

# Chapter 19 – The Industrial Age



## Section Notes

- 1 [The Second Industrial Revolution](#)
- 2 [Big Business](#)
- 3 [Industrial Workers](#)



## Video

[The Impact of the United States as the World's Most Powerful Industrial Nation](#)



## Quick Facts

[Factors Affecting Industrial Growth](#)  
[Chapter 19 Visual Summary](#)



## Maps

[Major Labor Strikes, Late 1800s](#)  
[Standardized Test Practice Map](#)



## Images

[Homestead Steel Mill](#)  
[Poor Working Conditions](#)  
[Orville Wright](#)  
[Rise of Investing](#)



Previous



Next



Main Menu



Exit

# The Second Industrial Revolution

## The Big Idea

The Second Industrial Revolution led to new sources of power and advances in transportation and communication.

## Main Ideas

- Breakthroughs in steel processing led to a boom in railroad construction.
- Advances in the use of oil and electricity improved communications and transportation.
- A rush of inventions changed Americans' lives.



Previous



Next



Chapter  
Menu



Exit

# Industrial Revolution

- <http://player.discoveryeducation.com/index.cfm?guidAssetId=81034C72-3034-47E6-9924-3E1E18C3CCA6&blnFromSearch=1&productcode=US>



Previous



Next



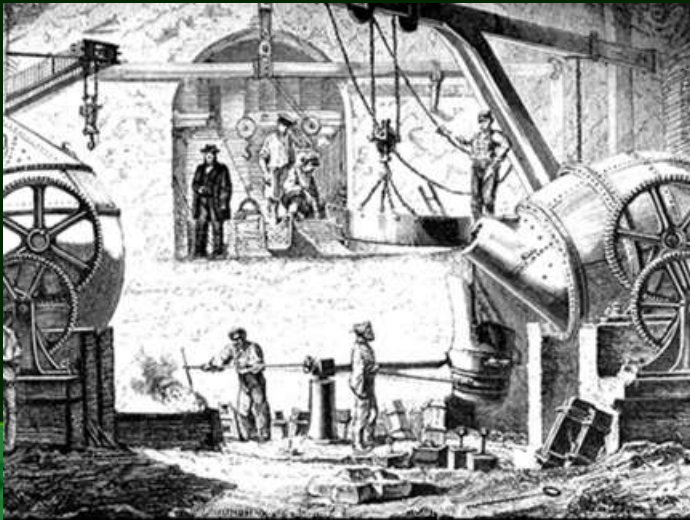
Chapter  
Menu



Exit

# Main Idea 1: Breakthroughs in steel processing led to a boom in railroad construction.

- Technological advances were important to **Second Industrial Revolution**, period of rapid growth in U.S. manufacturing in late 1800s
- **Bessemer process**, invented mid-1850s by Henry Bessemer, allowed steel to be produced quickly and cheaply.
  - Helped increase steel production from 77,000 tons in 1870 to more than 1 million tons in 1879





**BUILDING BACKGROUND** The first Industrial Revolution in America began in the early 1800s. It changed the way products were made, from handwork to machines. It moved the workplace from cottages to factories. Later, it brought advances in transportation and communication. The Second Industrial Revolution built on these changes, introducing new technology and new sources of power.

### Homestead Steel Mill

Steel mills like this one in Homestead, Pennsylvania, were the center of the new steel industry that led to advancements in rail travel. Workers used the Bessemer process to make steel more quickly.

*How do you think mills like this one affected the surrounding area?*



Previous



Next



Chapter  
Menu



Exit

## Bessemer Process

- <http://player.discoveryeducation.com/index.cfm?guidAssetId=68068213-DF14-41EC-B2AB-082DEB915E84&blnFromSearch=1&productcode=US>



