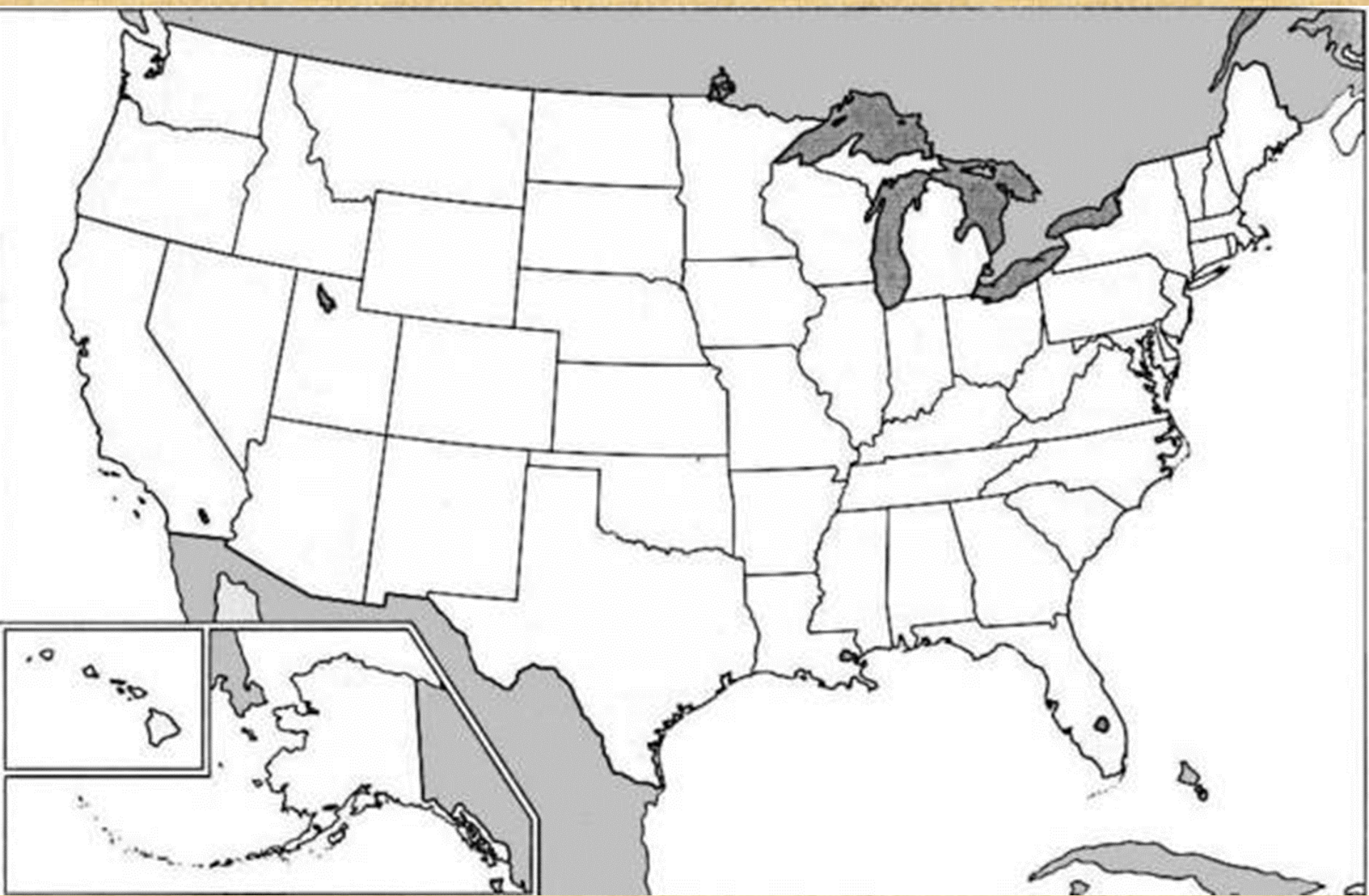


# Industrialization

**1865-1901**

**Chapter 14**



On October 21, 1879, Thomas Alva Edison and his team of workers were too excited to sleep. For weeks they had worked to create an electric incandescent lamp, or lightbulb, that would burn for more than a few minutes. For much of the 1800s, inventors had struggled to develop a form of lighting that would be cheaper, safer, and brighter than traditional methods such as candles, whale oil, kerosene, and gas. If Edison and his team could do it, they would change the world. Finally, after weeks of dedicated effort, they turned night into day. Edison later recalled:

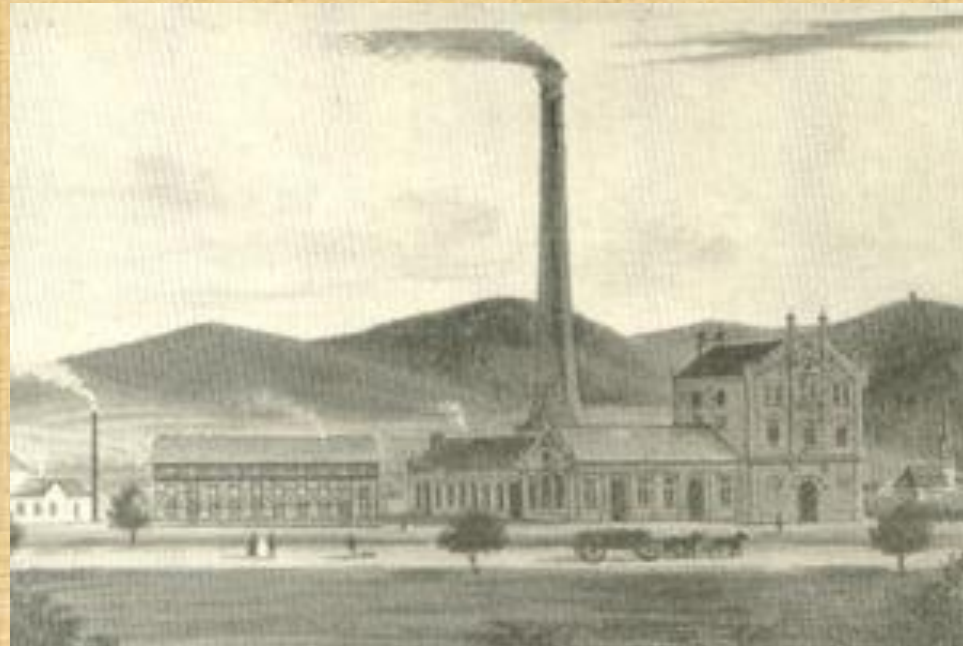
“We sat and looked and the lamp continued to burn and the longer it burned the more fascinated we were. None of us could go to bed and there was no sleep for over 40 hours; we sat and just watched it with anxiety growing into elation. It lasted about 45 hours and then I said, ‘If it will burn 40 hours now I know I can make it burn a hundred.’”



