



The Industrial Revolution



Why the Industrial Revolution Started in Great Britain

1760 AD – 1840 AD in England
1800s-1900s in France and Germany
1840s -1920s in United States



Industrial England: "Workshop of the World"



That Nation of Shopkeepers!
-- Napoleon Bonaparte

How did the world go from this?



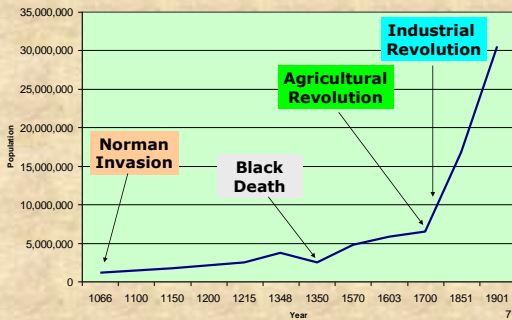
The Start of the Industrial Revolution

[By 1750, the Agricultural Revolution had led to a large increase in Europe's population.
[About 93% of the people of Europe lived in rural areas.
[New innovations revolutionized manufacturing.
[People began emigrating from rural to urban areas searching for economic opportunities.
[Advances in medicine, hygiene and agriculture improved the quality and length of people's lives.



http://www.umcp.edu/home/rwb/agriculture_england2.jpg

Estimated Population of England 1066 to 1900



London in 1440 and 1840

Urbanization and industrialization changed the architecture and way of life in London.

Right: London 1140 and 1840, from Pugin's *Contrasts*, published 1836.

Urbanization: The process in which more people move to cities.

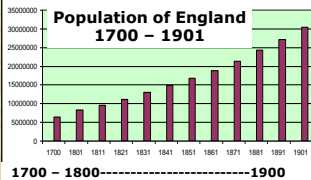


From the Country to the City

The population of England rose slowly, by less than two million people, during the 100 years from 1700 to 1800.

The population then increased sharply from 1801 to 1901, increasing by over 22 million.

Many people moved into the cities looking for work.



Origins---Why England?

- Agricultural Revolution
 - Horse and steel plow
 - Fertilizer use
 - Yields improved 300% 1700-1850
- Growth of foreign trade for manufactured goods
 - Foreign colonies
 - Increase in ships and size
- Successful wars and foreign conquest



Origins - Why England?

- Factors in England
 - No civil strife
 - Government favored trade
 - *Laissez faire*
 - Large middle class
 - Island geography
 - Mobile population
 - Everyone lived within 20 miles of navigable river
 - Tradition of experimental science
 - Weak guilds



5.) AGRICULTURAL ADVANCEMENTS



- Cooperative plowing
- Conserved the quality of land
- Balanced distribution of good land
- Farmers were part of a "team"
- Gleaning

OPEN FIELD SYSTEM---Old System

ADVANTAGES



- All villagers worked together
- All the land was shared out
- Everyone helped each other
- Everyone had land to grow food
- For centuries enough food had been grown

OPEN FIELD SYSTEM---Old System

DISADVANTAGES

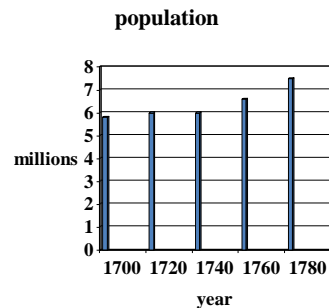


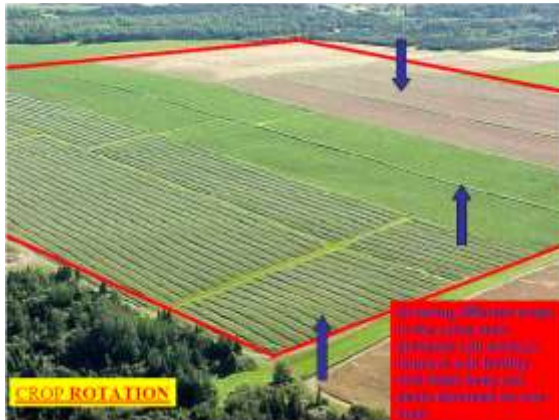
- Strips in different fields
- Fallow land
- Waste of time
- Waste of land
- Common land

Disadvantages of the Open Field System



Why did the Open Field System change?





Enclosure

- ❖ Enclosure is when land that was traditionally held and used in common is fenced by private owners.
- ❖ Enclosure in England occurred between 1750 and 1860 as a result of parliamentary acts.
- ❖ Enclosure resulted in 21% of the land in England being fenced for private use.
- ❖ This resulted in larger, more efficient farms that required less labor.
- ❖ Many English peasants, who were no longer able to graze sheep and cattle or live off the land, were forced to move to the cities for employment.

