California Connections

This material is designed to help you think about large historical topics in a manageable and meaningful way and to connect the content to the California standards.

What were the results of the Industrial Revolutions?

Many significant advances in technology and industry occurred during the Industrial Revolution. By the late 1800s, countless advances such as the steam engine, the cotton gin, the Bessemer process, and electric lighting had occurred, along with many others. As you will learn in Lesson 4, a surge of scientific discovery ushered in great changes and pushed the frontiers of knowledge forward.

In Lesson 4 you will learn about Thomas Edison, one of the greatest inventors in history. Edison is known for his wide range of inventions and almost 1,100 patents, held in over 30 countries. Edison's inventions were often based on existing technologies. He developed the first practical light bulb and a system of electric generators that could provide electricity to houses over many city blocks. Electric light changed the world in unforeseen ways. Improved lighting allowed for a wider range of after-dark activities, from eating at restaurants and ice cream parlors to attending lecture halls and church gatherings. Electric lights in central public spaces (along with professional police forces) made it safer for people to walk the streets after dark. An abundance of light also allowed factories to keep running after dark. Edison's other inventions included the phonograph and motion pictures. But perhaps his greatest achievement was the development of the research laboratory, where he would pay researchers to study and test new inventions.

Advances in medicine led to an increasingly institutionalized and professionalized medical establishment. One of the most important discoveries was early germ theory. In the mid-1800s the French chemist Louis Pasteur discovered that the fermentation process was caused by microscopic organisms, which he called bacteria. He also learned that heat killed bacteria, leading to the process of pasteurization. He would use this process to kill bacteria in liquids, such as milk. It soon became clear to Pasteur and others that killing bacteria could help prevent diseases. Pasteur's germ theory became more firmly established when he performed a series of experiments disproving the pervading theory of spontaneous generation—the idea that life could be generated from dead matter.

Discoveries such as these quickly spread beyond national boundaries, bringing many benefits. The British surgeon Joseph Lister read about Pasteur's work. In 1865 Lister began applying high cleanliness standards to his surgical wards. Patients' wounds were also washed in antiseptics, or germ-killing liquids. As a result, he greatly improved his patient survival rate. Public officials began to see the benefits of cleanliness as well, installing plumbing and sewer systems along with other measures to improve public health and sanitation. Many new vaccines were developed during this period to prevent serious illnesses and diseases, such as typhus, cholera, and diphtheria, among many others. Pasteur developed vaccines for anthrax and rabies. These advances in medicine, sanitation, and public health would result in increased life expectancy and improvement in infant mortality rates.

The rise of mass culture in the United States and Western Europe was another major outcome of the Industrial Revolution. Previously, only the wealthy could enjoy high culture, such as art, music, and theater. Lower classes typically did not have the money, leisure time, and education to take part in these types of activities. Working people's lives changed with shorter workdays and workweeks and improved public education. They now had time to pursue a wide variety of leisure activities, such as musical performances, movies, and sporting events. For example, traveling musical variety shows, called vaudeville, became a popular evening pastime. Edison's invention of the phonograph helped bring music into people's homes. By the early 1900s filmmakers were producing feature films. Movies became big business in the United States and in Europe. Spectator sports became entertainment—football and baseball in the United States, soccer in Europe, and cricket in England and its colonies. As interest in sports grew, the International Olympic Games were established in 1896, reviving the ancient Greek tradition of holding an athletic competition every four years.

PRIMARY SOURCE

Samuel Smiles, *Self-Help*

Samuel Smiles (1812–1904) was a Scottish author best known for the book *Self-Help*, written in 1853. The book was based on lectures on self-improvement that he had given to young men. The book had sold 250,000 copies by the end of the century.

Smiles held up self-made men as role models. He believed that hard-working men produced good laws and a strong economy. They also made good leaders. He gave his readers the notion that success was the result of morality and hard work. As examples, Smiles pointed to men of humble social origins who helped build the British Empire.

Today, Smiles's ideas of self-improvement are often viewed as conservative, but his thinking was considered radical in his own time. Smiles believed in universal education and expanded suffrage. He disapproved of labor strikes because they harmed the people who participated in them. Most of all,

he regarded people born to wealth and privilege as leeches. But he believed it was possible for them to overcome their privileged origins through hard work. The following is an excerpt from Smiles's *Self-Help*:

The spirit of self-help, as exhibited in the energetic action of individuals, has in all times been a marked feature in the English character, and furnishes the true measure of our power as a nation. Rising above the heads of the mass, there were always to be found a series of individuals distinguished beyond others, who commanded the public homage. But our progress has also been owing to multitudes of smaller and less known men. Though only the generals' names may be remembered in the history of any great campaign, it has been in a great measure through the individual valour and heroism of the privates that victories have been won. And life, too, is "a soldiers' battle,"—men in the ranks having in all times been amongst the greatest of workers. Many are the lives of men unwritten, which have nevertheless as powerfully influenced civilisation and progress as the more fortunate Great whose names are recorded in biography. Even the humblest person, who sets before his fellows an example of industry, sobriety, and upright honesty of purpose in life, has a present as well as a future influence upon the well-being of his country; for his life and character pass unconsciously into the lives of others, and propagate good example for all time to come.

Daily experience shows that it is energetic individualism which produces the most powerful effects upon the life and action of others, and really constitutes the best practical education. Schools, academies, and colleges, give but the merest beginnings of culture in comparison with it. Far more influential is the life-education daily given in our homes, in the streets, behind counters, in workshops, at the loom and the plough, in counting-houses and manufactories, and in the busy haunts of men. This is that finishing instruction as members of society, which Schiller designated "the education of the human race," consisting in action, conduct, self-culture, self-control,—all that tends to discipline a man truly, and fit him for the proper performance of the duties and business of life,—a kind of education not to be learnt from books, or acquired by any amount of mere literary training. With his usual weight of words Bacon observes, that "Studies teach not their own use; but that is a wisdom without them, and above them, won by observation;" a remark that holds true of actual life, as well as of the cultivation of the intellect itself. For all experience serves to illustrate and enforce the lesson, that a man perfects himself by work more than by reading,—that it is life rather than literature, action rather than study, and character rather than biography, which tend perpetually to renovate mankind.

Biographies of great, but especially of good men, are nevertheless most instructive and useful, as helps, guides, and incentives to others. Some of the best are almost equivalent to gospels—teaching high living, high thinking, and energetic action for their own and the world's good. The valuable examples which they furnish of the power of self-help, of patient purpose, resolute working, and steadfast integrity, issuing in the formation of truly noble and manly character, exhibit in language not to be misunderstood, what it is in the power of each to accomplish for himself; and eloquently illustrate the efficacy of self-respect and self-reliance in enabling men of even the humblest rank to work out for themselves an honourable competency and a solid reputation.

Great men of science, literature, and art—apostles of great thoughts and lords of the great heart—have belonged to no exclusive class nor rank in life. They have come alike from colleges, workshops, and farmhouses,—from the huts of poor men and the mansions of the rich. Some of God's greatest apostles have come from "the ranks." The poorest have sometimes taken the highest places; nor have difficulties apparently the most insuperable proved obstacles in their way. Those very difficulties, in many instances, would ever seem to have been their best helpers, by evoking their powers of labour and endurance, and stimulating into life faculties which might otherwise have lain dormant. The instances of obstacles thus surmounted, and of triumphs thus achieved, are indeed so numerous, as almost to justify the proverb that "with Will one can do anything."

—Samuel Smiles, *Self-Help*

ACTIVITY

Railroads and Industrialization

Your task is to use your textbook to compare and contrast the role of railroads in the industrialization of England and the United States.

1. **Planning** Review the description of English railroads in Module 7 and the one of the U.S. railroads in Module 8. You may also wish to research the subject on the Internet.
2. **Comparing and Contrasting** Create a chart that compares and contrasts the roles of railroads in industrialization in the two countries.

Module 8

An Age of Democracy and Progress

Essential Question

How did democratic reforms, technological innovations, and scientific advancements impact Western society during the 19th century?

About the Photo: In this 1912 image, women marched down the streets of London demanding the right to vote.

In this module you will learn about the spread of democratic ideals and industrial and scientific progress in the 19th century.

Explore ONLINE!

HISTORY

VIDEOS, including...
- Thomas Edison
- Independence for Texas
- Lincoln's Road Toward Emancipation
- Henry Ford and the Model T

- Document-Based Investigations
- Graphic Organizers
- Interactive Games
- Carousel: Life in Early Australia
- Image Compare: Improving Public Health

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). **10.3.4** 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. **10.4.1** Describe the rise of industrial economies and their link to imperialism and colonialism (e.g., the role played by national security and strategic advantage; moral issues raised by the search for national hegemony, Social Darwinism, and the missionary impulse; material issues such as land, resources, and technology). **CST.1** Students compare the present with the past, evaluating the consequences of past events and decisions and determining the lessons that were learned. **CST.2** Students analyze how change happens at different rates at different times; understand that some aspects can change while others remain the same; and understand that change is complicated and affects not only technology and politics but also values and beliefs. **CST.3** Students use a variety of maps and documents to interpret human movement, including major patterns of domestic and international migration, changing environmental preferences and settlement patterns, the frictions that develop between population groups, and the diffusion of ideas, technological innovations, and goods. **HREP.3** Students evaluate major debates among historians concerning alternative interpretations of the past, including an analysis of authors' use of evidence and the distinctions between sound generalizations and misleading oversimplifications. **HREP.4** Students construct and test hypotheses; collect, evaluate, and employ information from multiple primary and secondary sources; and apply it in oral and written presentations. **HI.2** Students recognize the complexity of historical causes and effects, including the limitations on determining cause and effect. **HI.3** Students interpret past events and issues within the context in which an event unfolded rather than solely in terms of present-day norms and values. **HI.4** Students understand the meaning, implication, and impact of historical events and recognize that events could have taken other directions.

Timeline of Events 1815–1915

Explore ONLINE!

Europe	World
1815	
	1821 Mexico wins independence from Spain.
< **1837** Queen Victoria comes to power in Great Britain.	
1845 Ireland struck by famine.	
	1857 Sepoy Mutiny challenges British rule in India. ^
1859 Darwin publishes theory of evolution.	
	1867 Dominion of Canada formed.
1871 Franco-Prussian War ends.	**1869** Suez Canal opens.
	1884 Berlin Conference begins partition of Africa.
< **1889** Eiffel Tower completed in Paris.	
	1893 New Zealand becomes first nation to allow women to vote.
	1914 Panama Canal opens. >
1915	

Democratic Reform and Activism

The Big Idea

Spurred by the demands of the people, Great Britain and France underwent democratic reforms.

Why It Matters Now

During this period, Britain and France were transformed into the democracies they are today.

Key Terms and People

suffrage
Chartist movement
Queen Victoria
Third Republic
Dreyfus affair
anti-Semitism
Zionism

CST.2

Setting the Stage

Urbanization and industrialization brought sweeping changes to Western nations. People looking for solutions to the problems created by these developments began to demand reforms. They wanted to improve conditions for workers and the poor. Many people also began to call for political reforms. They demanded that more people be given a greater voice in government. Many different groups, including the middle class, workers, and women, argued that the right to vote be extended to groups that were excluded.

Britain Enacts Reforms

Britain became a constitutional monarchy in the late 1600s. Under this system, the monarch serves as the head of state, but Parliament holds the real power. The British Parliament consists of a House of Lords and a House of Commons. Traditionally, members of the House of Lords either inherited their seats or were appointed. However, this changed in 1999, when legislation was passed that abolished the right of hereditary peers to inherit their seats. Members of the House of Commons are elected by the British people.

In the early 1800s, the method of selecting the British government was not a true democracy. Only about five percent of the population had the right to elect the members of the House of Commons. Voting was limited to men who owned a substantial amount of land. Women could not vote at all. As a result, the upper classes ran the government.

