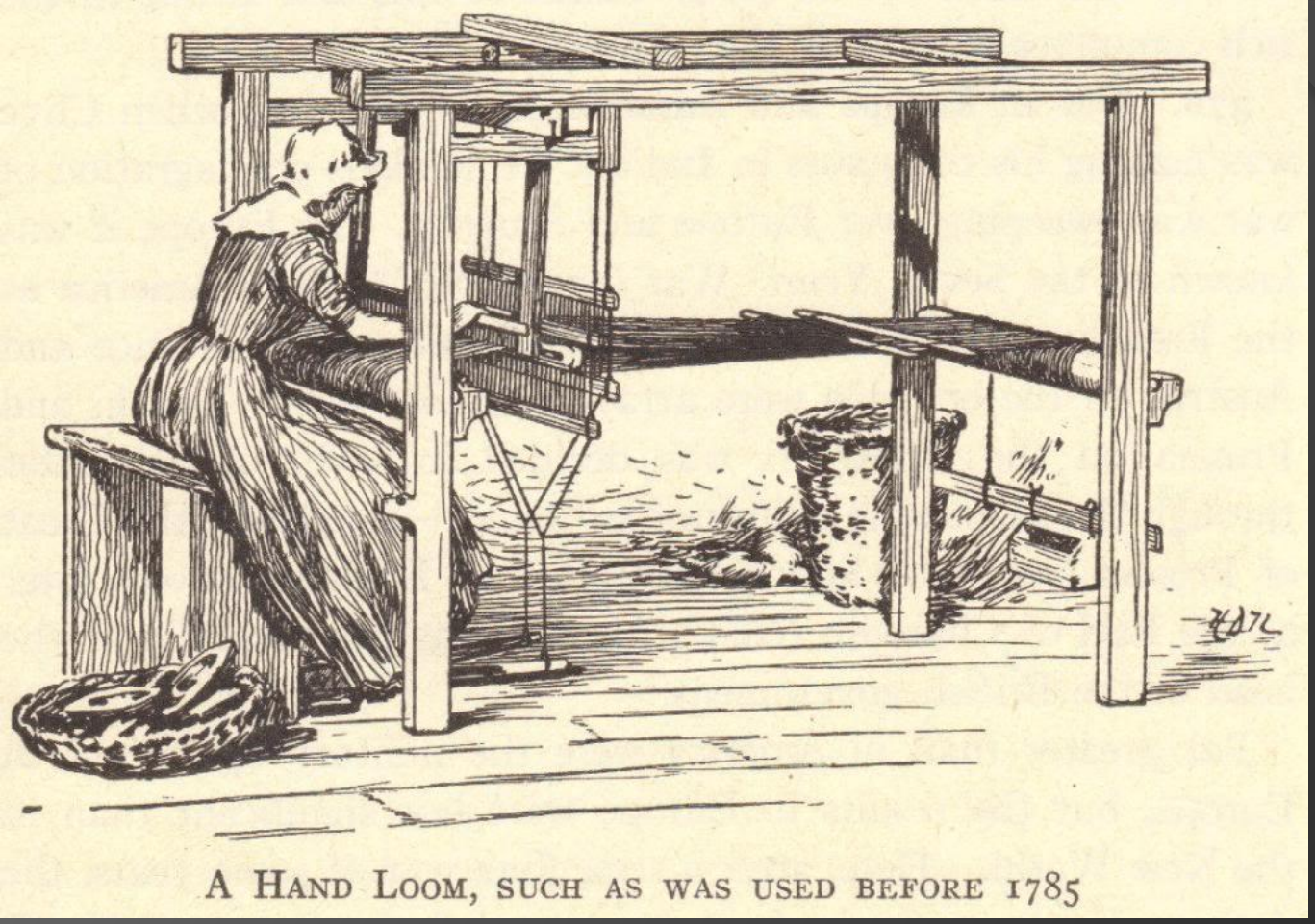
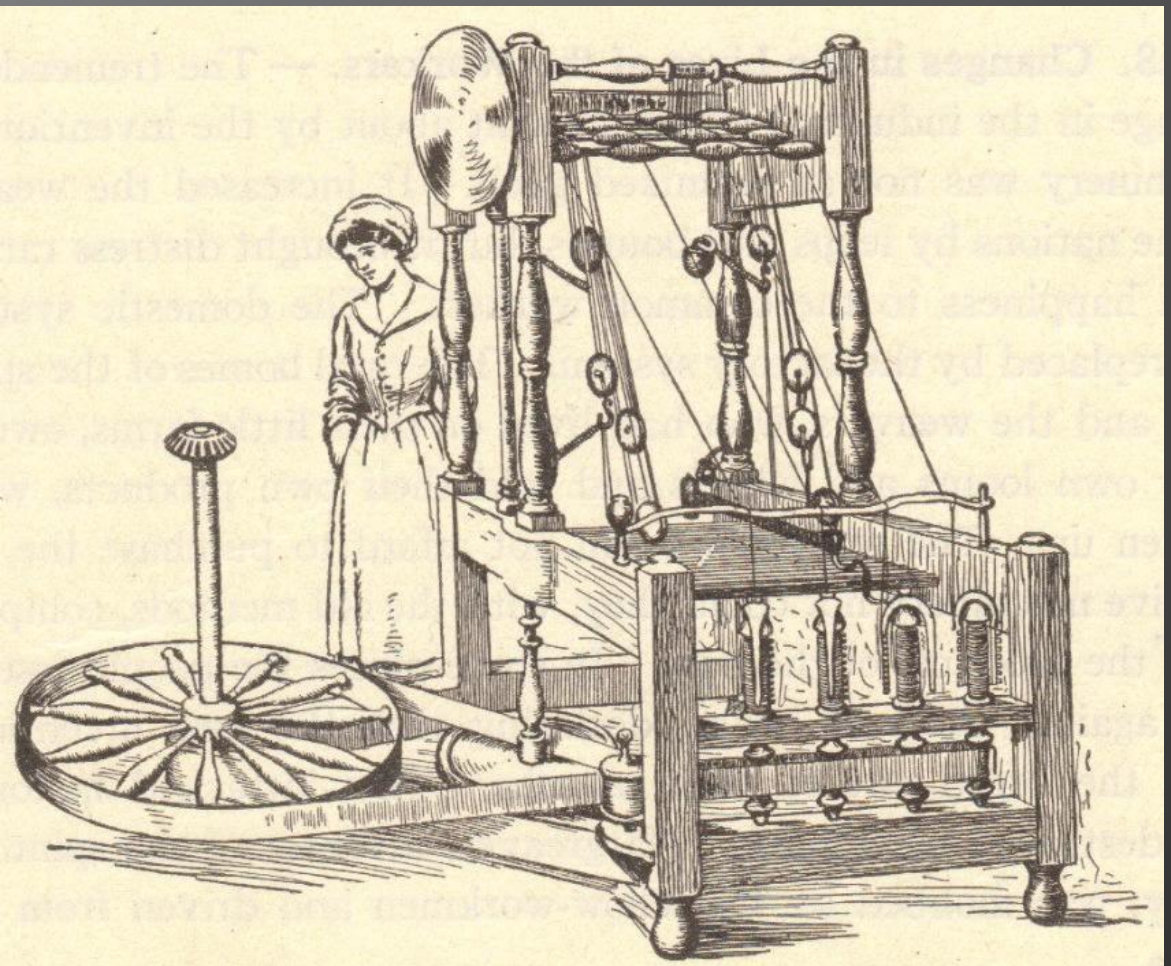


A HAND LOOM, SUCH AS WAS USED BEFORE 1785

THE INDUSTRIAL REVOLUTION



ARKWRIGHT'S FIRST SPINNING FRAME

THE FIRST INDUSTRIAL REVOLUTION

Historical Significance of the Industrial Revolution

- An ancient Greek or Roman would have been just as comfortable in Europe in 1700 because daily life was not much different – agriculture and technology were not much changed in 2000+ years
- The Industrial Revolution changed human life drastically
- More was created in the last 250+ years than in the previous 2500+ years of known human history

What was the Industrial Revolution?

- The Industrial Revolution was a fundamental change in the way goods were produced, from human labor to machines

- The more efficient means of production and subsequent higher levels of production triggered far-reaching changes to industrialized societies

The Industrial Revolution

- Machines were invented which replaced human labor
- New energy sources were developed to power the new machinery – water, steam, electricity, oil (gas, kerosene)
  - Some historians place advances in atomic, solar, and wind energy at the later stages of the Industrial Revolution
- Increased use of metals and minerals
  - Aluminum, coal, copper, iron, etc.

