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Summary

CHAPTERS IN BRIEF *Enlightenment and Revolution,
1550–1789*

CHAPTER OVERVIEW Starting in the 1500s, European thinkers overturned old ideas about the physical world with a new approach to science. Thinkers of the Enlightenment hoped to use reason to make a better society in which people were free. Enlightenment ideas spread throughout Europe. They had a profound effect in North America, forming the basis of the new government of the United States.

0 The Scientific Revolution

KEY IDEA In the mid-1500s, scientists began to question accepted beliefs and make new theories based on experimentation.

During the Middle Ages, few scholars questioned ideas that had always been accepted. Europeans based ideas about the physical world on what ancient Greeks and Romans believed or what was said in the Bible. Therefore, people still thought that the earth was the center of the universe. To them, the sun, moon, other planets, and stars moved around it.

In the mid-1500s, however, attitudes changed. Scholars now started a scientific revolution drawn from a spirit of curiosity. One factor was the new focus on careful observation. Another was the willingness to question old beliefs. European explorations were a third factor. When they reached new lands, Europeans saw new plants and animals never seen by ancient writers. These discoveries led to the opening of new courses of study in universities.

The first challenge came in astronomy. In the early 1500s, Nicolaus Copernicus studied the stars and planets for many years. He concluded that the earth, like the other planets, revolved around the sun, and the moon revolved around the earth. Fearing attack, he did not publish his findings until just before his death. In the early 1600s, Johannes Kepler used mathematics to confirm Copernicus's basic idea.

An Italian scientist—Galileo Galilei—made several discoveries that undercut ancient ideas. He made one of the first telescopes and used it to study the planets. He found that Jupiter had moons, the sun had spots, and Earth's moon was rough. These statements went against church teaching, and Galileo was forced to deny their truth. Still, his ideas spread.

Interest in science led to a new approach, the scientific method. With this method, scientists ask a question based on something they have seen in

the physical world. They form a hypothesis, or an attempt to answer the question. Then they test the hypothesis by making experiments or checking other facts. Finally, they change the hypothesis if needed. The English writer Francis Bacon helped foster this new approach to knowledge by telling scientists they should base their ideas on what they can see and test in the world. The French mathematician René Descartes also had great influence. His thinking was based on logic and mathematics.

In the mid-1600s, the English scientist Isaac Newton described the law of gravity. Using mathematics, Newton showed that the same force ruled the motion of planets and the action of bodies on the earth.

Scientists made new tools to study the world around them. One invented a microscope to study creatures too small for the naked eye to see. Others invented tools for understanding weather.

Doctors also made advances. One made drawings that showed the different parts of the human body. Another learned how the heart pumped blood through the body. In the late 1700s, Edward Jenner first used the process called vaccination to prevent disease. By giving a person the germs from a cattle disease called cowpox, he helped that person avoid getting the more serious human disease of smallpox. Scientists made advances in chemistry as well. One challenged the old idea that things were made of only four elements—earth, air, fire, and water. He and other scientists were able to separate oxygen from air.

0 The Enlightenment in Europe

KEY IDEA A revolution in intellectual activity changed Europeans' view of government and society.

New ways of thinking arose in other areas. In the intellectual movement called the

Enlightenment, thinkers tried to apply reason and scientific method to laws that shaped human actions. They hoped to build a society founded on ideas of the Scientific Revolution.

Two English writers were important to this movement. Thomas Hobbes wrote that without a government, there would be a war of "every man against every man." As a result, Hobbes said, people formed a social contract—an agreement—in which they gave up their rights so they could secure order and safety. The best government, he said, is that of a strong king who can force people to obey. John Locke believed that all people have the rights to life, liberty, and property. The purpose of government is to protect those rights. When it fails to do so, he said, people have a right to overthrow the government.

A group of French thinkers had wide influence. They had five main beliefs: (1) thinkers can find the truth by using reason; (2) what is natural is good and reasonable, and human actions are shaped by natural laws; (3) acting according to nature can bring happiness; (4) by taking a scientific view, people and society can make progress and advance to a better life; and (5) by using reason, people can gain freedom.

Three French thinkers had great influence. Voltaire wrote against intolerance and criticized the laws and customs of France. The Baron de Montesquieu made a long study of laws and governments. He thought government power should be separated into different branches. Each should be able to check the other branches to prevent them from abusing their power. Jean Jacques Rousseau wrote strongly in favor of human freedom. He wanted a society in which all people were equal. The Italian Cesare Beccaria wrote about crime and justice. Trials should be fair, he said, and punishments should be made to fit the crime.

Many Enlightenment thinkers held traditional views about women's place in society. They urged equal rights for all men but ignored the fact that women did not enjoy such rights. Some women protested this unfairness. "If all men are born free," wrote one, "how is it that all women are born slaves?"

Enlightenment ideas had strong influence on the American and French Revolutions, which came at the end of the 1700s. They had three other effects. They helped spread the idea of progress. By using reason, people thought, it is possible to make soci-

ety better. These ideas also helped make Western society more secular—that is, more worldly and less spiritual. Finally, Enlightenment ideas promoted the notion that the individual person was important.