A doggerel (rhyme) of the time went:

The law locks up the man or woman who steals the goose from off the common; But leaves the greater villain loose who steals the common from the goose.



The Enclosure Movement



“Enclosed” Lands Today



Turnips, Cattle and Crop Rotation

- Lord Charles Townshend helped develop the four-field crop rotation system using wheat, barley, turnips and clover.
- Four-field crop rotation was a key development in the Agricultural Revolution.
- In 1730 Lord Townshend imported Dutch-grown turnips to feed cattle during the winter.
- Using inexpensive turnips and clover allowed farmers to maintain their livestock year-round.
- Previously, English farmers slaughtered their cattle before winter because the cost of feed was too high.



Right, Clockwise: Clover, Barley, Wheat.
Far Right: Townshend, Turnips, Bull

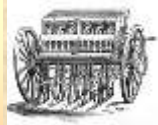
The Seed Drill



- How did they plant seeds during ancient/medieval periods?
- Higher productivity of crop yield
- **PLANTING**: Plant seeds quicker = more easily = more food, more money, and less labor costs
- Population continues to increase because food demand is being met – poor people aren't dying and looking for work!!!

Agricultural Innovators

Jethro Tull developed the seed drill to make sowing seeds faster and more efficient than planting them by hand. The seed drill makes a small hole and drops the seed into it. **It is estimated that crop yields rose as much as eight times.** Large motor-driven seed drills are used today.

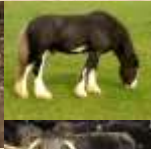


Seed Drill



Jethro Tull

Robert Bakewell developed the use of selective livestock breeding in England. He bred Dishley Longhorn cattle for beef, New Leicester sheep for their fine wool and ability to live in the cold English climate, and the Shire horse for its strength.



Clockwise: New Leicester Sheep, Shire Horse, Dishley Longhorn Cow

King George III

- King George III was very interested in agriculture and was known as "Farmer George."
- He maintained large gardens at his estates at Richmond and Windsor.
- The British Agricultural Revolution reached its peak during his reign (1760–1820).



19th-century plowing with six-oxen team in Sussex, England.



Definitions of Industrial Revolution and Industrialization

- Industrial Revolution:** a period of increased output of goods made by machines and new inventions; a series of dramatic changes in the way work was done
- Industrialization:** the process of developing machine production of goods that led to a better quality of life for people and also caused immense suffering



Life in England Before the Industrial Revolution?

- 8 out of 10 worked in countryside
- Subsistence farming**
- Cottage industries - factories rarely employed more than 50 people
- Handmade – buttons, needles, cloth, bricks, pottery, bread etc.
- Developing towns – Liverpool, Birmingham, Glasgow

Welsh spinsters



How many objects do you have about you or can you see in the room that are handmade?

Before the Industrial Revolution: Cottage Industry



The Putting-Out System

- The "putting-out system" was a way for 18th-century businesses to contract workers from their homes; an example of cottage industry.
- ^ Different parts of a product were made in the home, collected, and then assembled at a central location.
- ^ The main products of this system were textiles, locks, guns, and iron goods such as pots, pans, and pins.
- ^ In the cottage textile industry, for example, the entire family was involved in cotton yarn production:
 - ^ Children would sort the cotton fibers in a process called carding.
 - ^ Women would spin the fibers into threads.
 - ^ Men would weave the threads into fabric.



	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 could 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 higher income—owning made personal farming and gardening impractical

Urbanization in England

By 1750, large numbers of workers had begun to move into urban areas. This provided a large pool of workers for factory labor.

More factories encouraged more workers to move to the cities, and more workers attracted more industry.



Manchester, England, 1851

Two great economic “revolutions” occurred in human development

- The *Industrial Revolution*, started in the eighteenth century, is still taking place today
 - Involves a series of inventions leading to the use of machines and inanimate power in the manufacturing process
 - Suddenly whole societies could engage in seemingly limitless multiplication of goods and services
 - Rapid bursts of human inventiveness followed
 - Gigantic population increases

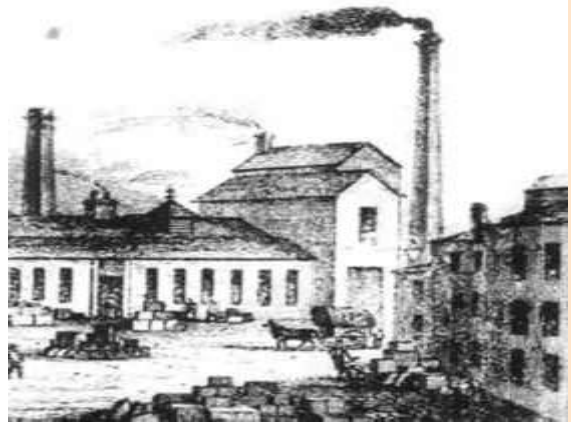
Industrial Revolution

- Began around 1750 in Great Britain
- New machines led to the Industrial Revolution.
- They replaced hand labor and helped workers produce more things faster.
- Moving water power in rivers replaced worker's muscle.
- One water wheel could turn hundreds of machines.



