# Revolutions of Industrialization 1750-1914

AP WORLD HISTORY
CHAPTER 18

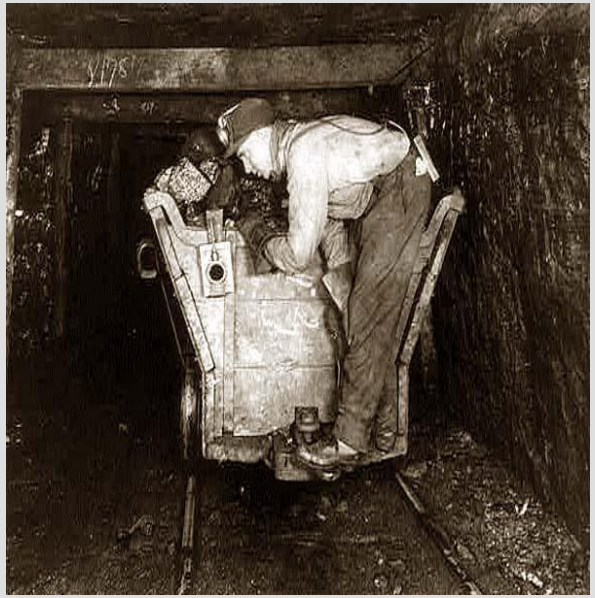
# Life Before the Industrial Revolution

- Most people lived in rural villages; small communities
- Farming = major economic sector
- 1/3 of the babies died before 1 year old; life expectancy was 40 years old
- Disease was common

# Life Before the Industrial Revolution

- Private and public farmlands were not separated or fenced off
  - It was easy for many families and famers to work the land cooperatively and productively
- All daily activities revolved around farming

# Early Industries



- Great Britain = wool industry
- Used **<u>domestic system</u>** = products produced in the home by hand
  - Workers set own hours & could take care of domestic duties
  - Women took care of kids, cooked, etc. while making money at home
- Coal mining → most coal fields lay under the farmland

# The Beginnings of Change: Shift from Country to City

- Prior to the Industrial Revolution: Britain had an open-field system = farmers could plant crops on unfenced private and public lands
- **<u>Enclosure movement</u> = passing of laws that allowed landowners to take over and fence off private and common lands**

# The Beginnings of Change: Shift from Country to City

- Simultaneously = there was a series of new agricultural innovations
  - Lighter plows, selective animal breeding, crop rotation, higher-yielding seeds, etc.
  - Increased output, lowered food prices, and required less farmers
- Many farmers were forced to move to towns/cities to find work

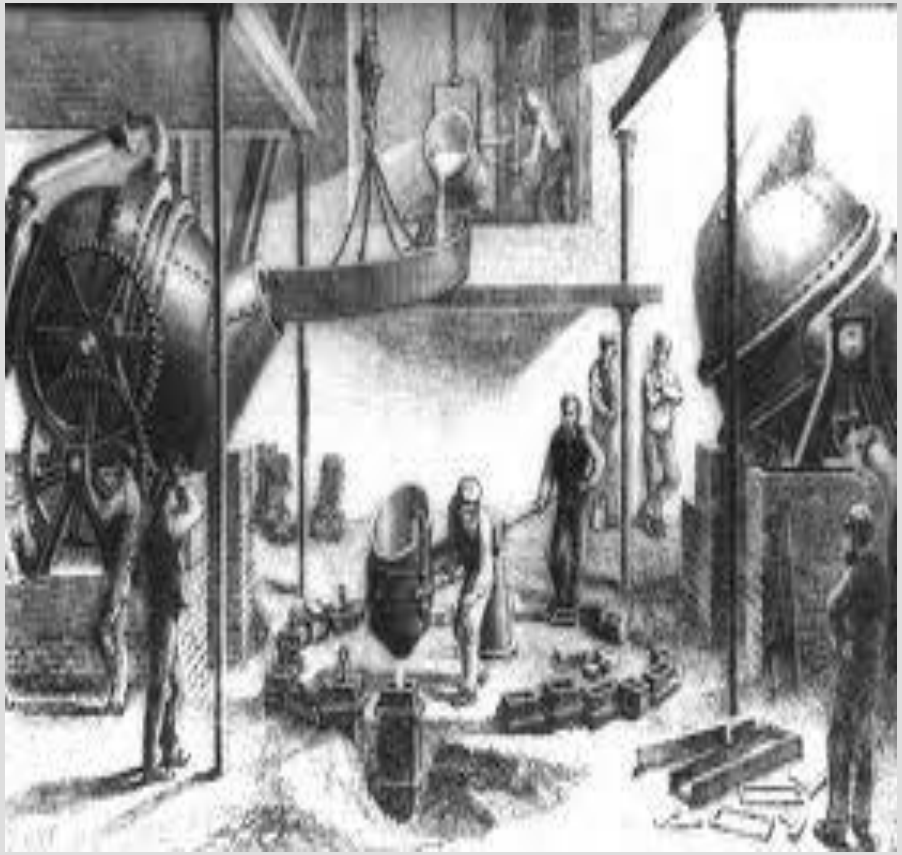
# Explaining the Industrial Revolution

- Between 1400 and 1800 = rapid population growth worldwide
- As a result of this growth = global energy crisis
  - Wood and charcoal = became scarce
- Industrial Revolution = response to this dilemma
  - New fuels discovered and used = coal, oil, and natural gas
- Discovery of new fuels led to: increased output and increased rate of technological innovation

