CHAPTER 30 THE MAKING OF INDUSTRIAL SOCIETY

I. Patterns of industrialization

A. Foundations of industrialization
   1. Coal critical to the early industrialization of Britain
      a. Shift from wood to coal in eighteenth century; deforestation caused wood shortages
      b. Abundant, accessible coal reserves in Britain
   2. Overseas colonies provided raw materials
      a. Plantations in the Americas provided sugar and cotton
      b. Colonies also became markets for British manufactured goods
      c. Grain, timber, and beef shipped from United States to Britain after 1830
   3. Demand for cheap cotton spurred mechanization of cotton industry
      a. John Kay invented the flying shuttle, 1733
      b. Samuel Crompton invented the spinning "mule," 1779
      c. Edmund Cartwright invented a water-driven power loom, 1785
   4. James Watt's steam engine, 1765
      a. Burned coal, which drove a piston, which turned a wheel
      b. Widespread use by 1800 meant increased productivity, cheaper prices
   5. Iron and steel also important industries, with continual refinement
      a. Coke (purified coal) replaced charcoal as principal fuel
      b. Bessemer converter (1856) made cheaper, stronger steel
   6. Transportation improved with steam engines and improved steel
      a. George Stephenson invented the first steam-powered locomotive, 1815
      b. Steamships began to replace sailing ships in the mid-nineteenth century
      c. Railroads and steamships lowered transportation costs and created dense transportation networks

B. The factory system
   1. The factory gradually replaced the putting-out system
      a. Factory system required division of labor; each worker performed a single task
      b. Required a high degree of coordination, work discipline, and close supervision
   2. Working conditions often harsh
      a. Workers lost status; not skilled, just wage earners
      b. Harsh work discipline, fast pace of work, frequent accidents
   3. Industrial protest
      a. Luddites struck against mills and destroyed machines, 1811 and 1816
      b. Fourteen Luddites hung in 1813, and the movement died

C. The early spread of industrialization
   1. Industrialization in western Europe
      a. British industrial monopoly, 1750 to 1800, forbade immigration of skilled workers
      b. Napoleon abolished internal trade barriers in western Europe, dismantled guilds
      c. Belgium and France moved toward industrialization by mid-nineteenth century
      d. After German unification, Bismarck sponsored heavy industry, arms, shipping
   2. Industrialization in North America slow to start, few laborers, little capital
      a. British craftsmen started cotton textile industry in New England in 1820s
      b. Heavy iron and steel industries in 1870s
      c. Rail networks developed in 1860s; integrated various regions of United States

D. Industrial capitalism
   1. Mass production provided cheaper goods
      a. Eli Whitney promoted mass production of interchangeable parts for firearms
      b. Later (1913), Henry Ford introduced assembly line to automobile production
   2. Industrialization expensive; required large capital investment
      a. Encouraged organization of large-scale corporations with hundreds of investors
      b. New laws protected investors from liability
3. Monopolies, trusts, and cartels: competitive associations
   a. Vertical organization: Rockefeller’s Standard Oil Co.
   b. Horizontal organization (or cartel): IG Farben, world’s largest chemical company

II. Industrial society

A. The fruits of industry
   1. Population growth
      a. Industrialization raised material standards of living
      b. Populations of Europe and America rose sharply from 1700 to 1900
      c. Better diets and improved sanitation reduced death rate of adults and children
   2. Demographic transition: population change typical of industrialized countries
      a. Pattern of declining birthrate in response to declining mortality
      b. Voluntary birth control through contraception

B. Urbanization and migration
   1. Industrialization drew migrants from countryside to urban centers
      a. By 1900, 50 percent of population of industrialized countries lived in towns
      b. By 1900, more than 150 cities with over one hundred thousand people in Europe and North America
      c. Urban problems: shoddy houses, fouled air, inadequate water supply
      d. By the late nineteenth century, governments passed building codes, built sewer systems
   2. Transcontinental migration: some workers sought opportunities abroad
      a. 1800-1920, 50 million Europeans migrated to North and South America
      b. Fled: famine in Ireland, anti-Semitism in Russia, problems elsewhere

