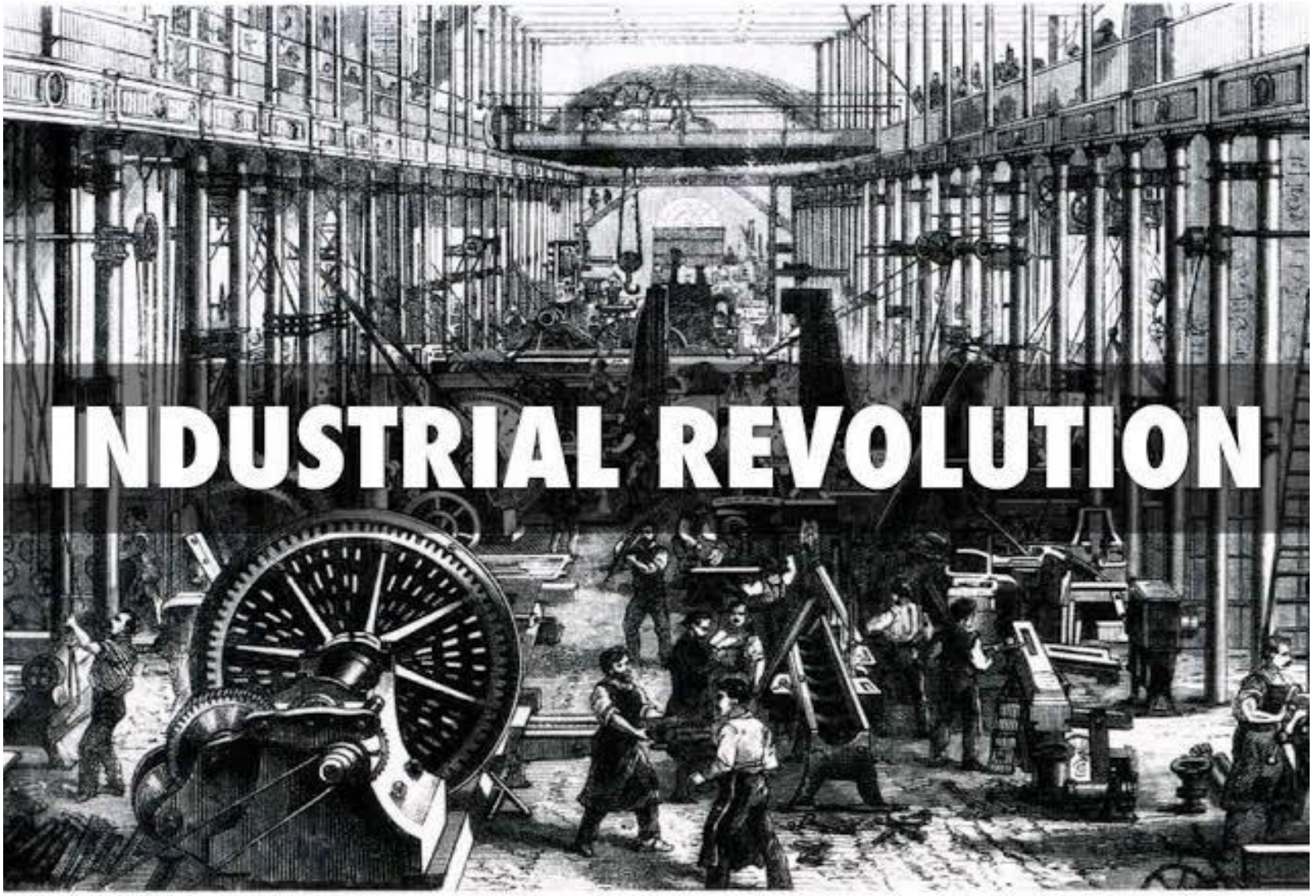
INDUSTRIAL REVOLUTION (1760-1820/1840)

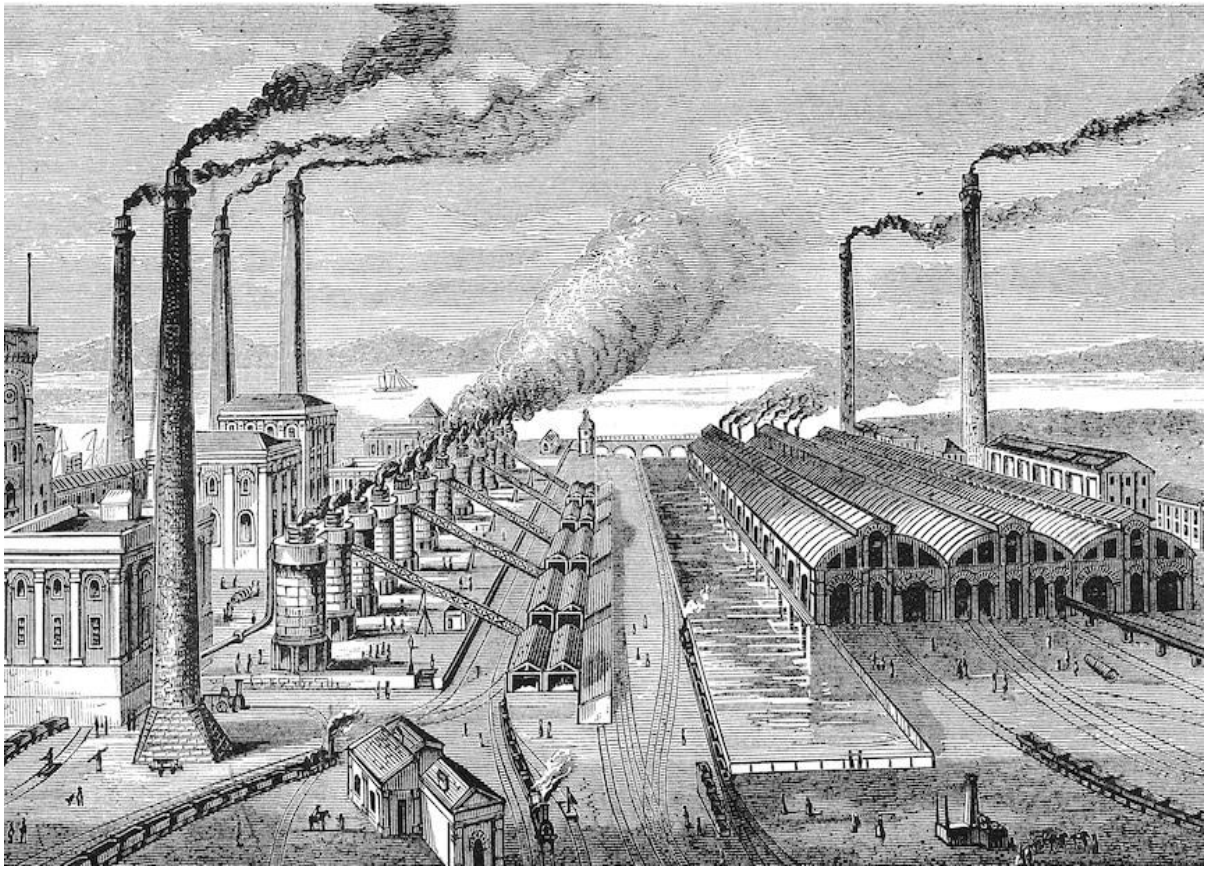
ਉਦਯੋਗਿਕ ਕ੍ਰਾਂਤੀ



ਅਰਥ

- ਉਦਯੋਗਿਕ ਕ੍ਰਾਂਤੀ ਤੋਂ ਭਾਵ ਯੂਰਪ ਵਿਚ 18ਵੀਂ ਅਤੇ 19ਵੀਂ ਸਦੀ ਵਿਚ ਉਦਯੋਗਿਕ ਖੇਤਰ ਵਿਚ ਮਹੱਤਵਪੂਰਨ ਤਬਦੀਲੀਆਂ, ਕਾਢਾ, ਮਸ਼ੀਨਾਂ ਅਤੇ ਯੰਤਰਾਂ ਦੇ ਅਵਿਸ਼ਕਾਰ ਤੋਂ ਹੈ।
- The Revolution that changed the world forever

1750 ਈ. ਦੇ ਅੱਧ ਵਿਚ Great Britain ਦੀਆਂ Textile industries ਵਿਚ ਆਏ ਵੱਡੇ ਬਦਲਾਵਾਂ ਕਾਰਨ Europe ਦੇ ਬਾਕੀ ਦੇਸ਼ਾਂ ਵਿਚਲੇ ਉਦਯੋਗਾ ਵਿੱਚ ਵੀ ਕਾਫ਼ੀ ਬਦਲਾਵ ਆਏ, ਜਿਸ ਕਾਰਨ ਪੂਰੇ ਯੂਰਪ ਦੇ ਉਤਪਾਦਨ ਵਿੱਚ ਬਹੁਤ ਵਾਧਾ ਹੋਇਆ।

