18

The Rise of Industrial America, 1865–1900

ISABELLE GARLAND, 1880
(University of Southern California Libraries)

ON OCTOBER 21, 1892, before a crowd of more than two hundred thousand onlookers, presidential candidate Grover Cleveland proudly opened the World's Columbian Exposition in Chicago. Grasping a small electric key connected to a two-thousand-horsepower engine, he proclaimed, "As by a touch the machinery that gives life to this vast Exposition is now set in motion, so in the same instant let our hopes and aspirations awaken forces which in all time to come shall influence the welfare, the dignity, and the freedom of mankind." A moment later, electric fountains shot streams of water high into the air, officially marking the exposition's start.

The Chicago world's fair represented the triumph of fifty years of industrial development. The country's largest corporations displayed their newest products: Westinghouse Company's dynamos mysteriously lit a tower of incandescent light bulbs; American Bell Telephone offered the first long-distance telephone calls to the East Coast; and inventor Thomas A. Edison exhibited his latest phonograph. The fair dazzled its more than 25 million visitors. But Isabelle Garland, mother of writer Hamlin Garland, who visited the fair from a small midwestern farm community, was simply stunned. "[M]y mother sat in her chair, visioning it all yet comprehending little of its meaning," Garland later observed. "Her life had been spent among homely small things, and these gorgeous scenes dazzled her,… letting in upon her in one mighty flood a thousand stupefying suggestions of art and history and poetry of the world.… At last utterly overcome, she leaned her head against my arm, closed her eyes and said, 'Take me home, I can't stand any more of it.'"

Isabelle Garland's emotional reaction captured the ambivalence of many late-nineteenth-century Americans who found themselves both unsettled and exhilarated as the nation was transformed by industrialization. At midcentury, the United States had played a minor role in the world economy. Five decades later, innovations in management, technology, production, and transportation, together with the settlement of the trans-Mississippi West, had expanded manufacturing output fivefold. The United States now produced 35 percent of the world's manufactured goods—more than England, Germany, and France combined. It had become one of the world's greatest industrial powers.

Driving this prodigious growth was the rise of giant corporations that mass-produced oil, steel, and a variety of consumer products. Business leaders and inventors in countless small industries also introduced new technologies and innovative advertising

COURT OF HONOR, WORLD'S COLUMBIAN EXPOSITION, 1893 The Chicago World's Fair was seen as "the most significant and grandest spectacle of modern times." The monumental neoclassical buildings announced that the United States, like Greece and Rome before it, had become one of the world's most powerful economies. *(Granger Collection)*

"The sufferings of the working classes are daily increasing, Famine has broken into the home of many of us, and is at the door of all."

campaigns to swell production and increase sales. By 1900, new enterprises both large and small, supported by investment bankers and using a nationwide railroad distribution system, offered a vast array of goods for national and international markets.

This stunning industrial growth came at a high cost. New manufacturing processes transformed the nature of work, undercut skilled labor, and created mind-numbing, assembly-line routines. Large-scale manufacturing companies often polluted the environment, spewing noxious smoke into the air and dumping toxic waste into nearby rivers. The challenges of new business practices made the American economy difficult to control. Rather than smoothly rolling forward, it lurched between booms and busts in business cycles that produced labor unrest and crippling depressions in 1873–1879 and 1893–1897.

FOCUS Questions

- What innovations in technology and business drove increases in industrial production after 1865?
- How did Carnegie, Rockefeller, and other corporate leaders consolidate control over their industries?
- Why did the South's experience with industrialization differ from that of the North and the Midwest?
- How did the changing nature of work affect factory workers' lives, and how did they respond?
- How did corporations undercut labor's bargaining power in the 1890s?

The Rise of Corporate America

In the early nineteenth century, the corporate form of business organization had been used to raise large amounts of start-up capital for transportation enterprises such as turnpikes and canals. By selling stocks and bonds to raise money, the corporation separated the company's managers, who guided its day-to-day operation, from its owners. After the Civil War, American business leaders pioneered new forms of corporate organization that combined innovative technologies, creative management structures, and limited liability should the enterprise fail. The rise of the giant corporation is a story of risk-taking and innovation as well as of conspiracy and corruption.

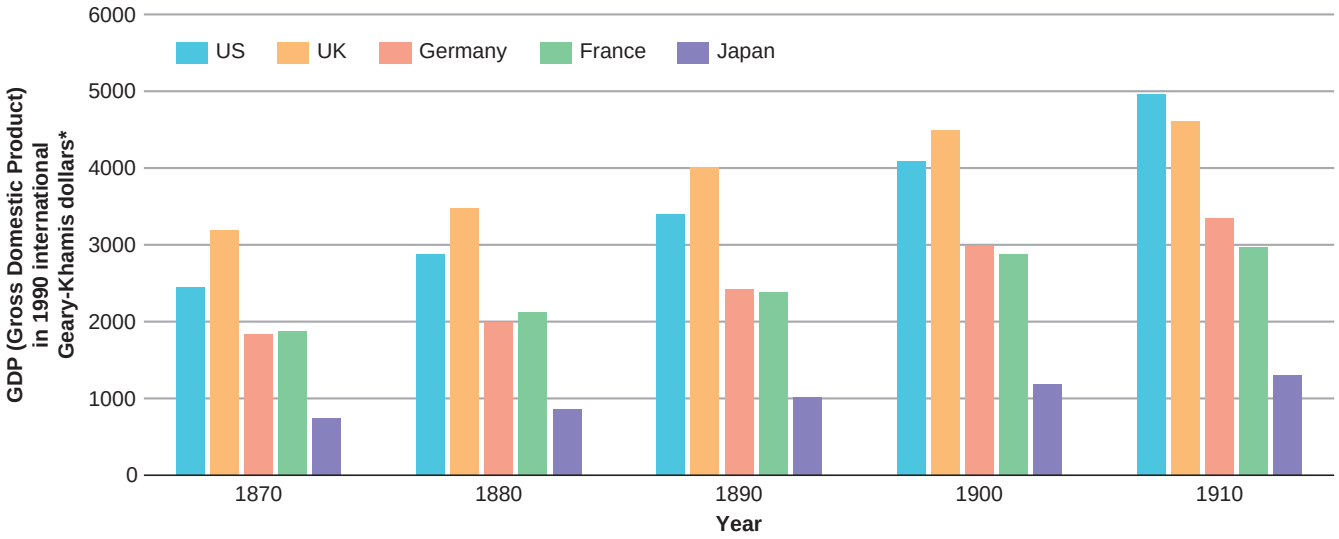
The Character of Industrial Change

Six features dominated the world of large-scale manufacturing after the Civil War: (1) the exploitation of immense coal deposits as a source of cheap energy; (2) the rapid spread of technological innovation in transportation, communication, and factory systems; (3) the demand for workers who could be carefully controlled; (4) the constant pressure on firms to compete tooth-and-nail by cutting costs and prices, eliminating rivals, and creating monopolies; (5) the relentless drop in prices (a stark contrast to the inflation of other eras); and (6) the failure of the money supply to keep pace with productivity, a development that drove up interest rates and restricted the availability of credit.

All six factors were closely related. The great coal deposits in Pennsylvania, West Virginia, and Kentucky provided cheap energy to fuel railroad and factory growth. New technologies stimulated productivity and catalyzed breathtaking industrial expansion. Technological innovation enabled manufacturers to cut costs and hire cheap unskilled labor. Cost cutting enabled firms to undersell one another, destroy weaker competitors, and consolidate themselves into more efficient and more ruthless firms. At least until the mid-1890s, cheap energy, cost reduction, new technology, and fierce competition forced down overall price levels.

But almost everyone struggled terribly during the depression years, when the government did nothing to relieve distress. "The sufferings of the working classes are daily increasing," wrote a Philadelphia worker in 1874. "Famine has broken into the home of many of us, and is at the door of all." Above all, business leaders' unflagging drive to reduce costs both created colossal fortunes at the top of the economic ladder and forced millions of wage earners to live near the subsistence level.

Out of the new industrial system poured clouds of haze and soot, as well as the first tantalizing trickle of what would become an avalanche of consumer goods. In turn, mounting demands for consumer goods stimulated heavy industry's production of capital goods—machines to boost farm and factory output even further. Together with the railroads, the corporations that manufactured capital



*1990 international Geary-Khamis dollars represent the monetary values of the output of the final goods and services produced in a country in one year converted into 1990 dollars at the exchange rate which would pertain if the goods and services had the same prices in all countries (purchasing power parity). See the statistical definition at the UN site: http://unstats.un.org/unsd/methods/icp/ipc7_htm.htm

FIGURE 18.1 **LATE NINETEENTH-CENTURY ECONOMIC GROWTH IN GLOBAL PERSPECTIVE**

goods, refined petroleum, and made steel became driving forces in the nation's economic growth (see Figure 18.1).

Railroad Innovations

Competition among the capitalists who headed American heavy industry was most intense among the nation's railroads. By 1900, 193,000 miles of railroad track crisscrossed the United States—more than in all of Europe including Russia. These rail lines connected every state in the Union, opened up an immense new internal market, and pioneered new forms of large-scale corporate enterprise. They created national distribution and marketing systems, and perfected new organizational and management structures.

Railroad entrepreneurs such as Collis P. Huntington of the Central Pacific Railroad, **Jay Gould** of the Union Pacific, and James J. Hill of the Northern Pacific faced enormous financial and organizational problems. To raise the staggering sums necessary for laying track and building engines, railroads obtained generous land and loan subsidies from federal, state, and local governments (see Chapter 17). Even so, they had to borrow heavily by selling stocks and bonds to the public. Bond holders earned a fixed rate of interest; stockholders received dividends only when the company earned a profit. By 1900, the yearly interest repayments required by the combined debt of all U.S. railroads (which stood at an astounding $5.1 billion—nearly five times that of the federal government) cut heavily into their earnings.

In addition to raising large amounts of capital, the railroads created new systems for collecting and using information. To coordinate the complex flow of cars across the country, they relied on the magnetic telegraph, invented in 1837. To improve efficiency, they set up clearly defined, hierarchical organizational structures and divided their lines into separate divisions, each with its own superintendent. Elaborate accounting systems documented the cost of every operation for each division, from coal consumption to the repair of engines and cars. Using these reports, railroad officials could set rates and accurately predict profits as early as the 1860s, a time when most businesses had no idea of their total profit until they closed their books at year's end. Railroad management innovations thus became a model for many other businesses seeking a national market.

Consolidating the Railroad Industry

The expansion and consolidation of railroading reflected both the ingenuity and the dishonesty flourishing on the corporate management scene. Despite their organizational innovations, the industry remained chaotic in the 1870s. Hundreds of small companies used different standards for track width and engine size. Financed by large eastern and British banks, Huntington, Gould, and others devoured these smaller lines to create large, integrated track networks. In the Northeast, four major trunk lines were completed. West of the Mississippi, five great companies controlled most of the track by 1893.

Huntington, Gould, and the other corporate leaders who reorganized and expanded the railroad industry in the 1870s and 1880s often were depicted by their contemporaries as villains and robber barons who manipulated stock markets to line their own pockets. Newspaper publisher Joseph Pulitzer called Jay Gould, the short, secretive president of the Union Pacific, "one of the most sinister figures that have ever flitted batlike across the vision of the American people." Recent historians, however, have pointed out that the great industrialists were a diverse group. Some were indeed corrupt pirates; others managed their companies with daring and innovation. Indeed, some of their ideas were startling in their originality and inventiveness.