Industrial Revolution

- Machines also started the factory system.
- The new machines were too large and costly to be put into a person's home.
- Large buildings called factories were built to hold many of the machines.
- The workers in one factory manufactured more in a day than one person working in his or her home could manufacture in a lifetime.



Industrial Revolution

- Steam engines began to appear in the 1700s.
- This important invention used wood or coal as fuel to heat water in a boiler.
- Steam from the hot water powered the engine, which ran the machines.
- Since a steam engine could be placed anywhere, factories no longer had to be built along rivers.
- They could be built near fuel, raw materials, or labor.



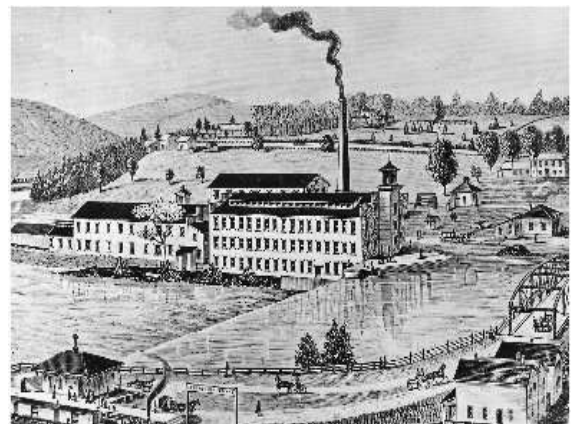
Industrial Revolution Included:

- 1) the use of new basic materials, chiefly iron and steel
- (2) the use of new energy sources, including both fuels and motive power, such as coal, the steam engine, electricity, petroleum, and the internal-combustion engine
- (3) the invention of new machines, such as the spinning jenny and the power loom that permitted increased production with a smaller expenditure of human energy



Industrial Revolution Included:

- (4) a new organization of work known as the factory system, which entailed increased division of labor and specialization of function - the worker acquired new and distinctive skills, and his relation to his task shifted; instead of being a craftsman working with hand tools, he became a machine operator, subject to factory discipline
- (5) important developments in transportation and communication, including the steam locomotive, steamship, automobile, airplane, telegraph, and radio, and
- (6) the increasing application of science to industry



Industrial Revolution

- As factories produced more, better transportation was needed.
- More canals were dug and better roads were built.
- Here again the steam engine was able to help.
- By 1830, steam locomotives began to pull trains.

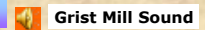
England saw itself as the center of the world!



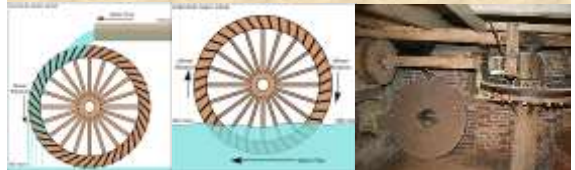
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New Inventions of the Industrial Revolution

The Water Wheel



- A water wheel is a means of converting the kinetic energy of flowing water into mechanical energy to operate machines.
- Water wheels were primarily used to power grist mills for making flour.
- During the Industrial Revolution, Richard Arkwright used the water wheel to spin cotton thread.
- Later, water wheels were adapted to run many spinning machines and looms.
- The most powerful water wheel built in the United Kingdom was the 100 hp water wheel at Quarry Bank Mill.



Water Wheels



Water Wheel on the Orontes River in Syria



Factory Falls in Lowell



Water Wheel in New Lanark, Scotland



John Kay's Flying Shuttle

- The Flying Shuttle was invented in 1733
- The Flying Shuttle was a piece of wood that held yarn
- The shuttle was woven in and out of the yarn tied to the loom
- It allowed the weaver to work twice as fast



Mechanization of the Textile Industry

The flying shuttle, invented by John Kay in 1733, increased the speed at which cloth could be woven.

The carding machine was developed by Daniel Bourn and Lewis Paul in 1748. It speeded up the process of brushing raw or washed fibers to prepare them for spinning, called carding.