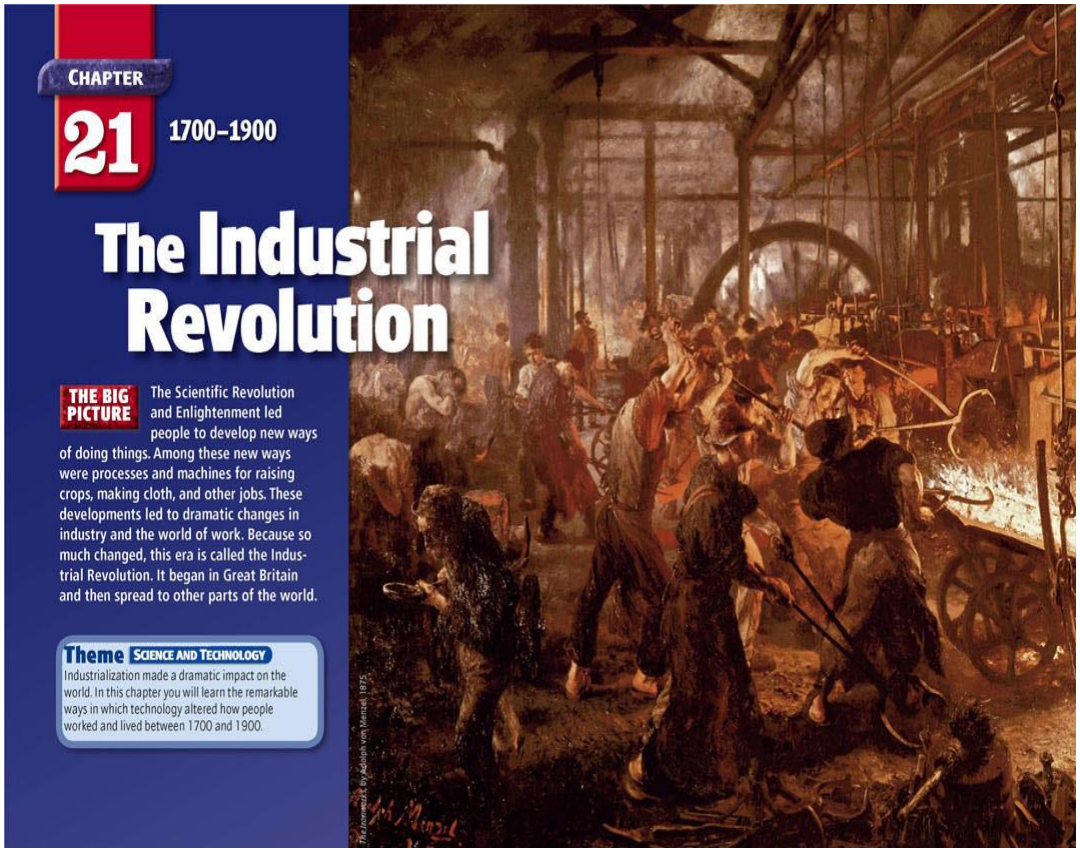


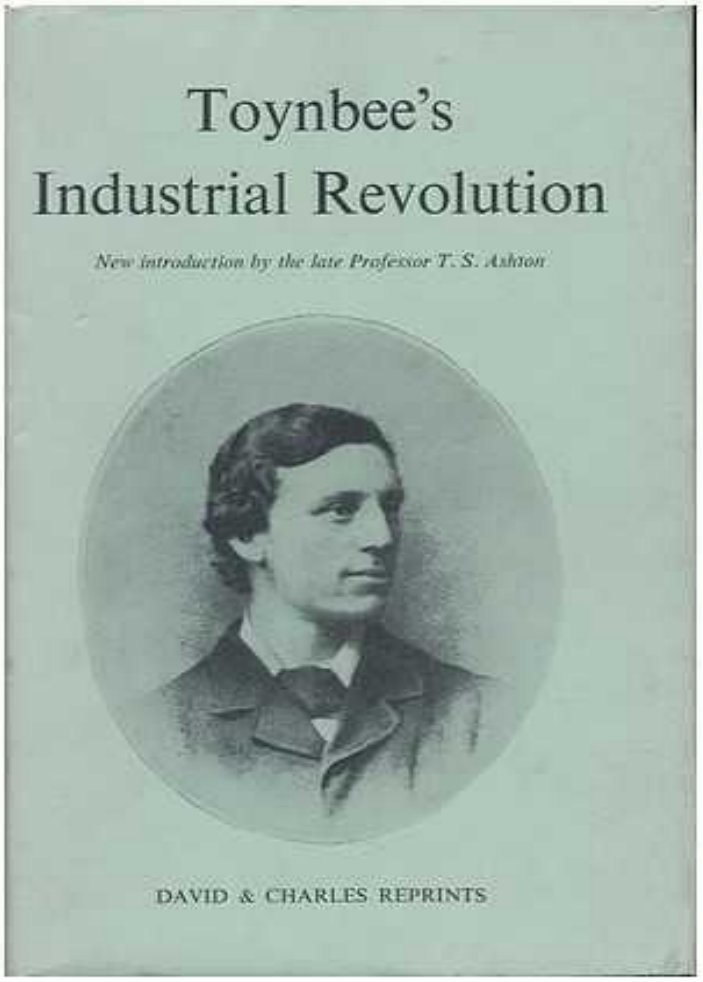
A New Kind of Revolution “ਕ੍ਰਾਂਤੀ”

ਇਤਿਹਾਸਕਾਰ ARNOLD TOYNBEE ਨੇ ਪਹਿਲੀ ਵਾਰ 1884 ਈ. ਵਿੱਚ ਆਪਣੀ ਪੁਸਤਕ ‘THE INDUSTRIAL REVOLUTION’ ਵਿੱਚ ‘ਕ੍ਰਾਂਤੀ’ ਸ਼ਬਦ ਦੀ ਵਰਤੋਂ ਕੀਤੀ। “In an industrial society which confuses work and productivity, the necessity of producing has always been an enemy of the desire to create.”

- Raoul Vaneigem

Industrial – Revolution –Industrial Revolution

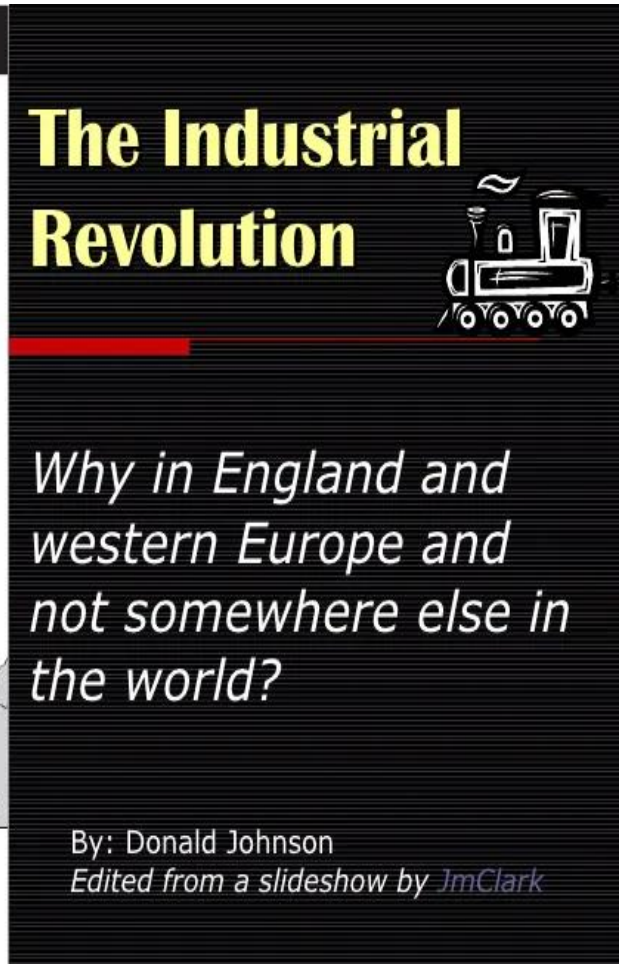




Background of the Industrial Revolution

- Scientific Revolution
- Intellectual Revolution
  - Encouraged learning and the search for better and newer ways of doing things
- Agricultural Revolution
  - Landowners experimented in their enclosures
  - Seed drill
  - Crop rotation
  - Livestock breeding

Britain Takes the Lead



Great Britain's advantages:

- ਕੱਚੇ ਲੋਹੇ ਅਤੇ ਕੋਲੇ ਦੇ ਭੰਡਾਰ
- ਉੱਚ ਕੋਟੀ ਦੀ ਜਲ ਸੈਨਾ / Sea-power/ The Mistress of the Seas/A navigable river system
- ਉਪਨਿਵੇਸ਼ਕ ਸ਼ਕਤੀ/ ਕੱਚੇ ਮਾਲ ਦੀ ਬਹੁਤਾਤ / Exploration,Colonial Power
- ਰਾਜਨੀਤਿਕ ਸਥਿਰਤਾ ਅਤੇ ਸ਼ਾਂਤੀ/ Political stability
- ਨਾਗਰਿਕਾਂ ਦੇ ਮੌਲਿਕ ਅਧਿਕਾਰ
- ਬੈਂਕ ਵਿਵਸਥਾ/ Guild System
- Geographical conditions
- Land, Labour and Capital

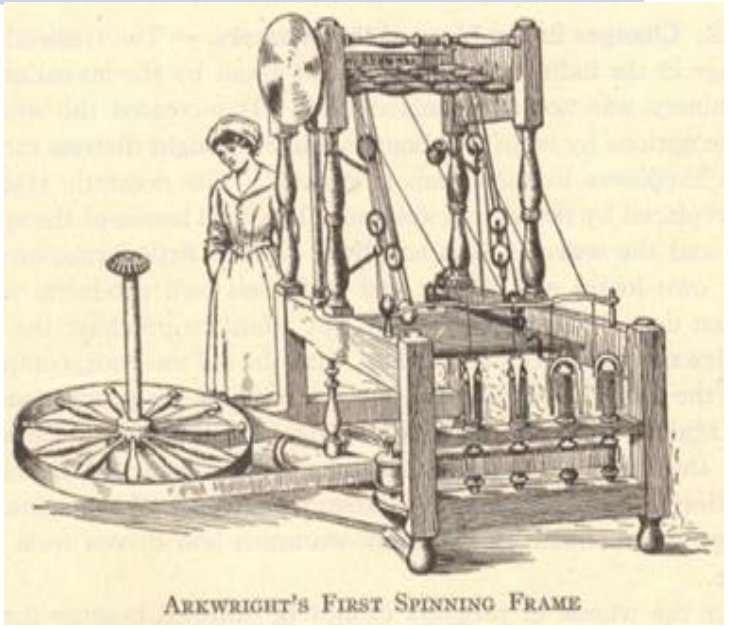
New Inventions in Textile Industry

"Necessity Is the Mother of Invention"

