The Industrial Revolution 1700–1900

Hook Video
Early 1700’s

- In the 1700’s: people worked the land & were *subsistent*:
  - They grew their own food, made their own clothes, etc.

- Most cloth in Britain was made (by hand) by families living in cottages on farms or villages.

- Known as **COTTAGE INDUSTRY** (also called the “putting out” system of production)
The Enclosure Movement

• After buying land from village farmers, wealthy landowners fenced off land to produce more food & make more $$$

As a result of this

“Enclosure Movement”…

• Large landowners forced small farmers to become tenant farmers or move to cities
“Enclosed” Lands Today
Agricultural Revolution: Major Changes....

• new mixtures of soil $\rightarrow$ increased crop production

• seed drill $\rightarrow$ plant seeds more efficiently (= more food)

• breeding stronger animals for labor
JETHRO TULL’S SEED DRILL

← Original demonstration video

New and Improved Video →
Crop Rotation:

• Crop rotation allows land to rejuvenate, producing more food

Agricultural Revolution

• Moved from a two-field system to a three field system. This allows one field to recover its fertility.

Video →
Why is Britain the First Industrialized Nation?

1. NATURAL RESOURCES
2. HUMAN RESOURCES
3. TECHNOLOGY
4. ECONOMICS
5. GOVERNMENT
Natural Resources:

- Britain’s natural resources are plentiful (coal – burn to fuel engines; iron – builds machines)
- James Watt → Steam engines burned coal for fuel & most machines were made out of iron
- ***Problem with iron machines? They cracked and wore out quickly…..what to do?
- 1856: HENRY BESSEMER makes steel FASTER than before. Steel is stronger & lasts longer than iron
  - STEEL BECOMES MOST IMPORTANT MATERIAL OF THE INDUS. REVOLUTION

← Video  Video →
• After being kicked off of their farms, people needed work (& religious morals encouraged strong work ethic)
Technology:

• New ideas spurred by scientific revolution & enlightenment ideas lead to:

  • skilled mechanics &

  • practical inventors
Economics:

• Britain had plenty of customers for its goods:

1. trade from overseas colonies strengthens economy
2. business merchants (*middle class*) have $ to invest
3. population growth (nearly doubled!); also results in greater demand for more products (*more people want more stuff*)
Government:

• Britain has a **stable government**

• *For example, remember that during the 1700’s & 1800’s, many European countries went through rebellions or revolutions, which are bad for economies.*
Major Inventions of the Textile Industry
1733: John Kay’s “Flying Shuttle”

Video ➔ Start at 4 minutes
1764: James Hargreaves

“Spinning Jenny”

Video: Watch from 7:08 – 8:48. An advanced invention from the original “Spinning Jenny”, but you get the idea!
1769: James Watt's Steam Engine

Video
1794: Eli Whitney’s “Cotton Gin”

1st Video (original gin)

2nd Video (modern gin, begin 5:40)
Major Inventions of the Textile Industry

- New textile machines are too big for homes, so factories are built
- 1st along rivers & powered by water
- Eventually steam engine powered machines make it so factories can be located anywhere.
Textile Factory
Workers in England
The Power Loom

Video
PRESENT DAY CLOTH MAKING

Video: 6 minutes.
Interest and Time permitting
<table>
<thead>
<tr>
<th>Year</th>
<th>Looms</th>
<th>Workers</th>
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<tr>
<td>1813</td>
<td>2400</td>
<td>150,000</td>
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<tr>
<td>1833</td>
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<tr>
<td>1850</td>
<td>224,000</td>
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Transportation Advances:

- Textiles & other goods increase in production → need for better & faster transportation to get goods to markets for sale

- Leads to improvements to roads, canals, railroads, steamboats
  (Robert Fulton - American)
Early Canals

Optional Video, Time Permitting

Britain’s Earliest Transportation Infrastructure
Steam Ship

Video: American Invention
Assembly Lines and Interchangeable Parts
American Inventions

Video: Original Assembly Line

Video: Ford’s 100th Anniversary

Video: Assembly Lines Today
The Railroads

• A steam engine on wheels (the railroad locomotive)

• Drove English industry after 1820

• Cheap way to transport goods & people

• Also boosted agricultural & fishing industry- b/c goods could be transported before spoiling
An Early Steam Locomotive

Video: Start 2 minutes in
Today’s Steam Engine, World’s Largest

Video: Begin 1:25, show for maybe 30 seconds
The Impact of the Railroad

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<tr>
<th>Year</th>
<th>Journey Times from London (in Hours)</th>
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<tr>
<td>1836</td>
<td>18</td>
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<tr>
<td></td>
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<tr>
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<td>18</td>
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<td>11</td>
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Other Major Inventors

• Turn to pg. 5 in notebook, and fill in chart information:

• **Louis Pasteur**
  – Contribution: Pasteurization
  – Impact: Food preservation; spoilage of food can be prevented by getting rid of the microbes → heat it up!

