Unit 4

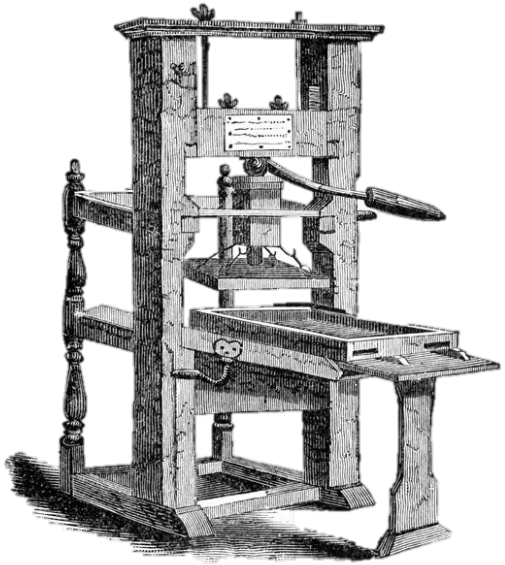
Industrial Revolution, Russian Revolution, and Chinese Revolution

Day 1: Industrial Revolution

Starter: March 12th and 13th

In your opinion what are the top 10 inventions of all time?

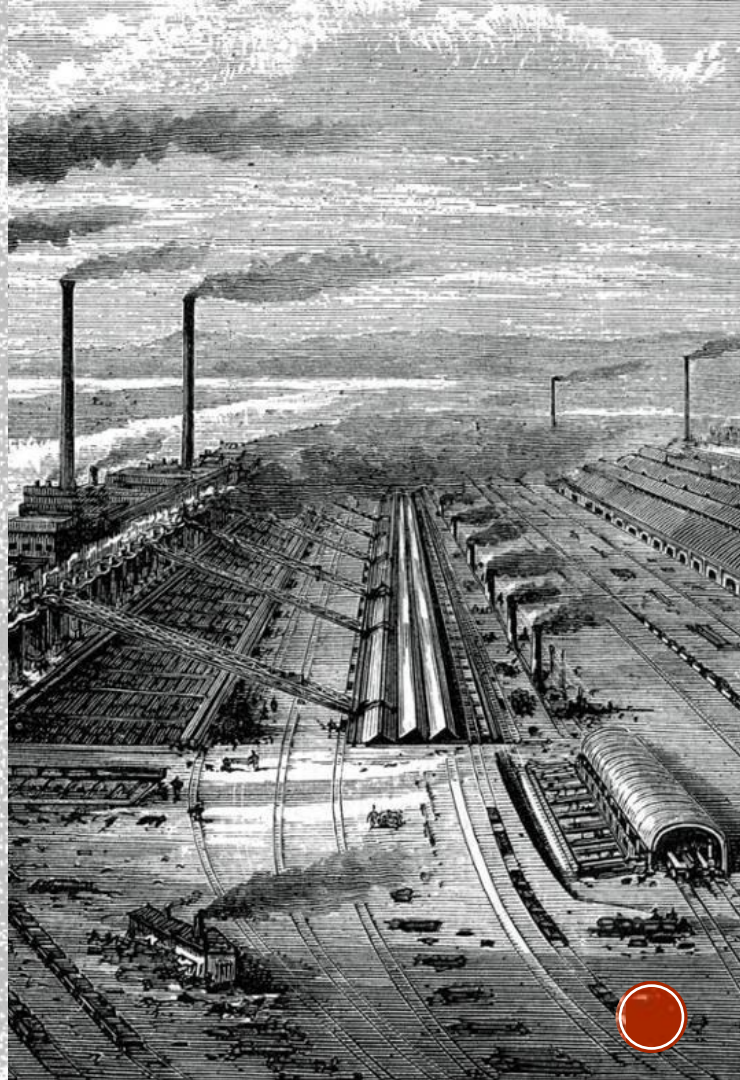
TOP TEN INVENTIONS OF ALL TIME-Some examples

