How the government and Army built America's railroads

by Anton Chaitkin

> The lightning is his slave; . . .
> The tempest is his steed, he strides the air
> —Percy Shelley, *Prometheus Unbound,* 1819

> The Lord of the universe . . . said unto them, be fruitful, and multiply, and replenish the earth, and subdue it. . . . [We] perform His will in the subjugation of the earth for the improvement of the condition of man.
> —U.S. President John Quincy Adams, 1828

Should nations promote productive industry through government subsidy or other encouragement? Or, should financiers and their spokesmen be listened to, respectfully, when they denounce such efforts as "corruption" and "government interference"?

Poor countries are threatened with terrorism and disunion. But they are warned, in the name of human rights, not to allow their armed forces to be nation-builders. Is such advice wisdom, or hypocrisy?

Public officials are everywhere confronted with infrastructure breakdown, transport crises, and traffic gridlock. Must their impotent lament, that no resources are available to solve these problems, be the final word?

The proud record of America's own creation of railroads is a useful guide for national strategists everywhere in answering these questions. This record demonstrates the power of the *American System of political economy,* as against the British "free-trade" system of colonialism and looting.

In the United States, the railroads were planned by the *Army,* and financed by *government,* as projects vital for national defense and economic development. Then, Americans went abroad to build railroads, to secure other nations as America's allies against British Empire geopolitics.

These assertions of ours fly in the face of enormous public prejudice, resulting from indoctrination by British "free-trade" propagandists. History texts agitate against the railroad as a locus of corruption and an instrument for the oppression of the masses.

Leftist writers feature such "robber barons" as Cornelius Vanderbilt, who bought up railroad lines after they had been built, "watered" the stock, and stole vast sums of money. The socialist writer Gustavus Myers[1] passes over the whole story of how the transport network was created, suggesting only that the public was tricked into paying for building the rail lines and the canals.

Writers favoring "free trade" expound against the legislatures and such statesmen as Abraham Lincoln for the supposed folly of committing public money and credit to public works. In recent years, the post-industrial speculators' frenzy has gone so far that their theoreticians have denounced America's 19th-century railroad building altogether; University of Chicago economist Robert W. Fogel won the 1993 Nobel Prize for his claims that slavery was productive and efficient, while railroads were unnecessary.

But, the purpose and the republican mentality of the railroads' strategists, and the political and financial means by which the lines were built, are simply absent from the general historical literature; the reigning orthodoxy thus avoids a nasty embarrassment.

During 1997, a work was made available in print which will aid in overcoming this deficiency: Stanford University published the first English translation of Franz Anton von Gerstner's 1840 report on the early American railroads.[2]

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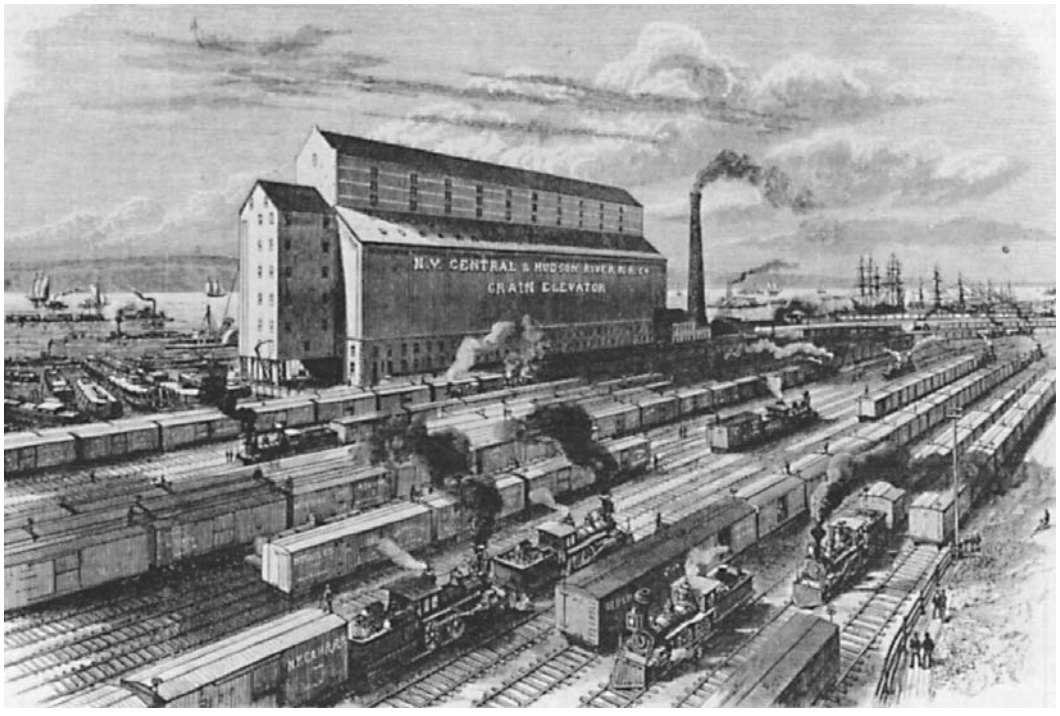
1. Gustavus Myers, *History of the Great American Fortunes* (New York: Random House, 1937).

2. Franz Anton Ritter von Gerstner, *Die innern Communicationen der Vereinigten Staaten von Nordamerika,* originally published 1842-43, English



Shipments from the Midwest arrive by rail at the grain elevator on 61st Street on the East River in New York City. America's great railroads were state-financed and Army-engineered. From Frank Leslie's Illustrated Newspaper, *Nov. 10, 1877.*

Gerstner's detailed evaluation of U.S. rail lines and canals, written to instruct the Russian government on America's progress, has the great value that it is not censored or filtered through later anti-industrial or anti-American ideology. Rather, the author was himself a civil engineer and railroad builder who admired the U.S.A., and knew and shared the enthusiastic outlook of those who actually built America's rail lines.

We have worked through Gerstner's engineering history of every single U.S. railroad that had been, or was then being built, in conjunction with other sources which present the same topic from the standpoint of the Federal government and engineers, and from the state government political level.[3] We have thus gained access to a story which is shockingly different from the line of the International Monetary Fund, refuting the lie that national progress somehow arises from submission to speculators' demands for unrestrained looting. As we shall see, America did it another way.

Defending the Union: the General Survey Act

John Quincy Adams, President from 1825 to 1829, began ordering U.S. Army engineers to design the country's first railroads. Adams made the assignments under the General Survey Act of 1824. During the previous administration of James Monroe, that bill had been pushed through Congress by the two leaders of the nationalist faction, House Speaker Henry Clay, and Adams himself, who was then Secretary of State. The act authorized the "President of the United States . . . to cause the necessary surveys, plans, and estimates, to be made of such Roads and Canals as he may deem of national importance, in a commercial or military point of view."[4]

The 1824 Survey Act was a political companion to the nationalists' protective tariff legislation. In the following year, Adams was elected President and he appointed Clay Secretary of State.

The original rail project carried out under the Survey Act, and America's first commercial railroad, was the Baltimore & Ohio, chartered in 1827. President Adams ordered a dozen or more Army engineers to plan and supervise the B&O's construction, to link the Atlantic port of Baltimore with the Ohio and Mississippi rivers. Adams also deployed Army personnel to start up railroad projects in New York, Alabama, Georgia, and South Carolina, until the end of his Presidency in 1829.

Adams's Secretary of War, James Barbour, explained the administration's thinking on these assignments: "The successful introduction of Rail-Roads, into this country, is viewed by the Department as of great national importance, and especially any practicable mode of connecting the Atlan-

translation from the German, edited by Frederick C. Gamst, published as *Early American Railroads* (Palo Alto: Stanford University Press, 1997). Gerstner was a German-speaking Czech subject of the Austro-Hungarian Empire, who allied himself with the Philadelphia-based U.S. nationalists to such an extent, that he named his U.S.-born daughter, "Philadelphia."