③ The Enlightenment Spreads

KEY IDEA *Enlightenment ideas spread through the Western world, and influenced the arts and government.*

In the 1700s, Paris was the cultural center of Europe. People came there from other countries in Europe and from the Americas to hear the new ideas of the Enlightenment. Writers and artists gathered in the homes of wealthy people to talk about ideas. A woman named Marie-Thérèse Geoffrin became famous for hosting these discussions. She also supplied the money for one of the major projects of the Enlightenment. With her funds, Denis Diderot and other thinkers wrote and published a huge set of books called the *Encyclopedia*. Their aim was to gather together all that was known about the world. The French government and officials in the Catholic Church did not like many of the ideas that were published in the *Encyclopedia*. They banned the books at first, but later they revoked the ban.

Through the meetings in homes and works like the *Encyclopedia*, the ideas of the Enlightenment spread throughout Europe. The ideas also spread to the growing middle class. This group of people was becoming wealthy but had less social status than nobles and had very little political power. Ideas about equality sounded good to them.

Art moved in new directions, inspired by the Enlightenment ideas of order and reason. Artists and architects worked to show balance and elegance. Composers wrote music of great appeal for their creative richness. In this period, the novel became a popular form of literature. This new form told lengthy stories with many twists of plot that explored the thoughts and feelings of characters.

Some Enlightenment thinkers believed that the best form of government was a monarchy. In it, a ruler respected the rights of people. They tried to influence rulers to rule fairly. Rulers followed these ideas in part but were unwilling to give up much power. Frederick the Great made changes in Prussia. He gave his people religious freedom, improved schooling, and reformed the justice system. However, he did nothing to end serfdom, which made peasants slaves to the wealthy

landowners. Joseph II of Austria did end serfdom. Once he died, though, the nobles who owned the land were able to undo his reform.

Catherine the Great of Russia was another of the rulers influenced by Enlightenment ideas. She tried to reform Russia's laws but met resistance. She hoped to end serfdom, but a bloody peasants' revolt convinced her to change her mind. Instead, she gave the nobles even more power over serfs. Catherine did manage to gain new land for Russia. Russia, Prussia, and Austria agreed to divide Poland among themselves. As a result, Poland disappeared as a separate nation for almost 150 years.

4 The American Revolution

KEY IDEA Enlightenment ideas help spur the American colonies to create a new nation.

The British colonies in North America grew in population and wealth during the 1700s. The 13 colonies also enjoyed a kind of self-government. People in the colonies began to see themselves less and less as British subjects. Still, Parliament passed laws that governed the colonies. One set of laws banned trade with any nation other than Britain.

The high cost of the French and Indian War, which ended in 1763, led Parliament to pass laws that put taxes on the colonists. The colonists became very angry. They had never paid taxes directly to the British government before. They said that the taxes violated their rights. Since Parliament had no members from the colonies, they said, Parliament had no right to pass tax laws that affected the colonies. They met the first tax, passed in 1765, with a boycott of British goods. Their refusal to buy British products was very effective and forced Parliament to repeal the law.

Over the next decade, colonists and Britain grew further apart. Some colonists wanted to push the colonies to independence. They took actions that caused Britain to act harshly. These harsh responses, in turn, angered some moderate colonists. Eventually, the conflict led to shooting. Representatives of the colonists met in a congress and formed an army. In July of 1776, they announced that they were independent of Britain. They issued a Declaration of Independence that was based on the ideas of the Enlightenment.

From 1775 to 1781, the colonists and Britain fought a war in North America. The colonists had a poorly equipped army and the British were pow-

erful. However, in the end, they won their independence. The British people grew tired of the cost of the war and pushed Parliament to agree to a peace. The Americans were also helped greatly by aid from France. In 1783, the two sides signed a treaty in which Britain recognized the independent United States.

The 13 states formed a new government that was very weak. It struggled for a few years, but states held all the power and the central government had little. In 1787, many leaders met again and wrote a new framework of government.

The Constitution of the United States drew on many Enlightenment ideas. From Montesquieu, it put in effect the separation of powers into three branches of government. Each branch was able to prevent other branches from abusing their power. From Locke, it put power in the hands of the people. From Voltaire, it protected the rights of people to free speech and freedom of religion. From Beccaria, it set up a fair system of justice. Many of these rights were ensured in a set of additions to the Constitution called the Bill of Rights. Approval of these additions helped win approval of the Constitution as a whole.

Review

1. **Contrasting** Contrast how people in the Middle Ages and people in the scientific revolution looked at the physical world.
2. **Determining Main Ideas** How is the scientific revolution connected to the Enlightenment?
3. **Drawing Conclusions** What were three major ideas of the Enlightenment?
4. **Analyzing Causes and Recognizing Effects** What factors led to the spread of the Enlightenment?
5. **Analyzing Issues** How did the government of the United States reflect Enlightenment ideas?

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