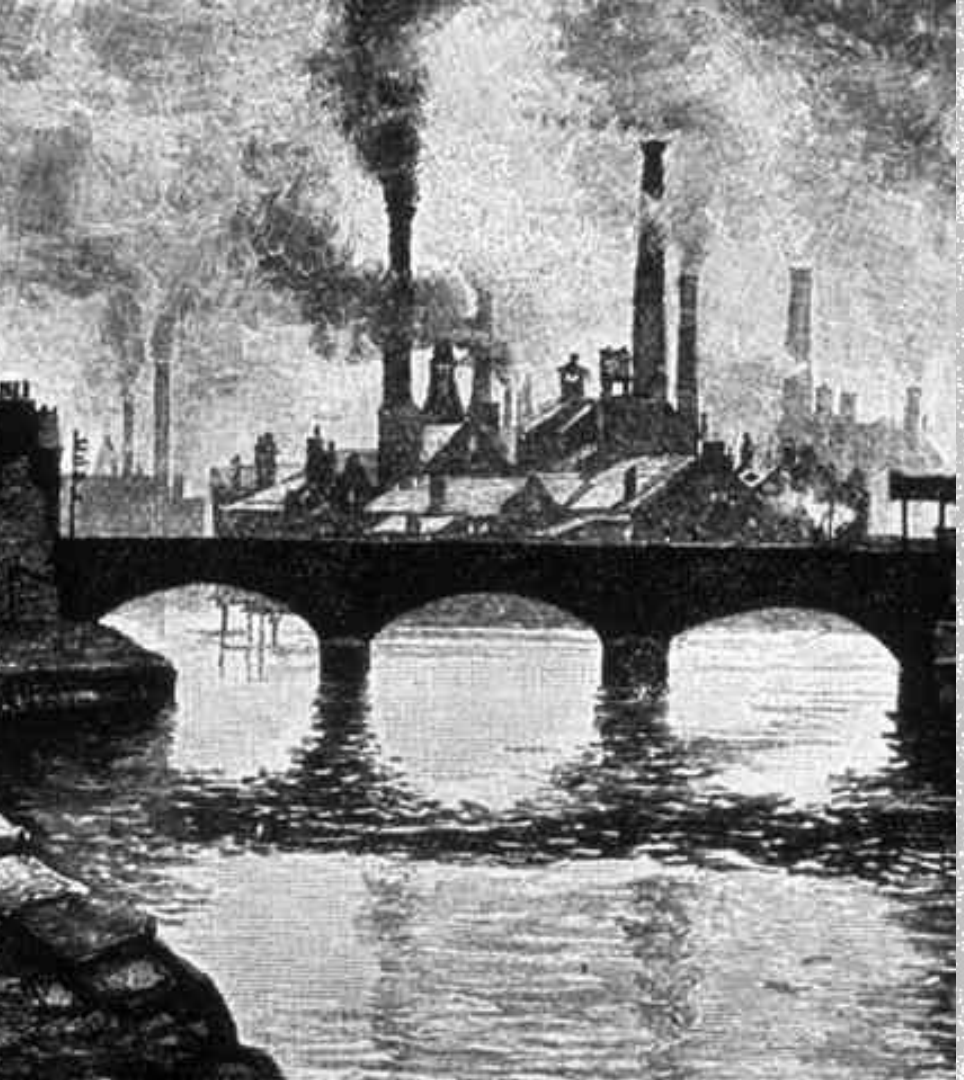


1. Antibiotics
2. Electricity
3. Plastic
4. Transistors
5. Computers
6. Steam engine
7. Pesticides
8. Automobile
9. Printing press
10. Modern plumbing

INDUSTRIAL REVOLUTION

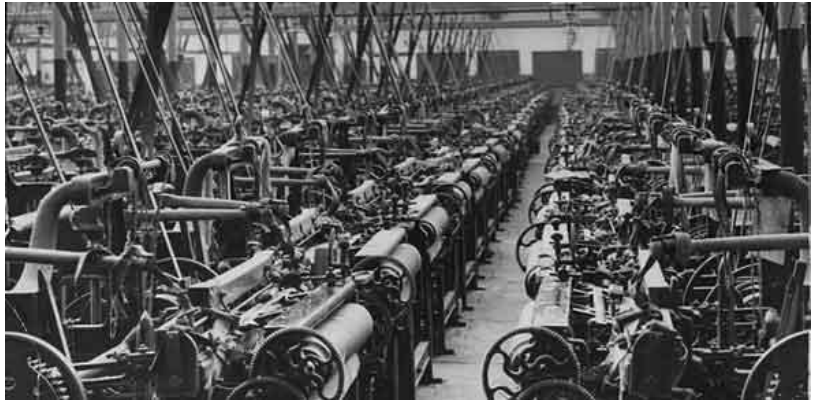
- Industrial Revolution: a period of increased output of goods made by machines and new inventions that will change how and where people live
- Where did it take place?
  - England
- When?
  - 1750 - 1850





WHY GREAT BRITAIN?

1. Good resources (coal and water)
2. Great Britain has a great location surrounded by water
3. Great Britain has money-MERCANTILISM
4. Great Britain has a large population of workers.
5. Great Britain can produce enough food to sustain its population.

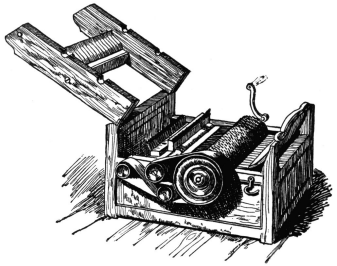


INVENTIONS IN THE INDUSTRIAL AGE

1. Textiles
2. Steel/Iron
3. Steam Power
4. Electricity

TEXTILE INDUSTRY

- Textile Industry is the most important industry in Britain in the 1700's.
- Most work is done at home through the cottage system
- Work was usually combined with farming.
- Merchants who traveled on pack horses bought cloth from local farmers.



