The Early Industrial Revolution, 1760-1851
Chapter 22
Causes of the Industrial Revolution
Population Growth

- In 18th century population grew. Why?
  - England and Wales
  - Children
  - Cities
  - Ireland to ______
  - Europe to ______
The Agricultural Revolution

- Began long before the 18th century.
  - American crops
  - More cattle
- Only wealthy could invest in new crops and new farming methods. They experimented with scientific farming methods.
  - Result:
Trade and Inventiveness

- Putting out system/workshop system
- Population growth and agricultural productivity were accompanied by a fascination with _____ and _____.

[Image of industrial machinery]
18\textsuperscript{th} century Britain’s role in the Industrial Revolution was significant because:

The economies of continental Europe experienced a similar dynamic expansion in the 18\textsuperscript{th} century, but lack of markets and management skills and the constant warfare from 1789-1815 interrupted trade and weakened the incentive to invest in new technologies. Industrialization took hold in Europe after 1815, first in _____ and ______. European governments played a significant role in fostering industrialization.
The Technological Revolution
Mass Production: Pottery

- Pottery imported or handmade
  - Aristocracy
  - Demand for porcelain
- In 1759 Josiah Wedgwood opened a pottery business
  - Division of labor
  - Mass production
  - Affordable
Mechanization: the Cotton Industry

- High demand for cotton cloth
  - 1760s English revolutionized spinning of cotton thread.
    - Spinning jenny
    - Water frame
    - The mule
  - Mechanization of cotton textile led to much greater _____ and lower _____.
- Cotton became Americas most valuable crop from the 1820s; as exports to ______ and domestic use
The Iron Industry

- Iron had been in use in Eurasia and Africa for thousands of years, but iron production was associated with deforestation that increased the prices of charcoal and thus reduced the output of iron. Limited wood supplies and the high cost of skilled labor made iron a rare and valuable metal outside of China before the eighteenth century.

- In the 18th century a series of inventions made it possible for the British to produce large amounts of cheap iron
  - Coke
  - Puddling
    - Bridge building
    - Crystal Palace
Interchangeable parts in the 18th century

- Firearms
- Farm equipment
- Sewing machines (19th)

The use of machinery to mass produce consumer goods with identical parts was known as the “_____________”
The Steam Engine

- The most revolutionary invention of the Industrial Revolution.
  - 1702-1712 Thomas Newcomen
    - Inefficient steam engine used to..
  - 1769 James Watt
    - Improved and manufactured engine for sale
    - Location
  - 1780s used to power riverboats
  - 1830s oceangoing steamboats
Railroads

- After 1800 inventors Richard Trevithick and George Stephenson built high pressure steam engines used to power locomotives.

- Railway mania
  - Britain from 1825 to 1845
  - U.S. 1840 and 1850s
    - Midwest

- Railways triggered __________.
  - France, Belgium, the Ruhr, and Silesia
The Impact of the Industrial Revolution
The New Industrial Cities

- Rapid growth
  - Towns
  - Megalopolises
    - Greater London

- Problems with population growth
  - Crowding
  - Lack of municipal services
  - Inadequate facilities
  - Improvements began in mid-nineteenth century
Almost all land in Europe and America was transformed by human activity
- Deforestation, soil depletion
- How did industrialization relieve pressure on the English environment?

New transportation
- Canals
- Railroads
Working Conditions

- Job opportunities
  - Skilled:
  - Unskilled:
- Separation of work from home had a major impact on women and on family life.
  - Textile mills
  - Less money
  - Domestic servants
Cheap labor
  - Child labor
    - Irish
  - American women
    - Irish women

Increased demand for slavery. Why?
  - U.S., Brasil, Caribbean
Changes in Society

- Disparities in income
- Middle class
  - Stable moral code
  - Women at home
    - Contrasted working class
New Economic and Political Ideas
Laissez Faire and Its Critics

- Laissez Faire
  - Adam Smith
- Thomas Malthus and David Ricardo
  - Over-population
    - Delay marriage and sexual restraint
- Critics of Laissez Faire. Why?
  - Jeremy Benthan in England
  - Freidrich List in Germany
Positivists and Utopian Socialists

- Saint-Simon of France developed “positivism”
- Utopian
  - Charles Fourier
    - No capitalism
  - Robert Owen
    - Reforms in textile mill
    - Child labor laws
    - Inspection
Protests and Reforms

- How did workers respond to harsh working conditions?
  - Unions
- British investigation of abuses
  - Factory Act of 1833
  - Mines Act of 1842
  - Repeal of Corn Laws 1846
Industrialization and the Nonindustrial World
China, Egypt, and India

- England v. China
- Egypt
  - Muhammad Ali
    - Industrialized
    - Egypt became economically dependent on England. Why?
  - India
    - Cheap machine-made British textiles forced Indian spinners and hand weavers out of business
    - Overall, Indian’s industrialization proceeded very slow because of British intervention