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



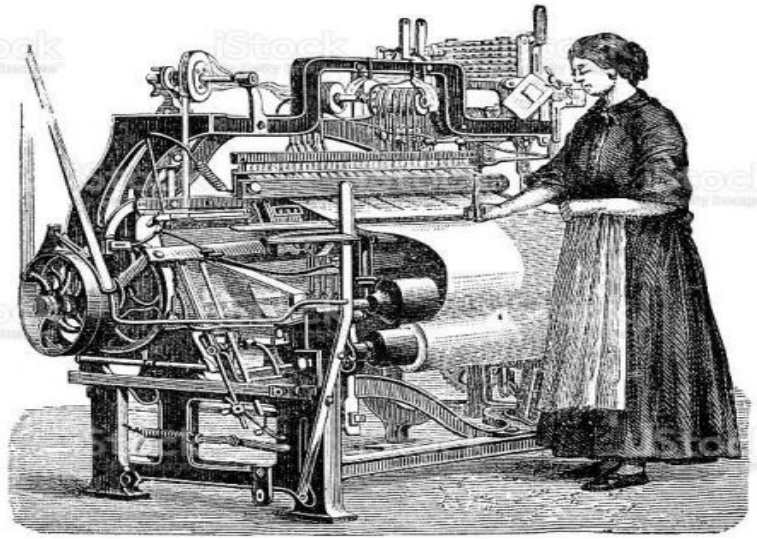
Arkwright's First Spinning Frame

ਲੋੜ ਕਾਢ ਦੀ ਮਾਂ ਹੈ

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

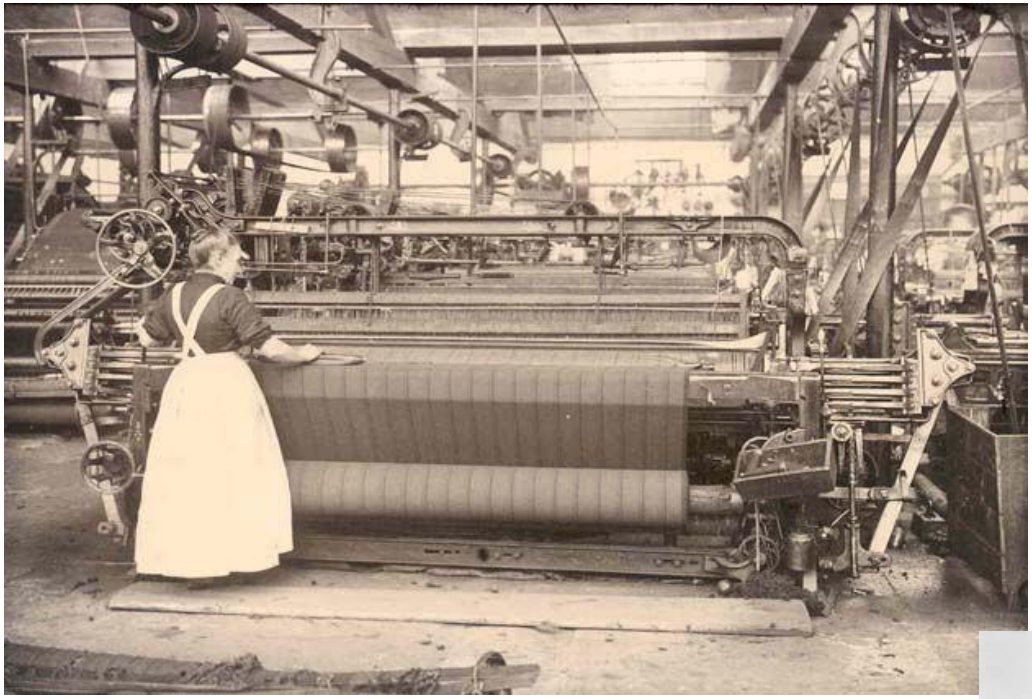
Edward Cartwright (English)	
Power loom, 1785	Water-powered device that automatically and quickly wove thread into cloth

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

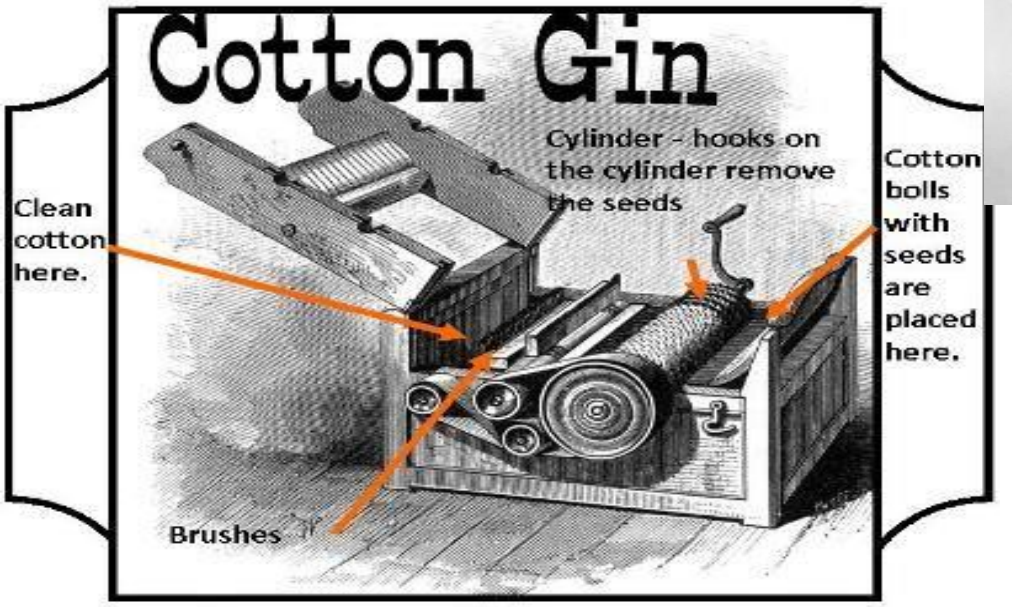


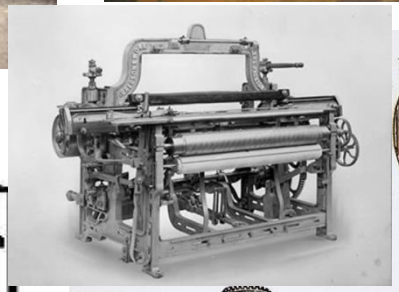
Elias Howe (American)	
Sewing machine, 1846	Speed of sewing greatly increased

Flying Stuttle



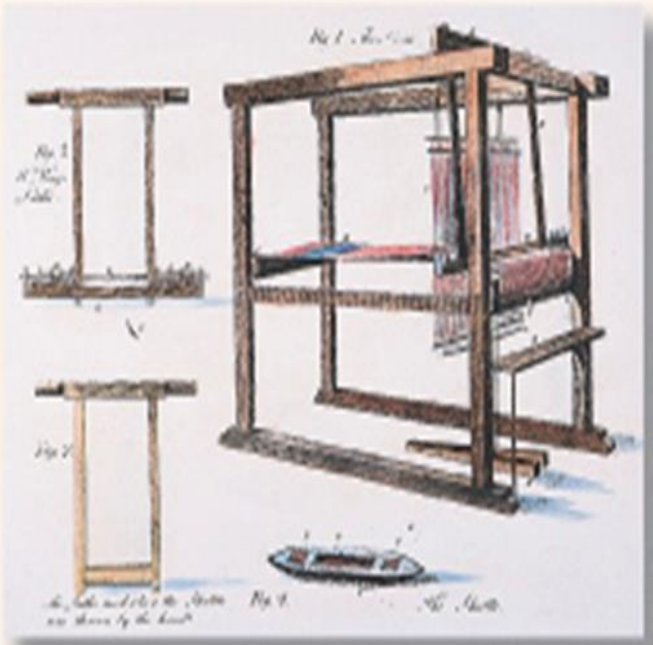
Spining jenny





Technology in the Textile Industry

The Industrial Revolution that began in Britain was spurred by a revolution in technology. This is most obvious in the textile industry where inventions in the late 1700s transformed the manufacture of cloth. These developments, in turn, had an impact on the rest of the world. For example, England's cotton came from plantations in the American South, where cotton production skyrocketed from 1790 to 1810 in response to demand from the textile mills of England.



John Kay's flying shuttle speedily carried threads of yarn back and forth when the weaver pulled a handle. The flying shuttle greatly increased the productivity of weavers.

James Hargreaves's spinning jenny dramatically increased the output of spinners. It helped them to keep pace with the weavers.

Effects of Textiles

- Beginning of Industrial Revolution
- Weaving was a cottage industry
- Labor performed at home
- Industrialization transformed this
- The shift away from cottage industries also affected home life and the roles of women in society.

New Way of Making Cloth

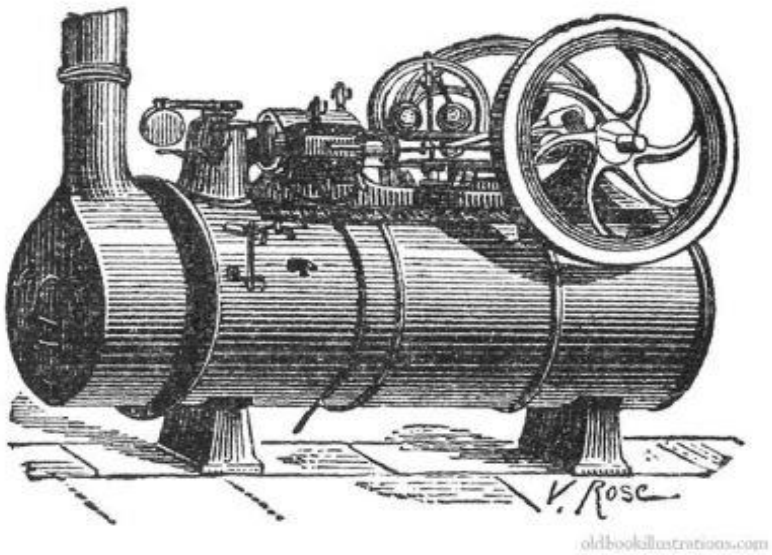
- Fabric made of wool or cotton
- Supply of fibers increased in the 1700s
- Slave labor in America – Slavery will eventually come to an end in most of the British Empire due to the efforts of William Wilberforce – Slavery Abolition Act, 1833
- Invention of cotton gin, spinning jenny, flying shuttle