The Reform Bill of 1832 The first group to demand a greater voice in politics was the wealthy, city-dwelling middle class—factory owners, bankers, and merchants—that had emerged as a result of the Industrial Revolution. Beginning in 1830, protests took place around England in favor of a bill in Parliament that would extend **suffrage**, or the right to vote. The Revolution of 1830 in France frightened

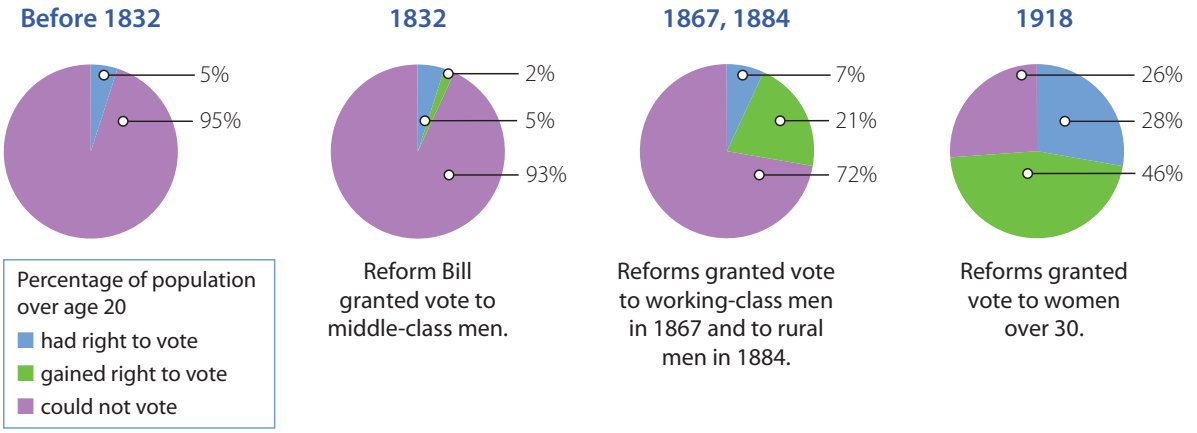
parliamentary leaders. They feared that revolutionary violence would spread to Britain. Thus, Parliament passed the Reform Bill of 1832. This law expanded voting rights by easing property requirements so that well-to-do men in the middle class could vote. The Reform Bill also modernized the districts for electing members of Parliament and gave the thriving new industrial cities more representation.

Chartist Movement Although the Reform Bill expanded the number of British voters, only a small percentage of men were eligible to vote. A popular movement arose among the workers and other groups who still could not vote to press for more rights. It was called the **Chartist movement** because the group first presented its demands to Parliament in a petition called The People's Charter of 1838.

The People's Charter called for an expansion of Parliamentary government. It demanded suffrage for all men and annual Parliamentary elections. It also proposed to reform Parliament in other ways. In Britain at the time, eligible men voted openly. Since their vote was not secret, they could feel pressure to vote in a certain way. Members of Parliament had to own land and received no salary, so they needed to be wealthy. The Chartists wanted to make Parliament responsive to the lower classes. To do this, they demanded a secret ballot, an end to property requirements for serving in Parliament, and pay for members of Parliament.

Parliament rejected the Chartists' demands. However, their protests convinced many people that the workers had valid complaints. Over the years, workers continued to press for political reform, and Parliament responded. It gave the vote to working-class men in 1867 and to male rural workers in 1884. After 1884, most adult males in Britain had the right to vote. By the early 1900s, all the demands of the Chartists, except for annual elections, became law.

Expansion of Suffrage in Britain



Source: R. L. Leonard, *Elections in Britain*

Analyze Graphs
What percentage of the adults in Britain could vote in 1832? By how much did the percentage of voters increase after the reforms of 1867 and 1884?

BIOGRAPHY

Queen Victoria and Prince Albert

About two years after her coronation, Queen Victoria (1819–1901) fell in love with her cousin Albert (1819–1861), a German prince. She proposed to him and they were married in 1840. Together they had nine children. Prince Albert established a tone of politeness and correct behavior at court, and the royal couple presented a picture of loving family life that became a British ideal.

After Albert died in 1861, the queen wore black silk for the rest of her life in mourning. She once said of Albert, "Without him everything loses its interest."

Reading Check
Make Inferences
Why do you think the Chartists demanded a secret ballot rather than public voting?

The Victorian Age The figure who presided over all this historic change was **Queen Victoria**. Victoria came to the throne in 1837 at the age of 18. She was queen for nearly 64 years. During the Victorian Age, the British Empire reached the height of its wealth and power. Victoria was popular with her subjects, and she performed her duties capably. However, she was forced to accept a less powerful role for the monarchy.

The kings who preceded Victoria in the 1700s and 1800s had exercised great influence over Parliament. The spread of democracy in the 1800s shifted political power almost completely to Parliament, and especially to the elected House of Commons. Now the government was completely run by the prime minister and the cabinet.

Women Get the Vote

By 1890, several industrial countries had universal male suffrage (the right of all men to vote). No country, however, allowed women to vote. As more men gained suffrage, more women demanded the same.

Organization and Resistance During the 1800s, women in both Great Britain and the United States worked to gain the right to vote as the consequences of not participating in the electoral process were becoming truly apparent. Women were finding more opportunities for education and employment. For example, by 1870, about 20 percent of all college students in America were women. By 1900 that number had increased to more than one-third. With greater opportunities came a desire for greater involvement in the life of the community.

British women organized reform societies and protested unfair laws and customs. As women became more vocal, however, resistance to their demands grew. Many people, both men and women, thought that woman suffrage was too radical a break with tradition. Some claimed that women lacked the ability to take part in politics.

Militant Protests After decades of peaceful efforts to win the right to vote, some women took more drastic steps. In Britain, Emmeline Pankhurst formed the Women's Social and Political Union (WSPU) in 1903. The WSPU became the most militant organization for women's rights. Its goal was to draw attention to the cause of woman suffrage. When asked about why her group chose militant means to gain women's rights, Pankhurst replied:

> *"I want to say here and now that the only justification for violence, the only justification for damage to property, the only justification for risk to the comfort of other human beings is the fact that you have tried all other available means and have failed to secure justice."*
>
> —Emmeline Pankhurst, *Why We Are Militant*

Emmeline Pankhurst, her daughters Christabel and Sylvia, and other WSPU members were arrested and imprisoned many times. When they were jailed, the Pankhursts led hunger strikes to keep their cause in the public eye. British officials force-fed Sylvia and other activists to keep them alive.

Though the woman suffrage movement gained attention between 1880 and 1914, its successes were gradual. Women did not gain the right to vote in national elections in Great Britain until after World War I. In 1918, Parliament passed an act that allowed women older than 30 to vote. Another act, in 1928, extended voting rights to women over the age of 21.

Women's Suffrage in America The struggle for women's suffrage in the United States can be traced to the beginning of the 19th century. The movement really took hold, however, in the years following the American Civil War as suffragists, who had supported the abolition of slavery, called for granting women the vote as well as newly freed African American men.

In 1869, two pro-suffrage organizations were formed: the National Woman Suffrage Association (NWSA) and the American Woman Suffrage Association (AWSA). The groups had different approaches. NWSA campaigned for a constitutional amendment to give women the right to vote.

Global Patterns

The Women's Movement

By the 1880s, women were working internationally to win more rights. In 1888, women activists from the United States, Canada, and Europe met in Washington, D.C., for the International Council of Women. In 1893, delegates and observers from many countries attended a large congress of women in Chicago. They came from lands as far apart as New Zealand, Argentina, Iceland, Persia, and China.

The first countries to grant suffrage to women were New Zealand (1893) and Australia (1902). Only in two European countries—Finland (1906, then part of the Russian Empire) and Norway (1913)—did women gain voting rights before World War I. In the United States, the territory of Wyoming allowed women to vote in 1869. Several other Western states followed suit.

The AWSA focused on winning the right to vote on a state-by-state basis. In 1890, the two groups merged, forming the National American Woman Suffrage Association (NAWSA).

In the early part of the 20th century, the movement took some dramatic turns, highlighted by a split in the ranks of suffrage supporters over the best way to win the vote. Some leaders of the NAWSA, frustrated by its state-by-state approach, broke away and formed the Congressional Union for Woman Suffrage. Renamed the National Women's Party (NWP) in 1916, the group focused on passage of a federal constitutional amendment for women's suffrage.

The group learned new tactics from the British suffrage movement. Members of the NWP picketed the White House in January 1917, chaining themselves to the railings. Many were arrested. Some went on hunger strikes in prison. The dramatic efforts of the NWP protesters brought renewed attention to the suffrage cause.

Reading Check
Compare and Contrast How were the struggles for women's suffrage in Britain and America similar and different? Was the use of militant action effective in achieving the goal of woman suffrage? Explain.

Eventually, the work of suffragists convinced members of the United States Congress to support a constitutional amendment. Even the president at the time, Woodrow Wilson, lent his support. Proposed by Congress in 1919 and ratified in 1920, the Nineteenth Amendment finally gave American women over the age of 21 full voting rights. The presidential election of 1920 was the first in which women could vote in every state. The consequence of their participation was to help elect Ohio Senator Warren G. Harding as president.

France and Democracy

While Great Britain moved toward greater democracy in the late 1800s, democracy finally took hold in France.

The Third Republic In the aftermath of the Franco-Prussian War, France went through a series of crises. Between 1871 and 1914, France averaged a change of government almost yearly. A dozen political parties competed for power. Not until 1875 could the National Assembly agree on a new government. Eventually, the members voted to set up a republic. The **Third Republic** lasted over 60 years. However, France remained divided.

The Dreyfus Affair During the 1880s and 1890s, the Third Republic was threatened by monarchists, aristocrats, clergy, and army leaders. These groups wanted a monarchy or military rule. A controversy known as the **Dreyfus affair** became a battleground for these opposing forces. Widespread feelings of **anti-Semitism**, or prejudice against Jews, also played a role in this scandal.

In 1894, Captain Alfred Dreyfus, one of the few Jewish officers in the French army, was accused of selling military secrets to Germany. A court found him guilty, based on false evidence, and sentenced him to life in prison. In a few years, new evidence showed that Dreyfus had been framed by other army officers.

This engraving from an 1898 French magazine shows Émile Zola being surrounded by an anti-Semitic mob.

Public opinion was sharply divided over the scandal. Many army leaders, nationalists, leaders in the clergy, and anti-Jewish groups refused to let the case be reopened. They feared sudden action would cast doubt on the honor of the army. Dreyfus's defenders insisted that justice was more important. In 1898, the writer Émile Zola published an open letter titled *J'accuse!* (I accuse) in a popular French newspaper. In the letter, Zola denounced the army for covering up a scandal. Zola was sentenced to a year in prison for his views, but his letter gave strength to Dreyfus's cause. Eventually, the French government declared his innocence.

Reading Check
Analyze Effects
What were two major effects of the Dreyfus affair?

The Rise of Zionism The Dreyfus case showed the strength of anti-Semitism in France and other parts of Western Europe. However, persecution of Jews was even more severe in Eastern Europe. Russian officials permitted pogroms (puh•GRAHMS), organized campaigns of violence against Jews. From the late 1880s on, thousands of Jews fled Eastern Europe. Many headed for the United States.

For many Jews, the long history of exile and persecution convinced them to work to reestablish their ancient homeland. In the 1890s, a movement known as **Zionism** developed to pursue this goal. Its leader was Theodor Herzl (HEHRT•suhl), a writer in Vienna. It took many years, however, before the State of Israel was established.

Lesson 1 Assessment

1. **Organize Information** Create a two-column graphic organizer similar to the one shown and fill it in as you evaluate the ways in which the following events expanded democracy: Britain gradually extends suffrage to most adult males; women in many countries demand the right to vote. Which event was the greatest expansion of democracy?

Event	Evaluation

2. **Key Terms and People** For each key term or person in the lesson, write a sentence explaining its significance.
3. **Analyze Effects** What were some effects of the Reform Bill of 1832?
4. **Summarize** What was the goal of the WSPU in Britain?
5. **Compare** Why was the road to democracy more difficult for France than for England?
6. **Analyze Effects** What was the connection between anti-Semitism and Zionism?

Self-Rule for British Colonies

The Big Idea

Britain allowed self-rule in Canada, Australia, and New Zealand but delayed it for Ireland.

Why It Matters Now

Canada, Australia, and New Zealand are strong democracies today, while Ireland is divided.

Key Terms and People

dominion
Maori
Aborigine
penal colony
home rule
Irish Republican Army

10.3.4; CST.3; HREP.3

Setting the Stage

By 1800, Great Britain had colonies around the world. These included outposts in Africa and Asia. In these areas, the British managed trade with the local peoples, but they had little influence over the population at large. In the colonies of Canada, Australia, and New Zealand, on the other hand, European colonists dominated the native populations. As Britain industrialized and prospered in the 1800s, so did these colonies. Some were becoming strong enough to stand on their own.

Canada Struggles for Self-Rule

Canada was originally home to many Native American peoples. The first European country to colonize Canada was France. The earliest French colonists, in the 1600s and 1700s, had included many fur trappers and missionaries. They tended to live among the Native Americans. Some French intermarried with Native Americans.