3. Alan Levinson's research has been of great help in the present work. See Levinson, "America's Railroads: Success Story for Dirigist Nation-Building," *The New Federalist,* Jan. 27, 1992.

4. Forest G. Hill, *Roads, Rails & Waterways: The Army Engineers and Early Transportation* (Westport, Connecticut: Greenwood Press, 1977), p. 47.

tic States with the Western; . . . so that the commodities to be found in either can be conveniently and cheaply conveyed to the other, across the barriers which divide them, and which . . . offer the most sure and economical means to the Government to convey, to the different parts of the Union, the means of defence, in the transportation of men and munitions to the seat of war, wherever it shall exist."[5]

Under the General Survey Act, the technologies of steam power and metal rails were implemented by Army design, officially, on at least 60 railroads. Army men also worked on other new lines during personal furloughs, or "in their spare time," with official sanction.

President Andrew Jackson, John Q. Adams's successor, gradually emerged as an enemy of government economic activities. But in his first term, President Jackson continued Adams's initiative of assigning Army engineers to plan railroads. As a senator back in 1824, Jackson himself had voted for the General Survey Act, and the program was widely popular. Its high point was reached in 1835, when some 20 U.S. railroads were using active-duty Army personnel in their construction and management.

The General Survey Act was repealed in 1838, under the administration of Martin Van Buren. This attack on American economic development followed on the heels of the destruction of the nationalist-run Bank of the United States, a course of action promoted by Van Buren and his faction aligned with the British and Wall Street bankers. Army officers were ordered to cease aiding railroad construction; active-duty personnel did not resume this role until the 1850s, in the preliminary surveying for the transcontinental railroad.

The government initiative under the General Survey Act had been indispensable to the development of the railroads. The U.S. Military Academy at West Point was America's only engineering school when railroads began, and the only significant such school until the Civil War era. West Point's officer-graduates made up almost all of the civil engineers available to plan the lines, and Army regulations were implemented to discipline and organize the new railroad companies.[6]

Although these companies were mostly private enterprises, state and local governments, and later the Federal government, subsidized all the significant rail lines with public money and credit, using loans, grants, stock purchases, and other means. As with the Army engineering, this public funding was absolutely essential. The biggest private financiers would not invest in constructing such enterprises, and the smaller investors could not sustain projects of such scope and duration without public money and guarantees.

The results of this national commitment were spectacular. By 1840, after a decade of construction, the United States had about 3,000 miles of railways in operation, as compared to 1,800 miles in all of Europe, including Britain.

The main issue for President Adams and his nationalist factional allies, military and civilian, was the strength and survival of the American Union. The British Empire and its political friends were still trying to bar America's westward expansion (by instigating Indian wars and slaveowners' landgrabs), a British policy which had been a major cause of the American Revolution. Canals and railroads would open up the West, and would strongly link western settlers to the older northern states. Southern plantation slavery, politically manipulable against the Union, would be potentially overpowered; and westerners would not have to depend on the Mississippi River, flowing through the South, for their market connections.

John Quincy Adams: 'Liberty is power'

In his first Annual Message to Congress, President John Quincy Adams spoke of the government's powers and duties to foster progress:

"The great object of the institution of civil government is the improvement of the condition of those who are parties to the social compact, and no government . . . can accomplish the lawful ends of its institution but in proportion as it improves the conditions of those over whom it is established. Roads and canals, by multiplying and facilitating the communications and intercourse between distant regions and multitudes of men, are among the most important means of improvement. . . .

"For the fulfillment of those duties governments are invested with power, and . . . [for] the progressive improvement of the condition of the governed . . . the exercise of delegated powers is a duty as sacred and indispensable as the usurpation of powers not granted is criminal and odious. . . .

"The spirit of improvement is abroad upon the earth. It stimulates the hearts and sharpens the faculties not of our fellow-citizens alone, but of the nations of Europe and

5. *Ibid*., p. 102.

6. The Corps of Engineers, created in 1802, was directed to locate at West Point and there to constitute a military academy. From then until the Civil War, the Academy was controlled by the Army's Engineer Department and was operated as the national school of engineering. Most cadets actually resigned from the Army within a few years after graduating, with the blessing of the government, so as to supply their vital government-furnished training to the nation's enterprises, private and public. Thus, beyond those active duty officers directly assigned to railroad planning and construction, many more engineers with Army backgrounds made careers managing the growing U.S. railway network.

West Point and France's Ecole Polytechnique

The small U.S. Army was prepared for its railroad work by the extraordinary transformation which had just taken place in the Academy at West Point. Gen. Winfield Scott and Maj. Sylvanus Thayer had spent many months in France after the fall of Napoleon, immersing themselves in the methodology of the Ecole Polytechnique, where Gaspard Monge, Lazare Carnot, and others had educated a new generation of French leaders in science and military strategy.

In these pages, one year ago, Pierre Beaudry described the Ecole's unique educational methodology as "based on universal principles which subsumed and linked together methods applicable to both Arts and Sciences. . . . Its principal mission was to give the new Republic . . . scientists and engineers to serve in public works as well as the military. Also were required, numerous architects, manufacturers, artists, physicists, chemists, etc.; and the polytechnique method of descriptive geometry instituted by Monge served as the theoretical and practical epistemological basis for that purpose."[7]

An example of the Ecole's republican approach can be seen in Carnot's discussion of the importance of perspective drawing, in classes for beginners: "Linear perspective . . . is calculated mathematically [but] aerial perspective . . . can only be grasped by the sentiment. By comparing these two sciences, where one is sensual, the other ideal, the methodical course of one will help penetrate the mysteries of the other. . . . [Aerial perspective in painting is] the art of generating ideas by means of the senses, of acting on the soul by the organ of vision. It is in this way that it acquires its importance, that it competes with poetry; that it can, like poetry, enlighten the mind, warm the heart, excite and nourish higher emotions. We shall emphasize the contributions that it can bring to morality and to government; and how, in the hands of the skillful legislator, it will be a powerful means of instilling horror of slavery, and love of the fatherland, and will lead man to virtue."

The American officers returned from Paris with a thousand-volume library on military art, engineering, and mathematics, a collection of maps, and French experts in descriptive geometry who would now train Americans. Thayer implemented the Ecole regime as West Point Superintendent, while

7. "The Bourbon Conspiracy that Wrecked France's Ecole Polytechnique," *EIR,* June 20, 1997.