ABUSIVE MONOPOLY POWER This *Puck* cartoon depicts financiers Jay Gould (left) and Cornelius Vanderbilt (right) and suggests that their manipulation of markets and their ownership of railroads, telegraph companies, and newspapers is powerful enough to strangle Uncle Sam. *(Frank & Marie-Therese Wood Print Collections, Alexandria, VA)*

The massive railroad systems created by these entrepreneurs became the largest business enterprises in the world. As they consolidated small railroads into a few interlocking systems, these masterminds standardized all basic equipment and facilities, from engines and cars to automatic couplers, air brakes, and signal systems. In 1883, independently of the federal government, the railroads corrected scheduling problems by dividing the country into four time zones (see Map 17.3). In May 1886, all railroads shifted simultaneously to the new standard $4'8\frac{1}{2}''$ gauge track. Finally, cooperative billing arrangements enabled the railroads to ship cars from other roads at uniform rates nationwide.

But the systemization and consolidation of the railroads had its costs. Heavy indebtedness, overextended systems, and crooked business practices forced the railroads to compete recklessly with each other for traffic. They cut rates for large shippers, showered free passes on politicians, and granted substantial rebates and kickbacks to favored clients. None of these tactics, however, shored up the railroads' precarious financial position. Ruthless competition and fraudulent business practices drove some overbuilt lines into bankruptcy.

Stung by exorbitant rates and secret kickbacks, farmers and small business owners turned to state governments for help. In the 1870s, midwestern state legislatures responded by outlawing rate discrimination. Initially upheld by the Supreme Court, these and other decisions were negated in the 1880s when the Court ruled that states could not regulate interstate commerce. In response in 1887, Congress passed the **Interstate Commerce Act.** A five-member Interstate Commerce Commission (ICC) was established to oversee the practices of interstate railroads. The law banned monopolistic activity like pooling, rebates, and discriminatory short-distance rates.

The railroads challenged the commission's rulings in the federal courts. Of the sixteen cases brought to the Supreme Court before 1905, the justices found in favor of the railroads in all but one, essentially nullifying the ICC's regulatory clout. The Hepburn Act (covered in Chapter 21), passed in 1906, strengthened the ICC by finally empowering it to set rates.

The railroads' vicious competition weakened in 1893 when a national depression forced a number of roads into the hands of **J. Pierpont Morgan** and other investment bankers. Morgan, a massively built man with piercing eyes and a commanding presence, took over the weakened systems, reorganized their administration, refinanced their debts, and built intersystem alliances. By 1906, under the bankers' centralized management, seven giant

networks controlled two-thirds of the nation's rail mileage.

Applying the Lessons of the Railroads to Steel

The close connections between railroad expansion, which absorbed millions of tons of steel for tracks, and the growth of corporate organization and management are well illustrated in the career of **Andrew Carnegie.** Born in Scotland, Carnegie immigrated to America in 1848 at the age of twelve. His first job as a bobbin boy in a Pittsburgh textile mill paid only $1.20 a week. The following year, Carnegie became a Western Union messenger boy. Taking over when the telegraph operators wanted a break, he soon became the city's fastest telegraph operator. Because he had to decode the messages for every major business in Pittsburgh, Carnegie gained an insider's view of their operations.

Carnegie's big break came in 1852 when Tom Scott, superintendent of the Pennsylvania Railroad's western division, hired him as his secretary and personal telegrapher. Later promoted to division chief, Carnegie cut costs while more than doubling the road's mileage. Having invested his earnings in the railroads, by 1868 Carnegie was earning more than $56,000 a year from his investments, a substantial fortune in that era.

In the early 1870s, Carnegie decided to build his own steel mill. His connections within the railroad industry ensured his success. Carnegie's mill produced high grade steel using a new technology named after its English inventor, Henry Bessemer, which shot a blast of air through an enormous crucible of molten iron to burn off carbon and impurities. Combining this new technology with the cost-analysis approach learned from his railroad experience, Carnegie became the first steelmaker to know the actual production cost of each ton of steel.

Carnegie's philosophy was deceptively simple: "Watch the costs, and the profits will take care of themselves." Using rigorous cost accounting and limiting wage increases to his workers, he lowered his production costs and prices below those of his competitors. When these tactics did not drive them out of business, he asked for favors from his railroad-president friends and gave "commissions" to railroad purchasing agents to win business.

As output climbed, Carnegie discovered the benefits of **vertical integration,** that is, controlling all aspects of manufacturing, from extracting raw materials to selling the finished product. In Carnegie's case, this control embraced every stage from the mining and smelting of ore to the selling of steel rails. Carnegie Steel thus became the classic

ANDREW CARNEGIE Although his contemporaries called him "the world's richest man," Andrew Carnegie was careful to deflect criticism by focusing on his philanthropic and educational activities. *(Library of Congress)*

Andrew Carnegie Sums Up the Cost Savings of Vertical Integration
The eighth wonder of the world is this: two pounds of iron-stone purchased on the shores of Lake Superior and transported to Pittsburgh;
two pounds of coal mined in Connellsville and manufactured into coke and brought to Pittsburgh;
one half pound of limestone mined east of the Alleghenies and brought to Pittsburgh;
a little manganese ore,
mined in Virginia and brought to Pittsburgh.
And these four and one half pounds of material manufactured into one pound of solid steel and sold for one cent.
That's all that need be said about the steel business.

Source: Harold C. Livesay, Andrew Carnegie and the Rise of Big Business (Boston: Little, Brown, 1975), 189.

"So much oil is produced that it is impossible to care for it, and thousands of barrels are running into the creek; the surface of the river is covered with oil for miles."

example of how sophisticated new technology could be combined with innovative management (and brutally low wages) to create a mass-production system that could dramatically increase production and slash consumer prices (see Figure 18.2).

The management of daily operations by his close associates left Carnegie free to pursue philanthropic activities. While still in his early thirties, Carnegie donated money to charitable projects. In his lifetime, he gave more than $300 million to libraries, universities, and international-peace causes.

By 1900, Carnegie Steel, employing twenty thousand people, had become the world's largest industrial corporation. Carnegie's competitors, worried about his domination of the market, decided to buy him out. In 1901, J. Pierpont Morgan purchased Carnegie's companies and set up the United States Steel Corporation, the first business capitalized at more than $1 billion. The corporation, made up of two hundred member companies employing 168,000 people, marked a new scale in industrial enterprise.

A systematic self-publicist, Carnegie portrayed his success as the result of self-discipline and hard work. The full story was more complex. Carnegie did not mention his uncanny ability to see the larger picture, his cleverness in hiring talented associates who would drive themselves (and the company's factory workers) mercilessly, his ingenuity in transferring organizational systems and cost accounting methods from railroads to steel, and his callousness in keeping wages as low as possible. To a public unaware of corporate management techniques, however, Carnegie's success gave credence to the idea that anyone might rise from rags to riches.

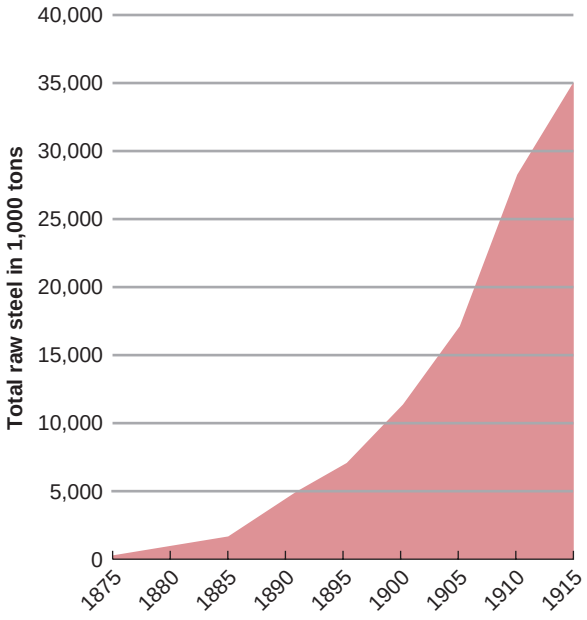


FIGURE 18.2 IRON AND STEEL PRODUCTION, 1875–1915
New technologies, improved plant organization, economies of scale, and the vertical integration of production brought a dramatic spurt in iron and steel production. *Note*: short ton = 2,000 pounds.

Source: Historical Statistics of the United States.

The Trust: Creating New Forms of Corporate Organization

Between 1870 and 1900, the same fierce competition that had stimulated consolidation in the railroad and steel industries (see Table 18.1) also swept the oil, salt, sugar, tobacco, and meat-packing industries. Like steel, these highly competitive businesses required large capital investments. Entrepreneurs in each industry therefore raced to reduce costs, lower prices, and drive their rivals out of the market.

The evolution of the oil industry illustrates the process by which new corporate structures evolved. After Edwin L. Drake drilled the first successful petroleum (or "crude-oil") well in 1859 near Titusville, Pennsylvania, competitors rushed into the business. Petroleum was distilled into oil, which soon replaced animal tallow as the major lubricant, and into kerosene, which became the leading fuel for household and public lighting.

By the 1870s, the landscape near Pittsburgh and Cleveland, the sites of the first discoveries, was littered with rickety drilling rigs, assorted collection tanks, and ramshackle refineries. Oil spills were a constant problem. "So much oil is produced," reported one Pennsylvania newspaper in 1861, "that it is impossible to care for it, and thousands of barrels are running into the creek; the surface of the river is covered with oil for miles."

In this rush for riches, **John D. Rockefeller,** a young Cleveland merchant, gradually achieved dominance. Like Andrew Carnegie, the solemn Rockefeller had a passion for cost cutting and efficiency. In one case, he insisted a manager find 750 missing barrel stoppers. He realized that in a mass-production enterprise, small changes could save thousands of dollars.

Rockefeller resembled Carnegie, too, in his ability to understand the inner workings of an entire industry and the benefits of vertical integration. The firm that controlled the shipment of oil between the well and the refinery and between the refinery and the retailers, he realized, could dominate the industry. In 1872, he purchased his own tanker cars and obtained not only a 10 percent rebate from the

TABLE 18.1 INDUSTRIAL CONSOLIDATION: IRON AND STEEL FIRMS, 1870 AND 1900

	1870	1900
Number of firms	808	669
Number of employees	78,000	272,000
Output (tons)	3,200,000	29,500,000
Capital invested	$121,000,000	$590,000,000

Source: Robert L. Heilbroner and Aaron Singer, The Economic Transformation of America: 1600 to Present, 2nd ed. (San Diego: Harcourt Brace Jovanovich, 1984), 92.

railroads for hauling his oil but also a kickback on his competitors' shipments. When new pipeline technology became available, Rockefeller set up his own massive interregional pipeline network.

Like Carnegie, Rockefeller aggressively forced out his competitors. If local refineries rejected his offers to buy them out, he priced his products below cost and strangled their businesses. When rival firms teamed up against him, Rockefeller set up a pool—an agreement among several companies—that established production quotas and fixed prices. By 1879, Rockefeller had seized control of 90 percent of the country's oil-refining capacity.

Worried about competition, Rockefeller in 1882 decided to eliminate it by establishing a new form of corporate organization, the **Standard Oil Trust.** In place of the "pool" or verbal agreement among companies to control prices and markets, which lacked legal status, the trust created an umbrella corporation that ran them all. To implement his trust, Rockefeller and his associates persuaded the stockholders of forty companies to exchange their stock for trust certificates. Under this arrangement, stockholders retained their share of the trust's profits while enabling the trust to control production. Within three years, the Standard Oil Trust had consolidated crude-oil buying throughout its member firms and slashed the number of refineries in half. In this way, Rockefeller integrated the petroleum industry both vertically, by controlling every function from production to local retailing, and horizontally, by merging the competing oil companies into one giant system.

While Standard Oil justified its trust organization by pointing to the public usefulness of inexpensive heating and cooking fuels, other monopolies did not provide such benefits. James B. "Buck" Duke's American Tobacco trust, for example, targeted youths with trading cards and prizes to persuade them to smoke cigarettes. For addictive products such as cigarettes, targeting children became a means for ensuring continuous use. To gain access to even bigger markets, Duke purchased controlling interests in tobacco companies in England and Japan.

