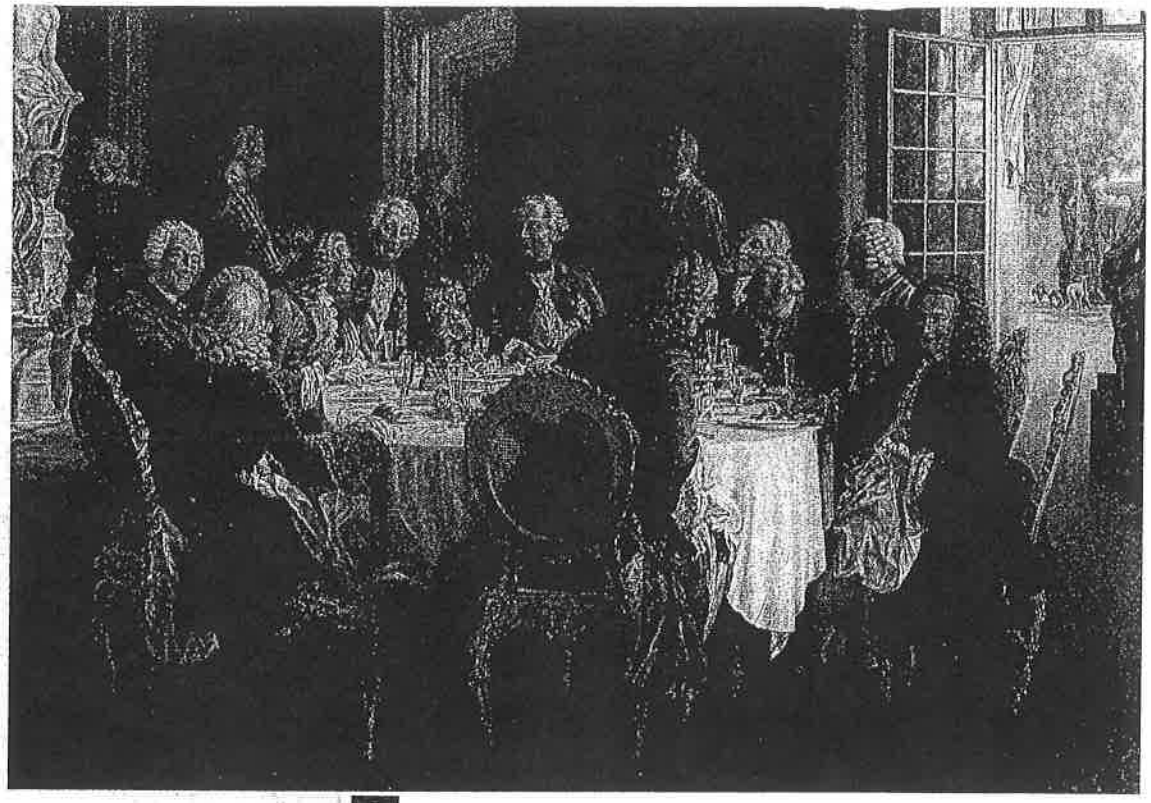
Chapter

20 Enlightenment in Europe, Revolution in America

1688 - 1



Voltaire (in purple coat, leaning forward at left) dining at the Prussian palace with Frederick II.

Key Terms

philosophe
salon
baroque
physiocrat
free trade
supply
laissez-faire
Enlightenment
constitution
prime minister
market economy
separation of powers
enlightened despotism
constitutional monarchy
demand
executive
legislative
judicial
cabinet
federal

Read and Understand

1. European thinkers expressed new ideas.
2. Writers advocated liberty and reason.
3. Enlightened despots sought progress.
4. Britain developed new forms of leadership.
5. Americans created a republic.

It was a sad and shocking tale that the young man told, and old Frenchman who listened to it was deeply moved. The yo man was Donat Calas, a youth whose family had been forced flee in poverty and disgrace from the French city of Toulouse. hearer was Voltaire (vohl-TAIR), whose name was famous through Europe for his brilliant letters, pamphlets, plays, and satires.

Donat Calas told how, in 1761, his older brother Marc had b found hanged from the rafters of the family linen shop. Neighb quickly accused the boy's father, Jean Calas, of killing his son.

