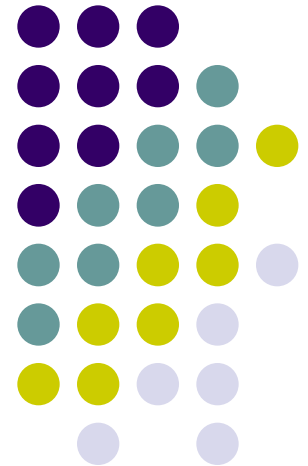


# Industrial Revolution

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*AIHE 2011*





# Growth of Industry

- Industrial Revolution – change from an agrarian society to one based on industry
  - Began in Great Britain
  - Spread to U.S. about 1800
    - First appeared in New England
      - Close to other resources (Pennsylvania coal)
      - Many rivers & streams for water power
      - Many ports
      - Most important = capital (\$\$) for investment



# New Technology

- Technology – application of scientific discoveries to practical use
- New Inventions
  - Spinning jenny – spun thread
  - Water frame
  - Power loom – wove thread into cloth
    - All ran on water power, built near rivers



- 1785 – first steam engine used for cotton mill
- Oliver Evans
  - Improved steam engine
  - Mechanical flour mill
- Eli Whitney
  - Cotton gin – removed cotton seeds from fiber
    - One worker as fast as 50 humans
- Patent – inventor sole right to invention and its profits for a certain length of time
  - 1790 act of Congress



# New England Factories

- British tried to keep industrial secrets
  - Some snuck out to U.S.
- Samuel Slater – memorized machines for spinning thread and left for U.S.
  - Established a mill
  - By 1800 had over 100 female employees & children
  - Significant mark in U.S. industry



# Lowell's Mills

- Francis Cabot Lowell –
  - First factory system – putting all manufacturing steps under one roof
  - Boston
  - Got ideas from travel to Great Britain



# Lowell Girls

- 80% were unmarried girls 15-30
- Lived in boarding houses
  - Attend church & follow curfew
- Poor working conditions
  - Long hours
  - Low pay
  - Noise levels
- Lucy Larcom
  - Famous Lowell girl who later fought for union rights



# Interchangeable Parts

- Interchangeable parts – uniform pieces that can be made in large quantities to replace other identical parts
- Eli Whitney – inventor
  - To fill order for U.S. for 10,000 rifles
  - Made molds
  - Eventually led to mass production & reduced price of goods





# Economic Independence

- Industrial Revolution made U.S. more independent economically
- Embargo, War & Tariffs
  - Embargo Act & War of 1812 helped Americans become more independent
  - Tariff of 1816 – introduced after the war
    - Tax imports
    - Made British goods more expensive than American goods



# Cities Come of Age

- Growth of factories & trade led to:
  - Overcrowding
  - Unsanitary conditions – barn animals roamed free
  - Disease – no sewers
    - Cholera & yellow fever
  - Threat of fire – wooden buildings
    - Few fire companies

- Many benefits
  - Variety of jobs
  - Steady wages
  - Libraries, museums, shops