Taking a leaf from Duke and Rockefeller's book, companies in the copper, sugar, whiskey, lead, and other industries established their own trust arrangements. By limiting the number of competitors, the

BASEBALL TRADING CARD To encourage boys and young men to smoke cigarettes, the American Tobacco Company included in the cigarette package collectable cards with pictures of baseball heroes such as Ty Cobb. *(Library of Congress)*

trusts created an *oligopoly*, the market condition that exists when a small number of sellers can greatly influence prices. But their unscrupulous tactics, semimonopolistic control, and sky-high earnings provoked a public outcry. Both major political parties denounced them in the presidential election of 1888.

Fearful that the trusts would stamp out all competition, Congress, under the leadership of Senator John Sherman of Ohio, passed the **Sherman Anti-Trust Act** in 1890. The Sherman Act outlawed trusts and any other monopolies that fixed prices in restraint of trade and slapped violators with fines of up to $5,000 and a year in jail. But the act failed to define clearly either *trust* or *restraint of trade*. The government prosecuted only eighteen antitrust suits between 1890 and 1904. When Standard Oil's structure was challenged in 1892, its lawyers simply reorganized the trust as an enormous holding company. Unlike a trust, which literally owned other businesses, a holding company simply owned a controlling share of the stock of one or more firms. The new board of directors for Standard Oil (New Jersey), the new holding company, made more money than ever.

The Supreme Court further hamstrung congressional antitrust efforts by interpreting the Sherman Act in ways sympathetic to big business. In 1895, for example, the federal government brought suit against the sugar trust in *United States* v. *E C. Knight Company*. It argued that the Knight firm, which controlled more than 90 percent of all U.S. sugar refining, operated in illegal restraint of trade. Asserting that manufacturing was not interstate commerce and ignoring the company's vast distribution network that enabled it to dominate the market, the Court threw out the suit. Thus vindicated, corporate mergers and consolidations surged ahead at the turn of the century. By 1900, these mammoth firms accounted for nearly two-fifths of the capital invested in the nation's manufacturing sector.

Stimulating Economic Growth

Large-scale corporate enterprise did not alone account for the colossal growth of the U.S. economy in the late nineteenth-century. Other factors proved equally important, including new inventions, specialty production, and innovations in advertising and marketing. In fact, the resourcefulness of small enterprises, which combined innovative technology with new methods of advertising and merchandising, enabled many sectors of the economy to grow dramatically by adapting quickly to changing fashions and consumer preferences.

The Triumph of Technology

New inventions not only streamlined the manufacture of traditional products but also stimulated consumer demand by creating entirely new product lines. The development of a safe, practical way to generate electricity, for example, made possible a vast number of electrical motors, household appliances, and lighting systems.

Many of the major inventions that stimulated industrial output and underlay mass production in these years were largely hidden from public view. Few Americans had heard of the improved technologies that facilitated bottle making and glassmaking, canning, flour milling, match production, and petroleum refining. Fewer still knew much about the refrigerated railcars that enabled Gustavus Swift's company to slaughter beef in Chicago and ship it east.

The inventions people did see were the ones that changed the patterns of everyday life: the sewing machine, mass-produced by the Singer Sewing Machine Company beginning in the 1860s; the telephone, developed by Alexander Graham Bell in 1876; and the light bulb, perfected by **Thomas A. Edison** in 1879.

These new inventions eased household drudgery and reshaped social interactions. The sewing machine, which relieved the tedium of sewing apparel by hand, expanded personal wardrobes. The spread of telephones—by 1900, the Bell Telephone Company had installed almost eight hundred thousand in the United States—not only transformed communication but also undermined social conventions for polite behavior that had been premised on face-to-face or written exchanges. The light bulb, by freeing people from dependence on daylight, made it possible to shop after work.

In the eyes of many, Thomas A. Edison epitomized the inventive impulse and the capacity for creating new consumer products. Born in 1847 in Milan, Ohio, Edison, like Andrew Carnegie, had little formal education and worked in the telegraphic industry. A born salesman and self-promoter, Edison shared Carnegie's vision of a large, interconnected industrial system resting on a foundation of technological innovation (see Technology and Culture).

Edison's first major invention, a stock-quotation printer, in 1868 earned enough money to finance Edison's first "invention factory" in Newark, New Jersey, a research facility he moved to nearby Menlo Park in 1876. Assembling a staff that included university-trained scientists, Edison boastfully predicted "a minor invention every ten days, and a big one every six months."

Buoyed by the success and popularity of his invention in 1877 of a phonograph, or "sound writer" (*phono*: "sound"; *graph*: "writer"), Edison set

THOMAS EDISON'S LABORATORIES IN MENLO PARK, NEW JERSEY, CA. 1881 Always a self-promoter, Edison used this depiction of his "invention factory" to suggest that his development of a durable light bulb in 1879 would have an impact on life around the globe. *(U.S. Department of the Interior, National Park Service, Edison National Historic Site)*

out to develop a new filament for incandescent light bulbs. Characteristically, he announced his plans for an electricity-generation process before he perfected his inventions and then worked feverishly, testing hundreds of materials before he found a carbon filament that would glow dependably in a vacuum.

Edison realized that practical electrical lighting had to be part of a complete system containing generators, voltage regulators, electric meters, and insulated wiring and that the system needed to be easy to install and repair. It also had to be cheaper and more convenient than kerosene or natural gas lighting, its main competitors. In 1882, having built this system with the support of banker J. Pierpont Morgan, the Edison Illuminating Company opened a power plant in the heart of New York City's financial district, furnishing lighting for eighty-five buildings.

In the following years, Edison and his researchers pumped out invention after invention, including the mimeograph machine, the microphone, the motion picture camera and film, and the storage battery. By the time of his death in 1931, he had patented 1,093 inventions and amassed an estate worth more than $6 million. Yet Edison's greatest achievement remained his laboratory at Menlo Park. A model for the industrial research labs later established by Kodak, General Electric, and Du Pont, Edison's laboratory demonstrated that the systematic use of science in support of industrial technology paid large dividends. Invention had become big business.

Specialized Production

Along with inventors, manufacturers of custom and specialized products such as machinery, jewelry, furniture, and women's clothes dramatically expanded economic output. Using skilled labor, these companies crafted one-of-a-kind or small batches of articles that ranged in size from large steam engines and machine tools to silverware, furniture, and custom-made dresses. Keenly attuned to innovations in technology and design, they constantly created new products tailored to the needs of individual buyers.

Small dressmaking shops were typical of flexible specialization displayed by small batch processors. Until the turn of the twentieth century, when ready to-wear clothes came to dominate the market, most women's apparel was custom produced in small shops run by female proprietors. Unlike the tenement sweatshops that produced men's shirts and pants, dressmakers and milliners (a term derived from fancy goods vendors in sixteenth-and seventeenth-century Milan, Italy) paid good wages to highly skilled seamstresses. The small size of the shops together with the skill of the workers enabled them to shift styles quickly to follow the latest fashions.

Electricity

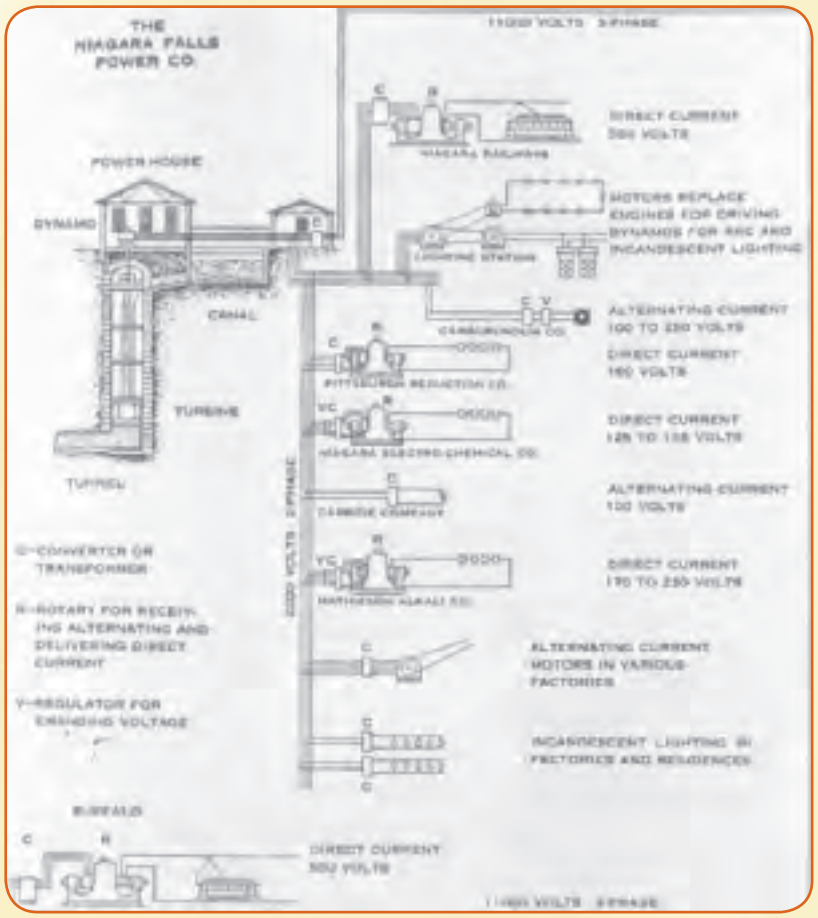
Of all the technological achievements of the nineteenth century, none seemed more inspiring or mysterious than the ability to generate electricity. Using Alessandro Volta's discovery that chemical reactions in batteries produced a weak electric current, Samuel F.B. Morse had used batteries to power his telegraph in 1837. Alexander Graham Bell followed suit with his telephone in 1876. But higher voltages were needed to run lighting systems and motors. Michael Faraday in England and Joseph Henry in America discovered in 1831 that a rotating magnet surrounded by a conducting wire would produce a continuous flow of electric current. After the Civil War, American inventors used this discovery to develop powerful generators to run incandescent lights (1879), to power motors to run trolley cars (1888), and to drive machines in factories. For many Americans, the ability to harness electricity marked the subjugation of nature and indicated the progress of American civilization.

Nowhere did the knowledge of electricity seem more impressive than its promise to reveal the secrets of the human body. X-rays, discovered in 1895 by the German physicist Wilhelm Roentgen and developed into a practical hospital machine a year later by Thomas Edison, enabled doctors to see inside the body. Physicians discovered that the workings of the nervous system and the brain itself depended on electrical impulses. In short, electrical science, given the breadth of its applications and its power to provide insights into nature, seemed close to being the embodiment of supernatural power. It was no accident that Edison was known as the "wizard of Menlo Park," where his research laboratory was located.

The spread of electric lighting illustrates how technological advances pushed innovation. Thomas Edison's vision went far beyond the development of a practical light bulb. He conceived of an interrelated system of power plants, transmission lines, and light fixtures, all to be produced by companies he had established. Edison's system of direct current lighting (DC—which flowed in only one direction in the wires) required that users be located near power plants. But in 1886, George Westinghouse set up a competing company that used the Italian inventor Nikola Tesla's discovery that alternating current (AC—which cycled back and forth within the wires) could send high voltage electricity efficiently over long distances. Competition between the two systems was finally resolved in 1896 when Edison's successor company, General Electric, agreed to share its patents with the Westinghouse Company. With electric current now standardized as 110 volts AC at 60 Hertz (60 cycles per second), dozens of other inventors developed electric motors, spotlights, electric signs, water pumps, elevators, and household appliances—all drawing power from the same power grid. Only twenty years after the first power station had been built, electrification had started to transform everyday life.