Great Britain took possession of the country in 1763 after it defeated France in the French and Indian War. The French who remained lived mostly in the lower St. Lawrence Valley. Many English-speaking colonists arrived in Canada after it came under British rule. Some came from Great Britain, and others were Americans who had stayed loyal to Britain after the American Revolution. They settled separately from the French along the Atlantic seaboard and the Great Lakes.

French and English Canada Religious and cultural differences between the mostly Roman Catholic French and the mainly Protestant English-speaking colonists caused conflict in Canada. Both groups pressed Britain for a greater voice in governing their own affairs. In 1791 the British Parliament tried to resolve both issues by creating two new Canadian provinces. Upper Canada (now Ontario) had an English-speaking majority. Lower Canada (now Quebec) had a French-speaking majority. Each province had its own elected assembly.

The Durham Report The division of Upper and Lower Canada temporarily eased tensions. In both colonies, the royal governor and a small group of wealthy British held most of the power. But during the early 1800s, middle-class professionals in both colonies began to demand political and economic reforms. In Lower Canada, these demands were also fueled by French resentment toward British rule. In the late 1830s, rebellions broke out in both Upper and Lower Canada. The British Parliament sent a reform-minded statesman, Lord Durham, to investigate.

In 1839, Durham sent a report to Parliament that urged two major reforms. First, Upper and Lower Canada should be reunited as the Province of Canada, and British immigration should be encouraged. In this way, the French would slowly become part of the dominant English culture. Second, colonists in the provinces of Canada should be allowed to govern themselves in domestic matters.

The Dominion of Canada By the mid-1800s, many Canadians believed that Canada needed a central government. A central government would be better able to protect the interests of Canadians against the United States, whose territory now extended from the Atlantic to the Pacific oceans. In 1867, Nova Scotia and New Brunswick joined the Province of Canada to form the Dominion of Canada. As a **dominion**, Canada was self-governing in domestic affairs but remained part of the British Empire.

Reading Check
Analyze Effects
How do you think Durham's report affected French-speaking Canadians?

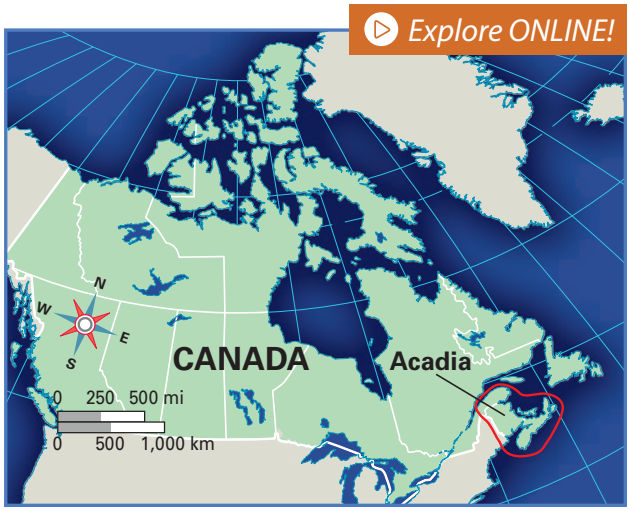
Canada's Westward Expansion Canada's first prime minister, John MacDonald, expanded Canada westward by purchasing lands and persuading frontier territories to join the union. Canada stretched to the Pacific Ocean by 1871. MacDonald began the construction of a transcontinental railroad, completed in 1885.

History in Depth

Acadians to Cajuns

Colonists from France founded the colony of Acadia on the eastern coast of what is now Canada in 1604. Tensions flared between these settlers and later arrivals from England and Scotland.

In 1713, the British gained control of Acadia and renamed it Nova Scotia (New Scotland). They expelled thousands of descendants of the original Acadians. Many eventually settled in southern Louisiana. Today, their culture still thrives in the Mississippi Delta area, where the people are called Cajuns (an alteration of Acadian).



Australia and New Zealand

The British sea captain James Cook claimed New Zealand in 1769 and part of Australia in 1770 for Great Britain. Both lands were already inhabited. In New Zealand, Cook was greeted by the **Maori**, a Polynesian people who had settled in New Zealand around 800 CE. Maori culture was based on farming, hunting, and fishing.

When Cook reached Australia, he considered the land uninhabited. In fact, Australia was sparsely populated by **Aborigines**, as Europeans later called the native peoples. Aborigines are the longest ongoing culture in the world. These nomadic peoples fished, hunted, and gathered food.

Britain's Penal Colony Britain began colonizing Australia in 1788 with convicted criminals. The prisons in England were severely overcrowded. To solve this problem, the British government established a penal colony in Australia. A **penal colony** was a place where convicts were sent to serve their sentences. Many European nations used penal colonies as a way to prevent overcrowding of prisons. After their release, the newly freed prisoners could buy land and settle.

Free Settlers Arrive Free British settlers eventually joined the former convicts in both Australia and New Zealand. In the early 1800s, an Australian settler experimented with breeds of sheep until he found one that produced high quality wool and thrived in the country's warm, dry weather. Although sheep are not native to Australia, the raising and exporting of wool became its biggest business.

To encourage immigration, the government offered settlers cheap land. The population grew steadily in the early 1800s and then skyrocketed after a gold rush in 1851. The scattered settlements on Australia's east coast grew into separate colonies. Meanwhile, a few pioneers pushed westward across the vast dry interior and established outposts in western Australia.

Settling New Zealand European settlement of New Zealand grew more slowly. This was because Britain did not claim ownership of New Zealand, as it did Australia. Rather, it recognized the land rights of the Maori. In 1814, missionary groups began arriving from Australia seeking to convert the Maori to Christianity.

The arrival of more foreigners stirred conflicts between the Maori and the European settlers over land. Responding to the settlers' pleas, the British decided to annex New Zealand in 1839 and appointed a governor to negotiate with the Maori. In a treaty signed in 1840, the Maori accepted British rule in exchange for recognition of their land rights.

Self-Government Like Canadians, the colonists of Australia and New Zealand wanted to rule themselves yet remain in the British Empire. During the 1850s, the colonies in both Australia and New Zealand became self-governing and created parliamentary forms of government. In 1901, the Australian colonies were united under a federal constitution as the Commonwealth of Australia. During the early 1900s, both Australia and New Zealand became dominions.

Explore ONLINE!

Australia and New Zealand to 1850

Interpret Maps

1. **Region** What sort of climate region is found along the eastern coast of Australia?
2. **Region** What regions of Australia and New Zealand were most densely inhabited by native peoples?

The people of Australia and New Zealand pioneered a number of political reforms. For example, the secret ballot, sometimes called the Australian ballot, was first used in Australia in the 1850s. In 1893, New Zealand became the first nation in the world to give full voting rights to women. However, only white women gained these rights.

Status of Native Peoples

Native peoples and other non-Europeans were excluded from democracy and prosperity. Diseases brought by the Europeans killed Aborigines and Maori. As Australian settlement grew, the colonists displaced or killed many Aborigines.

In New Zealand, tensions between settlers and Maori continued to grow after it became a British colony. Between 1845 and 1872, the colonial government fought the Maori in a series of wars. Reduced by disease and outgunned by British weapons, the Maori were finally driven into a remote part of the country.

Reading Check
Contrast
How did the colonial settlement of Australia and New Zealand differ?

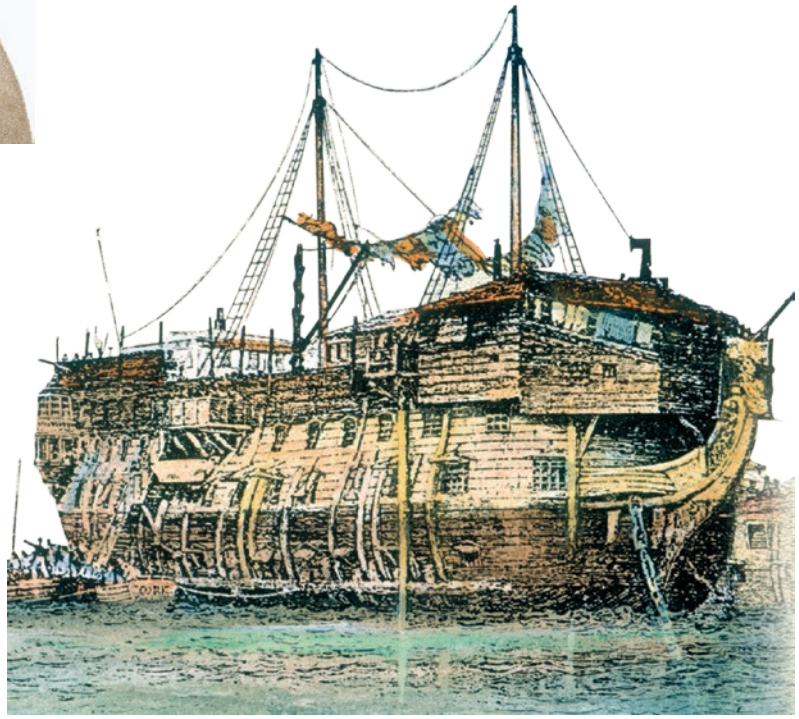
This photograph shows a Maori warrior with traditional dress and face markings.

Life in Early Australia

European explorers located Australia long after they had begun colonizing other lands. Dutch explorers were probably the first Europeans to reach Australia around 1605. Australia was not claimed by a European power, however, until the British did so in 1770.

Early Australia had many groups of people with diverse interests, including a native population that had lived on the island for at least 40,000 years. On these pages you will discover the occupations, motivations, and interests of some Australians in the 17th and 18th centuries.

◀ **ORIGINAL AUSTRALIANS**
Aboriginal society and culture developed in close harmony with nature. There were between 200 and 300 Aboriginal languages, and most people were bilingual or multilingual. By 1900, half of Australia's original inhabitants had died fighting the British or from disease. The engraving depicts an Aboriginal man with ceremonial face paint and scars. The other image is an ancient Aboriginal rock painting.



CONVICTS ▶
Beginning in 1788, England sent both male and female prisoners to Australia—sometimes with their children. Convicts built public buildings, roads, and bridges. England stopped sending convicts to Australia in 1868. The prison ship shown here housed prisoners before they went to Australia.

◀ **FARMERS AND RANCHERS**
Free settlers made the journey to Australia willingly. Many went into farming and ranching. Farms provided much-needed food, and sheep ranching provided wool as a valuable export. Convicts were hired out to farmers and ranchers as cheap labor. Sheep ranching, shown in the picture, remains an important part of Australia's economy.

GOLD MINERS ▼
In 1851, lured by the potential of striking it rich, thousands of people began prospecting for gold in Australia. Sometimes whole families moved to the gold fields, but life in the gold camps was hard and very few people struck it rich. Searching for gold was hard and dirty work, as this painting illustrates.

Critical Thinking

1. **Form Opinions** Of the groups represented on these pages, which do you believe had the highest quality of living? Why?
2. **Compare and Contrast** Use the Internet to research the issues that Australian Aborigines and Native Americans in the United States face today and compare them. How are they similar? How are they different?

The Irish Win Home Rule

English expansion into Ireland had begun in the 1100s, when the pope granted control of Ireland to the English king. English knights invaded Ireland, and many settled there to form a new aristocracy. The Irish, who had their own ancestry, culture, and language, bitterly resented the English presence. Laws imposed by the English in the 1500s and 1600s limited the rights of Catholics and favored the Protestant religion and the English language.

Over the years, the British government was determined to maintain its control over Ireland. It formally joined Ireland to Britain in 1801. Though a setback for Irish nationalism, this move gave Ireland representation in the British Parliament. Irish leader Daniel O'Connell persuaded Parliament to pass the Catholic Emancipation Act in 1829. This law restored many rights to Catholics.

The Great Famine In the 1840s, Ireland experienced one of the worst famines of modern history. For many years, Irish peasants had depended on potatoes as virtually their sole source of food. During the early years of Britain's agricultural revolution, better varieties of food crops, including potatoes, were developed. From 1845 to 1848, a plant fungus ruined nearly all of Ireland's potato crop. Out of a population of 8 million, about a million people died from starvation and disease over the next few years.

A traveler described what he saw on a journey through Ireland in 1847:

> *"We entered a cabin. Stretched in one dark corner, scarcely visible, from the smoke and rags that covered them, were three children huddled together, lying there because they were too weak to rise, pale and ghastly, their little limbs—on removing a portion of the filthy covering—perfectly emaciated, eyes sunk, voice gone, and evidently in the last stage of actual starvation."*
>
> —William Bennett, quoted in *Narrative of a Recent Journey of Six Weeks in Ireland*

During the famine years, about a million and a half people fled from Ireland. The famine is considered to be the primary reason for the enormous wave of Irish immigration to the United States that occurred during the 1840s. Between 1820 and 1860, over one-third of all U.S. immigrants were Irish, and in the 1840s, the Irish made up almost half of all U.S. immigrants.