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of their rulers. . . . [L]et us not be unmindful that liberty is power; that the nation blessed with the largest portion of liberty must in proportion to its numbers be the most powerful nation upon earth, and that the tenure of power by man is, in the moral purposes of his Creator, upon condition it shall be exercised to ends of beneficence, to improve the condition of himself and his fellow-men. While foreign nations less blessed with that freedom which is power than ourselves are advancing with gigantic strides in the career of public improvement, were we to slumber in indolence or fold up our arms and proclaim to the world that we are palsied by the will of our constituents, would it not be to cast away the bounties of Providence and doom ourselves to perpetual inferiority?"[1]

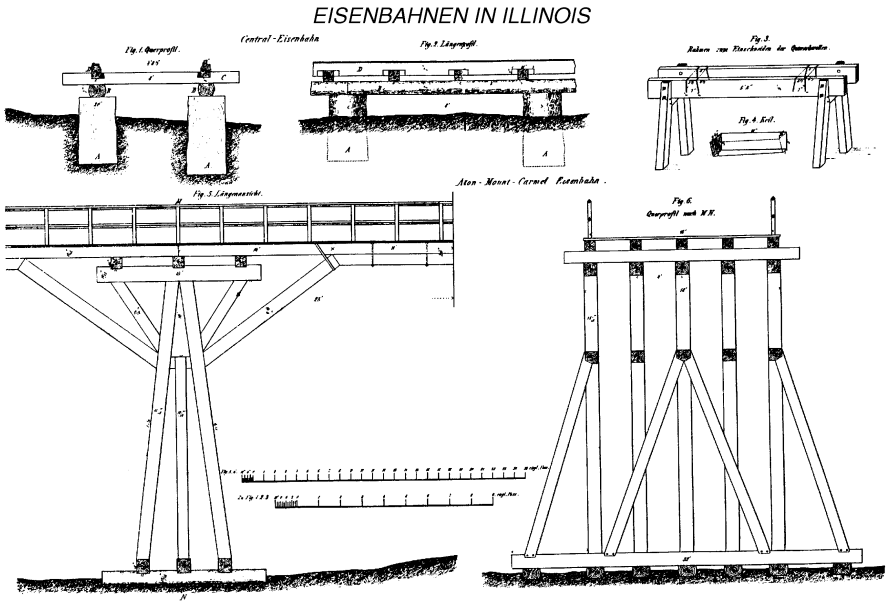
On July 4, 1828, President Adams presided over groundbreaking in Washington for the Chesapeake and Ohio Canal. A Federal and multi-state joint enterprise, the canal was to run parallel to the Baltimore & Ohio Railroad, Adams's other great project, for which ground was also being broken the very same day in Baltimore. President Adams told the assembled cabinet officers and foreign ambassadors:

"We are informed by the holy oracles of truth, that, at the creation of man, male and female, the Lord of the universe, their Maker, blessed them, and said unto them, be fruitful, and multiply, and replenish the earth, and subdue it. To subdue the earth was, therefore, one of the first duties assigned to man at his creation; and now, in his fallen condition, it remains among the most excellent of his occupations. To subdue the earth is pre-eminently the purpose of this undertaking. . . . I call upon you to join me in fervent supplication to Him from Whom this primitive injunction came, that He would follow with His blessing, this joint effort of our great community, to perform His will in the subjugation of the earth for the improvement of the condition of man—that He would make it one of His chosen instruments for the preservation, prosperity, and perpetuity of our Union. . . .

"In praying for the blessing of heaven upon our task, we ask it with equal zeal and sincerity upon every similar work in this confederacy; and particularly upon that which, on this same day, and perhaps at this very hour, is commencing from a neighboring city. It is one of the happiest characteristics in the principle of internal improvement, that the success of one great enterprise, instead of counteracting, gives assistance to the execution of another. May they increase and multiply, till, in the sublime language of inspiration, every valley shall be exalted and every mountain and hill shall be made low; the crooked straight, the rough places plain."[2]

1. Dec. 6, 1825, in *Messages and Papers of the Presidents,* Vol. II (New York: Bureau of National Literature, 1897), pp. 877, 882.

2. William H. Seward, *Life and Public Services of John Quincy Adams* (Auburn, N.Y.: Derby, Miller and Company, 1849), pp. 221-223.



Franz von Gerstner's rendering of track and bridge construction for the Illinois Central Railroad. Abraham Lincoln led the state government to create the railroad, and later worked for its completion with Federal land grants.

General Scott reorganized the U.S. Army to ensure professional rigor and accountability.

President Monroe created a Board of Engineers for Internal Improvements, and appointed Gen. Simon Bernard its leading member. Educated at the Ecole Polytechnique, Bernard had been in command of France's army engineers in the 1790s, had designed U.S. East Coast forts, and led the Board of Engineers when President Adams began assigning Army personnel to plan U.S. railroads. Bernard later returned to France and was Minister of War (1836-39).

The team that built the B&O railroad

The War Department sent engineers to begin surveying for the Baltimore & Ohio Railroad in 1827. During the first two years, three survey brigades were headed by Col. Stephen H. Long, Dr. William Howard, and Maj. William Gibbs McNeill. As the surveying progressed, the B&O company and the Adams administration decided to send Major McNeill, Lt. George Washington Whistler, and another engineer to England to gather intelligence on railroad construction.

While Colonel Long, Major McNeill, and Lieutenant Whistler managed B&O engineering activities in 1829-30, Whistler superintended the first track-laying. Ten to twelve Army engineers were in the company's service at any one time.

McNeill and Whistler would go on from the pioneering B&O project, to work together in engineering the majority of America's new railroads. In 1831, Whistler married McNeill's sister Anna; their son, artist James Abbot McNeill Whistler, would paint Anna's portrait, the famous "Whistler's Mother."

George Washington Whistler became the most celebrated civil engineer of his day. He had graduated from West Point in 1819, a master of the projective geometry taught in the new Thayer-reorganized curriculum. A serious musician, he was nicknamed "Pipes," because of his facility with the flute.

Beginning with their first report to the B&O Board of Directors on April 5, 1828, the builders used Army Engineer Department accounting and reporting procedures, and adhered to Army technical and administrative standards as developed by General Scott.

Company president Philip E. Thomas asked McNeill for a set of written regulations for the railroad. The result was "similar to those which govern generally in the U.S. Engineer Department," wrote McNeill, and "when I thought applicable, I have transcribed literally from the printed regulations of the U.S. Engineer Department."[8]

This detailed accountability and formal, Army-originated hierarchy, is reported to have been unique in the American business community. The B&O's activities were written up in railroad periodicals and were closely studied by other railroad managers. The Army reassigned its officers off the B&O in 1830, but the regulations adopted afterward were along the same lines as those instituted by the Army personnel.

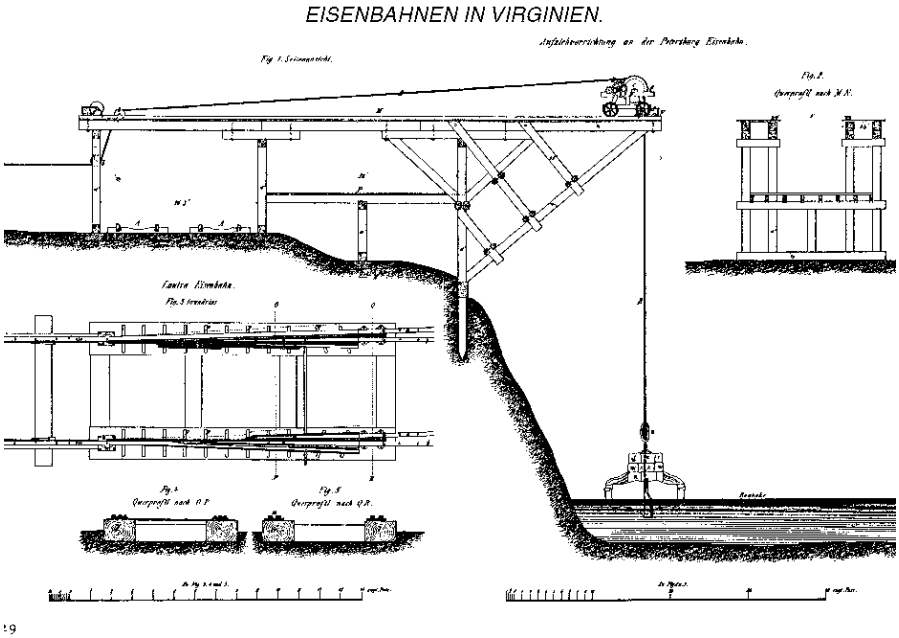
In 1836, after many intervening projects, McNeill was assigned to the crucial Western Railroad of Massachusetts as consulting engineer, with Capt. William H. Swift as resident engineer. Whistler, who had since resigned from the Army, was also at the Western Railroad, and was to become its chief engineer. Boston to Albany through-service was inaugurated in December 1841. The Western Railroad adopted from the outset procedures like those used in the Army. Captain Swift had a free hand in establishing procedures for accounting and reporting, and created a "transportation department," similar to the staff, as distinguished from line officers, in the Army.

