

# The Industrial Revolution

<https://www.youtube.com/watch?v=zhL5D>

[Cizj5c](#)

# What was the Industrial Revolution?

- a shift from an *agricultural* (farming) economy to one based on *industry* (manufacturing)

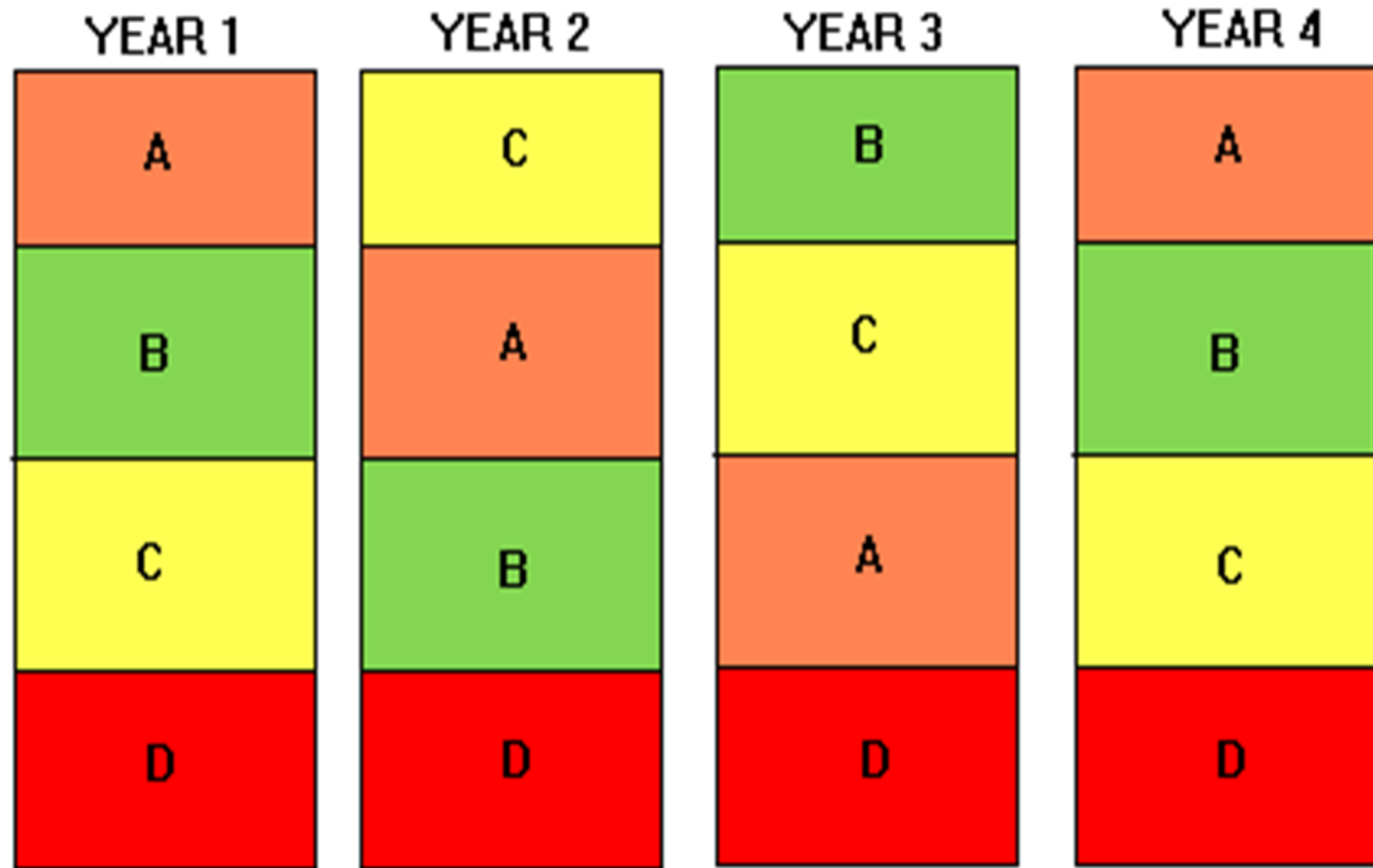
# Agricultural Revolution

- 1700 – Wealthy landowners began buying up village farms
- Large farms called enclosures
- Results of enclosure movement:
  - 1. landowners tried new agricultural methods
  - 2. more crops = more people
  - 3. forced small farmers to become tenant farmers or to give up farming and move to the cities

# The Enclosure Movement



# Crop Rotation



The 3 Bed Rotation System

# Why did the Industrial Revolution begin In England?

- Water power and coal to fuel new machines
- Iron ore to construct machines, tools. And buildings
- Rivers for inland transportation
- Harbors from which merchant ships set sail
- Had “Factors of Production” – land, labor and capital

# Textile Industry

- The first industry to be transformed
- Why? Agricultural revolution led to an **increased population** which led to a **greater need for clothing**
- Turned to machinery to make cloth quicker and cheaper

# Making Cloth Before Machines

- *Cottage Industry*
- Slow process
- Business involving people who worked at home