# Why Europe?

- Europe's internal developed favored innovation
  - Small, highly competitive states encouraged economic and technological progress
- Newness of European states and their monarchs' need for revenue in the absence of effective tax systems = led leaders into alliances with their merchant classes
  - Merchants granted certain privileges in exchange for loans to the government
  - Merchants granted freedom from state control
  - Governments promoted commerce, science, and innovation

# Why Europe?

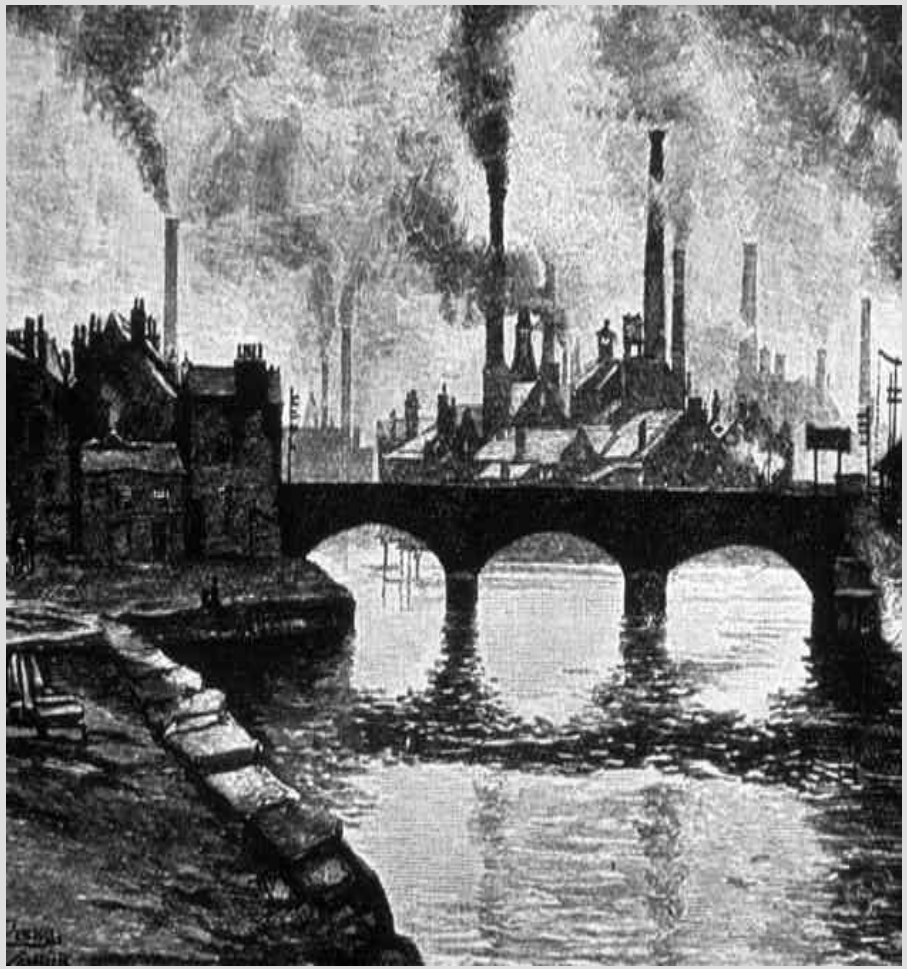


- Europe had widespread contact with culturally diverse peoples → generated global exchange and innovation
- Competition from desirable, high-quality foreign products stimulated industrialization
  - Europeans wanted to make these goods themselves
- Colonies in the Americas gave to Europeans:
  - Markets to buy products
  - Food, raw materials, and silver to feed and fund people and companies

# Why Great Britain?

- Many wealthy British aristocrats had **<u>capital</u> = money to invest in labor, machines, and raw materials**
  - Had become wealthy as a result of Trans-Atlantic trade and colonies
- Natural resources → iron and coal
- Harbors & rivers → for transportation, as well as power

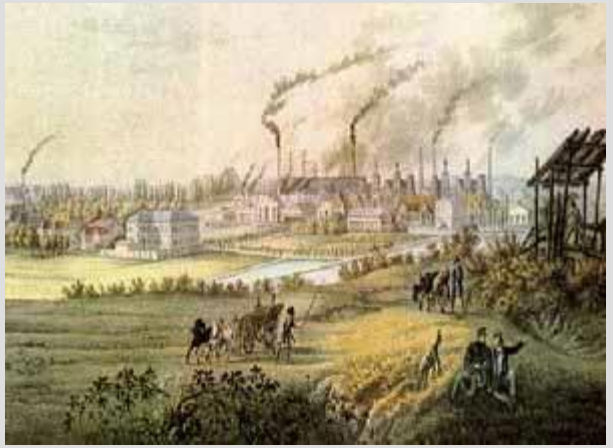
# Why Great Britain?