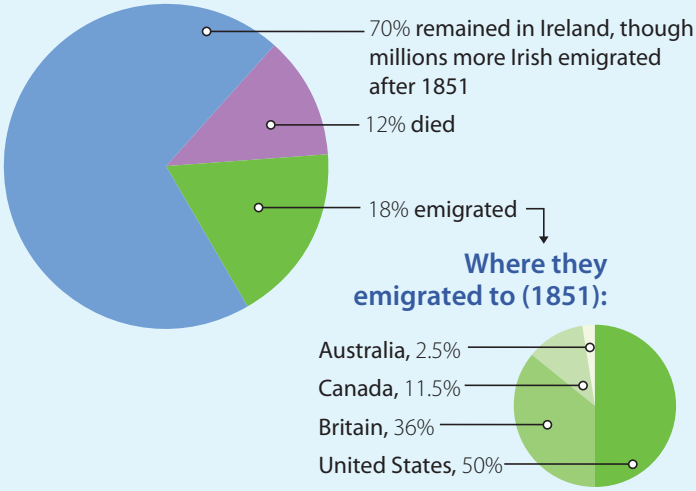
A vast majority of these Irish immigrants lived in extremely impoverished neighborhoods in Northeastern cities like New York City. Irish men, many of whom were unskilled, entered the U.S. workforce at the lowest levels. They worked menial factory jobs for low wages. Irish women worked as domestic workers and servants. Nevertheless, Irish immigrants played a crucial role during the Industrial Revolution, working in coal mines and on railroads.

Historical Source

The Great Famine, 1845–1851

Analyze Historical Sources
What was the effect of the Great Famine on the population of Ireland? What was its effect on the development of other societies around the world?

Fate of the Irish during the famine:



Sources: R. F. Foster, *Modern Ireland, 1600–1972;* D. Fitzpatrick, *Irish Emigration, 1804–1921*

Other Irish emigrants went to Britain, Canada, and Australia. At home, in Ireland, the British government enforced the demands of the English landowners that the Irish peasants pay their rent. Many Irish lost their land and fell hopelessly in debt, while large landowners profited from higher food prices.

Demands for Home Rule During the second half of the 1800s, opposition to British rule over Ireland took two forms. Some Irish wanted independence for Ireland. A greater number of Irish preferred **home rule**, local control over internal matters only. The British, fearful of Irish moves toward independence, refused to consider either option.

One reason for Britain's opposition to home rule was concern for Ireland's Protestants. They feared being a minority in a country dominated by Catholics. Most Protestants lived in the northern part of Ireland, known as Ulster. Finally, in 1914, Parliament enacted a home rule bill for southern Ireland. Just one month before the plan was to take effect, World War I broke out in Europe. Irish home rule was put on hold.

Rebellion and Division Frustrated over the delay in gaining independence, a small group of Irish nationalists rebelled in Dublin during Easter week, 1916. British troops put down the Easter Rising and executed its leaders. Their fate, however, aroused wider popular support for the nationalist movement.

Now and Then

Northern Ireland Today

When Northern Ireland decided to stay united with Great Britain, many Catholics there refused to accept the partition, or division. In the late 1960s, Catholic groups began to demonstrate for more civil rights.

Their protests touched off fighting between Catholics and Protestants. Militant groups on both sides engaged in terrorism. This violent period, called the "troubles," continued into the 1990s.

In 1999, with a peace accord, Catholics and Protestants began sharing power in a new home-rule government. In May 2007, home rule returned under a new power-sharing government.

After World War I, the Irish nationalists won a victory in the elections for the British Parliament. To protest delays in home rule, the nationalist members decided not to attend Parliament. Instead, they formed an underground Irish government and declared themselves independent. The **Irish Republican Army** (IRA), an unofficial military force seeking independence for Ireland, staged a series of attacks against British officials in Ireland. The attacks sparked war between the nationalists and the British government.

In 1921, Britain divided Ireland and granted home rule to southern Ireland. Ulster, or Northern Ireland, remained a part of Great Britain. The south became a dominion called the Irish Free State. However, many Irish nationalists, led by Eamon De Valera, continued to seek total independence from Britain. In 1949, the Irish Free State declared itself the independent Republic of Ireland.

Reading Check
Draw Conclusions Was Britain's policy in dividing Ireland successful? Why or why not?

Lesson 2 Assessment

1. **Organize Information** Create a two-column graphic organizer similar to the one shown and fill it in with key political events for each country that you read about in this module. In what ways was Ireland different from the other three colonies?

Country	Political Events
Canada	
Australia	
New Zealand	
Ireland	

2. **Key Terms and People** For each key term or person in the lesson, write a sentence explaining its significance.
3. **Form Generalizations** What was unusual about the first European settlers in Australia?
4. **Compare** How was Britain's policy toward Canada beginning in the late 1700s similar to its policy toward Ireland in the 1900s?
5. **Draw Conclusions** What impact did the Great Famine have on the population of Ireland?
6. **Synthesize** Why did Britain create Upper Canada and Lower Canada, and who lived in each colony?

War and Expansion in the United States

The Big Idea

The United States expanded across North America and fought a civil war.

Why It Matters Now

The 20th-century movements to ensure civil rights for African Americans and others are a legacy of this period.

Key Terms and People

manifest destiny
Abraham Lincoln
secede
U.S. Civil War
Emancipation Proclamation
segregation

Setting the Stage

The United States won its independence from Britain in 1783. At the end of the Revolutionary War, the Mississippi River marked the western boundary of the new republic. As the original United States filled with settlers, land-hungry newcomers pushed beyond the Mississippi. The government helped them by acquiring new territory for settlement. Meanwhile, tensions between northern and southern states over the issues of states' rights and slavery continued to grow and threatened to reach a boiling point.

Americans Move West

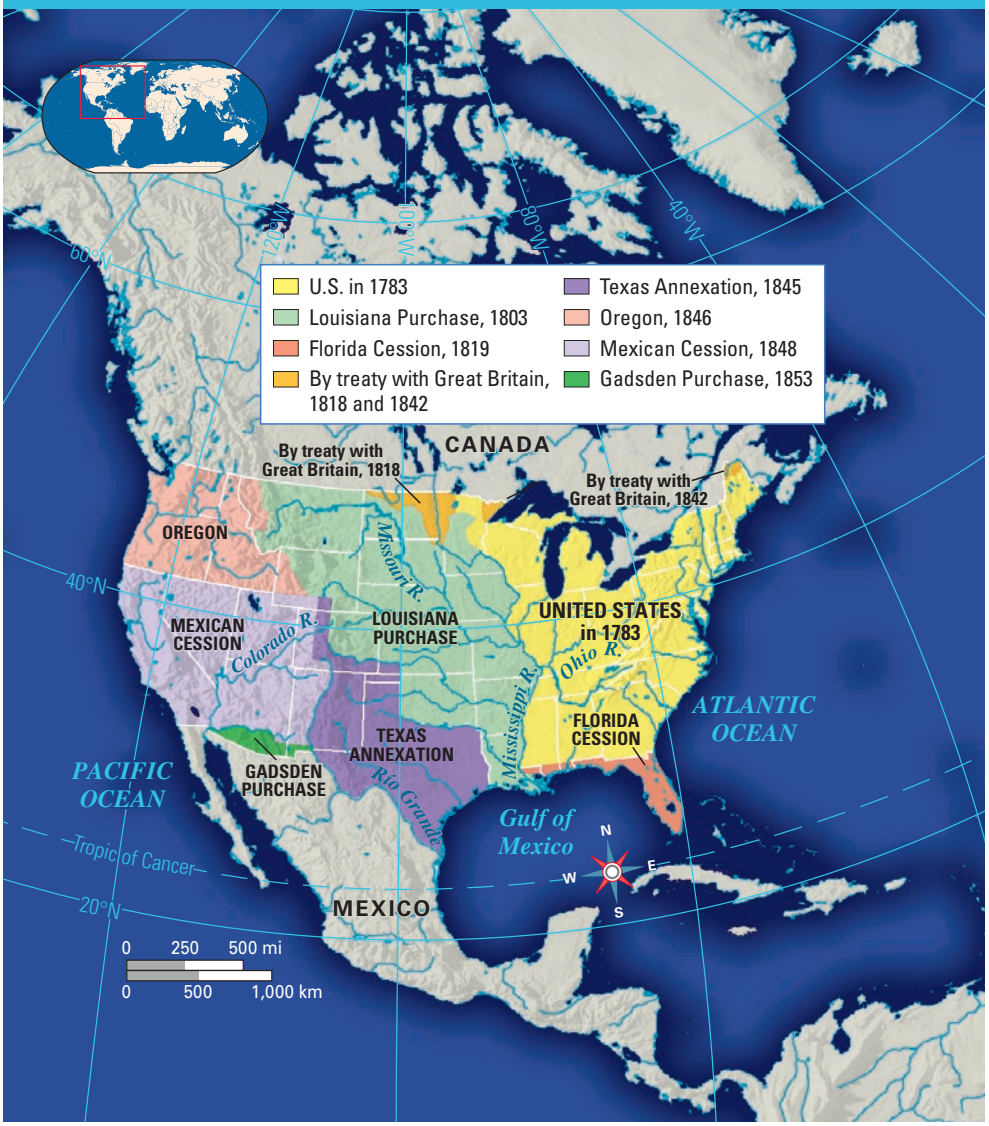
In 1803, President Thomas Jefferson bought the Louisiana Territory from France. The Louisiana Purchase doubled the size of the new republic and extended its boundary to the Rocky Mountains. In 1819, Spain gave up Florida to the United States. In 1846, a treaty with Great Britain gave the United States part of the Oregon Territory. The nation now stretched from the Atlantic to the Pacific oceans.

Manifest Destiny Many Americans believed in **manifest destiny**, the idea that the United States had the right and duty to rule North America from the Atlantic Ocean to the Pacific Ocean. Government leaders used manifest destiny to justify evicting Native Americans from their tribal lands.

CST.3

Explore ONLINE!

U.S. Expansion, 1783–1853



Interpret Maps

1. **Movement** What was the first territory to be added to the United States after 1783?
2. **Region** What present-day states were part of the Mexican Cession?

The Indian Removal Act of 1830 made such actions official policy. This law enabled the federal government to force Native Americans living in the East to move to the West. Georgia's Cherokee tribe challenged the law before the Supreme Court. The Court, however, ruled that the suit was not valid. The Cherokees had to move. Most of them traveled 800 miles to Oklahoma, mainly on foot, on a journey later called the Trail of Tears. About a quarter of the Cherokees died on the trip. A survivor recalled how the journey began:

"The day was bright and beautiful, but a gloomy thoughtfulness was depicted in the lineaments of every face . . . . At this very moment a low sound of distant thunder fell on my ear . . . and sent forth a murmur, I almost thought a voice of divine indignation for the wrong of my poor and unhappy countrymen, driven by brutal power from all they loved and cherished in the land of their fathers."

—William Shorey Coodey, quoted in *The Trail of Tears*

When the Cherokees reached their destination, they ended up on land inferior to that which they had left. As white settlers moved west during the 19th century, the government continued to push Native Americans off their land.

Texas Joins the United States When Mexico had gained its independence from Spain in 1821, its territory included the lands west of the Louisiana Purchase. With Mexico's permission, American settlers moved into the Mexican territory of Texas. However, settlers were unhappy with Mexico's rule.

In 1836, Texans revolted against Mexican rule and won their independence. Then, in 1845, the United States annexed Texas. Since Mexico still claimed Texas, it viewed this annexation as an act of war.

Reading Check
Summarize
What territories did the United States acquire between 1803 and 1850?

War with Mexico Between May 1846 and February 1848, war raged between the two countries. Finally, Mexico surrendered. As part of the settlement of the Mexican-American War, Mexico ceded territory to the United States. The Mexican Cession included California and a huge area in the Southwest. In 1853, the Gadsden Purchase from Mexico brought the lower continental United States to its present boundaries.

Civil War Tests Democracy

America's westward expansion raised questions about what laws and customs should be followed in the West. Since the nation's early days, the northern and southern parts of the United States had followed different ways of life. Each section wanted to extend its own way of life to the new territories and states in the West.

North and South The North had a diversified economy, with both farms and industry. For both its factories and farms, the North depended on free workers. The South's economy, on the other hand, was based on just a few cash crops, mainly cotton. Southern planters relied on slave labor.