# Flying Shuttle

- John Kay – made a shuttle that sped back and forth on wheels



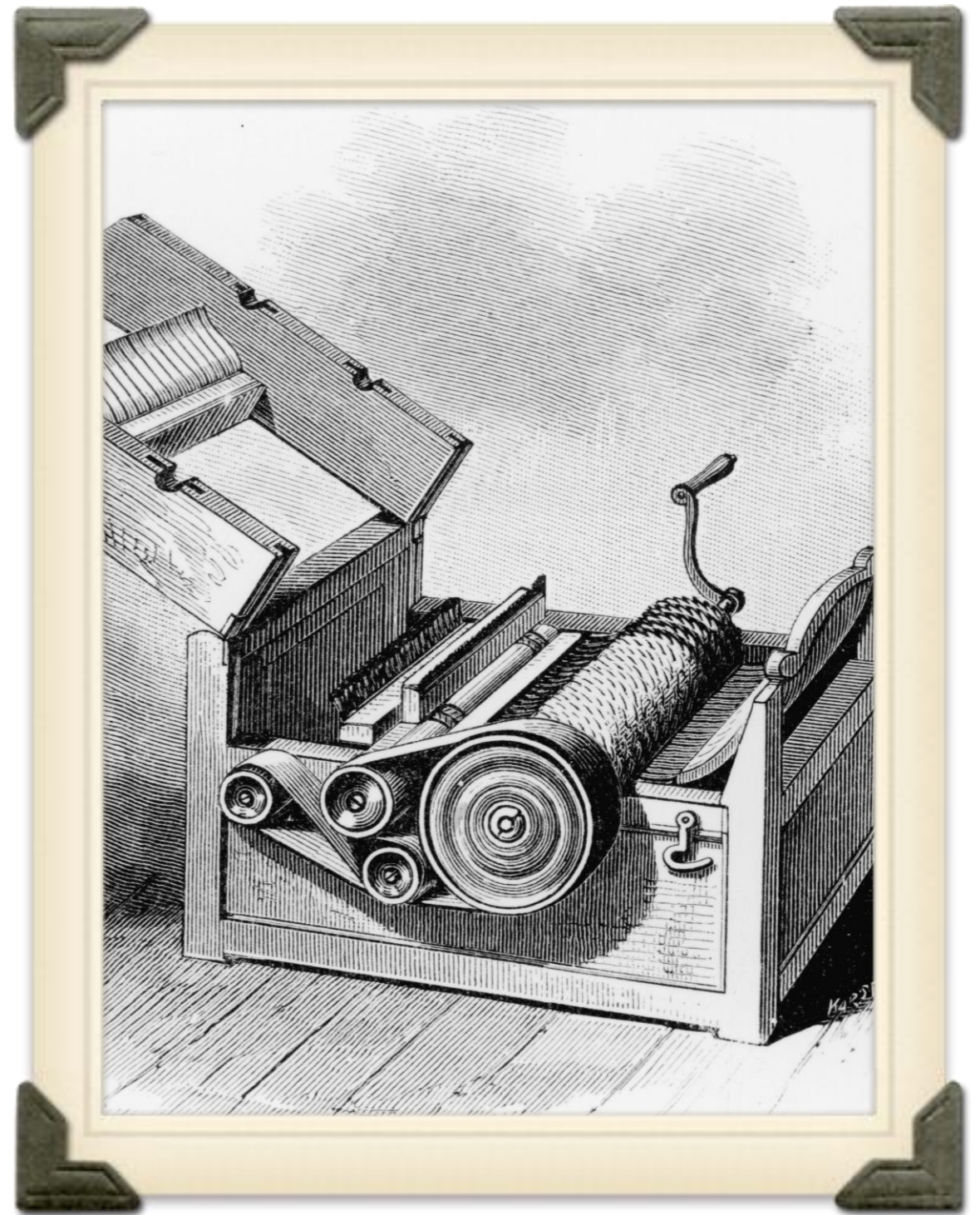
# Spinning Jenny

- James Hargreaves – 1764 - invented a spinning wheel that allowed one spinner to work 8 threads



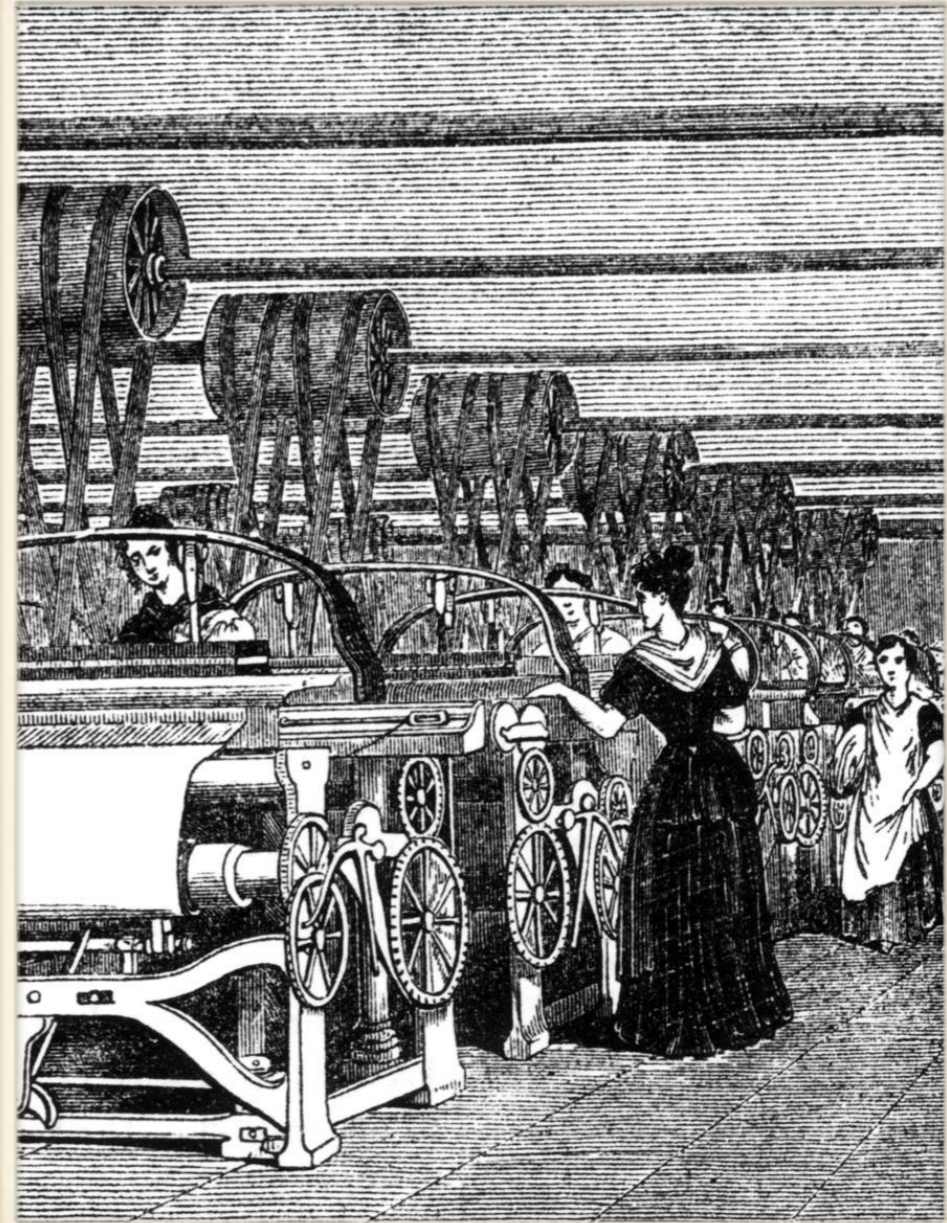
# Eli Whitney's Cotton Gin

- Created in 1793
- Separated Cotton Fibers from seeds
- Caused massive growth of production of cotton, exports to Britain, and Demand for U.S. Slavery