CREATION OF THE EDISON SYSTEM, MENLO PARK *Frank Leslie's Weekly* in 1880 illustrated Thomas Edison's process of making electric light bulbs using glass-blowers and vacuum machines in his Menlo Park laboratory. *(Library of Congress)*

By 1898, when the city of London had sixty-two different utilities that produced thirty-two different voltage levels, American companies had created a unified national electrical system with standardized voltages, and the United States had established itself as a world leader in electrical technology. The remarkable achievements of the American electrical industry resulted from a combination of factors. Skilled inventors such as Edison, Westinghouse, and Frank Sprague, who developed electric motors for trolley and subway cars, were critical. But the efforts might never have made it out of the laboratories without financiers, such as J.P. Morgan and Henry Villard, who funded the enormous investment in electric generators, power plants, and transmission lines. A third factor was the independence of large corporations like General Electric and Westinghouse, which were able to operate nationally and avoid conflicting state regulations. Operating as regional monopolies, these corporations



THE NIAGARA FALLS POWER COMPANY As this diagram of the power station at Niagara Falls reveals, the early transmission of electric power was closely tied to large manufacturers who had the funds to support large investments in generating equipment and power lines. *(From Adams, Niagara Power)*

standardized voltage, alternating current, and electrical fixtures nationwide. Finally, the pooling of patents was crucial. The American patent system, by granting inventors property rights in their inventions and by publicly identifying how the discoveries worked, stimulated technological innovation in general.

At first, electricity was very expensive, and the general public could not afford the cost of wiring homes. Still, even confined to the public sphere, the establishment of a national electrical system was one of the greatest technological innovations of the century. Electric streetcars and subways, public lighting systems, and electric elevators transformed urban America, allowing the construction of skyscrapers and the quick transportation of millions of people. The electrification of factories extended the workday into the night and made work safer. In the following decades, electrification made possible the invention of lighting systems, fans, washing machines, and a host of other devices to ease the drudgery of everyday life.

In the twentieth century, some shortcomings in Americans' love affair with electricity became obvious. In the early years, urban electrification accentuated the differences between city and country life. After World War II, massive power failures showed that the centralization of power distribution systems, first constructed as private monopolies between 1880 and 1932, made them vulnerable to failure when a subsystem problem cascaded throughout the network. The private ownership of power companies, now called utility companies, has enabled them at times to inflate energy prices for their own profit. Most electrical power in the United States today is produced from coal, a nonrenewable resource that also produces acid rain and air pollution. Nevertheless, the creation of a national system of electrical power generation paved the way for remarkable innovations—from lighting to televisions and computers—that remain today closely tied to America's sense of progress and material advancement.

QUESTIONS FOR ANALYSIS

- Why did the early electrical inventions seem to mark the subjugation of nature?
- What technological breakthroughs paved the way for the widespread use of electricity for street lighting and transportation?
- Why did the standardization and consolidation of the electric industry take place more quickly in the United States than in England?

SKILLED WOMEN DRESSMAKERS, 1890 As these dressmakers in Mary Malloy's shop in St. Paul, Minnesota, indicate, industrialization did not displace all skilled workers. In this case, hand work and machine work continued together. Women's dressmaking persisted as a skilled occupation into the 1890s and gave women entrepreneurs an opportunity to run their own businesses. (*© Minnesota Historical Society/Corbis)*

Thus, alongside of the increasingly rationalized and bureaucratic big businesses like steel and oil in the late nineteenth century, American productivity was also stimulated by small producers who provided a variety of goods that supplemented the bulk-manufactured staples of everyday life.

Advertising and Marketing

As small and large factories alike spewed out an amazing array of new products, business leaders often discovered that their output exceeded what the market could absorb. This was particularly true for mass-produced consumer goods such as matches, flour, soap, and canned foods. Not surprisingly, these industries were trailblazers in developing advertising and marketing techniques. Strategies for whetting consumer demand and for differentiating one product from another represented a critical component of industrial expansion in the post–Civil War era.

The growth of the flour industry illustrates both the spread of mass production and the emergence of new marketing concepts. In the 1870s, the nation's flour mills adopted new continuous-process machines that graded, cleaned, hulled, ground, and packaged the product in one rapid operation. Since they now produced more flour than they could sell, the companies developed new products such as cake mixes and breakfast cereals and sold them using easy-to-remember brand names like Quaker Oats.

Through the use of brand names, trademarks, guarantees, slogans, endorsements, and other gimmicks, manufacturers built demand for their products and won enduring consumer loyalty. Americans

HEINZ KETCHUP ADVERTISEMENT, CA. 1900 To sell its products in a mass market, H J Heinz company in Pittsburgh developed the brand name "57 Varieties" for its ketchup, pickles, and other condiments. The "girl with the white cap" was meant to symbolize the purity of its food processing. *(Library & Archives Division, Historical Society of Western Pennsylvania, Pittsburgh, PA)*

bought Ivory Soap, first made in 1879 by Procter and Gamble of Cincinnati, because of the absurdly precise but impressive pledge that it was "99 and 44/100ths percent pure."

Other manufacturers won consumer loyalty through the development of unique products. In the 1880s, George Eastman developed a paper-based photographic film as an alternative to the fragile glass plates then in use and sold this film loaded into an inexpensive camera. Consumers returned the camera to his Rochester factory where, for a charge of ten dollars, the film was developed and printed, the camera reloaded, and everything shipped back. In marketing a new technology, Eastman had revolutionized an industry and democratized a visual medium previously confined to a few.

Social and Environmental Costs and Benefits

By 1900, the chaos of early industrial competition, when thousands of companies had struggled to enter a national market, had given way to the most productive economy in the world, supported by a legion of small, specialized companies and dominated by a few enormous ones. An industrial transformation that had originated in railroading and expanded to steel and petroleum had spread to every nook and cranny of American business and raised the United States to a position of world leadership.

The vast expansion of economic output brought social benefits in the form of labor-saving products, lower prices, and advances in transportation and communications. The benefits and liabilities sometimes seemed inextricably interconnected. The sewing machine, for example, created thousands of new factory jobs, made available a wider variety of clothing, and eased the lives of millions of housewives. At the same time, it encouraged avaricious entrepreneurs to operate sweatshops in which the immigrant poor—often vulnerable young women—toiled long hours for pitifully low wages (discussed further in Chapter 21).

For those who fell by the wayside in this era of spectacular economic growth, the cost could be measured in bankrupted companies and shattered dreams. John D. Rockefeller put things with characteristic bluntness when he said he wanted "only the big ones, only those who have already proved they can do a big business" in the Standard Oil Trust. "As for the others, unfortunately they will have to die."

The cost was high, too, for millions of American workers, immigrant and native-born alike. The vast expansion of new products was built on the backs of an army of laborers who were paid subsistence wages and who could be fired on a moment's notice when hard times or new technologies made them expendable.

Industrial growth often devastated the environment as well. Rivers fouled by oil or chemical waste, skies filled with clouds of soot, and a landscape littered with reeking garbage and toxic materials bore mute witness to the relentless drive for efficiency and profit.

Whatever the final balance sheet of social gains and costs, one thing was clear: the United States had muscled its way onto the world stage as an industrial titan. The ambition and drive of countless inventors, financiers, managerial innovators, and marketing wizards had combined to lay the groundwork for a new social and economic order in the twentieth century.

Rockefeller said he wanted "only the big ones, only those who have already proved they can do a big business. As for the others, unfortunately they will have to die."

The New South

The South entered the industrial era far more slowly than the Northeast. As late as 1900, total southern cotton-mill output, for example, remained little more than half that of the mills within a thirty-mile radius of Providence, Rhode Island. Moreover, the South's $509 average per capita income was less than half that of northerners.

The reasons for the South's late economic blossoming are not hard to discern. The Civil War's physical devastation, racism, the scarcity of southern towns and cities, lack of capital, illiteracy, northern control of financial markets and patents, and a low rate of technological innovation crippled efforts by southern business leaders to promote industrialization. Economic progress was also impeded by the myth of the Lost Cause, which, through its nostalgic portrayal of pre–Civil War society, perpetuated an image of the South as traditional and unchanging. As a result, southern industrialization inched forward haltingly and was shaped in distinctive ways.

INDUSTRIAL POLLUTION Although some Americans celebrated factory smoke as a sign of industrial growth, those who lived downwind, such as the longshoreman in this Thomas Nast cartoon, often suffered from respiratory diseases and other ailments. For him as well as for other Americans, the price of industrial progress often was pollution. *(© Bettmann/Corbis)*

Obstacles to Economic Development

Much of the South's difficulty in industrializing arose from its lack of capital and the devastation of the Civil War. So many southern banks failed during the Civil War that by 1865 the South, with more than a quarter of the nation's population, possessed just 2 percent of its banks. The federal government policies added to the banking problem by requiring anyone wishing to start a bank to have $50,000 in capital. Few southerners could meet this standard.

With banks in short supply, country merchants and storekeepers became bankers by default, lending supplies rather than cash to local farmers in return for a lien, or mortgage, on their crops (see Chapter 16). The burden of paying these liens trapped farmers on their own land and created a shortage of the labor needed for industrial expansion.

The shift from planting corn to specializing in either cotton or tobacco made small southern farmers particularly vulnerable to the fluctuations of commercial agriculture. When the price of cotton tumbled in national and international markets from eleven cents per pound in 1875 to less than five cents in 1894, well under the cost of production, many southern farmers grew desperate.

The South's chronic shortage of funds affected the economy in indirect ways as well, by limiting the resources available for education. During Reconstruction, northern philanthropists together with the Freedmen's Bureau, the American Missionary Association, and other relief agencies had begun a modest expansion of public schooling for both blacks and whites. But Georgia and many other southern states operated segregated schools and refused to tax property for school support until 1889. As a result, school attendance remained low, severely limiting the number of educated people able to staff technical and managerial positions in business and industry.

Southern states, like those in the North, often contributed the modest funds they had to war veterans' pensions. In this way, southern state governments built a white patronage system for Confederate veterans and helped reinforce southerners' idealization of the old Confederacy—the South's Lost Cause. As late as 1911, veterans' pensions in Georgia ate up 22 percent of the state's entire budget, leaving little for economic or educational development.

The New South Creed and Southern Industrialization

Despite these obstacles, energetic southern newspaper editors such as **Henry W. Grady** of the *Atlanta*

Constitution and Henry Watterson of the *Louisville Courier Journal* championed the doctrine that became known as the New South creed. The South's rich coal and timber resources and cheap labor, they proclaimed in their papers, made it a natural site for industrial development.

The movement to industrialize the South gained momentum in the 1880s. To attract northern capital, southern states offered tax exemptions for new businesses, set up industrial and agricultural expositions, and leased prison convicts to serve as cheap labor. Florida, Texas, and other states gave huge tracts of lands to railroads, whose expansion in turn stimulated the birth of new towns and villages. Other states sold forest and mineral rights on nearly 6 million acres of federal lands to speculators, mostly from the North, who significantly expanded the production of iron, sulfur, coal, and lumber.

Following the lead of their northern counterparts, the southern iron and steel industries expanded as well. Birmingham, Alabama, founded in 1871 in a region blessed with rich deposits of coal, limestone, and iron ore, grew in less than three decades to a bustling city with noisy railroad yards and roaring blast furnaces. By 1900, it was the nation's largest pig-iron shipper. In these same years, Chattanooga, Tennessee, housed nine furnaces, seventeen foundries, and numerous machine shops.

As large-scale recruiters of black workers, the southern iron and steel mills contributed to the migration of blacks to the cities. By 1900, 20 percent of the southern black population was urban. Many urban blacks toiled as domestics or in similar menial capacities, but others entered the industrial work force. Southern industry reflected the patterns of racial segregation in southern life. Tobacco companies used black workers, particularly women, to clean the tobacco leaves while white women, at a different location, ran the machines that made cigarettes. The burgeoning textile mills were lilywhite. In the iron and steel industry, blacks, who comprised 60 percent of the unskilled work force by 1900, had practically no chance of advancement. Nevertheless, in a rare reversal of the usual pattern, southern blacks in the iron and steel industry had a higher skill level and on average earned more than did southern white textile workers.

Black miners were also recruited by the West Virginia coal industry that lured them with free transportation, high wages, and company housing. The coal boom at first forced companies to pay similar wages to blacks and whites, and they initially joined biracial labor unions. But the depression of 1893 weakened the unions and workers became increasingly confined to separate jobs.