- Large labor supply
  - Better farming = more food = more people
  - Farms needed fewer workers = more men for factories in the cities
  - Religious toleration in Britain welcomed skilled workers of all faiths
- British government favored businessmen
  - Passed tariffs to keep out cheap foreign products
  - Laws made it easy to form companies
  - Forbid workers' unions
  - Built roads and canals to create a strong internal market
  - Patent laws protected inventors

# Why Great Britain?

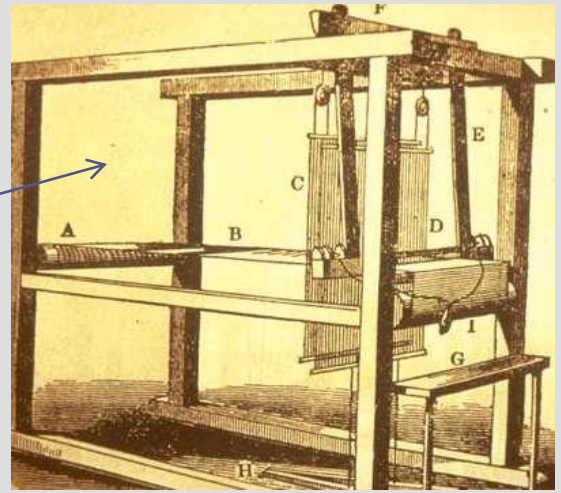
- Scientific Revolution in England = focused on observation, experiment, measurements, mechanical devices, and practical applications
  - Created close working relationships between scientists, inventors (mostly craftsmen), and entrepreneurs
- "Accidents" of geography and history:
  - England's island location protected it from invasions
  - No violent revolutions rocked England

Study for your benchmark.
We will take it shortly.

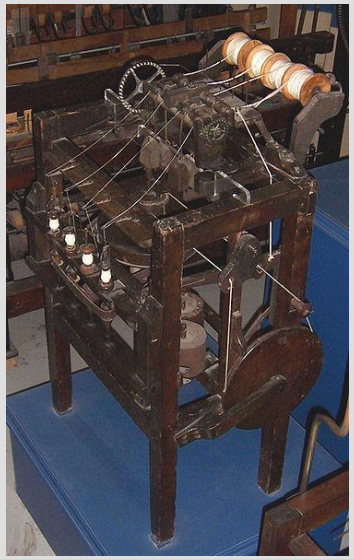
# Growing Textile Industry

- Flying Shuttle = didn't have to push shuttle back & forth across loom anymore; could just pull a cord and it would "fly" → wider fabrics now woven at a faster pace
- Spinning Jenny = could spin more threads at a time



