**Chapter Eight**

**Toward a national Economy**

Politicians might attribute the growth of the country to their own patriotism and ingenuity, but without the economic, cultural, and technological developments of the period, that growth would not have occurred. The country was still overwhelmingly agricultural in 1820, but it was on the brink of a major economic readjustment. Certain obscure seeds planted in the early years of the republic had taken root. New attitudes toward material goods along with new ways of producing them were beginning to take hold. The industrial revolution was coming to America with a rush.

**Gentility and the Consumer Revolution**

The democratic revolution was accompanied by widespread emulation of aristocratic behavior. Sometimes the most ardent American democrats proved the most susceptible to the blandishments of European gentility. Thus young John Adams, while lampooning "the late Refinements in modern manners," nevertheless advised his future wife, Abigail, to be more attentive to posture: "You very often hang your Head like a Bulrush, and you sit with your legs crossed to the ruin of the figure." On his trip to Paris in 1778 on behalf of the Continental Congress, he denounced the splendor of the houses, furniture, and clothing. "I cannot help suspecting that the more Elegance, the less Virtue," he concluded. Yet despite the exigencies of war, Adams shortly purchased a lavish carriage. On returning to America, he bought a three-story mansion and furnished it with Louis XV chairs and, among other extravagances, an ornate wine cooler from Vincennes.

Among aristocratic circles in Europe, gentility was the product of ancestry and cultivated style; in America it was largely defined by possession of material goods: houses with parlors and hallways; porcelain plates, silver tea services, woolen carpets, walnut tables, and countless articles of consumption. Americans were demanding more goods than such craftsmen could turn out in the usual way. Everywhere producers sought to expand their workshops, hire and train more artisans, and acquire large stocks of materials and labor-saving machines.

But first producers had to find the requisite capital, think of ways to supervise large numbers of workers, and discover how to get raw materials to their factories and goods to the customers. The solutions to these problems, taken together, constituted the "market revolution" of the early nineteenth century. The "industrial revolution" came on its heels.

**America's Industrial Revolution**

Between 1790 and 1803 a series of events took place that were basic to the industrialization of the United States and the evolution of a truly national economy. In 1790 a young English-born genius named Samuel Slater, employed by the Rhode Island merchant firm of Almy & Brown, began to spin cotton thread by machine in the first factory in the United States. In 1800 a youthful graduate of Yale College, Eli Whitney, having contracted to make 10,000 rifles for the government, succeeded in manufacturing them by such precise methods that the parts were interchangeable, a major step toward the perfection of the assembly-line system of production.

Other important technological advances included John Fitch's construction and operation of the world's first regularly scheduled steamboat in 1790 and Eli Whitney's invention of the cotton gin in 1793. The steamboat and the gin affected American history almost as much as the factory system and mass production. The former, when employed on western waters, cut the cost of transportation dramatically and brought the West into the national economy. The latter made possible the widespread cultivation of cotton, which transformed the South and fed the cotton factories of the world for decades.

Innovations in the way businesses were organized and financed accompanied technological developments, The establishment of the first Bank of the United States was of key importance, because it provided a source of credit for private business. Its success led to the founding of 29 state-charted banks by 1800.

**Birth of the Factory**

Slater's factory did not signal the disappearance of the family spinning wheel or the spread of the factory system to other forms of manufacturing. Methods of distributing goods, keeping records, and accounting remained primitive. Interchangeable firing pins for rifles did not lead at once even to matching pairs of shoes. More than 15 years were to pass after the invention of Fitch's steamboat before it was widely accepted.

By the 1770s British manufacturers, especially those in textiles, had made astonishing progress in mechanizing their operations, bringing workers together in buildings called factories where waterpower, and later steam, supplied the force to run new spinning and weaving devices that increased productivity and reduced labor costs.

Because machine-spun cotton was cheaper and of better quality than that spun by hand, producers in other countries were eager to adopt British methods. Americans had depended on Great Britain for such products until the Revolution cut off supplies; then the new spirit of nationalism gave impetus to the development of local industry. A number of state legislatures offered bounties to anyone who would introduce the new machinery. The British, however, guarded their secrets vigilantly. It was illegal to export any of the new machines or to send their plans abroad. Workers skilled in their construction and use were forbidden to leave the country.

These restrictions were effective for a time. The principles on which the new machines were based were simple enough, but to construct workable models without plans was another matter. Although a number of persons tried to do so, it was not until Samuel Slater installed his machines in Pawtucket, Rhode Island, that a successful factory was constructed.

Slater was more than a skillful mechanic. Attracted by stories of the rewards offered in the United States, he slipped out of England in 1789. Not daring to carry any plans, he depended on his memory and his mechanical sense for all the complicated specifications of the necessary machines. When Moses Brown took him to Rhode Island, he insisted on scrapping the crude machinery Almy & Brown had assembled. Then, working in secrecy with a carpenter who was "under bond not to steal the patterns nor disclose the nature of the work," he built and installed his machinery. In December 1790 the first American factory began production.