Southern segregation, while restricting black employment in many ways, opened up new opportunities for black barbers, doctors, and businessmen to work with black customers. Nevertheless, economic opportunities for blacks remained severely limited. In lumbering, which was the South's largest industry, large numbers of blacks worked in the turpentine industry, collecting sap from trees. In good times, wages could be better than those offered to farm laborers, but during economic downturns workers were laid off or confined to work camps by vagrancy laws and armed guards.

The Southern Mill Economy

Unlike the urban-based southern iron and steel industry, the textile mills that mushroomed in the southern countryside in the 1880s often became catalysts for the formation of new towns and villages. In these mill towns, country ways and values suffused the new industrial workplace.

The cotton-mill economy grew largely in the Piedmont, the highland country stretching from central Virginia to northern Georgia and Alabama. The Piedmont had long been the South's backcountry, a land of subsistence farming and limited roads. But postwar railroad construction sparked a period of intense town building and textile-mill expansion. By 1920, the South was the nation's leading textile-mill center. Augusta, Georgia, with 2,800 mill workers, became known as the Lowell of the South, named after the mill town in Massachusetts where industrialization had flourished earlier. The expansion of the textile industry nurtured promoters' visions of a new, more prosperous, industrialized South.

Sharecroppers and tenant farmers at first hailed the new cotton mills as a way out of rural poverty. But appearances were deceptive. The chief cotton-mill promoters were drawn from the same ranks of merchants, lawyers, doctors, and bankers who had profited from the commercialization of southern agriculture (and from the misfortunes of poor black and white tenant farmers and sharecroppers trapped in the new system). Cotton-mill entrepreneurs shamelessly exploited their workers, paying just seven to eleven cents an hour, 30 percent to 50 percent less than what comparable mill workers in New England were paid.

The mills dominated most Piedmont textile communities. The mill operator not only built and owned the workers' housing

To prevent workers from moving from one mill to another, the mill owner usually paid them just once a month, often in scrip—a certificate redeemable only in goods from the company store.

***PIG IRON SCENE, BIRMINGHAM, ALABAMA*, BY CHARLES GRAHAM, 1886**
Although the proximity of Birmingham's foundries to iron and coal deposits enabled them to produce inexpensive iron ingots, northern owners forced them to price their products at the same rate as ingots produced in Pittsburgh. *(Harper's Weekly, March 26, 1877)*

and the company store but also supported the village church, financed the local elementary school, and pried into the morals and behavior of the mill hands. To prevent workers from moving from one mill to another, the mill owner usually paid them just once a month, often in scrip—a certificate redeemable only in goods from the company store. Since few families had enough money to get through a month, they often overspent and fell behind in their payments. The charges were deducted from workers' wages the following month. In this way, the mill drew workers and their families into a cycle of indebtedness very much like that faced by sharecroppers and tenant farmers.

To help make ends meet, mill workers kept their own garden patches and raised chickens, cows, and pigs. Southern mill hands thus brought communal farm values, long associated with large farm families and nurtured through cooperative planting and harvesting, into the mills themselves. Although they had to adapt to machine-paced work and received barely enough pay to live on, the working poor in the mill districts, like their prewar counterparts in the North, eased the shift from rural to village-industrial life by embracing a cooperative country ethic.

As northern cotton mills did before the Civil War, southern textile companies exploited the cheap rural labor around them, settling transplanted farm people in paternalistic company-run villages. Using these tactics, the industry underwent a period of steady growth.

The Southern Industrial Lag

Industrialization progressed at a slower rate in the South than in the North and depended on outside financing, technology, and expertise. The late-nineteenth-century southern economy remained essentially in a colonial status, dominated by northern industries and financial syndicates. U.S. Steel, for example, controlled the Birmingham foundries and in 1900 priced Birmingham steel according to the "Pittsburgh plus" formula based on the price of Pittsburgh steel, plus the freight costs of shipping from Pittsburgh. As a result, southerners paid higher prices for steel than northerners, despite cheaper production costs.

An array of factors thus combined to retard industrialization in the South. Banking regulations requiring large reserves, scarce capital, wartime debts, lack of industrial experience, a segregated labor force, discrimination against blacks, and control by profit-hungry northern enterprises all hampered the region's economic development. Dragged down by a poorly educated white population and by a largely unskilled black population, southern industry languished. Not until after the turn of the century did southern industry undergo the restructuring and consolidation that had occurred in northern business enterprise two decades earlier.

As in the North, industrialization brought significant environmental damage, including polluted rivers and streams, decimated forests, grimy coal-mining towns, and soot-infested steel-making cities. Although Henry Grady's vision of a New South may have inspired many southerners to work toward industrialization, economic growth in the South, limited as it was by outside forces, progressed in its own distinctly regional way.

Factories and the Work Force

Industrialization proceeded unevenly nationwide, and most late-nineteenth-century Americans still worked in small shops. But as the century unfolded, large factories with armies of workers sprang onto the industrial scene in more and more locales. The pattern of change was evident. Between 1860 and 1900, the number of industrial workers jumped from 885,000 to 3.2 million, and the trend toward large-scale production became unmistakable.

From Workshop to Factory

The transition to a factory economy came not as an earthquake but rather as a series of seismic jolts varying in strength and duration. Whether they occurred quickly or slowly, however, the changes in factory production had a profound impact on artisans and unskilled laborers alike, for they involved a fundamental restructuring of work habits and a new emphasis on workplace discipline. The impact of these changes can be seen by examining the boot and shoe industry. As late as the 1840s, most shoes were custom-made by skilled artisans who worked in small, independent shops. Shoemakers were aristocrats in the world of labor. Taught in an apprentice system, they took pride in their work and controlled the quality of their products.

A distinctive working-class culture subdivided along ethnic lines evolved among these shoemakers. Foreign-born English, German, and Irish workers set up ethnic trade organizations and joined affiliated benevolent associations. Bound together by religious and ethnic ties, they observed weddings and funerals according to old-country traditions, relaxed together at the local saloon after work, and helped one another weather accidents or sicknesses.

As early as the 1850s, even before the widespread use of machinery, changes in the ready-made shoe trade had eroded the status of skilled labor. The manufacturing process was broken down into a sequence of repetitive, easily mastered tasks. Thus, instead of crafting a pair of shoes from start to finish, each team member specialized in only one part of the process, such as attaching the heel or polishing the leather.

In the 1880s, shoe factories became larger and more mechanized, and traditional skills largely vanished. Shoe companies replaced skilled operatives with lower-paid, less-skilled women and children. By 1890, women made up more than 35 percent of the work force. Like the laborer whose machine nailed heels on forty-eight hundred shoes a day, even "skilled" workers in the new factories specializing in consumer goods found themselves performing numbingly repetitive tasks.

The Hardships of Industrial Labor

The expansion of the factory system spawned an unprecedented demand for unskilled labor. By the 1880s, nearly one-third of the 750,000 workers employed in the railroad and steel industries, for example, were common laborers.

In the construction trades and the garment-making industries, unskilled laborers were hired under the so-called contract system by a subcontractor who took responsibility for employee relations. These common workers were seasonal help, hired in times of need and laid off in slack periods. The steel industry employed them to shovel ore in the yards and to move ingots inside the mills. The foremen drove the gangs hard; in the Pittsburgh area, the workers called the foremen "pushers."

Notoriously transient, unskilled laborers drifted from city to city and from industry to industry. In the late 1870s, unskilled laborers earned $1.30 a day while bricklayers and blacksmiths earned more than $3. Only unskilled southern mill workers, whose wages averaged a meager eighty-four cents a day, earned less.

Unskilled and skilled workers alike worked up to twelve-hour shifts and faced grave hazards to their health and safety. Children were the most vulnerable. In the coal mines and cotton mills, child laborers typically entered the work force at age eight or nine. In the cotton mills, children could be injured by the unprotected pulley belts that powered the machines or develop brown lung disease, a crippling illness caused by breathing in cotton dust. In the coal industry, where children were commonly employed to remove pieces of slate from the conveyor belts, the cloud of coal dust that swirled around them gave them black lung disease—a disorder that leads to emphysema and heart failure.

> "Wherever the heat is most insupportable, the flames most scorching, the smoke and soot most choking, there we are certain to find compatriots bent and wasted in toil."

For adult workers, the railroad industry was one of the most perilous. In 1889, the first year the Interstate Commerce Commission compiled reliable statistics, almost two thousand rail workers were killed on the job and more than twenty thousand injured.

Disabled workers and widows received minimal financial aid from employers. Until the 1890s, the courts considered employer negligence one of the normal risks borne by employees. Railroad and factory owners fought the adoption of state safety and health standards on the grounds that the cost would be excessive. For sickness and accident benefits, workers joined fraternal organizations and ethnic clubs, part of whose monthly dues benefited those in need. But in most cases, the amounts set aside were too low to be of much help. When a worker was killed or maimed in an accident, the family had to rely on relatives or friends for support.

TEXTILE WORKERS Young children like this one often were used in the textile mills because their small fingers could tie together broken threads more easily than those of adults. *(Library of Congress)*

Immigrant Labor

As we shall see in more detail in Chapter 19, factory owners turned to unskilled immigrants for the muscle they needed in dangerous and undesirable jobs. Poverty-stricken French Canadians filled the most menial positions in northeastern textile mills. On the West Coast, Chinese immigrants performed the dirtiest and most physically demanding jobs in mining, canning, and railroad construction.

Writing home in the 1890s, eastern European immigrants described the hazardous and draining work in the steel mills. "Wherever the heat is most insupportable, the flames most scorching, the smoke and soot most choking, there we are certain to find compatriots bent and wasted in toil," reported one Hungarian. Yet those immigrants disposed to live frugally in a boardinghouse and to work an eighty-four-hour week could save fifteen dollars a month, far more than they could have earned in their homeland.

Although most immigrants worked hard, few adjusted easily to the fast pace of the factory. Factory operations were relentless, dictated by the unvarying speed of the machines. A brochure used by the International Harvester Corporation to teach English to its Polish workers promoted the "proper" values. Lesson I read:

I hear the whistle. I must hurry.
I hear the five minute whistle.
It is time to go into the shop.

I take my check from the gate board and hang it on the department board.
I change my clothes and get ready to work.
The starting whistle blows.
I eat my lunch.
It is forbidden to eat until then.
The whistle blows at five minutes of starting time.
I get ready to go to work.
I work until the whistle blows to quit.
I leave my place nice and clean.
I put all my clothes in the locker.
I must go home.

As this "lesson" reveals, factory work tied the immigrants to a rigid timetable very different from the pace of farm life.

When immigrant workers resisted the tempo of factory work, drank on the job, or took unexcused absences, employers used a variety of tactics to enforce discipline. Some sponsored temperance societies and Sunday schools to teach punctuality and sobriety. Others cut wages and put workers on the piecework system, paying them only for the items produced. Employers sometimes also provided low-cost housing to gain leverage against work stoppages; if workers went on strike, the boss could simply evict them.

In the case of immigrants from southern Europe whose skin colors were often darker than northern Europeans', employers asserted that the workers were nonwhite and thus did not deserve the same compensation as native-born Americans. Because the concept of "whiteness" in the United States bestowed a sense of privilege and the automatic extension of the rights of citizenship, Irish, Greek, Italian, Jewish, and a host of other immigrants, although of the Caucasian race, were also considered nonwhite. Rather than a fixed category based on biological differences, the concept of race was thus used to justify the harsh treatment of foreign-born labor.

Women and Work in Industrial America

Women's work experiences, like those of men, were shaped by marital status, social class, and race. Upper-class white married women widely accepted an ideology of "separate spheres" (as discussed in Chapter 19) and remained at home, raised children, and looked after the household. The well-to-do hired maids and cooks to ease their burdens.