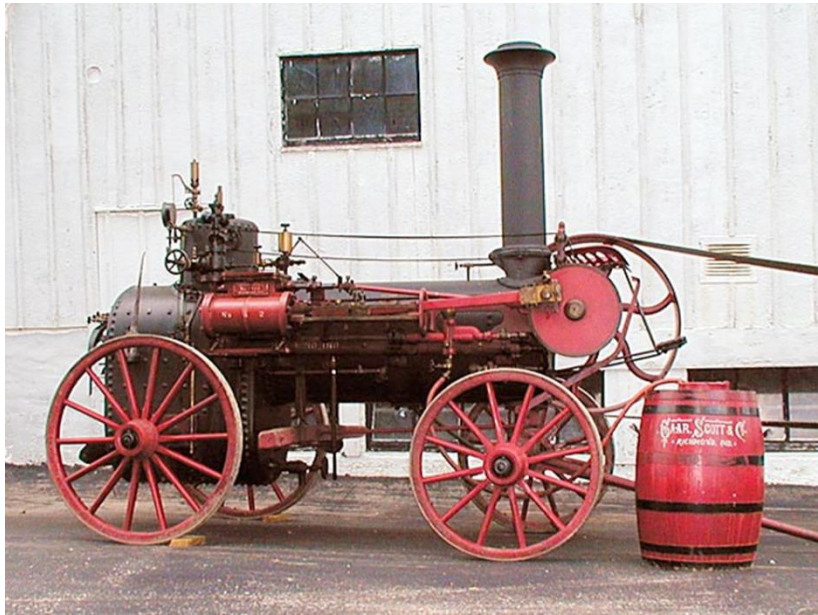
Cloth-making in Factories

- Cottages too small
- Factory invented
- Power for factories?
- Water frame for water power
- Output increased 8x by 1770

Development of Steam Engines Steam Power

- James Watt, Scotland (1769) Improved Newcomen's steam engine to power machinery
- By 1800, steam engines were replacing water wheels as sources of power for factories
- 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

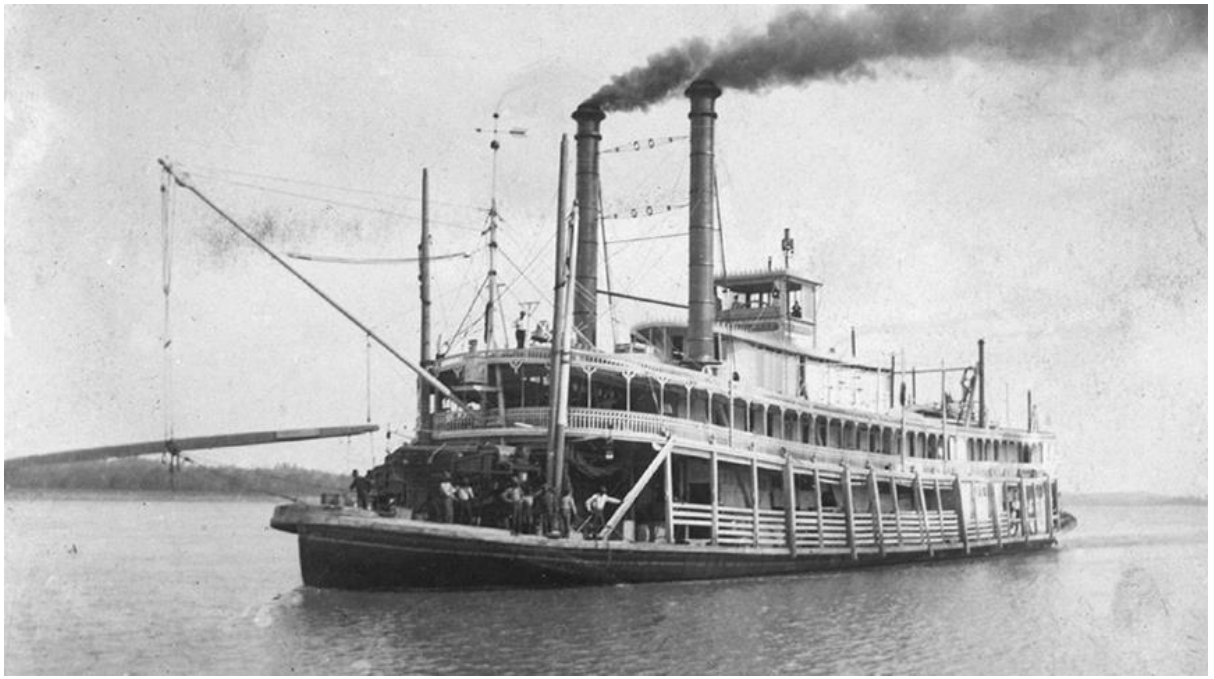




Steam locomotive & Steamboats

- Robert Fulton invented the steamboat in 1807 that could move against the current of a river or against the wind.
- The Clermont- (1807) was the first commercial steamboat which running between Albany and New York City
- Early water power involved mills built over fast-moving streams and rivers

- Problems-rivers far removed, not enough power, prone to drying
- Factories relocated near raw materials, workers, and ports
- Cities grew around the factories built near central England's coal and iron mines - Manchester, Liverpool



Effects of Steam Powers

Development of Steam Engine

- First successful steam engine in 1712
- Innovations by James Watt
- Steam power versus water power
- Steam locomotives
- Steamships - Robert Fulton

Coal for Steam Engines

- Steam engines needed large amounts of fuel
- Wood scarce
- Coal mining industry
- Changing landscapes
- Dangers of mining

Transportation

- Transportation Revolution ਦੇ ਕਾਰਨ ਨਵੇਂ ਆਵਾਜਾਈ ਦੇ ਸਾਧਨਾਂ ਦਾ ਵਿਕਾਸ ਹੋਇਆ

Increased production → more markets and raw → and faster means of transport

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

John Metcalf (British)

- ਨਵੇਂ ਅਤੇ ਵਧੀਆ ਢੰਗ ਦੀਆਂ ਸੜਕਾਂ ਦਾ ਨਿਰਮਾਣ

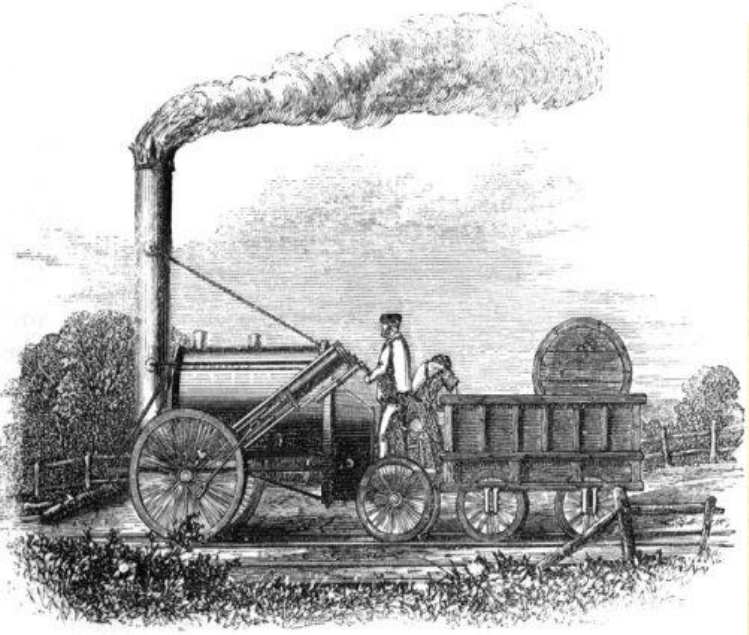
Duke of Bridgewater & James Brindley (English)

- ਆਧੁਨਿਕ ਢੰਗ ਦੀਆਂ ਨਹਿਰਾਂ ਦਾ ਨਿਰਮਾਣ

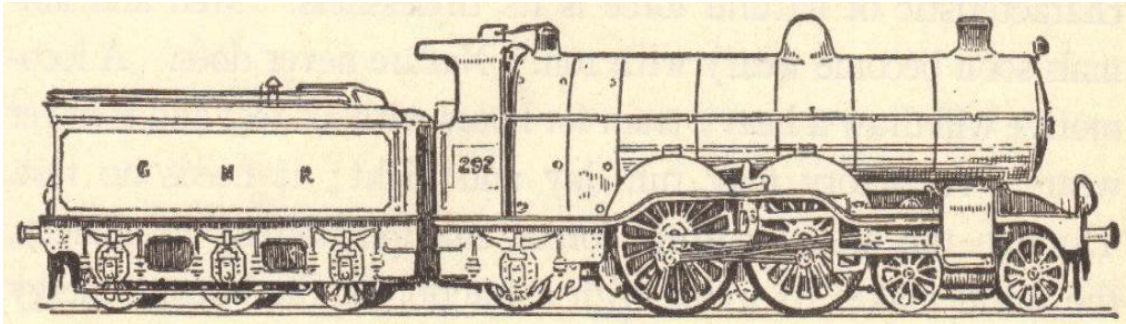
Thomas Telford and John McAdam (British)

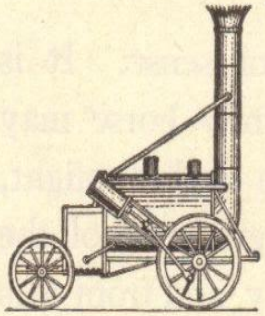
- Macadamized roads (1810-1830)
- Improved roads

Means of Transport



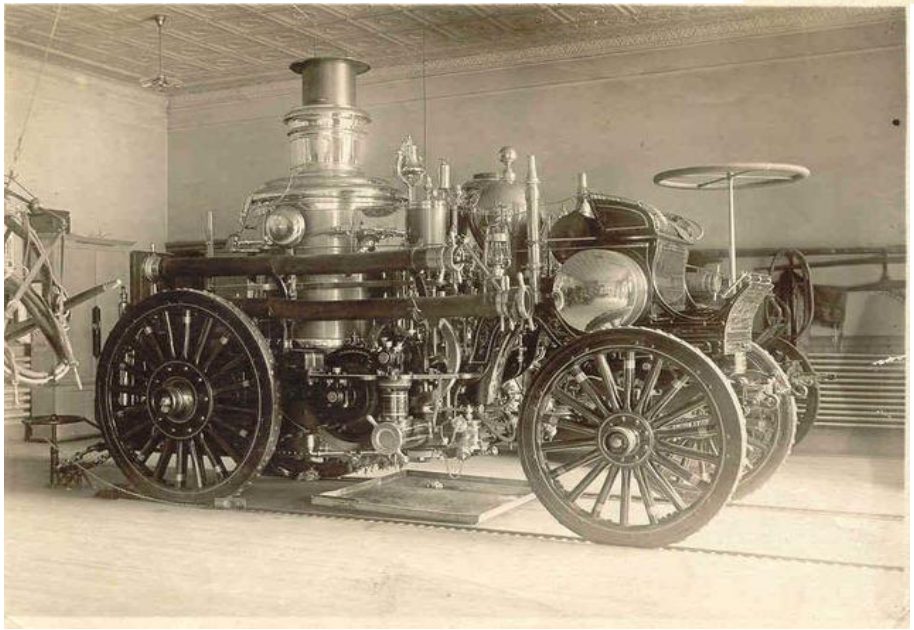
The "Rocket."