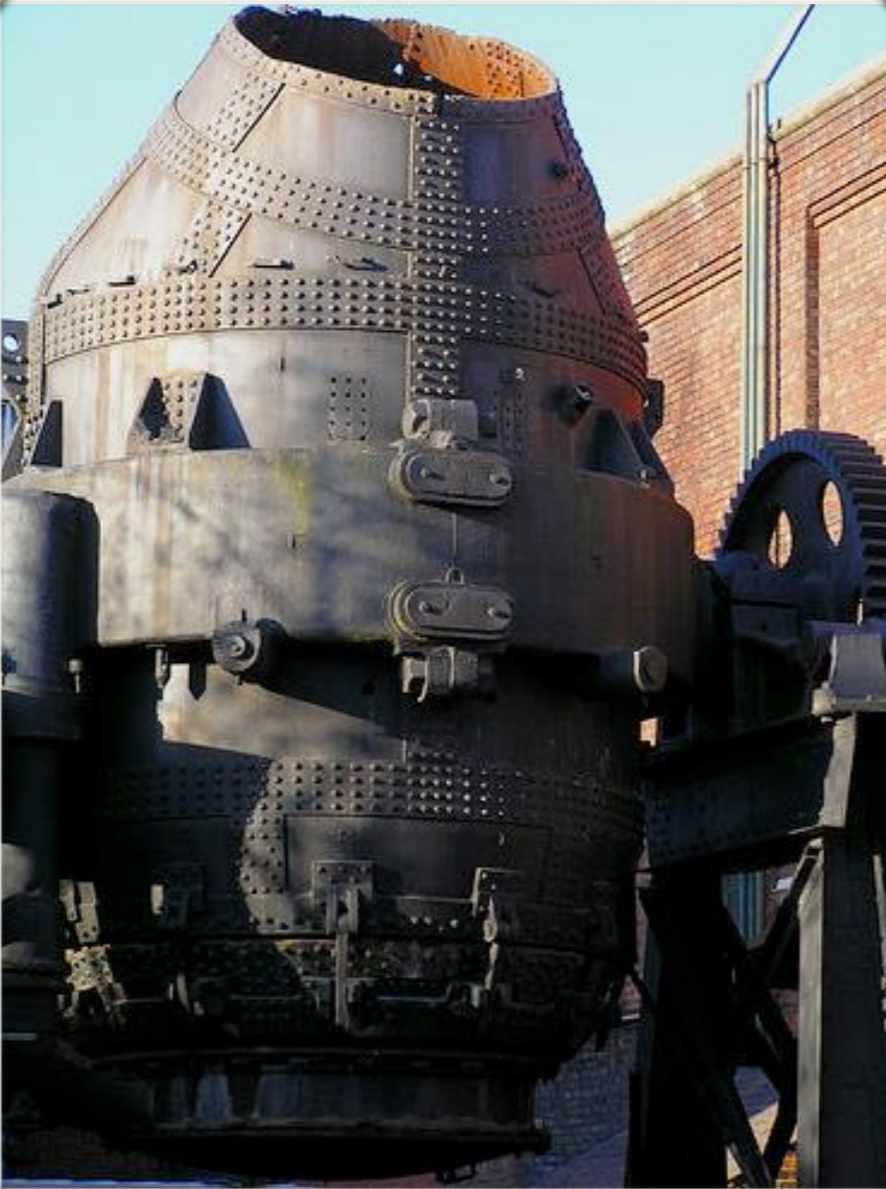




# Cottage System VS. Factory System



# Bessemer's Smelting Process



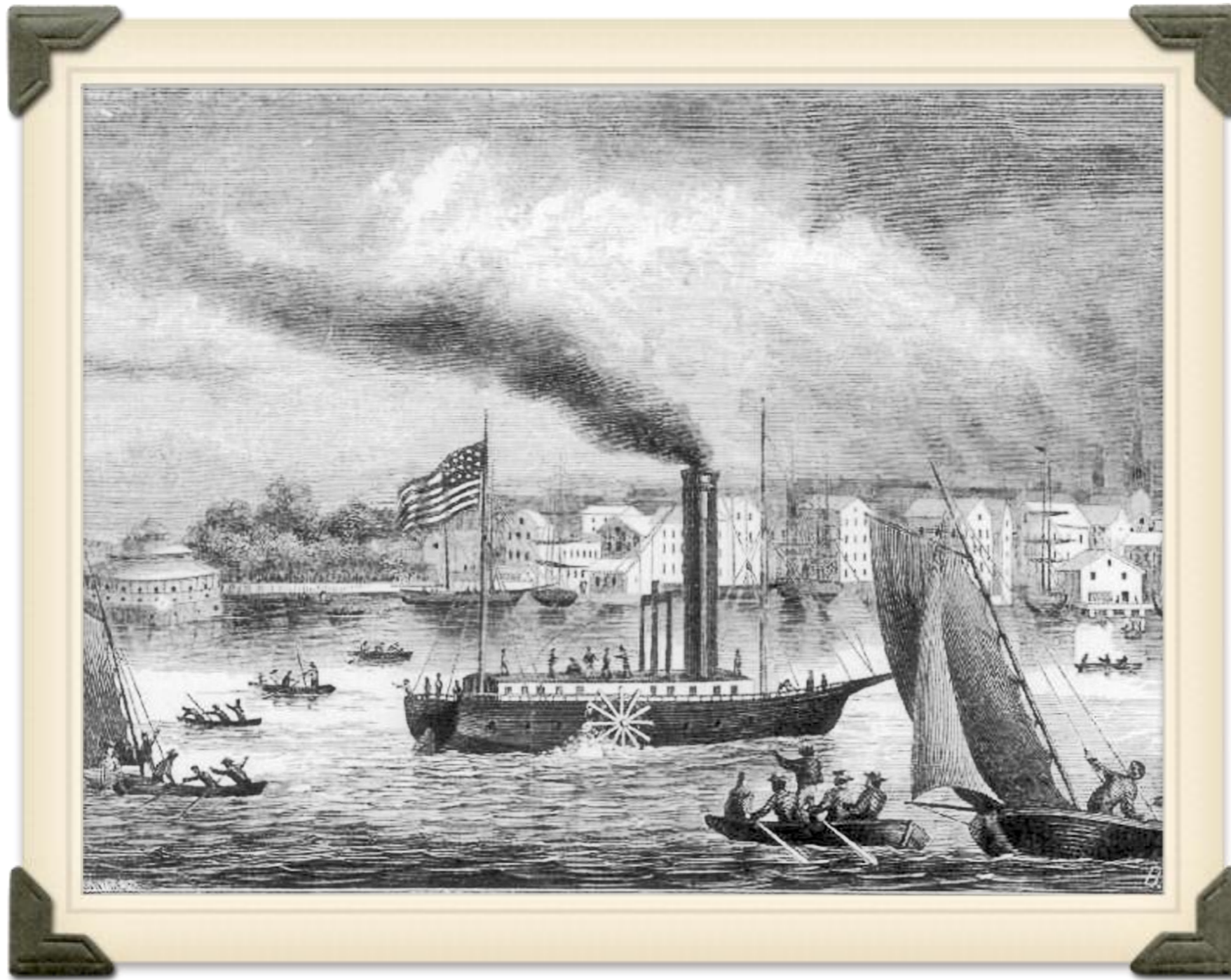
- Bessemer Process was the first inexpensive industrial process for the mass production of steel
- Allowed the manufacture of bridges, railroads, skyscrapers, and large ships



