

Painting (1906) by E. L. Henry of the early days of railroading in the Mohawk Valley near Little Falls. LIBRARY OF CONGRESS

Featherstonaugh's Grand Idea

The Early Years of Railroading in Upstate NY

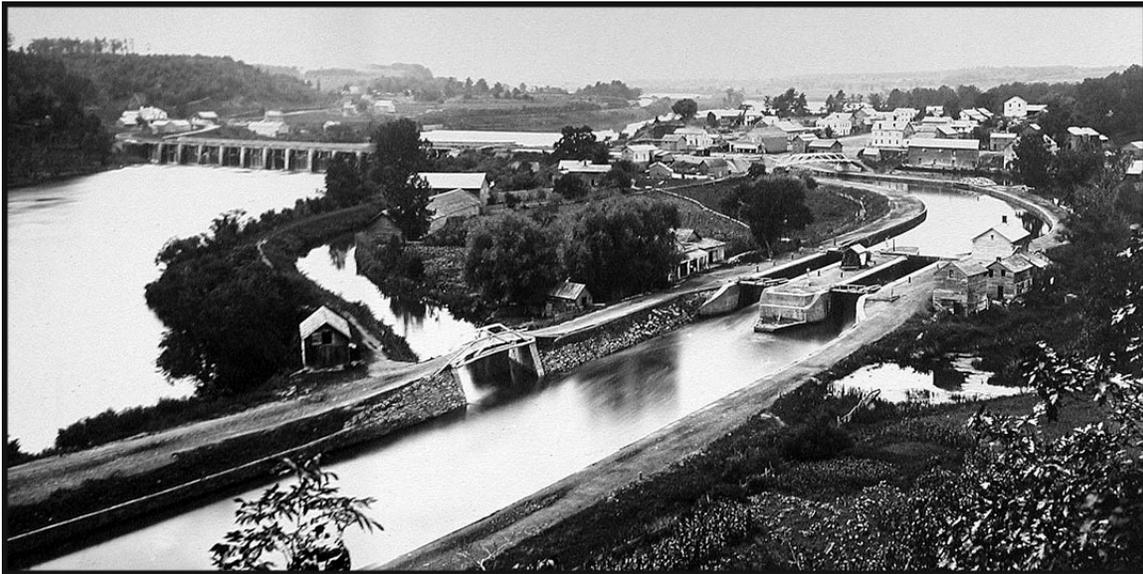
The origins of the Empire Corridor lie in the first half the 19th Century when rapid technological change – combining with and accelerating economic and population growth – led to the construction of some of the first railroads in America.

The then modern marvel of the Erie Canal had open in 1825, connecting the heartland of the nation with the East Coast. After many proposals dating back to the 18th Century when canoes of traders had to paddle and portage from Lake Ontario and down the Mohawk River, construction started on July 4th, 1817 in the village of Rome.

It was by far the greatest engineering project in the young country, costing the gross domestic product of the state to build, the money coming mostly from bonds (a federal loan was sought but denied) sold to domestic and foreign investors. Champion by NYS Governor DeWitt Clinton, the canal scheme had been called “little short of madness” by Thomas Jefferson in 1809, then the US President, who stated that it might be a good idea in a century hence.

The grand canal scheme proved so successful that it paid of its construction bonds in ten years, filling to the brim the coffers the state and federal government for some time in

canal tolls (state) and trade tariffs (federal) at the port of New York. The canal reached its peak in freight tonnage during the American Civil War, being enlarged several times during the 19th Century to accommodate the burgeoning traffic and larger barges. Eventually at the turn of the 20th Century the old Erie Canal and several of its branches were rebuilt into the current NYS Barge Canal System.