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."



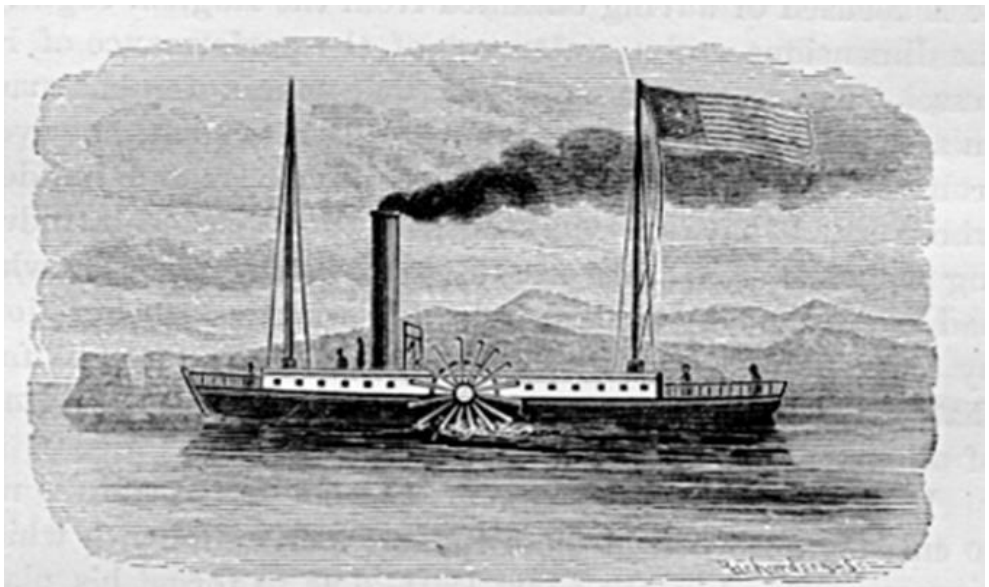


FIG. 80.—The Clermont, 1807.

Effects of Transports

Before

- people relied on the horse and their own feet to get around.
- Canal barges pulled by mules
- Ships powered by sails
- Horse-drawn wagons, carts, and carriages

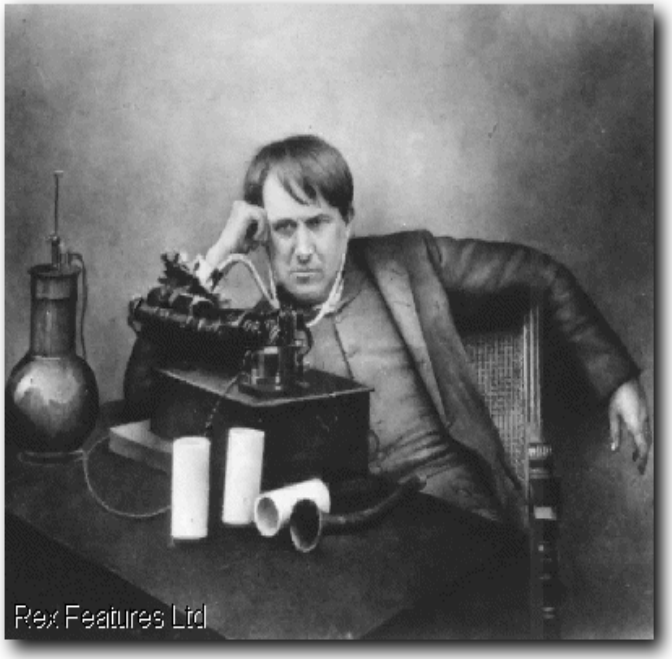
later

- Macadamized roads have a smooth, hard surface that supports heavy loads without requiring a thick roadbed
- About 30,000 miles of railroads linked American cities by 1860.
- The U.S. economy surged as railroads moved goods cheaply to distant markets.
- 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

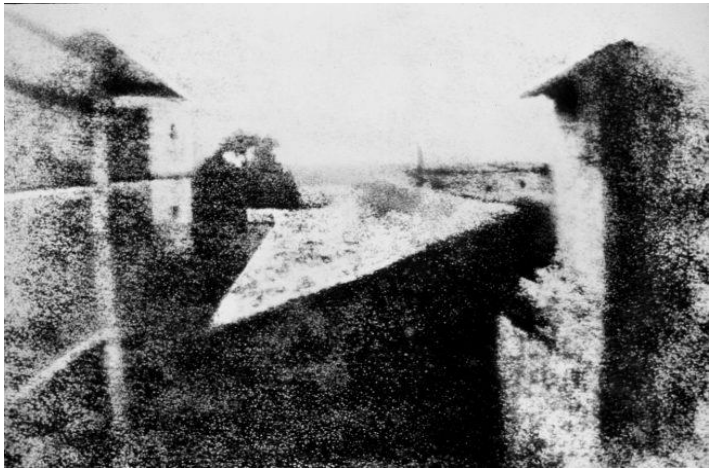
Communications Revolution

Samuel F.B. Morse (American)	Alexander Graham Bell (American)	Cyrus W. Field (American)
• Telegraph (1844) • Rapid communication across continents	• Telephone (1876) • Human speech heard across continents	• Atlantic cable (1866) • United States and Europe connected by cable
Guglielmo Marconi (Italian)	**Lee de Forest (American)**	**Vladimir Zworykin (American)**
• Wireless telegraph, an early form of the radio (1895) • No wires needed for sending messages	• Radio tube (1907) • Radio broadcasts could be sent around the world	• Television (1925) • Simultaneous audio and visual broadcast

Thomas Edison's electric light

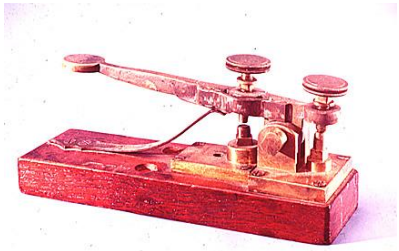


The photograph

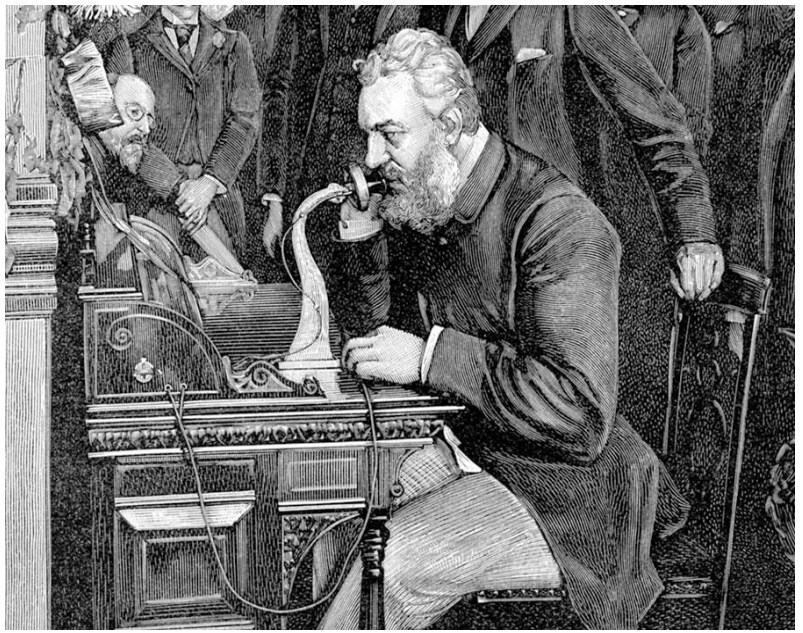


Thomas Edison's phonograph

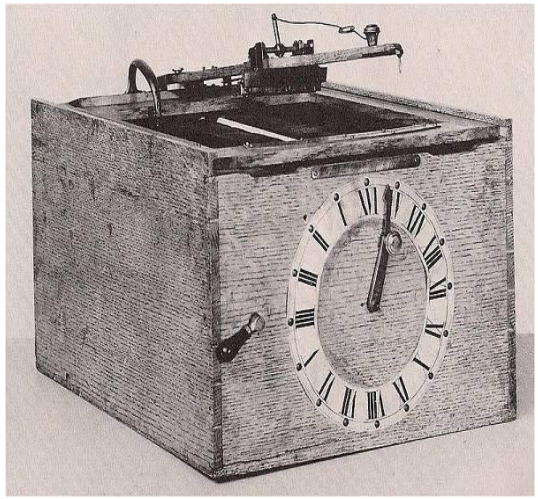
Morse's Telegraph



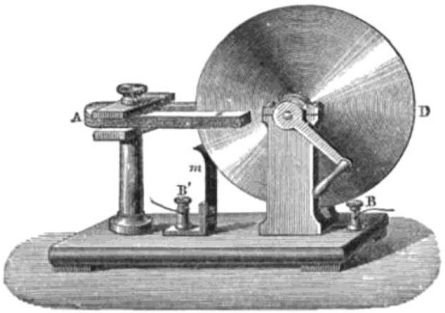
Graham Bell's telephone



Type-writer



The Electric Generator



Coal and Iron Industry

Abraham Darbi & John Smeaton	Henry Cort	Henry Bessemer (France)	Hamphry Davy	John D. Rockefeller
Coke ਨਾਲ ਲੋਹੇ ਨੂੰ ਪਿਘਲਾਉਣ ਦੀ ਵਿੱਧੀ ਵਿੱਚ ਸੁਧਾਰ ਕੀਤਾ	ਲੋਹੇ ਨੂੰ ਪਿਘਲਾ ਕੇ ਸ਼ੁੱਧ ਕਰਨ ਦੀ ਨਵੀਂ ਵਿਧੀ ਤਲਾਸ਼ੀ	Steel (Andrew Carnegie in Pittsburg)	Safety Lamp	Standard Oil Company