Previous



Next



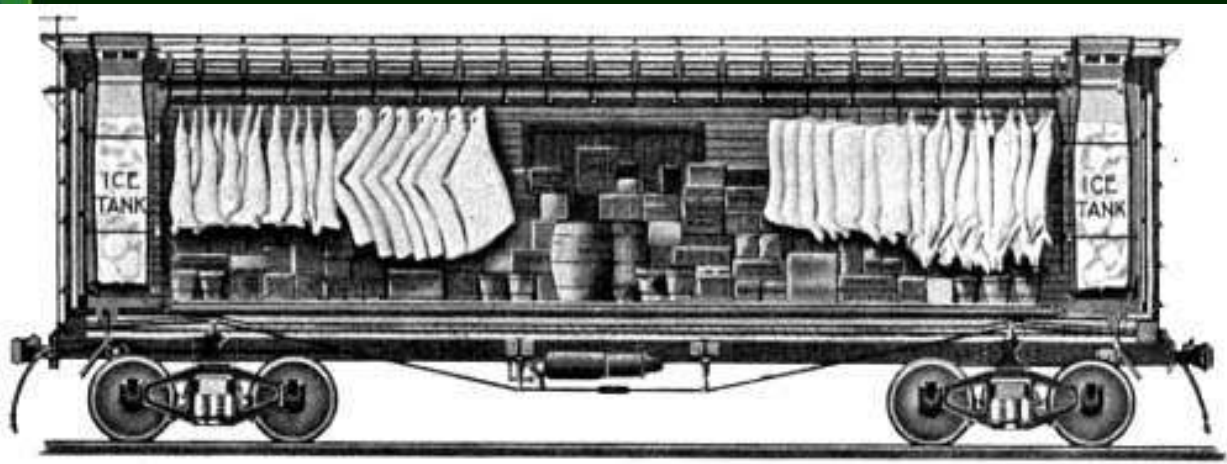
Chapter  
Menu



Exit

# Main Idea 1: Breakthroughs in steel processing led to a boom in railroad construction.

- As steel dropped in price, so did the cost of building railroads, generating a boom in railroad construction.
  - Growth of railroads helped the country expand and prosper.
  - New Passenger and sleeping cars for trains.
  - Refrigerated cars for food.
  - Cities grew that had rail lines.



## Railroads

- <http://player.discoveryeducation.com/index.cfm?guidAssetId=3BEC8E51-6DD6-480B-8CBB-57D477C6A1C3&blnFromSearch=1&productcode=US>



Previous



Next



Chapter  
Menu



Exit



## **Main Idea 2: Advances in the use of oil and electricity improved communications and transportation.**

- Chemists invented a way to convert crude oil into fuel called kerosene in the 1850s.
- Kerosene, which could be used for cooking, heating, and lighting, created a demand for oil.



Previous



Next



Chapter  
Menu



Exit

## **Main Idea 2: Advances in the use of oil and electricity improved communications and transportation.**

- Edwin Drake pump crude oil from the ground in Pennsylvania.
- A huge oil industry developed after a way to pump oil from the ground was developed in 1859.
- Refineries- turn crude oil to finish product.



## Oil Industry

- <http://player.discoveryeducation.com/index.cfm?guidAssetId=3BEC8E51-6DD6-480B-8CBB-57D477C6A1C3&blnFromSearch=1&productcode=US>



Previous



Next



Chapter  
Menu

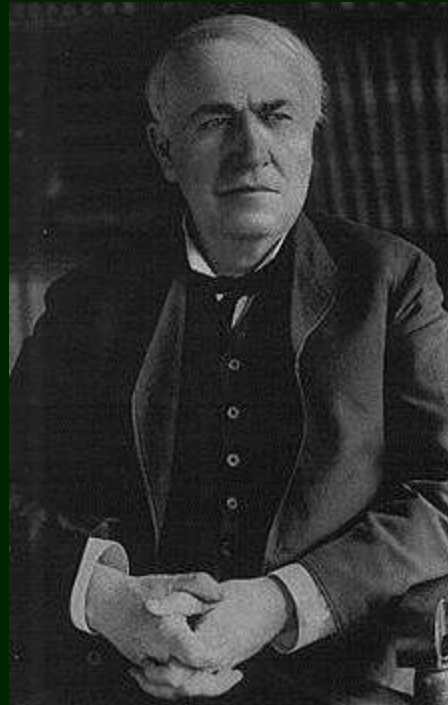


Exit

# Development of Electricity

## Invention

- Inventor **Thomas Edison**, who held more than 1,000 **patents**(exclusive rights to make or sell inventions), worked to invent an electric light.
- Work in Menlo Park,NJ
- Edison and his team introduced the first practical electric lightbulb in 1879.
- Edison created a power company to distribute electricity, but could not send it over long distances.