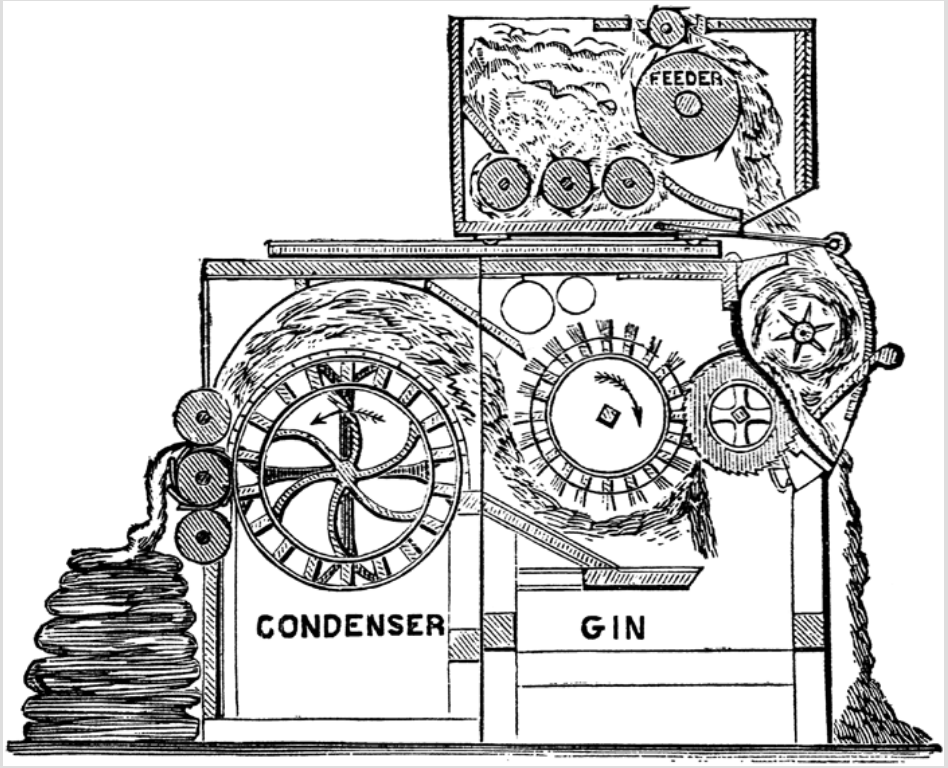

# Growing Textile Industry

- Water Frame = huge spinning frame that ran continuously on waterpower
- Power Loom = faster loom that allowed weavers to keep up with the amount of thread used



# Growing Textile Industry

- Cotton Gin = created by Eli Whitney → mechanically cleaned & removed the seeds from raw cotton

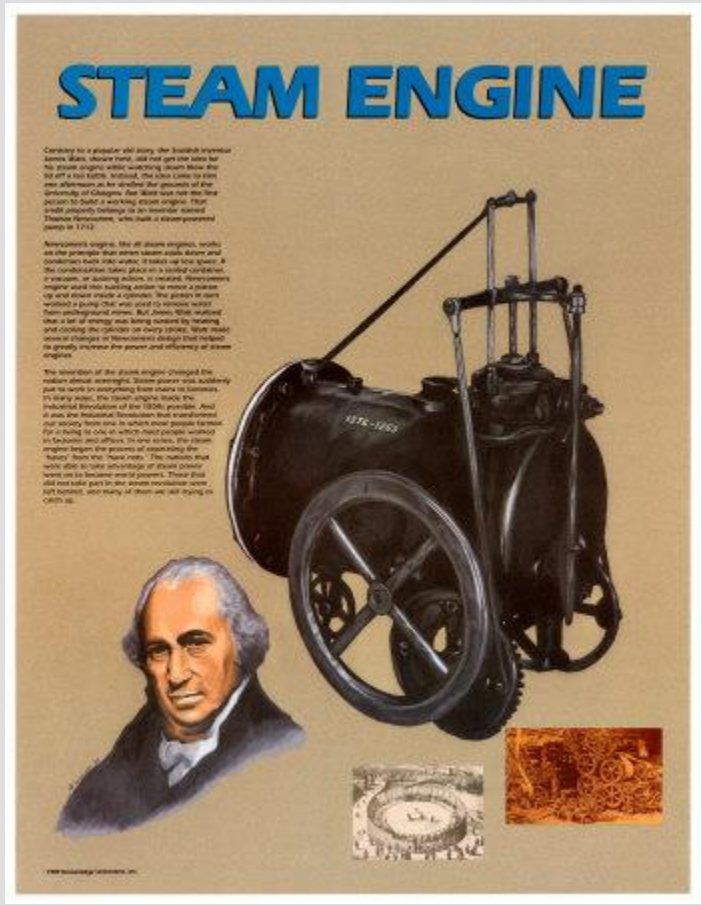


# The Factory System

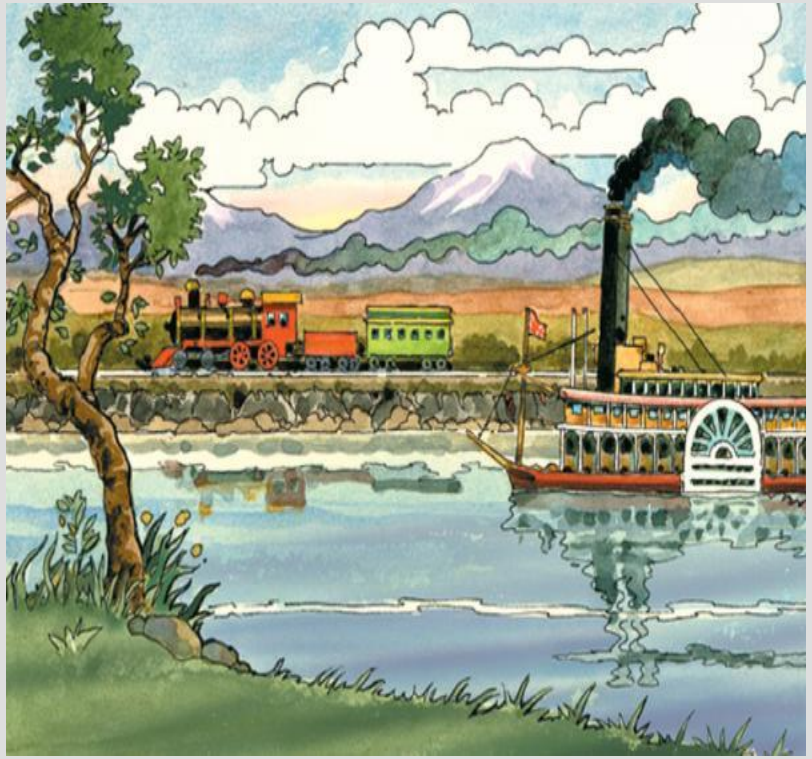
- New textile machines = large and costly
- Production shifted from homes to factories
- **<u>Factory system</u> = organized system of production that brings machines and workers together under control of a manager**