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

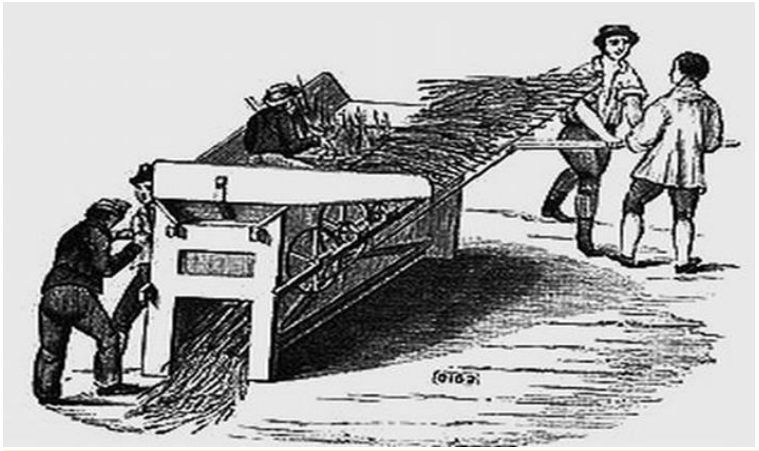
Effects of Coal and Iron Industries

later

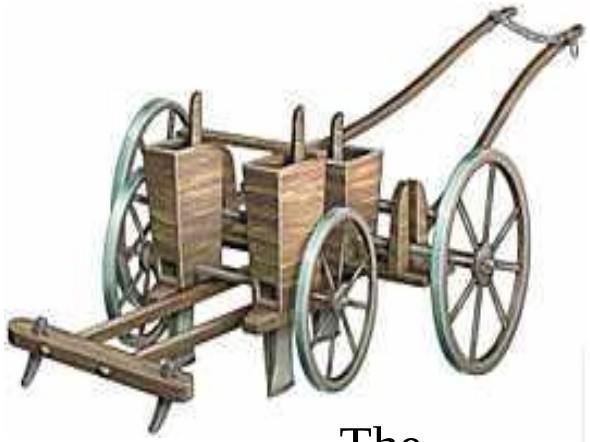
- These machines were so large. They were placed in large buildings called factories.
- With the invention of steel, buildings could be made much taller.
- Steel was much harder than iron, which would bend if made too tall.
- The steel industry created many new products, and led to the invention of the car.
- New energy sources were developed to power the new machinery – water, steam, electricity, oil (gas, kerosene)
- Increased use of metals and minerals; Aluminum, coal, copper, iron, etc.
- Advances in agriculture were also made

Machinary in Agriculture

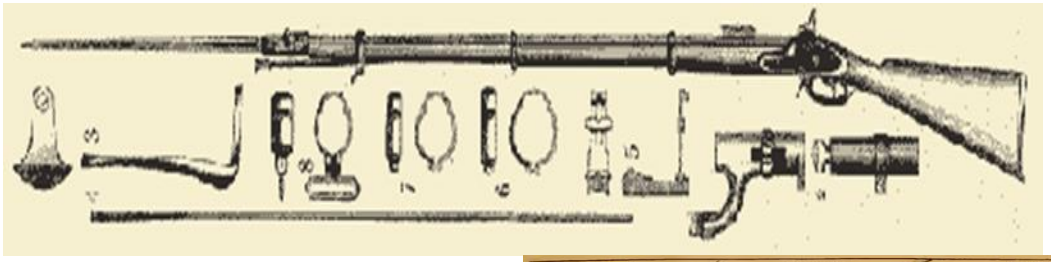
Threshing Machine



The Seed Drill

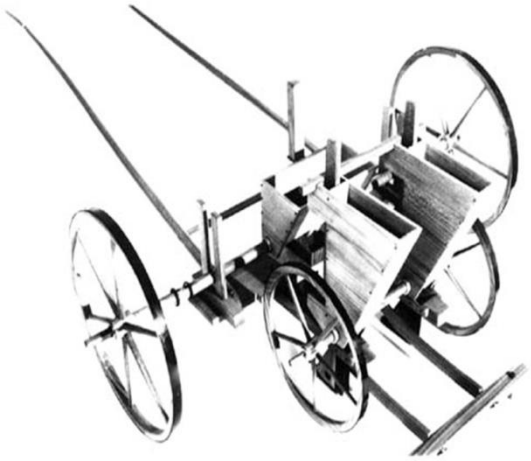


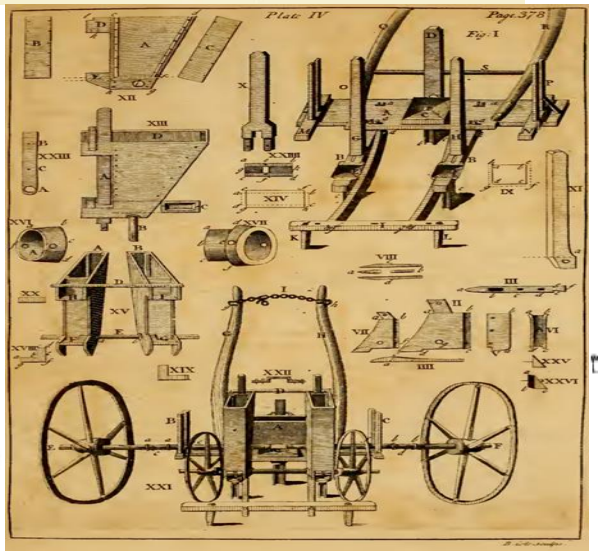
The Reaper



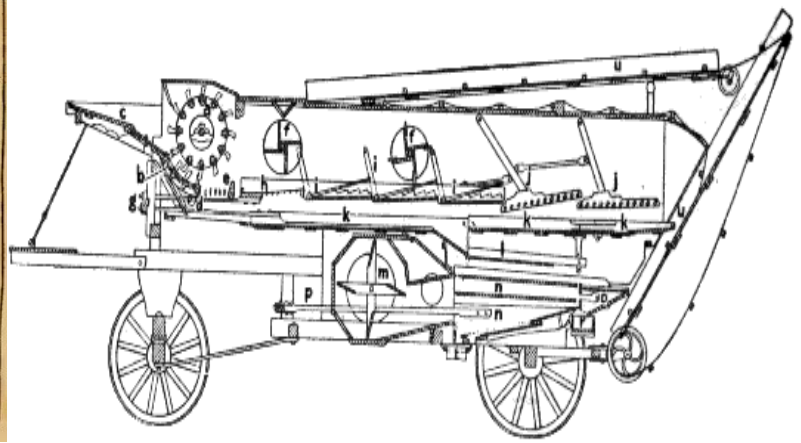
The Machnical Reaper

The Seed Drill





The Threshing Machine



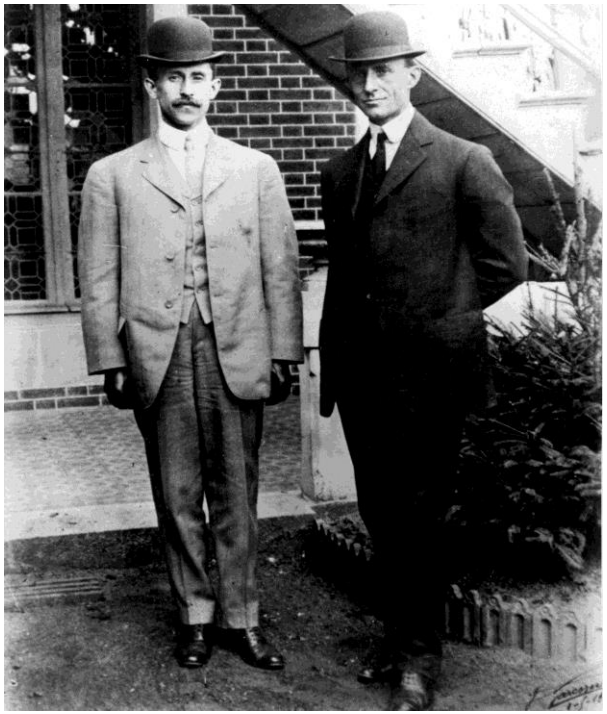
Effects on Agriculture

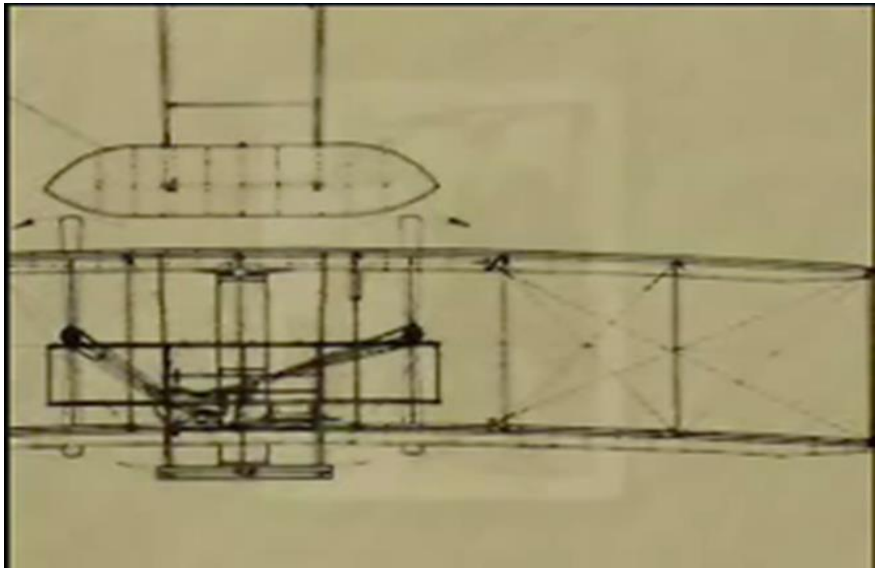
later

- The invention of the seed drill allowed farmers to plant many more seeds much more quickly.
- The reaper allowed farmers to harvest their crops more efficiently.
- More crops could now be grown feeding an increasing population.
- Landowners experimented in their enclosures
- Crop rotation
- Livestock breeding