Working-class married women, in contrast, often had to contribute to the financial support of the family. In fact, working for wages at home by sewing, button-making, taking in boarders, or doing laundry had predated industrialization. In the late nineteenth century, unscrupulous urban entrepreneurs exploited this captive work force. In the clothing industry, manufacturers hired out finishing tasks to lower-class married women and their children, who labored long hours in crowded apartments.

WOMEN IN THE WORKPLACE The women in this photograph are testing their typing skills at a civil service exam in Chicago in the 1890s. The expansion of banking, insurance, and a variety of other businesses opened up new career opportunities for women as secretaries, stenographers, and typists. *(Chicago Historical Society)*

Young, working-class single women often viewed factory work as an opportunity. In 1870, 13 percent of all women worked outside the home, the majority as cooks, maids, cleaning ladies, and laundresses. But most working women intensely disliked the long hours, low pay, and social stigma of being a "servant." When jobs in industry expanded in the last quarter of the century, growing numbers of single white women abandoned domestic employment for better-paying work in the textile, food-processing, and garment industries. Discrimination barred black working women from following this path. Between 1870 and 1900, the number of women of all races working outside the home nearly tripled. By the turn of the century, women made up 17 percent of the country's labor force.

A variety of factors propelled the rise in the employment of single women. Changes in agriculture prompted many young farmwomen to seek employment in the industrial sector (discussed further in Chapter 19), and immigrant parents often

sent their daughters to the factories to supplement meager family incomes. Plant managers welcomed young immigrant women as a ready source of inexpensive unskilled labor. But factory owners treated them as temporary help and kept their wages low. In 1890, young women operating sewing machines earned as little as four dollars for seventy hours of work while their male counterparts made eight.

Despite their paltry wages, long hours, and often unpleasant working conditions, many young women relished earning their own income and joined the work force in increasing numbers. Although the financial support these working women contributed to their families was significant, few working women were paid enough to provide homes for themselves. Rather than fostering their independence, industrial work tied them more deeply to a family economy that depended on their earnings.

When the typewriter and the telephone came into general use in the 1890s, office work provided new employment opportunities, and women with high school educations moved into clerical and secretarial jobs earlier filled by men. They were attracted by the clean, safe working conditions and relatively good pay. First-rate typists could earn six to eight dollars a week, which compared favorably with factory wages. Office work carried higher prestige and generally was steadier than work in the factory or shop.

Despite the growing number of women workers, the late-nineteenth-century popular press portrayed women's work outside the home as temporary. Few people even considered the possibility that a woman could attain local or even national prominence in the emerging corporate order.

Hard Work and the Gospel of Success

Although women generally were excluded from the equation, influential opinion molders in these years preached that any man could achieve success in the new industrial era. In *Ragged Dick* (1867) and scores of later tales, **Horatio Alger,** a Unitarian minister turned dime novelist, recounted the adventures of poor but honest lads who rose through initiative and self-discipline. The career of Andrew Carnegie was often offered as proof that the United States remained the land of opportunity and "rags to riches."

"I live in a tenement house, three stories up, where the water comes in through the roof, and I cannot better myself."

Some critics did not accept this belief. In an 1871 essay, Mark Twain chided the public for its naïveté and suggested that business success was more likely to come to those who lied and cheated. In testimony given in 1883 before a Senate committee investigating labor conditions, a New Yorker named Thomas B. McGuire dolefully recounted how he had been forced out of the horse-cart business by larger, better financed concerns. Declared McGuire, "I live in a tenement house, three stories up, where the water comes in through the roof, and I cannot better myself.… Why? Simply because this present system… is all for the privileged classes, nothing for the man who produces the wealth." Only with starting capital of $10,000—then a large sum—said McGuire, could the independent entrepreneur hope to compete with the large companies.

What are the facts? Carnegie's rise from abject poverty to colossal wealth was the rare exception, as studies of nearly two hundred of the largest corporations reveal. Ninety-five percent of the industrial leaders came from middle- and upper-class backgrounds. The best chance for native-born working-class Americans to get ahead was to master a skill and to rise to the top in a small company. Although only a few reaped immense fortunes, many improved their standard of living.

The different fates of immigrant workers in San Francisco show the possibilities and perils of moving up within the working class. In the 1860s, the Irish-born Donahue brothers grew wealthy from the Union Iron Works they had founded, where six hundred men built heavy equipment for the mining industry. In contrast, the nearly fifteen thousand Chinese workers who returned to the city after the Central Pacific's rail line was completed in 1869 were consigned by prejudice to work in cigar, textile, and other light-industry factories. Even successful Chinese entrepreneurs faced discrimination. When a Chinese merchant, Mr. Yung, refused to sell out to the wealthy Charles Crocker, a dry-goods merchant turned railroad entrepreneur who was building a mansion on Nob Hill, Crocker built a thirty-foot-high "spite fence" around Yung's house so that it would be completely sealed from view.

Thus, while some skilled workers became owners of their own companies, the opportunities for advancement for unskilled immigrant workers were considerably more limited. Some did move to semi-skilled or skilled positions. Yet most immigrants, particularly the Irish, Italians, and Chinese, moved far more slowly than the sons of middle- and upper-class Americans who began with greater educational advantages and family financial backing. The upward mobility possible for such unskilled workers was generally mobility within the working class. Immigrants who got ahead in the late nineteenth

SHOEWORKERS Shoeworkers pose near their machines in Haverhill, Massachusetts, ca. 1880. For them as well as for others, work became increasingly repetitive and routinized. *(Courtesy of the Trustees of the Haverhill Public Library, Special Collections Department)*

century went from rags to respectability, not rags to riches.

One positive economic trend in these years was the rise in real wages, representing gains in actual buying power. Average real wages climbed 31 percent for unskilled workers and 74 percent for skilled workers between 1860 and 1900. Overall gains in purchasing power, however, often were undercut by injuries and unemployment during slack times or economic slumps. The position of unskilled immigrant laborers was particularly shaky. Even during a prosperous year like 1890, one out of every five nonagricultural workers was unemployed at least one month of the year. During the depressions of the 1870s and 1890s, wage cuts, extended layoffs, and irregular employment pushed those at the bottom of the industrial work force to the brink of starvation.

Thus, the overall picture of late-nineteenth-century economic mobility is complex. At the top of the scale, a mere 10 percent of American families owned 73 percent of the nation's wealth in 1890, while less than half of industrial laborers earned more than the five-hundred dollar poverty line annually. In between the very rich and the very poor, skilled immigrants and small shopkeepers improved their economic position significantly. So although the standard of living for millions of Americans rose, the gap between the poor and the well-off remained a yawning abyss.

Labor Unions and Industrial Conflict

Aware that the growth of large corporations gave industrial leaders unprecedented power to control the workplace, labor leaders searched for ways to create broad-based, national organizations that could protect their members. But this drive to create a nationwide labor movement faced many problems. Employers deliberately accentuated ethnic and racial divisions within the work force to hamper unionizing efforts. Skilled crafts workers, moreover, felt little kinship with low-paid common laborers.

GOING TO THE SOURCE

Chinese Labor

Despite the protests of white workers who believed that Chinese laborers undercut their wages, business leaders in the 1870s like Charles Crocker, president of the Central Pacific Railroad, argued that the Chinese should be imported to work in the U.S. Although he supported Chinese immigration, Crocker tried to evict a Chinese man who lived near his mansion in San Francisco. The following testimony by Crocker about his Chinese workers was published in an 1881 book by the former U.S. ambassador to China in opposition to the Chinese Exclusion Act that passed the following year.

Q. Do you or do you not believe that Chinese immigration to this country has the same tendency to degrade free white labor as that of Negro slavery in the South?

A. No, sir; because it is not servile labor.

Q. It is not?

A. It is not; it is free labor; just as free as yours or mine. You cannot control a Chinaman unless you pay him for it. You cannot make a contract with him, or his friend, or supposed master, and get his labor unless you pay for it, and pay him for it.…

Q. When you employed Chinamen, did you employ the individual Chinaman, or did you employ some man to furnish you with a certain number of Chinamen?

A. On any road where we employed them for labor, we always procured them through the house of Sisson, Wallace & Co., here. That house furnished us with Chinamen. They gathered them, one at a time, two, three, four of them in a place, and got them together to make what is called a gang, and each gang is numbered.

Q. Just like mules?

A. Well, sir, we cannot distinguish Chinamen by names very well.

Q. Like mules?

A. Not like mules, but like men. We have treated them like men, and they have treated us like men, and they are men, good and true men.… We have a foreman, and he keeps the account with the gang, and credits them. … When the pay day comes, the gang is paid for all the labor of the gang, and then they divide it among themselves.

Q. Does the same thing obtain with the white men?

A. No, sir; we get the individual names of the white men.

Q. You do not pay the individual Chinaman when he works for you?

A. We pay the head-man of the gang.

Q. Some head-man?

A. He is a laborer among them.

Q. You do not pay them in the same manner that you pay white men?

A. In the same manner, except that we cannot keep the names of the Chinamen; it is impossible. We should not know Ah Sin, Ah You, Kong Won, and all such names. We cannot keep their names in the same way, because it is a difficult language. You understand the difficulty. It is not done in that way because they are slaves.

Q. Is it not a kind of servile labor?

A. Not a bit. I give you my word of honor, under oath here, that I do not believe there is a Chinese slave in this State, except it may be a prostitute. I hear of that, but I do not know anything about it. It will be seen from this evidence that the Central Pacific Railroad Company have not imported, through the six companies, or through a wealthy Chinese, or through any one else, any contract-laborers to work on the railroad in question, or on any of the roads controlled by them.

Source: *George F. Seward,* Chinese Immigration in its Social and Economical Aspects *(New York, Charles Scribners Sons, 1881), pp. 140–142. Found at Google Books:* http://books.google.com/books?id=kVEutaMDubQC&pg=PA140&dq=charles+crocker,+chinese&lr=.

QUESTIONS

1. Why does the questioner link Chinese workers to slaves or mules?
2. Why does he focus on how they were paid?
3. What kinds of bias do the questions display?

Go to the website at www.cengage.com/history/boyerenduring7e for additional primary sources on this period.

Divided into different trades, they often saw little reason to work together. Thus, unionization efforts moved forward slowly and experienced setbacks.

Two groups, the National Labor Union and the Knights of Labor, struggled to build a mass labor movement that would unite skilled and unskilled workers regardless of their specialties. After impressive initial growth, however, both efforts collapsed. Far more effective was the American Federation of Labor (AFL), which represented skilled workers in powerful independent craft unions. The AFL survived and grew, but it represented only a small portion of the total labor force.

With unions weak, labor unrest during economic downturns reached crisis proportions. When pay rates were cut or working conditions became intolerable, laborers walked off the job without union authorization. These actions, called **wildcat strikes** often exploded into violence. The labor crisis of the 1890s, with its strikes and bloodshed, would reshape the legal environment, increase the demand for state regulation, and eventually contribute to a movement for progressive reform.

Organizing Workers

From the eighteenth century on, skilled workers had organized local trade unions to fight wage reductions and provide benefits for their members in times of illness or accident. But the effectiveness of these organizations was limited. The challenge that labor leaders faced in the postwar period was how to boost the unions' clout. Some believed this goal could be achieved by forming one big association that would transcend craft lines and pull in the mass of unskilled workers.

Inspired by this vision of a nationwide labor association, William H. Sylvis, president of the Iron Molders' International Union, an organization of iron-foundry workers, in 1866 called a convention in Baltimore to form a new organization, the **National Labor Union** (NLU). Reflecting the pre–Civil War idealism, the NLU endorsed the eight-hour-day movement, which insisted that labor deserved eight hours for work, eight hours for sleep, and eight hours for personal affairs. Leaders also called for an end to convict labor, for the establishment of a federal department of labor, and for currency and banking reform. To push wage scales higher, they endorsed immigration restriction, especially of Chinese migrants, whom native-born workers blamed for undercutting prevailing wage levels. The NLU under Sylvis's leadership supported the cause of working women and elected a woman as one of its national officers. It urged black workers to organize as well, though in racially separate unions.