The Industrial Revolution

- Transportation improved
  - Ships
    - Wooden ships → Iron ships → Steel ships
    - Wind-powered sails → Steam-powered boilers
  - Trains
  - Automobiles
- Communication improved
  - Telegraph
  - Telephone
  - Radio

Developments

- Mass production of goods
  - Increased numbers of goods
  - Increased diversity of goods produced
- Development of factory system of production
- Rural-to-urban migration
  - People left farms to work in cities
- Development of capitalism
  - Financial capital for continued industrial growth
- Development and growth of new socio-economic classes
  - Working class, bourgeoisie, and wealthy industrial class
- Commitment to research and development
  - Investments in new technologies
  - Industrial and governmental interest in promoting invention, the sciences, and overall industrial growth

Background of the Industrial Revolution

- Commercial Revolution
  - 15th, 16th, and 17th centuries
  - Europeans expanded their power worldwide
  - Increased geographic knowledge
  - Colonies in the Americas and Asia
  - Increased trade and commerce
  - Guild system could not meet the demands of increasing numbers goods

Background of the Industrial Revolution

- Scientific Revolution
  - 17th and 18th centuries
  - Discoveries of Boyle, Lavoisier, Newton, etc.
- Intellectual Revolution
  - 17th and 18th centuries
  - Writings of Locke, Voltaire, etc.
- Atmosphere of discovery and free intellectual inquiry
  - Greater knowledge of the world
  - Weakened superstition and tradition
  - Encouraged learning and the search for better and newer ways of doing things

Development of the Domestic System of Production

- Domestic system developed in England
- Late 1600s-late 1800s
- Domestic system of production – "putting out" system
  - Businesspeople delivered raw materials to workers' homes
  - Workers manufactured goods from these raw materials in their homes (typically articles of clothing)
  - Businesspeople picked up finished goods and paid workers wages based on number of items
- Domestic system could not keep up with demand

Factory System

- Developed to replace the domestic system of production
- Faster method of production
- Workers concentrated in a set location
- Production anticipated demand
  - For example: Under the domestic system, a woman might select fabric and have a businessperson give it to a home-based worker to make into a dress. Under the factory system, the factory owner bought large lots of popular fabrics and had workers create multiple dresses in common sizes, anticipating that women would buy them.

	Domestic System	Factory System
Methods	•Hand tools	•Machines
Location	•Home	•Factory
Ownership and Kinds of Tools	•Small hand tools owned by worker	•Large power-driven machines owned by the capitalist
Production Output	•Small level of production •Sold only to local market •Manufactured on a per-order basis	•Large level of production •Sold to a worldwide market •Manufactured in anticipation of demand
Nature of Work Done by Worker	•Worker manufactured entire item	•Worker typically made one part of the larger whole •Henry Ford's assembly line (early 20th century) kept workers stationary
Hours of Work	•Worker worked as much as he/she would and could, according to demand	•Worker worked set daily hours
Worker Dependence on Employer	•Worker had multiple sources of sustenance–other employers, own garden or farm, and outside farm labor	•Worker relied entirely on capitalist for his/her income–urban living made personal farming and gardening impractical

England: Birthplace of the Industrial Revolution

- No concrete start date for the Industrial Revolution
- Marked by gradual, slow changes
- After 1750 – these changes were noticeable first in England

Why the Industrial Revolution Started in England

Capital for investing in the means of production	Colonies and Markets for manufactured goods	Raw materials for production
Workers	Merchant marine	Geography

England's Resources: Capital

- The Commercial Revolution made many English merchants very wealthy
- These merchants had the capital to invest in the factory system – money to buy buildings, machinery, and raw materials

England's Resources: Colonies and Markets

- Wealth from the Commercial Revolution spread beyond the merchant class
- England had more colonies than any other nation
- Its colonies gave England access to enormous markets and vast amounts of raw materials
- Colonies had rich textile industries for centuries
  - Many of the natural cloths popular today, such as calico and gingham, were originally created in India
  - China had a silk industry

England's Resources: Raw Materials

- England itself possessed the necessary raw materials to create the means of production
- Coal – vast coal reserves powered steam engines
- Iron – basic building block of large machines, railroad tracks, trains, and ships

England's Resources: Workers

- Serfdom and guilds ended earlier in England than other countries
- English people could freely travel from the countryside to the cities
- Enclosure Acts – caused many small farmers to lose their lands, and these former farmers increased the labor supply

England's Resources: Merchant Marine

- World's largest merchant fleet
- Merchant marine built up from the Commercial Revolution
- Vast numbers of ships could bring raw materials and finished goods to and from England's colonies and possessions, as well as to and from other countries

England's Resources: Geography

- England is the political center of Great Britain, an island
- Great Britain (as the entire island was called beginning in 1707) did not suffer fighting on its land during the wars of the 18th century
- Island has excellent harbors and ports
- Damp climate benefited the textile industry (thread did not dry out)
- Government stable
- No internal trade barriers

“Necessity Is the Mother of Invention”

Spinning machine

Need to speed up weaving

Power loom created

“Necessity Is the Mother of Invention”

Power loom

Increased demand for raw cotton

Invention of the cotton gin

“Necessity Is the Mother of Invention”

Cotton gin

Demands for stronger iron

Improvements in iron smelting and the development of steel (Bessemer process)

“Necessity Is the Mother of Invention”

As more steam-powered machines were built, factories needed more coal to create this steam

Mining methods improved to meet the demand for more coal

- The process of inventing never ends
- One invention inevitably leads to improvements upon it and to more inventions

The Textile Industry

- Textiles – cloths or fabrics
- First industry to be industrialized
- Great Britain learned a lot about textiles from India and China

The Birth and Growth of the Textile Industry

John Kay (English)	
Flying shuttle, 1733	Hand-operated machine which increased the speed of weaving

James Hargreaves (English)	
Spinning jenny, 1765	Home-based machine that spun thread 8 times faster than when spun by hand

Richard Arkwright (English)	
Water frame, 1769	Water-powered spinning machine that was too large for use in a home – led to the creation of factories

The Birth and Growth of the Textile Industry

Samuel Crompton (English)	
Spinning mule, 1779	Combined the spinning jenny and the water frame into a single device, increasing the production of fine thread

Edward Cartwright (English)	
Power loom, 1785	Water-powered device that automatically and quickly wove thread into cloth

Eli Whitney (American)	
Cotton gin, 1793	Device separated raw cotton from cotton seeds, increasing the cotton supply while lowering the cost of raw cotton

Elias Howe (American)	
Sewing machine, 1846	Speed of sewing greatly increased

Development of Steam Engines

- Early water power involved mills built over fast-moving streams and rivers

- Early water power had problems
  - Not enough rivers to provide the power needed to meet growing demand
  - Rivers and streams might be far removed from raw materials, workers, and markets
  - Rivers are prone to flooding and drying

Steam Power

- Humans tried harnessing steam power for millennia
  - Hero of Alexandria, Egypt – created a steam-driven device in the 1st century B.C.E.
- Thomas Newcomen, England (1704)
  - Created a steam engine to pump water from mines
- James Watt, Scotland (1769)
  - Improved Newcomen's engine to power machinery

Steam Engines

- By 1800, steam engines were replacing water wheels as sources of power for factories
- Factories relocated near raw materials, workers, and ports
- Cities grew around the factories built near central England's coal and iron mines
  - Manchester, Liverpool

Coal and Iron

- Vast amounts of fuel were required to smelt iron ore to burn out impurities
- Abraham Darby (1709)
  - Discovered that heating coal turned it into more efficient coke
- John Smeaton (1760)
  - Smelted iron by using water-powered air pumps to create steam blasts
- Henry Cort (1783)
  - Developed the puddling process which purified and strengthened molten iron

Increases in Coal and Iron Production, 1770-1800

- Coal production doubled
  - 6 million to 12 million tons
- Pig iron production increased 250%
  - 1800 – 130,000 tons
- Great Britain produced as much coal and iron as every other country combined

Bessemer Process and Steel

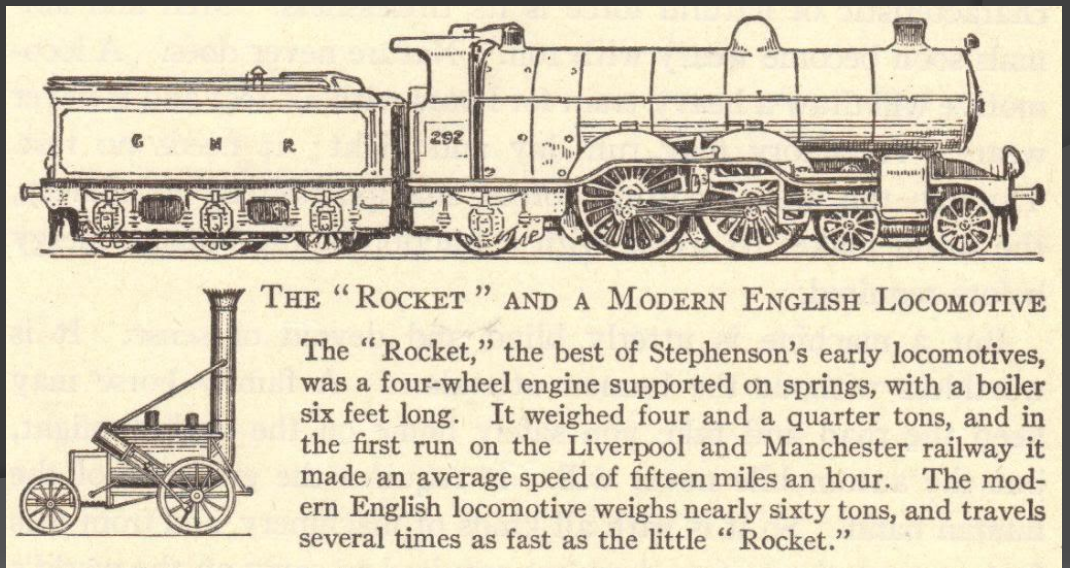
- Prior to the Industrial Revolution, steel was difficult to produce and expensive
- Henry Bessemer, 1856
  - Developed the Bessemer process
  - Brought on the "Age of Steel"
  - Steel is the most important metal used over the past 150+ years
- Other improvements in steel production
  - Open-hearth furnace
  - Electric furnace
  - Use of other metals to produce various types of steel