In response to a head-on train collision, Whistler was asked to set up tight regulations for all trains and all em-

8. Charles F. O'Connell, Jr., "The Corps of Engineers and the Rise of Modern Management, 1827-1856," in *Military Enterprise and Technological Change* (Cambridge, Massachusetts: The MIT Press, 1985), p. 99.

ployees. The Western Railroad's "Report on Avoiding Collisions and Governing the Employees" (Nov. 30, 1841), is seen as a milestone in U.S. railroad management practices.

There was an important military-civilian overlap on the Pennsylvania Railroad. Chief engineer J. Edgar Thomson hired West Point graduate Herman Haupt as his chief assistant in 1847. After studying the New England railroads, Haupt reorganized the Pennsylvania's management to be like the U.S. military. Line officers ran the day-to-day railroad operations; staff officers in a General Transportation Office concentrated on the company's broader strategic problems. With Thomson as president and Haupt as chief engineer, the Pennsylvania grew to be the country's largest railroad, and served as a tool of the nationalists and their military-scientific-industrial complex in Philadelphia. Haupt served as chief military engineer of Union forces during the Civil War; the Pennsylvania Railroad's vice president, Thomas A. Scott, was Assistant Secretary of War, and ran all government railways and transportation lines.



Gerstner's drawing of tracks and machinery, Virginia, ca. 1840. State government and localities heavily subsidized all railroads in Virginia before the Civil War.

The pattern of government-financed railroads

The Baltimore & Ohio, America's first great trunk line, was organized in 1827. To begin with, Baltimore community leaders sold $1.5 million in B&O bonds to private investors, and the city of Baltimore bought $500,000 worth of bonds. The city bought $1 million more during 1828, while private investors subscribed to another $1.5 million. In 1833, the state of Maryland granted the railroad company $500,000. The company ran out of money in 1836, whereupon the state of Maryland and the city of Baltimore each bought $3 million in B&O bonds. During the depression of 1837, Baltimore allowed the railroad to pay its debts with $1.5 million in "railroad notes," in lieu of money. The 178 mile line to Cumberland, Maryland was completed in 1842; Wheeling (now West Virginia) was reached in 1853, thanks to a $500,000 subscription from the city of Wheeling.

The state and local government financing given to the B&O was typical of American rail lines during their construction phase.

On local lines of minor importance, municipalities might provide the main, or the only government aid. In New York State, around 300 localities invested in railroads.

But, state governments led the way; up to 1861, they put in about $300 million in cash and credit for transportation infrastructure, primarily railroads. Local and county governments contributed another $125 million. Between 1861 and 1890, state and local aid to railroads amounted to around $250 million.

Altogether, state and local governments provided more than half of the capital invested in early American railways. Not only that, but, quite often, private sources would make railroad construction loans only if the state government guaranteed repayment.

Most of the private capital came from small investors—merchants, local manufacturers, farmers, and tradesmen—on the route of a proposed railroad. There was virtually no eastern capital available for the construction of western railroads, and the easterners who invested in their section's railroads were those small investors who responded to civic leadership of the statesmen and promoters.

The Charleston and Hamburg was a Chamber of Commerce affair, backed by leading merchants. The Delaware, Lackawanna, and Western Railroad was backed by the Scranton family, to aid their iron operations. Small coal operators backed the coal-carrying railroads, whose construction was promoted by Nicholas Biddle, Mathew Carey, and other nationalists.

Neither the New York stock market, nor the wealthy Boston bankers played a significant role in the creation of the American railroad system. As historian George Taylor wrote, "The New York Stock Exchange does not appear to have played an important role in providing capital for early railroad construction. Only a small proportion of railroad stocks were

even listed before 1860, and among these, leading roads such as the Pennsylvania and the Baltimore & Ohio, do not appear."[9]

Later, these big financiers bought up lines and began to treat them as speculative instruments, with very unwholesome results.

Pennsylvania built the state-owned Philadelphia & Columbia and some other lines, to connect with the thousands of miles of state canals. The gigantic Pennsylvania Railroad Co. was jointly owned by private investors and the city of Philadelphia. The state built the Main Line, then sold it after completion to the Pennsylvania Railroad Co. The Philadelphia & Reading ("Reading Railroad") was about one-quarter owned by the Bank of the United States, whose president, Nicholas Biddle, was also the fiscal manager for the Reading.

9. George Rogers Taylor, *The Transportation Revolution, 1815-1860* (New York: Rinehart & Co. 1951), p. 100.

Biddle used every possible resource of the Bank of the United States to develop American railroads and canals. It is often said that "the British" or "the Rothschilds" built America's railroads. This is simply untrue. The fact is that, by 1853, largely through the marketing of state bonds and other railroad securities by the Bank of the United States, 26% of American railroad bonds outstanding had come to be foreign-owned; railroad stocks, valued at nearly twice the figure for bonds, were only 3% foreign-owned. As time went on, however, the Morgans, Rothschilds, and other British Crown-linked financiers came to hold a dominant interest in American railroads. Ultimately, this financial power was used to loot the existing lines, rather than to develop them.

The state of Georgia built the Western and Atlantic Railroad, completed from Atlanta (the railroad terminus city, which was named for the railroad) to Chattanooga, Tennessee in 1851. Virtually no private capital was available, so the state owned and managed the line until the Civil War.

Army-engineered rail construction projects

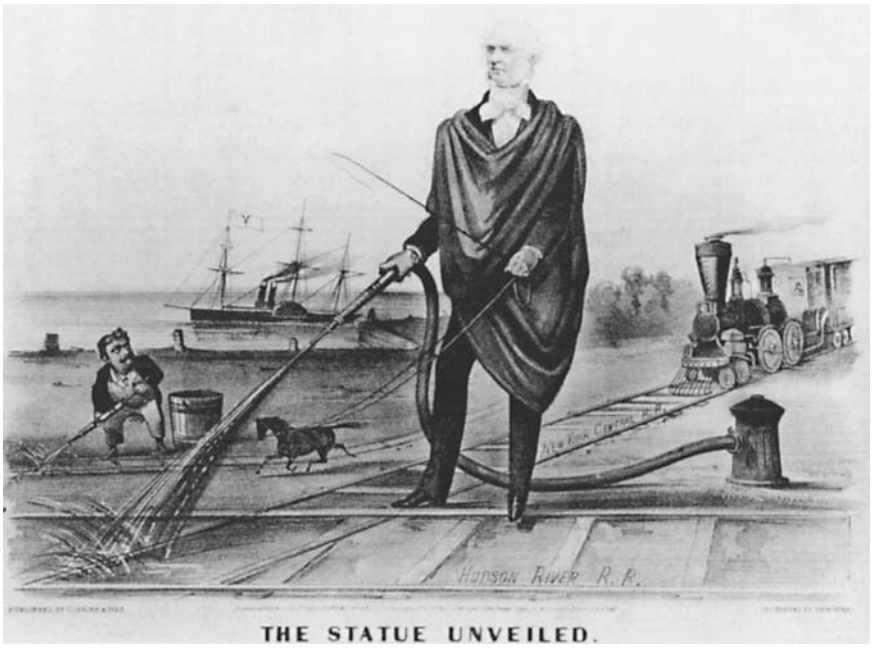
The following were among the railroad projects carried out under the General Survey Act of 1824.