When Sylvis's own union failed to win a strike in 1867 to improve wages, Sylvis turned to national political reform. He invited a number of reformers to the 1868 NLU convention, including woman suffrage advocates Susan B. Anthony and Elizabeth Cady Stanton, who, according to a reporter, made "no mean impression on the bearded delegates." But when Sylvis suddenly died in 1869, the NLU faded quickly. After a brief incarnation in 1872 as the National Labor Reform party, it vanished from the scene.

The dream of a labor movement that combined skilled and unskilled workers lived on in a new organization, the Noble and Holy Order of the **Knights of Labor,** founded in 1869. Led by Uriah H. Stephens, head of the Garment Cutters of Philadelphia, the Knights welcomed all wage earners or former wage earners. The Knights demanded equal pay for women, an end to child labor and convict labor, and the cooperative employer employee ownership of factories, mines, and other businesses. At a time when no federal income tax existed, they called for a progressive tax on all earnings, graduated so that higher-income earners would pay more.

The Knights grew slowly at first. But membership rocketed in the 1880s after the eloquent Terence V. Powderly replaced Stephens as the organization's head. In the early 1880s, the Knights of Labor reflected both its idealistic origins and Powderly's collaborative vision. Powderly opposed strikes, which he considered "a relic of barbarism," and organized producer and consumer cooperatives. A teetotaler, he also urged temperance upon the membership. Powderly advocated the admission of blacks into local Knights of Labor assemblies, although he recognized the strength of racism and allowed southern local assemblies to be segregated. Under his leadership the Knights welcomed women members; by 1886, women organizers had recruited thousands of workers, and women made up an estimated 10 percent of the union's membership.

Powderly supported restrictions on immigration and a total ban on Chinese immigration. He echoed the popular perception of Chinese laborers as "servile" and "dependent," a stereotype that made white workers seem "manly" and "independent." In 1877, San Francisco workers demonstrating for an eight-hour workday, destroyed twenty-five Chinese-run laundries and terrorized the local Chinese population. In 1880, both major party platforms included anti-Chinese immigration plans. Two years later, Congress passed the Chinese Exclusion Act, placing a ten-year moratorium on Chinese immigration. The ban was extended in 1902 and not repealed until 1943.

"The Wabash victory is with the Knights, no such victory has ever before been secured in this or any other country."

Powderly's greatest triumph came in 1885. In that year, Jay Gould tried to get rid of the Knights of Labor on his Wabash railroad by firing active union members, Powderly and his executive board instructed all Knights on the Wabash line to walk off the job and those on other lines to refuse to handle Wabash cars. This action crippled the Wabash's operations. To the nation's amazement, Gould met with Powderly and canceled his campaign against the Knights of Labor. "The Wabash victory is with the Knights," declared a St. Louis newspaper; "no such victory has ever before been secured in this or any other country."

Membership in the Knights of Labor soared. By 1886, more than seven hundred thousand workers were organized in nearly six thousand locals. Turning to political action that fall, the Knights mounted campaigns in nearly two hundred towns and cities nationwide, electing several mayors and judges (Powderly himself had served as mayor of Scranton since 1878). They secured passage of state laws banning convict labor and federal laws against the importation of foreign contract labor. Business executives warned that the Knights could cripple the economy and take over the country if they chose.

But the organization's strength soon waned. Workers became disillusioned when a series of unauthorized strikes failed in 1886. By the late 1880s, the Knights of Labor was a shadow of its former self. Nevertheless, the organization had awakened in thousands of workers a sense of group solidarity and potential strength. Powderly, who survived to 1924, remained proud of his role "in forcing to the forefront the cause of misunderstood and downtrodden humanity."

As the Knights of Labor declined, another national labor organization, pursuing more immediate and practical goals, was gaining strength. The skilled craft unions had long been uncomfortable with labor organizations like the Knights that welcomed skilled and unskilled alike. They were also concerned that the Knights' broad reform goals would undercut their own commitment to better wages and protecting the interests of their particular crafts. The break came in May 1886 when the craft unions left the Knights of Labor to form the **American Federation of Labor** (AFL).

THE FIRST LABOR DAY PARADE, 1882 Thousands of workers, led by the Knights of Labor, marched in the first Labor Day Parade in New York. As the numerous American flags in this contemporary illustration suggest, the workers believed that labor deserved substantial credit for building the American nation. *(Granger Collection)*

ETHNIC AND RACIAL HATRED Conservative business owners used racist advertising such as this trade card stigmatizing Chinese laundry workers to promote their own products and to associate their company with patriotism. *(Library of Congress)*

The AFL replaced the Knights' grand visions with practical tactics aimed at bread-and-butter issues. **Samuel Gompers,** the immigrant cigar maker who became head of the AFL in 1886 and led it until his death in 1924, believed in "trade unionism, pure and simple." For Gompers, higher wages were the necessary base to enable working class families to live decently, with respect and dignity. The stocky, mustachioed labor leader argued that labor, to stand up to the corporations, would have to harness the bargaining power of skilled workers, whom employers could not easily replace, and concentrate on the practical goals of raising wages and reducing hours.

A master tactician, Gompers believed the trend toward large-scale industrial organization necessitated a comparable degree of organization by labor. He also recognized, however, that the skilled craft unions that made up the AFL retained a strong sense of independence. To persuade crafts workers from the various trades to join forces without violating their sense of craft autonomy, Gompers organized the AFL as a federation of trade unions, each retaining control of its own members but all linked by an executive council that coordinated strategy during boycotts and strike actions. "We want to make the trade union movement under the AFL as distinct as the billows, yet one as the sea," he told a national convention.

Focusing the federation's efforts on short-term improvements in wages and hours, Gompers at first sidestepped divisive political issues. The new organization's platform did, however, demand an eight-hour workday, employers' liability for workers' injuries, and mine safety laws. Although women participated in many craft unions, the AFL did little to recruit women workers after 1894 because Gompers and others believed that women workers undercut men's wages. By 1904, under Gompers's careful tutelage, the AFL had grown to more than 1.6 million strong.

Although the unions held up an ideal toward which many might strive, labor organizations before 1900 remained weak. Less than 5 percent of the work force joined union ranks. Split between skilled artisans and common laborers, separated along ethnic and religious lines, and divided over tactics, the unions battled with only occasional effectiveness against the growing power of corporate enterprise. Lacking financial resources, they typically watched from the sidelines when unorganized workers launched wildcat strikes that sometimes turned violent.

Strikes and Labor Unrest

Americans lived with a high level of violence from the nation's beginnings, and the nineteenth century—with its international and civil wars, urban riots, and Indian-white conflict—was no exception. Terrible labor clashes toward the end of the century were part of this continuing pattern, but they nevertheless shocked and dismayed contemporaries. From 1881 to 1905, close to thirty-seven thousand strikes erupted, in which nearly 7 million workers participated.

The first major wave of strikes began in 1873 when a Wall Street crash triggered a stock-market panic and a major depression. Six thousand businesses closed the following year, and many more cut wages and laid off workers. Striking Pennsylvania coal miners were fired and evicted from their homes. The tension turned deadly in 1877 during a wildcat railroad strike. Ignited by wage reductions on the Baltimore and Ohio Railroad in July, the strike exploded up and down the railroad lines, spreading to New York, Pittsburgh, St. Louis, Kansas City, Chicago, and San Francisco. Rioters in Pittsburgh torched Union Depot. By the time newly installed president Rutherford B. Hayes had called out the troops and quelled the strike two weeks later, nearly

"If the club of the policeman, knocking out the brains of the rioter, will answer, then well and good, [but if not] then bullets and bayonets… constitute the one remedy."

one hundred people had died, and two-thirds of the nation's railroads stood idle.

The railroad strike stunned middle-class America. The religious press responded hysterically. "If the club of the policeman, knocking out the brains of the rioter, will answer, then well and good," declared one Congregationalist journal, "[but if not] then bullets and bayonets…constitute the one remedy." The same middle-class Americans who worried about Jay Gould and the corporate abuse of power grew terrified of mob violence.

Employers capitalized on the public hysteria to crack down on labor. Many required their workers to sign "yellow dog" contracts in which they promised not to strike or join a union. Some hired Pinkerton agents, a private police force, to defend their factories and, when necessary, turned to the federal government and the U.S. army to suppress labor unrest.

PINKERTONS SURRENDER AT THE HOMESTEAD STEEL STRIKE, 1892
After a gun battle, Pinkerton security forces surrender to strikers at the Homestead, Pennsylvania, steel works. Companies cited worker violence such as this as justification for government suppression of labor unrest. *(Granger Collection)*

Although the economy recovered, more strikes and violence followed in the 1880s. On May 1, 1886, 340,000 workers walked off their jobs in support of the campaign for an eight-hour workday. Three days later, Chicago police shot and killed four strikers at the McCormick Harvester plant. At a protest rally the next evening in the city's Haymarket Square, someone threw a bomb, killing or fatally wounding seven policemen. In response, the police fired wildly into the crowd and killed four demonstrators.

Public reaction was immediate. Business leaders and middle-class citizens lashed out at labor activists and particularly at the sponsors of the Haymarket meeting, most of whom were associated with a German-language anarchist newspaper that advocated the violent overthrow of capitalism. Eight men were arrested. Although no evidence connected them directly to the bomb throwing, all were convicted of murder, and four were executed. One committed suicide in prison. In Haymarket's aftermath, still more Americans became convinced that the nation was in the grip of a deadly foreign conspiracy, and animosity toward labor unions intensified.

Confrontations between capital and labor became particularly violent in the West. When the Mine Owners' Protective Association cut wages at work sites along Idaho's Coeur d'Alene River in 1892, the miners, who were skilled dynamiters, blew up a mill and captured the guards sent to defend it. Mine owners responded by mustering the Idaho National Guard to round up the men and cripple their union.

Back east that same year, armed conflict broke out during the **Homestead Strike** at the Carnegie Steel Company plant in Homestead, Pennsylvania. To destroy the union, managers had cut wages and locked out the workers. When workers fired on the armed men from the Pinkerton Detective Agency who came to protect the plant, a battle broke out. Seven union members and three Pinkertons died. A week later the governor sent National Guardsmen to restore order. The union crushed, the mills resumed full operation a month later.

The most systematic use of troops to smash union power came in 1894 during a strike against the Pullman Palace Car Company. In 1880 George Pullman, a manufacturer of elegant dining and sleeping cars for the nation's railroads, had constructed a factory and town, called Pullman, ten miles south of Chicago. The carefully planned community

provided solid brick houses for the workers, beautiful parks and playgrounds, and even its own sewage-treatment plant. Pullman also closely policed workers' activities, outlawed saloons, and insisted that his properties turn a profit.

When the depression of 1893 hit, Pullman slashed workers' wages without reducing their rents. In reaction thousands of workers joined the newly formed American Railway Union and went on strike. They were led by a fiery young organizer, **Eugene V. Debs,** who vowed "to strip the mask of hypocrisy from the pretended philanthropist and show him to the world as an oppressor of labor." Union members working for the nation's largest railroads refused to switch Pullman cars, paralyzing rail traffic in and out of Chicago, one of the nation's premier rail hubs.

In response, the General Managers' Association, an organization of top railroad executives, set out to break the union. The General Managers imported strikebreakers from among jobless easterners and asked U.S. attorney general Richard Olney, who sat on the board of directors of three major railroad networks, for a federal injunction (court order) against the strikers for allegedly refusing to move railroad cars carrying U.S. mail.

In fact, union members had volunteered to switch mail cars onto any trains that did not carry Pullman cars, and it was the railroads' managers who were delaying the mail by refusing to send their trains without the full complement of cars. Nevertheless, Olney, supported by President Grover Cleveland and citing the Sherman Anti-Trust Act, secured an injunction against the leaders of the American Railway Union for restraint of commerce. When the union refused to order its members back to work, Debs was arrested, and federal troops poured in. During the ensuing riot, workers burned seven hundred freight cars, thirteen people died, and fifty-three were wounded. By July 18, the strike had been crushed.