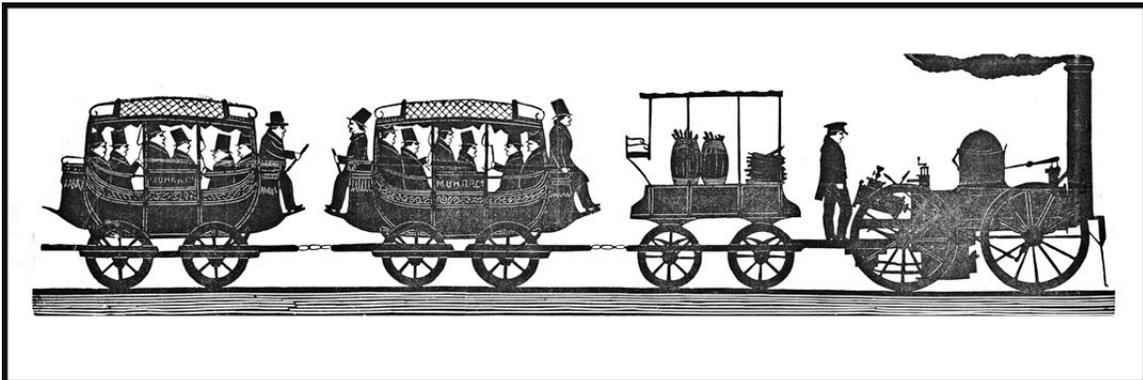
The Aqueduct over the Mohawk River of the Erie Canal at Rexford, between Troy and Schenectady. CLIFTON PARK COLLECTION

The Erie Canal allowed agricultural produce – on mule hauled canal barges – to flow eastward to markets on the Atlantic Seaboard and Europe; while industrial goods and immigrants flowed westward to new states of the Midwest, the formerly Northwest Frontier. Passengers and freight were transported by ship and steamboat up the Hudson River to Albany and Troy, or across the Great Lakes to Buffalo, where cargo transshipment occurred to the canal barges of the 40 foot wide, 4 foot deep, 363 mile long artificial channel of water across Upstate NY.

However, as great as the Erie Canal and its branches were for bulk cargo like grain and coal – cutting freight costs by 95% – for passengers, mail, and express parcels it left something to be desired. Even the swiftest packet boat drawn by a team of horses had a speed of only 4-mph, and passengers would often walk along the towpath to stretch their legs. Then there were the canal locks where boats had to wait before rising up or down on the water within the lock chamber.

While Lockport in Niagara County near Buffalo was most famous for its double flight of five locks, it was at the east end between Schenectady and Troy where there was the great density of locks in a short section. This was the 16 locks in several flights that allowed barges to navigate around a 140-foot drop in elevation, as the Mohawk River flowed over the Cohoes Falls into the Hudson River. The trip by the Erie Canal from Schenectady to Albany was 40 miles and took a whole day, yet the distance via the Albany-Schenectady turnpike road was only 15 miles. Therefore, many passengers saved time and avoid the Cohoes locks by taking a stagecoach.

An English immigrant named George Featherstonaugh – who had married well, becoming a local country squire and renaissance man of sorts – thought he had an even better way than the horse drawn coaches – a steam powered railroad! After two decades of technological development, the first public mainline steam-powered railway, the Manchester & Liverpool Railway, had opened on September 15th, 1830 in Britain to great ceremony. Featherstonaugh thought that such a mode of transport would work well carrying passengers and mail between Albany and Schenectady – and beyond!



An illustration of the Mohawk & Hudson Railroad's locomotive 'DeWitt Clinton' with tender car and two passenger coaches. LIBRARY OF CONGRESS

After promoting his idea through the late 1820s, the dreamer Featherstonaugh found several hardnose investors and political backers, including Stephen Van Rensselaer, the last great patron of the Dutch colonial manorial landowners. Several years after receiving a state charter, financing allowing the construction of the 16-mile Mohawk & Hudson Railroad, with a grand opening on September 9th, 1831. The construction cost was \$215,000. The 'DeWitt Clinton', a three-ton, ten-horsepower steam locomotive built at the West Point Foundry, hauled a train of three converted stagecoach on iron wheels from Albany to Schenectady in 47 minutes, at the astonishing average top of 30-mph!

An important individual in early railroading was the pioneering civil engineer John B. Jervis. After working his way up on the Erie Canal, Jervis spent time at the Delaware and Hudson Canal Company as its chief engineer, importing the British-built Stourbridge Lion steam locomotive in America for a brief experimental trial, before taking on to the Mohawk & Hudson for a \$2000 salary, while spend half his time at the D&H company.

At the Mohawk & Hudson he oversaw the railroad's construction and the design, building, and operation of its first steam locomotives, starting with the DeWitt Clinton. Jervis would continue to work on railroads and would be the chief engineer of the Croton Aqueduct, before retiring into his home in Rome, NY in 1864, helping to found the city's public library.