It was a humble beginning indeed. Slater's machines made only cotton thread, which Almy & Brown sold in its Providence store and "put out" to individual artisans, who, working for wages, wove it into cloth in their homes. The machines were tended by a labor force of nine children, for the work was simple and the pace slow. The young operatives' pay ranged from 33 cents to 67 cents per week, about what a youngster could earn in other occupations. This labor pattern persisted for decades.

The factory was profitable from the start. Slater soon branched out on his own, and others trained by him opened their own establishments. By 1800 seven mills possessing 2,000 spindles were in operation; by 1815, after production had been stimulated by the War of 1812, there were 130,000 spindles turning in 213 factories.

Before long the Boston Associates, a group of merchants headed by Francis Cabot Lowell, added a new dimension to factory production. Beginning at Waltham, Massachusetts, where the Charles River provided the necessary waterpower, they revolutionized textile production between 1813 and 1850. Lowell, after an extensive study of British mills, smuggled the plans for an efficient power loom into America. His Boston Manufacturing Company at Waltham, capitalized at $300,000, combined machine production, large-scale operation, and efficient management, as well as centralized marketing procedures. It concentrated on the mass production of a standardized product.

Lowell's cloth was durable and cheap, though plain and rather coarse. His profits averaged almost 20 percent a year during the Era of Good Feelings. In 1823 the Boston Associates began to harness the power of the Merrimack River, setting up a new $600,000 corporation at the sleepy village of East Chelmsford, Massachusetts (population 300), where there was a fall of 32 feet in the river. Within three years the town, appropriately renamed Lowell, had 2,000 inhabitants.

**An Industrial Proletariat?**

As the importance of skilled labor declined, so did the ability of workers to influence working conditions. If skilled, they either became employers and developed entrepreneurial and managerial skills, or they descended into the mass of wage earners. Simultaneously, the changing structure of production widened the gap between owners and workers and blurred the distinction between skilled and unskilled labor.

These trends generated some hostility between workers and employers. There were strikes throughout the 1830s and again in the 1850s. But well into the 1850s Americans displayed few signs of the class solidarity common among European workers.

Why America did not produce a self-conscious working class is a question that has long intrigued historians. Some argue that the existence of the frontier siphoned off displaced and dissatisfied workers. Other historians believe that ethnic and racial differences kept workers from seeing themselves as a distinct class with common needs and common enemies. The influx of needy immigrants willing to accept almost any wage was certainly resented by native-born workers. The growing number of free blacks in northern cities-between 1800 and 1830 the number tripled in Philadelphia and quadrupled in New York-also inhibited the development of a self-conscious working class. Black city dwellers got only the lowliest jobs and were often forced by poverty and white pressure to live in dreadful slums. Notwithstanding the bad conditions in the early shops, the new factories still represented an improvement for most of the people who worked in them. This was the case with nearly all European immigrants, though less so for urban free blacks, because in the South many found work in the skilled trades..

Most workers in the early textile factories were drawn from outside the regular labor market. Relatively few artisan spinners and weavers became factory workers, nor did immigrants. Instead, the mill owners relied chiefly on women and children. They did so because machines lessened the need for skill and strength and because the labor shortage made it necessary to tap unexploited sources. By the early 1820s about half the cotton textile workers in the factories were under 16 years of age.

Most people of that generation considered this a good thing. They reasoned that the work was easy and provided families with extra income. Roxanna Foote, whose daughter Harriet Beecher Stowe wrote Uncle Tom's Cabin, came from a solid middle-class family. Nevertheless, she worked full-time before her marriage in her grandfather's small spinning mill. Roxanna explained her daily regimen as a mill girl matter-of-factly: "I generally rise with the sun, and, after breakfast, take my wheel, which is my daily companion, and the evening is generally devoted to reading, writing, and knitting."

This seems a somewhat idealized picture, or perhaps working for one's grandfather made a difference. Another young girl, Emily Chubbock, had less pleasant memories. "My principal recollections ... are of noise and filth, bleeding hands and aching feet, and a very sad heart." But people accustomed to seeing the children of farmers working full-time in the fields were not shocked by the sight of children working all day in mills. In factories where laborers were hired in family units, no member earned very much, but with a couple of adolescent daughters and perhaps a 9- or 10-year-old son helping out, a family could take home enough to live decently.

**Francis Cabot Lowell's Waltham System**

Instead of hiring children, the Boston Associates developed the so-called Waltham System of employing young, unmarried women in their mills. The thriving factory towns of Lowell, Chicopee, and Manchester provided the background for a remarkable industrial idyll. Young women came from farms all over New England to work for a year or two in the mills. They were lodged in company boardinghouses, which, like college dormitories, became centers of social life. They were strictly supervised; the regulations laid down by one company, for example, required that all employees "show that they are penetrated by a laudable love of temperance and virtue." "Ardent spirits" were banished from company property, "games of hazard and cards" prohibited. A 10 P.m. curfew was strictly enforced.

