, which may have been a source for stone ballast. Lehigh Valley locomotives pulled through freights to Buffalo this way before it opened its own main line west of Waverly in 1893.

Erie Railroad Scraps the Broad Gauge

by Richard F. Palmer

It is generally known among railroad historians that the Erie Railroad was originally constructed to six-foot gauge, and it has been chronicled many times in various histories. Less known is the long-term project to convert it to standard gauge.

Starting in the late 1860s, a third rail, as finances would permit, was gradually laid the length of the system to accommodate standard-gauge rolling stock and to permit interchange with other railroads. It is recorded that the Lehigh Valley Railroad advanced the money to the Erie to lay a third rail west from Waverly, N.Y. so it could operate standard-gauge coal trains to Buffalo. This arrangement was continued until the 1890s when the Lehigh Valley built its own main line from Sayre to Buffalo.

This eliminated the complicated operation in which railroad officials had to sometimes resort to peculiar methods of coping with the different gauges. For example, Erie locomotives were equipped with offset couplers to handle both wide and standard-gauge cars. Dual-gauge yards could be nightmares when snow covered the tracks only experienced trackmen could contend with.

Virtually the only source of information for this interesting chapter in railroad history is the local newspapers of the day. They reveal fascinating details of how this massive slimming of the rails was accomplished. Although the actual changeover may in many cases have been done in a matter of hours, months of preparation went into this. The newspapers hailed the changeover as a miracle of technology.

Following are several newspaper articles explaining how this was accomplished. It wasn't until 1882 and the investment of some $22 million that the Erie management finally corrected this extremely costly mistake of not going to standard gauge in the first place. It all but

drove the Erie into bankruptcy because it also necessitated the standard-gauging of thousands of pieces of rolling stock, including locomotives, coaches and freight equipment.

- *American Railroad Journal*, April 10, 1852

Gauge of Railroad from Buffalo to Cleveland.

From Cleveland, Ohio, to Erie, Pennsylvania, the Ohio gauge of four feet ten inches is used. Upon the Erie and Northeast railroad, extending from Erie to the New York State line, a distance f some 18 miles, the wide, or six feet gauge has been adopted. From the state line to Buffalo, the four feet ten inch gauge prevails.

To whom this arrangement is owing we are not informed, but the genius of all evil himself could not have framed a more inconvenient, or one better adapted to obstruct business and travel. With the exception of the Buffalo and State-line road, the only gauges known in this State are the 4 feet 8 1/2 inches, and the 6 feet.

Common sense would seem to dictate that one of these should have been taken by the Lake Shore road. As it is, there must now be transshipments at Buffalo, Dunkirk, the Pennsylvania state line, and at Erie; making tour where there should have been but two at most. Either the wide or the narrow gauge should have been carried to Erie. That would have been a convenient place of transshipment, and would probably have been selected as such, had there been no break of gauge even thee. There must be a limit to the distance to be run by freight and passenger cars. It is found to be more economical and convenient to transship freight from one train to another, than to run the train over given distance, on account of the difficulty of preserving order in the arrangement and distribution of the cars.

We presume that under no circumstances whatever, would cars loaded at Cleveland be run through to this city. A break of gauge at some point upon the line between the above cities is not objectionable, provided it occurs at the most convenient point. But where there are three or four interruptions to the transit of merchandise and travel, within short distances, and at the most inconvenient places, they will be found to work a serious injury to traffic of all kinds.

We predict that evil will be in a short time become unbearable, as to work out its own cure. What the Erie people were about, when an arrangement was completed, that completely prevented them from moving in any direction, is more than we can opine. At the lake their road comes to a dead halt, and all through business has to be tumbled out of their own cars upon those of other companies. All these blunders must be remedied, and the sooner the better.

- *Montrose (Pa.) Democrat*, Feb. 16, 1876

The laying of a third rail by the Erie Railway between Waverly and Buffalo, will be in effect the first step taken by that road to reduce the gauge. The tendency in all railroads is now toward narrow gauge, which is found to be quite as safe and convenient as broad gauge and much cheaper. In a few months the Albany and Susquehanna Railroad will be entirely narrow gauge; the Delaware, Lackawanna and Western Railroad are making arrangements for a similar change from Scranton to Syracuse; and it is safe to predict that ere many years a broad gauge car will be unknown in this locality.

- *Montrose Democrat*, April 26, 1876

The third rail on the Erie railway from Jersey City to Waverly will be laid by the Delaware, Lackawanna and Western and Delaware and Hudson companies, they receiving from the Erie company 24 percent of the earnings for two years. The Lehigh Valley Railroad company will lay the third rail from Waverly to Buffalo and will have a perpetual lease of road so that they can run their trains over the Erie at any time. They have formerly been obliged to pay a large sum for the privilege. Over 1,200 carloads of iron will be required to lay the third rail from Jersey City to Buffalo.

