

## The Second Industrial Revolution

**FL SS.912.A.3.2** Examine the social, political, and economic causes, course, and consequences of the second Industrial Revolution that began in the late 19th century.

**Vocabulary Builder:** *restraint* (rih STRAYNT) *n.* holding back or checking of action

Though America had many entrepreneurs who formed and managed new businesses and business processes, a few powerful business tycoons in particular shaped the Industrial Revolution and the new United States it would create.

BUSINESS TYCOON	INDUSTRY	LEGACY
Andrew Carnegie	Steel	Though he was ruthless in acquiring wealth, he also preached philanthropy. He believed that the wealthy had a responsibility to share their wealth with others.
J. P. Morgan	Finance	Morgan was a banking and finance giant said to have saved the U.S. economy more than once. His son, J. P. Morgan, Jr., helped to create the Federal Reserve.
John D. Rockefeller	Oil	A philanthropist like Carnegie. His techniques of horizontal (creating big business) and vertical (buying related businesses) organization transformed American business forever.
Cornelius Vanderbilt	Railroad	His railroads changed the face of America through western expansion and increased marketing.

### Economic Transformation

Along with the work of these powerful men, other factors contributed to America's economic transformation during this time. The government supported business expansion and the growth of capitalism by placing tariffs, or taxes, on foreign goods to encourage consumers to buy domestic goods (made within the United States). The government also provided businesses with favors, such as giving land to railroad companies. The government adopted a *laissez-faire* approach to big business by essentially leaving it alone. It later became necessary to exercise **restraint** on some giant businesses to encourage competition.

Other contributing factors to the growth of the American economy were resources, both human and natural. The huge flow of immigrants to the United States and the exodus, or departure, of American-born citizens from the farms to the cities provided businesses with a wealth of workers to construct and run factories. The large number of willing workers made labor cheap and helped businesses grow even bigger. With such a large and diverse land area, America contained a wealth of natural resources. There were a number of rivers on which to transport the abundance of oil, coal, iron, and lumber. Extraction and use of these natural resources was not harmless, however, and the federal government acknowledged environmental problems as early as the 1870s.

**Check for Understanding** How did the economic climate in the United States during the second Industrial Revolution contribute to the fortunes of the biggest businessmen of the time?

## The First and Second Industrial Revolutions

**FL SS.912.A.3.3** Compare the first and second Industrial Revolutions in the United States.

**Vocabulary Builder:** **corporation** (cor po RA shun) *n.* a body formed by law to act as a single entity, with powers and liabilities separate from the owners of the company; **tenement** (TEN e ment) *n.* multistory building divided into apartments to house several families, often in unsanitary conditions; **trust** (trust) *n.* a combination of corporations or firms bound by a legal agreement, especially to reduce competition

FIRST INDUSTRIAL REVOLUTION	SECOND INDUSTRIAL REVOLUTION
First Half of the Nineteenth Century	Second Half of the Nineteenth Century
Primarily in New England	Midwest and Northeastern United States as well as other industrial areas around the country including Birmingham, Alabama and Pittsburgh, Pennsylvania
Driven by application of water and steam power to previously existing industries	Driven by invention and innovation, such as the Bessemer process for making steel and the process of refining oil; called the Age of Industry
Mostly in textile and manufacturing	Mostly in steel and oil industry, railroads
Brought workers and machines together under one roof to form factories	Heavy industry such as production of steel and oil, laying of rail for the railroads, and wire for communication systems
Financed by individual or group ownership of factories	Financed by <u>corporations</u> , <u>trusts</u> , and wealthy financiers
Increased class distinction by inserting a working class at the bottom of the social ladder	Increased the gap between the poor working class and the small group of extremely wealthy individuals
Agricultural and immigrant workers, often for set periods of time	Large need for laborers filled by immigrants, particularly from southern and eastern Europe who were Catholic and Jewish, and by displaced farm workers including African Americans
Factory towns like Lowell, Massachusetts	<u>Tenements</u> in overcrowded cities; poor sanitation and unsanitary living conditions

Industrialization in the second half of the nineteenth century was characterized by the huge mass of immigrant workers who lived in poverty in overcrowded cities. Housed in tenements, they lacked basic sanitation as well as fire and police protection. On the other end of the scale were the immensely wealthy capitalists such as Andrew Carnegie in the steel industry, J. P. Morgan in banking and finance, J. D. Rockefeller in oil, and Cornelius Vanderbilt, Jay Gould, James J. Hill, and E. H. Harriman in the railroad industry. These people lived lives of luxury on splendid estates with palatial homes.

**Check for Understanding** How were class differences more evident in the second industrial revolution?

## Big Business and the Economy

**FL SS.912.A.3.4** Determine how the development of steel, oil, transportation, communication, and business practices affected the United States economy.