# The Factory System

- Most machines powered by water -- a lot of factories located near rivers
- James Watt = invented the **steam engine** = new source of power → factories could be anywhere now



# Industrial Developments



- Henry Bessemer = **Bessemer Process** = converts iron to steel
  - Sturdier, more workable metal
- Steam locomotive → eventually led to the building of railroads
- Robert Fulton = invented the **steamboat**

# Early Phase of Europe's Industrial Revolution


Map 18.1 The Early Phase of Europe's Industrial Revolution
Chapter 18, *Ways of the World: A Brief Global History with Sources*, First Edition

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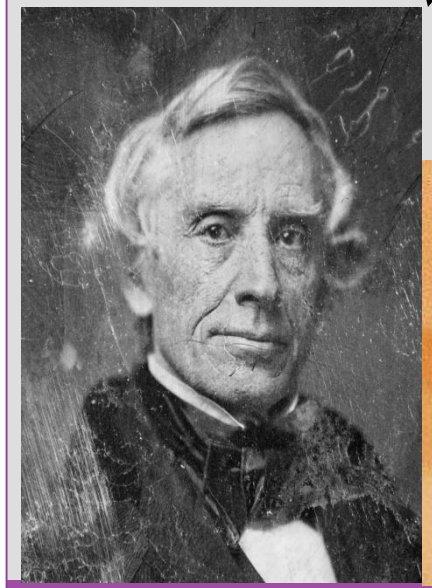
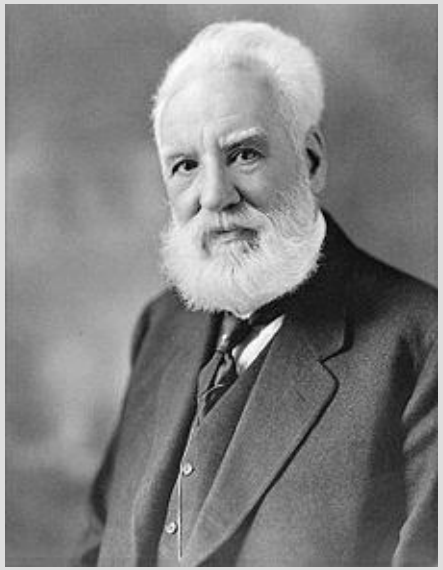
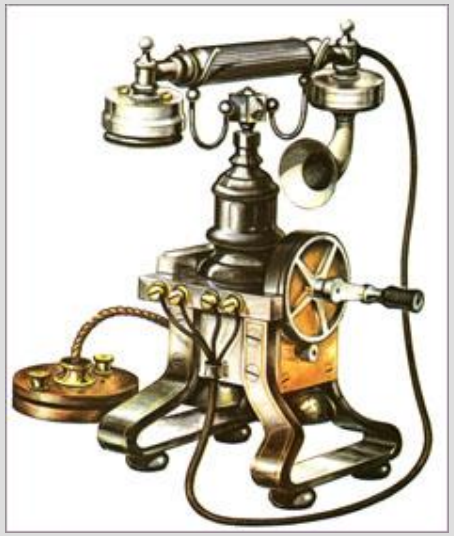
# Science and Industry

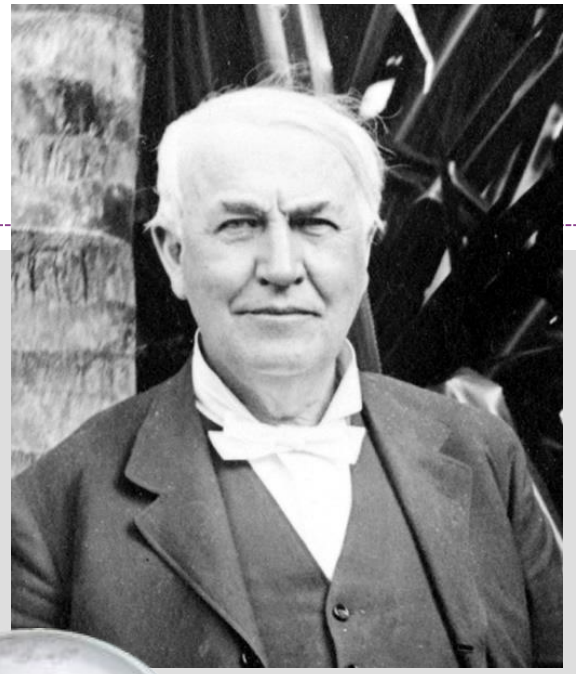
- Communications:
  - Samuel Morse: invented the telegraph
  - Alexander Graham Bell: invented the telephone