The economic differences between the two regions led to a conflict over slavery. Many northerners considered slavery morally wrong. They wanted to outlaw slavery in the new western states. Most white southerners believed slavery was necessary for their economy. They wanted laws to protect slavery in the West so that they could continue to raise cotton on the fertile soil there.

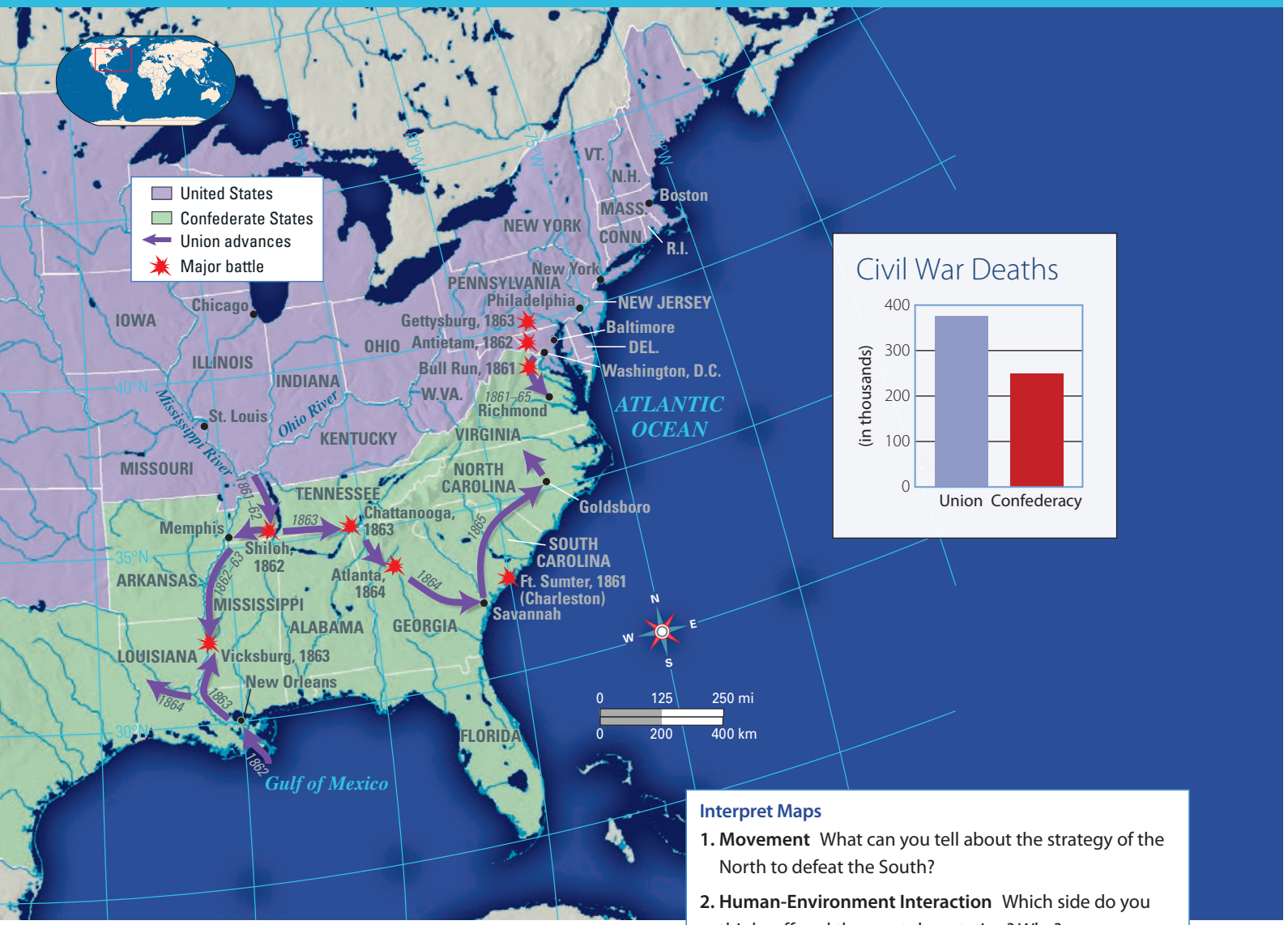
The disagreement over slavery fueled a debate about the rights of the individual states against those of the federal government. Southern politicians argued that the states had freely joined the Union, and so they could freely leave. Most northerners felt that the Constitution had established the Union once and for all.

Civil War Breaks Out Conflict between the North and South reached a climax in 1860, when **Abraham Lincoln** was elected president. Southerners fiercely opposed Lincoln, who had promised to stop the spread of slavery. One by one, southern states began to **secede**, or withdraw, from the Union. These states came together as the Confederate States of America.

On April 12, 1861, Confederate forces fired on Fort Sumter, a federal fort in Charleston, South Carolina. Lincoln ordered the army to bring the rebel states back into the Union. The **U.S. Civil War** had begun.

Explore ONLINE!

Civil War in the United States, 1861–1865



Interpret Maps

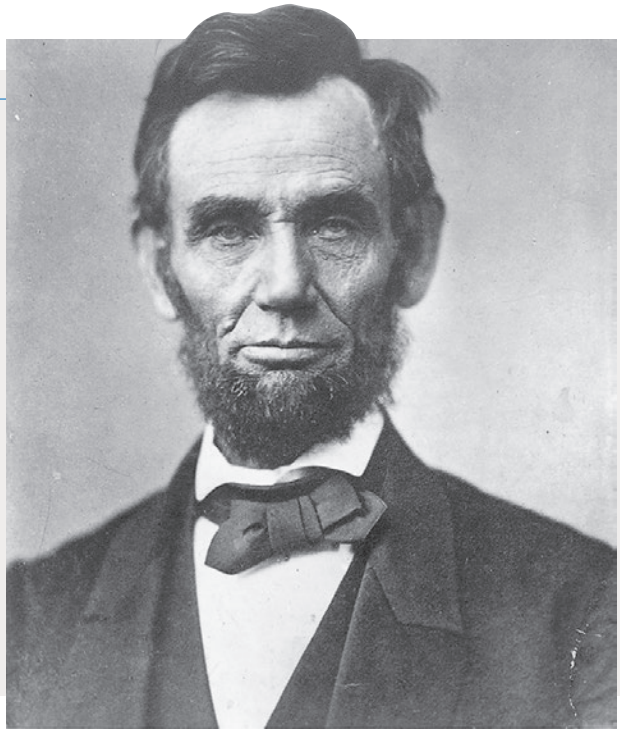
1. **Movement** What can you tell about the strategy of the North to defeat the South?
2. **Human-Environment Interaction** Which side do you think suffered the most devastation? Why?

BIOGRAPHY

Abraham Lincoln (1809–1865)

Lincoln passionately believed in preserving the Union. His upbringing might help explain why. The son of rural, illiterate parents, he educated himself. After working as rail splitter, boatman, storekeeper, and surveyor, he taught himself to be a lawyer. This career path led eventually to the White House.

In Europe, people stayed at the level of society into which they had been born. Yet the United States had been founded on the belief that all men were created equal. Small wonder that Lincoln fought to preserve the democracy he described as the "last best hope of earth."



Four years of fighting followed, most of it in the South. Although the South had superior military leadership, the North had a larger population, better transportation, greater resources, and more factories. These advantages proved too much, and in April 1865, the South surrendered.

Abolition of Slavery Lincoln declared that the war was being fought to save the Union and not to end slavery. He eventually decided that ending slavery would help to save the Union. Early in 1863, he issued the **Emancipation Proclamation**, declaring that all slaves in the Confederate states were free.

At first, the proclamation freed no slaves, because the Confederate states did not accept it as law. As Union armies advanced into the South, however, they freed slaves in the areas they conquered. The Emancipation Proclamation also showed European nations that the war was being fought against slavery. As a result, these nations did not send the money and supplies that the South had hoped they would.

In the aftermath of the war, the U.S. Congress passed the Thirteenth Amendment to the Constitution, which abolished slavery in the United States. The Fourteenth and Fifteenth Amendments extended the rights of citizenship to all Americans and guaranteed former slaves the right to participatory citizenship. In other words, they finally had the right to vote.

Reconstruction From 1865 to 1877, Union troops occupied the South and enforced the constitutional protections. This period is called Reconstruction. After federal troops left the South, white southerners passed laws that limited African Americans' rights and made it difficult for them to vote. Such laws also encouraged **segregation**, or separation, of blacks and whites in the South. African Americans continued to face discrimination in the North as well.

Reading Check
Evaluate
Did the Emancipation Proclamation reflect a change in Lincoln's main goal for the war?

Beginning in 1892, Ellis Island in the New York Bay served as the main entry point for thousands of European immigrants to the United States.

The Postwar Economy

The need for mass production and distribution of goods during the Civil War speeded industrialization. After the war, the United States experienced industrial expansion unmatched in history. By 1914, it was a leading industrial power.

Immigration Industrialization could not have occurred so rapidly without immigrants. During the 1870s, immigrants arrived at a rate of nearly 2,000 a day. By 1914, more than 20 million people had moved to the United States from Europe and Asia. Many settled in the cities of the Northeast and Midwest. Others settled in the open spaces of the West.

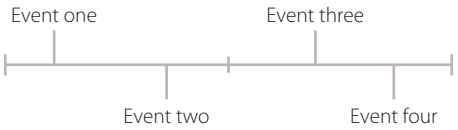
The Railroads As settlers moved west, so did the nation's rail system. In 1862, Congress had authorized money to build a transcontinental railroad. For seven years, immigrants and other workers dug tunnels, built bridges, and laid track. When the railroad was completed in 1869, railroads linked California with the eastern United States.

By 1900, nearly 200,000 miles of track crossed the nation. This system linked farm to city and boosted trade and industry. The railroads bought huge quantities of steel. Also, trains brought materials such as coal and iron ore to factories and moved the finished goods to market. They carried corn, wheat, and cattle from the Great Plains to processing plants in St. Louis, Chicago, and Minneapolis. These developments helped to make the United States a world leader.

Reading Check
Analyze Effects
How did railroads affect the growth of the United States?

Lesson 3 Assessment

1. **Organize Information** Create a timeline similar to the one shown and fill it in with the names and dates of seven events that contributed to U.S. expansion. Which event was the most significant?



2. **Key Terms and People** For each key term or person in the lesson, write a sentence explaining its significance.
3. **Contrast** What were some of the economic differences between the North and the South before the Civil War?
4. **Develop Historical Perspective** How did the Civil War speed up America's industrialization?
5. **Compare** What were the relative resources of the North and South in the U.S. Civil War?
6. **Make Inferences** How might the Mexican Cession have consequences today?

Nineteenth-Century Progress

The Big Idea

Breakthroughs in science and technology transformed daily life and entertainment.

Why It Matters Now

Electric lights, telephones, cars, and many other conveniences of modern life were invented during this period.

Key Terms and People

telegraph
assembly line
Charles Darwin
theory of evolution
radioactivity
psychology
mass culture

Setting the Stage

The Industrial Revolution happened because of inventions such as the spinning jenny and the steam engine. By the late 1800s, advances in both industry and technology were occurring faster than ever before. In turn, the demands of growing industries spurred even greater advances in technology. A surge of scientific discovery pushed the frontiers of knowledge forward. At the same time, in industrialized countries, economic growth produced many social changes.

Inventions Make Life Easier

In the early 1800s, coal and steam drove the machines of industry. By the late 1800s, new kinds of energy were coming into use. One was gasoline (made from oil), which powered the internal combustion engine. This engine would make the automobile possible. Another kind of energy was electricity.

Early Attempts at Electric Power For many centuries, scientists had known of and been interested in electricity. During the 1700s, Benjamin Franklin and other scientists had performed important experiments. Still, no one had developed a way to harness electricity and put it to use. In 1831, however, English chemist Michael Faraday discovered the connection between magnetism and electricity. His discovery led to the dynamo, a machine that generated electricity by moving a magnet through a coil of copper wire. Faraday used the electricity to power an electric motor, and his discoveries led to the development of electrical generators.

10.3.2; 10.4.1; CST.1; CST.2; HREP.4; HI.2; HI.3; HI.4

During the 1800s, other scientists also created devices that used electric power. For instance, in 1860 British chemist Joseph Swan developed a primitive electric light bulb that gave off light by passing heat through a small strip of paper. However, Swan's light bulb did not shine for very long, and its light was too dim. Swan's work was a beginning, but it was nearly 40 more years before the invention of a usable light bulb.

Edison the Inventor During his career, Thomas Edison patented more than 1,000 inventions, including the light bulb and the phonograph. Early in his career, Edison started a research laboratory in Menlo Park, New Jersey. Most of his important inventions were developed there, with help from the researchers he employed, such as Lewis H. Latimer, an African American inventor. Indeed, the idea of a research laboratory may have been Edison's most important invention.