# Transportation Improvements

- **Steam Engine – James Watt – improved the steam engine so it worked faster and more efficiently**
- **Steamboat – Robert Fulton – improved water transportation**



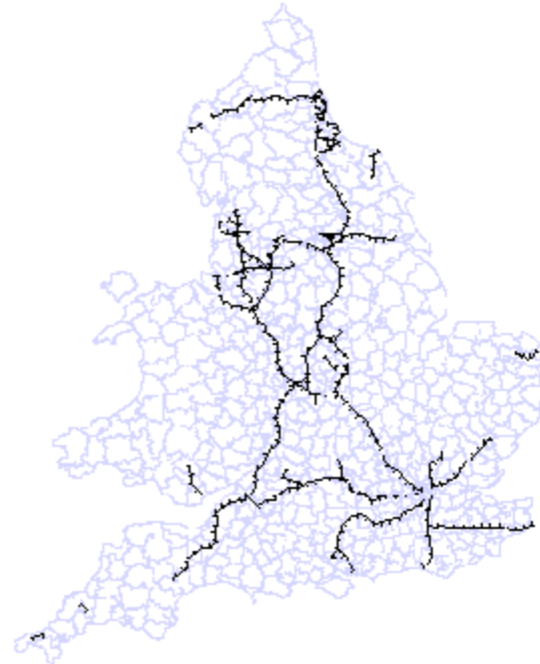


**Robert Fulton's Steamship**

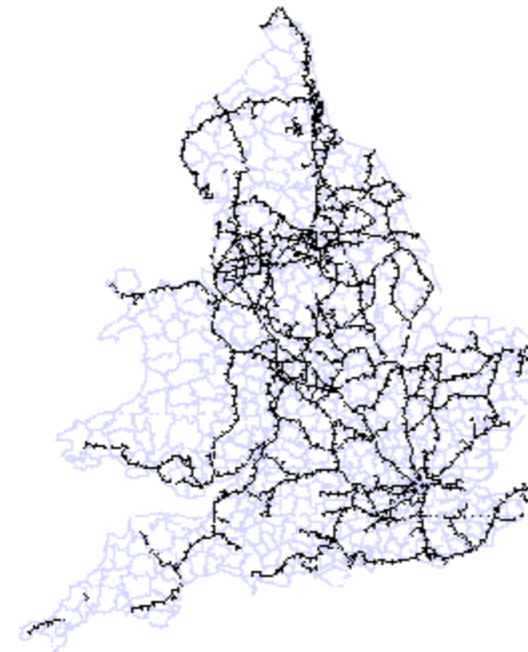
# Railroads

- Invention and perfection of the locomotive
- 4 major effects:
  - 1. Spurred industrial growth: gave manufacturers a cheap way to transport their goods
  - 2. created thousands of new jobs
  - 3. boosted England's agricultural and fishing industries
  - 4. encouraged country people to take distant city jobs and city people vacationed in the country

## The Extension of the Railway System in England and Wales, 1845-1914

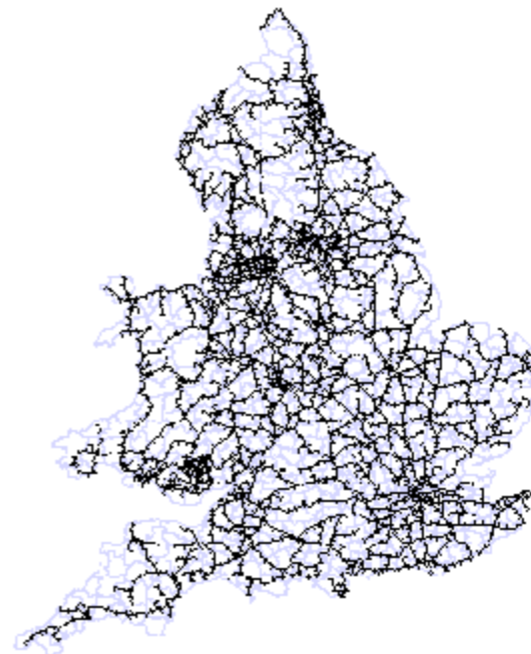


1845



1854

— Rail Lines



1876



1914

# Urbanization

- mass migration of people from rural areas to cities – farmers needed work
- Rapid growth of cities due to industrial demand of workers





JOURNEY TIMES FROM LONDON (IN HOURS)