Jervis was responsible for several important features of American railroading, developed while he was chief engineer of the Mohawk & Hudson. He recommended using solid iron rails instead of strap-iron rails – a wooden rail with thin strip of iron on top – that couldn't support heavy loads, with a tendency were the iron strap would occasionally snap up dangerously through the floors of railcars, a phenomenon called “snake heads”. He was overruled based on cost. Jervis also recommended using wood cross ties to support the rails, as opposed to the stone blocks of initial construction.

Jervis also help develop what would become the standard wheel arrangement of American locomotive design of America. Early locomotives in the United States – some imported from Britain – followed the British design of having two set of large wheels set rigidly to or within the iron frame that supported the boiler and firebox. This worked well on the well-built track of well capitalized British railways, but not on the lightly built track of American railways that with limited capital built cheaply.

The solution was the two-axle swiveling lead truck that help guide the larger driving wheels of locomotives around curves, while reducing the axle-weight with more wheels, reducing wear and tear of the track. Jervis working the railroad's mechanic Asa Whitney first converted the imported locomotive 'John Bull' built by Robert Stephenson and Company to a 4-2-0-wheel arrangement.

The West Point Foundry built a second 4-2-0 locomotive to Jervis's design, called first the 'Experiment', and then patriotically 'Brother Jonathan', after the allegorical national personalization that along with 'Columbia' was a proto-version of 'Uncle Sam' and 'Lady Liberty'. For the Schenectady & Saratoga Railroad, Jervis serving as that line's chief

engineer ordered from Stephenson another “Jervis-type” 4-2-0 engine called the ‘David Crockett’ after the famous frontiersman; thus introducing the swiveling lead truck (or bogie in British parlance) to the United Kingdom, where it was gradually adopted.

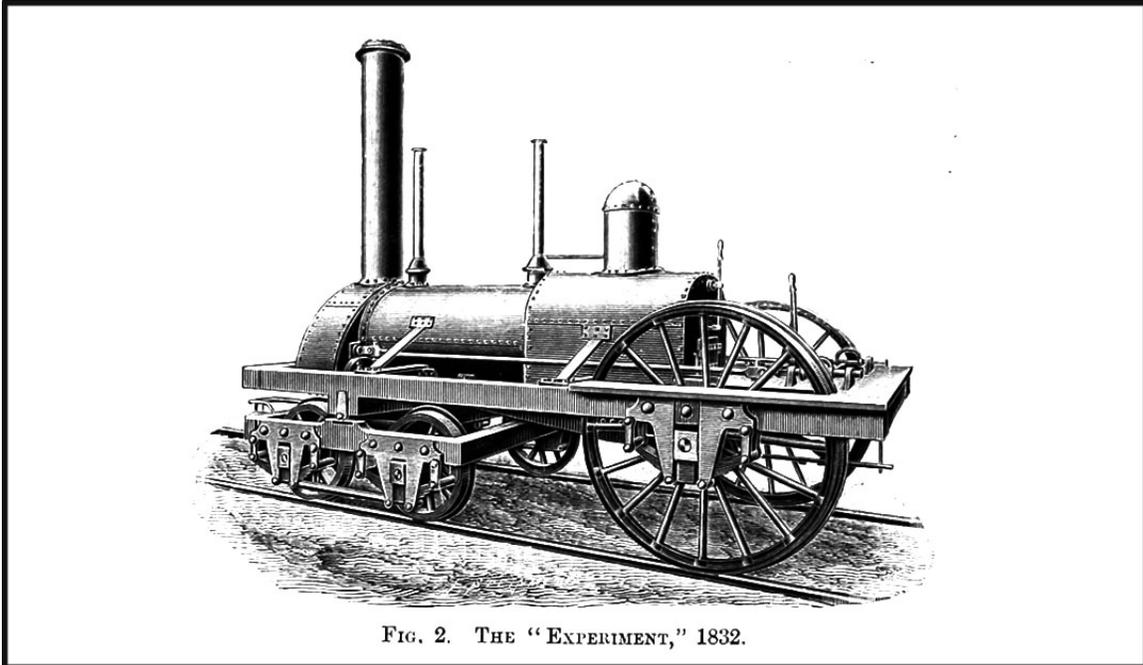


FIG. 2. THE “EXPERIMENT,” 1832.

