

# Chapter 17, Industrial Supremacy

## Sources of Industrial Growth (474-483)

*An abundance of raw materials, a large labor supply, a surge in technology, ambitious business leaders, and an expanding domestic market were all factors in the growth of American industry.*

- I. Industrial Technologies
  - A. Iron and steel industries grew in the 1870s and 1880s because iron was used for railroads and steel was the most used metal of the days.
  - B. New Steel Production Techniques—Henry Bessemer and William Kelly developed a new process for steel production from iron; Robert Mushet added new ingredients to steel; Abram S. Hewitt continued to improve the Bessemer process
  - C. The new steel production methods made it a more available alloy, especially for railroads
  - D. Pittsburgh—steel industry boomed in Ohio and western PA because they already had iron and fuel like coal; Pittsburgh became the capital; UP, Michigan, Birmingham AL and other areas were also large steel producers
  - E. Made new massive furnaces 75 feet tall
  - F. New oil-carrying vessels and bigger ships were built
  - G. Intimate contracts between steel and railroad companies; PA Railroad spawns PA Steel Company
  - H. Rise of the Petroleum Industry—1850s, George Bissell showed that the oil reserves in PA had commercial value in lamps, paraffin, and naphtha. Advanced to 4<sup>th</sup> most important export
- II. The Airplane and the Automobile
  - A. Creation of gasoline caused European engineers like Nicolaus August Otto to develop the eternal combustion engine; Gottfried Daimler improved on it
  - B. Henry Ford—improving on Charles and Frank Duryeas’ design, Ford created cars and mass produced them: 5 million by 1917; caused a change in the American landscape
  - C. As long as humans were on earth, they had been futilely trying to fly; engineers in around the turn of the century began to have success
  - D. The Wright Brothers—Wilbur and Orville Wright developed a glider powered with an internal combustion engine in their bicycle shop in OH, flew it in Kitty Hawk, NC 120 feet and improved it to over 23 miles with passengers
  - E. With a slow foothold in America, French engineers helped develop airplanes; American jets became important in WWI and Charles Lindbergh’s solo flight from NY to Paris made it an obsession
- III. Research and Development
  - A. Government cut funding for their research projects, private corporations began to hire engineers who were scientists working for a practical cause
  - B. Private scientists continued to work on basic research without and immediate monetary value
  - C. Universities expanded and began to research for private investing companies
  - D. Historians believe that the university partnership for research was a result of the market’s success
- IV. The Science of Production
  - A. Frederick Winslow Taylor developed “Taylorism,” stating scientific management was a way to manage human labor and make it compatible with the demands of the machine age; also a way to limit workers’ independence and increase the owners’ control
  - B. Taylorism—subdivide tasks to hire less skilled workers for more efficiency, no reliance on just one
  - C. Inspired by Thomas Edison, corporations funded laboratories
  - D. 1914—Henry Ford developed the assembly line, application of Taylorism, created mass production; raised pay, reduced hours; lowered price of products
- V. Railroad Expansion
  - A. Because they added so much to industry (transporting goods and distant raw materials), railroads were the cornerstone of American Industry; investors put a lot into them
  - B. Rapid expansion of railroads, from 30,000 miles to 193,000 in 40 years
  - C. Railroad tycoons—Cornelius Vanderbilt, James J. Hill, Collis P. Huntington
- VI. The Corporation
  - A. After the civil war, stock investment became popular because of the “limited liability” of the investment, that is, you are only liable for what you invest
  - B. Andrew Carnegie—after working his way up from modest beginnings, he invested in steel, striking deals with railroads, cutting prices, and buying out competition; finally he sold his empire to J. Pierpont Morgan who consolidated it, The United States Steel Corporation
  - C. Gustavus Swift developed a national meat packing company; Isaac Singer had a manufacturing company
  - D. New managerial techniques—beginning with the rail corporations, companies developed “middle management” and the subdivision of tasks with a hierarchy of business (CEO, CIO, CFO, etc.)
- VII. Consolidating Corporate America
  - A. Horizontal Integration—taking control of all firms in the same enterprise (own all railroads)
  - B. Vertical Integration—control all businesses the company relies on
  - C. Rockefeller’s Standard Oil—John D. Rockefeller’s Standard Oil combined both tactics; after buying out mid-Atlantic railroads, Rockefeller bought railroads, freights, etc. Owned 90% of petroleum in the US
  - D. Afraid of “cutthroat competition,” capitalists believed real success was buying out competitors
  - E. Pool Arrangements—agreements to stabilize rates, failed
- VIII. The Trust and the Holding Company
  - A. The Trust Agreement—by Rockefeller and Morgan, stockholders invested in trusts, getting a small share of profits of a trustee; basically, 10 people bought “substocks” (trust certificates) to pay for one share of a trustee; they got the profits, the trustee got business control