43

EDINBURGH

12 $\frac{1}{4}$

24

LIVERPOOL

6 $\frac{1}{2}$

18

EXETER

4 $\frac{3}{4}$

11

BIRMINGHAM

3

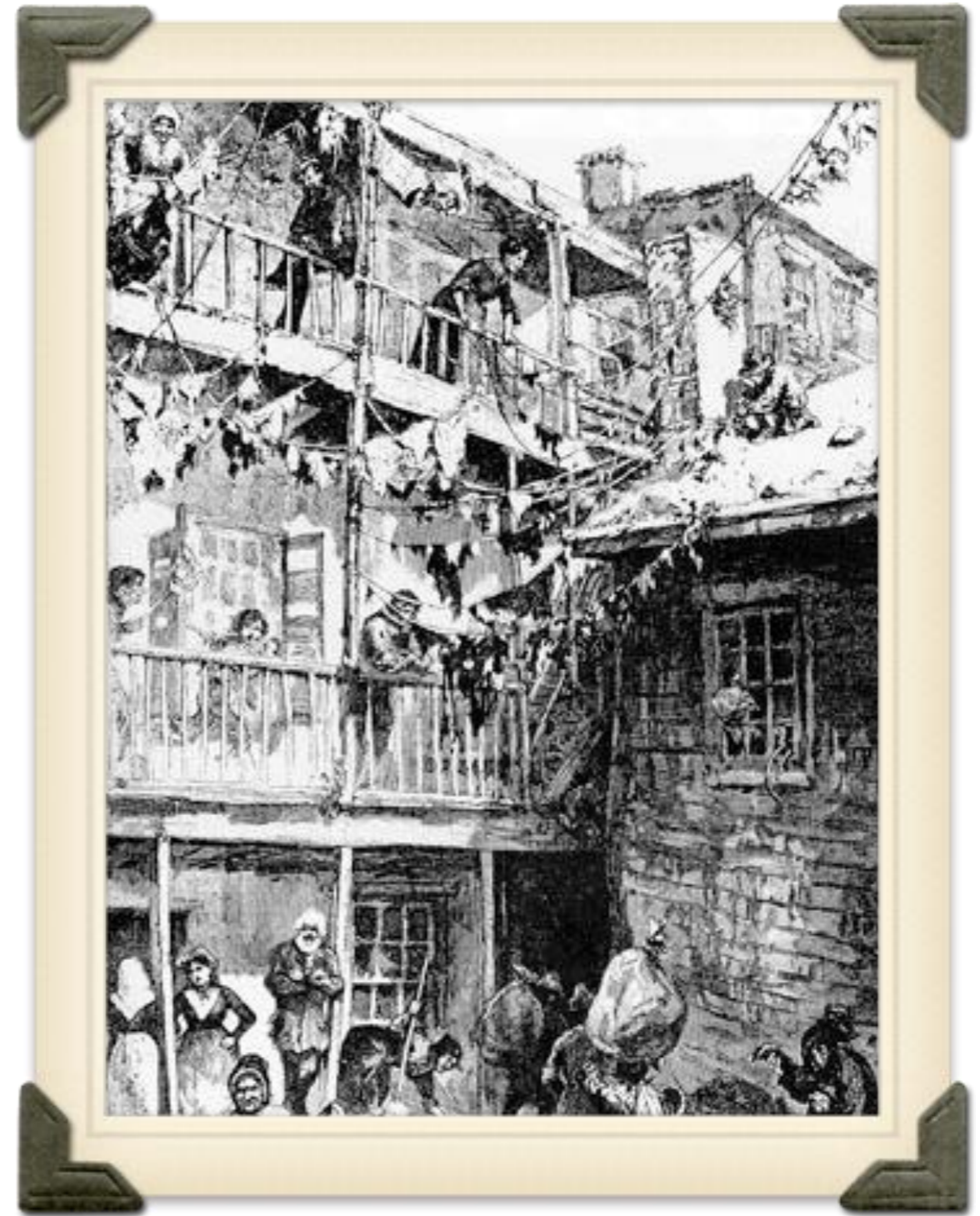
6

BRIGHTON

1 $\frac{1}{4}$

# Blessing or Curse?

- The Standard of living increased overall for most people
- But a new way of living brought new problems



# Conditions in Factories



Dangerous  
Machinery



Monotony

Dirty



Cramped spaces

Young women in the textile mills of Massachusetts died at an average age of 26, constantly inhaling cotton dust, working long hours in unventilated rooms lit by oil lamps





# Housing

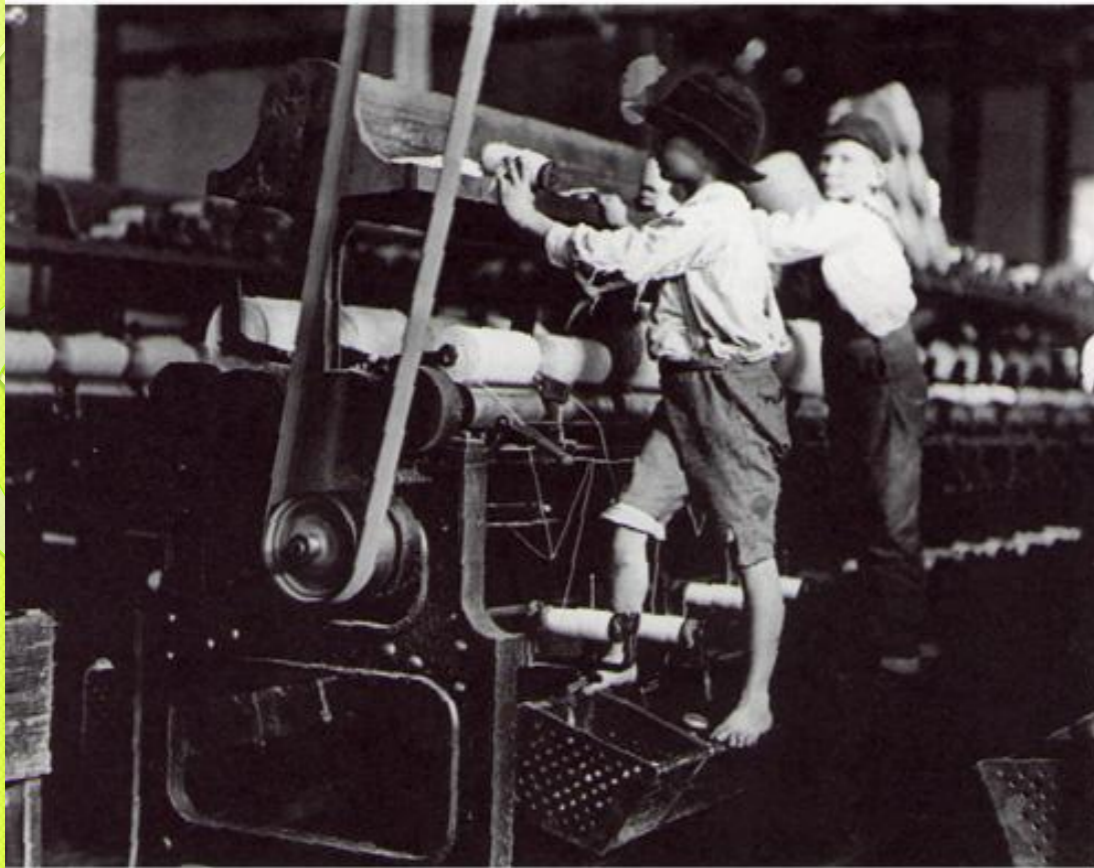
**Tenement** = a substandard, multi-family dwelling, usually old and occupied by the poor

- Built cheaply
- Multiple stories
- No running water
- No toilet
- Sewer down the middle of street
- Trash thrown out into street
- Crowded (5+ people living in room)
- Breeding grounds for diseases
- Pollution from factory smoke