Transportation

Increased production → Search for more markets and raw materials → Better and faster means of transportation

Before the Industrial Revolution
- Canal barges pulled by mules
- Ships powered by sails
- Horse-drawn wagons, carts, and carriages

After the Industrial Revolution
- Trains
- Steamships
- Trolleys
- Automobiles



THE "ROCKET" AND A MODERN ENGLISH LOCOMOTIVE

The "Rocket," the best of Stephenson's early locomotives, was a four-wheel engine supported on springs, with a boiler six feet long. It weighed four and a quarter tons, and in the first run on the Liverpool and Manchester railway it made an average speed of fifteen miles an hour. The modern English locomotive weighs nearly sixty tons, and travels several times as fast as the little "Rocket."

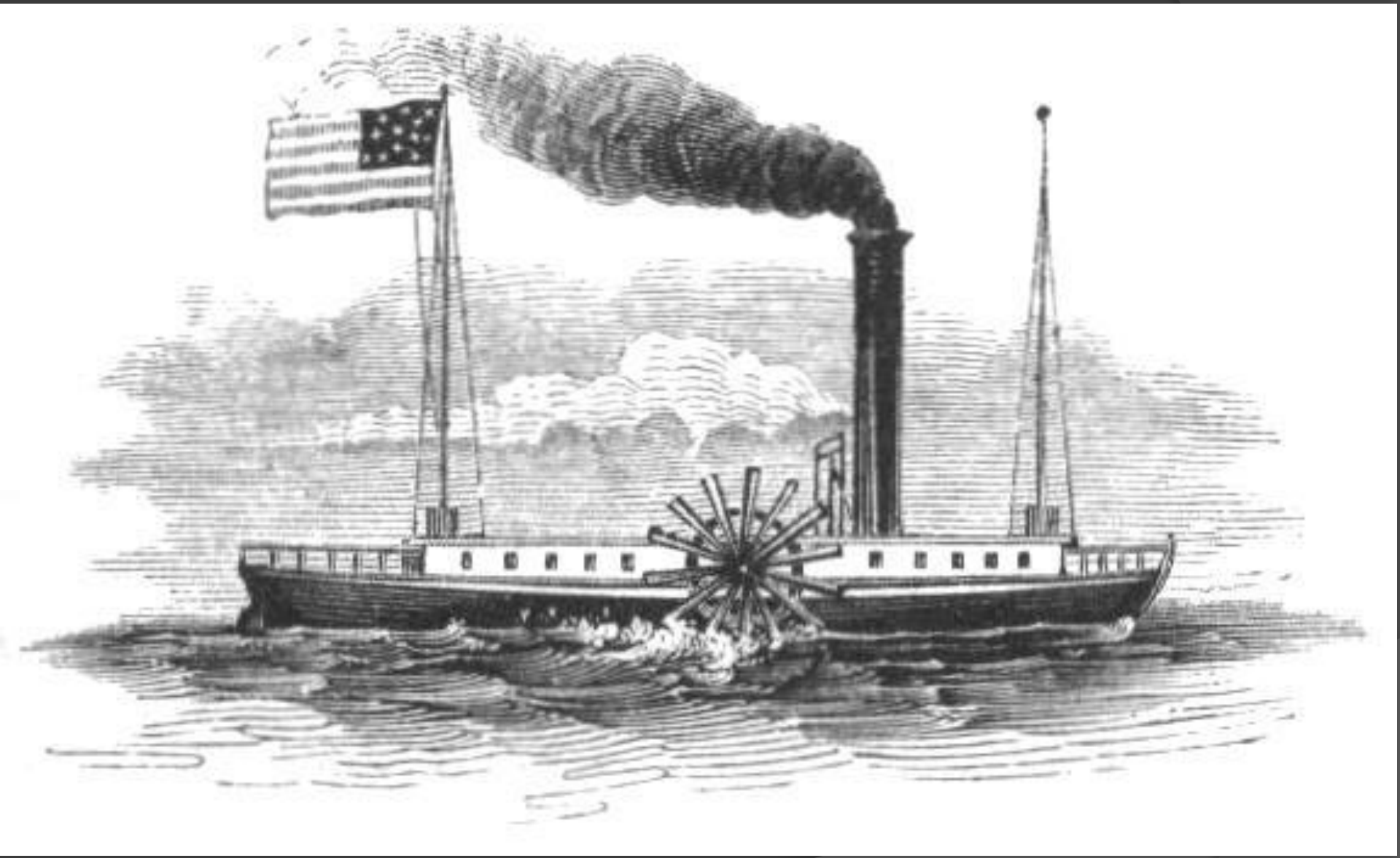
Transportation Revolution

Robert Fulton (American)	Thomas Telford and John McAdam (British)	George Stephenson (English)
• Steamboat (1807) • Sped water transportation	• Macadamized roads (1810-1830) • Improved roads	• Locomotive (1825) • Fast land transport of people and goods

Gottlieb Daimler (German)	Rudolf Diesel (German)	Orville and Wilbur Wright (American)
• Gasoline engine (1885) • Led to the invention of the automobile	• Diesel engine (1892) • Cheaper fuel	• Airplane (1903) • Air transport

Steamboats

- Robert Fulton invented the steamboat in 1807
- The *Clermont* operated the first regular steamboat route, running between Albany and New York City
- 1819 – the *Savannah* used a steam engine as auxiliary power for the first time when it sailed across the Atlantic Ocean
- 1836 – John Ericsson invented a screw propeller to replace paddle wheels
- 1838 – the *Great* Western first ship to sail across the Atlantic on steam power alone, completing the trip in 15 days