Most of these young women did not have to support themselves. They worked to save for a trousseau, to help educate a younger brother, or simply for the experience. "The feeling that at this new work, the few hours they had of everyday leisure was entirely their own was a satisfaction to them," one Lowell worker recalled. Anything but an industrial proletariat, they filled the windows of the factories with flowering plants, edited their own literary periodicals, and attended lectures on edifying subjects. The English novelist Charles Dickens, though scarcely enchanted by most American ways, was impressed by his visit to Lowell, which he compared most favorably to "those great haunts of misery," the English manufacturing towns.

However, life in the mills was not as harmonious as it seemed. Though they made up 85 percent of the workforce, women were kept out of supervisory positions. In 1834 workers in several mills "turned out" to protest cuts in their wages and a hike in what they paid for board. When a drop in prices in the 1840s led the owners to introduce new rules designed to increase production, however, workers lacked the organizational strength to block them. By then young women of the kind that had flocked to the mills in the 1820s and 1830s were beginning to find work as schoolteachers and clerks. Mill owners turned increasingly to Irish immigrants to operate their machines.

**Irish and German Immigrants**

Between 1790 and 1820 the population of the United States had more than doubled to 9.6 million. The most remarkable feature of this growth was that it resulted almost entirely from natural increase: The birthrate in the early nineteenth century exceeded 50 per 1,000 population. Fewer than 250,000 immigrants entered the United States between 1790 and 1820.

But soon after the final defeat of Napoleon in 1815, immigration began to pick up. In the 1820s, some .150,000 European immigrants arrived; in the 1830s, 600,000; and in the 1840s, 1.7 million. The 1850 census, the first to make the distinction, estimated that of the nation's population of 23 million, more than 10 percent were foreign born. In the Northeast the proportion exceeded IS percent.

Most of this human tide came from Germany and Ireland, but substantial numbers also came from Great Britain and the Scandinavian countries. As with earlier immigrants, most were drawn to America by what are called "pull" factors-the prospect of abundant land, good wages, and economic opportunity generally, or by the promise of political and religious freedom. Conversely, many others came because of "push" factors-to stay where they were meant to face starvation. This was particularly true of those from Ireland, where a potato blight triggered the flight of tens of thousands.

Once ashore in New York, Boston, or Philadelphia, the more prosperous immigrants tended to head directly westward. Others found work in the new factory towns. But most of the Irish immigrants, "the poorest and most wretched population that can be found in the world," one of their priests called them, lacked the means to go west. Like it or not, they had to settle in the eastern cities.

Viewed in historical perspective, this massive wave of immigration stimulated the American economy. In the short run, the influx depressed living standards and strained the social fabric. For the first time the nation had acquired a culturally distinctive, citybound, and propertyless class. The poor Irish immigrants had to accept whatever wages employers offered them. By doing so, they caused resentment among native workers, resentment exacerbated by their Roman Catholic faith, which the Protestant majority associated with European Authoritarianism and corruption.

**The Persistence of the Household System**

The efficiency of the "Lowell System" was obvious, yet it caused no immediate transformation of American manufacturing. Although the embargo and the war with Great Britain aided the new factories by limiting foreign competition, they also stimulated nonfactory production. In President Monroe's time the "household-handicraft-mill complex" was still dominant nearly everywhere. Except in the manufacture of textiles, factories employing as many as 50 workers did not exist. Traveling artisans and town craftsmen produced goods ranging from hats, shoes, and other articles of clothing to barrels, clocks, pianos, ship's supplies, cigars, lead pencils, and pottery. Ironworks, brickyards, flour mills, distilleries, and lumberyards could be found even in the most rural parts of the country.

Nearly all these "manufacturers" produced only to supply local needs, but in some instances large industries grew up without advancing to the factory stage. In the neighborhood of Danbury, Connecticut, hundreds of small shops turned out hats by handicraft methods. The hats were sold in all sections of the country, the trade being organized by wholesalers. The shoe industry followed a related pattern, with centers of production in Pennsylvania, New Jersey, and especially eastern Massachusetts.

Some strange combinations of production techniques appeared, none more peculiar than in the manufacture of stockings. Frequently the feet and legs were knit by machine in separate factories and then "put out", to handworkers who sewed the parts together in their homes.

Because technology affected American industry unevenly, contemporaries found the changes difficult to evaluate. Few persons in the 1820s appreciated how profound the impact of the factory system would be. The city of Lowell seemed remarkable and important, but not necessarily a herald of future trends. Yet in nearly every field apparently minor changes were being made. Beginning around 1815, small improvements in the design of water wheels made possible larger and more efficient machinery in mills and factories. Improvements were made soon after the War of 1812 in the manufacture of paper, glass, and pottery. The commercial canning of sterilized foods in airtight containers also began about 1820.