The story of murder was all lies, said Donat Calas. He explai that Jean Calas was a Huguenot, hated as a heretic by the Cath citizens of Toulouse. Because they thought his religion was evil, t

believed he would act in evil ways. Young Marc had planned to become a Catholic, said the neighbors, and so his father killed him.

The neighbors told this story in court, and the judges of Toulouse believed them. Jean Calas was tortured and then executed. The judges ordered all his property to be confiscated. The surviving members of the Calas family, including Donat, were driven from their home and fled to Switzerland.

Donat Calas wept as he described the misfortunes of his family. Of course, he repeated, his father was innocent. What had really happened was obvious, Donat concluded. His moody and unhappy brother Marc had taken his own life. Jean Calas was executed only because of prejudice against the Huguenots.

Donat Calas had indeed found a sympathetic listener. Few people hated injustice and prejudice more than Voltaire. Now 68 years old, Voltaire had written thousands of letters and pamphlets denouncing intolerance and bigotry of all kinds.

Voltaire had hundreds of influential friends in Europe. From his country estate near Geneva, Voltaire sent forth a barrage of letters about the execution of Jean Calas. Friends rallied to the cause and wrote letters of their own.

French officials felt the sting of Voltaire's pen. In 1765, three years after the execution of Jean Calas, King Louis XV's council overruled the Toulouse judges and declared Calas innocent of murder. His family could return to Toulouse, reclaim their property, and collect a huge payment for the wrongs done to them.

Voltaire wept for joy at the news. In a long, happy letter to a friend, he exclaimed, "What great victories reason is winning among us!" Note that he did not take credit for the victory himself. No, the true victor in the struggle for justice was a higher power that he called reason.

Voltaire and his scholarly friends honored reason as if it were a kind of divine force. They hoped that, through the power of reason, society would make steady progress toward liberty and justice. In a society ruled by reason, they thought, injustice would disappear.

In this chapter, you will learn about the Age of **Enlightenment,** the period spanning the middle years of the eighteenth century (roughly 1720–1790), when scholars believed in the use of reason and in the scientific method.

In the English colonies of North America, the ideals of the Enlightenment played a large part in sparking a revolution against Great Britain. These ideals of liberty and reason helped to shape the government of the new country created by that revolution—the United States of America.

European thinkers expressed new ideas. 1

The Age of Enlightenment brought together the ideas of the Renaissance and the Scientific Revolution. Remember that Renaissance artists and writers adopted a secular outlook on life instead of the more spiritual outlook of the Middle Ages. They were also among the first Europeans to look critically at society in an effort to improve it. These new attitudes found their way into the Enlightenment.

Now recall the ideas of the Scientific Revolution. Copernicus, Kepler, and Galileo showed that the idea of an Earth-centered universe was wrong. Descartes had created a scientific philosophy for seeking truth. Everything had to be tested by the standard of reason. This idea too was basic to the Enlightenment.

Newton discovered the law of gravity.

In the history of ideas, as in other kinds of history, beginnings are seldom clearly marked. Isaac Newton may be called either the last and greatest figure of the Scientific Revolution or the first figure of the Enlightenment. Newton recognized what he owed to such earlier thinkers as Galileo and Kepler when he said, "If I have seen farther than others, it is because I have stood on the shoulders of giants."

Isaac Newton was born in England in 1642, while conflict was raging between the king and Parliament. Newton studied at Cambridge University and became a professor there. By the time he was 24 years old, he was certain that all physical objects (stones, birds, planets, stars) were affected equally by the same forces. However, he could not yet prove his ideas mathematically, and it was more than 20 years before he published these ideas.

In 1609, the astronomer Kepler had worked out laws for a planet's motion around the sun (page 387). Galileo had studied the motion of pendulums and the acceleration of balls rolling down a slope (page 388). Newton's great achievement was to discover that the same force ruled the motions of the planets, the rolling balls, the pendulum, and all matter on Earth and in outer space. He disproved the idea that one set of physical laws governed Earth and another set governed the rest of the universe.

All objects attract one another, said Newton. He called this attraction "gravitation." The attraction varies both with the mass of the objects and with the distance between them. In 1687, Newton at last published his fully developed theories in a book titled *Mathematical Principles of Natural Philosophy*. In a single sentence, he summarized the workings of the universe:

> *Every particle of the universe attracts every other particle with a force varying inversely as the square of the distance between them and directly proportional to the square of their masses.*

European scientists who read Newton's work were overwhelmed by its brilliance. Newton's laws became the starting point for investigating everything in nature.