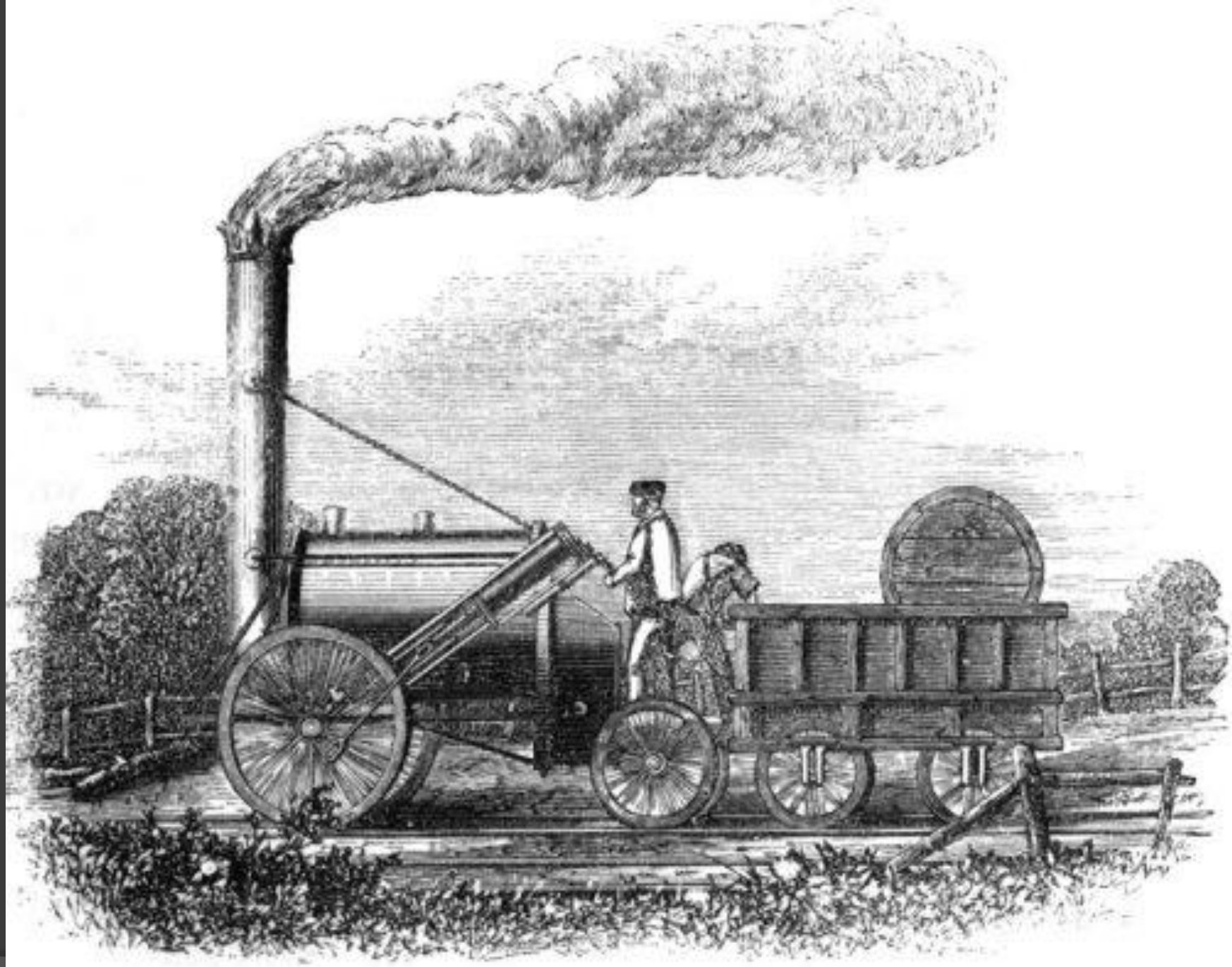


Macadamized Roads

- Strong, hard roads invented by Thomas Telford and John McAdam
- Improvement over dirt and gravel roads
- Macadamized roads have a smooth, hard surface that supports heavy loads without requiring a thick roadbed
- Modern roads are macadamized roads, with tar added to limit the creation of dust

Railroads

- 1830 – Stephenson's "Rocket" train traveled the 40 miles between Liverpool and Manchester in 1 ½ hours
- 1830-1870 – railroad tracks went from 49 miles to over 15,000 miles
- Steel rails replaced iron rails
- 1869 – Westinghouse's air brake made train travel safer
- Greater train traveling comfort – heavier train cars, improved road beds, and sleeping cars



The "Rocket."

Communications Revolution

Samuel F.B. Morse (American)

- Telegraph (1844)
- Rapid communication across continents

Alexander Graham Bell (American)

- Telephone (1876)
- Human speech heard across continents

Cyrus W. Field (American)

- Atlantic cable (1866)
- United States and Europe connected by cable

Guglielmo Marconi (Italian)

- Wireless telegraph, an early form of the radio (1895)
- No wires needed for sending messages

Lee de Forest (American)

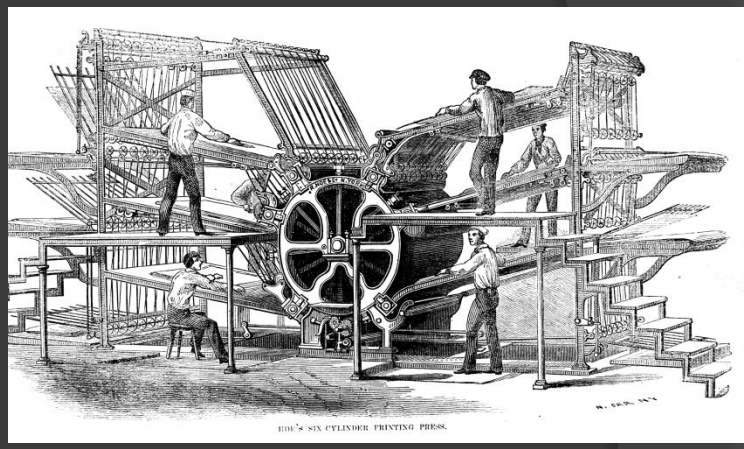
- Radio tube (1907)
- Radio broadcasts could be sent around the world

Vladimir Zworykin (American)

- Television (1925)
- Simultaneous audio and visual broadcast

Printing Revolution

- Printing – 1800-1830
  - Iron printing press
  - Steam-driven press
- Rotary press – 1870
  - Invented by Richard Hoe
  - Printed both sides of a page at once
- Linotype machine – 1884
  - Invented by Ottmar Mergenthaler
  - A machine operator could create a “line of type” all at one go, rather than having to individually set each letter
- Newspapers became much cheaper to produce
  - Cost of a newspaper plummeted
  - Number of newspapers increased



Review Questions

1. What was the Industrial Revolution?
2. Describe at least three developments of the Industrial Revolution.
3. Compare and contrast the domestic and factory methods of production.
4. Why did the Industrial Revolution begin in England?
5. Explain why one invention or development leads to another.

Review Questions

6. Explain how developments in the textile industry sparked the Industrial Revolution.

7. Describe at least three developments in the area of transportation.

8. Describe at least three developments in the field of communications.

9. Considering the conditions necessary for industrialization to occur, how well equipped is the undeveloped world for becoming industrialized? Are modern undeveloped nations in a better or worse position than 18th- and 19th-century England?

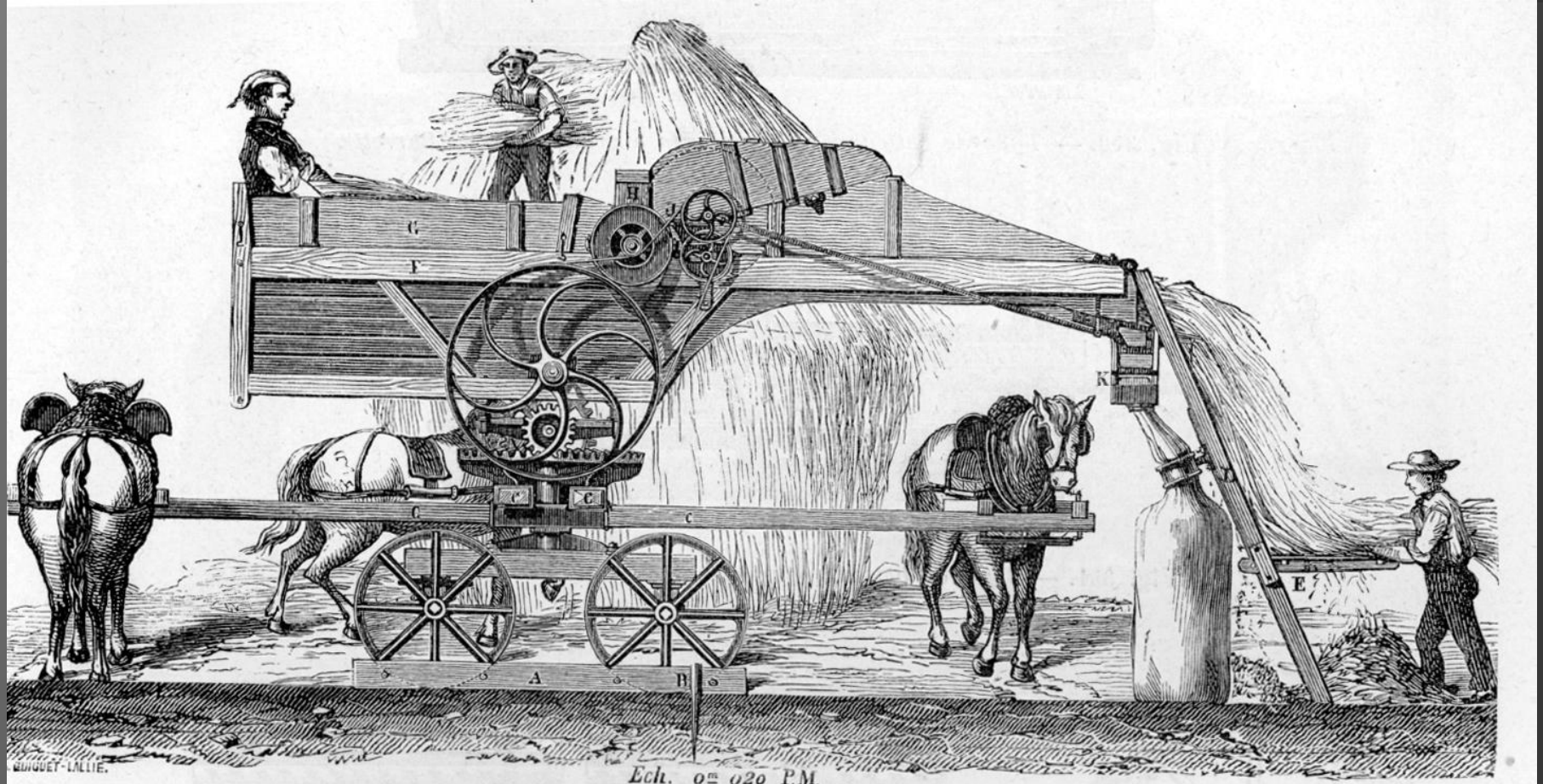


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Fig. 349. — *Batteuse Damey à manège direct placé sous la batteuse.*