Other Important Inventions

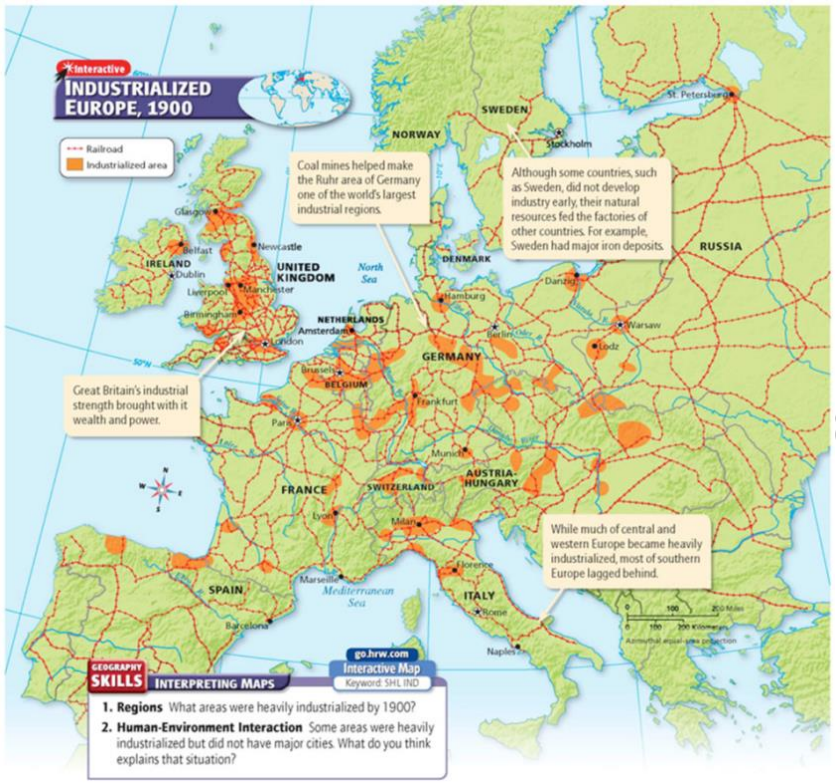
- **Orville and Wilber Wright**
- The Wright brothers were the first men to successfully fly an airplane.
- Ford's first car
- The steel industry created many new products, and led to the invention of the car.

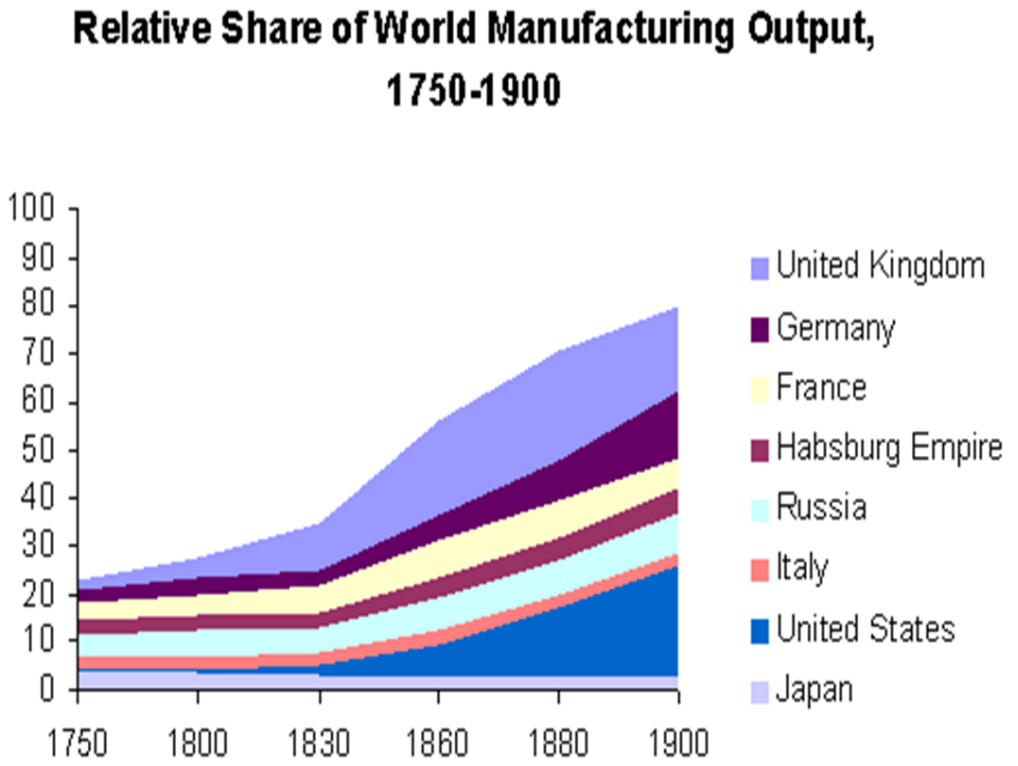




Other Countries of Europe

- There must be certain conditions present in order for industrialization to occur, a country must have:
  - The Land/ Natural Resources to Accommodate Manufacturing
  - A Labor Force
  - Capital
  - Supportive Government with a Stable Economy
- The major countries involved were Britain, Belgium, America, Germany, France, Italy, Russia and later Japan.





Industrialization Spreads

Industrialization soon spread to western Europe and the United States. Other regions did not industrialize in the 1800s. What was it about Western countries that encouraged them to embrace industry?

Why Western Countries?

- Political liberty
- Freedom to compete
- Rewards reaped
- Exploitation and improvements

America / Europe

- British Restrictions; Hamilton, 1791: Samuel Slater - Water frame; Slater's Mill
- Lowell's Mill
- Belgium -1807; France – 1815; Germany - 1850

Asia

- Japan first in 1868 - Meiji government
- The 1900s — industrialization for: China, India, Russia

Effects of Industrial Revolution

- Industrializing is also accompanied with a dramatic social, political and philosophical change. The Industrial Revolution inspired new ideas about economics and affected society in many ways.
- Ramsay Muor ਨੇ ਇਸ ਨੂੰ ਇੱਕ ਜਬਰਦਸਤ ਅਤੇ ਚੁੱਪ-ਚੁਪੀਤੀ ਤਬਦੀਲੀ ਦੱਸਿਆ ਹੈ
- 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.
- The rise of new economic ideas was among the countless effects of the Industrial Revolution.

Effects on Society

The rise of new economic ideas was among the countless effects of the Industrial Revolution. The shift away from cottage industries also affected home life and the roles of women in society.

- ਆਬਾਦੀ ਵਿਚ ਵਾਧਾ/ Increase in Population
- Disease
- ਉਦਯੋਗਿਕ ਨਗਰਾਂ ਦਾ ਨਿਰਮਾਣ /Establishment of Industrial Towns
- ਸਮਾਜ ਦੀ ਦੋ ਵਰਗਾਂ ਵਿੱਚ ਵੰਡ/ Division of the Society in Two Classes
- ਮਜ਼ਦੂਰਾਂ ਦੀ ਦੁਰਦਸ਼ਾ/ Pitiable Condition of the Factory Workers
- ਬੱਚਿਆਂ ਅਤੇ ਇਸਤਰੀਆਂ ਦਾ ਸ਼ੋਸ਼ਣ/ Exploitation of Children and Women
- ਕੰਮ ਵੱਧ ਪਰ ਘੱਟ ਮਜ਼ਦੂਰੀ/ Long Working Hours and Low Wages
- ਘਰੇਲੂ ਉਤਪਾਦਨ ਅਤੇ ਉਤਪਾਦਨ ਦੀ ਤੇਜ ਵਿਧੀ/Development of the Domestic System of Production/Faster method of production
- ਜੀਵਨ ਪੱਧਰ ਦਾ ਹੋਣਾ ਉੱਚਾ/Development in the Standard of Living
- Historical Significance
- The Industrial Revolution changed human life drastically

Effects on Society

- Industrialization soon spread to western Europe and the United States. Other regions did not industrialize in the 1800s. What was it about Western countries that encouraged them to embrace industry?

Home life

- Worlds of work and home separated
- "Separate spheres"
- Business world-without moral controlsa
- Women-moral guidance at home

Countries

- Industry-great power
- Control of other nations' economies
- Industrialization of United States
- Period of immigration to United States

Societies

- Increase in wealth
- Standard of living improved
- Leisure time
- Changes to many aspects of life:
  - Art
  - Politics
  - Transportation

Effects on Economic Life & New Ideas about Economics

- ਕਾਰਖਾਨਿਆਂ ਦੀ ਸਥਾਪਨਾ/Establishment of Factories (Colonies and Markets for manufactured goods)
- ਰਾਸ਼ਟਰੀ ਆਮਦਨ ਵਿੱਚ ਵਾਧਾ/Increase in the National Income (faster-flying shuttles, spinning jennies, Water frame, Power loom- spinning mules)
- ਘਰੇਲੂ ਉਦਯੋਗਾਂ ਦਾ ਅੰਤ/End of the Cottage Industries
- *Capitalism and Competition*
- ਬੇਕਾਰੀ ਦੀ ਸਮੱਸਿਆ/Problems of Unemployment
- ਵਪਾਰ ਅਤੇ ਖੇਤੀ ਵਿਚ ਉੱਨਤੀ/Development in Trade and Agriculture-Occurs when countries' economies shift from being based mainly on agriculture to manufacturing, Research and development on farms
- Jethro Tull, seed drill, Improved livestock breeding, Better varieties of food crops, increased food supply/ Old mercantile system restricted trade
- ਪੂੰਜੀਵਾਦ ਦਾ ਜਨਮ/Birth of Capitalism
- ਆਰਥਿਕ ਨਿਰਭਰਤਾ ਅਤੇ ਆਰਥਿਕ ਸਾਮਰਾਜਵਾਦ ਦਾ ਉਥਾਨ/ Economic Interdependence and Rise of Economic Imperialism
- New Roles for Business Leaders-Shift in wealth and power, Entrepreneur, Banking and finance, Andrew Carnegie - rags to riches, Robber barons