**Rise of Corporations**

Mechanization required substantial capital investment, and capital was chronically in short supply. The modern method of organizing large enterprises, the corporation, was slow to develop. Between 1781 and 1801 only 326 corporations were chartered by the states, and only a few of them were engaged in manufacturing.

The general opinion was that only quasi-public projects, such as roads and waterworks, were entitled to the privilege of incorporation. Anyone interested in organizing a corporation had to obtain a special act of a state legislature. And even among businessmen there was a tendency to associate corporations with monopoly, corruption, and the undermining of individual enterprise. In 1820 the economist Daniel Raymond wrote: "The very object ... of the act of incorporation is to produce inequality, either in rights, or in the division of property. Prima facie, therefore all money corporations are detrimental to national wealth. They are always created for the benefit of the rich." Such feelings help to explain why as late as the 1860s most manufacturing was being done by unincorporated companies.

The growth of industry reshaped American society. For a time it lessened the importance of foreign commerce by reducing the need for European manufactured goods. Furthermore, as the country moved closer to self-sufficiency, nationalistic and isolationist sentiments were subtly augmented. The rise of manufacturing also affected farmers, because as cities grew in size and number, the need to feed the populace caused commercial agriculture to flourish. Dairy farming, truck gardening, and fruit growing flourished around the new manufacturing centers.

**Cotton Revolutionizes the South**

By far the most important indirect effect of industrialization occurred in the South, which soon began to produce cotton to supply the new textile factories of Great Britain and New England. The possibility of growing large amounts of this crop in America had not been seriously considered in colonial times, but by the 1780s the demand for raw cotton to feed the voracious British mills was so great that many American farmers were eager to experiment with the crop. Most of the world's cotton at this time came from Egypt, India, and the East Indies. The plant was considered tropical, with most varieties being unable to survive the slightest frost.

Beginning in 1786, "sea island" cotton was grown successfully in the mild, humid lowlands and offshore islands along the coasts of Georgia and South Carolina. This was a high-quality cotton, silky and long-fibered like the Egyptian. But its susceptibility to frost severely limited the area of its cultivation. Elsewhere in the South, "green-seed," or upland, cotton flourished, but this plant had little commercial value because the seeds could not be easily separated from the lint. When sea island cotton was passed between two rollers, its shiny black seeds simply popped out; with upland cotton the seeds were pulled through with the lint and crushed, the oils and broken bits destroying the value of the fiber. To remove the seeds by hand was laborious; a slave working all day could clean scarcely a pound of the white fluff. This made it an uneconomical crop.

However, the planters of South Carolina and Georgia, suffering from hard times after the Revolution, needed a new cash crop. Rice production was not expanding, and indigo, the other staple of the area, had ceased to be profitable when it was no longer possible to claim the British bounty. Cotton seemed an obvious answer. Farmers were experimenting hopefully with different varieties of the plant and mulling the problem of how upland cotton could be more easily deseeded.

This was the situation in the spring of 1793 when Eli Whitney was a guest at Mulberry Grove, a plantation some dozen miles from Savannah belonging to Catherine Greene, widow of General Nathanael Greene. Whitney, who had never seen a cotton plant before, met a number of the local landowners. To his father he wrote: I heard much of the extreme difficulty of ginning Cotton, that is, separating it from its seed. There were a number of very respectable Gentlemen at Mrs. Greene's who all agreed that if a machine could be invented that would clean the Cotton with expedition, it would be a great thing both to the Country and to the inventor.

Within 10 days Whitney had solved the problem that had baffled the planters. His gin (engine) consisted of a cylinder covered with rows of wire teeth rotating in a box filled with cotton. As the cylinder turned, the teeth passed through narrow slits in a metal grating. Cotton fibers were caught by the teeth and pulled through the slits. The seeds, too thick to pass through the openings, were left behind. A second cylinder, with brushes rotating in the opposite direction to sweep the cotton from the wires, prevented matting and clogging.

This "absurdly simple contrivance" almost instantly transformed southern agriculture. With a gin a slave could clean 50 times as much cotton as by hand; soon larger models driven by mules and horses were available. Cotton production figures tell the story: In 1790 about 3,000 bales (the average bale weighed 500 pounds) were produced in the United States. In 179 3, 10,000 bales were produced; two years later, 17,000; by 1801, 100,000. The embargo and the War of 1812 temporarily checked expansion, but in 1816 output spurted ahead by more than 25 percent, and in the early 1820s annual production averaged well over 400,000 bales.