THE AGRICULTURAL REVOLUTION

The Agricultural Revolution

- Agricultural methods had not changed much since the Middle Ages
- Tools – hoe, sickle, wooden plow
- Three-field system – farmers left 1/3 of the land fallow each year to restore fertility to the soil
- Open-field system – unfenced farms with few improvements made to the land
- No significant surplus – only enough food was made to feed the population

Agriculture and Industry

- The Industrial Revolution brought machinery to farms
- The use of farm machinery meant that fewer farm workers were needed
- Displaced farm workers moved to the cities to find work in factories
  - This is called rural-to-urban migration
- Growing populations in urban cities required farmers to grow more crops
  - Food to eat
  - Raw materials (like cotton) for textile factories

Agricultural Innovators

Jethro Tull (English)	Lord Townshend (English)	Robert Bakewell (English)	Arthur Young (English)	Justus von Liebig (German)
• Seed drill: Planted seeds in straight rows as opposed to scattering them over a field • Horse-drawn cultivation: Loosened the soil and eliminated weeds	• Crop rotation: Ended the three-field system by illustrating how planting different crops in the same field each year kept the soil from becoming exhausted	• Stock breeding: First to scientifically breed farm animals for increased production of, and better quality, beef, milk, wool, etc.	• Agricultural writer: Popularized new farming methods and machinery	• Fertilizers: Invented fertilizers to enrich exhausted soil, which increased the amount of available farmland

Agricultural Machinery

Eli Whitney – Cotton gin (1793) – Increased cotton production

Cyrus McCormick – Mechanical reaper (1834) – Increased wheat production

Other important inventions: Horse-drawn hay rake, threshing machine, steel plow

Steam engines, gasoline and diesel engines, and electric motors were added to farm machinery as these types of engines were invented.

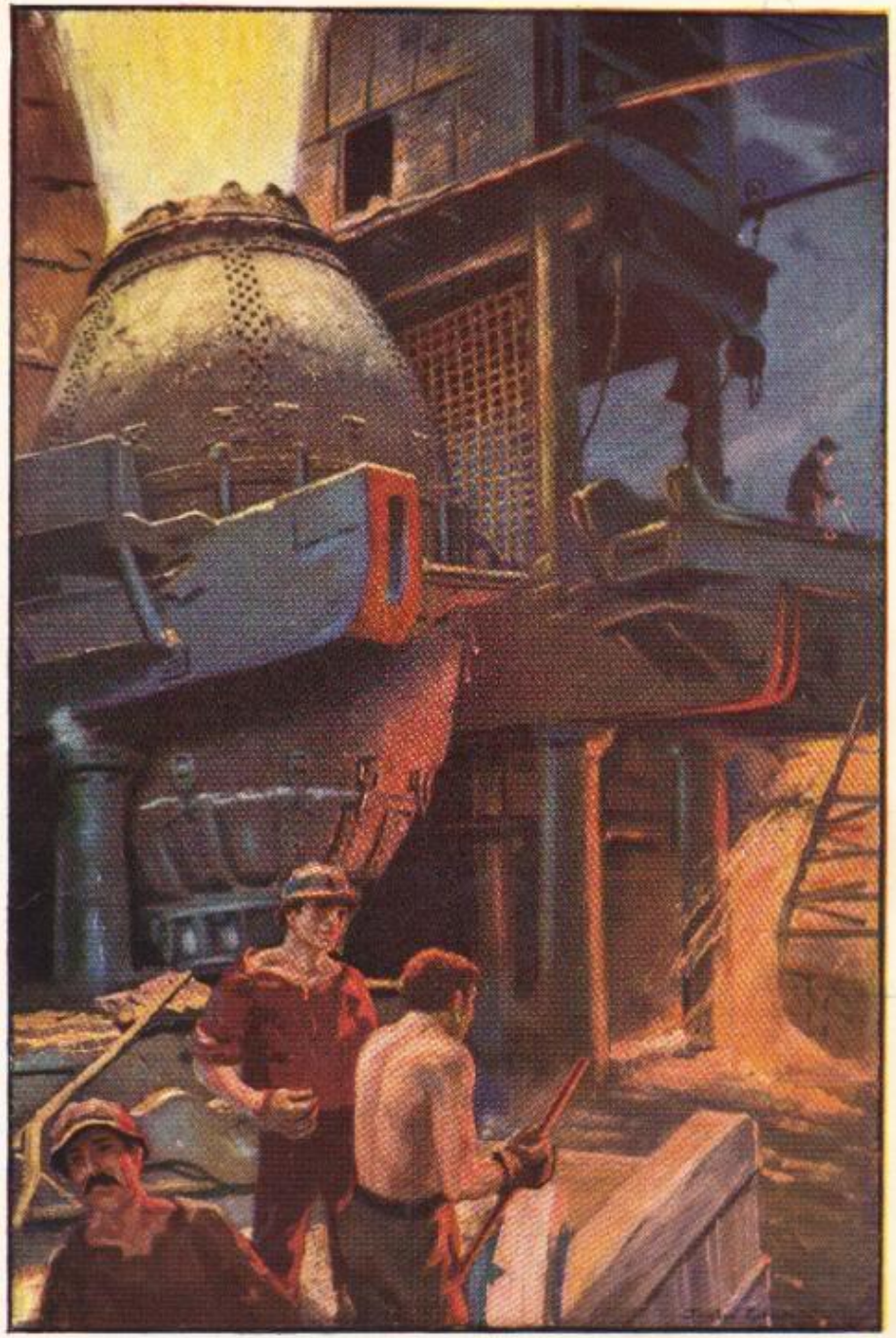
The Industrial and Agricultural Revolutions complemented one another. Developments and needs in one created developments and needs in the other.

Agricultural Science

- Agriculture became a science during the Agricultural Revolution
- Farmers and governments invested in agricultural research
  - Established agricultural schools, societies, and experimental stations
- Progress in agriculture
  - Pesticides, stock breeding, new foods, food preservation, new farming techniques and irrigation methods, frozen foods
- Result
  - Today, in the industrialized world, much more food is grown by far fewer farmers than was grown 200 years ago (or is grown today in the non-industrialized world)

Review Questions

1. Describe three features of agriculture before the Agricultural Revolution.
2. How did agricultural machinery change farm labor?
3. Describe the inventions or methods of at least three agricultural innovators.
4. Weigh the pros and cons of modern agriculture's use of pesticides, preservation, and stock breeding.



Bessemer Converter in a Steel Mill

THE SECOND INDUSTRIAL REVOLUTION

The First and Second Industrial Revolutions

- The first, or old, Industrial Revolution took place between about 1750 and 1870
  - Took place in England, the United States, Belgium, and France
  - Saw fundamental changes in agriculture, the development of factories, and rural-to-urban migration
- The second Industrial Revolution took place between about 1870 and 1960
  - Saw the spread of the Industrial Revolution to places such as Germany, Japan, and Russia
  - Electricity became the primary source of power for factories, farms, and homes
  - Mass production, particularly of consumer goods
  - Use of electrical power saw electronics enter the marketplace (electric lights, radios, fans, television sets)

The Spread of the Industrial Revolution

- Mid-1800s – Great Britain, the world leader in the Industrial Revolution, attempted to ban the export of its methods and technologies, but this soon failed
- 1812 – United States industrialized after the War of 1812
- After 1825 – France joined the Industrial Revolution following the French Revolution and Napoleonic wars
- Circa 1870 – Germany industrialized at a rapid pace, while Belgium, Holland, Italy, Sweden, and Switzerland were slower to industrialize
- By 1890 – Russia and Japan began to industrialize

Transportation

- Railroads
  - Industrialized nations first laid track in their own countries, then in their colonies and other areas under their political influence
  - Russia – **Trans-Siberian railroad** (1891-1905)
  - Germany – **Berlin-to-Baghdad railroad** across Europe to the Middle East
  - Great Britain – **Cape-to-Cairo railroad** vertically across Africa

- Canals
  - **Suez Canal** (1869) – provided access to the Indian Ocean from the Mediterranean Sea without the need to sail around Africa
  - **Kiel Canal** (1896) – North Sea connected to the Baltic Sea
  - **Panama Canal** (1914) – provided access from one side of the Americas to the other without the need to sail around the tip of South America

Transportation

- Automobiles
  - Charles Goodyear – vulcanized rubber, 1839
  - Gottlieb Daimler – gasoline engine, 1885
  - Henry Ford – assembly line, 1908-1915
- Airplanes
  - Orville and Wilbur Wright – airplane, 1903
  - Charles Lindbergh – first non-stop flight across the Atlantic, 1927
  - 20th-century – growth of commercial aviation

Review Questions

1. Compare and contrast the First and Second Industrial Revolutions.
2. When did the United States begin to industrialize?
3. Explain how trains and canals aided transportation, citing at least one example for each.
4. What contributions did Charles Goodyear, Gottlieb Daimler, and Henry Ford make to automobile production?