- *New York Tribune*, Nov. 8, 1877

Receiver Jewett of the Erie Railway, has been authorized to lay a third rail from Binghamton to Susquehanna, to connect with the Jefferson Railroad (which is leased by the Erie), and on which a third rail has already been laid. The Jefferson road taps the Delaware and Hudson Railroad system at Carbondale, and this route will give the Erie another outlet to Philadelphia. The object of obtaining this authority at present was to to furnish a guarantee to the directors of the Boston, Hoosac Tunnel and Western Railroad, that the necessary arrangements for a Boston connection would be made, without which they refused to begin the construction of their road.

Accompanying the request for the order, was a letter from T.W. Powell to Mr. Jewett. Mr. Powell and Sir Edward Watkin are the "independent trustees, not representing any special interest." Mr. Powell, who has now returned to England, states that he was authorized by the other seven trustees of the reconstruction program to act on their behalf during his visit to America. "I have, therefore, to inform you," he says, "that the trustees approve the laying of the third rail for narrow gauge on that section and the issue of the receiver's notes for the purchase of the necessary steel and iron. And you may assure the vendors thereof of such an approval, and of our intention thereof of such an approval, and of our intention as trustees, having control of the expenditures of the assessment money after the intended foreclosure sale, that (without assuming or being held liable for any personal responsibility) it is our intention to protect and pay any portion of the receiver's notes for the purchase money of said steel and iron, which may not be paid by the receiver before he hands over the road to the purchasers, under the reconstruction program."

Mr. Powell's authority to act was contained in a resolution of the Reconstruction Trustees, which provides that: "Mr. Powell be urgently request to proceed to America to decided with Mr. Jewett the appointment of Purchasing Trustees, and to make such arrangements as may be necessary in his best judgment, to further the completion of foreclosure, the repurchase of the undertaking, and the reorganization of the company."

- P. 22, Annual Report of the New York, Lake Erie & Western RR Co., June 1 to Sept. 30, 1878.

The Third Rail

On the 14th of August the third rail was completed and the standard gauge opened for business between Waverly and Binghamton, thereby making a continuous standard gauge of 4 feet 8 1/2inches between Suspension and International bridges, Buffalo and Binghamton, connecting at the latter place with the Albany an Susquehanna Division of the Delaware and Hudson Company, and thus securing a connection with Albany, and a prospective connection

with New England, and also connecting with all the standard gauge railroads between these points, and on September 30 the third rail was completed between Binghamton and the junction with the Jefferson Railroad, 65 26/100 miles east of Waverly, thereby connecting standard gauge, via the Jefferson Railroad, with the Wyoming and Lackawanna coal fields, and the system of the Central Railroad of New Jersey.

- *Cincinnati Commercial*, Jan. 4, 1879

Erie's Narrow Gauge -- The Laying of the Third Rail.

Advantages of the New Gauge.

(New York Tribune) - In April last the Erie Railway reorganized, and under the new management the familiar name was changed to New York, Lake Erie and Western Railroad. But the new management made other changes besides that of name. The most important of these has been change of the gauge of the road, which has been accomplished by the laying of a third rail. This work was begun in 1876, when the alteration was made on the Buffalo, and a part of the Susquehanna Division, so that narrow-guage cars of the Lehigh Valley Line were run from Philadelphia through to Buffalo on the Erie Road from Waverly.

Last summer the laying of the third rail was continued to Binghamton, connection being there made with Albany by the Susquehanna Railroad. The work was completed last when the additional rail was finally laid to Jersey City, and yesterday the first train passed over to Port Jervis, the end of the Eastern Division. Hereafter it will be in constant use.

Octave Chanute, Assistant Superintendent of the railroad, yesterday gave the following account of the adoption of the old gauge, and its change:

"When Stephenson built the first railroad the gauge adopted was five feet between the centers of the rails. The rails were then U-shaped, they had a trough in the center about three inches in width, for the wheel to run in. But this form was soon abandoned, because the dirt collected in it, and the edge, or T-shaped rail was adopted. In order to adapt this to the rolling stock then in use, it was found necessary to measure the gauge on the inside of the rails, and this four-feet eight and one half inches, which thus became the standard gauge.

The managers of the Great Western Railway of England believed that more power could be gained by having a broad base to the boiler, and that greater security would be insured by a broader gauge. So they adopted seven feet. When the Erie was built three ideas prevailed, and the six-foot or broad gauge was chosen. But these principles have since been proved to be fallacious; no advantage has been gained by the extra width, and the cost of rolling-stock has been much increased."