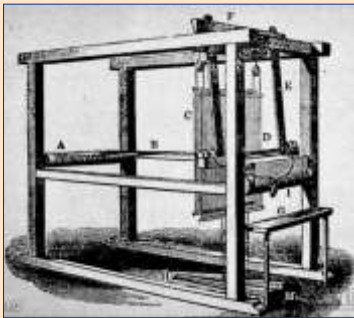


Innovation: The creation, development and implementation of a new product, process or service.

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John Kay's "Flying Shuttle"

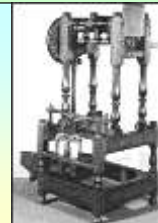


Innovations in Cotton Spinning: Hargreaves and Arkwright

In 1764 James Hargreaves invented the spinning jenny. It was hand-operated and could spin eight threads at a time.



Richard Arkwright developed an improved spinning machine called a water frame. Water wheels were used to turn the machine. In 1771 Arkwright built the world's first water-powered cotton mill at Cromford, Derbyshire, England.

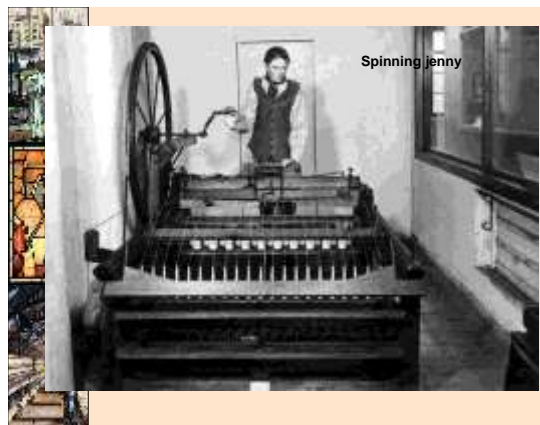


James Hargreaves' Spinning Jenny

- The Spinning Jenny was invented in 1764.
- It was a faster spinning wheel.
- This machine could spin 80 threads at a time.
- Humans could spin only 1 thread at a time.
- This machine was hand operated.



Spinning jenny



Richard Arkwright's Water Frame

- Richard Arkwright invented the water frame in 1769. This invention used water power from a fast flowing stream to drive the spinning wheels.

Edmund Cartwright's Power Loom

- The Power Loom was invented in 1785.
- This new loom made weaving much faster.
- It ran on waterpower.
- In 1813, 2000 looms were in use in English factories.
- By 1833, 100,000 looms were in use in England.



The Power Loom



The power loom, invented by Edward Cartwright in 1785, used mechanical power from water wheels. It was designed so one person could operate many looms.

The Jacquard loom, a type of punch card loom, was developed by Frenchman Joseph Marie Jacquard around 1804. It automated pattern weaving, using punch cards to control the design.



Cartwright



Jacquard

The roller spinning machine was developed in 1839 by Lewis Paul and John Wyatt. It increased the speed of making thread. They powered their machines using a donkey.



Jacquard Loom



How did people get around before the Industrial Revolution?

- 'We set out at six in the morning and didn't get out of the carriages (except when we overturned or got stuck in the mud) for 14 hours. We had nothing to eat and passed through some of the worst roads I ever saw in my life'

This is a description of a journey by Queen Anne in 1704 from Windsor to Petworth – a journey of 40 miles. What does it tell us about transport at the time?



Early Canals



Britain's Earliest Transportation Infrastructure

Canals in England

- From 1760 to 1790, over 4,000 miles of canals were built in England.
- The most famous of these was the Bridgewater Canal, built by engineer James Brindley for the Duke of Bridgewater in 1761.
- Barges moved coal from the Duke's mines in Worsley to his factories in Manchester.
- The mines had over 46 miles of underground canals used to transport coal to the surface.



James Brindley

A Canal and Factory Town in 1827



Bridgewater Canal



The Manchester Ship Canal and Railway connected Manchester to the port at Liverpool.



The Pontcysyllte Aqueduct

- The Pontcysyllte Aqueduct, completed in 1805, was a technological achievement. Using a cast iron trough, it acts like a bridge to move water and ships over the River Dee in England.
- It was designed by Thomas Telford and William Jessop.
- The aqueduct is 1,007 feet long.
- Today it is a UNESCO World Heritage Site.



Thomas Telford



Canal du Midi in France

- The Canal du Midi in France was completed in 1681, connecting the Atlantic Ocean to the Mediterranean Sea.
- Construction of the canal was overseen by Pierre-Paul Riquet.
- The canal allowed commercial traffic to bypass the warships of Spain and the pirates of the Barbary Coast.
- The Canal du Midi was the first canal ever built using a tunnel through a mountain.
- The canal was also the first to use its own reservoir to provide water for the 103 locks used to climb 109 meters.