The “Experiment’ later ‘Brother Jonathan’ designed by John B. Jervis as Chief Engineer of the Mohawk & Hudson Railroad. LIBRARY OF CONGRESS

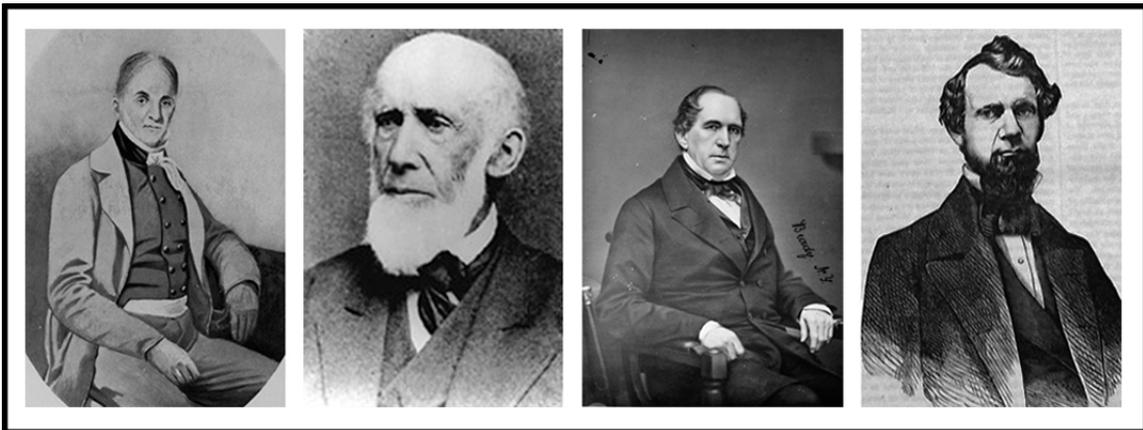
In the 1840s the mechanic Walter McQueen at a locomotive works in Lowell, Massachusetts would improve on the by then common Jervis-type, by adding a second pair of drive wheels and introducing three-point suspension for the leading truck and two driving axles. This design would become massively built 4-4-0 “American” type locomotive, the iconic locomotive of 19th Century America. Older locomotives including the “Brother Jonathan” were rebuilt as 4-4-0 engines.

One of the first was the ‘Columbia’ built for the Hudson River Railroad, which was looking for fast locomotives for its New York-Albany passenger trains. McQueen engines for the Hudson River Railroad could haul 100-ton trains of a eight to ten passenger cars at sustained speeds of 44-mph. McQueen would leave the Lowell Machine Shop to work for the Schenectady Locomotive Works, the predecessor of the American Locomotive Company (ALCO), which along with the General Electric Company gave Schenectady the motto of “the city that lights and hauls the world”.

After some hiccups – including Featherstonaugh (who moves on to become a noted American geologist and geographer) getting the boot from the company by new investors – the little railroad proved to be a great success, at least for passengers. In the first year the railroad was providing three daily roundtrips, hauling 400 passengers each day with a ticket price of 50-cents one-way. Profits were in 1832 \$24,000 on top of \$52,000 in total revenue; but would reach \$100,000 in the 1840s. Profits would remain small and unsteady in for years due to economic conditions, disease outbreaks, and a New York State law requiring railroads to pay canal tolls on the freight they carried. Yet still it encouraged investment in rapid extensions of the embryonic rail system.

The first extension was the previously mentioned line from Schenectady to the popular mineral spring resorts of Ballston Spa and Saratoga Springs. The City of Troy not wanting Albany to get all the new business from railroads, built its own two railroads to Schenectady and Saratoga. To the west, the Utica & Schenectady opened for revenue service in 1836; by the 1840s there was a dozen railroads lining up end to end from Albany to Buffalo, roughly paralleling the Erie Canal.

Compare to the slow canal boat the railroads were great for passengers, yet with the route controlled by different rail companies that didn't even sometimes use the same station in the same city, it had the tiring hassle of passengers, luggage, mail, and a growing amount of freight having to switch trains, sometimes at stations on the opposite side of town, to then having to wait for the next train. In 1843 there was advertised three through Albany-Buffalo daily trains, with a travel time of 25 hours, ticket price \$11.50.