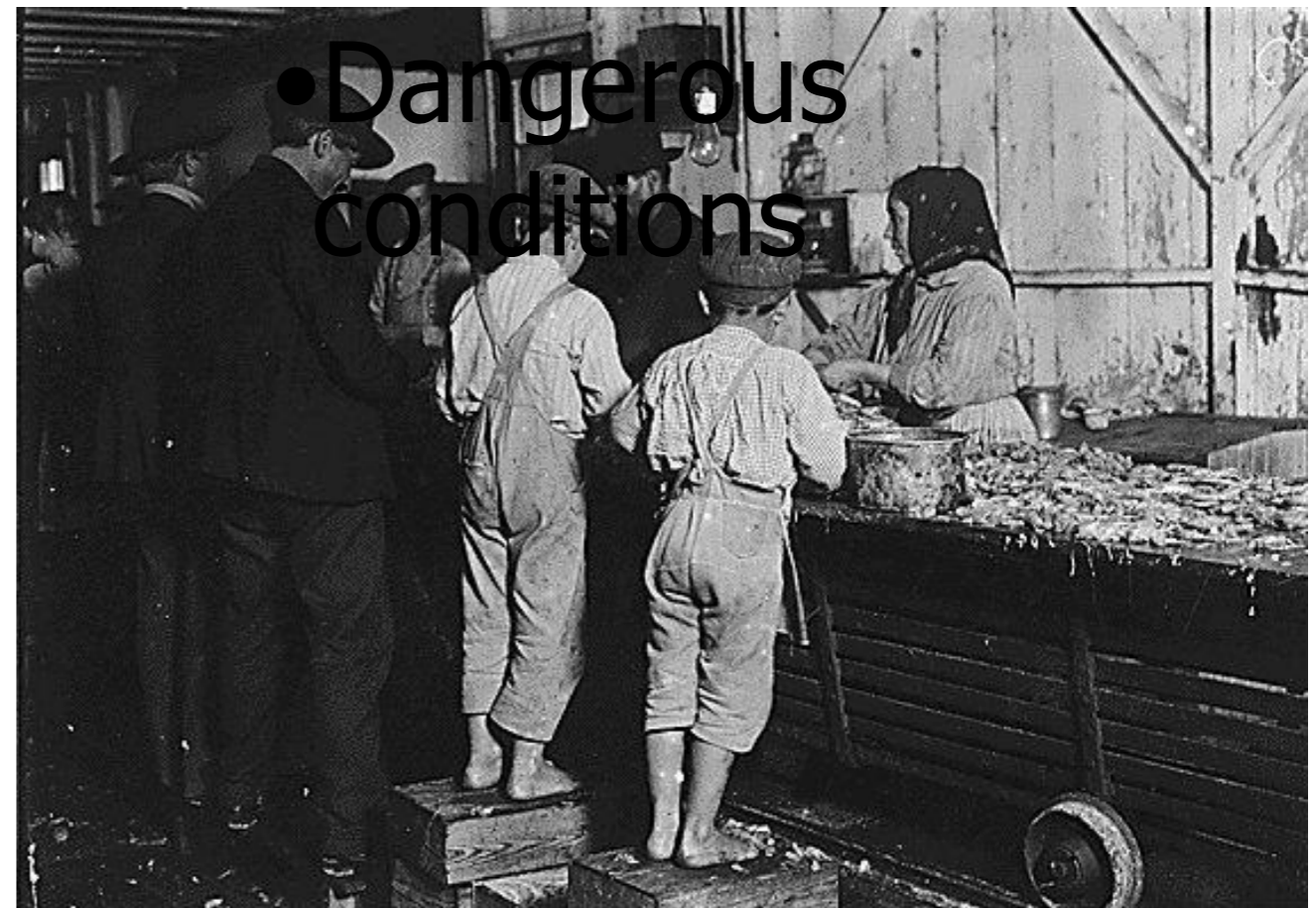
# Child Labor

- Young children
- Long hours
- Poor treatment



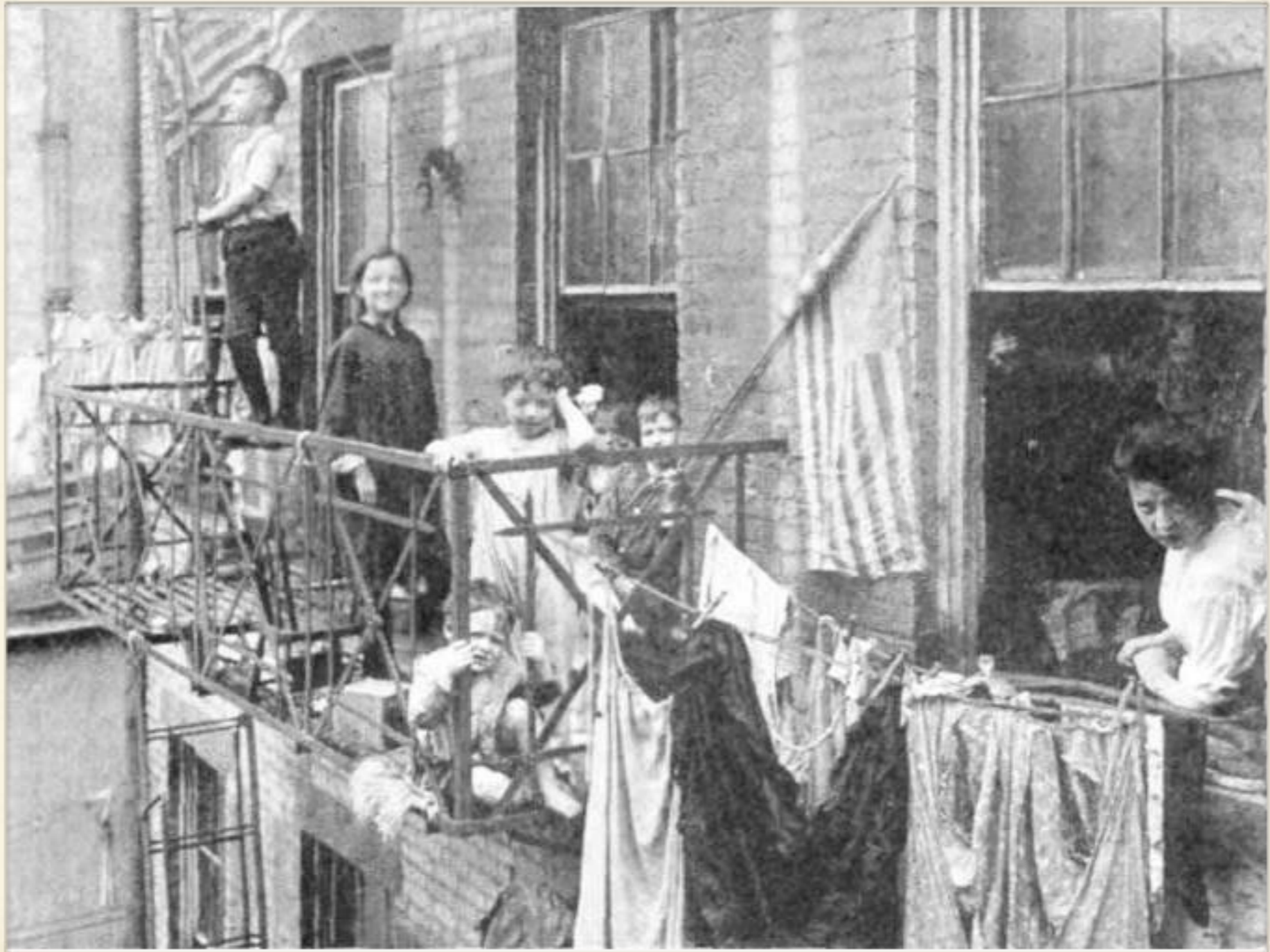
**Replacing bobbins on machinery**

*Kids At Work, Russell Freedman, Scholastic, 1994. Photo by Lewis Hine*

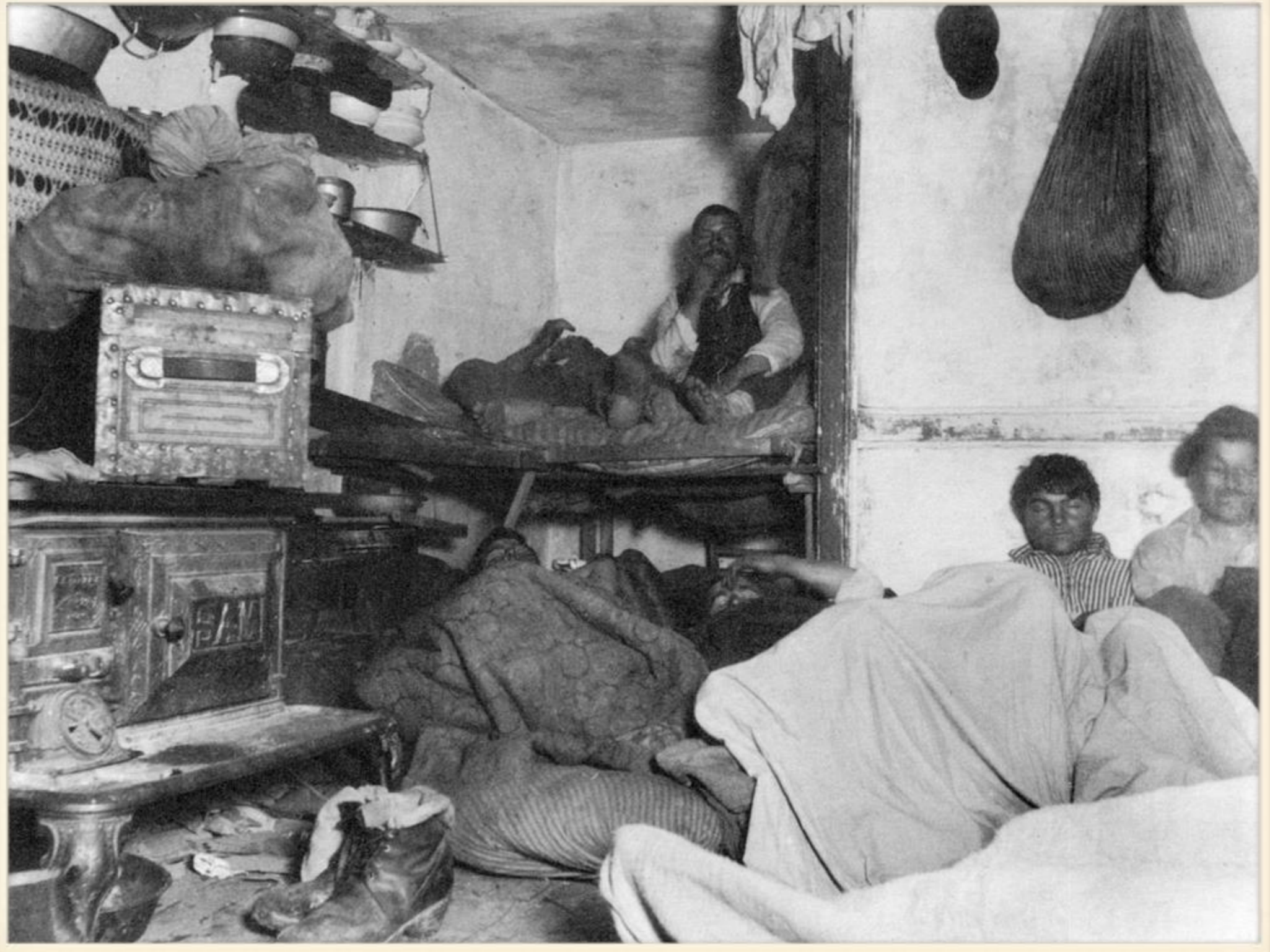


• Dangerous conditions







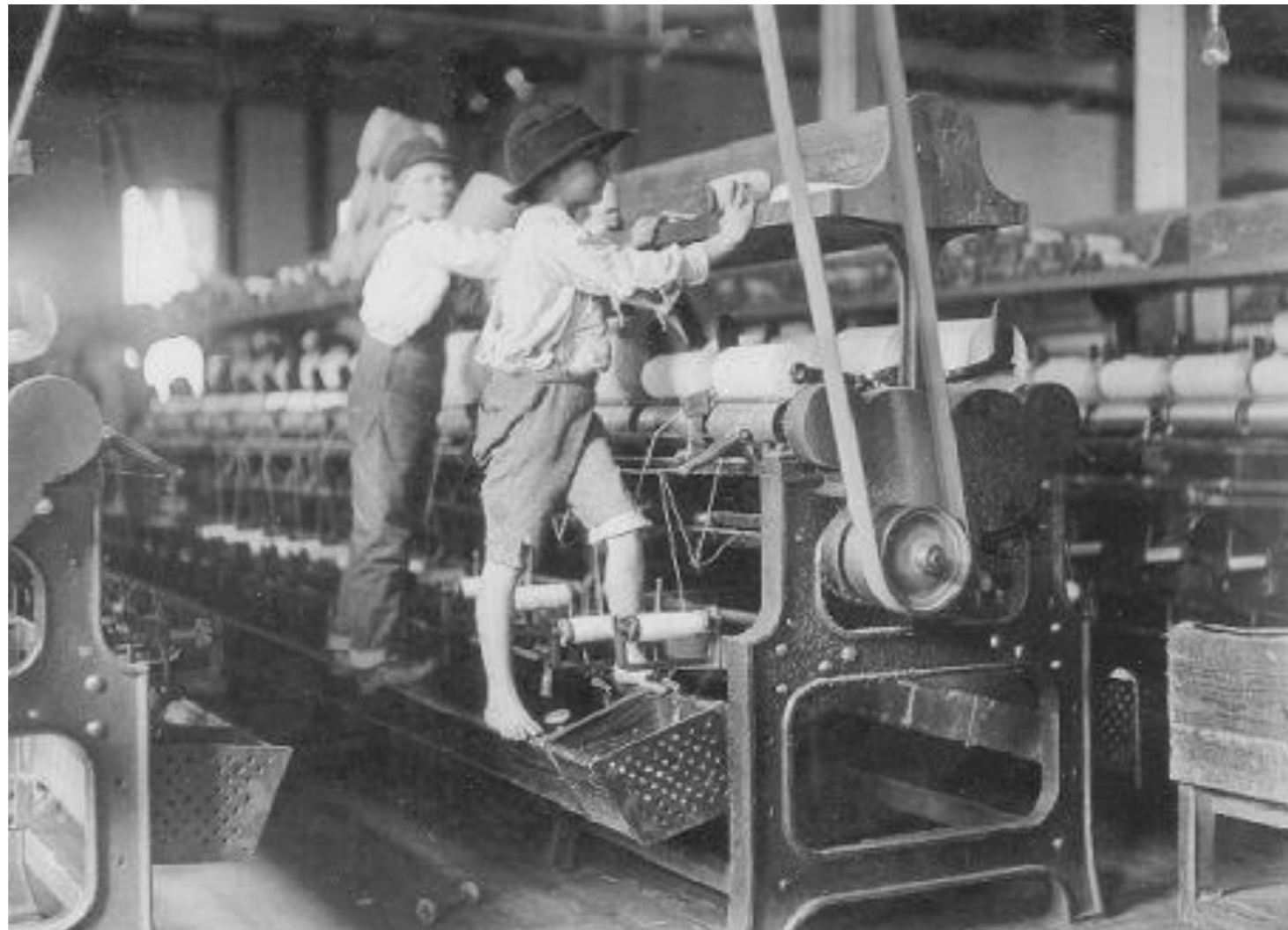








# Child Labor and Unsafe Work Conditions



# Rise of Labor Unions

- Encouraged worker-organized strikes to demand **increased wages** and **improved working conditions**
- Lobbied for **laws** to improve the lives of workers, including women and children
- Wanted workers' rights and **collective bargaining** between labor and management

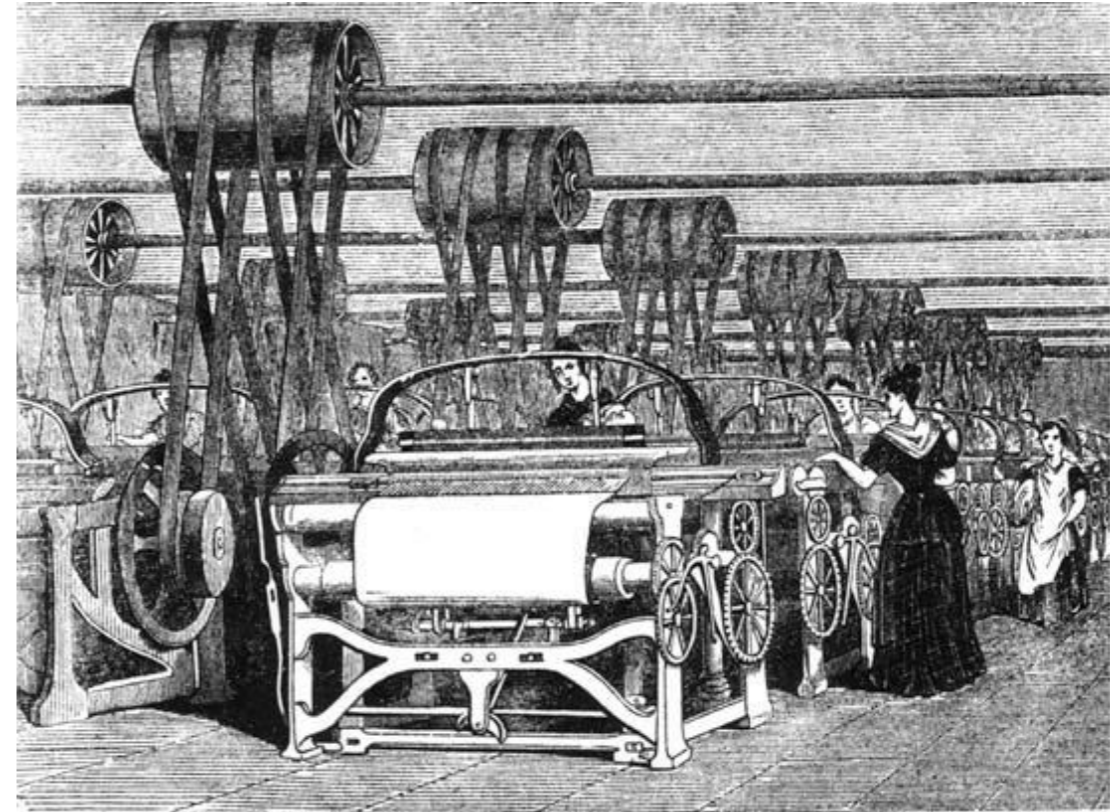




# Effects of the Industrial Revolution

# Positive Effects

- Increased world productivity
