

Chapter 20 The Industrial Revolution Begins: 1750-1850

- 1760's- James Watt improves on the steam engine. Watt's engine, provides a vital source of power
 - 1762- Catherine the great comes to power in Russia
- 1800- Robert Owen begins social Reforms at New Lanark
 - 1804- Napoleon becomes emperor of France
- 1807- Robert Fulton develops the first successful steamboat the Clermont. Steam power allows the vessel, shown here, to travel against the current without difficulty
- 1830- The Liverpool- Manchester railroad opens
 - 1847- Liberia, settled by freed African- Americans, becomes an independent nation
- 1848- Karl Marx and Friedrich Engels publish the Communist Manifesto
- 1851- The Great exhibition is held in London. A display of industrial developments housed in the Crystal Palace

Section 1: Dawn of the Industrial Age-

Reading Focus: Why was the Industrial Revolution a turning point in world history?

How did an agricultural revolution contribute to population growth?

What new technologies helped trigger the Industrial Revolution?

Main Idea: The Industrial Revolution had an impact on every aspect of life in Western Europe and the United States.

A Turning Point in History:

1750 people worked land using handmade tools; made clothes; grew own food; exchanged food in outdoor markets

few traveled beyond village; rural way of life began to disappear by 1850's
people bought food and clothing; homes were crowded multistoried-

people traveled by steamboat or train; telegraph carried messages; between 1830-1855 new scientific firsts- anesthetic (medicine prevent pain during surgery); measures speed of light; patented sewing machine; series of interrelated causes were the trigger

A New Agricultural Revolution:

First agricultural revolution was when they domesticated animals and learned to farm- 300 years ago- second revolution- happened with quality and quantity of farm products

Improved methods of farming: Dutch led the way, built dikes to reclaim land from sea; used fertilizer to renew soil by 1700's British expanded to test which soils have higher yields; farmers grew turnips to replenish soil; jethro Tull invented seed drill- planted seed in rows; started farm journals. King George III called "Farmer George"

Enclosure Movement: 1st factor (process of taking over land shared by peasant farmers- fence off for sheep to make increased wool output) Farm output rose due to easier cultivation; fewer workers needed- farm laborers out of business- villages shrank- people left to look for work. Jobless farmers moved to cities and would become the labor that manned the machines for the Industrial Revolution

Population Explosion: 2nd factor Britain- 5 million in 1700's to 9 million by 1800's
Europe went from 120 million to 190 million- declining death rates- people ate better; women stronger and had healthier babies
1800's better sanitation slowed death by disease

New Technology: 3rd factor- new sources of energy- energy revolution- early days were humans and animals- then water mills and wind mills- 1700's coal for steam engine James Watt improves the steam engine 1769- key power source for Industrial Revolution

Improved iron- coal helped produce iron- 1709- Abraham Darby-smelts iron (separate impurities for raw ore)- helped to make better quality and less expensive iron- strong iron helped with the building of railroads-

Section 2- Britain leads the way-

Reading focus-

- Why was Britain the starting point for the Industrial Revolution?
- What changes transformed the textile industry?
- What new technologies were part of the revolution in transportation?

Main Idea: The Industrial Revolution originated in Britain.

Why Britain?

Resources- small nation with large supplies of coal for steam engines- lots of iron to build new machines- lots of workers for coal and iron mines, to build factories and run machines-

New technology- 1700's lots of skilled mechanics- technology an important part but did not cause it. Only when demand and capital (money) did technology pave the way for the industrial age-

Economic conditions- 1600's to 1700's overseas empires helped British to prosper- slave trade made the business class capital (wealth for investing into enterprises)- general economic prosperity

Political and social conditions- stable government supported economic growth; strong navy to protect empire and overseas; embraced wealth of entrepreneurs- many religious groups encouraged thrift and hard work which encouraged entrepreneurs – people focused on world concerns rather than afterlife- inventors and bankers focus energies on world things.

Changes in the Textile Industry-

Industrial revolution first took hold in textile industry- developed “putting out” industry- peasants made wool into thread and made raw cloth- skilled artisans wove then made cloth-

Major Inventions- production was slow- thus John Kay's invention the flying shuttle was invented but then weavers outpaced the spinners- John Hargreaves invented the spinning jenny in 1764 then Richard Arkwright invented the water frame which speed spinning further

The First Factories- machines doomed “putting out” system- machines too large and expensive for homes- long sheds were built near streams for water power later machines were run on water power- spinners and weavers worked in these first **factories** (workers and machines together to produce large quantities of goods)

Revolution in transportation- faster transportation needed to move goods from place to place- turnpikes formed (roads with fees); canals were dug in Britain (13,000 miles) ; stronger bridges and upgraded harbors- canals allowed coal to travel rapidly to factories- later coal would be transported by locomotives.