C. Industry and society
   1. New social classes created by industrialization
      a. Captains of industry: a new aristocracy of wealth
      b. Middle class: managers, accountants, other professionals
      c. Working class: unskilled, poorly paid, vulnerable
   2. Dramatic changes to the industrial family
      a. Sharp distinction between work and family life, worked long hours outside home
      b. Family members led increasingly separate lives
   3. Men gained increased stature and responsibility in industrial age
      a. Middle- and upper-class men were sole providers
      b. Valued self-improvement, discipline, and work ethic
      c. Imposed these values on working-class men
         i. Workers often resisted work discipline
         ii. Working-class culture: bars, sports, gambling, outlets away from work
   4. Opportunities for women narrowed by industrialization
      a. Working women could not bring children to work in mines or factories
      b. Middle-class women expected to care for home and children
      c. Increased opportunities for women to work in domestic service
   5. Many children forced to work in industry to contribute to family support
      a. 1840s, Parliament began to regulate child labor
      b. 1881, primary education became mandatory in England

D. The socialist challenge
   1. Utopian socialists: Charles Fourier, Robert Owen, and their followers
      a. Established model communities based on principle of equality
      b. Stressed cooperative control of industry, education for all children
   2. Marx (1818-1883) and Engels (1820-1895), leading nineteenth-century socialists
      a. Scorned the utopian socialists as unrealistic, unproductive
      b. Critique of industrial capitalism
1. Unrestrained competition led to ruthless exploitation of working class
2. State, courts, police: all tools of the capitalist ruling class

2. *The Communist Manifesto*, 1848
   a. Claimed excesses of capitalism would lead communist revolution
   b. "Dictatorship of the proletariat" would destroy capitalism
   c. Socialism would follow; a fair, just, and egalitarian society
   d. Ideas dominated European and international socialism throughout nineteenth century

3. Social reform came gradually, through legislative measures
   a. Regulated hours and restricted work for women and children
   b. Under Bismarck, Germany provided medical insurance and social security

4. Trade unions formed to represent interests of industrial workers
   a. Faced stiff opposition from employers and governments
   b. Forced employers to be more responsive to workers' needs; averted violence

II. **Global effects of industrialization**

A. The continuing spread of industrialization beyond Europe and North America
   1. Industrialization in Russia promoted by tsarist government
      a. Between 1860 and 1900, built thirty-five thousand miles of railroads
      b. Finance minister, Sergei Witte, promoted industry
         i. Witte oversaw the construction of the trans-Siberian railroad
         ii. Reformed commercial law to protect industries and steamship companies
         iii. Promoted nautical and engineering schools
         iv. Encouraged foreign investors
      c. By 1900 Russia produced half the world's oil, also significant iron and armaments
   2. Industrialization in Japan also promoted by government
      a. Hired thousands of foreign experts to establish modern industries
      b. Created new industries; opened technical institutes and universities
      c. Government-owned businesses then sold to private entrepreneurs (*zaibatsu*)
      d. Japan was the most industrialized land in Asia by 1900

B. The international division of labor
   1. Industrialization increased demand for raw materials
      a. Nonindustrialized societies became suppliers of raw materials
      b. Cotton from India, Egypt; rubber from Brazil, Malaya, and Congo River basin
   2. Economic development better in lands colonized by Europe
      a. High wages encouraged labor-saving technologies
      b. Canada, Argentina, South Africa, Australia, New Zealand: later industrialized
   3. Economic dependency more common in other countries
      a. Latin America, sub-Saharan Africa, south Asia, and southeast Asia
      b. Foreign investors owned and controlled plantations and production
      c. Free-trade policy favored foreign products over domestic
      d. World divided into producers and consumers