# • Rise of Industry

## • From Cottage industry to factories

- Natural Resources
- Labor Workforce More money
  - Wages increased
  - Prices decreased
- Free Enterprise
- Tariffs
  - No state tariffs
  - Supposed to help new industries
- Inventions



***The greatest invention of the nineteenth century was the idea of invention itself.***

***---Neil Postman, 1992***

- 1. Who was the perfect example of an obsessed inventor?***
- 2. Why?***

# Natural Resources



Iron for steel

Oil for Kerosene, Edwin Drake

Coal for power



# Work Force





- Free Enterprise
- Laissez-Faire Economics
  - Let one do as they choose
  - No tariffs
  - Absolute free trade
  - Adam Smith's invisible hand
  - Capitalism
  - Supply and Demand

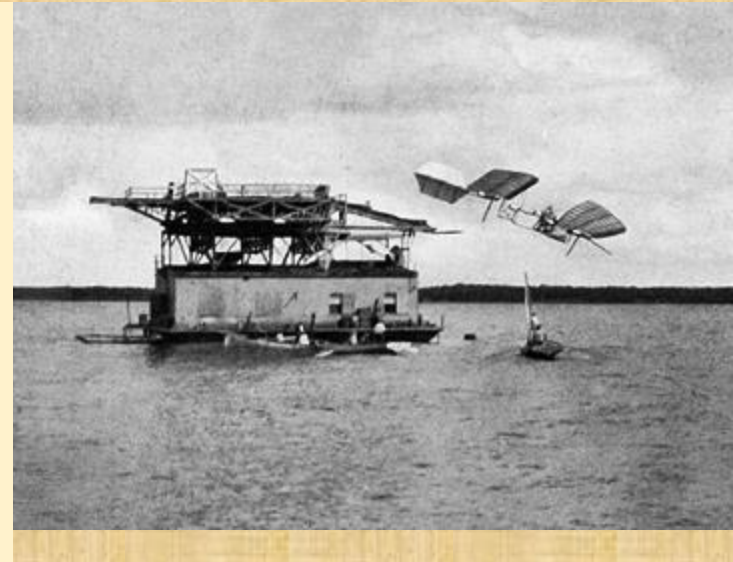
“It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest.”  
- Adam Smith



***On December 8, 1903, Samuel Langley was ready for his second attempt at flying a manned, self-propelled aircraft. This had never been done before. Langley used a \$50,000 government grant to fund and build a plane based on unmanned aircraft designs, adding a very powerful engine. The plane broke apart on takeoff and crashed into the Potomac River.***

***In contrast, Wilbur and Orville Wright used a little more than \$1,000 of their personal savings to build their aircraft. The brothers carefully studied the problems with previous planes and designed one with better wings, a more efficient propeller, and a strong but light engine. On December 17, 1903, these intrepid Americans made the first manned, powered flight in history on the sand dunes of Kitty Hawk, North Carolina.***

- 1. How did Langley fund his project?***
- 2. How did the Wright brothers fund their project?***
- 3. Infer why the Wright brothers were successful and Langley was not.***





# Tariffs

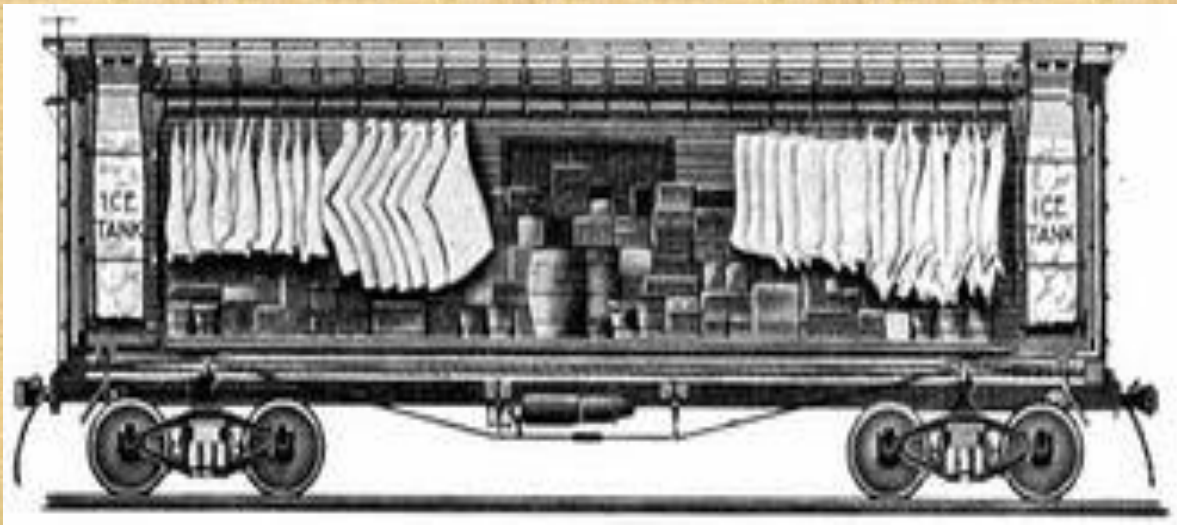
- Protect American business
- Retaliatory tariffs hurt US exports
- Help new industry complete with foreign imports