On Land- biggest invention was the steam locomotive- made the growth of railroads- original railroad pulled carriages- didn't have to follow the rivers- factory owners and merchants could move goods over land easily and quickly; by the 1870's it was highly developed

On Sea- 1807- Robert Fulton an American moves his boat 5 miles an hour! Early ships coal took up most of cargo space- by late 1800's iron hulled freighters carried 10-20 times cargo of wooden ships-

The Industrial Revolution triggered a chain reaction- supply and demand- goods increased- prices decreased- goods became more affordable – more people wanted goods- affected how goods were made and how people lived

Section 3: Hardships of Early industrial Life:

Reading focus

What was life like in the new industrial city?

How did the factory system change the way people worked?

What benefits and problems did industrialization bring to the working class and the new middle class?

Main idea: The industrial Revolution created material benefits as well as social problems.

Great wealth for entrepreneurs- great poverty ; harsh living; polluted air, disease, poor neighborhoods; unfair working conditions. Unsanitary and overcrowded housing

The New Industrial City:

Rapid urbanization (movement of people in cities), soaring populations; great demand for workers led to great migration from farms to cities; small town near coal and iron mines turned into cities almost overnight- other cities grew where markets were-

*******Example:** British market towns such as Manchester- grew from 17,000 (1750) to 40,000 in (1780) 70,000 by 1801; coal vapor filled the air; pounding noise of steam engines; filthy stench of river; wealthy and middle class lived in pleasant neighborhoods; poor lived in foul-smelling slums- they lived in tenements (multistory buildings) and tiny rooms. No running water only community pumps- No

sewage; waste and rotting garbage in streets- cholera spread rapidly- later reformers would try to improve conditions-

The Factory System:

imposed harsh new way of life

Rigid Discipline- rural villages worked hard, but it was seasonal- In factories the whistle ruled the work day- men, women and children yoked together with iron and steam- working hours were long, no safety devices, could lose finger; limb or life- coal dust destroyed lungs of miners; textile workers breathed in lint- if workers were sick or injured they lost their job

Women workers- employers liked women as they were more adaptable to the new machines- could pay them less- took women out of their home 12 hours a day- when they went home they had to cope with crowding, cleaning, cope with sickness, and other problems-

Child Labor- factories and mines hired children- children changed spools in mills- they went in narrow mine shafts; parents accepted child labor because they worked on farms; wages were needed to keep the family fed; employers hired orphans- as they made deals with overseers who often beat the children- a few overseers did provide education and decent life for child workers- most parents and children were like slaves to the machines-

1830's- 1840's British lawmakers look into abuses- children as young as 5 worked in factories- had twisted limbs- Parliament passes laws to regulate child labor-

The Working Class- rural villages- people had strong ties to the community- when they moved to cities felt lost and bewildered- later they would develop their own sense of community

Protests- weavers and skilled artisans resisted machines that were costing them their jobs- some smashed machines and burned factories- **Luddites** named after Ned Ludd who supposedly destroyed machines in 1780's - protests met harsh repression – soldiers charged crowds in 1819- killing dozens and injuring hundreds- workers were forbidden to organize groups to bargain for pay and working conditions- strikes forbidden-

Spread of Methodism- new religious group formed 1700's John Wesley- the Methodist church formed and stressed need of personal faith and Christians should adopt somber and moral ways- hymns, sermons, forgiveness of sins and a better life to come. Message of salvation came to

the slums- try to rekindle hope in working poor- schools were set up to study Bible and teach children to read and write- helped to channel anger away from revolution to social reform

The New Middle Class-

The entrepreneurs- who benefited the most- - some were merchants who invested growing profits in factories; some were skilled artisans and inventors who developed new technologies; some rose from rags to riches-

middle class lived in well built homes; dressed and ate well; all opposed improved working conditions for workers

Middle class women encouraged to be “ladies” do ladylike activities; they did not work outside of the home, or do housework - daughters were educated- sons got educated to become businessmen-

Middle class valued hard work and women learned to pass on the same value systems as the next generation- they had confidence in themselves and little sympathy for poor- felt poor were responsible for their own misery- they were faceless millions- middle class thought them to be ignorant and lazy and couldn't work out of poverty

Benefits and Problems-

Since 1800's people debate if the Industrial Revolution was a blessing or a curse- terrible hardships- reformers finally passed laws to improve working conditions- labor unions formed and won bargaining rights for better wages, hours, working conditions; working class men gain the right to vote-

Material benefits were gained- new demand for mass-produced goods; new factories opened; wages rose so workers had a little extra for going to a music hall or to buy a newspaper- people began visiting family as railroad travel fell – opportunities increased and horizons widened-

Industrialization continues to spread around the world today- first great suffering but later there are more material benefits for people

Section 4: New Ways of thinking:

Reading focus:

What was laissez-faire economics?