The philosophes advocated reason.

In the early 1700's, a group of thinkers set forth the idea that people could apply reason to all aspects of life just as Newton had applied reason to science. These thinkers were known as **philosophes** (FEE-luh-sohfs). At the heart of their philosophy were five ideas:

1. *Reason* Enlightened thinkers such as Voltaire regarded reason as a sort of divine force, as we have seen. Reason, they said, was the absence of intolerance, bigotry, or prejudice in one's thinking.
2. *Nature* The philosophes referred to nature frequently. To them, what was natural was also good and reasonable. They believed that there were natural laws of economics and politics just as there were natural laws of motion.
3. *Happiness* A person who lived by nature's laws would find happiness, the philosophes said. They were impatient with the medieval notion that people should accept misery in this world to find joy in the hereafter. The philosophes wanted well-being on Earth, and they believed it was possible.
4. *Progress* The philosophes were the first Europeans to believe in progress for society. Now that people used a scientific approach, they believed, society and humankind could be perfected.
5. *Liberty* The philosophes envied the liberties that the English people had won in their Glorious Revolution and Bill of Rights (page 436). In France, there were many restrictions on speech, religion, trade, and personal travel. Through reason, the philosophes believed, society could be set free.

Voltaire combated prejudice.

Thousands of Europeans in the 1700's shared these five ideas and thought of themselves as enlightened. None, however, was as widely admired (or as widely hated) as a Frenchman who called himself by an invented name, Voltaire.

Voltaire's real name was François Marie Arouet (AH-rweh). Born in Paris in 1694, he nearly died in infancy. He remained frail all his life and complained of almost every ailment: smallpox, fever, gout, a chronic itch, coughing fits, partial deafness and blindness, lost teeth, dropsy, paralysis, and grippe. He often ended his letters to friends by saying that he expected to die soon. Yet he did not put down his pen until death finally took him at the age of 84.

As a young writer, he adopted the name Voltaire, possibly because Arouet sounded too close to the French word for king. Voltaire's sharp tongue made him enemies at the French court, and twice King Louis XV had him jailed in a Parisian prison called the Bastille (ba-STEEL). All his life, therefore, Voltaire held a grudge against the French monarchy.

After one stay in prison, Voltaire was exiled to England for two years. While there, he read the works of John Locke, with their emphasis on reason and the natural rights of all human beings (page 437).

Voltaire came to admire the English government much more than his own. After he returned to Paris, much of his work mocked the laws and

customs of France and even dared to raise doubts about the Christian religion. The French king and France's Catholic bishops were outraged. In 1734, fearing another unpleasant stay in the Bastille, Voltaire fled from Paris to a spot near the French border.

In his later years, Voltaire was less a French citizen than a citizen of the world. He moved to Switzerland, seeking freedom to write and publish his works. There, in 1758, Voltaire wrote his most famous work, *Candide*, a short, satiric novel that he dashed off in three days. Voltaire spent his last years living with his niece in the little Swiss village of Ferney.

From his study overlooking a lovely garden, Voltaire used his quill pen as if it were a deadly weapon in a thinkers' war against humanity's worst enemies—prejudice, superstition, and intolerance. Such attitudes were, he said, *l'infame*—infamous or shameful things. He often ended his letters with a fighting slogan, *"Écrasez l'infame!"* (ay-crah-zay lahn-fam). The phrase meant "Crush the infamous thing!" Soon it was the battle cry of every enlightened thinker in Europe.

Salons were intellectual centers.

In the 1700's, Paris was the cultural and intellectual capital of Europe. There, it was the fashion to have social gatherings known as **salons.** For these events, wealthy hostesses invited the best poets, the keenest wits, and the most charming conversationalists to their mansions for refined conversation.

One salon guest might be invited to read a poem or play a piece on the flute or harpsichord. The other guests would comment on the performance, showing off their good taste and broad understanding. The women who organized the salons were, in effect, the drama and music critics of their age.

The most influential of the salon hostesses in Voltaire's time was Marie Thérèse Geoffrin (zhoh-FRAHN). In her autobiography, Madame Geoffrin explained how her tastes and education were shaped early in life by her grandmother:

> *She taught me to think, and made me reason; she taught me to know men, and made me say what I thought of them, and told*

Mme Geoffrin (third from right in front) hosts a salon at which an actor reads from a play. Enlightenment culture was limited to the wealthy class.

me how she herself judged them . . . She could not endure the elegancies that dancing masters teach; she only desired me to have the grace that nature gives to a well-formed person.