Effects on Political Life

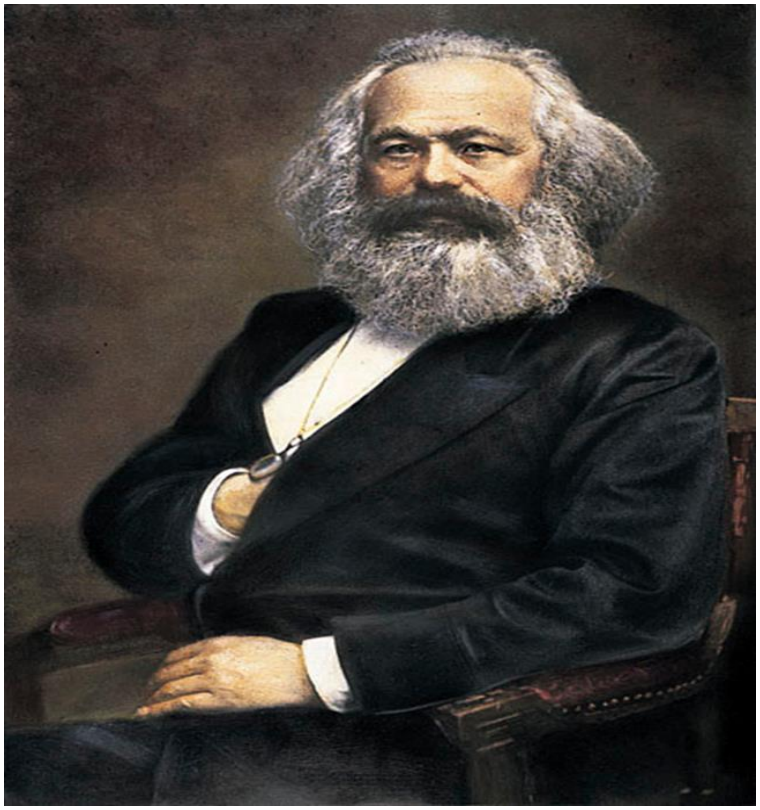
- ਇੰਗਲੈਂਡ ਦਾ ਇੱਕ ਸ਼ਕਤੀਸ਼ਾਲੀ ਦੇਸ਼ ਬਣਨਾ/ England becomes a Strong Power
- ਮੱਧ ਵਰਗ ਦੀ ਸ਼ਕਤੀ ਦਾ ਉਭਾਰ/ Rise in the Power of Middle Class
- ਸੰਸਦੀ ਸੁਧਾਰਾਂ ਦੀ ਮੰਗ/ Demand for Parliamentary Reforms/ Reform Act of 1832
- ਮਜਦੂਰ ਵਰਗ ਦਾ ਰਾਜਨੀਤਿਕ ਸ਼ਕਤੀ ਵਜੋਂ ਉਭਾਰ/ Emergence of Labour Class as a Political Force
- ਰਾਸ਼ਟਰੀ ਅਤੇ ਅੰਤਰ-ਰਾਸ਼ਟਰੀ ਏਕਤਾ/ National and International Unity
- ਨਵੀਂ ਰਾਜਨੀਤਿਕ ਦਾ ਜਨਮ ਸਿਧਾਂਤਾਂ/ Birth of New Political Theories
- ਵਿਨਾਸ਼ਕਾਰੀ ਹਥਿਆਰਾਂ ਲਈ ਦੌੜ/ Race for Possession of Destructive Weapons/War
- Industrialized countries exploited overseas markets for resources
- Gave Europe great power
- Created a movement for social reform

Effects on Cultural & Intellectual Sphere

- ਪੁਰਾਣੇ ਅੰਧ-ਵਿਸ਼ਵਾਸ ਅਤੇ ਭਰਮਾਂ ਦਾ ਅੰਤ/ End of old Beliefs and Superstitions
- ਲੋਕਾਂ ਦਾ ਭੌਤਿਕਵਾਦੀ ਹੋਣਾ/ Materialistic Outlook of the People
- ਸਾਹਿਤ ਦਾ ਵਿਕਾਸ/ Development of Literature (Oliver Goldsmith's: The Deserted Village, Byron's: The Age of Broze, Charles Kingsley's Yeast pictures, Charles Dickens and Theckery, Leo Tolstoy.
- ਨਵੀਆਂ ਵਿਚਾਰਧਾਰਾਵਾਂ ਦੀ ਉੱਨਤੀ/ Emergence of New Theories: Herbert Spencer's Individualism, Karl Marx's Socialism, Jeremy Bantham's Utilitarianism
- Adam Smith believed in the term laissez faire-Wrote about in The Wealth of Nations, Malthus -An Essay on the Principle of Population epidemics and wars are necessary, Ricardo- Principles of Political Economy and Taxation-a permanent underclass, Robert Owen-improved working conditions, attempted to create Utopia in Indiana.
- ਵਿਗਿਆਨ ਅਤੇ ਤਕਨਾਲੋਜੀ ਦੀ ਉੱਨਤੀ/ Progress of Science and Technology
- Leland Stanford was a business tycoon, (a wealthy, powerful person in business or industry) co-founder of the Central Pacific Railroad, creator of Stanford University, and the governor of California.

Karl Marx

- Karl Marx and Freidrich Engels
- The Communist Manifesto
- Middle class “haves” or bourgeoisie
- “have nots” workers or proletariats
- Predicted that the workers would overthrow owners



Manifest

der

Kommunistischen Partei.

Veröffentlicht im Februar 1848.

Proletarier aller Länder vereinigt euch.

London.

- Marx believed factories would drive small businesses out, leaving anumber of manufacturers to control all wealth
- Proletariat would revolt and a classless society would develop Called communism
- All good would be shared equally

Competing Economic Views

Not everyone agreed that laissez-faire capitalism was good. Two who took a different stance were Robert Owen and Karl Marx.

Robert Owen

- More hopeful than Malthus
- Socialism
  - Society owns property
  - Society controls business
- Model industrial town
- New Harmony
- Social democracy

Karl Marx

- More radical socialism
- Predicted collapse of capitalism – conflict between classes inevitable
- Communist Revolution: the have nots would seize power from the haves.
- With no private property, there would be no classes. Government would fade and communism would be created
- Communist Government: owns means of production and controls economic planning

Reforms

- Workers joined together to form unions
- Engaged in bargaining with employers if refused workers would strike
- Britain-Combination Acts outlawed unions but were repealed in 1824
- 1886- U.S.- American Federation of Labor led successful strikes
- Factory Act of 1833-illegal to hire children under 9
- Could not work more than 8 hours a day
- 1842- Mines Act prevented women and children from working underground and limited workday to 10 hours
- William Wilberforce was influential in getting the slave to end in Britain in 1833, US-1865-Puerto Rico-1873-Brazil-1888
- Women activists met at the International Council for Women in 1888.
- Horace Mann-advocated for free public education
- Alexis de Tocqueville sought to reform the conditions in prison

Effects of Industrialization on Women

QUICK FACT

Women Who Went from Cottage Industries to Factory Work

- Earned low wages in low-skill jobs
- Separated from their families
- No real improvement in their status

Other Working-Class Women

- Found jobs as cooks, maids, and child-care workers because more families could afford to hire them
- Found some new educational and cultural opportunities in cities
- Overall improvement for many women

Middle-Class Women

- Freed from chores because many could afford to hire domestic help
- Began to attend college and get jobs as teachers and nurses
- Those who did work often criticized by people who said that they should not work outside the home
- Most affected by idea of separate spheres

Difference

	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

The Factory System and Workers

Workers in a New Economy

- Wealthy to invest in, own factories
- Mid-level to run factories
- Low-level to run machines

Cottage Workers' Unrest

- Handmade goods more expensive than factory made
- Luddite movement, 1811
- Violence spread, 1812

Changing Labor Conditions

- No government regulation
- Labor unions organized
- Strikes brought change - 1870s: Parliament legalizes workers strikes; Child Labor Laws; Public Health Acts.

New Class of Workers

- Growth of middle class
- Managers, accountants, engineers, mechanics, salesmen
- Economy increased
- Huge contrast between the rich upper class and the poor laborers

Production before Factories

Work in the Home

- Raw materials delivered
- Work done to completion
- Merchant takes product to market
- Workers controlled schedules, quality
- Family life revolved around business

Problems for Cottage Industries

- Destruction of equipment
- Time to learn skills
- Factory owners took advantage of drawbacks
- Despite long hours, factory workers earned very little money
- Women usually earned only half of what men made.
- Child labor was paid the least.
- Due to limited opportunities for education, children were expected to work.
- Before Child Labor laws were passed, many were forced to work in terrible conditions for lower pay.

Factories and Mass Production

The factory system changed the world of work. In addition, new processes further changed how people worked in factories.

Mass Production

- Mass production began in U.S.
- Elements:
  - Interchangeable parts
  - Assembly line
- Production and repair more efficient
- Production more swift

Effects

- Dramatic increase in production
- Businesses charged less
- Affordable goods
- More repetitious jobs - soon became norm

Disadvantages

- This change was not always for the better.
- New money-factory owners, shippers, and merchants became middle class
  - Upper-doctors, lawyers
  - Lower-factory overseers
- Working class-machines replaced them
  - Luddites-destroyed machines in factories and rioted
- Machines were invented which replaced human labor
- European cities go through a period of urbanization because of the factory system
- This caused living conditions to be terrible
- Sickness was widespread (cholera)
- Average worker spent 14hours, 6days
- Dangerous industry-coal mines
- One of the bad things about industrialization was pollution, as you could see in the earlier slides
  - The melting plant
  - Smoke stacks of a factory

THANKS

ASSISTANT PROFESSOR

INDERJIT SINGH