THE RESULTS OF THE INDUSTRIAL REVOLUTION

Results of the Industrial Revolution

Economic Changes

- Expansion of world trade
- Factory system
- Mass production of goods
- Industrial capitalism
- Increased standard of living
- Unemployment

Political Changes

- Decline of landed aristocracy
- Growth and expansion of democracy
- Increased government involvement in society
- Increased power of industrialized nations
- Nationalism and imperialism stimulated
- Rise to power of businesspeople

Social Changes

- Development and growth of cities
- Improved status and earning power of women
- Increase in leisure time
- Population increases
- Problems – economic insecurity, increased deadliness of war, urban slums, etc.
- Science and research stimulated

Economic Changes: Expansion of World Trade

- Increased production meant that industrialized nations produced more than could be consumed internally
- Sought new foreign markets
- Bought many raw materials from foreign markets
- New iron, steam-powered ships, along with other technological advances, made international trade (and travel) cheaper, safer, and more efficient

Economic Changes: Expansion of World Trade – Free Trade and Tariffs

- **Free trade** – trade without barriers or tariffs – was initially used
- As nations competed for markets, **protective tariffs** were put in place to limit foreign competition within an industrialized nation and its colonies
- Motivation was to protect businesses in the home country and colonies, but this often meant people in the home country or colonies paid inflated prices for goods

Economic Changes: Factory System Possible Due to Standardized Parts

- Eli Whitney is popularly credited with the invention of interchangeable parts in the late 1700s
  - But interchangeable parts had already been used in Europe
- Before the late 1700s, each part of an item (like a musket) was made individually by a single person, with each part made to fit the whole
- Standardized, or interchangeable, parts were created *en masse* to make a lot of duplicate products (such as hundreds of muskets)
- Manufacturers decided upon standard sizes for their goods and created large quantities of components
  - Such as deciding that a musket barrel should be two feet long and making 100 duplicate musket barrels, then deciding that triggers for these muskets should be two inches tall and making 100 2-inch triggers
- Standardized parts could be kept in a set location in a factory
  - As a worker assembled an article, he or she would take whatever parts were needed from a bin of standardized (interchangeable) parts

Economic Changes: Factory System Perfected with the Assembly Line

- Developed by Henry Ford between 1908 and 1915
- Brought the work to the worker instead of the worker to the work
- Product moves along a conveyor belt, with each worker contributing labor along the way to create the finished product

Economic Changes: Factory System – Assembly Line Brings Division of Labor

- Assembly lines bring the work to the worker, saving time
- Each worker specializes in one part
- An automobile worker may spend 30 years in a factory only ever putting passenger-side doors on motor vehicles
- Focusing on one aspect of production can be repetitive but can also make a worker an expert at that particular aspect

Economic Changes: Factory System

- *Manufacture* comes from the Latin *manu* and *facere*, meaning to make by hand
  - But during the Industrial Revolution, the meaning of *manufacturer* switched from the person who made an article by hand to the capitalist who hired workers to make articles
- Workers no longer owned the means of production (simple hand tools)
  - Instead, the newer means of production (expensive machinery) were owned by the capitalist

Economic Changes: Mass Production of Goods

- Motor vehicle production in the United States
  - 1895 – 33,000 motor vehicles
  - 1910 – 181,000 motor vehicles
  - 2000 – 5,542,000 passenger cars alone
- Factors contributing to mass production
  - Standardized (or interchangeable) parts
  - Assembly line
  - Labor division and specialization
- Mass production meant more items were produced at lower costs
  - More people could afford to buy manufactured goods, which in turn spurred demand

Economic Changes: Industrial Capitalism and the Working Class

- Pre-Industrial Revolution rural families did not rely solely on wages for sustenance
  - Owned their own farms or gardens where they raised most of their own food
  - Made their own clothing
  - Unemployment was rare
- Industrialization destroyed workers' independence
  - Workers in cities did not have the means to grow their own food or make their own clothing
  - Workers relied entirely upon their employers for wages with which they bought everything they needed

Economic Changes: Industrial Capitalism's Risks

- Workers came to rely entirely on their employers for their livelihoods
  - No more small family farms or gardens to provide extra food
  - No more day-laboring for a neighboring farmer to earn extra money
  - When the factory slowed down, the worker had nowhere to go for sustenance
- Entrepreneurs assumed enormous risk in establishing new enterprises
  - No more workers working from home – capitalists had to supply a factory
  - No more custom orders – capitalists had to anticipate demand
  - No more at-will laborers – workers relied on capitalists for steady labor

Economic Changes: Industrial Capitalism

- The financial investments required to run large industries brought about modern capitalism
- **Capital** – wealth that is used to produce more wealth
- **Entrepreneur** – person who starts a business to make a profit
- **Capitalist** – person who invests his or her money in a business to make a profit
- **Corporation** – company owned by **stockholders** who have purchased shares of stock
  - Actual running of the company left to hired managers rather than to the stockholders
  - As industries grew and small business operations faded into obscurity, the relationship between workers and business owners disintegrated

Economic Changes: Industrial Capitalism's Problems

- Small manufacturers cannot compete with large corporations
- Consumers must buy from large corporations
- Workers have had to fight for decent wages and working conditions
- Large corporations can influence the government

Economic Changes: Increased Standard of Living

- Mass production made manufactured goods less expensive, so more people could afford them
- Standard of living wasn't raised for everyone – factories paid low wages, and many immigrants and rural-to-urban migrants lived poorer lives than their parents and grandparents had lived

Economic Changes: Unemployment

- Overproduction
  - Also called *under-consumption*
  - Mass production anticipates demand – if goods don't sell, a manufacturer produces less and lays off workers
- Recession
  - Overproduction across many industries with widespread lay-offs
- Depression
  - Long-lasting recession

Political Changes: Decline of Landed Aristocracy

- Before the Industrial Revolution – power was in the hands of the landed aristocracy and monarchs
  - *Landed aristocracy* refers to lords, dukes, etc., who owned the land
  - Although vassalage was gone by the 18th century, the working relationship between lords and peasants remained the same
    - Peasants either worked the land for lords or rented land from them
  - Wealth was based on agriculture, which meant that those who owned the most land were the wealthiest
    - Landed aristocracy owned and controlled the most land, making this the wealthiest and highest-ranking socio-economic group
- Industrial Revolution – factories became more valuable than land
  - Wealth of the aristocracy dwindled
  - Growing middle class, with wealth based in industry, wanted more political power

Political Changes:

Decline of Landed Aristocracy

Case Study: The Corn Laws

Problem: British landowners and agriculturalists (lords and farmers) wanted high prices for their corn.

- **Solution**: Tariffs known as the Corn Laws established in 1815.

Problem: The growing working class could not afford corn.

- **Solution**: Repeal of the Corn Laws in 1846.

Problem: The price of corn declined following the repeal of the Corn Laws, decreasing the wealth, power, and prestige of the landed aristocracy in Great Britain.

- **Solution**: There was no solution. The landed aristocracy began its fall from economic and political power. Economic and political power shifted to the wealthy capitalist, middle, and working classes.

Political Changes: Growth and Expansion of Democracy

- The middle class grew during the Industrial Revolution
  - Gained more rights
- The working class effectively began with the Industrial Revolution
  - The working class fought for rights in the workplace
  - The working class demanded and earned a voice in government

Political Changes: Increased Government Involvement in Society

- Government actions to help workers
  - Legalization of unions
  - Established minimum wage
  - Standards for working conditions
  - Forms of social security
- Government actions to help consumers
  - Regulation and inspection of goods and foodstuffs
- Government actions to help businesses
  - Laws to stop or limit monopolies
  - Some governments took control of vital industries

Political Changes: Increased Power of Industrialized Nations

- With wealth came power
- Imperialism expanded
- Imperialistic, industrialized nations built up their navies to gain and protect assets

Political Changes: Nationalism and Imperialism Stimulated

- Increased production meant an increased need for raw materials
- Industrialized nations expanded their colonial empires and spheres of influence in their search for more raw materials
  - Worldwide scramble for colonies
  - Fought the peoples in the lands they controlled
  - Fought one another for colonies and spheres of influence
- Governments saw imperialist expansion as the key to continued industrial growth and wealth

Political Changes: Rise to Power of Businesspeople

- Along with the working classes, businesspeople gained political rights
- "Captains of industry" or "robber barons" – along with financiers
  - Wealth brought political influence

Social Changes: Development and Growth of Cities

Paris

- 18th century - 600,000 people
- Circa 1900 – over 2,714,000 in the Paris urban area
- Circa 2000 – over 11,000,000 in the Paris urban area

London

- 18th century – 500,000 people
- Circa 1900 – over 6,200,000 in the London urban area
- Circa 2000 - over 7,100,000 in the London urban area

- Rural-to-urban migrants – people who left the countryside to live in cities
- A sign of an industrialized nation is that a large proportion of the population lives and works in urban areas

Social Change: Development and Growth of Cities

Case Studies: Liverpool and Manchester

Liverpool

- 1800 – population under 100,000
- 1850 – population over 300,000 (part of the increase due to Irish fleeing the potato famine)
- 1900 – population over 700,000
- Major British port city which grew during the Industrial Revolution
- Population peaked in the 1930s and has been declining ever since due to the decline in manufacturing and imperialism