# Free Enterprise Review

1. Congress believed that \_\_\_\_\_ were necessary to help early industries.
2. According to \_\_\_\_\_ governments role in the economy was to keep the peace and protect private property rights.
3. The Constitution bans states from imposing \_\_\_\_\_, helping goods to flow freely around the country.
4. Laissez-faire relies on \_\_\_\_\_ to regulate prices and wages.





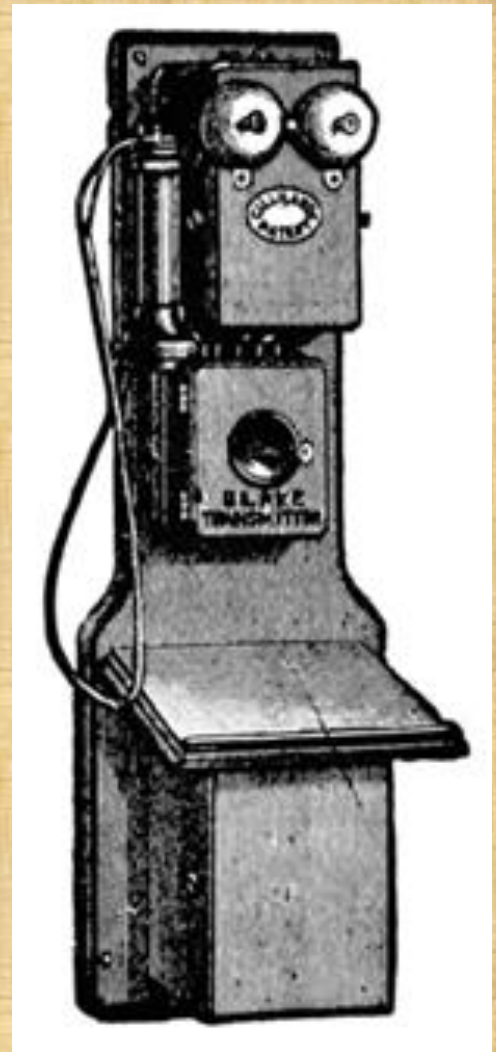
# Inventions

- Inventions
- Northrup Loom
  - Automatic weaving cloth
- Air Brakes
  - Longer & heavier trains
- Telephone
  - Alex. Bell

*The human voice carries too far as it is.. and now you fellows come along and seek to complicate matters...*

*---Mark Twain*

**1. What invention is Twain referring to?**





# Thomas Alva Edison

phonograph



Sleeping where he worked

**Research  
lab, Menlo  
Park, NJ**



At Promontory Summit, Utah, on May 10, 1869, hundreds of spectators gathered to watch a historic event. Dignitaries from the East and the West met to hammer gold and silver spikes into the final rails that would join two great railroad lines—the Union Pacific and Central Pacific—and span the entire country.

Telegraph offices around the country stood ready to receive news that the last spike had been driven. When the news arrived, bells pealed across the nation, and even the Liberty Bell was rung. In Chicago a seven-mile procession paraded through the streets, and the pealings of church bells resonated throughout the nation's small towns. General Grenville Dodge, who had overseen part of the construction, observed:

“The trains pulled up facing each other, each crowded with workmen who sought advantageous positions to witness the ceremonies. . . . The officers and invited guests formed on each side of the track. . . . Prayer was offered; a number of spikes were driven in the two adjoining rails . . . and thus the two roads were welded into one great trunk line from the Atlantic to the Pacific.”



# Railroads

- Pacific Railway Act, Boom
- Transcontinental RR
  - Union Pacific, westward from Omaha, Neb.
    - Immigrants
    - CW soldiers
    - Afr. Amer.
  - Central Pacific
    - Eastward from Calif.
    - Chinese
  - Promontory Point
    - Meeting of CP & UP



Chinese Workers in Sierra Nevada Mtn.