ELI WHITNEY

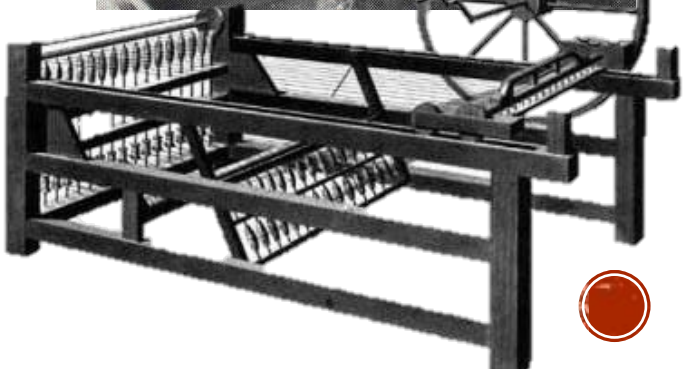
- **Eli Whitney** invented the cotton gin in **1793**
- Separated the seeds from the cotton, a job previously done by hand

JOHN KAY

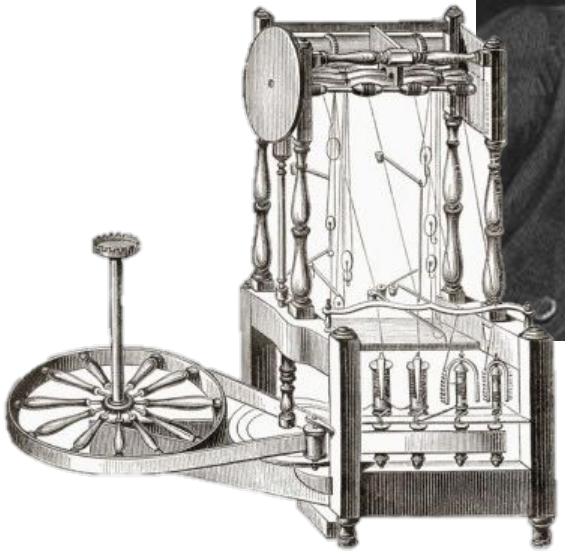
- In 1733 **John Kay** patented his flying shuttle.
- It dramatically increased the speed of weaving.
- It could produce a much wider cloth

JAMES HARGREAVES

- **James Hargreaves** built the Spinning-Jenny in 1764.
- It used eight spindles to create eight threads at once
- Could only make thin thread



RICHARD ARKWRIGHT

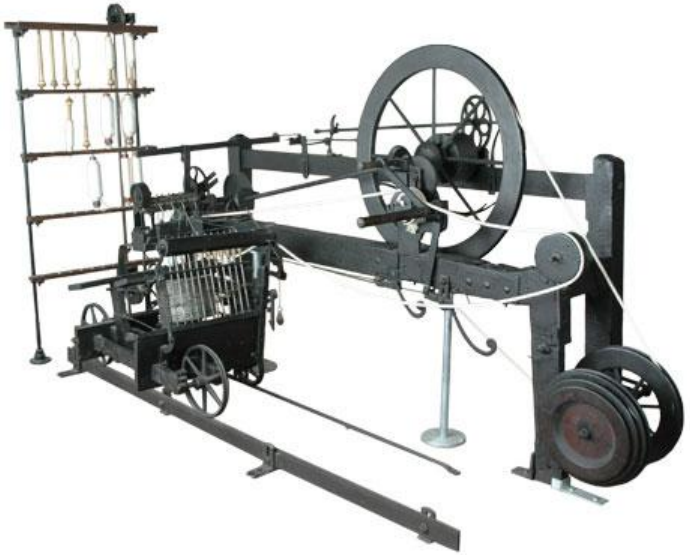


- Connected the water to the machinery via a wheel.
- Powered by a water wheel
- Built by Richard Arkwright

https://www.history.com/shows/mankind-the-story-of-all-of-us/videos/industrial-revolution