• **Edward Jenner**
  – Contribution: Smallpox vaccination; “Father of Immunization”
  – Impact: Greatly reduced/eradicated the smallpox disease today
Industrialization
The Factory System

- Rigid schedule.
- 12-14 hour day.
- Dangerous conditions.
- Mind-numbing monotony.
Growth of Cities

• Growth of factory system brought many to cities & towns

• This movement & growth of cities is URBANIZATION

• Cities in Britain doubled & tripled in size

• London became Europe’s largest city
Living Conditions

• No building plans, no sanitary codes, no building codes planned for growth

• Lack of adequate housing, education, & police protection

• No drainage/sewage systems- led to widespread disease & cholera epidemics

• Average life span of factory worker was 17 years
Factory Workers at Home
Child Labor

- Children as young as 6 worked in mines and factories.
- Work - 14 hours a day, 6 days a week.
- Conditions = not good.
- Unsafe factories & machines = lost of limbs, often loss of life.
- Unsafe air in factories and mines = lung problems & early death.
- **Child Labor Video** You can stop after 4:00ish
Child Labor

Video: Watch intro, then start 5 minutes in
Class Tensions

- Factory owners & merchants grew more wealthy than landowners/aristocrats

- Large middle class developed
  - Upper middle class (government employees, doctors, lawyers, & managers of factories, coal mines, and shops)
  - Lower middle class (factory overseers, toolmakers, & printers)

- Lower class saw little improvement in their economic conditions
Positive Effects of Industrialization

- Created jobs
- Contributed to wealth of the nation
- Cheaper, mass produced clothing
- More efficient to ship goods
- Prosperity of middle & upper classes
- Laborers eventually won higher wages, shorter hours, and better working conditions
Negative Effects of Industrialization

- Child labor
- Air pollution
- Unemployment & loss of jobs
- Loss of family farms
- Cramped living conditions
- People often sick
- Divorces increased

Videos, Time Permitting:
- Industrial Revolution Video Review (9 min)
- Crash Course-Indust Rev (11 min)
• Dirty water (typhoid fever & cholera killed thousands)
• ½ babies born died before 2\textsuperscript{nd} birthday
• Few workers lived to old age
• Lack of police and fire protection=LOTS of theft and constant fear of fires.
• **Since most building were made of wood, fire was a constant concern in 1871, a fire swept through Chicago and burned most of the city to the ground**
Industrial Staffordshire
Unionization, Legislative Reform, and Government Response
Working class became more involved in politics- needed reform (long hours, dirty & dangerous working conditions)

Workers joined associations known as **UNIONS**

Unions would engage in collective bargaining- negotiations between workers & their employers.

They bargained for better working conditions & higher pay. If demands were not met, they would strike- refuse to work
Capitalism/socialism
Capitalism: Who? What Book?

- Adam Smith wrote *Wealth of Nations*
Capitalism:
What is Most Important for Business?

• 1. Individual worker is most important
• 2. Workers work harder when they make a profit
• 3. Companies do better when they make a profit
Capitalism: Role of Government

- Laissez-faire government ("let the people do as they will")

- Government SHOULD be involved, but only a little
Capitalism: View of Wealth

1. Wealth motivates people to work.
2. If you don’t work, you will be poor.
Capitalism: View of Property

- Private property → you work harder for what’s yours
Capitalism: What Does It Dislike About Socialism/Communism?

• 1. No reason to work harder
• 2. The individual doesn’t matter
• 3. Can’t get rich
Socialism/Communism: Who? What Book?

- Karl Marx (& Engles) wrote *Communist Manifesto* & *Das Capital*
Socialism/Communism: What is Most Important for Business?

1. Society as a whole is most important
2. All people should be equal
Socialism/Communism: Role of Government

- Government **SHOULD NOT**/ **SHOULD** be in total control
- Make sure wealth is distributed evenly

<table>
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<table>
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<tr>
<th>Fascism</th>
<th>Communism</th>
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Socialism/Communism: View of Wealth

- 1. Wealth should be distributed evenly
- 2. No rich & no poor
Socialism/Communism: View of Property

- No private property
- Everything is shared
Socialism/Communism: What Does It Dislike About Capitalism?

• 1. Some people are poor

• 2. People are too greedy

• 3. Owners mistreat workers to make money