Jupiter (CP) in desert



Golden Spike

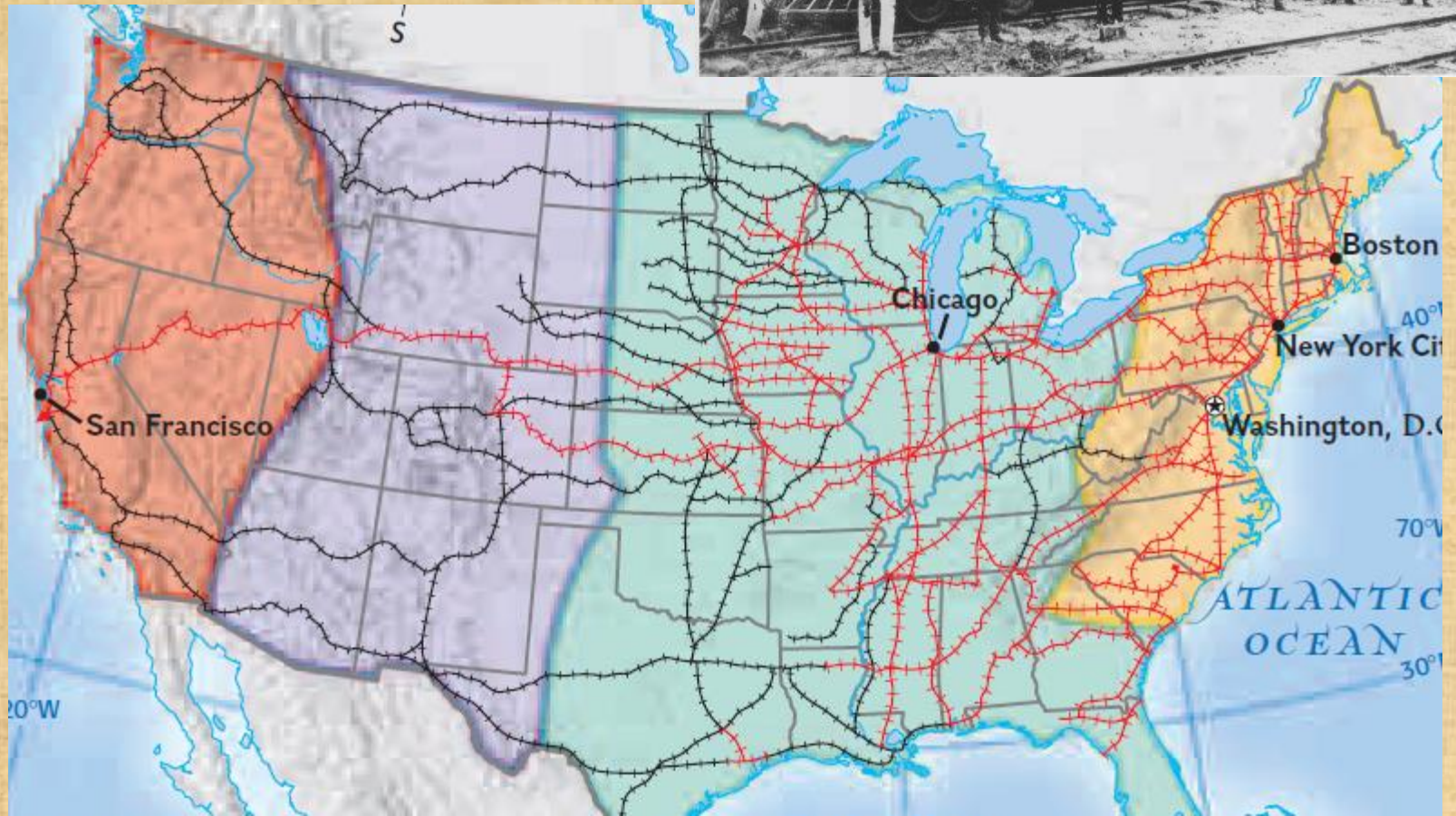
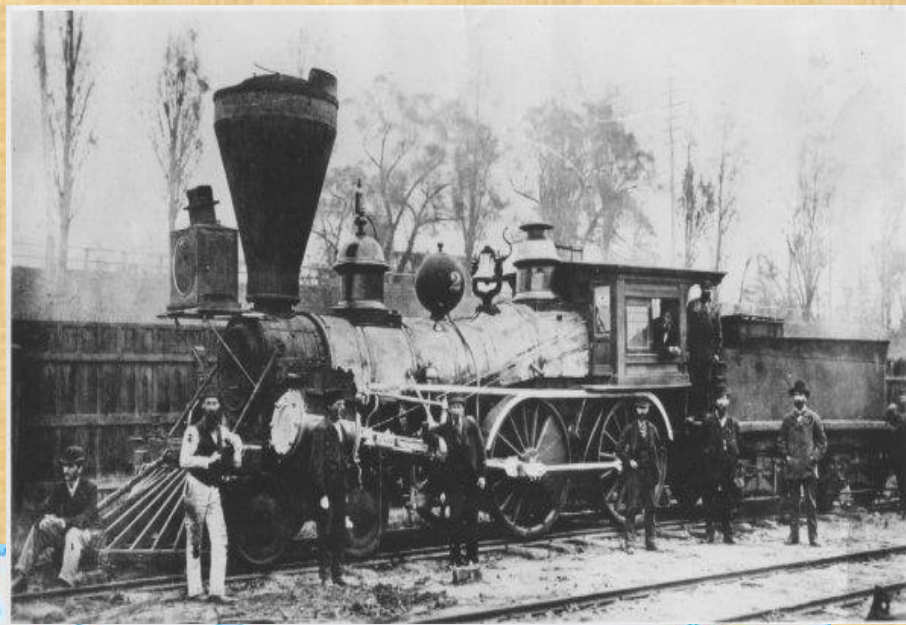
# Transcontinental Railroad Route





# Railroad Network

- Before CW, local railroads only
- After CW, Trunk Lines
- Standard Gauge
- Time Zones
  - Reliable Railroads



# • Money From Railroads

## • Land Grants

- Rapid Railroad construction

## • Building vs. Operations

## • Scandals

- Credit Mobilier
- Schyler Colfax





In the 1860s, the oil industry in the United States was highly competitive. One highly efficient company was Standard Oil, owned by John D. Rockefeller and his associates. Because his company shipped so much oil, Rockefeller was able to negotiate rebates, or refunds, from railroads that wanted his business. This gave his company an advantage, and he began to pressure other oil companies to sell out to him.

Oil producer Franklin Tarbell pledged never to surrender. Tarbell's daughter Ida later recalled her father's indignation over Rockefeller's maneuvers:

“It was as if somebody had tried to crowd me off the road. . . . There were rules, you couldn't use the road unless you obeyed those rules. . . . The railroads—so said my father—ran through the valley by the consent of the people; they had given them a right of way. The road on which I trotted was a right of way. One man had the same right as another, but the railroads had given to one something they would not give to another. . . . The strong wrested from the railroads the privilege of preying upon the weak.”

