

Industrial Revolution (approx. 1750-1850) Notes

Spielvogel Chapter 20

Note: Chapter 19 covered what was happening in France and continental Europe at the end of the 1700s. Chapter 20 covers Great Britain in the same period, and how industrialization then spread to the continent in the early 1800s.

- I) Answers to problems of the age
 - A) Problem: cottage system slow
 - 1) Answers:
 - (a) Spinning jenny – James Hargreave 1768
 - (b) Mule – Samuel Compton – combines water frame with spinning jenny
 - (c) Power loom – Edmund Cartwright 1787
 - (d) Organize labor together – factories
 - B) Problem: shortage of timber
 - 1) Answer: increase coal mining
 - C) Problem: need to pump water out of coal mines
 - 1) Solution comes from James Watt (1736-1819) – asked to fix a water pump, answers by creating the first true steam engine
 - D) Problem: Factories must be by rivers (water power)
 - 1) Steam engines created with the ability to turn a shaft, and therefore drive machinery
 - E) Problem: crappy iron explodes when used to build steam engines
 - 1) Henry Cort – developed puddling, which used coke to burn away impurities in pig iron, resulting in very high quality iron
 - F) Transportation Issues
 - 1) Rough ground difficult to travel over
 - (a) Solution: railways (horse-drawn)
 - 2) Need more power
 - (a) Richard Trevithick built the first steam-powered locomotive
 - (b) First public railway, Liverpool to Manchester (32 miles), 1830
 - (c) 1840: G. Britain had 2,000 miles of railroads
 - G) Problem: Rich peasants frustrated by their lack of power in British system
 - 1) Solution: build factories, become richer
 - (a) Came to rival landed aristocracy in power
 - 2) Other facts about factory owners
 - (a) Diverse social origins – sometimes noble, sometimes not
 - (b) Often from dissenting religious minorities
 - (i) Had financial support
- II) Why in Great Britain first?
 - A) Agricultural revolution
 - 1) Feed more people at lower prices
 - (a) Gives disposable income
 - (b) Allows ability to purchase goods
 - 2) Surplus labor
 - B) Central bank – gave credit
 - C) Attitude that loved wealth & commerce, both individually and nationally

- D) Resources
 - 1) Rivers
 - 2) New roads & bridges
 - 3) Canals
- E) No internal customs barriers
- F) Stable government
 - 1) Laws that protected right to private property
- G) Markets, foreign & domestic
- III) Issues with employees
 - A) Had been farmers – enclosure movement forced them into cities – looking for jobs
 - 1) Undisciplined – used to being masters of their own time
 - B) Required employee discipline, adjustment to regular hours and shifts
 - 1) Enforcement meant fines or dismissal for adults, & beatings for kids (not uncommon way to discipline children)
 - 2) Businesses aided by the new evangelical churches
 - (a) Preached that laziness was sinful & hard work was heavenly
 - 3) Workers would eventually form a powerful group, but not so at first
 - (a) At the beginning of the Indus. Rev., artisans or craftspeople remained the largest group of urban workers
 - 4) Conditions:
 - (a) 12-16 hour days, six days a week, ½ hour for lunch & dinner
 - (b) No employment security
 - (c) No minimum wage
 - (d) Unhealthy work conditions
 - (i) Consumption – lung diseases
 - (e) Included women & children
 - (i) Children:
 - (a) Had delicate touch for spinning
 - (b) Could crawl under machines to gather loose cotton
 - (c) Easier to control
 - (d) Cheap
 - (ii) Pauper apprentices
 - (a) Abandoned by parents to local parish
 - (b) Cheapest labor
 - (c) Long hours
 - (d) Inadequate food & breaks
 - (e) Often had deformities from staying in unusual positions too long
- IV) Great Exposition of 1851
 - A) Crystal Palace – see page 560
 - B) Symbol of British success
 - 1) Also of humanity domination of nature
 - 2) Shows that Britain is the first and richest industrial nation
 - (a) True: Britain produced ½ the world's coal and manufactured goods
 - (b) In 1851, cotton industry in Britain was equal to the size of all industries in all other European countries combined