Despite this avalanche, the price of cotton remained high. Profits of $50 an acre were not unusual, and the South boomed. The crop engulfed Georgia and South Carolina and spread north into parts of Virginia. After Andrew Jackson smashed the southwestern Indians during the War of 1812, the rich "Black Belt" area of central Alabama and northern Mississippi and the delta region along the lower Mississippi River were rapidly taken over by the fluffy white staple. In 1821 Alabama alone raised 40,000 bales. Central Tennessee also became important cotton country.

Cotton stimulated the economy of the rest of the nation as well. Most of it was exported, the sale paying for much-needed European products. The transportation, insurance, and final disposition of the crop fell largely into the hands of northern merchants, who profited accordingly. And the surplus corn and hogs of western farmers helped feed the slaves of the new cotton plantations. Cotton was the major force in the American economy for a generation beginning about 1815.

**Revival of Slavery**

Amid the national rejoicing over this prosperity, one aspect both sad and ominous was easily overlooked. Slavery, a declining or at worst stagnant institution in the decade of the Revolution, was revitalized in the following years.

Libertarian beliefs inspired by the Revolution ran into the roadblock of race prejudice as soon as some of the practical aspects of freedom for African Americans became apparent. As disciples of John Locke, the Revolutionary generation had a deep respect for property rights; in the last analysis most white Americans placed these rights ahead of the personal liberty of black Americans in their constellation of values. Forced abolition of slavery therefore attracted few recruits.

In the 1780s many opponents of slavery began to think of solving the "Negro problem" by colonizing freed slaves in some distant region-in the western districts or perhaps in Africa. The colonization movement had two aspects. One, a manifestation of an embryonic black nationalism, reflected the disgust of black Americans with local racial attitudes and their interest in African civilization. Paul Cuffe, a Massachusetts Quaker, managed to finance the emigration of 38 of his fellow blacks to Sierra Leone in 1815. Few others followed. Most influential northern blacks, such as Bishop Richard Allen of the African Methodist Church, opposed the idea vigorously.

The other colonization movement, led by whites, was paternalistic. Some white colonizationists genuinely abhorred slavery. Others could not stomach living with free blacks; to them colonization was a polite word for deportation. Most white colonizationists were conservatives who considered themselves realists: They were sure that American conditions gave blacks no chance to better their lot and that both races would profit from separation.

The colonization idea became popular in Virginia in the 1790s, but nothing was achieved until after the founding of the American Colonization Society in 1817. The society purchased African land and established the Republic of Liberia. However, despite the cooperation of a handful of black nationalists and the patronage of many important white southerners, including presidents Madison and Monroe and Chief Justice Marshall, it accomplished little and declined rapidly after about 1830. As late as 1850, the black American population of Liberia was only 6,000.

The cotton boom of the early nineteenth century acted as a brake on the colonization movement. As cotton production expanded, the need for labor in the South grew apace. The price of slaves doubled between 1795 and 1804. As it rose, the inclination of even the most kindhearted masters to free their slaves began to falter.

An increase in the interstate slave trade also resulted from the cotton boom. Although it had always been legal for owners to transport their own slaves to a new state if they were settling there, many states forbade, or at least severely restricted, interstate commercial transactions in human flesh. Once cotton became important, these laws were either repealed or systematically evaded. There was a surplus of slaves in one part of the United States and an acute shortage in another. A migration from the Upper South to the cotton lands quickly sprang up. Soon the slave trade became an organized business, cruel and shameful, frowned on by the "best" people of the South, managed by the depraved and the greedy, yet patronized by nearly anyone who needed labor. "The native land of Washington, Jefferson, and Madison," one disgusted Virginian told a French visitor, had "become the Guinea of the United States."

The lot of blacks in the northern states was almost as bad as that of southern free blacks. Except in New England, where there were few of them to begin with, most were denied the vote, either directly or by extralegal pressures. They could not testify in court, intermarry with whites, obtain decent jobs or housing, or get even a rudimentary education. Most states segregated them in theaters, hospitals, and churches and on public transportation facilities. As a rule, they were barred from hotels and restaurants patronized by whites.

Northern blacks could at least protest and try to convince the white majority of the injustice of their treatment. These rights were denied their southern brethren. They could and did publish newspapers and pamphlets, organize for political action, petition legislatures and the Congress for redress of grievances-in short, they applied methods of peaceful persuasion in an effort to improve their position in society.

**Roads to Market**

Inventions and technological improvements were extremely important in the settlement of the West. On superficial examination, this may not seem to have been the case, for the hordes of settlers who struggled across the mountains immediately after the War of 1812 were no better equipped than their ancestors who had pushed up the eastern slopes in previous generations. Many plodded on foot over hundreds of miles, dragging crude carts laden with their meager possessions. More fortunate pioneers traveled on horseback or in heavy, cumbersome wagons.