By playing upon a popular identification of strikers with anarchism and violence, crafty corporate leaders persuaded state and federal officials to cripple organized labor's ability to bargain with business. When the Supreme Court (in the 1895 case *In re Debs*) upheld Debs's prison sentence and legalized the use of injunctions against labor unions, the judicial system gave business a potent new weapon with which to restrain labor organizers.

Yet organizers persisted. In 1897, the feisty Irish-born Mary Harris Jones, known as Mother Jones, persuaded coal miners in Pennsylvania to join the United Mine Workers of America, a union founded seven years earlier. She staged parades of children, invited workers' wives to stockpile food, and dramatized the importance of militant mothers fighting for their families. Her efforts were successful. Wage reductions were restored because no large companies dominated the industry and the owners needed to restore production.

Despite the achievements of the United Mine Workers, whose members had climbed to three hundred thousand by 1900, the successive attempts by the National Labor Union, Knights of Labor, American Federation of Labor, and American Railway Union to build a national working class labor movement achieved only limited success. Aggressive employer associations and conservative state and local officials hamstrung their efforts. In sharp contrast to Great Britain and Germany, where state officials often mediated disputes between labor and capital, federal and state officials in the United States increasingly sided with manufacturers. Ineffective in the political arena, blocked by state officials, divided by ethnic differences, harassed by employers, and frustrated by court decisions, American unions failed to expand their base of support. Post–Civil War labor turmoil had sapped the vitality of organized labor and given it a negative public image that it would not shed until the 1930s.

"If the United States, like the countries of the Old World, are also to grow vast crops of poor, desperate, dissatisfied, nomadic, miserably-waged populations, … then our republican experiment, notwithstanding all its surface-successes, is at heart an unhealthy failure."

Social Thinkers Probe for Alternatives

Widespread industrial violence was particularly unsettling when examined in the context of working-class poverty. In 1879, after observing three men rummaging through garbage to find food, the poet and journalist Walt Whitman wrote, "If the United States, like the countries of the Old World, are also to grow vast crops of poor, desperate, dissatisfied, nomadic, miserably-waged populations, such as we see looming upon us of late years… then our republican experiment, notwithstanding all its surface-successes, is at heart an unhealthy failure." Whitman's bleak speculation was part of a general public debate over the social meaning of the new industrial order. At stake was a larger issue: should government become the mechanism for helping the poor and regulating big business?

"A drunkard in the gutter is just where he ought to be…The law of survival of the fittest was not made by man, and it cannot be abrogated by man."

Defenders of capitalism preached the laissez-faire ("hands-off") argument, insisting that government should never attempt to control business. They buttressed their case by citing Scottish economist Adam Smith, who had argued in *The Wealth of Nations* (1776) that self-interest acted as an "invisible hand" in the marketplace, automatically regulating the supply of and demand for goods and services. In "The Gospel of Wealth," an influential essay published in 1889, Andrew Carnegie justified laissez-faire by applying the evolutionary theories of British social scientist Herbert Spencer to human society. "The law of competition," Carnegie argued, "may be sometimes hard for the individual, [but] it is best for the race, because it insures the survival of the fittest in every department."

Tough-minded Yale professor **William Graham Sumner** shared Carnegie's disapproval of government interference. His combative book *What Social Classes Owe to Each Other* (1883) applied the evolutionary theories of British naturalist Charles Darwin to human society. In an early statement of what became known as **Social Darwinism,** Sumner asserted that inexorable natural laws controlled the social order: "A drunkard in the gutter is just where he ought to be… The law of survival of the fittest was not made by man, and it cannot be abrogated by man. We can only, by interfering with it, produce the survival of the unfittest." The state, declared Sumner, owed its citizens nothing but law, order, and basic political rights.

Sumner's argument did not go unchallenged. In *Dynamic Sociology* (1883), Lester Frank Ward, a geologist, argued that contrary to Sumner's claim, the supposed "laws" of nature could be circumvented by human will. Just as scientists had applied their knowledge to breeding superior livestock, government experts could use the power of the state to regulate big business, protect society's weaker members, and prevent the heedless exploitation of natural resources.

Other social theorists offered more utopian solutions to the problems of poverty and social unrest. Henry George, a self-taught San Francisco newspaper editor and economic theorist, proposed to solve the nation's uneven distribution of wealth through what he called the single tax. In *Progress and Poverty* (1879), he noted that speculators reaped huge profits from the rising price of land that they neither developed nor improved. By taxing this "unearned increment," the government could obtain the funds necessary to ameliorate the misery caused by industrialization. The result would bring the benefits of socialism—a state controlled economic system that distributed resources according to need—without socialism's great disadvantage, the stifling of individual initiative. George's program was so popular that he lectured around the country and only narrowly missed being elected mayor of New York in 1886.

The vision of a harmonious industrialized society was vividly expressed in the utopian novel *Looking Backward* (1888) by Massachusetts newspaper editor Edward Bellamy. Cast as a glimpse into the future, Bellamy's novel tells of Julian West, who falls asleep in 1888 and awakens in the year 2000 to find a nation without poverty or strife. In this future world, West learns, a completely centralized, state-run economy and a new religion of solidarity have combined to create a society in which everyone works for the common welfare. Bellamy's vision of a conflict-free society where all share equally in industrialization's benefits so inspired middle-class Americans fearful of corporate power and working-class violence that nearly five hundred local Bellamyite organizations, called Nationalist clubs, sprang up to try to turn his dream into reality.

Ward, George, and Bellamy did not deny the benefits of the existing industrial order; they simply sought to humanize it. These utopian reformers envisioned a harmonious society whose members all worked together.

Marxist socialists advanced a different view. Elaborated by German philosopher and radical agitator Karl Marx (1818–1883) in *Das Kapital* (1867) and other works, **Marxism** rested on the labor theory of value: a proposition (which Adam Smith had also accepted) that the labor required to produce a commodity was the only true measure of that commodity's value. Any profit made by the capitalist employer was "surplus value" appropriated from the exploited workers. As competition among capitalists increased, Marx predicted, wages would decline to starvation levels, and more and more capitalists would be driven out of business. Society would be divided between a shrinking bourgeoisie (capitalists, merchants, and middle-class professionals) and an impoverished proletariat (the workers). The proletariat would then revolt and seize control of the state and of the economy. Although Marx viewed class struggle as the essence of modern history, his eyes were also fixed on the shining vision of the communist millennium that the revolution would eventually usher in—a classless utopia in which the state would "wither away" and all exploitation would cease. To lead the working class in its

showdown with capitalism, Marx and his collaborator Friedrich Engels helped found socialist parties in Europe, whose strength grew steadily, beginning in the 1870s.

Despite Marx's keen interest in the United States, Marxism proved to have little appeal in late-nineteenth-century America other than for a tiny group of primarily German-born immigrants. The Marxist oriented Socialist Labor party (1877) had attracted only about fifteen hundred members by 1890. More alarming to the public at large was the handful of anarchists, again mostly immigrants, who rejected Marxist discipline and preached the destruction of capitalism, the violent overthrow of the state, and the immediate introduction of a stateless utopia. In 1892 Alexander Berkman, a Russian immigrant anarchist, attempted to assassinate Henry Clay Frick, the manager of Andrew Carnegie's Homestead Steel Works. Entering Frick's office with a pistol, Berkman shot him in the neck and then tried to stab him. A carpenter working in Frick's office overpowered the assailant. Rather than igniting a workers' insurrection that would usher in a new social order as he had hoped, Berkman came away with a long prison sentence. His act confirmed the business stereotype of "labor agitators" as lawless and violent.

CHRONOLOGY 1865–1900

1859	First oil well drilled in Titusville, Pennsylvania.
1866	National Labor Union founded.
1869	Transcontinental railroad completed. Knights of Labor organized.
1870	John D. Rockefeller establishes Standard Oil Company.
1873	Panic of 1873 triggers a depression lasting until 1879.
1876	Alexander Graham Bell patents the telephone.
1877	Edison invents phonograph. Railway workers stage first nationwide strike.
1879	Henry George, *Progress and Poverty*. Edison perfects incandescent lamp.
1882	Standard Oil Trust established. Edison opens first electric power station in New York City. Chinese Exclusion Act.
1883	William Graham Sumner, *What Social Classes Owe to Each Other*. Lester Frank Ward, *Dynamic Sociology.*
1886	American Federation of Labor (AFL) formed. Haymarket riot in Chicago.
1887	Interstate Commerce Act establishes Interstate Commerce Commission.
1888	Edward Bellamy, *Looking Backward*.
1889	Andrew Carnegie, "The Gospel of Wealth."
1890	Sherman Anti-Trust Act. United Mine Workers formed.
1892	Standard Oil of New Jersey and General Electric formed. Homestead Strike. Columbian Exposition in Chicago. Miners strike at Coeur d'Alene, Idaho.
1893	Panic of 1893 triggers a depression lasting until 1897.
1894	Pullman Palace Car workers strike.
1901	J. Pierpont Morgan organizes United States Steel.

CONCLUSION

By 1900, industrialization had propelled the United States into the forefront of the world's major powers, lowered the cost of goods through mass production, generated thousands of jobs, and produced a wide range of new consumer products. Using accounting systems first developed by the railroads and sophisticated new technologies, national corporations had pioneered innovative systems for distributing and marketing their goods. In the steel and oil industries, Andrew Carnegie and John D. Rockefeller had vertically integrated their companies, controlling production from the raw materials to the finished product. Through systematic cost cutting and ruthless underselling of their competitors, they had gained control of most of their industry and lowered prices.

Despite these advantages, most Americans recognized that industrialization's cost was high. The rise of the giant corporations had been achieved through savage competition, exploited workers, shady business practices, polluted factory sites, and the collapse of an economic order built on craft skills. In the South in particular, the devastation of the Civil War and the control of banking and raw materials by northern capitalists encouraged industrialists to adopt a paternalistic, family-oriented approach in the cotton mills and to pay exceedingly low wages.

Outbursts of labor violence, the growth of urban slums, and grinding poverty showed starkly that all was not well in industrial America. Although the Knights of Labor and the American Federation of Labor attempted to organize workers nationally, the labor movement could not control spontaneous wildcat strikes and violence. In response, company owners appealed to government authorities to arrest strikers, obtain court injunctions against union actions, and cripple the ability of labor leaders to expand their organizations.

As a result, Americans remained profoundly ambivalent about the new industrial order. Caught between their desire for the higher standard of living that industrialization made possible and their fears of capitalist power and social chaos, Americans of the 1880s and 1890s sought strategies that would preserve the benefits while eliminating corruption. Efforts to regulate railroads at the state level and such national measures as the Interstate Commerce Act and the Sherman Anti-Trust Act, as well as the fervor with which the ideas of a utopian theorist like Edward Bellamy were embraced, represented early manifestations of this impulse. In the Progressive Era of the early twentieth century, Americans would redouble their efforts to formulate political and social responses to the nation's economic transformation after the Civil War.

KEY TERMS

Jay Gould (p. 537)
Interstate Commerce Act (p. 538)
J. Pierpont Morgan (p. 538)
Andrew Carnegie (p. 539)
vertical integration (p. 539)
John D. Rockefeller (p. 540)
Standard Oil Trust (p. 541)
Sherman Anti-Trust Act (p. 542)
Thomas A. Edison (p. 542)
Henry W. Grady (p. 548)
Horatio Alger (p. 554)
wildcat strikes (p. 557)
National Labor Union (p. 557)
Knights of Labor (p. 557)
American Federation of Labor (p. 558)
Samuel Gompers (p. 559)
Homestead Strike (p. 560)
Eugene V. Debs (p. 561)
William Graham Sumner (p. 562)
Social Darwinism (p. 562)
Marxism (p. 562)

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