V) Spread of Industrialization

- A) After Britain, Belgium, France, German states, & the U.S. were next to industrialize
- B) Problems with continental industrialization
 - 1) Toll stations on rivers & roads
 - 2) Guild restrictions
 - 3) Traditional business attitudes
 - 4) Upheavals from French Revolution & Napoleon's rampage
 - 5) Governments had some control of businesses
 - 6) Government were responsible for building infrastructure
 - (a) Only Germany & Belgium had completed part of rail system by 1850
 - 7) Tariffs
 - 8) Lack of banks that lent credit
 - (a) Solved by creating joint-stock investment banks
 - (i) Meant that they used thousands of different investors to supply capital
 - (ii) Started in 1830s in Belgium (see banks listed on pages 562-3)
- C) Differences in cotton manufacture (Britain vs. Continentals)
 - (a) Disperse on continent; mostly together in Britain (in Lancashire & Glasgow areas)
 - (b) On continent, combined old & new (for example, might make thread on machine and then send to cottage industry to hand-weave)
- D) The United States
 - 1) Samuel Slater – smuggled knowledge of textile factories out of Britain
 - 2) The American system – utilized interchangeable parts – more efficient
- E) Control of colonies
 - 1) Attempt to force colonies to buy finished goods instead of making them
 - 2) At the same time, took raw materials from the colonies

VI) Rapid Industrialization creates new social problems/solutions

- A) Census started in 1801 in Britain
 - 1) Population explosion
 - (a) Decline in death rates
 - (i) Less death from famine, epidemics & war
 - (ii) General increase in food supply
- B) The Great Hunger
 - 1) Ireland was a backwoods area – mud hovels
 - 2) 1-2 acres of potatoes could feed a family (Irish married earlier & had kids earlier)
 - 3) Blight on potatoes – turning them black
 - (a) Over one million died of starvation & disease
 - (b) Over 2 million emigrated to the U.S. & Britain
 - (i) Traditional “safety valve” for population problems
 - 4) Ireland had only declining population in the nineteenth century
- C) Problems from too-rapid city growth
 - 1) By 1850, over 50% of the British population lived in urban areas
 - 2) Infrastructure/policing problems
 - 3) Living conditions

- 4) Overcrowded
- 5) Poor sanitary conditions
 - (a) Streets used as sewers
 - (b) Smelly & unhealthy
 - (c) Deaths outnumbered births in cities
 - (i) Had to get more workers from the country to replace the dead
- 6) Poisonous/dangerous substances were used as food additives
- D) Disintegration of the family
 - 1) After children's employment declined, their places were taken by women
 - (a) Women were used to working – cottage industry
 - (b) Traditional types of female labor still predominant – household servants
 - (c) Factory acts that limited women's hours led to separation of work/home
 - (i) Also led to division between men's/women's familial obligations
 - 2) Husbands feel demeaned – unable to provide for family
 - (a) Alcoholism becomes epidemic
- VII) Attempted Solutions
 - A) No tradition of care for poor
 - 1) Business owners were new class without established social mores
 - 2) City leaders didn't feel it was their responsibility to care for the poor
 - B) Real wages actually increasing
 - 1) Which I'm sure was a nice thought for people as they died of consumption
 - C) Edwin Chadwick (1800-1890)
 - 1) Advocated modern sanitary reforms to help the lower classes
 - 2) His actions led to the creation of the National Board of Health by the Public Health Act, which formed local boards to improve sanitation
 - 3) People supported reforms because they feared cholera (bacterial infection from poor sanitary conditions & adulterated food – can lead to death by dehydration)
 - D) Unions
 - 1) Purposes
 - (a) Limit entry into trade
 - (b) Gain benefits from employers
 - 2) Combination Acts in 1799 and 1800 – no unions – workers shouldn't come together like they did in French Revolution
 - (a) Didn't work – dissolved after some strikes made Parliament realize they needed to have some legal recourse for workers
 - 3) National Unions – The Grand National Consolidated Trades Union
 - (a) Wanted to have a nationwide strike for eight hour working day
 - (b) Dissolved because it really didn't have support of actual workers
 - E) Luddites
 - 1) Skilled Midlands craftspeople
 - 2) Attacked the machines in 1812
 - 3) Never found – shows that locals supported them (12,000 troops were looking)
 - F) Chartism
 - 1) Wanted a political democracy from 1838-1848
 - (a) Universal male suffrage

- (b) Payment for Parliament
- (c) Annual sessions of Parliament
- 2) Never really affected the political establishment
 - (a) Important because it proved that it could organize millions of working-class men & women
- G) Factory Acts
 - 1) Series of acts that limited hours and ages of workers (also required schooling for minors)
 - 2) At first (early 1800s), only applied to cotton mills, and had bad enforcement
 - (a) Improved as time passed
 - 3) 1847 Ten Hours Act
 - (a) Women & children limited to 10 hour workdays
 - 4) Coal Mines Act 1842
 - (a) No workers under 10
 - (b) No women