Manchester

- 1800 – population circa 328,000
- 1850 – population circa 1,037,000
- 1900 – population circa 2,357,000
- Nicknamed "Cottonopolis" in the mid-to-late 19th century because of its textile factories
- Began to decline after the Industrial Revolution but has stabilized due to new industries and greater business diversification

Social Changes: Improved Status and Earning Power of Women

- Initially, factory owners hired women and children because they worked for lower wages
  - This brought many women, otherwise impoverished, to cities to work in factories
  - Governments limited the work of children and, at times, of women
- Women gained economic power and independence
  - Before industrialization, it was almost impossible for a woman to remain single and live on her own
  - Factories and urban centers attracted women in large numbers
  - Women fought for and eventually gained political rights

Social Changes: Increase in Leisure Time

- Labor-saving devices invented and produced
  - Vacuum cleaners
  - Washing machines
  - Refrigerators
- Entrepreneurs and inventors developed new forms of entertainment
  - Moving pictures
  - Amusement parks
- Birth of the weekend
  - Traditionally, Western nations had Sunday (the Christian day of rest) as the only day off from work
  - Saturday was added (after the struggles of Jewish labor unionists) to accommodate the religious observances of Jewish factory workers (whose Sabbath, or *Shabbat*, runs from Friday at sundown to Saturday at sundown)

Social Changes: Population Increases

Agricultural Revolution → Increased food production → Lower food prices → People ate more → More healthy babies were born → Population skyrocketed

Europe

- 1750 – 144,000,000
- 1900 – 325,000,000

England

- 1750 - 11,000,000
- 1900 - 30,000,000

- Many people immigrated to industrialized countries
  - Numerous nationalities to the United States
  - Irish to Manchester and Liverpool in England
- Population growth in industrialized nations required growing even more food

Social Changes: Problems

- Monotony of assembly lines and factory life
- Loss of craftsmanship in manufactured goods
- War became more deadly as weapons became more technologically advanced and were mass produced
- Economic insecurity – workers relied entirely on their jobs for sustenance

Social Changes: Science and Research Stimulated

- Scientific and technological discoveries became profitable instead of simply beneficial
- Companies and governments were willing to invest in research and development
- Patent law
  - Came into its modern form under England's Queen Anne (reigned 1702-1714)
  - Inventors have the exclusive right to produce their new inventions for a period of time

Review Questions

1. Describe the economic, political, and social changes which resulted from the Industrial Revolution.

2. What risks did workers face from the factory system of production?

3. How did women benefit from the Industrial Revolution?

4. Imagine that you are a government official in a developing nation. What lessons for your country might you take away from a study of the Industrial Revolution? What pitfalls might you want to avoid?

THE LABOR MOVEMENT

Changing Employee-Employer Relationships

- Domestic system
  - Workers and employers knew each other personally
  - Workers could aspire to become employers
- Factory system
  - Workers no longer owned the means of production (machinery)
  - Employers no longer knew workers personally
    - Factories often run by managers paid by the corporation
  - Relationships between employers and employees grew strained

Problems of the Factory System

- Factories were crowded, dark, and dirty
- Workers toiled from dawn to dusk
- Young children worked with dangerous machinery
- Employment of women and children put men out of work
  - Women and children were paid less for the same work
- Technological unemployment – workers lost their jobs as their labor was replaced by machines

Poor Living Conditions

- Factories driven solely by profit
  - Businesses largely immune to problems of workers
- Factory (also company or mill) towns
  - Towns built by employers around factories to house workers
  - Workers charged higher prices than normal for rent, groceries, etc.
    - Workers often became indebted to their employers
    - Created a type of forced servitude as workers had to stay on at their jobs to pay their debts
  - Considered paternalistic by workers
    - Some employers had workers' interests at heart
    - But workers wanted to control their own lives

Slum Living Conditions

- Factory towns – often built and owned by factories
  - Not a strange concept to rural-to-urban migrants who were used to living on a lord's estate or property
  - Full of crowded tenements
  - Few amenities
- Tenements – buildings with rented multiple dwellings
  - Apartment buildings with a more negative connotation
  - Overcrowded and unsanitary
- Workers were unsatisfied both inside and outside the factories

Rise of Labor Unions

- Before labor unions, workers bargained individually – "individual bargaining"
  - Before factories, a worker could bargain for better wages and working conditions by arguing his or her particular skills
  - But in factories, work is routine and one worker can easily replace another
- With labor unions, workers bargained together as a group, or collective – "collective bargaining"
  - Organized groups of workers elected leaders to bargain on their behalf
  - Used tools (such as strikes) to gain rights

Weapons Used by Unions and Employers

Weapons Used by Employers

- At-will employment
- Blacklists
- Company unions
- Individual bargaining
- Injunctions
- Laws that limit union activities
- Lockouts
- Open shops
- Outsourcing
- Relocation
- Right-to-work laws
- Threat of foreign competition
- Welfare capitalism
- Yellow-dog contracts

Weapons Used by Unions

- Boycotts
- Check-offs
- Closed shops
- Collective bargaining
- Direct political action
- Favorable labor legislation
- Feather-bedding
- Lobbying
- Picketing
- Sabotage
- Strikes
- Union label
- Union shops

British Labor Achievements

Year(s)	Event(s)
1799-1800	**Combination Laws**: Outlawed unions and strikes.
1867	**Disraeli Reform Act**: Suffrage for workers.
1875	Repeal of the Combination laws; unions and strikes legalized. Union membership grew as a result.
1900	**Labour Party**: Founded by bringing together different groups representing trade unions, etc.
1901	***Taft Vale* Decision**: House of Lords ruled that unions would have to pay financial damages caused by strikes (such as loss of income to employers), which threatened to end Britain's unions.
After 1901	**Labour Party**: Worked for workers' rights. (Other major British political parties were Liberals [Whigs] and Conservatives [Tories].)
1906	**Trade Disputes Act**: Protected union funds from the *Taft Vale* court decision. Achieved by Liberal and Labour parties working together.
1909	**Osborne Judgment**: Banned trade unions from donating funds to political parties. Hurt the Labour party because poorer, working class party members could not provide salaries to party's elected representatives.
1911	**Parliament Act**: Stopped the House of Lords from vetoing laws passed by the House of Commons. Paid members of parliament an annual salary.
1920s	**Labour Party**: Surpassed the Liberal party in power.
1940s-1950s	**Social security**: Labour party government brought increased social programs, including socialized medicine, along with government control of several industries (electricity, steel, television).

Legal Protections for Workers

- Limited hours for women
  - Later – equal pay for equal work
- Eventual end to child labor
  - Schools and requirements for school attendance grew as children were removed from the workforce
- Health and safety codes
- Minimum wage
- Legalization of unions

Rights of Female and Child Workers

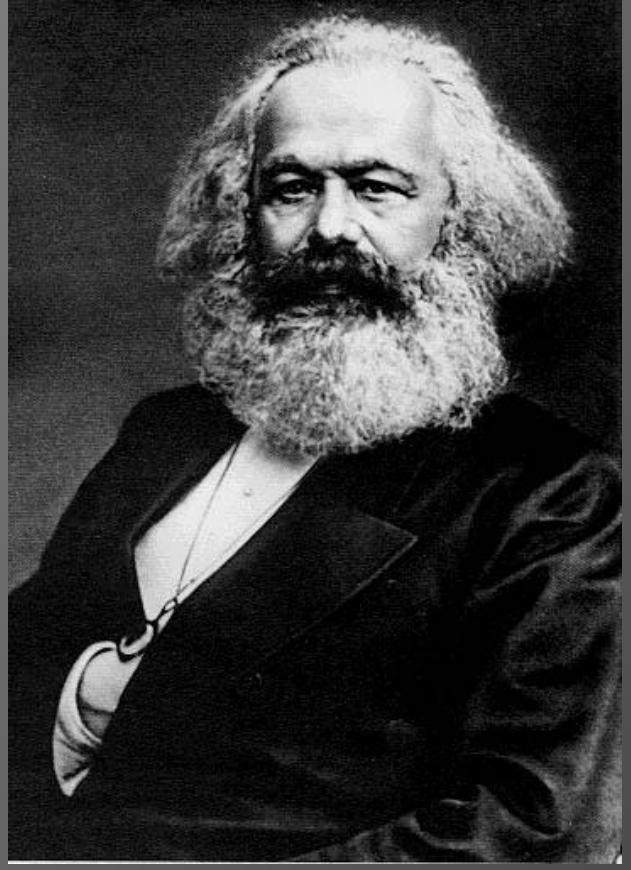
- Women and children could legally be paid less than men for the same work
  - Factory owners were more willing to hire them
  - Male workers grew resentful
- English child laborers
  - England had a history (going back to the 17th century) of training pauper children (even those younger than five years old) in a trade
  - Poor children followed their mothers into factories
- Early male-dominated unions fought to banish women and children from the workplace
  - Eventually this strategy was abandoned
  - Women eventually won right to equal pay for equal work
    - Though women today, in reality, still earn less than men at the same types of work

