The Growth of Industrial Prosperity

**Guide to Reading**

**Content Vocabulary**
- assembly line
- mass production
- proletariat
- dictatorship
- revisionist

**Academic Vocabulary**
- generator
- transform
- emerge

**People to Identify**
- Thomas Edison
- Alexander Graham Bell
- Guglielmo Marconi
- Karl Marx

**Places to Locate**
- the Netherlands
- Spain
- Portugal
- Russia
- Austria-Hungary

**Reading Objectives**
1. Define the Second Industrial Revolution.
2. List Karl Marx's main ideas.

**Reading Strategy**

**Cause and Effect**
As you read, complete a diagram like the one below showing the relationship between certain resources and the products that resulted from their use.

<table>
<thead>
<tr>
<th>Resources</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>Steel</td>
</tr>
<tr>
<td>Steel</td>
<td>Internal-combustion engine</td>
</tr>
</tbody>
</table>

**Preview of Events**

- 1848
  - Marx and Engels publish *The Communist Manifesto*

- 1845
  - *The Communist Manifesto* is published

- 1879
  - Thomas Edison invents the lightbulb

- 1875
  - Creation of German Social Democratic Party

- 1885
  - The Second International socialist association forms

- 1895
  - Wright brothers make first flight

- 1903
  - Wright brothers make first flight

**California Standards in This Section**

*Reading this section will help you master these California History–Social Science standards.*

**10.3:** Students analyze the effects of the Industrial Revolution in England, France, Germany, Japan, and the United States.

**10.3.2:** Examine how scientific and technological changes and new forms of energy brought about massive social, economic, and cultural change (e.g., the inventions and discoveries of James Watt, Eli Whitney, Henry Bessemer, Louis Pasteur, Thomas Edison).

**10.3.3:** Describe the growth of population, rural to urban migration, and growth of cities associated with the Industrial Revolution.

**10.3.4:** Trace the evolution of work and labor, including the demise of the slave trade and the effects of immigration, mining and manufacturing, division of labor, and the union movement.

**10.3.5:** Understand the connections among natural resources, entrepreneurship, labor, and capital in an industrial economy.

**10.3.6:** Analyze the emergence of capitalism as a dominant economic pattern and the responses to it, including Utopianism, Social Democracy, Socialism, and Communism.
The Second Industrial Revolution

Main Idea In Western Europe, the introduction of electricity, chemicals, and petroleum triggered the Second Industrial Revolution, and a world economy began to develop.

Reading Connection Does your life come to a halt when the power goes out? Read to learn what happened when electricity first became a part of everyday life.

In the late nineteenth century, the belief in progress was so strong in the West that it was almost a religion. Europeans and Americans had been converted by the stunning bounty of products of the Second Industrial Revolution. In the first Industrial Revolution, textiles, coal, iron, and railroads were major elements. In the Second Industrial Revolution, steel, chemicals, electricity, and petroleum were the keys to making economies even more productive.

Voices from the Past

Guglielmo Marconi made one of the era’s most striking discoveries, wireless telegraphy, on December 12, 1901. The scientist and inventor described it in these words:

"Shortly before mid-day I placed the single earphone to my ear and started listening... I was at last on the point of putting... my beliefs to test. The answer came at 12:30 when I heard, faintly but distinctly, pip-pip-pip. I handed the phone to Kemp: 'Can you hear anything?' I asked. 'Yes,' he said, 'the letter S'—he could hear it... The electric waves sent out into space from Britain had traversed the Atlantic—the distance, enormous as it seemed then, of 1,700 miles—It was an epoch in history. I now felt for the first time absolutely certain the day would come when mankind would be able to send messages without wires... between the farthest ends of the earth."

New Products One major industrial change between 1870 and 1914 was the substitution of steel for iron. New methods for shaping steel made it useful in building lighter and faster machines and engines, as well as railways, ships, and weapons. In 1860, Great Britain, France, Germany, and Belgium produced 125,000 tons (112,500 t) of steel. By 1913, the total was an astounding 32 million tons (29 million t).

Electricity was a major new form of energy. It could be easily converted into other forms of energy, such as heat, light, and motion, and could be sent over long distances by means of wires. In the 1870s, the first practical generators of electrical current were developed. By 1910, hydroelectric power stations and coal-fired, steam-driven generating plants enabled homes and factories alike to draw upon a reliable, versatile, clean, and convenient source of power.

Electricity gave birth to a series of inventions. The creation of the light bulb by Thomas Edison in the United States and Joseph Swan in Great Britain opened homes and cities to electric lights. A revolution in communications began when Alexander Graham Bell invented the telephone in 1876 and Guglielmo Marconi sent the first radio waves across the Atlantic in 1901.