"What will be the advantage to the road of the new rail?"

"The great saving will be in running freight through without breaking bulk. Time and money will be saved by not having to change the loads of cars when they come on our line. We have saved the unloading of through cars by changing trucks at Buffalo, but this cost forty cents for each car and took considerable time. The way it has been done is this: Two cars, one on broad-gauge trucks and the other on narrow, were run in side by side. By hoisting machines the cars were raised and the trucks changed; one car went on west by the narrow gauge track and the other ran to this city on the broad-gauge. By the new regulations, cars of both gauges may be run on the same train. We have been doing that on portions of the road already provided with three rails. No difficulty is found, as we use a patent coupler, which causes a direct draft between

the two widths. Much care is necessary at the switches, however, and extra caution is enjoined upon all employees. To simplify matters as much as possible, we try to keep all cars of the same width together."

"Has the company purchased any new rolling-stock for the narrow-gauge?"

"We have ordered thirty new engines, which are being made in Patterson, and 3,000 new freight cars. The present rolling-stock will not be altered but will be replaced as fast as worn out by those of narrower gauge. It would cost only about half a million to change all the cars, but more than three times that mount would be necessary to alter new locomotives, as new boilers would be required. No change has been made in connections with other lines. It is quite probable that some arrangements may be made with other lines, such as the Midland, which meets us at Middletown, but so far the only change has been with the Montclair and Greenwood Lake Road. Of this road's stock we bought a large share at its recent sale, and the third rail will permit the running of their trains to our depot in Jersey City.

The trains of that road have been running to the depot of the Pennsylvania Central, but tomorrow the change will be made, and hereafter all passenger and freight trains of the road will run to and from our depot only. A general notice to that effect has just been printed. All business on that line will be noted at our offices."

John N. Abbott, General Passenger Agent, was asked if the completion of the new gauge would make any change in he running of passenger trains. "Our broad-gauge passenger and sleeping coaches," he said, "give us an advantage over other lines in the comfort of passenger. We have quite a reputation in this respect between here and Buffalo, and we expect to keep it. Through trains of broad-gauge cars will be continued over our own line and our broad-gauge connection, the Atlantic and Great Western Railroad, o Rochester, Niagara Falls, Buffalo, Cleveland and Cincinnati.

"To points which we don't reach by broad-gauge we shall run narrow-gauge cars, as to Chicago, St. Louis and Detroit. The fast St. Louis express, leaving here at 6 P.M., will be made up of narrow-gauge cars, to run through. We had fifty new narrow cars built for us in the Centennial year, and placed on broad trucks, these we can change to use on the narrow gauge, if we wish. Of course, we shall build no new broad-gauge coaches, although they are pleasanter to ride in from their roominess, and run more steadily, from their broader base."

Most of the rolling stock conversion took place at company shops such as Susquehanna, Pa. and Hornell, N.Y., while some was done at smaller facilities for convenience.

- *Cattaraugus Republican*, Salamanca, N.Y., Thursday, June 24, 1880:

The Erie Narrowed Standard Gauge--A Day Without A Railroad Train--Waiting Passengers--Quick Work--An Ovation--Again On Time.

Never was the enterprise and push characteristic of our age more fully exemplified than in narrowing the gauge of the Erie last Tuesday. For the last few weeks extra gangs of men had been busily at work preparing the track and switches for the change, and getting everything in readiness for the moment when the order should be given to move one rail fifteen and a half inches nearer the other.

Moving the rail, however, did not constitute the greatest amount of work to be done. The handling of the vast amount of rolling stock was one of the largest jobs in connection with the work. Monday morning the yards all along the division were full of broad gauge cars, and these

had to be sent to Hornellsville on that day. During the day 300 cars were shipped out of Salamanca, and at night the yard on the Erie side looked desolate and deserted. The old switch engines, 304, 36 and 73, which had so long pulled in and out on the labyrinth of switches, were likewise sent away. As these old switch engines left the yard the Atlantic (and Great Western) engines and engines in the shops gave them a parting salute. The departing locomotives gave a long good-bye blast, which had in it some little tinge of sadness, and the whistles which had become familiar to all were heard for the last time on the Reservation. At 6 o'clock Monday evening there were but three broad gauge cars in the Erie yard -- the tool car and two gondolas, which were to be narrow-gauged here.

The passenger trains ran regular Monday forenoon, but in the afternoon there was a general abandonment after train 9 had passed over the road. The last broad gauge train over the road was a wildcat from Dunkirk to Hornellsville, run by conductor Kimball, and passed Salamanca at 9:30 P.M.