Promotor George Featherstonhaugh, civil engineer John B. Jervis, business tycoon Erastus Corning, and railroad executive Chauncey Vibbard. VARIOUS PUBLIC DOMAIN

The solution was to merge all the independent railroads into one company with unified scheduling and rates, and this was successfully engineered by Erastus Corning in 1853, making the New York Central the biggest company in the country, with a capitalization of \$23 million, half the federal budget at the time. The company had a 298 mile mainline with about 600 total route miles of track, with some 150 locomotives, 200 passenger cars, and 1000 freight cars.

To celebrate the new enterprise, a special round-trip excursion from Albany to Niagara Falls, where there was a grand banquet where William Stewart, future secretary of state under Lincoln spoke. The day of the excursion run, all traffic was halted and the switches spike, allowing the train full of invited VIPs and newspapermen to average 45-mph, with on the return trip the train covering 53 miles in 59 minutes, with a top speed of almost 70-mph.

Corning had been the president of the Utica & Schenectady Railroad, and a major stockholder several of the railroads across the state, including the Mohawk & Hudson, where he had become a vice-president in 1833. By the 1850s he was a businessman, investor, and politician whose interests included mercantile, banking, steel making, land speculations, railroads, and building the first modern ship locks at Sault Ste. Marie between Lake Huron and Lake Superior. His Rensselaer Iron Works installed the first Bessemer converter for steel production in the country and produced the iron armored plates of the US Navy's first ironclad warship, the USS Monitor.

At the New York Central, Corning kept the railroad's investors happy and quiet by promising them an annual dividend no matter how good or bad the year, the shareholders gratefully handing Corning their signed but blank proxy votes. Unhappy people, like Russell Sage, who represented the snipping Troy interests, was forced out. Sage would be a frequent collaborator with Jay Gould, making him the quintessential "Robber Baron" lampooned in political cartoons. His second wife Margaret Olivia Slocum, would devote her husband's fortune to philanthropy, including founding Russell Sage College in Troy.

Corning was accused of corruption because, while he received no salary for being the railroad's president, he first profited by \$100,000 from the merger, and then by having the railroad buy spikes, tools, wheels, and rails from his various businesses, including his own iron foundry. Twin investigations into the financial dealings of the merger and subsequent purchasing exonerated Corning, because the railroad bought from him good

product at a fair price, and the only discrepancy in the account books was a 20-cent bank error.

The New York Central's stock was briefly delisted from the New York Stock Exchange and a series of reforms in the issuing of stock, including the registration of stock transfers with an independent agency, was enacted at the railroad company. Also, it was recommended that acquisition be done in a regulated manner, so not to facilitate or create the impression that corporate officers were profiteering at the company's expense. A miffed Corning returned \$10,000 that he claimed was the profit that Corning & Company made from its transactions with the railroad.