By 1900, streetcars and subways powered by electricity had appeared in major European cities. Electricity transformed the factory as well. Conveyor belts, cranes, and manufacturing machines could all be powered by electricity. With electric lights, factories could operate 24 hours a day.

The development of the internal-combustion engine, fired by oil or gasoline, provided a new source of power in transportation. This engine gave rise to ocean liners and warships with oil-fired engines, as well as to the airplane and the automobile. In 1903, Orville and Wilbur Wright made the first powered flight in a fixed-wing plane at Kitty Hawk, North Carolina. In 1908, Henry Ford produced his first Model T.
In the cities, the first department stores began to sell a new range of products made possible by the steel and electrical industries—clocks, bicycles, electrical lights, and typewriters, for example. Glass technology also inspired stores to create eye-catching window displays of the latest fashions.

Not everyone benefited from the Second Industrial Revolution. By 1900, Europe was divided into two economic zones. Great Britain, Belgium, France, the Netherlands, Germany, the western part of the Austro-Hungarian Empire, and northern Italy made up an advanced industrialized core. These nations had a high standard of living and advanced transportation.

In the rest of Europe—southern Italy, Spain, Portugal, the Balkans, Russia, and most of Austria-Hungary—the economy was still largely agricultural. These countries provided food and raw materials for the industrial countries, and their peoples often had a much lower standard of living.

The Model T was very affordable and kicked off the era when many people owned cars.

**New Patterns** Industrial production grew at a rapid pace because the demand, or market, for goods was a mass market. Many more Europeans could afford to buy products. Their wages increased after about 1870. At the same time, manufactured goods were becoming cheaper: both production and transportation were more efficient. One of the biggest reasons for more efficient production was the assembly line, a new manufacturing method pioneered by Henry Ford in 1913. The assembly line allowed a much more efficient mass production of goods.

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**Toward a World Economy** The period of the Second Industrial Revolution marked a major step toward a true world economy. Transportation by steamship and railroad contributed to this advance. A European living in 1900 had the benefit of products from faraway places—beef and wool from Argentina and Australia, coffee from Brazil, iron ore from Algeria, and sugar from Java in Indonesia.

Another part of the world economy was financial. European money was invested in other foreign enterprises that would produce a profit—railroads, mines, electric power plants, and banks. Of course, foreign countries also provided markets for the manufactured goods of Europe. With its capital, industries, and military might, Europe dominated the world economy by the beginning of the twentieth century.

**Analyzing** *Why were early cars expensive?*

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**Organizing the Working Class**

**Main Idea** Industrialization gave some a higher standard of living, but struggling workers turned to trade unions or socialism to improve their lives.

**Reading Connection** Do you hear news stories about life in a communist country such as China or Cuba? Read to learn about the first socialist movements in Europe.

The transition to an industrialized society was very hard on workers. It disrupted their lives and forced them to move to crowded slums. They had to give up occupations they knew and liked, and work long hours at mind-numbing tasks. Eventually this transformation gave workers a higher standard of living. This was not true at first, however, and for many workers, improved conditions took many decades.

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**The Automobile**

Many new forms of transportation were created in the Industrial Revolution, but none affected more people on a daily basis than the automobile. It was the invention of the internal-combustion engine that made the automobile possible.

A German engineer, Gottlieb Daimler, invented a light, portable internal-combustion engine in 1885. In 1889, Daimler and Wilhelm Maybach produced an automobile powered by a gasoline engine that reached a speed of 10 miles [16 km] per hour. In 1926, Daimler and Karl Benz, another German, merged to form Daimler-Benz, an automotive company that would later manufacture the Mercedes-Benz.

Early cars were handmade and expensive. Only several hundred were sold between 1893 and 1901. Their slow speed, 14 miles [22.5 km] per hour, was a problem, too. Early models were not able to climb steep hills.

An American, Henry Ford, revolutionized the car industry in 1908 by using an assembly line to mass-produce his Model T. Before, it had taken a group of workers 12 hours to build a single car. Now, the same number of workers could build a car in an hour and a half. By cutting production costs, Ford lowered the price of the automobile. A Model T cost $850 in 1908 but only $360 by 1916. By 1916, Ford’s factories were producing 735,000 cars a year. By 1925, Ford’s Model T cars would make up half of the automobiles in the world.

**Analyzing** *Why were early cars expensive?*
Reformers of this era believed that industrial capitalism was heartless and brutal. They wanted a new kind of society. Some reformers were moderates. They were willing to work within the system for gradual changes like fewer hours, better benefits, and safe working conditions. Often they used trade unions to achieve these practical goals.