Monday night was a remarkable one in the history of the Erie road. After Kimball's "wildcat" reached Hornellsville, the shriek of no engine broke the stillness between Dunkirk and Hornellsville. The moon shone down upon a stretch of 198 miles of track upon which stood not a single car. Excepting a few cars in the shops at Salamanca, there was not a car on the Western division from 12 M until 9 o'clock on Tuesday morning.

The work of moving the rail began at 4:30 Tuesday morning, and at 8 A.M. intelligence was flashed over the wires to Superintendent Beggs that the work was completed on the main line. About 800 men were employed in the great enterprise, which was carried through without accident in just three hours and a half from the time the first spike was pulled. The Little Valley section was first to report its work finished. In just two hours from the time of beginning Foreman Carroll sent in his report that his section was ready for the narrow gauge trains. Track Foreman Wyman telegraphed to Superintendent Beggs that the Salamanca section was ready at 7:30. A number of sections were completed at almost the same moment.

Shortly after the news that the line was reduced to standard gauge, an inspection train, with Wm. Wilcox as conductor and containing Division Superintendent Beggs and other railroad officials was started out of Dunkirk. The train was pulled by an engine from the Dunkirk & Allegany Valley Railroad, "The Conewango, No. 3"--with engineer Tibbits at the throttle. The engine and cars were decorated with flags and the train was greeted with continuous ovation as it passed over the road. As it reached Salamanca, at 11:45, there was such a screeching of engines as is seldom heard. The "wildcat" inspection train proceeded to Olean where it was met by a similar train from Hornellsville. The Dunkirk train returned to Salamanca and was closely followed by the Homellsville inspection train, under the direction of Conductor Langworthy. The train was pulled by engine 574 and reached here at 2:30 P.M. and was greeted with an enthusiastic reception. M.W. Coburn, one of the most reliable engineers on the road, has the distinction of driving the first Erie engine over the narrow gauge track. Engine 574 is nearly new, having been used on the Buffalo Division for a few weeks. It is a 60 ton Mogul, built at the Grant Locomotive Works at Paterson.

The inspection trains having passed over the road, the track was pronounced in good condition, and train three was dispatched from Homellsville as "wildcat." The train, run by Conductor Martin, came into Salamanca at 2:50 P.M., being about three hours behind its regular time. David Cary, one of the oldest men on the line, pulled the train with engine No. 57. Thus with comparatively little inconvenience to the traveling public the Erie was reduced to standard gauge, and again the trains are speeding over the road nearly on time.

Notes

The gauge of the New York, Pennsylvania & Ohio Railroad between Leavittsburg, Pa., and Dayton, Ohio, was changed Tuesday from broad to standard. Two thousand five hundred men were placed along the line from Dayton to Leavittsburg, 325 miles. The work began at 3 a.m. and ended at 9 a.m. the shortest piece of work of this kind on record.

The trains on the Eastern Division of the NYP&O, with few exceptions, ran on about their usual time Monday and Tuesday.

Twenty new consolidated 60-ton moguls from the Grant Locomotive Works are to pull the freight on the westem division of the Erie. Their power seems almost limitless, and the boys say they will draw everything that can be hitched to them. One of them took about eighty log fed cars out of Salamanca yesterday morning.

On Monday a special order was issued by Superintendent Beggs, enjoining engineers and conductors to use the utmost care in running trains. The order was faithfully obeyed and the great amount of rolling stock moved to the east terminus of the division without delay or accident. The same care was enjoined and complied with in moving the train after the road had been reduced to standard gauge. About 70 cars have been narrow gauged at the Erie shops since the 15th of May. They are stamped "N.G. Salamanca, May (or June) 1880." "N.G." doesn't always stand for "no good."

The new bob-tail switch engine No. 515, to be used in the yard here, reached Salamanca Tuesday. Two more of the same pattern are expected to do the same work by the old switch engines. Train 12 on the N.Y. P.& O. came into Salamanca Tuesday with narrow gauge coaches. 1,600 cars from the N.Y.P.& O. road were sent east over the Erie between Monday and Monday night. Since the "embargo has been raised," freight traffic has been lively.

- *Rochester (N.Y) Union and Advertiser*, Saturday, July 30, 1881

"The Battle of the Gauges" Last of the Broad Gauge--The New York, Lake Erie & Western Railroad Conforms to the Standard

The broad gauge of the New York, Lake Erie & Western Railroad is no more. In the bright light of this beautiful summer morning with each moving rail a change was wrought and in a few short hours the diligent hands of experienced workmen had transformed the Erie road from a broad gauge route to one of standard gauge. It was a matter of expediency, nothing more. A few years ago this fact was fully appreciated by the directors and managers of the road, and a third rail -- allowing means of passage for both broad and standard cars -- was placed on the main line. To-day an important step has been taken by the company. The road between this city and Corning has been narrowed from a width of six feet between the rails, to one of 4 feet 8-1/2 inches, the standard gauge.