In many cases, the pioneers followed trails and roads no better than those of colonial days-quagmires in wet weather, rutted and pitted with potholes a good part of the year. When they settled down, their way of life was no more advanced than that of the Pilgrim fathers. At first they were creatures of the forest, feeding upon its abundance, building their homes and simple furniture with its wood, and clothing themselves in the furs of forest animals. They usually planted the first crop in a natural glade; thereafter, year by year, they pushed back the trees with ax and saw and fire until the land was cleared. Any source of power more complicated than an ox was beyond their ken. Until the population of the territory had grown large enough to support town life, settlers were as dependent on crude household manufactures as any earlier pioneer.

The spread of settlement into the Mississippi Valley created challenges that required technological advances if they were to be met. Most were related to transportation, the major problem for westerners. Without an economical means of getting their produce to market, they were condemned to lives of crude self-sufficiency. Everyone recognized that an efficient transportation network would increase land values, stimulate domestic and foreign trade, and strengthen the economy.

The Mississippi River and its tributaries provided a natural highway for western commerce and communication, but it had grave disadvantages. Farm products could be floated down to New Orleans on rafts and flatboats, but the descent from Pittsburgh took at least a month. Transportation upstream was out of the question for anything but the lightest and most valuable products, and even for them it was extremely expensive. In any case, the natural flow of trade was between East and West. That is why, from early in the westward movement, much attention was given to building roads linking the Mississippi Valley to the eastern seaboard. The first such road, connecting Philadelphia and Lancaster, Pennsylvania, was opened to traffic in 1794.

In heavily populated sections, the volume of traffic made good roads worth their cost, which ran to as much as $13,000 a mile where the terrain was difficult. In some cases good roads ran out into fairly remote areas. In New York, always a leading state in the movement for improved transportation, an excellent road had been built all the way from Albany to Lake Erie by the time of the War of 1812, and by 1821 the state had some 4,000 miles of good roads.

**Transportation and the Government**

Most of the improved highways and many bridges were built as business ventures by private interests. Promoters charged tolls, the rates being set by the states. Tolls were collected at gates along the way; hinged poles suspended across the road were turned back by a guard after receipt of the toll. Hence these thoroughfares were known as turnpikes, or simply pikes.

The profits earned by a few early turnpikes, such as the one between Philadelphia and Lancaster, caused the boom in private road building, but even the most fortunate of the turnpike companies did not make much money. Some states bought stock to bolster weak companies, and others built and operated turnpikes as public enterprises. Local governments everywhere provided considerable support, for every town was eager to develop efficient communication with its neighbors.

Despite much talk about individual self-reliance and free enterprise, local, state, and national governments contributed heavily to what in the jargon of the day were

called "internal improvements." The federal government poured money in an erratic and unending stream into turnpike companies and other organizations created to improve transportation. Logically, the major highways, especially those over the mountains, should have been built by the national government. Strategic military requirements alone would have justified such a program. One major artery, the Old National Road, running from Cumberland, Maryland, to Wheeling, in western Virginia, was constructed by the United States between 1811 and 1818. In time it was extended as far west as Vandalia, Illinois.

Although the National Road, the New York Pike, and other, rougher trails such as the Wilderness Road into the Kentucky country were adequate for the movement of settlers, they did not begin to answer the West's need for cheap and efficient transportation. Wagon freight rates varied considerably, but averaged at least 30 cents a ton-mile around 1815. At such rates, to transport a ton of oats from Buffalo to New York would have cost 12 times the value of the oats.

Turnpikes made it possible to transport goods such as clothing, hardware, coffee, and books across the Appalachians, but the expense was considerable. It cost more to ship a ton of freight 300 miles over the mountains from Philadelphia to Pittsburgh than from Pittsburgh to Philadelphia by way of New Orleans, more than ten times as far. Until the coming of the railroad, which was just being introduced in England in 1825, shipping bulky goods by land over the great distances common in America was uneconomical. Businessmen and inventors concentrated instead on improving water transport, first by designing better boats and then by developing artificial waterways.

**Development of Steamboats**

After John Fitch's work in around 1790, a number of others made important contributions to the development of steam navigation. One early enthusiast was John Stevens, a wealthy New Jerseyite, who designed an improved steam boiler for which he received one of the first patents issued by the United States. Stevens got his brother-in-law, Robert R. Livingston, interested in the problem, and the latter used his political influence to obtain an exclusive charter to operate steamboats on New York waters. In 1802, while in France trying to buy New Orleans from Napoleon, Livingston got to know Robert Fulton, a young American artist and engineer who was experimenting with steam navigation, and agreed to finance his work. In 1807, after returning to New York, Fulton constructed the North River Steam Boat, famous to history as the Clermont. Nothing about the Clermont was radically new, but Fulton brought the various essentials--engine, boiler, paddle wheels, and hull into proper balance and thereby produced an efficient vessel.