Social Insurance/Security

Type of Security	France	Germany	Great Britain	Italy	United States
Accident	1928	1884	1906	1898	By various state laws
Sickness	1928	1883	1912	1898	By various laws in some states
Old Age	1910	1889	1908	1898	1935
Unemploy-ment	1928	1911	1912	1947	1935
Socialized Medicine (Universal Health Care)	1948	1884	1948	1948	Medicaid for the poorest citizens in the 1960s; under Pres. Obama, conservative reforms set for all in 2014

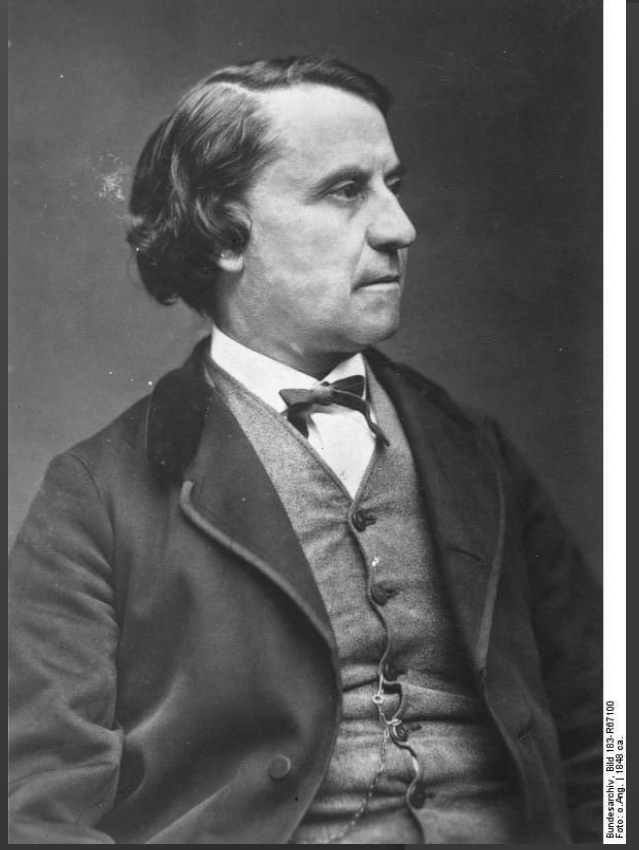
Review Questions

1. How and why did employer-employee relationships change during the Industrial Revolution?
2. Describe living conditions in factory towns.
3. Describe the weapons used by employers and unions.
4. Why was the establishment of yearly wages for members of parliament important to the British Labour party?
5. What are the advantages and disadvantages of unions for workers and consumers?



Karl Marx

Louis Blanc



THE COOPERATIVE MOVEMENT AND SOCIALISM

Cooperatives

- First cooperative – 1844 in Rochdale, England
  - Formed to fight high food costs
  - 30 English weavers opened a grocery store with $140
  - Bought goods at wholesale
  - Members of cooperative bought goods at cost
  - Non-members paid “retail”
  - Profits split among members
  - By 1857 – over 1000 members and £100,000 in annual profits
- Growth of cooperatives
  - Spread to other industries – banking, building, insurance, printing, etc.
  - By 1900 – 20% of Great Britain’s population had joined a cooperative
  - Concept spread internationally

Socialism

- **Socialists** – viewed the capitalist system as inherently wrong
  - Belief that capitalism is designed to create poverty and poor working conditions because of its end goal of earning maximum profits for investors

- **Socialism** – government owns the means of production
  - Belief that if the government ("the people") owns the means of production, these factories and industries will function in the public (as opposed to private) interest

Early Socialist Movement

- First socialists were Utopians
  - Strove to create a fair and just system
  - Community divided tasks and rewards equitably
- Robert Owen
- Charles Fourier
- Claude Saint-Simon
- Louis Blanc

Robert Owen (1771-1858)

- Utopian socialist
- Owned a textile factory in New Lanark, Scotland
- Set up a model community in New Harmony, Indiana
- Decreased working hours
- Improved working conditions and employee housing
- Shared management and profits with employees
- Proved that a socialist-based company could be profitable

Charles Fourier (1772-1837)

- French philosopher
- Coined the term *féminisme*
- Advocated concern and cooperation as the means to create social harmony
- Considered poverty to be the main cause of society's problems
- Envisioned workers (paid at least a minimum wage) living in "phalanxes" – communities living in a large shared structure

Claude Henri de Saint-Simon

- 1760-1825
- As a young man he was in the Thirteen Colonies as part of the French assistance effort during the American Revolution
- French socialist philosopher
- Believed all human beings naturally greedy and eager to obtain wealth and higher social positions
  - These tendencies were to be eradicated through education
- Advocated an end to inheritances
  - Movement of wealth from rich, powerful families to the state, which is an instrument of the people

Louis Blanc (1811-1882)

- French socialist philosopher and politician
- Blamed society's ills on the pressure of competition
- "From each according to his abilities, to each according to his needs."
- Came to political power during the Revolution of 1848
  - Instituted labor reforms – believed everyone had the right to work
  - Terrible June Days – forced from power after Blanc's chief rival let Blanc's public workshops (designed to give work to the unemployed) fail
  - Returned to France, restored to power, and given a state funeral after his death
- His writings greatly influenced later socialists

Karl Marx (1818-1883)

- German socialist (communist) philosopher
- Forced to leave Prussia for articles attacking the Prussian government
- Relocated to France where he was considered too radical
  - Wrote *Communist Manifesto* with Friedrich Engels (1848)
- Relocated to England where he lived out the rest of his life
  - Wrote *Das Kapital* – the "bible" of socialism (1867)
- "Religion is the opiate of the people."
  - Belief that religion is designed to keep people submissive to those in power by promising them that their reward is in heaven

Marxism – Communism

Economic Interpretation of History	• Economic changes lead to historical changes. • Historically, the wealthy classes have held all power.
Class Struggle	• History has been a struggle between the rich and the poor. • In the Industrial Revolution, the struggle is between the capitalists (owners of the means of production) and the proletariat (workers).
Surplus Value	• Workers produce all wealth but receive only enough to survive. • "Surplus value" (profit) of the workers' labor goes to the capitalists.
Inevitability of Socialism	• Industrial wealth leads to the concentration of wealth among fewer and fewer capitalists, while the living and working conditions of the proletariat grow worse. • The proletariat will eventually rebel and create a socialist state.

Socialist and Communist Political Parties

- First International
  - Founded by Marx and others in 1864
  - International Workingmen's Association
  - Urged proletariat to overthrow capitalism worldwide
  - Broke apart in 1873
- Second International
  - Founded in 1889
  - National parties more concerned with the politics of their respective nations
  - Broke apart during World War I
- Russian Revolution (1917)
  - Communists – known as *Bolsheviks*, led by Vladimir Lenin, came to power following the overthrow of the tsar
- Left and right wings
  - Socialists – right wingers – advocated socialist reforms through voting
  - Communists – left wingers – advocated socialist reforms through revolution
  - Political parties of both types have existed throughout Europe, the United States, and all over the world since around the turn of the last century

Soviet-backed Communism

- Russian communism
  - Bolsheviks (Communists or Reds) won the Russian civil war against the Whites
  - World's first socialist/communist state
- Comintern – Communist International
  - Founded in Russia (Soviet Union) in 1919
  - Sought to spread worldwide communist revolution
  - Disbanded during World War II
- Cominform – Communist Information Bureau
  - Founded in Soviet Union in 1947
  - Disbanded in 1956 as part of de-Stalinization
- Soviet Union (and later China) spread communism through satellite states and via proxy wars during the Cold War

Syndicalists and Anarchists

- Syndicalism and anarchism enjoyed popularity during the late 1800s and early 1900s
- Syndicalism
  - Businesses and distribution of income managed by trade unions
  - Unions exist separate from the state as opposed to being part of the state
- Anarchism
  - Belief that all governments are bad for the people
  - Advocates direct action to remove all forms of government
  - Various individual ideologies for post-government societal organization

Social Catholic Movement

- Opposed to the atheism of socialism
  - Yet also opposed to uncontrolled capitalism
- Pope Leo XIII
  - Advocated Catholic socialism in 1891 through his support of workers' associations
- Pope Pius XI
  - 1931 – condoned Catholic socialism while condemning communism
  - Stated that workers should share in the profits and management of industry
- Followed by like-minded Protestant organizations
- Numerous Christian-based socialist political parties still active in Europe

Review Questions

1. What is a cooperative?
2. Describe the philosophies and actions of Robert Owen and Louis Blanc.
3. Explain Marxism in terms of the economic interpretation of history, class struggle, surplus value, and the inevitability of socialism.
4. Most modern industrialized nations possess some degree of socialism. Comparing the United States to countries such as China, France, and Great Britain, should the United States increase or decrease its number and scope of social programs and government ownership of industry? Why or why not?