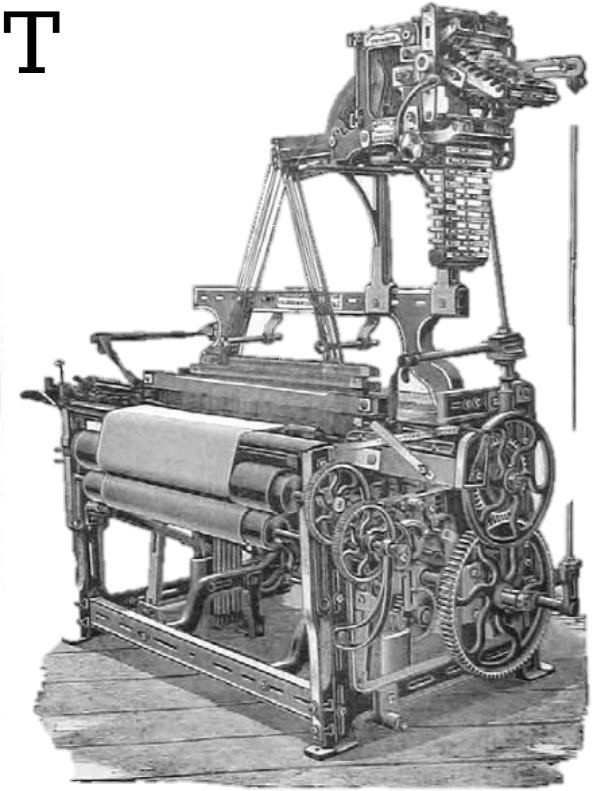
SAMUEL CROMPTON

- In 1779 **Samuel Crompton** will combine the features of the Spinning Jenny and the water frame calling it the spinning mule.