No one could patent a steamboat; soon the new vessels were plying the waters of every navigable river from the Mississippi east. The day of the steamboat had dawned, and although the following generation would experience its high noon, even in the 1820s its major effects were clear. The great Mississippi Valley, in the full tide of its development, was immensely enriched. Produce poured down to New

Orleans, which soon ranked with New York and Liverpool as among the world's great ports. Only 80,000 tons of freight reached New Orleans from the interior in 1816-1817, more than 542,000 tons in 1840-1841. Upriver traffic was affected even more spectacularly. Freight charges plummeted, in some cases to a tenth of what they had been after the War of 1812. The Northwest emerged from self-sufficiency with a rush and became part of the national market.

**The Canal Boom**

While the steamboat was conquering western rivers, canals were being constructed that further improved the transportation network. Because the Midwestern rivers all emptied into the Gulf of Mexico, they did not provide a direct link with the eastern seaboard. If an artificial waterway could be cut between the great central valley and some navigable stream flowing into the Atlantic, all sections would profit immensely.

Although canals were as old as Egypt, only about 100 miles of them existed in the United States as late as 1816. Construction costs aside, in a rough and mountainous country canals presented formidable engineering problems. To link the Mississippi Valley and the Atlantic meant somehow circumventing the Appalachian Mountains. Most persons thought this impossible.

Mayor De Witt Clinton of New York believed that such a project was feasible in New York State. In 1810, while serving as canal commissioner, he traveled across central New York and convinced himself that it would be practicable to dig a canal from Buffalo, on Lake Eric, to the Hudson River; at no point along the route to Buffalo does the land rise more than 570 feet above the level of the Hudson. Marshaling a mass of technical, financial, and commercial information (and using his political influence cannily), Clinton placed his proposal before the New York legislature. The legislators were convinced, and in 1817 the state began construction along a route 363 miles long, most of it across densely forested wilderness. At the time, the longest canal in the United States ran less than 28 miles.

The Erie, completed in 1825, was an immediate financial success. Together with the companion Champlain Canal, which linked Lake Champlain and the Hudson, it brought in over half a million dollars in tolls in its first year. Soon its entire $7 million cost had been recovered, and it was earning profits of about $3 million a year. The effect of this prosperity on New York State was enormous. Buffalo, Rochester, Syracuse, and half a dozen lesser towns along the canal flourished.

**New York City: Emporium of the Western World**

New York had already become the largest city in the nation, thanks chiefly to its merchants, who had established a reputation for their rapid and orderly way of doing business. In 1818 the Black Ball Line opened the first regularly scheduled freight and passenger service between New York and England. Previously, shipments might languish in port for weeks while a skipper waited for additional cargo. Now merchants on both sides of the Atlantic could count on the Black Ball packets to move their goods between Liverpool and New York on schedule whether or not the transporting vessel had a full cargo.

Now the canal cemented New York's position as the national metropolis. Most European manufactured goods destined for the Mississippi Valley entered the country at New York and passed on to the West over the canal. The success of the Erie also sparked a nationwide canal-building boom. Most canals were constructed either by the states, as in the case of the Erie, or as "mixed enterprises" that combined public and private resources.

No state profited as much from this construction as New York, for none possessed New York's geographical advantages. In New England the terrain was so rugged as to discourage all but fanatics. The Delaware and Hudson Canal, running from northeastern Pennsylvania across northern New Jersey and lower New York to the Hudson, was completed by private interests in 1828. It managed to earn respectable dividends by barging coal to the eastern seaboard, but it made no attempt to compete with the Erie for the western trade. Pennsylvania, desperate to keep up with New York, engaged in an orgy of construction. In 1834 it completed a complicated system, part canal and part railroad, over the mountains to Pittsburgh. This Mainline Canal was slow and expensive to operate and never competed effectively with the Eric. Efforts of Maryland to link Baltimore with the west by water failed utterly.

Beyond the mountains there was even greater zeal for canal construction in the 1820s and still more in the 1830s. Once the Erie opened the way across New York, farmers in the Ohio country demanded that links be built between the Ohio River and the Great Lakes so that they could ship their produce by water directly to the East. Even before the completion of the Eric, Ohio had begun construction of the Ohio and Erie Canal running from the Ohio River to Cleveland. Another, from Toledo to Cincinnati, was begun in 1832. Meanwhile, Indiana had undertaken the 450-mile Wabash and Erie Canal. These canals were well conceived, but the western states overextended themselves building dozens of feeder lines, trying, it sometimes seemed, to supply all farmers west of the Appalachians with water connections from their barns to the New York docks.

The result was frequently financial disaster. There was not enough traffic to pay for all the waterways that were dug. By 1844, $60 million in state "improvement" bonds were in default. Nevertheless, the canals benefited both western farmers and the national economy.

**The Marshall Court**

In addition to government support for transportation improvements, businessmen in the period greatly benefited from the rulings, of Chief Justice John Marshall. Historians have tended to forget he had six colleagues on the Supreme Court, and that is easy to understand. Marshall's particular combination of charm, logic, and forcefulness made the Court during his long reign, if not a rubber stamp, remarkably submissive to his view of the Constitution.