- B. New Jersey allowed mergers so a company can buy another company; Rockefeller moved to NJ, other states followed; he created a “holding company” to buy up stocks of other companies
- C. Rapid Corporate Consolidation—economic organization allowed huge power to be vested in few men
- D. Economic giants of the time were creating controversy but also huge economic expansion by cutting costs, developing infrastructure, and stimulating new markets

### Capitalism and its Critics (483-488)

*Farmers and workers of the low class as well as the middle-class wanted a justification for the deeds and wealth of the extreme upper class; the giants of big business tried to convince the public that they the American ideal of individualism and equal opportunity.*

- I. The “Self-Made Man”
  - A. Defenders of the industrial economy said that it provided everyone with social mobility
  - B. Myth of the self-made man—even though the number of millionaires increased at the turn of the century, most were results of positions of privilege and nepotism
  - C. Usually power and prominence were results of cunning corruption rather than hard work; wealthy businessmen heavily endowed politicians and parties in exchange for support
  - D. The “Erie War”—Vanderbilt, Gould, and Fisk battled for control of the Erie railroad in NY legislature, the senators demanded bribes and accepted \$15,000 to \$175,000 each
  - E. Mostly businessmen were more modest entrepreneurs who invested huge amounts of money in high-risk accounts; many failed...stories of rags to riches and riches to rags
- II. Survival of the Fittest
  - A. WASP beliefs were that those who succeeded deserved their money, those who failed were “made poor by [their] own shortcomings”
  - B. Social Darwinism—survival of the fittest (from Charles Darwin’s evolutionary theory of natural selection)
  - C. Herbert Spencer and later William Graham Sumner said that society benefited from retaining rich and losing poor
  - D. Justifying the Status Quo—the law of competition controlled success so social Darwinism supported the tactics of entrepreneurs; Adam Smith’s theory (economist): all economics were operated by forces, law of competition—market was regulated by competition and law of supply and demand—determined prices, wages, rates, etc.
  - E. Hypocritical businessmen were supporting competition while trying to buy out all competition; competition was feared
- III. The Gospel of Wealth
  - A. A less harsh version of social Darwinism, the gospel of wealth said that power had responsibility
  - B. Carnegie advocated philanthropy
  - C. Russell Conwell—a Baptist minister, Conwell argued that great well was available to all (“Acres of Diamonds,” sermon delivered 6,000 times), he argued (inaccurately) that most millionaires started poor
  - D. Horatio Alger—after retiring from preaching in MA because of a sex scandal, he wrote novels in NYC about a poor small-town boy becoming rich in the city through hard work and luck
  - E. A folk hero of America, he was gay but kept it secret
- IV. Alternative Visions
  - A. Lester Frank Ward—a sociologist, wrote *Dynamic Sociology* arguing that civilization could shape itself as it liked, believed government could regulate society
  - B. Daniel De Leon’s Socialist Labor Party was another (unsuccessful) rebellion to social Darwinism
  - C. Henry George—CA radical who wrote *Progress and Poverty* about the haves and have-nots of industrial America
  - D. He proposed a “single tax” to regulate classes
  - E. *Looking Backward*—Edward Bellamy’s utopian novel described year 2000 America as an economy with a single great trust controlled by the gov’t, cooperation replaced competition, “nationalism” ideal
- V. The Problems of Monopoly
  - A. Many people joined the attack on monopoly
  - B. Monopolies could charge inflated prices without competition because customers had no choice but to pay, recessions sprang up cyclically and in 1893 the system was near total collapse
  - C. 1% of America controlled 88% of American assets; extreme upper class was hated
  - D. Although Carnegie donated large sums of money others squandered them
  - E. Vanderbilt had dozens of mansions (NYC, Asheville, RI)
  - F. Increasing inequality—deprivation became worse than poverty; everyone was getting wealthier but the rich/poor gap was getting bigger as well

### Industrial Workers in the New Economy (483-488)

*The working class experienced a rise in living conditions at the expense of very hard and dangerous labor, losing their independent control of their own work*