# Big Business

- Corporations
- Economies of Scale
  - Bigger factories
    - Lower costs
    - Lower prices
- Stock Holders
- Pool
- Trust
- Monopoly
- Laissez-Faire
  - No tariffs
  - Free trade



*All the advantages can be derived from a cooperation of person and aggregation of capital...It is too late to argue about advantages of industrial combinations. They are a necessity. And if Americans are to have the privilege of extending their business in all the States of the Union, and into foreign countries as well, they are a necessity on a large scale, and require the agency of more than one corporation. Their chief advantages are:*

- \*Command of necessary capital.
- \*Extension of limits of business.
- \*Increase the number of persons interested in the business.
- \*Economy in the business.
- \*Improvements and economies which are derived from knowledge of many interested persons of wide experience.
- \*Power to give the public improved products at less prices and still make a profit for stockholders.
- \*Permanent work and good wages for laborers.

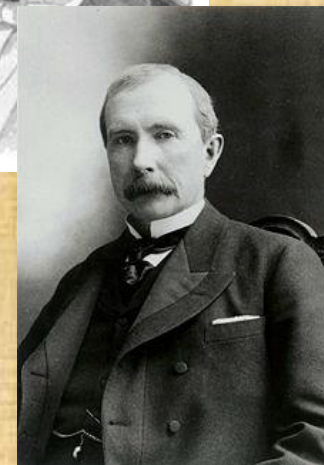
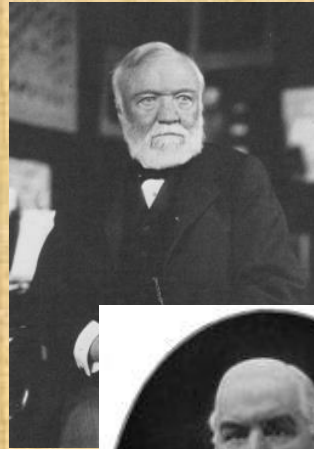
*---John D. Rockefeller, 1899*

1. *What are industrial combinations?*
2. *How are industrial combinations good?*



# Industrial leaders

- Production
- Captains of Industry & Robberbarons
  - Carnegie---steel
  - Morgan---banking
  - Vanderbilt---railroads
  - Rockefeller---oil
- Sales
  - Department Stores
    - Many products
    - More sales
  - Catalogs



*The problem of our age is the proper administration of wealth...the contrast between the Palace of the millionaire and the cottage of the laborer with us today measures the change which has come with civilization.*  
---Andrew Carnegie

1. *What is Carnegie contrasting?*
2. *What does Carnegie hope will happen?*

***God gave me money . . . . I believe the power to make money is a gift from God . . . to be developed and used to the best of our ability for the good of mankind.***

***---John D. Rockefeller, 1915***

***We accept and welcome, therefore, as conditions to which we must accommodate ourselves, great inequality of environment; the concentration of business . . . in the hands of a few; and the law of competition between these, as being not only beneficial, but essential to the future progress of the [human] race.***

***---The Gospel of Wealth, Andrew Carnegie***

## **Comparing Rockefeller and Carnegie**

1. How did Rockefeller claim to have received fortune?
2. How does Carnegie claim the wealthy should use their assets?
3. How do these two men justify the unequal nature of humanity?

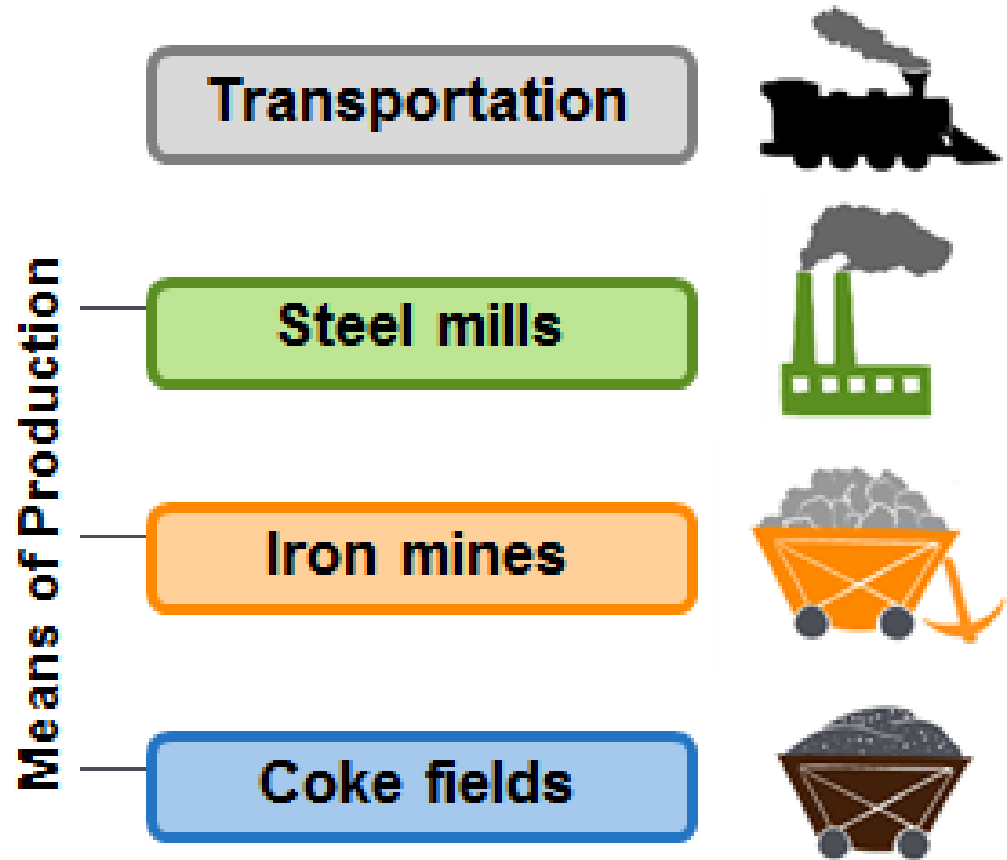




# Analyze Carnegie Steel

1. What type of monopoly is demonstrated in the graphic?
2. Identify one negative impact that this type of monopoly might have on an economy.