Marshall's belief in a powerful central government explains his tendency to hand down decisions favorable to the manufacturing and business interests. He also thought that "the business community was the agent of order and progress" and tended to interpret the Constitution in a way that would advance its interests.

Many important cases came before the Court between 1819 and 1824, and in each one Marshall's decision was applauded by most of the business community. The cases involved two major principles: the "sanctity" of contracts and the supremacy of federal legislation over the laws of the states.

Marshall shared the conviction of the Revolutionary generation that property had to be protected against arbitrary seizure if liberty was to be preserved. He therefore gave the widest possible application to the constitutional provision that no state could pass any law "impairing the Obligation of Contracts."

In Dartmouth College v. Woodward (1819), Marshall held that a charter granted by a state was a contract and might not be canceled or altered without the consent of both parties. Contracts could scarcely be more sacred than Marshall made them in the Dartmouth College case, which involved an attempt by New Hampshire to alter the charter granted to Dartmouth by King George III in 1769. The state had sought not to destroy the college but to change it from a private to a public institution, yet Marshall held that to do so would violate the contract clause. In the light of this decision, corporations licensed by the states seemed immune against later attempts to regulate their activities.

Marshall's decisions concerning the division of power between the federal government and the states were even more important. The question of the constitutionality of a national bank, first debated by Hamilton and Jefferson, had not been submitted to the courts during the life of the first Bank of the United States. By the time of the second Bank there were many state banks, and some of them believed that their interests were threatened by the national institution. Responding to pressure from local banks, the Maryland legislature placed an annual tax of $15,000 on "foreign" banks. The Maryland branch of the Bank of the United States refused to pay, whereupon the state brought suit against its cashier, John W. McCulloch.

McCulloch v. Maryland was crucial to the Bank, for five other states had levied taxes on its branches, and others would surely follow suit if the Maryland law were upheld. Marshall extinguished the threat. The Bank was constitutional, its legality was implied in many of the powers specifically granted to Congress. Because the Bank was legal, the Maryland tax was unconstitutional. According to Marshall, "The power to tax involves the power to destroy ... the power to destroy may defeat and render useless the power to create." The long-range significance of the decision lay in its strengthening of the implied powers of Congress and its confirmation of the Hamiltonian or "loose" interpretation of the Constitution. By establishing the legality of the Bank, it also aided the growth of the economy.

In 1824 Marshall handed down an important decision involving the regulation of interstate commerce. This was the "steamboat case," Gibbons v. Ogden. In 1815 Aaron Ogden, former United States senator and governor of New Jersey, had purchased the right to operate a ferry between Elizabeth Point, New Jersey, and New York City from Fulton's backer, Robert R. Livingston, who held a New York monopoly of steamboat navigation on the Hudson. When Thomas Gibbons, who held a federal coasting license, set up a competing line, Ogden sued him. Ogden argued in effect that Gibbons could operate his boat (whose captain was Cornelius Vanderbilt, later a famous railroad magnate) on the New Jersey side of the Hudson, but had no right to cross into New York waters. After complicated litigation in the lower courts, the case reached the Supreme Court on appeal.

Marshall decided in favor of Gibbons, effectively destroying the New York monopoly. He ruled that a state can regulate commerce that begins and ends in its own territory, but not when the transaction involves crossing a state line; then the national authority takes precedence. "The act of Congress," he said, "is supreme; and the law of the state ... must yield to it."

This decision threw open the interstate steamboat business to all comers. More important in the long run was the fact that in order to include the ferry business within the federal government's power to regulate interstate commerce, Marshall had given the word the widest possible meaning. "Commerce, undoubtedly, is traffic, but it is something more-it is intercourse." By construing the commerce clause so broadly, he made it easy for future generations of judges to extend its coverage to include the control of interstate electric power lines and even radio and television transmission.

Many of Marshall's decisions aided the economic development of the country in specific ways, but his chief contribution lay in his broadly national view of economic affairs. His nationalism enabled him to add form and substance to Hamilton's vision of the economic future of the United States. Marshall and his colleagues firmly established the principle of judicial limitation on the power of legislatures and made the Supreme Court a vital part of the American system of government. In an age plagued by narrow sectional jealousies, Marshall's contribution was of immense influence and significance, and on it rests his claim to greatness.

John Marshall died in 1835. Two years later, in the Charles River Bridge case, the Court, speaking through Roger Taney, the new Chief Justice, decided that a state government could favor "the comfort and convenience" of the whole community over the property rights of a private company. How Marshall would have voted in this case, which would have forced him to choose between his Dartmouth College and steamboat case arguments, can never be known. But like most of Marshall's decisions, the Charles River Bridge case advanced the interests of those favoring economic development.

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