Other reformers were more radical or even revolutionary. They wanted to abolish the capitalist system entirely and to create a socialist system. To achieve this goal, they supported socialist parties. Socialist parties emerged after 1870, but their theory for a new society came largely from Karl Marx. Marx was a socialist, and one form of Marxist socialism was eventually called communism (see Chapter 8).

Marx’s Theory Karl Marx was one of the most influential theorists of the century. His socialist theory first came to light when The Communist Manifesto was published during the Revolution of 1848, just when workers were demonstrating in the streets.

In The Communist Manifesto, Marx and his friend and coauthor Friedrich Engels denounced the new industrial economy and predicted that it would be defeated. A workers’ revolution was bound to occur. When the revolution came, it would destroy capitalism. Material wealth could then be distributed equally among all workers.

Marx believed that the oppressor and oppressed have “stood in constant opposition to one another” through all history. After the Industrial Revolution occurred, the oppressors were the capitalists with the capital, or money, to invest. They owned the land and the raw material; thus, they had total power over production. In Marx’s view, the oppressed were the workers who owned nothing and who depended for their very survival on the capitalists.

Around him, Marx believed he saw a society that was “more and more splitting up into two great hostile camps, into two great classes directly facing each other: Bourgeoisie and Proletariat.” The term bourgeoisie was well known as a way of referring to the middle class, but Marx popularized the term proletariat (PROH•luh•TEH•ree•uht) as a way of referring to the working class.

Marx predicted that the struggle between the two groups would finally lead to revolution. The proletariat would violently overthrow the bourgeoisie.

May Day

On May 1, 1997, parades and demonstrations took place around the world. Mexican workers poured into the streets of Mexico City to denounce the North American Free Trade Agreement (NAFTA). Workers believed it had caused a decline in their wages. In Seoul, Korean workers hurled rocks at police to protest government corruption in South Korea. In Berlin and Leipzig, union workers marched to protest high unemployment in Germany. In Beijing, people filled Tiananmen Square to praise workers at the beginning of a three-day vacation. In Japan, two million workers attended rallies across the country. Fifteen thousand workers marched in the streets of San Salvador to demand that the government pass laws to benefit the workers of El Salvador.

Why did these marches and demonstrations occur around the world on May 17? In the nineteenth century, the rise of socialist parties in Europe led to a movement to form an international organization. The purpose of this organization was to strengthen the position of socialist parties against international capitalism.

In 1889, leaders of various socialist parties formed the Second International, a loose association of national groups. Its first action was to declare May 1 as May Day, an international labor day to be marked by strikes and mass labor demonstrations. Although the Second International no longer exists, workers around the world still observe May Day.
Then a dictatorship of the proletariat would be formed to abolish capitalism and create a socialist economy. (A dictatorship is a government in which a person or small group has absolute power.) After this dictatorship abolished economic differences among classes, a classless society would come about. The state itself, which had been a tool of the bourgeoisie, would wither away.

**Socialist Parties** People inspired by Marx and by the goals of socialism began to form political parties to change society. The most important was the German Social Democratic Party (SPD), founded in 1875. The SPD advocated a Marxist revolution. Bismarck, the German prime minister, outlawed the SPD in 1878, but the party grew and in 1890 it was legalized.

In the German parliament, SPD representatives lobbied for laws to improve working conditions. In 1912, four million Germans voted for SPD candidates. It had become the largest party in Germany. Because the German constitution gave greater power to the upper house and the German emperor, the SPD was not able to bring about the kind of changes it wanted.

Socialist parties emerged in other European states, too. As early as 1862, the First International was founded to promote socialist goals. It died out quickly because its members could not agree on tactics.

In 1889, the Second International was founded, but socialist parties continued to disagree over precise goals and tactics. So-called pure Marxists thought that only a violent revolution could defeat capitalism. Other Marxists, revisionists, rejected the idea of violent revolution. They argued that workers could achieve socialism through the parliamentary system. If more and more workers won the right to vote, they said, the laws could be changed and workers would have better lives. In other words, socialism would be achieved gradually and by working through the system, not through violent revolution.

**Trade Unions** Another movement for workers focused on the trade union, or labor union. To improve their conditions, workers organized in a union. Then the union had to get the employer to recognize its right to represent workers in collective bargaining, negotiations with employers over wages and hours.

The right to strike was another important part of the trade union movement. In a strike, a union calls on its members to stop work in order to pressure employers to meet their demands for higher wages or improved factory safety. At first, laws were passed that made strikes illegal under any circumstances. In Great Britain, in 1870, unions won the right to strike. By 1914, there were almost four million workers in British trade unions. In the rest of Europe, trade unions had varying degrees of success in helping workers achieve a better life.