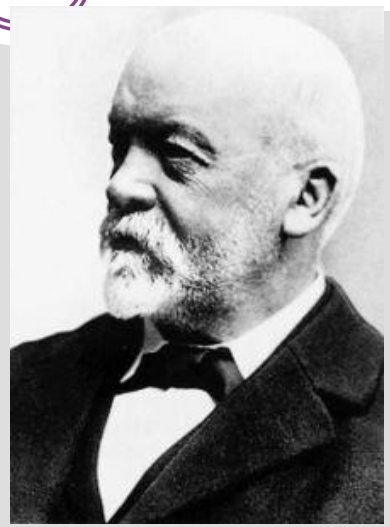
# Science and Industry



- Electricity: light bulb & phonograph invented by Thomas Edison
  - By 1900s = scientists harnessed electrical power
  - Replaced coal as major source of energy

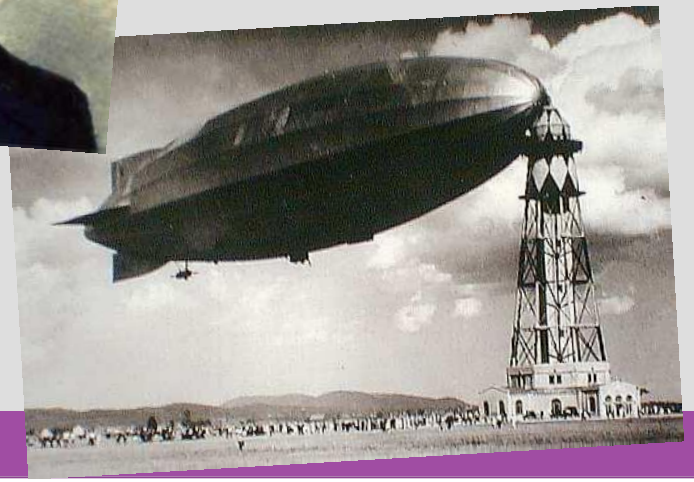
# Science and Industry

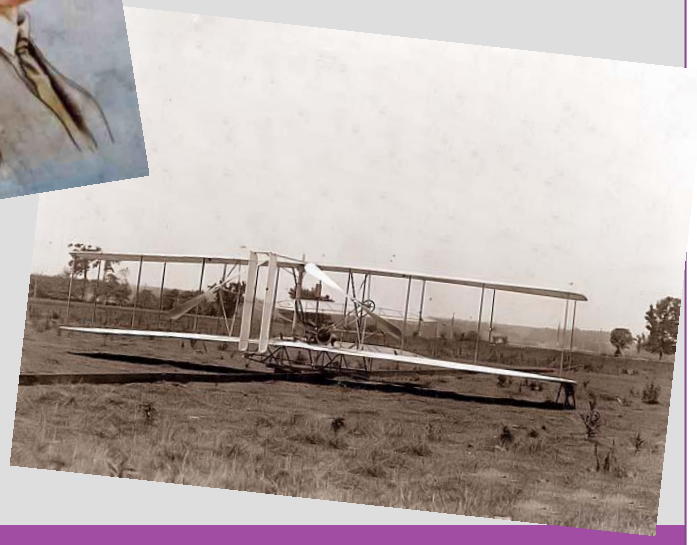
- Energy and engines: Gottlieb Daimler reinvented the internal-combustion engine to run on gasoline
  - Rudolf Diesel = oil burning internal-combustion engine used in factories, ships, trains



# Science and Industry

- Ferdinand von Zeppelin = dirigible
- Wilbur & Orville Wright = first successful flight of a motorized plane





# Society Before the Industrial Revolution

- Position in life determined at birth; no social mobility
- Industrial revolution changed that
- Talents and abilities brought money and success

# The Declining British Aristocracy

- Landowning aristocrats, on an individual basis did not suffer due to the Industrial Revolution
- The aristocracy, as a class, declined
  - Declining political power
  - Urban wealth became more important
  - Land ownership no longer the basis of wealth

# The Rise of the Middle Class

- Middle class = benefited the most from industrialization
- Size, power, and wealth of the middle class increased
- Upper levels = factory and mine owners, bankers, merchants
- Middle levels = smaller businessmen, doctors, lawyers, engineers, teachers, journalists, scientists, other professionals
- Lower levels = clerks, salespeople, bank tellers, secretaries, hotel staff, police officers

# Values and Beliefs of the Middle Class

- Political values: constitutional government, private property, free trade, social reforms
  - Major social reforms in areas of: education, healthcare, prison reform, and sanitation
- Cultural values: hard work, thrift, cleanliness, strict morality
- "Respectability" = combined ideas of social status and virtuous behavior
- Believed education and hard work were the keys to success
  - Individuals = responsible for their own destiny
  - The poor are poor because of their own misconduct