- Growth of railroads (faster and more efficient transportation of goods and people)
- New entrepreneurs emerged (more money = more technology/inventions)
- New inventions improved quality of life for many
- Labor eventually organized (unions) to improve working conditions
- Laws were enacted to enforce health and safety codes in cities and factories
- New opportunities for women
- Rise of the middle class – size, power, and wealth expanded
- Social structure becomes more flexible



# Negative Effects: Factory Life

- Child labor used in factories & mines
- Miserable (dirty, cramped) and dangerous (fingers, limbs, & lives lost) working conditions
- Monotonous work with heavy, noisy, repetitive machinery
- Long working hours – six days a week, with little pay
- Rigid schedules ruled each day
- Gas, candle & oil lamps created soot and smoke in factories
- Diseases such as pneumonia & tuberculosis spread through factories



# Negative Effects: Labor Practices & Housing Issues

- Labor unrest leads to demonstrations (sometimes violent)
- Strikes take place
- Women were paid less than men (were actually preferred)
- Indentured workers
- Employers had a more impersonal relationship with employees
- Tenement housing was poorly constructed, crowded, and cold
- Human and industrial waste contaminated water supplies – typhoid and cholera spread



# Summary: Social Effects

- Increase in population of cities
- Women and children enter the workplace as cheap labor
- Rise of labor unions
- Introduction of reforms
  - Laws to protect children in the workplace
  - Minimum wage and maximum hour laws
  - Federal safety and health standards
- Growth of the middle class
- Increased production and higher demand for raw materials = growth of worldwide trade
- Expansion of education
- Women's increased demands for suffrage