Year begun	*Route or company*
1827	Baltimore & Ohio (Baltimore to Wheeling, now W.V.)
1828	Hudson, New York, to Berkshire County, Mass.
	Ithaca to Owego, New York
	Ithaca to Catskill, New York
	Lake Cayuga in New York, to Susquehanna River
	Tennessee River to Savannah River, and Tennessee River to Altamaha River (to make choice between canal and railroad)
1829	Catskill to Canajoharie, New York
	Charleston and Hamburg (South Carolina) (In 1830 this railroad ran the first practical locomotive in the United States.)
1830	Baltimore and Susquehanna (Md. and Pa.)
	New Jersey Railroad Company
1831	Paterson and Hudson (N.J.) (The line's first two locomotives were named *The McNeill* and *The Whistler*.)
	Winchester to Harpers Ferry, Va.
	Ohio Canal at Akron to the Hudson River at Jersey City
1832	Boston and Providence, (Mass. and R.I.)
	Providence and Stonington (R.I. and Conn.)
	New London, Conn. to Providence, R.I.
	New London, Conn. to Worcester, Mass.
	Potomac Creek to Fredericksburg, Va.
	New York, N.Y. to Lake Erie.
	St. Francisville, La. to Woodville, Miss.
	Williamsport, Pa. to Elmira, N.Y.
	Mad River to Lake Erie (Ohio)
	Ohio River to Lake Erie (Ohio)
1833	Across southern Vermont
	Pearl River to Yazoo River (Mississippi) (canal or railroad)
1834	Across the isthmus of Michigan
	Memphis, Tenn. to the Atlantic Ocean
	Fredericksburg, Va. to the Ohio River
1835	Taunton and New Bedford (Mass.)
	Long Island Railroad (New York)
	Portland, Maine to Quebec, Canada
	Boston, Mass. to Whitehall, N.Y.
	Detroit to Pontiac, Mich.
	Pensacola, Fla. to Columbus, Ga.
	Four surveys in Indiana
	One or two others in New England states
1836	Projects in Maine, Massachusetts, Rhode Island, Connecticut, New York, Maryland, North Carolina, and Missouri, and from Charleston, South Carolina, to Cincinnati, Ohio

Source: Forest G. Hill, *Roads, Rails & Waterways*

Virginia enacted a unique construction subsidy: The government would buy three-fifths of the stock shares of any railroad built in the state, thus guaranteeing the market for such stocks. Up to the Civil War, Virginia's state government provided more than $21 million for railroad construction, with much more coming from localities. In the same period, North Carolina's state government went into debt for more than $9 million to subsidize railroad development. In the Southern states before the Civil War, more than 55% of railroad capital was provided by states and local governments.

Private railroads failed in Michigan, so, in 1837, the state government, defying the great economic depression that followed the destruction of the Bank of the United States, began building an ambitious set of rail lines. By 1846, the Michigan Central and Michigan Southern were in operation. Under financial duress, the state was then forced by creditors to privatize the lines and specify in the state constitution that it would never build such lines again.



Currier & Ives cartoon mocks the statue (which today stands in front of New York's Grand Central Station) unveiled in 1869, honoring Cornelius Vanderbilt. He seized railroads built at state expense, then "watered" the stock—i.e., issued shares to himself, thus diluting the value of publicly held shares.

Indiana had spent more than $1.6 million for a rail line from Madison to Lafayette when, in 1843, the state was forced to turn it over to the Madison and Indianapolis Railroad Co. The line was completed 1847, as the first railway in the state.

Up to 1857, Missouri authorized loans of almost $25 million to seven railroad companies to build their lines.

In its first year of statehood, 1858, Minnesota amended its constitution so as to legally lend $5 million to four railroads.

By 1860, Texas had given 5 million acres and lent about $2 million for railroad construction.

By 1856, local governments in Iowa incurred debts of more than $7 million for railroad construction.

The city of Milwaukee lent $1.6 million to railroad companies in the late 1850s.

It is rather well known that Abraham Lincoln, as the Civil War President, commissioned the transcontinental rail lines. But before this, Lincoln also personally brought about the creation of Illinois' great railroads.

Lincoln first headed "The Long Nine" (all quite tall) group of Whig Party men in the state legislature, who pushed through expenditures for canals and railroads to crisscross the state. The Illinois Central Railroad portion of this comprehensive state program failed, despite state financing. Lincoln then served as attorney and lobbyist for the Illinois Central, working to complete the state's transportation network. A Federal law enacted on Sept. 20, 1850, gave Federal lands as grants to Illinois, Mississippi, and Alabama to build railroads, amounting to a subsidy of 3.7 million acres.

The Illinois Central Railroad was finally completed, in 1856, as a direct result of the Federal subsidy. Its $23 million cost came largely from mortgages on Federal lands donated to the company. Less than a sixth of the construction money was contributd by stockholders.

Federal land grants in the 1850s totalled 25,464,018 acres,[10] going to Alabama, Arkansas, Florida, Illinois, Iowa, Louisiana, Michigan, Mississippi, Missouri, Wisconsin, the Minnesota Territory, and 45 railroads. The transcontinental railroad legislation, put through by President Lincoln in the 1860s, used similar grants, other Federal credits, and extensive Army involvement, uniting the Pacific coast with the eastern rail grid.

Rail projects of the Yankee statesmen

The image of the New York and Boston monopolists dominates the public view of the history of the railroads, eclipsing the outstanding leading role of patriotic political leaders in northeastern rail development.

The prevailing spirit of improvement was shown in the 1812 report of New York State Canal Commission (including New York City Mayor DeWitt Clinton and steamboat inven-

10. Thomas P. Kettell, railroads section of *80 Years' Progress of the United States* (Hartford, Connecticut: L. Stebbins, 1867).

tor Robert Fulton), on the results to be expected from building the Erie Canal:

"A man's life is short; the time is not far off when those who make this report will have passed away. No time, however, is fixed for the existence of a *state,* and the highest desire of a patriot's heart is that the state to which he belongs might be immortal. . . . And even when our constitution shall be dissolved and our laws be lost in the current of that unending stream which destroyes all human institutions, the offspring of our children's children will nevertheless remain, these same hills will stand and these same streams flow. . . . [A]fter the lapse of two thousand years . . . when the records of history shall have been obliterated . . . this national work shall remain. It will bear witness to the genius, the learning, the industry, and the intelligence of the present age."[11]

A state enterprise, the Erie Canal was completed in 1825, connecting New York City and the Hudson River to Lake Erie and the Midwest. Political allies of President John Quincy Adams now pressed for the construction of a railway line to parallel the canal. Such a railroad would connect the Atlantic port of Boston, the interior of Massachusetts, the Hudson River, the large undeveloped western area of New York State, and the Great Lakes. Action on this project came in both New York and Massachusetts, led by the Adams forces.

The New York & Erie Railroad, incorporated in 1832, had its route surveyed under direction of the New York legislature in 1834. New York State in 1836 authorized a $3 million loan for it. But the panic of 1837 had ruined the credit of investors, and the railroad had to stop construction. At a special convention on Oct. 17, 1837, William H. Seward, an aspiring politician and an avid follower of John Q. Adams (later, Adams's biographer), wrote the address promoting the re-starting of the Erie railroad as a public project.

Seward wrote: "It is well to remember that the experience of human government affords not a single instance in which a state or nation became impoverished or subjected to an irredeemable debt by works of internal improvement. Ambition, revenge, and lust for extended territory, have been the only causes, and was almost the sole agent, in entailing those calamities upon nations. Palaces and pyramids, the luxurious dwellings of living tyrants, and the receptacles of their worthless ashes when dead, have in every country but our own cost more than all its canals and roads. . . . Egypt, Rome, Netherlands, England, and France, and even our own peace-loving country, have severally disbursed more in a single war than was required to complete a system of improvements sufficient to perfect their union, wealth, and power."[12]

Seward's political lieutenant, Samuel R. Ruggles, put forward as the principal promoter of the Erie rail line, was elected a few days later to the state legislature and became chairman of the ways and means committee. Seward was elected governor the following year, on a platform of building transportation infrastructure. In the legislature, Ruggles wrote the 1838 "Report upon Finances and Internal Improvements of the State of New York."