## Carnegie Steel Company





# Big Business Review

1. Rockefeller primarily used oil to make \_\_\_\_\_.
2. \_\_\_\_\_'s primary industry was steel production.
3. Railroad companies raised most of the money they needed to build their railroads from \_\_\_\_\_.
4. The Union Pacific RR company's involvement in the \_\_\_\_\_ scandal was primarily by paying inflated bills from a construction company they controlled.
5. To make rail service more reliable, in 1883 the American Railway Association divided the nation into \_\_\_\_\_.
6. Economies of large scale industry resulted in \_\_\_\_\_ prices and \_\_\_\_\_ costs.
7. A \_\_\_\_\_ manages other people's money

On September 6, 1869, hundreds of miners' wives and children heard the repeated shrill blasts of the Avondale Mine's whistle, which signaled an accident. The families ran to the mine's entry and beheld a terrifying sight: hot smoke billowing from the mine shaft.

The owners of the Avondale Coal Mine in Luzerne County, Pennsylvania, had not built a second entrance to their mine. Without an escape route, the 179 miners trapped below soon died. Songs to commemorate the disaster later gave voice to the silenced victims:

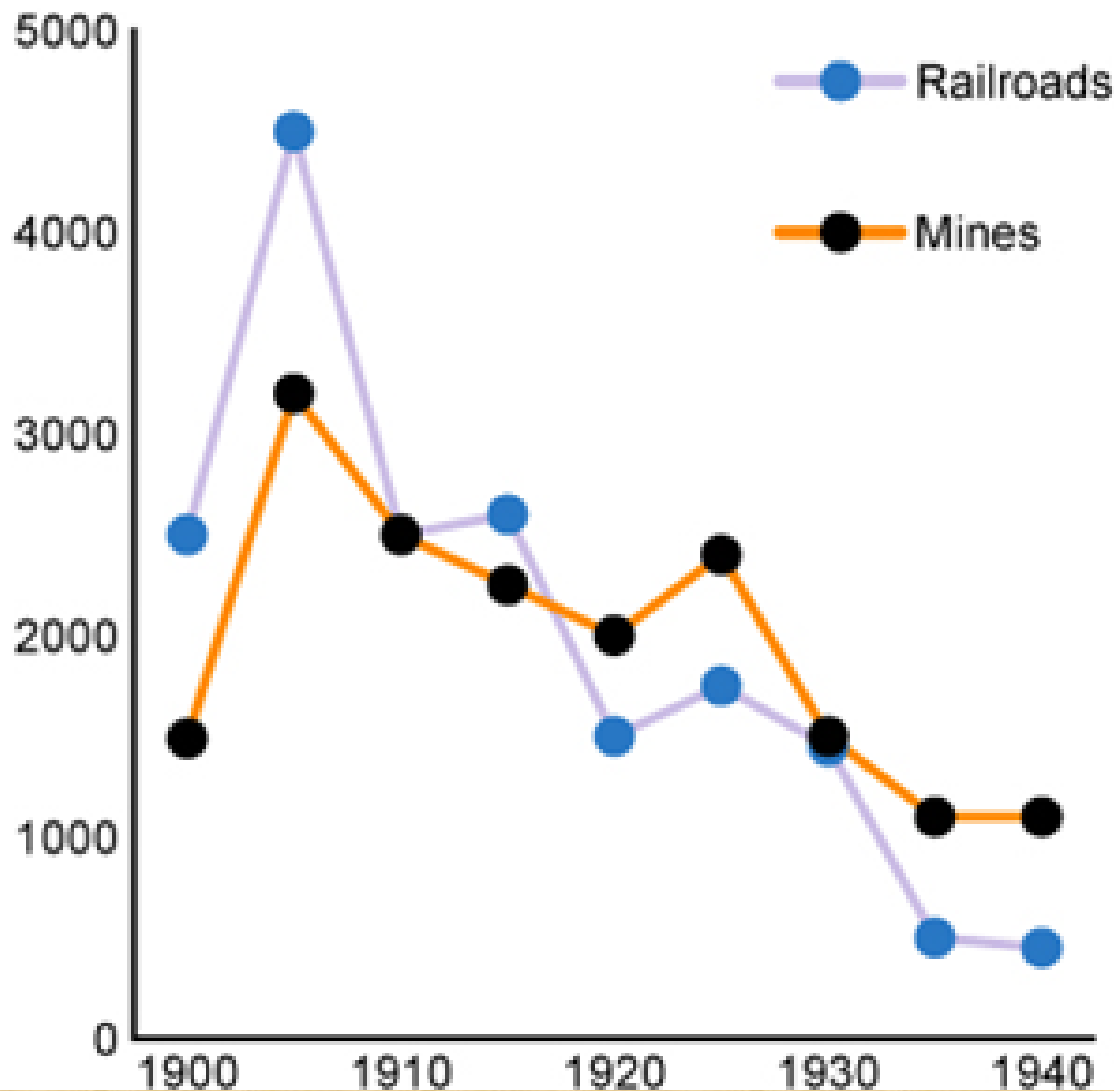
“And as their souls ascended  
To God who gave them breath  
They plead against the company  
Whose greed had caused their death”

Following the deaths at Avondale, John Siney, an Irish immigrant and union leader, urged his fellow miners to unionize:

“Men, if you must die with your boots on, die for your families, your homes, your country, but do not longer consent to die like rats in a trap. . . .”