- I. The Immigrant Work Force
  - A. Immigration to cities from rural areas and Europe provided a work force for factories
  - B. New sources of immigration from non Anglo Europe in the East and Mexico and Asia in the West
  - C. Immigrants came to escape poverty and were lured by misleading advertisements
  - D. Labor Contract Law—pay for workers to come over and deduct it from wages
  - E. Heightened ethnic tensions—low paid first generations were displacing higher paid late generation Anglo-Americans and blacks
- II. Wages and Working Conditions
  - A. Standard of living rose but wages were still low, low job security
  - B. Hard hours of monotony in unsafe working conditions
  - C. No control over working class, leads to militancy

- III. Women and Children at Work
  - A. Women worked for low wages (supplement husband's income), men didn't like seeing women work
  - B. Women were paid far less than men working the same job; some turned to prostitution, no wage laws
  - C. Ineffective child-labor laws—most states made child labor laws setting minimum workday and age (12 yrs), usually ignored; high rate of accidents
  - D. Poisoning and common accidents for men, women, and children
- IV. The Struggle to Union
  - A. Little success in attempts for unions
  - B. National Labor Union—a short lived union created by William H. Sylvis, first large one
  - C. Men argued women shouldn't work, they were lowering their wages; women said they needed to
  - D. Molly Maguires
    - 1. Depression and middle class hostility to unions made conditions worse
    - 2. In PA coal mines, middle-class workers, the Molly Maguires ironically rebelled, making the perception of labor movements even worse
    - 3. Many were hired by the bosses, however, to make union suppression more realistic
- V. The Great Railroad Strike
  - A. A 10% wage cut spawned violence and rebellion, stopping railroads from Baltimore to St. Louis
  - B. 100 people died as a result of the nation-wide strike
  - C. National troops and militias were sent to suppress violence and mow down strikers
  - D. As the economy became national, disputes between workers and employers became national
  - E. The labor movement was clearly still frail
- VI. The Knights of Labor
  - A. 1869—founding of the Noble Order of the Knights of Labor under Uriah S. Stephens
  - B. All who "toiled" invited (not lawyers, bankers, liquor dealers, professional gamblers)
  - C. 50,000 women allowed in the Women's Bureau of the Knights, first such group
  - D. Met locally and in a national "general assembly," favored an 8-hour workday and a "cooperative system" that gave workers a lot of control over the workplace
  - E. Dissolution of the Knights of Labor
    - 1. After becoming publicly known under Terence V. Powderly, the union expanded to 700,000 members
    - 2. A successful strike on the Gould railroads proved temporary after another one was suppressed
    - 3. The failure discredited the organization and it disintegrated altogether
- VII. The AFL
  - A. American Federation of Labor (1881), one of the longest enduring labor groups
  - B. Supported different craft unions
  - C. Opposition to Female Employment—believed that women shouldn't work but if they do, they deserve equal pay
  - D. Called for an 8 hour work day, strikes on assigned day to get this
  - E. Haymarket Square—during an agitated strike, someone threw a bomb, random 8 sentenced to death
  - F. "Anarchism" was the word for labor movement; Haymarket Square added to the idea of violence and anarchy that scared America for years
- VIII. The Homestead Strike
  - A. The Amalgamated Association of Iron and Steel Workers were very powerful
  - B. The Homestead plant near Pittsburgh, run by Carnegie and Henry Clay Frick, decided to eliminate the union there
  - C. During a strike, hired the Pinkerton Detective Agency, strikebreakers, incited violence, Pinkertons fled, temporary victory but after an attempt to assassinate Frick, the union lost many members
  - D. Another failed labor movement
- IX. The Pullman Strike
  - A. Pullman Palace Car Company of Chicago was a train company; cut wages 25%
  - B. Workers called Eugene Debs and the American Railway Union; they told workers to walk off jobs that involved Pullman cars
  - C. Much transportation was paralyzed
  - D. Illinois governor, John Peter Altgeld, was sympathetic to workers and asked the federal government to respond instead (they were withholding mail)
  - E. Federal troops arrested Debs and others and imprisoned them for ignoring order by a federal judge to stop the strike: it collapsed and failed
- X. Sources of Labor Weakness
  - A. There were few real improvements except for days were shortened for public works and federal employees
  - B. Only a few workers were in unions (4%) so they were ineffectual
  - C. Immigrants did not organize because many planned to come and leave
  - D. Many workers went from one job to another
  - E. There was some social mobility, however—unskilled, to semiskilled, to skilled jobs
  - F. Corporate strength limited organization and gains because it was overwhelming and determined to crush challenges
  - G. Government authorities also resisted strikes
  - H. Capital was power at this time period

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