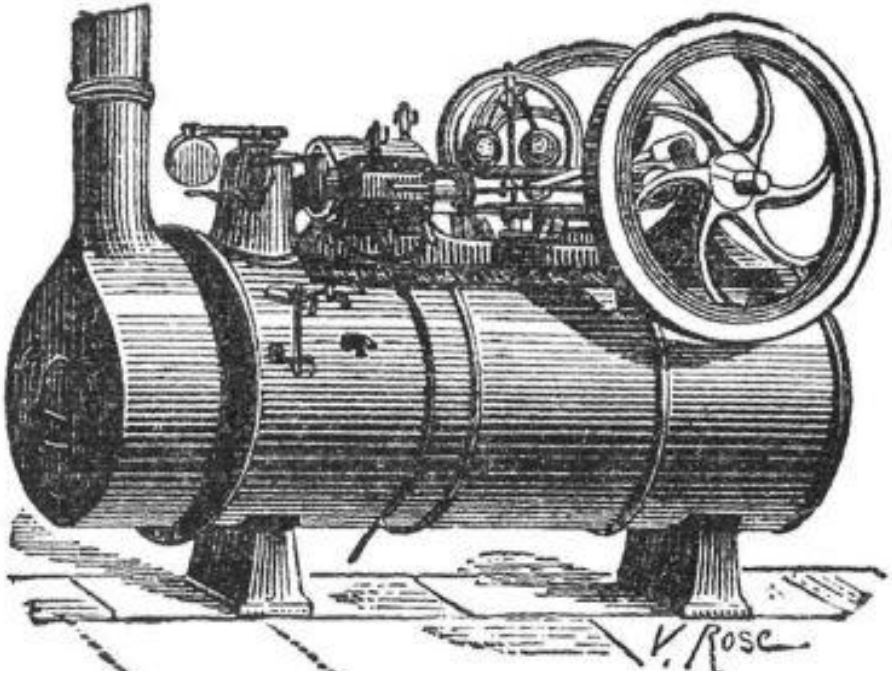
EDMUND CARTWRIGHT

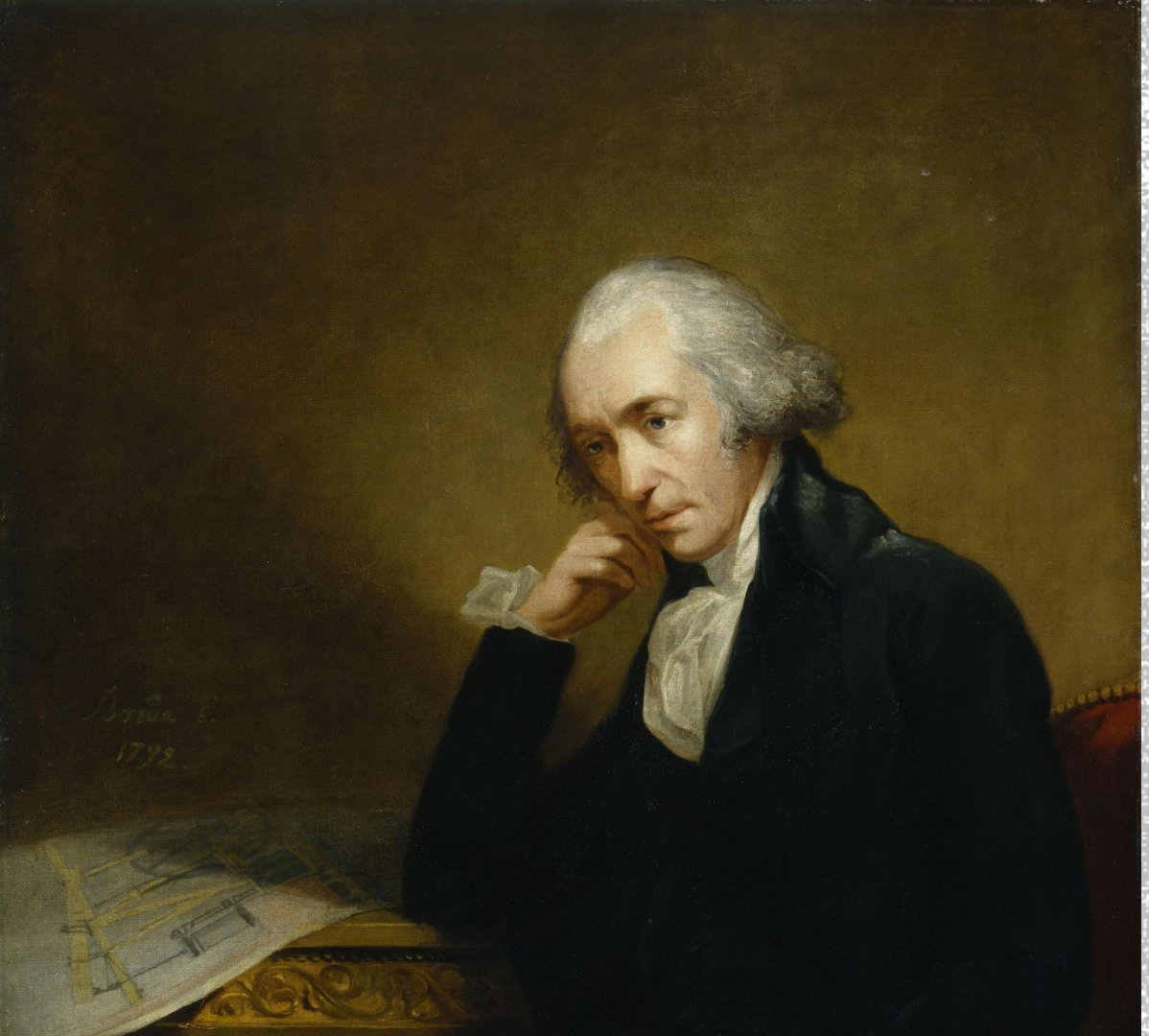
- The first power loom used for weaving was designed in 1784 by Edmund Cartwright.



STEAM POWER

- Steam power (steam engine) eventually replaced water power.
- First steam engines used to pump water from coal mines (1705)
- Later used to power textile factories
- Finally to power locomotives and ships



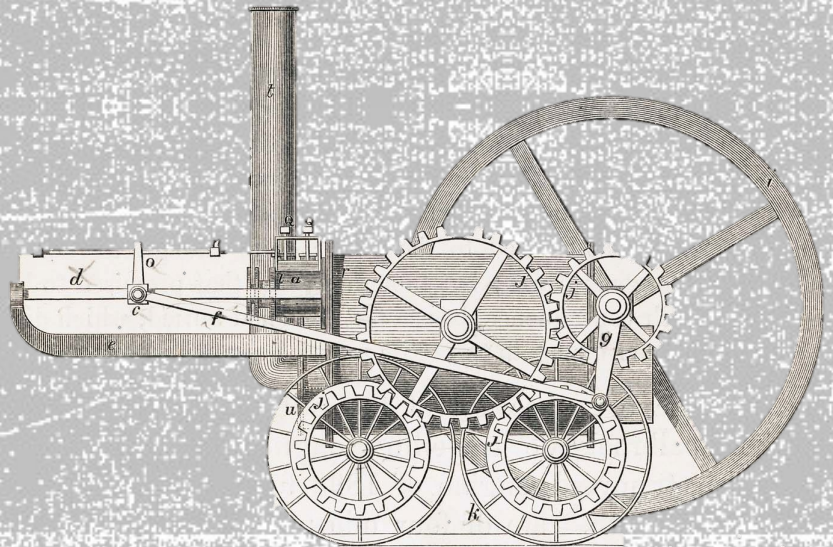


JAMES WATT

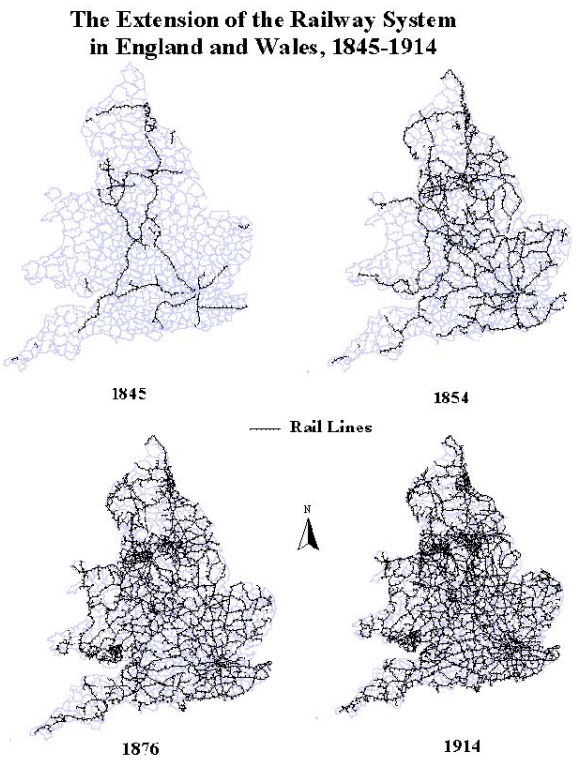
- **James Watt** 1763 improved Newcomen's Steam engine
- His engine could be used for turning wheels of textile machines