Canal Lock and Tunnel



The Suez Canal

- The original Suez Canal existed as far back as the 13th century BCE, during the time of Ramesses II.
- The 101-mile canal connects the Mediterranean Sea to the Red Sea.
- The canal allows ships to travel from Europe to Asia without going around Africa.
- The Suez Canal was rebuilt by the French Suez Canal Company in 1869.
- In 1888 the canal was declared a neutral zone for all nations of the world and was placed under the protection of the British.



Canal Construction, 1869



Mediterranean Sea



Red Sea

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Thomas Newcomen

- Thomas Newcomen built the first practical steam engine. It was used for pumping water out of mines in the first decade of the 18th century.
- His engine converted steam power into mechanical energy.
- It used reciprocal (back and forth) motion.
- It was called the *atmospheric* or *Newcomen* steam engine.



James Watt's Steam Engine

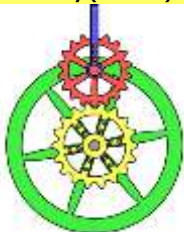


James Watt's Steam Engine

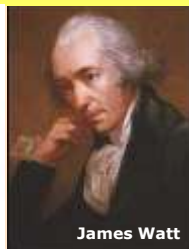


James Watt and Practical Steam Power

- James Watt was a Scottish engineer who, in 1775, modified the steam engine and made it practical for industrial use.
- He is credited with the invention of the sun and planet gear, a method of converting reciprocal (back and forth) motion to rotary (circular) motion.



Sun and Planet Gear



James Watt



Steam Tractor



Clipper Ships

- Clipper ships were small, fast cargo sailing ships used in the first half of the 19th century.
- Their speed was two to three times faster than that of larger traditional merchant sailing vessels.
- They were built to carry high-value, low-volume cargo such as tea, coffee and spices, as well as passengers and mail.
- Donald McKay was the most successful clipper ship builder.
- One of his ships, the *Flying Cloud*, sailed from New York to San Francisco, around South America, in 89 days.
- Clipper ship construction declined rapidly after 1860 due to competition from steam-powered vessels.



Donald McKay



Steam Ship



Openness to New Ideas: Inventions

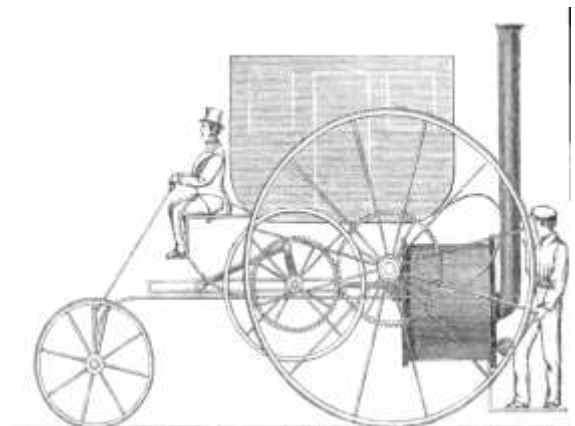
Steamboat

- Invented to improve transportation of people and goods
- Some ships were also used as party ships up and down rivers in the 19th and early 20th centuries

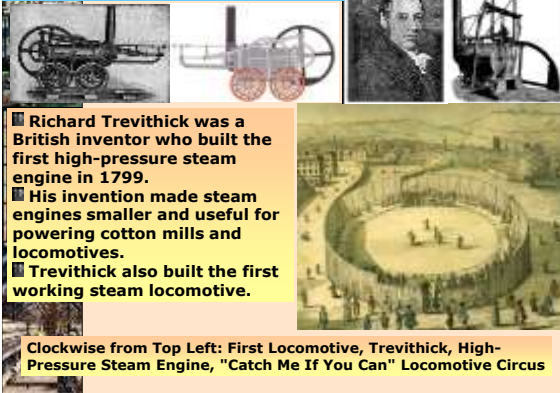


The Iron Horse

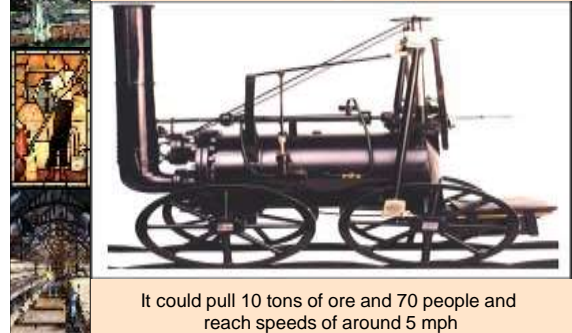
- First stage of the Industrial Revolution in England was driven by a demand for consumer goods in textiles. The second by transportation—the rail.
- Canals were effective...but inefficient.
- Coal was the primary item in need of movement. It was done by pulling it with horses on temporary tracks.