# Coal Mine and Railroad Fatalities

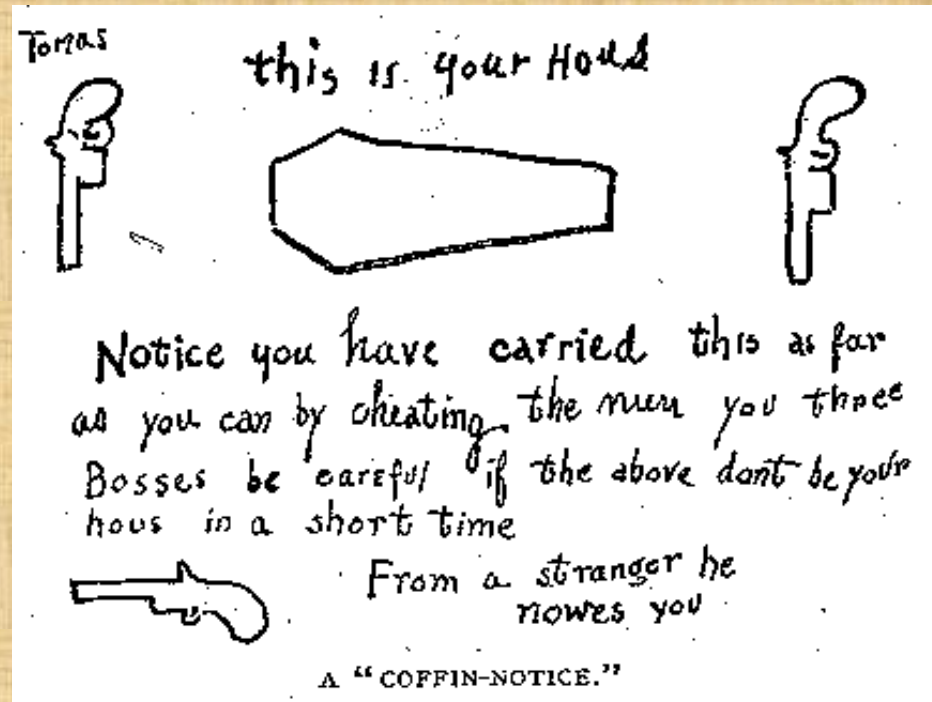


## Analyzing and comparing fatalities in graphs format

1. What is a fatality?
2. When were fatalities the highest?
3. What caused fatalities to decrease?

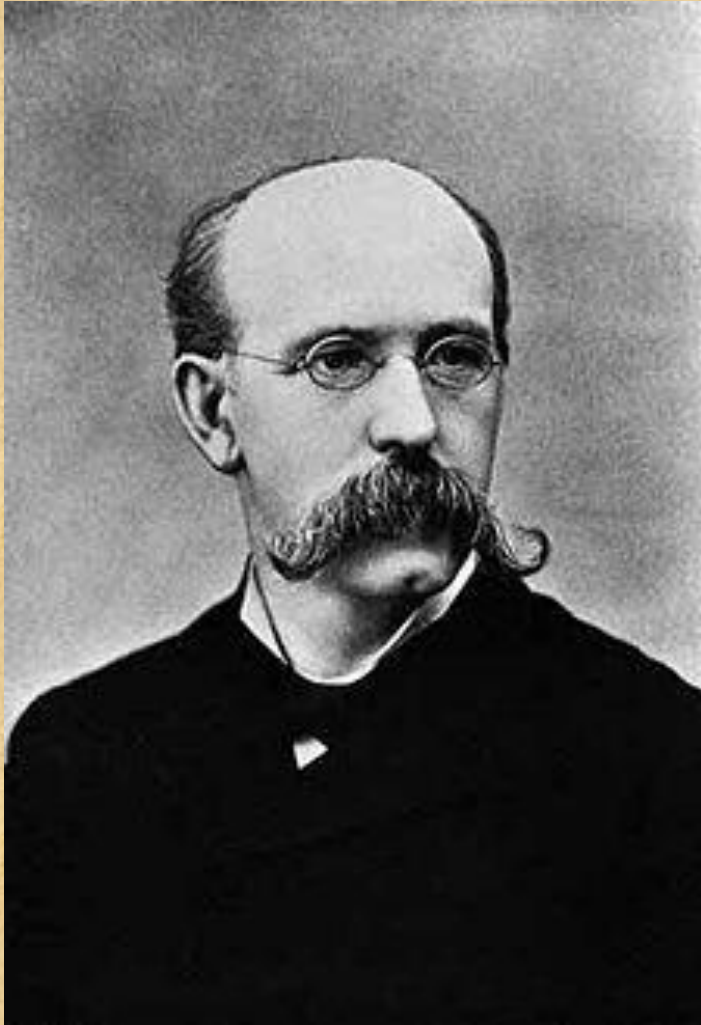
# Unions

- Prices fall, wages fall w/ industrialization
- Jobs become low skilled
- More machinery
- Organizing Workers
- Craft Unions or Industrial Unions
  - Industrial Workers of the World
    - IWW
    - "Wobblies"
  - Molly Maguires
  - Knights of Labor-industrial
  - American Federation of Labor





# Unions Knights vs. AFL



Terrence Powderly, all workers



Samuel Gompers, Skilled workers



# Samuel Gompers Memorial Washington D.C. Improve working conditions

*On December 10, I went to Newark to investigate the matter concerning the sewing-women of that city, which was referred to our committee at the General Assembly at Richmond. I found in general the working women of Newark were very poorly paid, and the system of fines in many industries was severe and unjust. For instance: A corset factory where a fine of 10 cents each is imposed for eating, laughing, singing or talking. A constant supply of recruits is always on hand to take the places of any who dare rebel against the ironclad authority of those in charge.*