RICHARD TREVITHICK

- 1804 Richard made an engine that was small but powerful that will lead to the invention of the first Railroad.



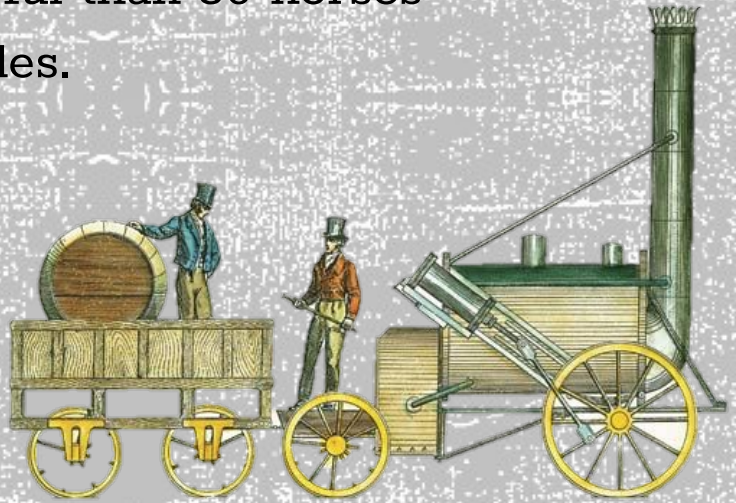
WHY WAS THE DEVELOPMENT OF RAILROADS IMPORTANT TO INDUSTRIALIZATION?

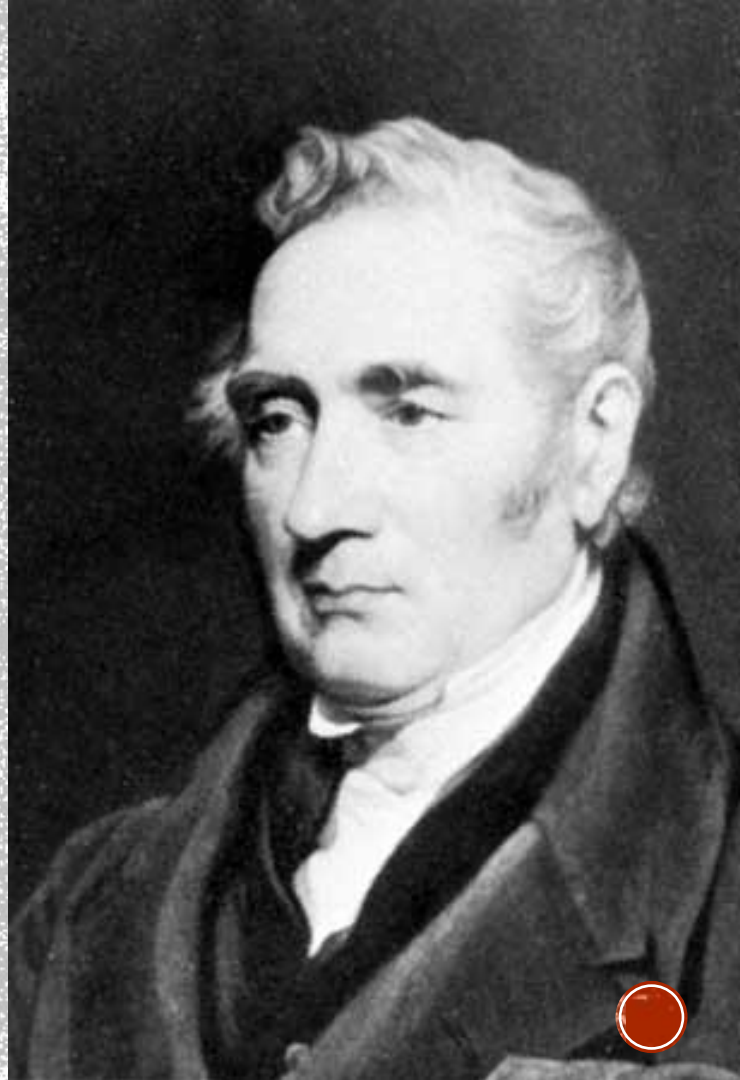


They allowed factory owners to ship raw materials and products quickly over land , not just by water.