The Telegraph Putting electricity to use made possible the invention of the **telegraph**, a machine that sent messages instantly over wires. American Samuel Morse is credited with inventing the telegraph in 1837. Morse also developed a "language," which became known as Morse code, for sending telegraph messages. Morse code is a series of long and short signals that represent letters and numbers. These telegraph messages were transmitted as electrical pulses of different lengths.

Historical Source

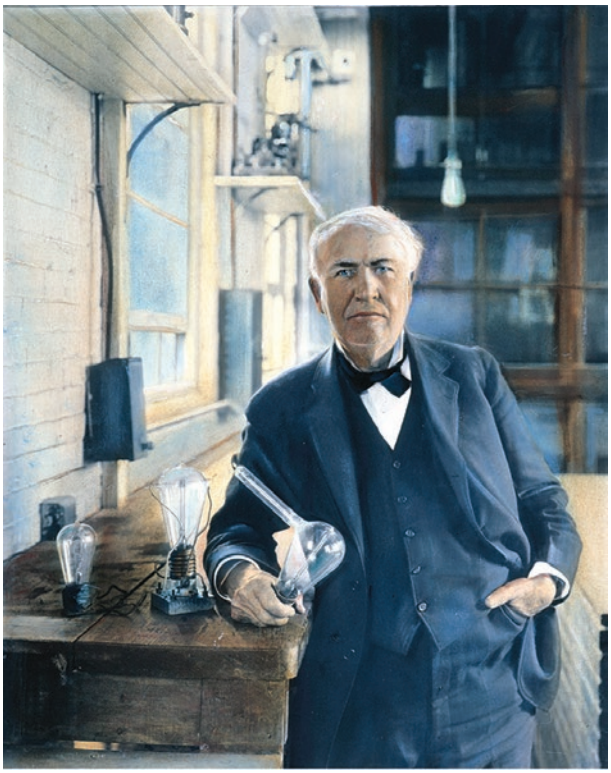
Impact of Scientific Research

This passage from *The Birth of the Modern: World Society, 1815–1830* by Paul Johnson discusses the far-reaching results of Michael Faraday's experiments with electromagnetism in the 1820s.

Synthesize

Paul Johnson wrote his book in 1991. Use the Internet to find a more recent news article, opinion piece, or data report that describes new—or highly impactful— scientific research being done in any field. Gather data, consider the multiple sources, and then analyze the way in which modern perspectives shape how past events are interpreted. In what way is electricity a good example of why scientific research is important?

> *"[By 1831, Faraday] had not only the first electric motor, but, in essence, the first dynamo: He could generate power… . What was remarkable about his work between 1820 and 1831 was that by showing exactly how mechanical could be transformed into electrical power, he made the jump between theoretical research and its practical application a comparatively narrow one. The electrical industry was the direct result of his work, and its first product, the electric telegraph, was soon in use. The idea of cause and effect was of great importance, for both industry and governments now began to appreciate the value of fundamental research and to finance it."*



Thomas Edison moved to Menlo Park, New Jersey, in March 1876. It was there that he developed some of his most celebrated inventions, earning him the nickname "The Wizard of Menlo Park."

As the United States grew, the importance of the telegraph increased. By 1851, more than 50 telegraph companies were in operation in the United States. About ten years later, telegraph wires strung on poles along established railroad tracks linked much of the country. At railroad stations, passengers could send messages, or telegrams, to friends and family.

Communication between the United States and Europe also improved with the laying of a telegraph cable on the floor of the Atlantic Ocean in 1866. By 1870, telegraph wires stretched from England to India.

The telegraph revolutionized more than personal communication. In many countries, businesses could keep in close contact with suppliers and markets. News traveled around the world in hours instead of weeks. Newspapers sent correspondents to the front lines of wars, from where they telegraphed back vivid reports of victories and defeats. The reading public was very impressed by these timely reports. The reports were one way in which the telegraph globalized communication.

Other Advances in Communication As use of the telegraph spread around the world, inventors tried to improve on it. American Alexander Graham Bell, a teacher of hearing-impaired students, was one of the scientists working in sound technology. Bell tried to create a way to send multiple telegraph messages at the same time.

While working on that device, Bell made a remarkable discovery. One day in 1876, he was in one room and his assistant Thomas Watson was in another. Bell said, "Mr. Watson, come here, I want to see you!" Watson could hear Bell's voice not just through the air but also through the device's receiver. The telephone was born. Bell displayed his device at the Philadelphia Centennial Exposition of 1876.

Historical Source

Impact of the Telephone

By 1900, there were 1.4 million telephones in the United States. By 1912, there were 8.7 million. In this excerpt from "Thirty Years of the Telephone," published in September 1906, John Vaughn discussed how Alexander Graham Bell's invention affected life in the United States.

Analyze Historical Sources
What were some of the effects of the invention of the telephone?

> *"Various industries, unknown thirty years ago, but now sources of employment to many thousands of workers, depend entirely on the telephone for support. . . . The Bell Companies employ over 87,000 persons, and it may be added, pay them well. . . . These figures may be supplemented by the number of telephones in use (5,698,000), by the number of miles of wire (6,043,000) in the Bell lines, and by the number of conversations (4,479,500,000) electrically conveyed in 1905. The network of wire connects more than 33,000 cities, towns, villages, and hamlets."*

The Italian inventor Guglielmo Marconi used theoretical discoveries about electromagnetic waves to create the first radio in 1895. This device was important because it sent messages (using Morse code) through the air, without the use of wires. Primitive radios soon became standard equipment for ships at sea.

Ford Sparks the Automobile Industry In the 1880s, German inventors used a gasoline engine to power a vehicle—the automobile. Automobile technology developed quickly, but since early cars were built by hand, they were expensive.

An American mechanic named Henry Ford decided to make cars that were affordable for most people. Ford used standardized, interchangeable parts. He also built them on an **assembly line**, a line of workers who each put a single piece on unfinished cars as they passed on a moving belt.

Assembly line workers could put together an entire Model T Ford in less than two hours. When Ford introduced this plain, black, reliable car in 1908, it sold for $850. As his production costs fell, Ford lowered the price. Eventually it dropped to less than $300. Other factories adopted Ford's ideas. By 1916, more than 3.5 million cars were traveling around on America's roads.

Edison's Inventions

Thomas Alva Edison was one of the greatest inventors in history. He held thousands of patents for his inventions in over 30 countries. The United States Patent Office alone issued Edison 1,093 patents. Among his inventions were an electric light bulb, the phonograph, and motion pictures.

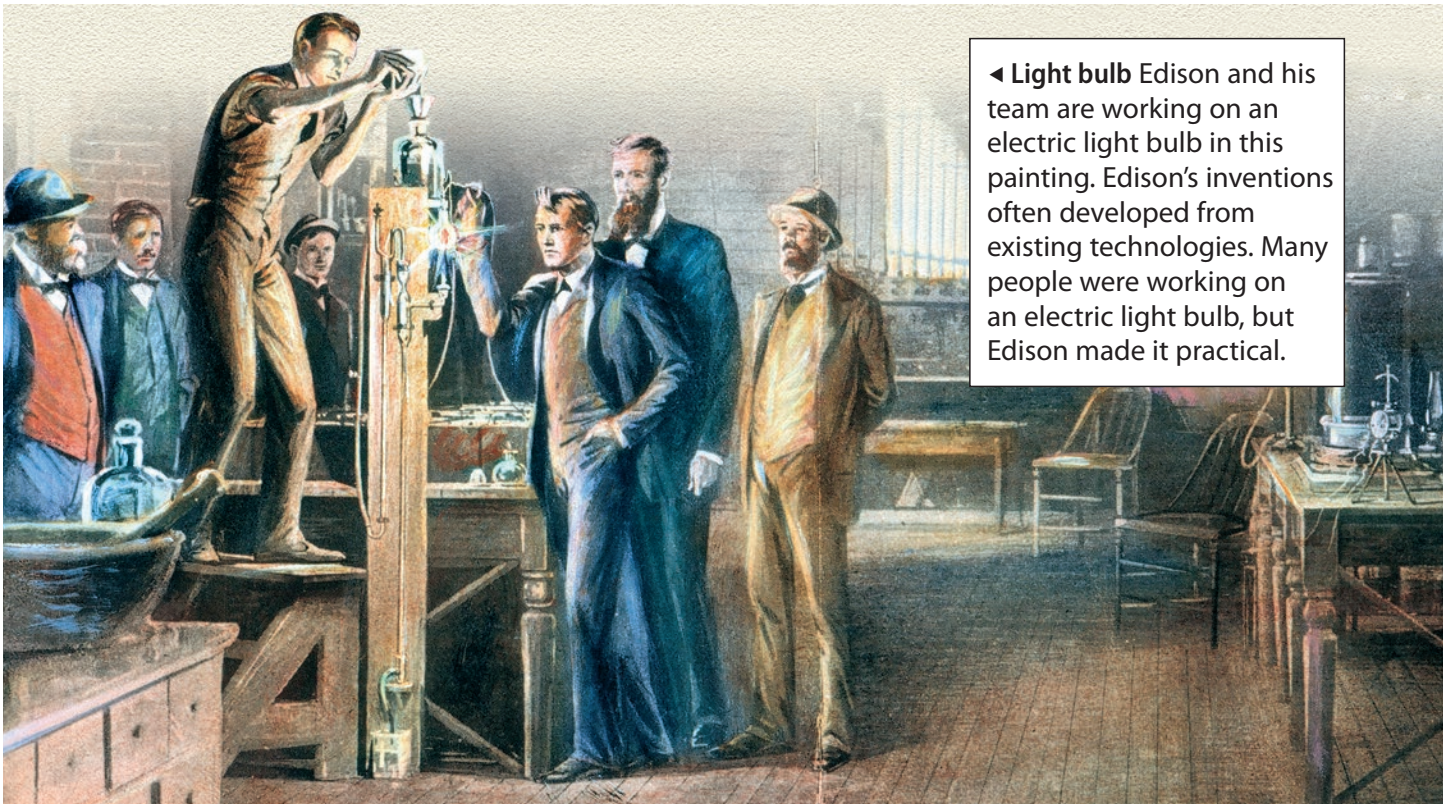
Some scientists and historians, however, believe that Edison's greatest achievement was his development of the research laboratory. Edison worked with a team of specialists to produce his creations. His precise manner is illustrated by his famous quote: "Genius is 1 percent inspiration and 99 percent perspiration."

▲ **Motion pictures** The idea of "moving pictures" was not Edison's, but his "Kinetoscope" made movies practical.

◀ **Phonograph** Commonplace today, a device for recording sound did not exist until Thomas Edison invented it. He first demonstrated his phonograph in 1877.

Critical Thinking

1. **Make Inferences** What did Edison mean when he said, "Genius is 1 percent inspiration and 99 percent perspiration"?
2. **Form Opinions** Which of Edison's inventions do you think has had the most influence?

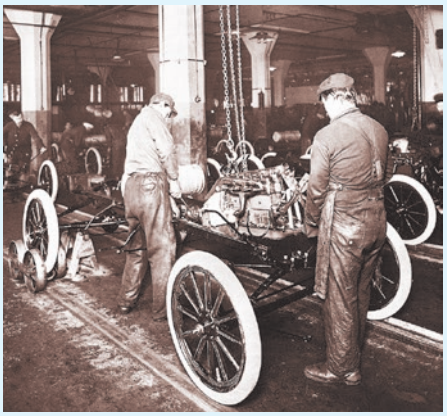


◀ **Light bulb** Edison and his team are working on an electric light bulb in this painting. Edison's inventions often developed from existing technologies. Many people were working on an electric light bulb, but Edison made it practical.

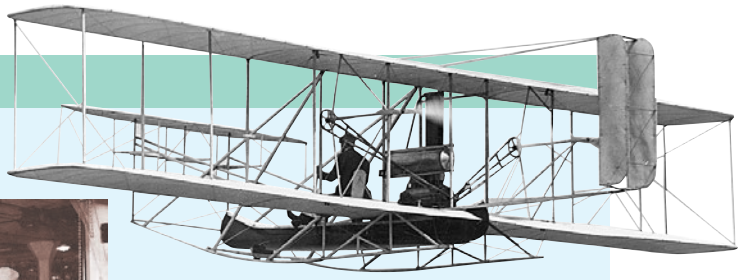
Historical Source

An Age of Inventions

▲ **Telephone** Alexander Graham Bell demonstrated the first telephone in 1876. It quickly became an essential of modern life.