*1. List the complaints which workers might file against this corset factory.*



# Resisting Unions

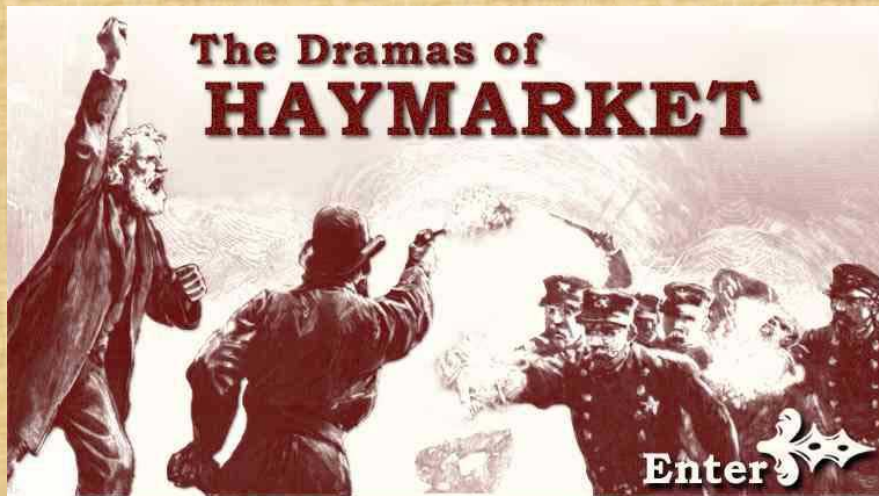
- Firings
- Pinkertons
- Blacklists
- Lockouts
  - No workers allowed
  - No pay
- Labor alternatives
  - Few union members were:
    - Children
    - Women
    - Immigrant
    - Afr. Amer.



Company detective  
James McParlan

# Strikes

- Railroad Strike of 1877
- Haymarket
- Pullman



*Show me the country in which there are no strikes and I will show you that country in which there is no liberty.*

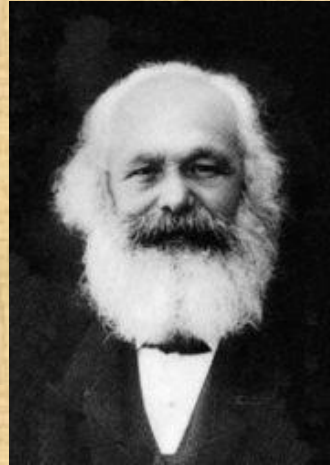
*---Samuel Gompers*

1. *What is a strike?*
2. *Why do strikes occur?*
3. *Why does Gompers relate strikes with liberty?*



# Radical Unionists

- Marxism
  - Class struggle
- Communism
- Socialism
- Debs
  - Railway Union



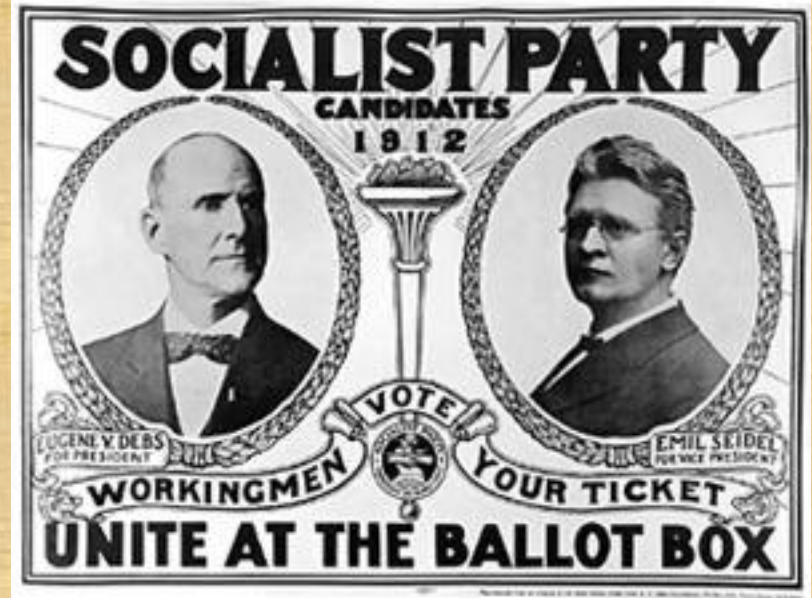
Karl Marx



Vladimir Lenin

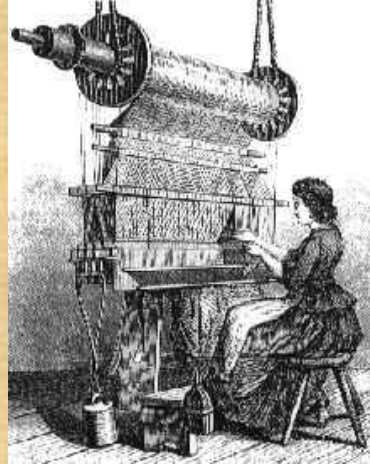


Eugene V. Debs



# Rapid Industrialization

1. Farms
2. Small manufacturers
3. Large monopolies
4. Rich vs. Poor society





# Johnstown Memorial Day 1889



Often, rapid industrialization  
leads to catastrophe



Copyright by  
LANGILL & DARLING 1889.  
6.

"THE FLOOD"  
WAREHOUSE OF CAMERON IRON WORKS.



# Labor Movement Review

1. \_\_\_\_\_ was the leader of the American Railway Union.
2. \_\_\_\_\_ was the leader of the American Federation of Labor.
3. \_\_\_\_\_ was the leader of the Knights of Labor.
4. The \_\_\_\_\_ was an industrial union with members from an entire industry.