Richard Trevithick



Richard Trevithick's "Puffing Devil"



- George Stephenson changed the world with his prize winning invention: the Rocket. A locomotive that pulled 3x its weight at 30 mph!



"Catch me if you can"




An Early Steam Locomotive



Later Locomotives



The Impact of the Railroad



JOURNEY TIMES FROM LONDON (IN HOURS)

4.3	EDINBURGH	12.5
2.4	LIVERPOOL	6.5
1.8	EXETER	4.5
1.1	BIRMINGHAM	3
0.6	BRIGHTON	1.5

"The Great Land Serpent"



The Industrial Revolution

The Spinning Mill



In the 18th century, English merchants were leaders in world commerce. It created a demand for more goods and a cheaper system of production. Besides, there were new ideas in England : an interest in scientific investigation and invention, and the doctrine of "laissez-faire" : letting business be regulated by supply and demand rather than by laws. Most important of all, new machines and techniques were developed by British inventors (for example : James Hargreaves, James Watt, John Blenkinsop...)



Stephenson's Rocket

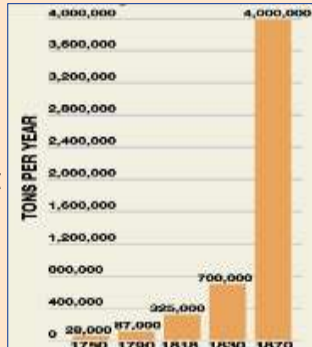


Consequences on society

British Pig Iron Production



Henry Cort



A technological revolution

A series of inventions that built on principles of mass production, mechanization and interchangeable parts



Josiah Wedgwood developed a mold for pottery that replaced the potters wheel, making mass production possible



Richard Arkwright: "Pioneer of the Factory System"



The "Water Frame"

Factory Production

-) Concentrates production in one place [materials, labor].
-) Located near sources of power [rather than labor or markets].
-) Requires a lot of capital investment [factory, machines, etc.] more than skilled labor.
-) Only 10% of English industry in 1850.

Textile Factory Workers in England

1813	2400 looms	150,000 workers
1833	85,000 looms	200,000 workers
1850	224,000 looms	>1 million workers

The Factory System



- ◀ Rigid schedule.
- ◀ 12-14 hour day.
- ◀ Dangerous conditions.
- ◀ Mind-numbing monotony.

Textile Factory Workers in England



Young "Bobbin-Doffers"

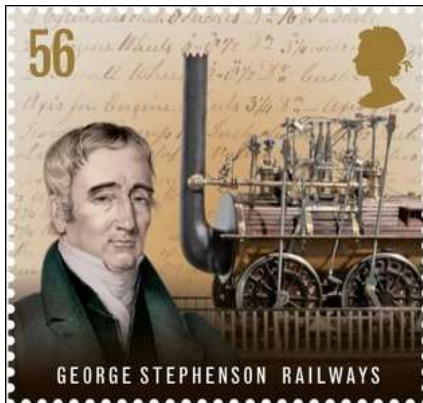


British Coin Portraying a Factory, 1812



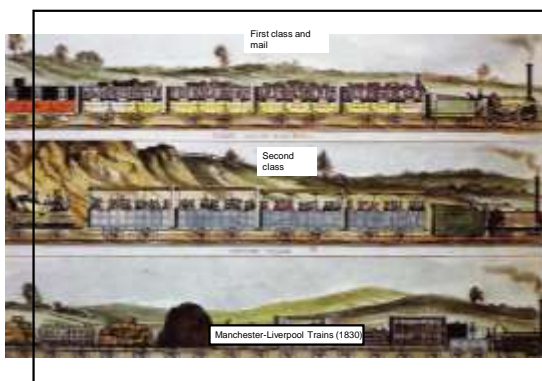
Man of Steel: Henry Bessemer

- Before 1850, railroads and trains were made of iron
- Iron is brittle
- Railroads were unsafe
- 1850 Henry Bessemer (England) invents a way to turn iron ore into steel



The Role of the Railroads

- The railroads, built during the 1830s and 1840s:
 - Enabled people to leave the place of their birth and migrate easily to the cities.
 - Allowed cheaper and more rapid transport of raw materials and finished products.
 - Created an increased demand for iron and steel and a skilled labor force.



Metals, Woolens, & Canals



Mine & Forge [1840-1880]

- ù More powerful than water is coal.
- ù More powerful than wood is iron.
- ù Innovations make steel feasible.
 - "Puddling" [1820] - "pig iron."
 - "Hot blast" [1829] - cheaper, purer steel.
 - Bessemer process [1856] - strong, flexible steel.