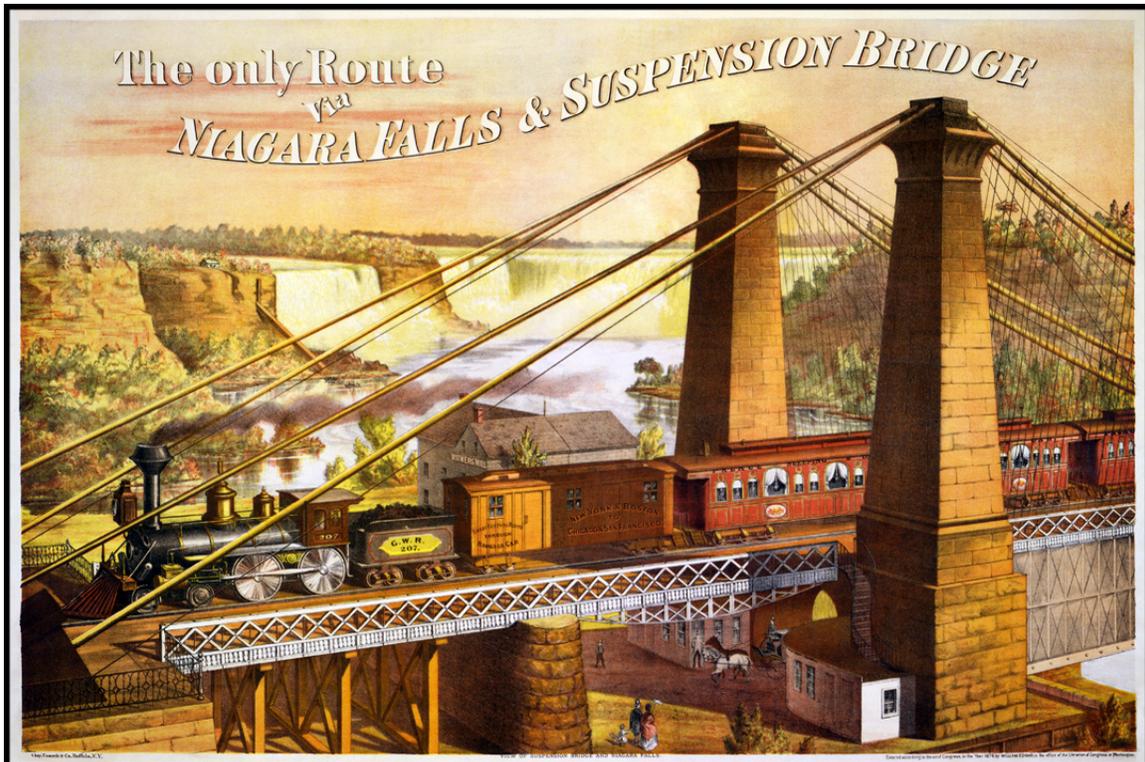


The West Albany Hill is the steepest grade on the “Water Level Route” between New York City and Chicago. PHOTO BY BENJAMIN TURON

All in all, Corning proved to be an able head of the railroad, who for the time, was comparably honest, compare to the greedy looting of companies by the likes of entrepreneur and financier Daniel Drew. Drew's financial shenanigans with the Erie Railroad – whose nickname was the scarlet woman of wall street – led to it being called “two streaks of rust” from the Hudson River to Lake Erie.

In stark comparison to Drew, Corning invested money back into the New York Central, placing the Utica & Schenectady's Chauncey Vibbard in charge as the railroad's superintendent. The condition of the tracks and rollingstock of the predecessor railroads

varied considerably, requiring the combined physical plant of the new company to be brought up to good condition. One big upgrade was the full double-tracking of the mainline from Albany to Buffalo. Another was the West Albany Shop for the maintenance and building of cars and locomotives, located at the top of the heavy grade of the West Albany Hill, a new section of track built by the Mohawk & Hudson Railroad to replace the original steam powered cable incline plane that brought rail cars down to the Hudson River. Another incline plane into Schenectady was also replaced.



The Niagara Falls Suspension Bridge design and built by John Augustus Roebling, opening to rail service in 1855. LIBRARY OF CONGRESS

The most impressive project was the Niagara Falls Suspension Bridge, built by John Augustus Roebling, the designer of the Brooklyn Bridge. Opening in 1855 it was used by the New York Central, Erie Railroad, and the Great Western Railway. The sight of a heavy train chugging across the vast gorge, high above the foaming waters below, fired the imagination of the Victorians. The bridge became a tourist attraction on par with the natural wonders of the voluminous cascade upriver. Cleverly when the time came to replace the bridge due to heavier trains in the 1890s, the new steel arch span was built below and around the old bridge, which remained in service to trains as it was

dissembled piecemeal. This Whirlpool Rapids Bridge is still used by Amtrak today in 2020.

Under the efficient management of Corning and Vibbard the business of the railroad grew. Freight in ton miles of grew from 81 million in 1854 to 147 million in 1856, with earnings from freight exceeding that of passenger traffic. This change was no doubt influence by the lifting on the last prohibitions by state law against the railroads competing with the Erie Canal for cargo, and the rate war over passenger fares with the Erie Railroad, which fell to about \$5 for New York-Buffalo for both railroads.

Railroads where the first big business in America, and along with canals the first big opportunities for stock market investment and financial speculation. They also pushed the limits of technological innovation, driving demand for the industrial revolution that gave birth to them. The Erie Canal had made New York the “Empire State”, but the New York Central kept those imperial ambitions bounding forward, keeping New York the most populated and wealthiest state in the Union, through to the 20th Century.

Written by Benjamin J. Turon

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