The state paid for the revival of the Erie railroad, contrib-

Great rail projects raised living standards

The earliest U.S. railroads, government projects with private participation, as in the 1960s Apollo space program, immediately increased Americans' standard of living. The expense and time involved in travel, and in shipping farm and factory goods, were dramatically minimized, increasing freedom, productivity, and overall profitability, while making everything more affordable.

These figures, suggesting the change, are taken from George Taylor's *The Transportation Revolution*.

Freight rates per ton-mile

	1816	1853	1860
Turnpikes	$30.00 and up	$15.00	$15.00
Mississippi-Ohio rivers			
downstream	1.30 (1815)		0.37
upstream	5.80 (1815)		0.37
Erie Canal		1.10	0.99
Chesapeake & Ohio Canal		0.25	0.25
New York Central Railroad		3.40	2.06
Erie Railroad		2.40	1.84
Pennsylvania Railroad		3.50	1.96

Time for freight shipment, Cincinnati to New York City

1817: Ohio River keelboat to Pittsburgh, wagon to Philadelphia, wagon or wagon and river to New York City: 52 days

1843-51: Ohio River steamboat to Pittsburgh, canal to Philadelphia, railroad to New York City: 18-20 days

1852: Canal across Ohio, through Lake Erie to Erie Canal and down Hudson River: 18 days

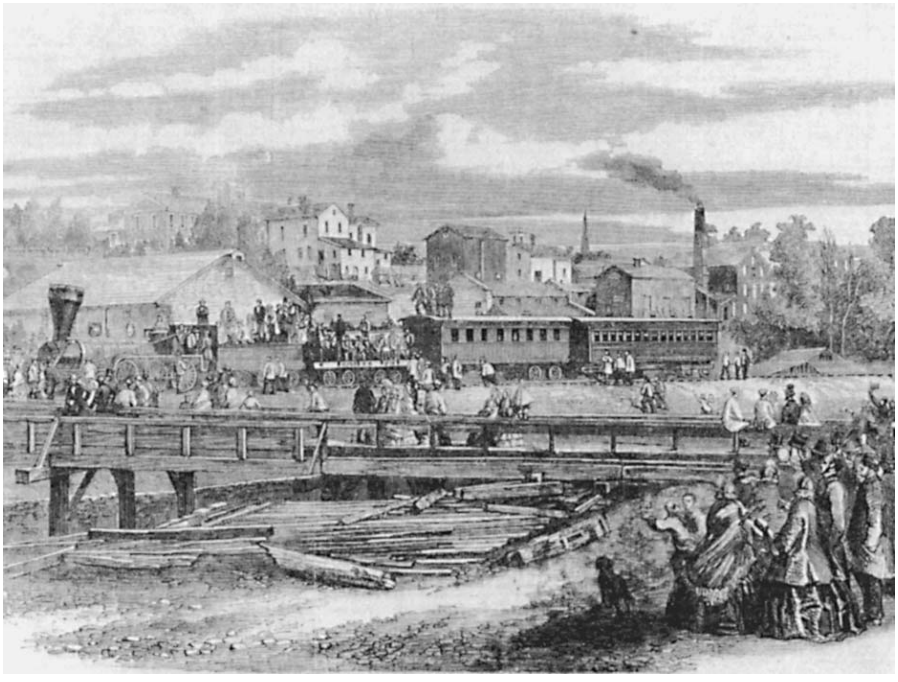
1850s: Steamboat to New Orleans, packet boat to New York City, 28 days

1852: All rail via Erie Railroad and connecting lines: 6-8 days

11. March 14, 1812, quoted in Gerstner, *op. cit.,* p. 48.

12. Frederick W. Seward and William H. Seward, *Autobiography of William Henry Seward, with a Memoir of His Life* (New York: D. Appleton & Co., 1877), pp. 342-343.

uting more than $6 million, with localities donating still more. Virtually the entire construction of the line was at public expense. In return, the state was allowed to appoint several directors to the Erie's board. In his 1840 annual message to the legislature, Governor Seward recalled Gen. George Washington, in 1783 at the close of the Revolution, having foretold New York's future inland navigation to Lake Erie. He described the results of the great projects to open up the interior districts and cities of New York State, and allowing the distant city of Chicago to easily and cheaply exchange its products with those of New Yorkers.



Arrival of the first train from New York City through to Jamestown, in western New York. From Illustrated London News, *Nov. 10, 1860.*

Meanwhile, Massachusetts proceeded with the line westward from Boston. The first leg, the Boston and Worcester railroad, was completed in 1835, despite opposition from powerful Tory interests. The key promoter of the whole project was Edward Everett, a teacher of Greek, proud of calling himself "the first American to receive a Ph.D. at Germany's Göttingen University," and a close supporter and relative by marriage of John Quincy Adams. His brother, Alexander Hill Everett, had been Adams's private secretary when Adams was U.S. ambassador to Russia (1809-11).

Edward Everett was elected Massachusetts governor on the platform of extending the rail line west into New York. Everett put through state government stock and bond purchases totalling $3,700,000, to build the Western Railroad, as against the $800,000 which came from private investors. The state got four out of nine directorships on the Western, to coordinate with George W. "Pipes" Whistler, the line's chief engineer. Governor Everett promoted a series of other railroad enterprises, all to converge on Boston.

New York Governor Seward is best known historically as the Secretary of State for President Lincoln during the Civil War. Massachusetts Governor Everett is remembered, if at all, for delivering the long oration at Gettysburg, overshadowed by Lincoln's Address.

Keeping in mind how globalist policymakers now denounce "state-subsidized projects" in would-be developing countries, see how Seward's son described the patriotic elation at the completion of the great multi-state rail line:

"The opening of the railway to Boston was considered as the beginning of a new era in commerce, and was greeted with appropriate demonstrations. On the 27th [of December, 1841,] the first through-train from Boston over the Berkshire Hills arrived at Greenbush [on the east bank of the Hudson] in the evening, and was welcomed with rockets and cannon on both sides of the river.

"The Speaker of the Massachusetts House of Representatives, the Common Council of Boston . . . and the directors of the railroad, were on board; were received at the ferry by the Common Council of Albany, and escorted in triumph by military and fire companies, with torches and music, to Congress Hall."[13]

During the extensive celebrations, Governor Seward toasted, "The States of Massachusetts and New York: they have combined in the prosecution of the Western Railroad; may they become as united in maintaining the faith and the integrity of the Union!"[14]

Seward's son wrote that they celebrated their new power over nature, having effectively reordered the region's geography: "On the table was bread made of flour which was in the sheaf, brought in a barrel that was in the tree, at [far-distant] Canandaigua two days before. Sperm [whale oil] candles, made by Mr. Penniman at Albany in the morning, were burning in Faneuil Hall [in Boston] in the evening. Salt was on the table which thirty-six hours before was three hundred feet underground at Syracuse."[15]

These transport projects created cities such as Buffalo and Rochester from what had been wilderness, and made New

13. *Ibid.*, pp. 573-574.

14. *Ibid.*, p. 574.

15. *Ibid.*, p. 575.

York City into one of the world's leading metropolises. Huge areas were suddenly connected to markets for their farm, forest, and mineral goods, which now took on great economic value. The resulting increase in land prices represented real progress, not speculative hot air.