GEORGE STEVENSON

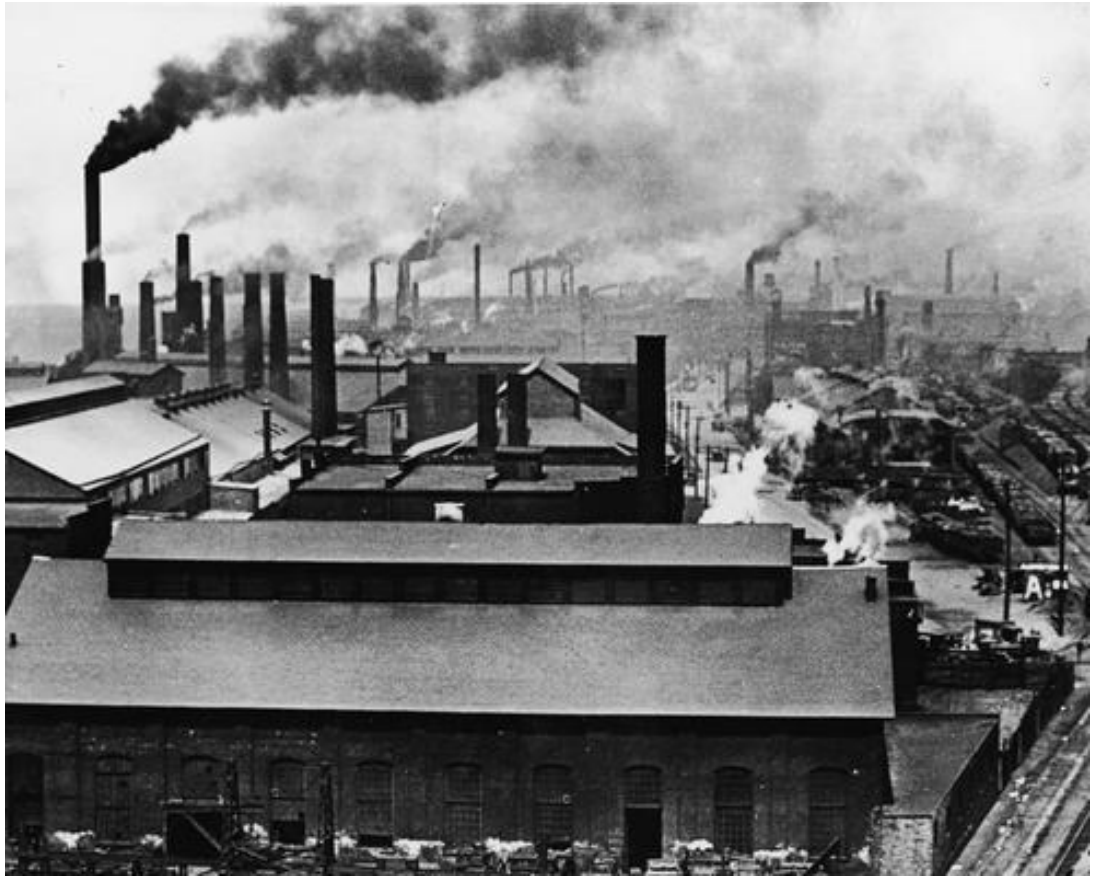
- In 1829 built the Rocket
- Much faster locomotive (30 MPH)
  - More powerful than 80 horses
  - It ran 27 miles.





TRANSPORTATION

- **Canals**- man-made waterways used for transporting materials
  - Good for heavy products (coal, iron)
  - Slow, costly to build



RESULT OF TRANSPORTATION IMPROVEMENTS

- Factory owners could transport raw materials quickly and cheaply
- Caused iron and steel industry to grow quickly
- Cost of products dropped
- Jobs working for railroads
- People could move more rapidly