How did the views of utilitarians differ from those of socialists

What were the ideas of “scientific socialism” introduced by Marx?

Main Idea: The Industrial Revolution fostered new ideas about business and economics.

Laissez-Faire Economics- government should not interfere with the free operation of the economy- early 1800’s middle class liked that

Legacy of Adam Smith- author of Wealth of Nations- Scottish professor- free market should not have regulations for goods and services- which would help all people- more goods would produce lower prices so everyone could afford it- encourage capitalists could reinvest profits- called free-enterprise capitalism- should government played no part of the success of the Industrial age-

Malthus on Population: Thomas Malthus predicted population would outpace food supply- population can only be limited by war, disease and famine- as long as population grew- poor would suffer- many people accepted this- BUT through the population boom the food supply grew; living conditions improved; people began having fewer children – by the 1900’s the population growth was no longer a problem- but many other nations still had population problems

Ricardo on Wages- he agreed with Malthus- poor had too many children- he said when wages were high families had more children- BUT more children meant more labor which led to lower wages and higher unemployment- he didn’t hold out hope for working class to escape poverty-

Both Malthus and Ricardo opposed help by the government- they felt laissez-faire best cure for poverty and poor- felt people should improve their lot in life through thrift and hard work and limiting size of families-

The Utilitarians-

Some adapted laissez-faire to justify government involvement- 1800 Jeremy Bentham preached **utilitarianism** saying *the goal of society should*

be greatest happiness to greatest number - laws and actions should be judged by utility. Did the laws provide more pain than happiness?

Supported individual freedoms which he felt would guarantee happiness- his chief follower was John Stuart Mill- actions are right if they promote happiness but he looked at unrestricted competition favored the strong over the weak- he wanted government to step in to improve hard lives of working class- he said power should only be exerted to prevent harm to others- said business and factory owners should exercise happiness but government should step in if it hurt workers- should give vote to workers- **Utilitarians** worked on reforms for poor- including public health and working class

Emergence of Socialism- focus on the good of society in general- condemned industrial capitalism which created a gulf between rich and poor- they promoted **socialism- people as a whole rather than private individuals own and operate “means of production”- farms, factories, railways and other large businesses that produced and distributed goods.** Socialism grew from enlightenment period- basic belief in the good of human nature-they said society should be for good of all members- not just wealthy-

The Utopians- socialists tried to build self- sufficient communities where all work was shared and property owned together- no difference between rich and poor- tried to make an ideal society—tended to be impractical dreamers

Robert Owens did make a model community

Robert Owens- he was a successful mill owner- he refused child labor- encouraged labor unions- believe how people lived shaped their character-he built homes for workers, opened school for children- treated employees well- by 1820's many visited to see Owens reforms-

The “Scientific Socialism” of Karl Marx-

1840's- German philosopher- condemned utopians- came up with idea of scientific socialism which was supposed to be the scientific study of socialism- he wanted reform- teamed with Friedrich Engels who owned a textile factory in England- wrote a pamphlet: **“The Communist Manifesto”** in 1848- communism is a form of socialism- which sees class struggles between employers and employees as unavoidable-

Marxism- Marx theorizes- economics was driving force in history- which was class struggles or the “haves” and “have-nots”- “haves” have the means of production ; control society and have the wealth; where as the “have-nots” were the *proletariats* or working class. He said the modern struggle put the *bourgeoisie against the proletariat*. Only classless society would work and the means of production had to be controlled- he didn't like capitalism and tried to make an international struggle to end capitalism-

Looking Ahead- at first he was popular but later his ideas would go into practice in other ways-

Failures- Marx said his ideas were scientific laws- many of his assumptions were wrong- he felt the misery of the proletariat would set off a world wide revolution- but by 1900's reformers and governments improved working class conditions- so Marxism lost appeal in Europe and North America- Marx wanted people to unite against national borders but people felt ties to their won communities-

Revolutions- 1800's the Russian socialists embraced Marxism- Russian Revolution 1917 set up the communist government- revolutionaries around the world used Marx's ideas for their own needs-Independence leaders turned to Marxism (Asia, Latin America, Africa) but most turned to elements of free-market capitalism-