Americans build foreign railroads, Brits launch war

American nationalists employed the power and resources of government to develop the U.S. interior with an immense railroad grid; they built 121,000 miles in 55 years, from the Army engineers' 1828 startup of the Baltimore & Ohio, to the 1883 completion of the Lincoln-commissioned Northern Pacific out to Tacoma, Washington. This task was accomplished over the resistance of the British faction, the London-Boston-Wall Street axis, which sought to block the integration of the West into an American industrial republic.[16]

We may put this strategic contest between America and the British Empire into sharper relief by reviewing two cases of American railroad-building in foreign countries—Russia and Peru—and by observing Britain's bloody counteractions.

Russia

Franz Anton von Gerstner, whose 1840 report greatly aids any serious study of early U.S. railroads, himself built the very first railroad in Russia in 1837, just before he came to America. Gerstner's experimental line covered only a 17 mile stretch from the Tsar's palace to St. Petersburg.

Five years later, the Russians were ready for their first serious railway project. In 1842, Tsar Nicholas I hired "Pipes" Whistler to build a line from St. Petersburg to Moscow. Whistler had spent the previous several years working on the Great Western Railway (from Boston to the Erie Railroad). Whistler moved to Russia and planned and supervised construction of the 400 mile Russian railway. Philadelphia manufacturers provided locomotives. Whistler also built Russian rail factories, docks, bridges, and fortifications. At the same time, Russia adopted its first high-tariff system, emulating the Henry Clay-John Quincy Adams "American System" economic policy, thus protecting against British trade war and launching Russia's modern iron industry. Whistler died in Russia in 1848.

The British looked coldly upon this initiative, which threatened to "Americanize" Russia. Their attitude may be seen in a diatribe written in 1852 by a high-ranking British intelligence operative:

"Russian railroads seem to be meant for Russian soldiers; and it is the facility thus afforded of moving large bodies of men that invests this mode of communications in Russia with an importance which does not attach to it in Great Britain, or perhaps any other country in Europe, to an equal extent. When St. Petersburg, Moscow, Odessa, and Warsaw become connected, Russia assumes an entirely new position with regard to the rest of Europe. A few days, instead of many months, will then suffice to concentrate the armies of the north and south upon the Austrian or Prussian frontiers. Through this same quarter of the world, many hundred years ago, poured those barbaric hordes which overran civilized Europe; it would, indeed, be a singular testimony to the spirit of the age, if the next invaders made their descent by means of railroads."[17]

This is the traditional British hate-propaganda which today uses the trick phrase, "dual-use technology." Of course the Russians could use railroads to move troops (though they built their lines with a different gauge from that of western Europe, to defend against invasion!). But the Americans acted to create an anti-imperial concert of modernized, sovereign nations.

Britain responded by launching the Crimean War against Russia. Alexander II, who became Tsar during that 1854-56 bloodbath, was so shocked at British superiority and Russian backwardness, that he moved his country rapidly into modern times, allying Russia with Abraham Lincoln and inviting in new American railway builders.

Peru

Our other foreign case study is of a project generally unknown in the United States, but famous to Peruvians: the railroads built in the 1870s across the Andes Mountains by an American, Henry Meiggs. This was the most ambitious railway program ever planned in South America. Meiggs is revered in Peru, and hated with a hot passion in London and in U.S. Anglophile circles. Meiggs and his Peruvian sponsors, including economist and statesman Manuel Pardo, proposed to cut rail lines from the Pacific coast across the Andes into the interior. Aiming to integrate the continent economically, they proposed to transform social relations and make the backward peasantry into modern citizens.

Henry Meiggs had a "spectacular" life, to go with the railroads he ultimately built.

He was born in 1807 in the town of Catskill, New York, on the Hudson River. As a young man, he ran a family lumber enterprise in Catskill, and in Boston. From 1828 into the 1830s, U.S. Army engineers surveyed and supervised construction on a rail route from Catskill northwestward. The line

16. For the British-financier faction's 1870s attack on U.S. railroad building, see Anton Chaitkin, "London's Murder of McKinley Sets Up U.S.-U.K. Special Relationship, War," *EIR,* March 24, 1995.

17. Laurence Oliphant, *The Russian Shores of the Black Sea in the Autumn of 1852,* quoted in Albert Parry, *Whistler's Father* (Indianapolis: The Bobbs-Merrill Co., 1939), p. 1.

Left: El Infiernillo Bridge over the Rimac River, in the Andes Mountains, the Lima-Aroya branch of the Central Railway of Peru built by Henry Meiggs. Above: Medallion honoring railroad builder Henry Meiggs, issued Jan. 1, 1871 by Peru's Corps of Engineers.

through Catskill was to be one of two rail links from Boston to Lake Erie, designed to bring sudden prosperity to precisely Meiggs's kind of business. The Army officers, led in 1831 by William Gibbs McNeill, took the rail line across the Catskill Mountains to meet the Erie Canal, using many bridges and scaling sharp gradients. When the Van Buren depression of 1837 wrecked Meiggs's business, and stalled the railroad construction, New York restarted the Catskill and Canojoharie Railroad with a $300,000 state loan.

With this historic, state-sponsored, mountain rail-building enterprise as his inspiration, Meiggs went into business in New York City, and then, during the California Gold Rush, moved out to San Francisco. Meiggs became a political leader in the patriotic pro-Union faction running the California Democratic Party. An alderman and entrepreneur, he built the North Beach district of San Francisco, founded the San Francisco Philharmonic Society, built the Music Hall, and sponsored the best Classical music talent. His faction, led by New York-bred political boss David Broderick, Gov. John Bigler, and banker (later general) William T. Sherman, came under murderous attack by pro-secession/pro-slavery operatives, including the "vigilantes." Under terrible financial pressure, Meiggs fled with his family onto the high seas, pursued unsuccessfully by an armed mob of creditors against whom he had defaulted. He eventually made good on all his California debts.

Meiggs sailed to Chile. California Gov. John Bigler, the U.S. ambassador there, met Meiggs and recommended him highly to Chilean leaders. As Bigler's brother William had been governor of Pennsylvania and president of the Philadelphia & Erie Railroad Company, Meiggs was now evidently well enough connected to make an ambitious new start, late in life. He undertook to organize and manage difficult railroad constructions in Chile, whose success came to the attention of the nationalist faction in neighboring Peru.

During the American Civil War, Europeans took advantage of U.S. military preoccupations to try to restore imperial rule: Britain, France, and Spain invaded Mexico, and Spain invaded Peru. The American nationalists and military, as they became able to do so, sided with the Hispanic republics, and

the European armies withdrew. Under President José Balta (1868-72), Peru's government hired Meiggs to build an astonishing set of railroads into the Andes. The lines ran from the southern port of Mollendo to Arequipa, on to Puno and Juliaca en route to Cuzco; and from Callao next to Lima, up the Rimac Valley and on across the heights to Huancayo. Meiggs employed his laborers under uniquely humane conditions, and the results were considered a wonder of modern times, the most daring and ingenious mountain engineering known to the world.

On New Year's Day, 1870, Meiggs spoke at a celebration in Lima marking the opening of his second Peruvian project, the Central Trans-Andean Railway, known popularly as "the railway to the moon."

Meiggs told the proud civic gathering that the object was to "scale the summits of the Andes and to unite with bonds of iron the people of the Pacific and the Atlantic. . . . Its immense transcendancy will very shortly be felt in all spheres of human activity. This happy event proclaims in the future a great social revolution whose triumph and whose benefits are en-

LaRouche: Railroads and the Eurasian Land-Bridge

Interviewed June 19, 1996, on "EIR Talks," Lyndon LaRouche placed his "Eurasian Land-Bridge" proposal in the tradition of America's successful railroad development.