# Middle Class Lifestyles

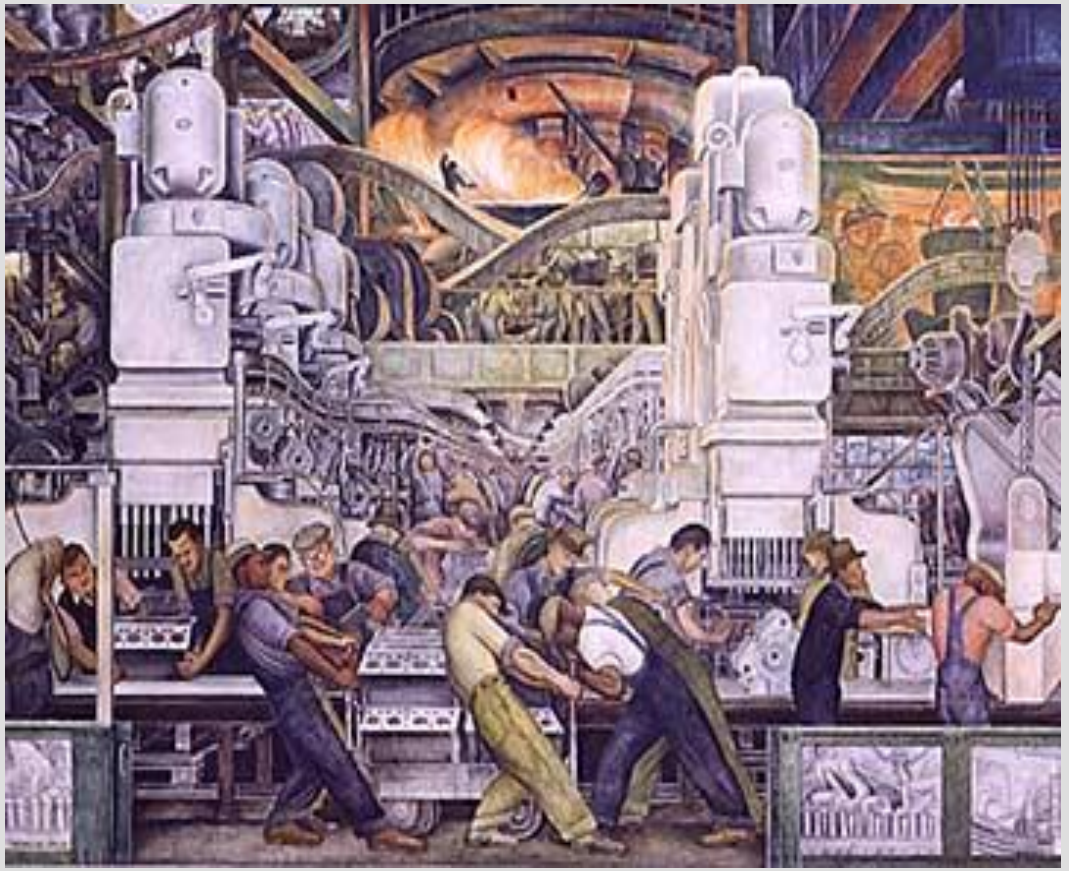
- Men and women = different roles
- Men at work and women at home
- Women's roles at home:
  - Homemakers, mothers, wives
  - Create an "emotional haven" at home for their men
  - Moral center of the family
  - "Managers of consumption" = shoppers
  - Teach "respectability"

# The Working Class

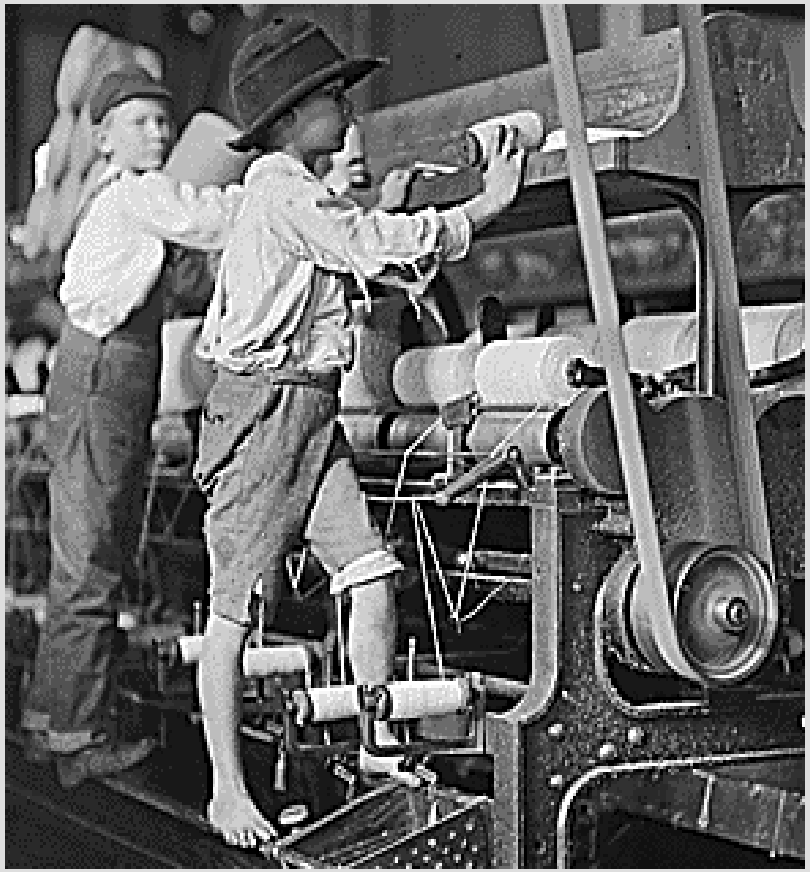
- Grew in numbers
- Few (if any) luxuries
- Worked in factories
- Dangerous work in the factories → had to work multiple machines as fast as possible