# Thomas Edison

- <http://player.discoveryeducation.com/index.cfm?guidAssetId=685D100D-E1EE-4EDA-99F4-4BDE8DEB8B51&blnFromSearch=1&productcode=US>



Previous



Next



Chapter  
Menu



Exit

## Edison History Channel

- <http://www.history.com/shows/america-the-story-of-us/videos/thomas-edison#thomas-edison>



Previous



Next



Chapter  
Menu



Exit

# Development of Electricity



## Spread

- George Westinghouse built a power system that could send electricity many miles across the country.
- Use of electricity can spread.



Previous



Next



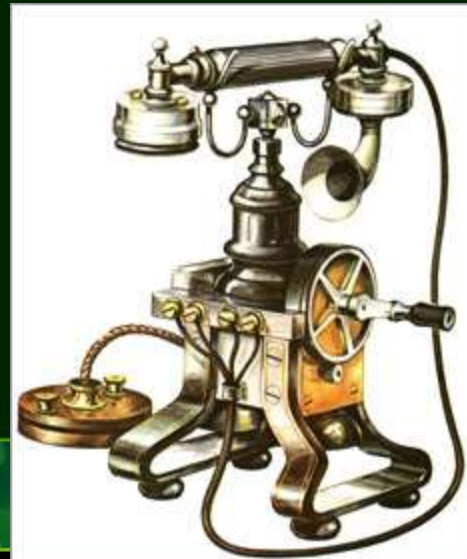
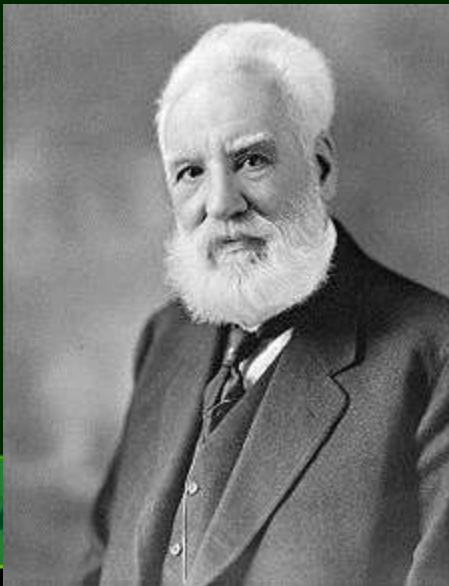
Chapter  
Menu



Exit

## Main Idea 3: A rush of inventions changed Americans' lives.

- New telegraph technology connected the United States with Britain by cable in 1866.
- **Alexander Graham Bell** patented the telephone in 1876.
- Telephones were rapidly adopted, the number rising from 55,000 in 1880 to almost 1.5 million in 1900.





# Telegraph and Telephone

- <http://www.history.com/shows/modern-marvels/videos/the-telegraph-and-telephone#the-telegraph-and-telephone>



Previous



Next



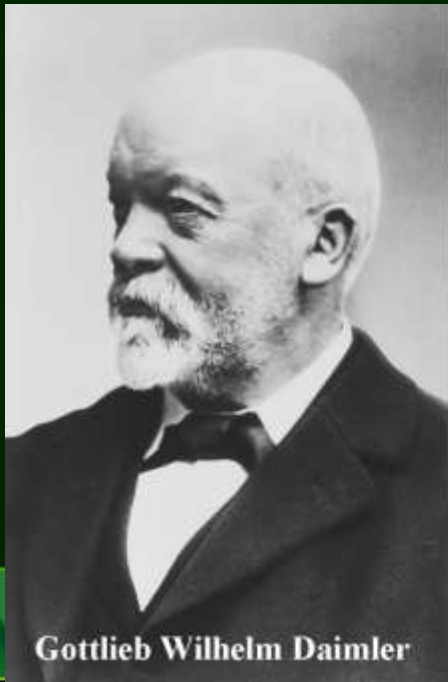
Chapter  
Menu



Exit

# Automobiles and Planes

- The automobile industry grew in steps.
  - 1876 – German engineer Daimler/Benz invented the gasoline-powered engine.
  - 1893 – The United States built its first practical motorcar by Charles and J.Frank Duryea