Coalfields & Industrial



Coal Mining in Britain: 1800-1914

1800	1 ton of coal	50,000 miners
1850	30 tons	200,000 miners
1880	300 million tons	500,000 miners
1914	250 million tons	1,200,000 miners

Young Coal Miners



Child Labor in the Mines



Child "hurriers"





The Results of Industrialization at the end of the 19c

Effects of the Industrial Revolution

- What was the industrial revolution?
 - Machines coordinated to make goods
 - Energy from non-animal sources
 - Industry grew 4 times faster
- Changed all aspects of society
 - Most profound effect since agriculture
 - Government change
 - Political and military balance
 - Europe as dominant power
 - Transformed social classes
 - Higher standard of living for most



Effects of the Industrial Revolution



MAP 26.1 European Cities of 100,000 or More in 1800 and 1900. There were more large cities in Great Britain in 1900 than in all of Europe in 1800. North-western Europe was the most advanced area.

Effects of the Industrial Revolution



England vs. Continental Europe

TABLE 24.1 PER CAPITA LEVELS OF INDUSTRIALIZATION, 1750-1913

	1750	1800	1850	1860	1880	1900	1913
Great Britain	10	54	15	64	87	100	115
Belgium	5	18	24	28	43	64	88
United States	4	10	24	23	38	69	116
France	6	9	12	18	28	39	39
Germany	4	8	9	15	21	32	85
Austria-Hungary	7	7	8	11	15	23	42
Italy	5	5	8	10	12	17	26
Russia	6	6	7	8	10	13	20
China	8	9	9	4	5	8	9
India	7	8	8	4	2	1	2

Note: All entries are based on an index value of 100, equal to the per capita level of industrialization in Great Britain in 1913.
Source: J. R. Hume, "Comparative Industrialization Levels from 1750 to 1913," *Journal of Postgraduate Economics*, 1981, 17 (1981), 294. Note for Great Britain are actually for the United Kingdom (leaving Ireland, Wales, and Scotland).

England vs. Continental Europe

- Produced 20% of industrial goods
- Gross national product rose 4x
- Population increase
- Inventors took inventions abroad
- Belgium's coal and iron resources
- Germany iron and wool factories
- France slow to industrialize
- Mechanization came but late



Railroads on the Continent



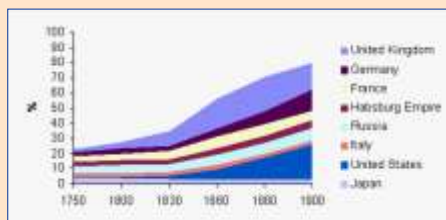
By 1850: Zones of Industrialization on the European Continent

- ù Northeast France.
- ù Belgium.
- ù The Netherlands.
- ù Western German states.
- ù Northern Italy
- ù East Germany → Saxony

Industrialization By 1850



Share in World Manufacturing Output: 1750-1900



The Politics of Industrialization

- ù State ownership of some industries.
 -) RRs → Belgium & most of Germany.
- ù Tariffs → British Corn Laws.
- ù National Banks granted a monopoly on issuing bank notes.
 -) Bank of England.
 -) Bank of France.
- ù Companies required to register with the government & publish annual budgets.
- ù New legislation to:
 -) Establish limited liability.
 -) Create rules for the formation of corporations.
- ù Postal system.
- ù Free trade zones → Ger. *Zollverein*

The Great Exhibition at the Crystal Palace



The Great Exhibition of 1851 in London was mounted to symbolize Great Britain's economic, industrial, and military superiority.

Crystal Palace Exhibition: 1851



Exhibitions of the new industrial utopia.

Crystal Palace: Interior Exhibits



Crystal Palace: British Ingenuity on Display



Crystal Palace: American Pavilion



The "Haves":
Bourgeois Life
Thrived on the
Luxuries of the
Industrial Revolution

19^c Bourgeoisie: The Industrial *Nouveau Riche*



Criticism of the New Bourgeoisie



Stereotype of the Factory Owner



"Upstairs"/"Downstairs" Life



The "Have-Nots": The Poor, The Over-Worked, & the Destitute

Factory Wages in Lancashire, 1830

Age of Worker	Male Wages	Female Wages
under 11	2s 3d.	2s. 4d.
11 - 16	4s. 1d.	4s. 3d.
17 - 21	10s. 2d.	7s. 3d.
22 - 26	17s. 2d.	8s. 5d.
27 - 31	20s. 4d.	8s. 7d.
32 - 36	22s. 8d.	8s. 9d.
37 - 41	21s. 7d.	9s. 8d.
42 - 46	20s. 3d.	9s. 3d.
47 - 51	16s. 7d.	8s. 10d.
52 - 56	16s. 4d.	8s. 4d.
57 - 61	13s. 6d.	6s. 4d.

