

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The General Survey Act was repealed in 1838, under the administration of Martin Van Buren.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

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.

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’ land-grabs), 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

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

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

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

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,

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

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

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