Gottlieb Wilhelm Daimler

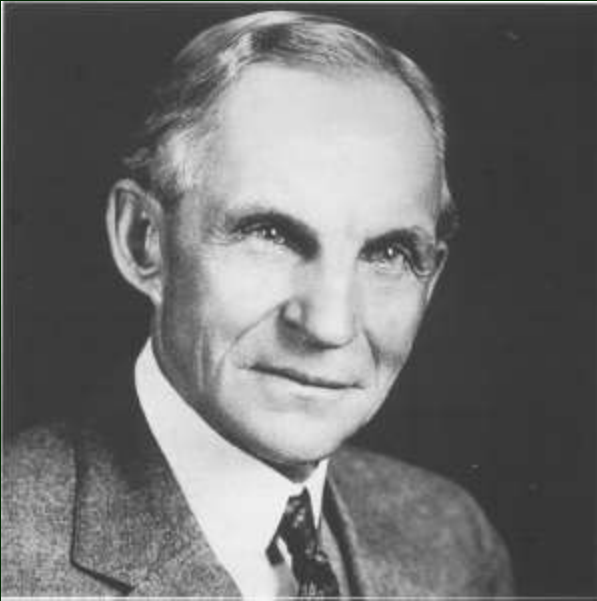


Carl Friedrich Benz



# Automobiles and Planes

- 1908 - **Henry Ford** introduced the Model T.
- Ford was first to implement the moving assembly line in manufacturing, making cars more affordable.



Previous



Next



Chapter  
Menu



Exit





Previous



Next



Chapter  
Menu



Exit



# Henry Ford

<http://player.discoveryeducation.com/index.cfm?guidAssetId=F58D2CAA-94D3-4FD7-904D-9181B082702B&blnFromSearch=1&productcode=US>

[Henry Ford Takes the Low Road](#)



Previous



Next



Chapter  
Menu



Exit

# Automobiles and Planes

- **Wilbur and Orville Wright** invented an airplane powered by a gas engine in 1903.
- **First flight in 1903 in Kitty Hawk, North Carolina.**



Orville



Wilbur



Previous



Next



Chapter  
Menu



Exit

**1903** Orville Wright makes the first flight in a motorized airplane.



Previous



Next



Chapter  
Menu



Exit

## Orville and Wilbur Wright

- <http://player.discoveryeducation.com/index.cfm?guidAssetId=D06BDEB7-8634-431B-975E-9E4841A32110&blnFromSearch=1&productcode=US>



Previous



Next



Chapter  
Menu



Exit



## Visual Summary



Use the visual summary below to help you review the main ideas of the chapter.



### Inventions

- Bessemer process
- Lightbulb
- Automobile



### Big Business

- Growth of corporations
- Wealthy business owners
- Antitrust movements



### Labor Movement

- Knights of Labor
- American Federation of Labor
- Haymarket Riot
- Homestead Strike



Previous



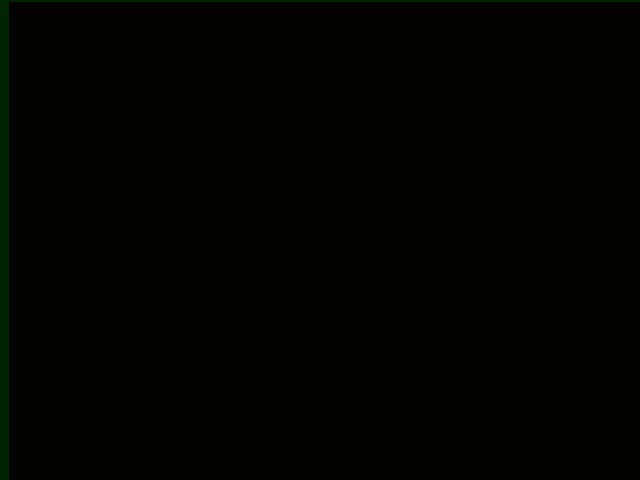
Next



Chapter  
Menu



Exit



Click window above to start playing.



Previous



Next



Chapter  
Menu



Exit