# The Working Class

- Accidents very common → no workers' compensation
- Monotonous work; noisy; heavy machines
- Strict work schedules
- 10-14 hours a day in unventilated rooms
- Diseases like pneumonia and tuberculosis = common
- Wages extremely low -- even lower for women and children



# The Working Class



- All members of the family worked in factories -- even children as young as 6
- Children = 12-hour shifts; sometimes through the night
  - Often became crippled or ill
  - No school

# The Working Class

- Women worked as well
- Some women enjoyed the sense of independence → made money and friends (called “mill girls”)

# The Working Class

Visual Source 18.5 Philip James de Loutherbourg, *Coalbrookdale by Night*
Science Museum/Science & Society Picture Library
Chapter 18, *Ways of the World: A Brief Global History with Sources*, First Edition

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- Lived in overcrowded, smoky cities
- Lived in crowded, cold apartments near the factories
- Whole families lived in 1 or 2 rooms
- Human and industrial waste contaminated water supplies and spread disease
- Few public services, such as sanitation

# Social Protest: Workers Unite


- Workers began to complain and demand better working conditions
- Knew they were stronger as a group than as individuals
- **Labor unions** = organizations of workers created to pressure business owners to improve working conditions and wages
- Not around until 1924 when trade unions were legalized

# Social Protest: Workers Unite

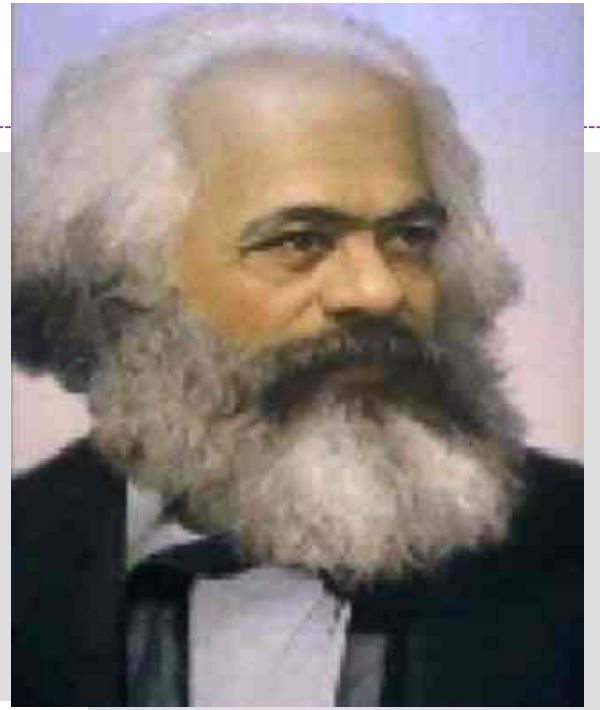


- Union tactics included:
  - Nationwide organization and cooperation
  - Strikes
  - Collective bargaining = union leaders and employers meet together to discuss problems and reach an agreement
  - Threat of violence

# Social Protest: Workers Unite

- Many workers joined self-help groups or other types of “friendly societies”
  - Paid dues
  - Benefits: Insurance against sickness, a decent funeral, a social life with people sharing common problems

# Social Protest: Karl Marx



- Marx viewed industrial capitalism as an unstable system that was doomed to collapse
  - Would collapse in a revolutionary upheaval
  - This would create a classless socialist society
  - Would forever end the conflict between rich and poor
- This idea inspired socialist movements of workers and intellectuals throughout Europe
  - Created socialist political parties
  - Contested elections and agitated for reform
  - Sometimes plotted revolution

# Social Protest: Improving Conditions

- Improvements during the 2nd half of the 1800s led the working-class movement away from revolution:
  - Wages rose under pressure from unions
  - Cheap imported food improved working-class diets
  - Infant mortality rates fell
  - Shops and chain stores catering to the working class multiplied
  - All male workers gradually earned the right to vote
  - Child labor abolished
  - Factory conditions regulated and improved
  - System of relief for the unemployed
  - Sanitation reform