▲ **Automobile assembly line** Ford's major innovation was to improve efficiency in his factory. By introducing the assembly line, he reduced the time it took to build a car from 12.5 to 1.5 worker-hours.



▲ **Airplane** Through trial and error, the Wright brothers designed wings that provided lift and balance in flight. Their design is based on principles that are still used in every aircraft.

Analyze Historical Sources
Which has had the more lasting impact, the airplane or the automobile?

Reading Check
Make Inferences
Why do you think Ford reduced the price of the Model T?

The Wright Brothers Fly Two bicycle mechanics from Dayton, Ohio, named Wilbur and Orville Wright, solved the age-old riddle of flight. On December 17, 1903, they flew a gasoline-powered flying machine at Kitty Hawk, North Carolina. The longest flight lasted only 59 seconds, but it started the aircraft industry.

Modern City Life Though innovations in technology, communication, and transportation improved lives, there were downsides to these changes as well. Many of the negative consequences of these new inventions related to urbanization. The telegraph, the phonograph, and the automobile may have offered convenience and pleasure, but they also contributed to new, urban problems like traffic jams, air pollution, and noise pollution. They all helped make modern city life hectic, noisy, and complicated.

New Ideas in Medicine

Earlier centuries had established the scientific method. Now this method brought new insights into nature as well as practical results.

The Germ Theory of Disease An important breakthrough in the history of medicine was the germ theory of disease. It was developed by French chemist Louis Pasteur in the mid-1800s. While examining the fermentation process of alcohol, Pasteur discovered that it was caused by microscopic organisms he called bacteria. He also learned that heat killed bacteria. This led him to develop the process of pasteurization to kill germs in liquids such as milk. Soon, it became clear to Pasteur and others that bacteria also caused diseases.

Joseph Lister, a British surgeon, read about Pasteur's work. He thought germs might explain why half of surgical patients died of infections. In 1865, he ordered that his surgical wards be kept spotlessly clean. He insisted that wounds be washed in antiseptics, or germ-killing liquids. As a result, 85 percent of Lister's patients survived. Other hospitals adopted Lister's methods.

Public Health Public officials, too, began to understand that cleanliness helped prevent the spread of disease. Cities built plumbing and sewer systems and took other steps to improve public health. Meanwhile, medical researchers developed vaccines, or preventives, for such deadly diseases as typhus, typhoid fever, cholera, diphtheria, and yellow fever. These advances helped people live longer, healthier lives.

Another improvement in public health was the building of more modern hospitals. More physicians, nurses, and other medical professionals were trained. Nursing schools trained large numbers of women as nurses or physicians' assistants. Some women even enrolled in medical school to become doctors. By 1900, 5 percent of American physicians were women.

A major consequence of these developments in medical care and public health was a shift in demographic trends. For example, there was a dramatic decline in infant mortality, or deaths in infancy. Statistics from Sweden provide a clear example. In 1800, Sweden reported 240 deaths of infants under one year old per 1,000 live births. By 1898, that figure had dropped to 91 deaths.

Reading Check
Find Main Ideas
What did pasteurization, antiseptics, and vaccines accomplish?

Historical Source

Improving Public Health

Industrialization, the growth of cities, and new ideas in medicine led to greater focus on improving public health.

A COURT FOR KING CHOLERA.

In this political cartoon called *A Court for King Cholera*, the artist shows details that cause epidemic disease.

This newspaper engraving shows a Board of Health doctor administering the smallpox vaccine to poor people at a police station in New York City.

Analyze Historical Sources
In what way or ways do the two primary source illustrations show different perspectives on the topic of public health? Evaluate and contrast the credibility and limitations of each illustration.

New Ideas in Science

No scientific idea of modern times aroused more controversy than the work of English naturalist **Charles Darwin**. The cause of the controversy was Darwin's answer to the question that faced biologists: How can we explain the tremendous variety of plants and animals on earth? A widely accepted answer in the 1800s was the idea of special creation—every kind of plant and animal had been created by God at the beginning of the world and had remained the same since then.

Darwin's Theory of Evolution Darwin challenged the idea of special creation. Based on his research as a naturalist on the voyage of the HMS *Beagle*, he developed a theory that all forms of life, including human beings, evolved from earlier living forms that had existed millions of years ago.

In 1859, Darwin published his thinking in a book titled *On the Origin of Species by Means of Natural Selection*. According to the idea of natural selection, populations tend to grow faster than the food supply and so must compete for food. The members of a species that survive are those that are fittest, or best adapted to their environment. These surviving members of a species produce offspring that share their advantages. Gradually, over many generations, the species may change. In this way, new species evolve. Darwin's idea of change through natural selection came to be called the **theory of evolution**.

Mendel and Genetics Although Darwin said that living things passed on their variations from one generation to the next, he did not know how they did so. In the 1850s and 1860s, an Austrian monk named Gregor Mendel discovered that there is a pattern to the way that certain traits are inherited. Although his work was not widely known until 1900, Mendel's work began the science of genetics.

BIOGRAPHY

Marie Curie
(1867–1934)

Marie Curie's original name was Marya Sklodowska. Born in Warsaw, Poland, she emigrated to Paris to study, where she changed her name to Marie.

She achieved a number of firsts in her career. She was the first woman to teach in the Sorbonne, a world-famous college that was part of the University of Paris. She was the first woman to win a Nobel Prize—two, in fact.

In 1911, she won the Nobel Prize for chemistry. In 1921, she journeyed to the United States. In 1934, she died from leukemia caused by the radiation she had been exposed to in her work.

Advances in Chemistry and Physics In 1803, the British chemist John Dalton theorized that all matter is made of tiny particles called atoms. Dalton showed that elements contain only one kind of atom, which has a specific weight. Compounds, on the other hand, contain more than one kind of atom.

In 1869, Dmitri Mendeleev (MEHN•duh•LAY•uhf), a Russian chemist, organized a chart on which all the known elements were arranged in order of weight, from lightest to heaviest. He left gaps where he predicted that new elements would be discovered. Later, his predictions proved correct. Mendeleev's chart, the Periodic Table, is still used today.

A husband and wife team working in Paris, Marie and Pierre Curie, discovered two of the missing elements, which they named radium and polonium. The elements were found in a mineral called pitchblende that released a powerful form of energy. In 1898, Marie Curie gave this energy the name **radioactivity**. In 1903, the Curies shared the Nobel Prize for physics for their work on radioactivity. In 1911, Marie Curie won the Nobel Prize for chemistry for the discovery of radium and polonium.

Physicists around 1900 continued to unravel the secrets of the atom. Earlier scientists believed that the atom was the smallest particle that existed. A British physicist named Ernest Rutherford suggested that atoms were made up of yet smaller particles. Each atom, he said, had a nucleus surrounded by one or more particles called electrons. Soon other physicists such as Max Planck, Niels Bohr, and Albert Einstein were studying the structure and energy of atoms.

Reading Check
Summarize
According to Darwin, how does natural selection affect evolution?

Social Sciences Explore Behavior

The scientific theories of the 1800s prompted scholars to study human society and behavior in a scientific way. Interest in these fields grew enormously during that century, as global expeditions produced a flood of new discoveries about ancient civilizations and world cultures. This led to the development of modern social sciences such as archaeology, anthropology, and sociology.

An important new social science was **psychology**, the study of the human mind and behavior. The Russian physiologist Ivan Pavlov believed that human actions were often unconscious reactions to experiences and could be changed by training.

Another pioneer in psychology, the Austrian doctor Sigmund Freud, also believed that the unconscious mind drives how people think and act. In Freud's view, unconscious forces such as suppressed memories, desires, and impulses shape behavior. He founded a type of therapy called psychoanalysis to deal with psychological conflicts created by these forces.

Freud's theories became very influential. However, his idea that the mind was beyond conscious control also shocked many people. The theories of Freud and Pavlov challenged the fundamental idea of the Enlightenment—that reason was supreme. The new ideas about psychology began to shake the 19th-century faith that humans could perfect themselves and society through reason.

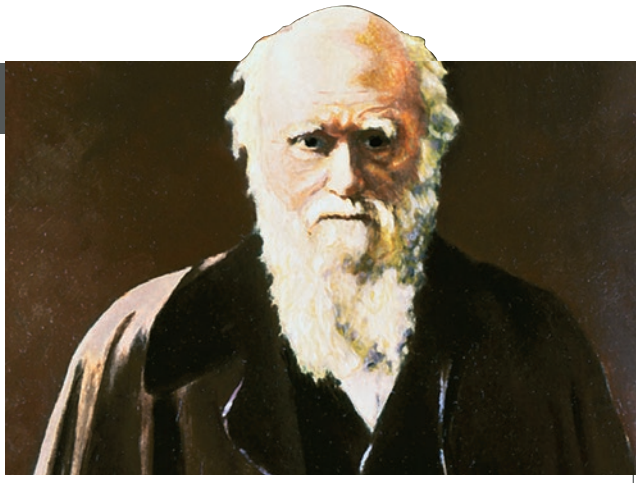
Reading Check
Form Generalizations
Why was the work of Pavlov and Freud groundbreaking?

History in Depth

Social Darwinism

Charles Darwin (pictured at right) was a naturalist, but a number of 19th-century thinkers tried to apply his ideas to economics and politics. The leader in this movement was Herbert Spencer, an English philosopher.

Free economic competition, Spencer argued, was natural selection in action. The best companies make profits, while inefficient ones go bankrupt. He applied the same rules to individuals. Those who were fittest for survival enjoyed wealth and success, while the poor remained poor because they were unfit.



This idea became known as Social Darwinism. It also provided a rationalization for imperialism and colonialism.

The Rise of Mass Culture

In earlier periods, art, music, and theater were enjoyed by the wealthy. This group had the money, leisure time, and education to appreciate high culture. It was not until about 1900 that people could speak of **mass culture**—the appeal of art, writing, music, and other forms of entertainment to a larger audience.

Changes Produce Mass Culture There were several causes for the rise of mass culture. Their effects changed life in Europe and North America. Notice in the Rise of Mass Culture chart how working class people's lives were changed. The demand for leisure activities resulted in a variety of new pursuits for people to enjoy. People went to music performances, movies, and sporting events.

Rise of Mass Culture

Cause	Effect/Cause	Effect
Public education	Increase in literacy	Mass market for books and newspapers
Improvement in communications	Publications cheaper and more accessible	Mass market for books and newspapers
Invention of phonograph and records	More music directly in people's homes	Greater demand for musical entertainment
Shorter workday—10 hours shorter workweek—5-1/2 days	More leisure time	Greater demand for mass entertainment activities

Interpret Charts
According to the chart, what was the immediate cause for the increased demand for mass entertainment activities?

Music Halls, Vaudeville, and Movies A popular leisure activity was a trip to the local music hall. On a typical evening, a music hall might offer a dozen or more different acts. It might feature singers, dancers, comedians, jugglers, magicians, and acrobats. In the United States, musical variety shows were called vaudeville. Vaudeville acts traveled from town to town, appearing at theaters.

During the 1880s, several inventors worked at trying to project moving images. One successful design came from France. Another came from Thomas Edison's laboratory. The earliest motion pictures were black and white and lasted less than a minute.

By the early 1900s, filmmakers were producing the first feature films. Movies quickly became big business. By 1910, 5 million Americans attended some 10,000 theaters each day. The European movie industry experienced similar growth.

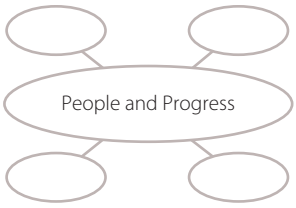
Sports Entertain Millions With time at their disposal, more people began to enjoy sports and outdoor activities. Spectator sports now became entertainment. In the United States, football and baseball soared in popularity. In Europe, the first professional soccer clubs formed and drew big crowds. Favorite English sports such as cricket spread to the British colonies of Australia, India, and South Africa.

As a result of the growing interest in sports, the International Olympic Games began in 1896. They revived the ancient Greek tradition of holding an athletic competition every four years. Fittingly, the first modern Olympics took place in Athens, Greece, the country where the games had originated.

Reading Check
Analyze Causes
Why might a young person living in the early 1900s think it possible to become—and earn a living at being—a professional entertainer?

Lesson 4 Assessment

1. **Organize Information** Create a web graphic organizer similar to the one shown and fill it in with inventions and breakthroughs in medicine, science, or social sciences. Include the name of a key person associated with each breakthrough.



Which breakthrough helped people the most? Why?