Every Monday the great artists of Paris assembled in the Geoffrins' drawing room. Every Wednesday, the foremost writers and scientists dined at her elegant table. Her husband, a much older man, sat politely through these dinners and rarely spoke.

Diderot planned an encyclopedia.

Marie Thérèse Geoffrin also sponsored one of the most ambitious intellectual projects of the Enlightenment. The philosophe Denis Diderot (dee-DROH) imagined a set of large books to which all the leading scholars of Europe would contribute articles and essays. This *Encyclopedia*, as he called it, would bring together all the most current and enlightened thinking about technology, science, mathematics, music, art, medicine, government, law, geography, and more. Madame Geoffrin was so fond of the project that she contributed nearly half the total cost. Other hostesses also gave money to the effort. The first volume of the set was published in 1751 and distributed to 1,431 subscribers.

In a dingy attic room in Paris, Diderot labored for 20 years to complete the project. His seventh volume provoked the French king, Louis XV. Therefore, government censors banned further volumes. Fearing arrest, some leading philosophes withdrew from the project and urged Diderot to quit. Diderot pressed on, however, and found ways around the ban on publishing. The last volume under his editorship, number 28, was finally printed in 1772.

The popularity of the *Encyclopedia* soon spread to French-reading buyers all over Europe. It also inspired English and Scottish writers to produce their own *Encyclopedia Britannica* in the 1770's.

Scientific knowledge advanced.

In the 1700's, it was fashionable for wealthy families to display scientific instruments in their homes. They invited their guests to observe the planets through a telescope or an insect's wing under a microscope. Most educated men and women only dabbled at science. A few, however, pursued their observations and experiments seriously and made breakthroughs in every branch of scientific inquiry.

The discovery of oxygen Before the Enlightenment, no one knew that air was made up of a mixture of gases (mostly oxygen, nitrogen, and carbon dioxide). Then, in 1774, an English minister and scientist named Joseph Priestley separated one pure gas from air. He noticed how good he felt after breathing this special air and watched how alert two mice were while breathing it. Wrote Priestley, "Who can tell but that, in time, this pure air may become a fashionable article of luxury? Hitherto only two mice and I have had the privilege of breathing it."

Meanwhile, in France, during the 1770's, Antoine Lavoisier (lah-vwah-ZYAY) was performing similar experiments. In 1779, Lavoisier named the newly discovered gas oxygen.

Electricity Electricity mystified the scientific thinkers of the 1700's. Why, they wondered, did electric sparks sometimes jump between objects and give people a shock? In the British colony of Pennsylvania, a printer named Benjamin Franklin thought there might be a connection between a lightning bolt in a thunderstorm and the puzzling little electric sparks.

To test his theory, Franklin performed one of the most famous—and dangerous—experiments in the history of science. In 1752, he sent up a kite during a thunderstorm. At the end of the kite string was an iron key. A bolt of lightning struck the kite, and in a flash, the key emitted an electric spark. Wrote Franklin:

When the rain has wet the kite twine so that it can conduct the electric fire freely, you will find it stream out plentifully from the key at the approach of your knuckle.

Enthralled by Franklin's experiment, a number of Europeans tried to repeat it, and several were killed instantly by the shock.

Geography Two centuries after the voyages of Columbus and Magellan, vast stretches of the Pacific Ocean were still unknown to Europeans. In 1768, the English navigator and mapmaker James Cook set out on the first of three voyages to explore and chart the South Pacific.

Cook was not in search of gold, as Dias, Da Gama, and Columbus had been. Instead, Cook's

DAILY LIFE ▸ A Defense against Smallpox

In the 1600's and 1700's, few words conjured up as much dread as smallpox. An infectious disease, it struck 60 of every 100 people. Of those 60, at least 20 died, and another 20 were horribly disfigured by scars.

Then, in the early 1700's, Lady Mary Wortley Montagu made an amazing observation. While traveling in Turkey, she saw that mothers there deliberately infected their young children with smallpox by breaking the skin and applying some liquid taken from the sore of a victim. (Such a process is called inoculation.) Children who were inoculated caught smallpox, but they had a good chance of getting only a mild case that protected them from ever having the disease again. Lady Montagu bravely had her son inoculated. She then returned to Britain and spread news of the procedure. By the middle 1700's, inoculation, although still dangerous, was being used all over Europe.