**Vocabulary Builder:** **monopoly** (mo NOP o ly) *n.* complete control over an industry by one person or company

---

The development of the steel industry was closely linked to the expansion of railroads in the United States. The Bessemer process for steel production, invented in 1856, made steel affordable for common use. Steel was stronger, lighter, and more durable than iron. This opened the way for economical production of steel rails for the thousands of miles of railway that linked the nation by the end of the century.

### Railroad and Telegraph Industries

Development of the transcontinental railroad, which linked the east and west coasts of the nation, was stimulated by government grants of land to the companies laying the rails. After the nation was joined east to west, the railroad network continued to expand, tying together cities and towns. Standardization of the rail gauge, or width of the track, allowed complete linkage of the railway network. Invention of the air brake and the sleeping car made travel by rail practical and comfortable. Telegraph lines were strung along the railways. Just as the railroads moved people and goods from place to place, the telegraph provided almost instant communication from one side of the country to the other.

### Steel Industry

The steel industry also allowed the construction of taller buildings, opening real estate in the sky where space on the ground was no longer available. Soon skyscrapers shaped the skyline of the nation's major cities. Steel also allowed the production of bridges and ships, further expanding transportation in the United States.

### Oil Industry

In the late 1880s, oil became an important resource. When the process of refining crude oil was developed, its value increased because it was used for a variety of resources. Refining crude oil produced kerosene for lighting, products for lubrication, and a multitude of other products. In the early part of the twentieth century, the invention of affordable motorcars produced an even greater demand for oil.

### Practices of Big Business

To protect their investments, wealthy industrialists developed business practices such as corporations and trusts. Corporations were legally established business arrangements which allowed numerous people to invest in a company while protecting them from individual liability. John D. Rockefeller, who made his fortune in Standard Oil, was ruthless in developing his company. He used his financial resources to undercut competitors and drive them out of business. In time, he had a near monopoly of the oil industry. Standard Oil was also a vertical monopoly since the company controlled the production of oil from drilling through refining to the final distribution of the various products made from the oil. Standard Oil also introduced the trust, a method for legally shielding the holdings of a company behind another company, the trust, which was outside government control.

**Check for Understanding** How did the Bessemer process lead to changes in the skyline of American cities?

## Significant Inventors and Their Inventions

**FL SS.912.A.3.5** Identify significant inventors of the Industrial Revolution including African Americans and women.

**Vocabulary Builder:** *stimulate* (STIHM yoo layt) *v.* to excite to action

During the late nineteenth and early twentieth centuries, many inventions were developed that helped stimulate the country's growth, primarily in northern cities.

INNOVATION/INVENTION	INVENTOR	SIGNIFICANCE
Corporation	Businessmen	New form of shared business ownership called limited liability; investors stand to lose only the initial amount of money they put into a business if the business fails
Bessemer steel process	Henry Bessemer	Iron purifying process producing strong, lightweight steel; gave the U.S. a manufacturing advantage; increased variety of uses for steel
Food preservation processes	Amanda Theodosia Jones	Process for vacuum canning food called the Jones Process, which improved food processing
Electricity as source of power and light	Thomas Edison	Gave rise to inventions such as the light bulb, a safer source of light that extended the American's day
Telephone	Alexander Graham Bell	Gave individuals access to instant communication rather than much slower letters
Airplane	Orville and Wilbur Wright	First step toward what would become commonplace, rapid transportation of people and goods by air
Agricultural Improvements	George Washington Carver	Encouraged farmers to grow nitrate-producing crops such as peanuts and sweet potatoes; developed hundreds of uses for these

**Check for Understanding** How did inventions of the late 1800s and early 1900s improve the lives of businesses and everyday Americans?

## The Labor Movement



**SS.912.A.3.9** Examine causes, course, and consequences of the labor movement in the late 19th and early 20th centuries.

### Labor Issues

Labor needs in late nineteenth-century America were larger than ever before. Big business was growing fast, and production had to keep up. This led to dangerous conditions in most factories—poor lighting and poor air ventilation, faulty machinery, and exhausted and poorly trained workers—resulting in massive amounts of injuries and deaths. The great need for workers, and workers' need for money, made it necessary that women work as well. Many of these women were mothers, and their children came with them, working alongside their families. These children, in turn, did not attend school and suffered the most health problems and injuries.

It was common for factory workers to work 12 hours a day, 6 days a week for barely enough pay to feed their families. If they were sick or injured, their jobs were lost. They did not have benefits such as health care to pay doctor bills. Company towns, where many workers were forced to live close to their jobs, also kept workers down. They were forced into a kind of "wage slavery," indebted to their employers for their housing and necessities.

### Workers Organize

Journalistic and literary muckrakers, so called by Theodore Roosevelt because they uncovered the dirt, or muck, of society, called attention to issues such as child labor in their writing. Their efforts led to the eventual banning of child labor and the improvement of public education.