You have to take the railroad issue, and treat that not as a rail line, not as transportation that lies across the desert. . . . The way this has to be done: If people get some good maps which give some degree of the topography of the area, and population density, water, and things like that—Take the railroad maps together of China, and of Western Europe. Look at the inland waterways, the canals, and other transportation devices.

Now, looking across these vast reaches, going eastward from Berlin, which is the natural rail hub in Europe for going to China and India, and there, toward China, and you find you have vast expanses, which are virtually undeveloped, with low population densities, with a lot of natural resources, but very little development. And, you're going to run a rail line, say, from Berlin as a hub, also, to Brest, in France, and so forth; but, as a hub, out to places like Beijing, and across to the islands, and down into the main island of Japan, and down into India, and so forth.

And, you find that you're putting track (in this case, it might be magnetic levitation), across very vast expanses, with very little in between. Very few places from which to pick up freight or passengers, or dispatch them, at least, in large quantities. So, that gets pretty expensive, on the surface of it: to transport something thousands of miles, and that's what it amounts to, in some cases, across the Eurasia heartland, with nothing there; very few canals, very few—a limited number of roads, and so forth, into China, into the heavily populated part of China, or the heavily populated part of South Asia.

How do you pay for that? Well, we did that, in the United States, with our railroad development. As people may recall, in the middle of the last century, we used rail to create development corridors along the line of the rail route, and we populated the area with farms; we populated the area around the farms, with new urban communities, and, apart from the mess that was made of it during the course of this century, and under the Cleveland administration, and so forth, in the past century, it was very good. We showed the way of how to develop the country.

Now, therefore, when you build a railroad across Eurasia, you're not just going to build a rail track, or a magnetic levitation track. You're going to build a corridor, a development corridor. And, that development corridor will reach to approximately 50 kilometers on either side of the main trunk line, which may be defined by a canal, a canalway, or inland waterway, or by railroads, or so forth.

Now, when you do that, what you're going to do, is put along the same right of way as your railway track, you'll put things like fuel pipelines, freshwater pipelines, and other logistical devices. Your power grid will be oriented, in that region, to your main highway, your main artery of transportation; warehousing systems. You will then reach out, in natural centers, which are natural urban centers, and just plan them, as we did in the West; and, you will go out to 50 miles, or 30, 40 miles or so, on either side of your main trunk line. And, you'll develop farms, you'll develop industries. You'll move population, and so forth. In that way, every kilometer of track, in a sense, is paying for itself because of the economic development along the right of way.

Now, the Chinese have caught on to this; and, they've proposed that they're pushing for the rail line, to also develop other things, like pipelines and power lines, and so forth, to match this. It's very intelligent; and, the United States should say, "We want to get into this with both hands," and help them. Our helping them in this, would help revive some of our moribund industry, and get some jobs going in the United States. And, the Europeans should do the same thing. So, I'm very much for it.

trusted to the locomotive, that irrepressible battering ram of modern civilization. At its pressure will fall those granite masses which physical nature has until today opposed to the agricultural, industrial, and mercantile agrandizement of the Peruvian nation. Its whistle will awaken the native race from the lethargy in which its dominators, supported in abjection and isolation, have kept it for so many centuries under . . . error and ignorance. . . .

"Steam, which shortens time and cuts distances, is the most rapid and secure means of introducing life and material development to the backward Amazonian regions."[18]

The Meiggs projects had long been envisioned and promoted by Peru's nationalist economist Manuel Pardo. In an 1862 booklet calling for development of Andean railroads, Pardo wrote of the need for a true national revolution:

"If railways are called to exercise a redeeming mission in the wild deserts of America, no less are they to effect a moral and intellectual revolution in the backward and ignorant masses that form the bulk of our population. Means of communication will exercise their beneficent influence in two ways. In one way by giving mobility to men who today pass their life and die nailed like stones or plants where nature cast them down, for mobility for them is shortly material liberty. . . . Mobility also brings enlightenment; not, of course, the enlightenment of books and theories, but the practical science of life which frequent communication with men gives."[19]

Pardo challenged the supposed inevitability of a backward state of the populace that allows oligarchs to rule by manipulating mobs or terrorists:

"Merely bettering their moral condition can give them those principles of personal dignity and independence without which they can never be anything but miserable helots, commoners attached to the soil and blind instruments of everyone who cuts a cudgel to order them about. By bettering the material condition of our people, we shall oppose the most effective barricade against the advances of tyranny . . . [and] against the forces of the anarchists. That is the second means whereby railways ought to exercise their moral influence upon populations."[20]

The British Empire mounted a political, diplomatic, financial, and ultimately military offensive to stop this menacing initiative. President Balta was murdered in 1872, and was succeeded as President by Manuel Pardo. Squeezed mercilessly by international finance, Meiggs and the Peruvians were unable to carry the project across the continent into Argentina or Brazil, thus preventing the uniting of the continent. Peru was bankrupted, and Meiggs died, impoverished, in 1876.

In 1879, the British ran a puppet Chilean Army and Navy attack against Peru, known as the War of the Pacific. The invasion aimed at destroying Peru as a nation, and smashing up the newly built railroads, which were the greatest in South America. U.S. President President James Garfield, inaugurated in 1881, replied with U.S. overt and covert aid to Peru, at the same time cooperating with railway projects in Russia, and allowing Americans to sponsor the revolutionary underground against British rule in Ireland. President Garfield and Tsar Alexander II were both assassinated within the space of a few months in 1881.

Garfield's Secretary of State, James Blaine, testified in Congress about what had happened in Peru: "The . . . English bondholders . . . put up the job of this war on Peru. . . . England sweeps it all in. . . . The iron-clads that destroyed the Peruvian Navy were furnished by England. . . . It is a perfect mistake to speak of this as a Chilean war on Peru. It is an English war on Peru, with Chile as the instrument. . . . Chile would never have gone into this war one inch but for her backing by English capital, and there was never anything played out so boldly in the world as when they came to divide the loot and the spoils."[21]

Winning this war, the British financiers, led by a British immigrant to America, W.R. Grace, in their own name then foreclosed the entirety of Peru, putting the railroads and virtually all other enterprises into British ownership.

W.R. Grace, the founder of the imperial trading company that ran western South America for the British (and spun off Pan American Airways), rendered the financiers' verdict on Henry Meiggs, as paraphrased in an American newspaper:

"New York, October 12 [1877]—W.R. Grace, head of the chief Peruvian firm in this city, speaking of the financial condition of the late Henry Meiggs at the time of his death, says he thinks that really nothing but a mass of worthless securities and contracts are left behind Meiggs. . . . Meiggs was a visionary man, who carried out vast schemes, but they were often things that a sound business man would consider worthless."[22]

In recent years, Peru's Shining Path terrorists, whose terrorist operations receive backing from London, have sought to destroy Peru's railroads, and all advanced civilization. Russia is collapsing under the misrule of plundering speculators, its infrastructure collapsing. In the United States, the rail system has ground to a halt, sucked dry by financial adventurers. The looters will not invest a penny in building up a rail line; but they are free with their warnings, that no nation must ever again dare to do so.

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18. Watt Stewart, *Henry Meiggs, Yankee Pizarro* (Durham, North Carolina: Duke University Press, 1946), pp. 61-62. This biography, a raving hatchet job against Meiggs, is openly favorable to the British financiers who eventually swallowed up Peru.

19. Manual Pardo, *Estudios sobre la Provincia de Jauja,* Lima, 1862, pp. 47-48, quoted in Stewart, *op. cit.,* p. 73.

20. *Ibid.,* quoted in Stewart, *op. cit.,* pp. 73-74.

21. Congressional Testimony, House Report, 47th Congress, 1st Session, No. 1790.

22. Stewart, *op. cit.,* p. 341.