In 1796, British physician Edward Jenner discovered that an inoculation with the less dangerous disease cowpox (taken from a cow) gave permanent protection from smallpox for humans. Because cowpox was a much milder disease, the risks for this form of inoculation were much lower. Jenner used cowpox to produce the world's first vaccination.

voyages were scientific expeditions. They were sponsored by the Royal Society of London, a group founded in the mid-1600's to encourage the growth of scientific knowledge. Astronomers, artists, and a botanist went with Cook to gather information about distant parts of the world.

Captain Cook became the first European to reach and chart the east coast of Australia and the islands of Tahiti, New Zealand, and Hawaii. He died in 1779 during a fight with the Hawaiian islanders.

New forms dominated music.

Educated men and women of the Enlightenment were as interested in music as in literature and science. This age produced some of Europe's most brilliant musicians.

(1) ***The baroque period*** Music of the late 1600's and early 1700's is called **baroque,** which in French means "odd." The term was first used for art that was more ornate than the art of the Renaissance. Baroque music is noted for its drama and complexity.

Two musical techniques, the fugue and counterpoint, reached their height in baroque music. In a fugue, the composer repeats a single melody, or two or three melodies, with slight variations on different musical instruments. We may hear the theme first on a horn, then on a violin, and later on a cello.

Counterpoint is the weaving of two or more melodies together. Probably the plainest example of counterpoint is a simple tune—"Three Blind Mice," for example—sung in rounds. Musicians in the 1700's created very intricate counterpoint.

Baroque music reached its height in the early 1700's. The greatest of the baroque composers were Johann Sebastian Bach (1685–1750) and George Frederick Handel (1685–1759).

(2) ***The classical period*** By the time Bach and Handel died in the mid-1700's, the age of baroque music was passing. New composers wrote less ornate works. Unity, clarity, and balance became more important than the intricate patterns of baroque music. New forms, such as the symphony, the concerto, and the sonata, came to dominate music.

The period from 1750 to 1820 is known as the classical period in European music. Its most noted composers were Joseph Haydn (HYE-d'n), Wolfgang Amadeus Mozart (MOH-tsahrt), and Ludwig van Beethoven (BAY-TOH-vuhn).

Haydn, born in 1732, was not the first European to write full symphonies for strings and woodwinds. However, his compositions were so superior to earlier works that he is honored today as the "father of the symphony."

Mozart was a child prodigy who began composing music at the age of five and performed for Britain's King George III at the age of eight. At 12, he wrote his first opera. Mozart's operas baffled audiences with their originality and brilliance. His great operas—*The Marriage of Figaro, Don Giovanni,* and *The Magic Flute*—are widely performed today. In 1791, at the age of 35, Mozart died in poverty.

Beethoven (1770–1827) is considered by many to have been the greatest European composer of all time. While his earlier works were in the same classical style as Mozart's, the music of Beethoven's later years began new trends, which carried music on into the Age of Romanticism (Chapter 23).

A painting from Haydn's time shows the setting in which a chamber orchestra played. Note how the musician/composer is positioned in the center to direct from the harpsichord.

Section REVIEW 1

Define: (a) Enlightenment, (b) philosophe, (c) salon, (d) baroque

Identify: (a) Newton, (b) Voltaire, (c) Marie Thérèse Geoffrin, (d) Diderot, (e) *Encyclopedia,* (f) Priestley, (g) Lavoisier, (h) Franklin, (i) Cook, (j) Bach, (k) Handel, (l) Haydn, (m) Mozart, (n) Beethoven

Answer:

1. Describe the five ideas that were at the heart of the Enlightenment.
2. (a) Describe an evening in a Parisian salon. (b) What role did French women play in these salons?
3. (a) What was the purpose of the *Encyclopedia?* (b) What British work did it inspire?
4. (a) Describe three scientific accomplishments of the Enlightenment. (b) Describe the two periods of music that flourished during the Enlightenment.

Critical Thinking

5. "If I have seen farther than others," said Newton, "it is because I have stood on the shoulders of giants." Who were the giants to whom Newton was referring? Could this be said of any scientific accomplishment? Explain.