Fed up with their poor working conditions, workers themselves began to organize to change the workplace. Several new labor unions were born.

UNION	FOUNDER	INDUSTRY
Knights of Labor (1869)	Uriah Smith Stephens	All workers, skilled or unskilled
American Federation of Labor (AFL) (1886)	Samuel Gompers	Skilled workers of specific crafts or trades
American Railway Union (1893)	Eugene V. Debs	Railway workers
International Ladies' Garment Workers Union (1900)	Pauline Newman	Garment workers, mainly women

## The Labor Movement (continued)

### Labor Strikes and Consequences

The rise of unions also brought labor strikes, demonstrations that big business could not ignore.

- **The Haymarket Riot (1886):** Connected to a nationwide strike for an eight-hour workday, protestors gathered at Haymarket Square in Chicago. When someone threw a bomb at the police, killing seven policemen, the police fired back at the crowd. Several protestors were killed, and many were wounded. As a result, public opinion went against unions, and employers' suspicions about unions grew.
- **The Homestead Strike (1892):** This steelworkers' strike began as a result of wage cuts at a Carnegie plant in Homestead, Pennsylvania. Clashes between the workers and a private police force known as the Pinkertons resulted in further public distrust of unions. Steelworkers lost any power they had before the strike.
- **The Pullman Strike (1893):** This strike began with the company owner reducing wages and laying off workers at the Pullman Palace Car Company. The owner closed the plant rather than negotiate, or settle on terms, with the workers. A nationwide strike eventually stopped the movement of railroads and the mail across the country. Railroad owners accused the union of illegally disrupting free trade. Federal troops were sent in to halt the strike.

Eventually, labor organization resulted in better working conditions through government regulation of working conditions, limited work hours, and more freedom and stability for America's working class.

**Check for Understanding** Why did labor strikes turn public opinion against the unions?



## Social Darwinism

**FL SS.912.A.3.10** Review different economic and philosophic ideologies.

**Vocabulary Builder:** **capitalism** (CAP i tul izzm) *n.* economic system based on private ownership of the means of production and characterized by a free and competitive market; **socialism** (so shul izzm) *n.* political system in which the people control the production and distribution of goods for the equal distribution of wealth

The philosophy of Manifest Destiny justified American actions in U.S. expansion from the Atlantic to the Pacific in the first half of the nineteenth century. In the same way, social Darwinism spurred and justified American industrial expansion in the second half of the nineteenth century.

### Social Darwinism

When Charles Darwin published his book *Origin of Species* in 1859, he drew on already existing economic theory. Economists had noted that plants and animals produce beyond their space and food supply and therefore many die. Darwin wanted to understand the reason for the survival of the few. He developed the idea of natural selection, which Herbert Spencer called "survival of the fittest." Spencer took Darwin's ideas and applied them to human institutions such as **capitalism**. According to Spencer, things progress from the simple to the complex. Survival of the fittest improves both mankind and the institutions that man develops.

The captains of industry seized upon the ideas of Spencer to justify their rise to power. They were, as they explained it, the result of social and economic evolution. They were the fittest, the ones selected by nature to rise from the pool of humanity and become great. In their view, those who did not rise, the massive labor pool that worked in the factories, were unfit to be more than laborers. This was social Darwinism, survival of the fittest, applied to business and society. In addition, according to the followers of social Darwinism, if things progressed from the simple to the complex, then corporations and monopolies were at the top of the evolutionary ladder for business. The monopoly, like the wealthy capitalist, was the product of economic and social "natural selection." Government, they explained, had no part in this process. Capitalism required that government keep out of industry and allow nature to operate freely.

Andrew Carnegie was perhaps the most literate promoter of this philosophy. A rags-to-riches example of the American dream, he made his fortune in the steel business. When he sold his business to J. P. Morgan in 1901, he was one of the wealthiest men in the world. In his writings, Carnegie proposed a Gospel of Wealth which justified the gains of the few. He also called on these few to return their riches to society for the improvement of society. This was not to be done by increasing wages or giving money to laborers. This, he said, would encourage laziness. Instead, Carnegie proposed giving to those who would help themselves, or giving in a way that helped people improve their lives. Carnegie's enormous wealth was given freely to fund museums, libraries, and educational institutions.

### Socialism

At the other end of the economic spectrum from the industrial wealthy were socialists. They wanted to see the wealth of the few distributed for the good of all. Capitalism, which requires that the government keep out of the economy, benefited only a few, they argued. In **socialism**, the people would control the economy for the good of everyone. A nation's wealth would be freely and evenly distributed among all the people.

**Check for Understanding** How did the wealthy industrialists use the ideas of Darwin to justify their methods for gaining wealth?