How It Was Done

As the Erie was the last railroad to submit to the "battle of the gauges," some little interest may be excited as to the manner in which the change was made. For several months past extensive preparations leading to a rapid narrowing of the road have been going on. All along the line between Corning and Rochester, a distance of 94 miles, the measurements for the new gauge have been made. In fact the line had already once been laid before work was commenced this morning. The east rail was the one to be moved, and just 15-1/2 inches from the inside of this rail

spikes had been set, throughout the entire distance, at intervals of time throughout the past two months.

Mr. Canfield of Buffalo, Road-master, and Thomas Conners, Supervisor of Tracks, had thoughtfully and carefully made preliminary arrangements and G. E. Butterfield, stationmaster in this city, had changed the switches in and about the yard, thus completing the preparations for successful and speedy changing of the gauge. Last night the rolling stock of the road was all transferred to Corning.

The Last train running on the broad gauge, drawn by engine number 11, B. Rogers, engineer, and A.S. Alexander, conductor, arrived in this city at thirty minutes past eleven and almost immediately returned to Corning. Between two and four o'clock this morning about 500 experienced workmen, employees of the Rochester, Buffalo, Susquehanna and Western Divisions, were distributed in gangs of six or eight each at equal intervals along the line of the road between this city and Corning. Strict orders were given to begin the work promptly at four o'clock and at that hour, all being in readiness, almost simultaneously each separate force of workmen began their allotted task. It was an interesting sight to one walking along the line of the railroad to see these men busy as beavers tearing up and rapidly replacing the rails. In each division the work was so arranged that it was carried on in the most systematic manner possible.

Perfect System

First came the men who skillfully and quickly withdrew the spikes, then followed swiftly those who moved the rail from its old position to the one destined for it alongside of the spikes already set, snd last of all in quick succession came those who drive the spikes about the rail in its new place. The work progressed far more rapidly than one would readily believe, the rate of taking up and relaying the rails being about one mile in four hours as performed by each gang. By eight o'clock the whole distance of ninety-four miles had been transformed from a broad gauge to the standard measurement and the last victory of the standard width, 4 feet 8-1/2 inches, in the battle of the gauges in this country has been won. The first arrival this morning over the newly laid track was the "wild cat" train from Avon, drawn by engine 60, Frank Marsh engineer, and A.S. Alexander conductor. This train left Avon at 8:15 and reached this city at 11:45, being detained about an hour and a half at the Henrietta section; the only place along the route where the men laying the track had not done all that was expected of them. At a quarter before twelve o'clock the train from Corning, drawn by engine 35, in charge of Augustus Johnson engineer, and G.H. Brown conductor, reached its destination, thus proving the complete transformation of the road.

Although this train was an hour and forty minutes late running time had been made, the delay being occasioned by waiting at various stations for orders, the passengers on this train report a gala day all along the line. At each station crowds were assembled to welcome the train and great enthusiasm prevailed. Hats were thrown in the air, handkerchiefs were waved and cheers burst from the lips of many. The change is completed and general satisfaction prevails and great credit is due to both managers and men for the highly creditable manner in which this work has been accomplished.

Fish Plates and Spikes

--J.E. Butterfield and his men did some hard work yesterday. John Wieman is the Boss man to "fix" switches.--The Hog (switch engine) left on Thursday morning at 5 o'clock never to return. The porcine locomotive, almost a historical machine, has done its duty.

--John English began at this end of the branch, with twenty men.
--Thirty men from Avon to Attica breakfasted at Mrs. Kelly's hotel at half-past two o'clock this morning.
--V. Rogers, the well-known engineer, enjoyed the distinction of driving the last locomotive over the broad gauge. He "made the old gal scream" before leaving the city.
--Frank Marsh is the first engineer over the narrow gauge on the Rochester branch.
--Tom Ford wants a little more practice before he can draw a spike properly. --It as amusing to see Dan Turner handle a crow bar yesterday.
--It was a big surprise to some of the boys on this end of the division to see themselves in the agony of perspiration. --Joseph Bradt was out with his rail gang this morning and did splendid service.
--Tom Connors, the supervisor of the tracks, tough obliged to forego the pleasure of helping in the narrowing, on account of indisposibility, followed the work of the men in his mind and was almost well when he heard the scream of the last engine out on the broad.