2. **Key Terms and People** For each key term or person in the lesson, write a sentence explaining its significance.
3. **Analyze Effects** What effect did the assembly line have on production costs?
4. **Summarize** How did Joseph Lister improve the survival rate of his patients?
5. **Analyze Effects** What effect did the spread of public education have on culture?
6. **Analyze Causes** What changes led to the rise of mass culture around 1900?

Module 8 Assessment

Key Terms and People

For each term or name below, briefly explain its connection to the reforms, crises, or advances of Western nations from 1815 to 1915.

1. suffrage
2. anti-Semitism
3. dominion
4. home rule
5. manifest destiny
6. Emancipation Proclamation
7. assembly line
8. theory of evolution

Main Ideas

Use your notes and information in the module to answer the following questions.

Democratic Reform and Activism

1. What political reforms expanded democracy for men in Britain?
2. Why did the woman suffrage movement in Great Britain become more militant?

Self-Rule for British Colonies

3. What cultural conflict caused problems for Canada?
4. How did Australia's early history differ from that of other British colonies?
5. Why did the British pass a home rule bill for southern Ireland only?

War and Expansion in the United States

6. In what ways did the United States gain territory in the 1800s?
7. Why was the issue of slavery in the United States so divisive?

Nineteenth-Century Progress

8. What was Darwin's principle of natural selection?
9. What prompted the growth of the social sciences?
10. What were some of the effects of increased leisure time?

Module 8 Assessment, continued

Critical Thinking

1. **Synthesize** Create a web diagram of the major political, economic, social and cultural, and scientific and technological changes of the 1800s and early 1900s.
2. **Recognize Effects** For a worker, what might be the advantages and disadvantages of an assembly line?
3. **Analyze Motives** What effect did the call for home rule in British colonies have on Ireland's desire for independence?
4. **Predict Effects** Imagine that circumstances had forced the North to surrender to the South in the Civil War, causing two countries to share the region now occupied by the United States. What economic effects might this have had on the North? the South? the region as a whole?
5. **Draw Conclusions** How did manifest destiny help shape the U.S. government's policies of land acquisition?

Engage with History

Using content from the module and your knowledge of events in the world today, consider what political ideals might be worth fighting and possibly even dying for. Discuss your opinions with a small group. During the discussion, think about some of the ideals that inspired the activists and reformers in this module. What were the ideals that moved them to action? How did they try to change government to better reflect their ideals? Then, also consider your own ideals.

Focus on Writing

Write an **editorial** that might have appeared in a newspaper in 19th-century New Zealand. In the editorial, address the issue of British settlers' taking land from the Maori, and the Maori response.

Consider the following:

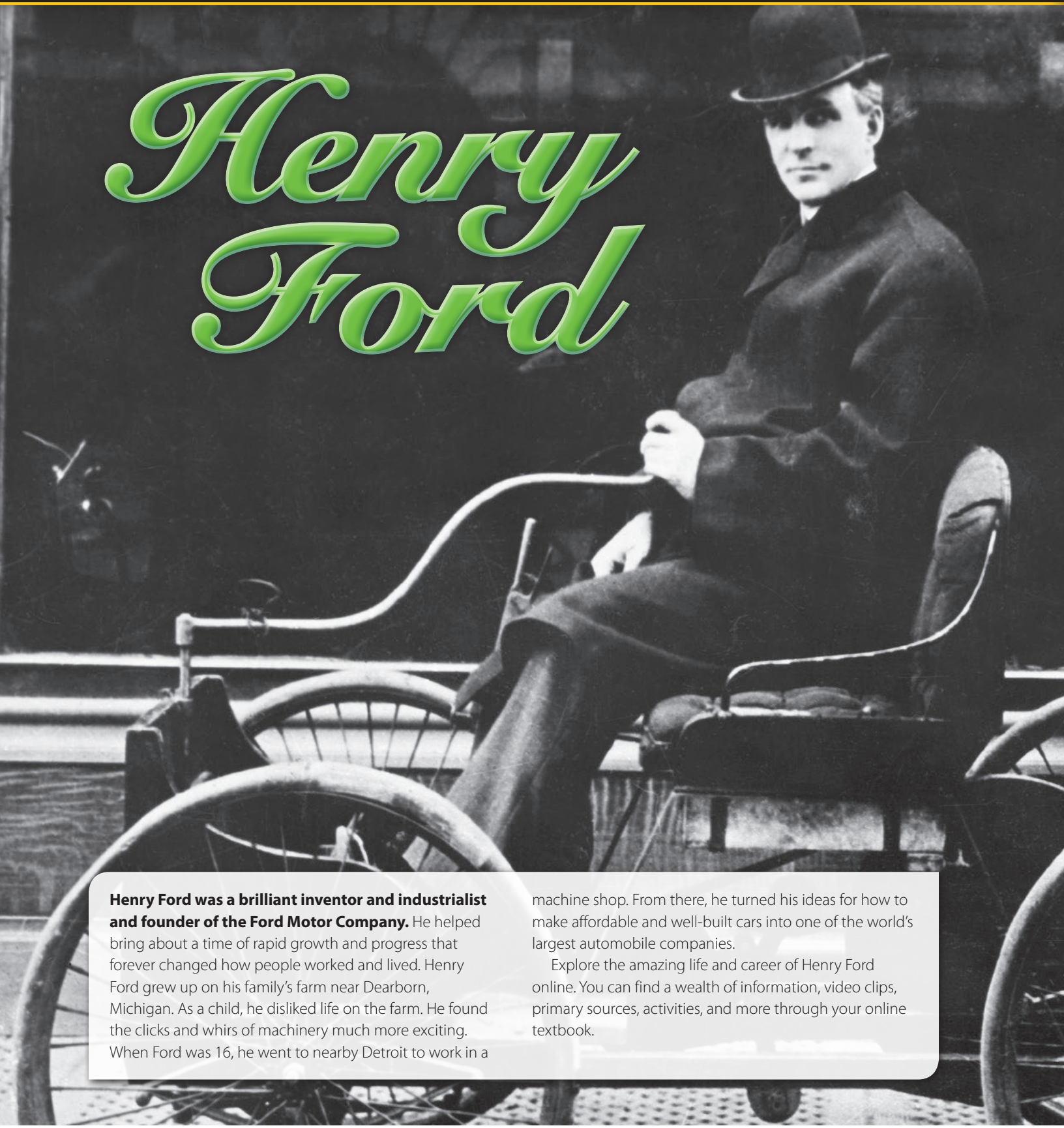
- the original inhabitants of New Zealand
- means for negotiating land disputes
- balancing the rights of native peoples and new settlers

Multimedia Activity

Use the Internet to learn more about the rise of mass culture and mass entertainment. Then research and write a newspaper article about spectators at one of the new forms of mass entertainment. Include in your article quotes from fictional visitors and their reactions to actual events and spectacles. You may want to mention one or more of the following:

- the Boston Pilgrims' victory over the Pittsburgh Pirates in baseball's first World Series
- the "Luna" ride at Coney Island
- a late 19th-century European appearance of Barnum & Bailey's circus
- a visit to the Palace of Electricity at the 1904 World's Fair in St. Louis

Henry Ford



Henry Ford was a brilliant inventor and industrialist and founder of the Ford Motor Company. He helped bring about a time of rapid growth and progress that forever changed how people worked and lived. Henry Ford grew up on his family's farm near Dearborn, Michigan. As a child, he disliked life on the farm. He found the clicks and whirs of machinery much more exciting. When Ford was 16, he went to nearby Detroit to work in a machine shop. From there, he turned his ideas for how to make affordable and well-built cars into one of the world's largest automobile companies.

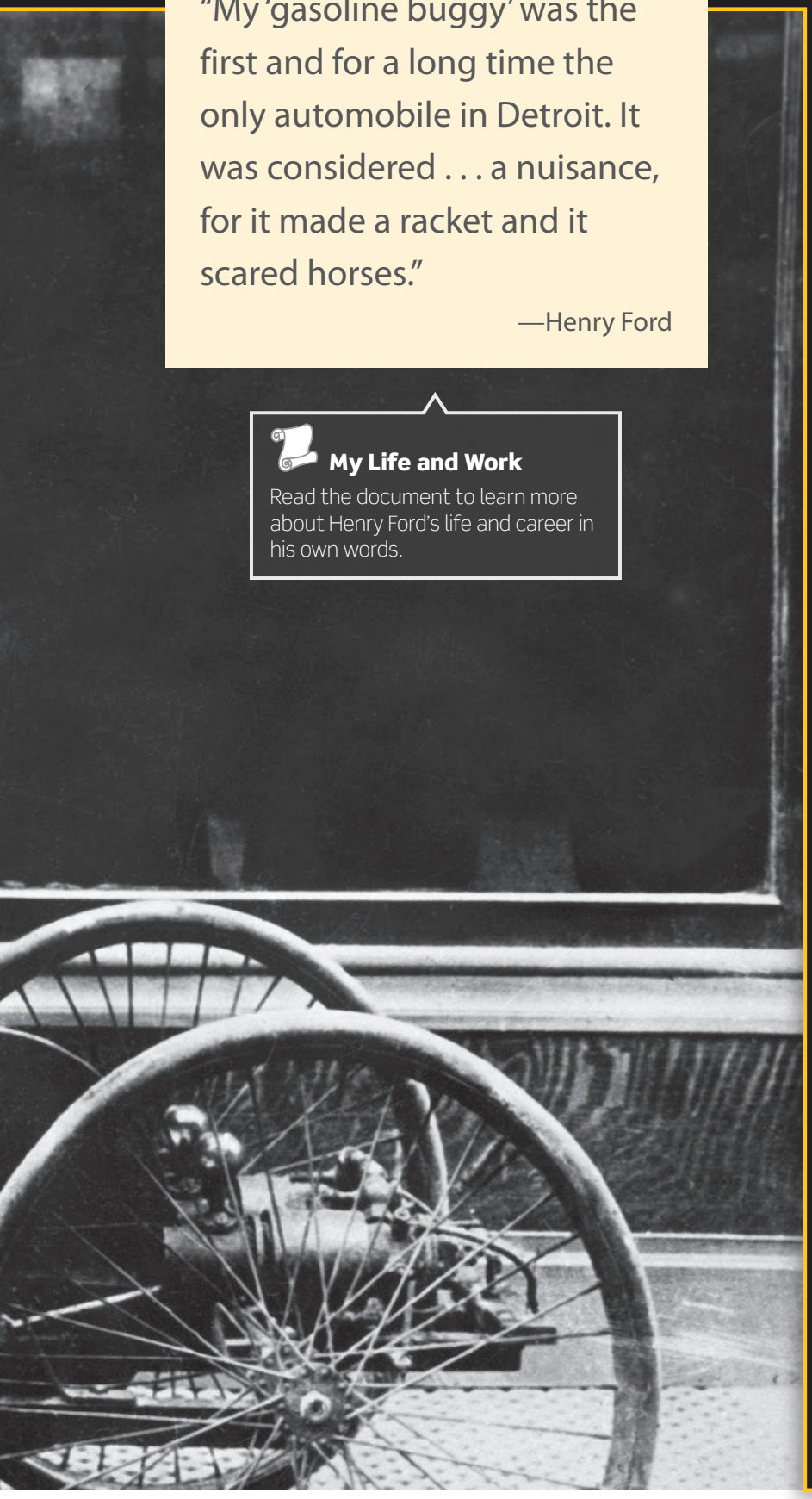
Explore the amazing life and career of Henry Ford online. You can find a wealth of information, video clips, primary sources, activities, and more through your online textbook.

"My 'gasoline buggy' was the first and for a long time the only automobile in Detroit. It was considered . . . a nuisance, for it made a racket and it scared horses."

—Henry Ford

My Life and Work

Read the document to learn more about Henry Ford's life and career in his own words.

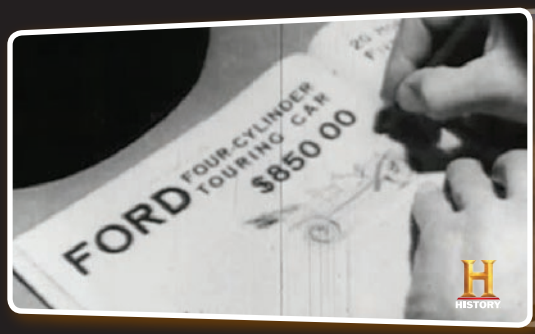


HISTORY

Go online to view these and other **HISTORY®** resources.

Big Plans

Watch the video to learn more about Henry Ford's early career.



Taking the Low Road

Watch the video to explore Henry Ford's vision for his car company.

The Assembly Line

Watch the video to see how Henry Ford used the assembly line to produce cars more efficiently and cheaply.

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