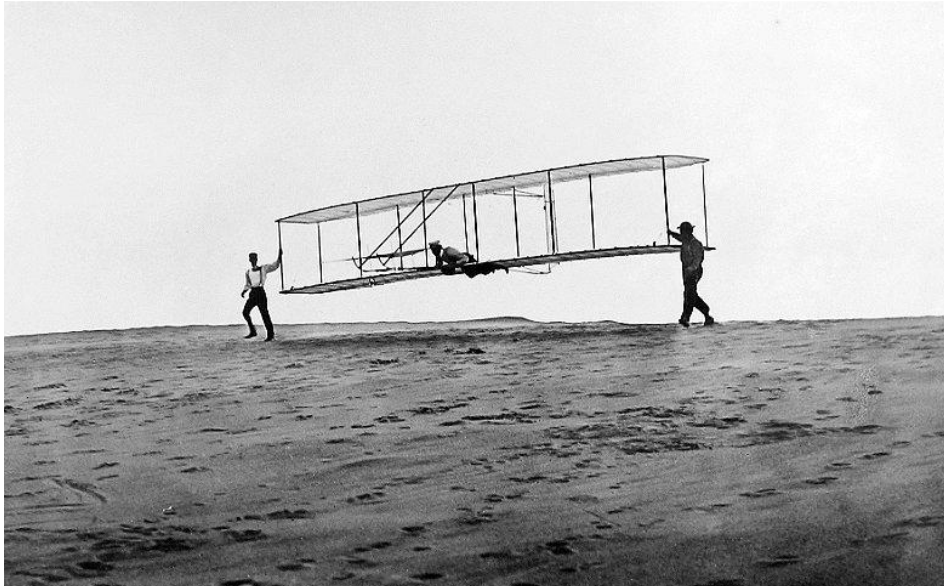
INTERNAL COMBUSTION ENGINE

HORSELESS CARRIAGE

- In 1769, the first self-propelled road vehicle it was a steam-powered model.
- Internal combustion engine (Nikolas Otto)
  - Powered by gasoline, diesel, or kerosene
- Used by **Daimler** to make the first practical automobile 1886- sold in 1892 —KARL BENZ

WRIGHT BROTHERS

- Wilbur and Orville Wright and the Kitty Hawk - 1903

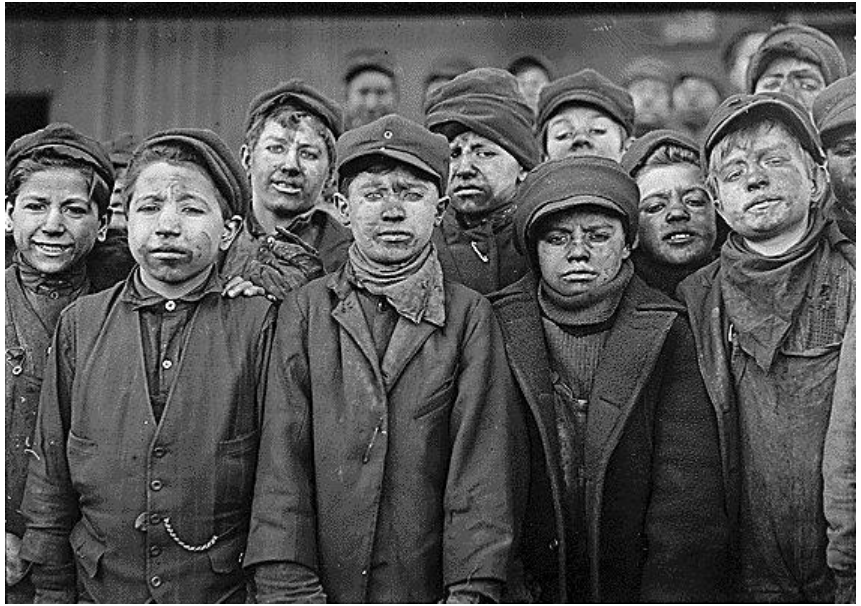


AUTOMOBILES AND OCEAN LINERS

- Henry Ford pioneered the ASSEMBLY LINE
- 1818 first **steamship**/ 1870 first **ocean liner**

PROBLEMS WITH FACTORIES

- Working hours (12-16)
- Accidents
- Pollution
- Unclean Food
- Abuse



https://www.history.com/topics/industrial-revolution/videos/the-industrial-revolution

Factory Simulation and Questions

Assembly Line

YOUR FACTORY EXPERIENCE

It is the end of the work week (Saturday—your only day off is Sunday). You work for Maxwell Cruel Industries manufacturing children's toys. Today, you are going to design and manufacture a new toy soldier that will probably be purchased for middle class children (your children will probably never have such a luxury—even though they help manufacture the toys).

1. First, you must decide upon a new design. Each member of your group will compete for the chance to design this new toy. Draw the best toy soldier you possibly can.

Assembly Line

2. Second, as a group, vote on which toy soldier you like best. This will become your prototype. You will manufacture this toy soldier.

3. Appoint one member of your group as the assembly-line manager. The manager has a few important responsibilities.

A. The manager creates the assembly line. He (this person must be male) breaks down the work involved in manufacturing the toy soldier. Each person is in charge of drawing only ONE aspect of the toy (the head, the body, the weapons, the hat, etc.). Your teacher will help oversee setting up your assembly line.

B. The manager is in charge of making sure the assembly line meets the production quota.

C. The manager is in charge of keeping work moving quickly and accurately and he will try to solve any slow-downs in production.

Assembly Line

4. Production. The factory manager (your teacher) will assign you each roles as specific types of workers. Work does not start until the factory manager gives the go ahead. Once the whistle blows, you have five minutes to create 50 toy soldiers. Work quickly, but accurately, or your pay can be docked. You must produce toy soldiers that look just like the original.At the end of the five minutes the factory manager will evaluate your work and let you know whether or not you will receive your full pay.

Standard of Living Readings and Discussion