Industrial Staffordshire



Problems of Pollution



The Silent Highwayman - 1858

The New Industrial City



Early-19c London by Gustave Dore



Worker Housing in Manchester



Factory Workers at Home



Workers Housing in Newcastle Today



The Life of the New Urban Poor: A Dickensian Nightmare!



Private Charities: Soup Kitchens



Private Charities: The "Lady Bountifuls"



Labor Conditions

Laborers often worked in dangerous and hazardous conditions



Women: The Labor Behind the Industry



19th-century women at work

Child Labor: Unlimited Hours



Factory children attend a Sunday school

Child Labor: Dangers



"Scavengers" and "piecers"

Child Labor: Punishment

- Malnourishment
- Beatings
- Runaways sent to prison



Child Labor: Movements to Regulate

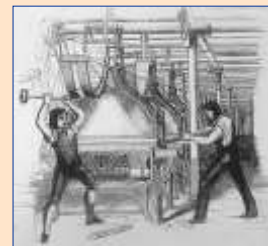
Factory owners argued that child labor was good for the economy and helped build children's characters

Factory Act of 1833: limited child labor and the number of hours children could work in textile mills



Protests / Reformers

The Luddites: 1811-1816



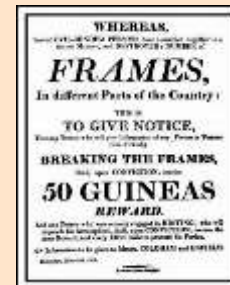
Attacks on the "frames" [power looms].

Ned Ludd [a mythical figure supposed to live in Sherwood Forest]

The Luddite Triangle



The Luddites



The Neo-Luddites Today



Peterloo Massacre, 1819

British
Soldiers
Fire on
British
Workers:

Let us die
like men,
and not be
sold like
slaves!



The

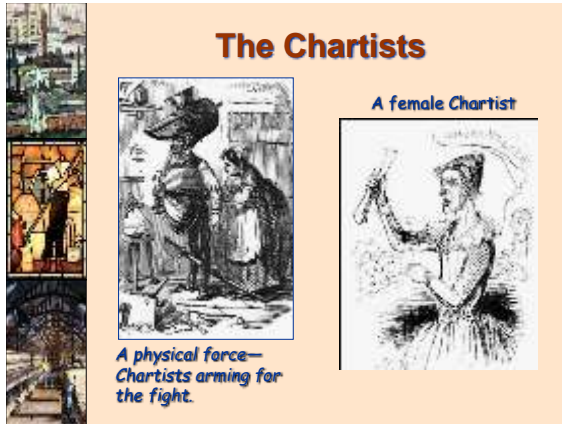


Key	
	Chartist settlements
	Centres of Chartism
	Area of plug riots, 1842

The "Peoples' Charter"

- ✓ Drafted in 1838 by William Lovett.
- ✓ Radical campaign for Parliamentary reform of the inequalities created by the Reform Bill of 1832.

- ✦ Votes for all men.
- ✦ Equal electoral districts.
- ✦ Abolition of the requirement that Members of Parliament [MPs] be property owners.
- ✦ Payment for Members of Parliament.
- ✦ Annual general elections.
- ✦ The secret ballot.



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

- British restrictions
- Hamilton, 1791
- Samuel Slater
 - Water frame
 - Slater's Mill
- Lowell's Mill

Europe

- Belgium, 1807
- France, 1815
- Germany, 1850
 - Railroads
 - Treaties

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

The Industrial Revolution

Economic Effects

- New inventions and development of factories
- Rapidly growing industry in the 1800s
- Increased production and higher demand for raw materials
- Growth of worldwide trade
- Population explosion and a large labor force
- Exploitation of mineral resources
- Highly developed banking and investment system
- Advances in transportation, agriculture, and communication

Social Effects

- Long hours worked by children in factories
- Increase in population of cities
- Poor city planning
- Loss of family stability
- Expansion of middle class
- Harsh conditions for laborers
- Workers' progress vs. laissez-faire economic attitudes
- Improved standard of living
- Creation of new jobs
- Encouragement of technological progress

Political Effects

- Child labor laws to end abuses
- Reformers urging equal distribution of wealth (i.e. Karl Marx)
- Trade unions
- Social reform movements, such as utilitarianism, utopianism, socialism, and Marxism
- Reform bills in Parliament