Writers advocated liberty and reason. 2

Diderot once wrote, "I am a good citizen, and everything that concerns the welfare of society and the life of my fellow men is very interesting to me." The Age of Enlightenment was a time for thinking about the welfare of society, the freedom of the individual, and the happiness of humanity. In the opinion of the philosophes, these three ideals were almost identical. People could only be truly happy, they said, in a good society that allowed economic, religious, and political liberty.

The champion of economic liberty was a Scottish professor named Adam Smith. The champions of political liberty were a French aristocrat named Montesquieu (MOHN-tes-KYOO) and a Swiss commoner named Rousseau (roo-SOH). All three claimed to have discovered the "natural laws" by which society works.

Adam Smith supported free trade.

As a professor at the University of Edinburgh, Adam Smith (1723–1790) devoted almost every waking hour to philosophic questions. Often, he was so busy with his own thoughts that he dressed in rumpled, mismatched outfits.

In Diderot's *Encyclopedia*, Smith read the ideas of French economic theorists who called themselves "**physiocrats.**" The physiocrats argued that the old mercantilist ideas about wealth were wrong. Did nations become wealthier by placing heavy tariffs on foreign goods? No, said the physiocrats. All such governmental regulations actually interfered with the production of wealth. Instead, the government should allow **free trade**—the flow of commerce in the world market without government regulation. The economy would prosper by itself if the government left it alone. The French phrase for "leave alone" was **laissez faire** (LAY-zay FAIR).

Adam Smith defended the idea of a free economy in his book *The Wealth of Nations*, published in 1776. He argued that a free economy could produce far more wealth than an economy regulated by governmental laws. His arguments rested on three so-called natural laws of economics.

The law of self-interest People act for selfish reasons, said Smith. They work for their own good, not for their neighbor's good. For example, bakers do not bake bread out of concern for hunger. Bakers bake bread to make money. Their motives are selfish. In his second and third laws, Smith explained how both the buyer and the seller gain from the other's selfish motives.

The law of competition In a free market, every baker competes with other bakers. To stay in business, each baker must try to make bread more efficiently and sell it at a lower price than rival bakers can. In other words, competition forces people to make a better product. Thus, competition among selfish individuals leads naturally to economic progress for all.

The law of supply and demand What happens if bakers make more bread than people want to buy? In other words, what happens when the **supply**, or quantity available, exceeds the **demand**, or need, for bread? In that case, bakers would have to lower their prices to attract more customers. The low price would drive some bakers out of business. This process would continue until there would be just enough bakers to meet their customers' demand for bread.

According to Smith, in a **market economy** where natural laws were free to operate, plenty of goods would be produced at the lowest possible price. On the other hand, if the government interfered in the economy, none of the natural laws could operate. Economic liberty, said Smith, was essential to economic progress.

Montesquieu advocated separation of powers.

A French nobleman, the Baron de Montesquieu (1689–1755), devoted himself to the study of political liberty. For years, he studied the history of ancient Rome. He concluded that Rome's collapse was directly related to its loss of political liberties.

Montesquieu believed that Britain was the best-governed country of his own day. Here was a government, he thought, in which power was balanced among three groups of officials. The British king and his ministers held **executive** power. They carried out the laws of the state. The members of Parliament held **legislative** or law-making power. The judges of the English courts held **judicial** power. They interpreted the laws to see how each applied to a specific case. Montesquieu called this division of power into three branches **separation of powers**.

Although Montesquieu oversimplified the British system, it gave him the idea for his most famous book, *On the Spirit of Laws*. Published in 1748, it contained such maxims on government as these:

- When the legislative and executive powers are united in the same person . . . there can be no liberty.
- Again, there is no liberty if the judiciary power be not separated from the legislative and executive [power].
- Power should be a check to power.

(This last statement meant that each branch of government would limit the power of the other two branches. Thus, no branch could become a threat to liberty.)

Montesquieu's book was admired by political leaders in the British colonies of North America. His ideas about separation of powers became the basis for the United States Constitution.

Rousseau championed freedom.

The third great champion of liberty during the Enlightenment was a strange figure indeed. His name was Jean Jacques Rousseau.

Rousseau (1712–1778) was born in the Swiss city of Geneva, the son of a watchmaker. When he was 13 years old, he was apprenticed to an engraver, a harsh and unkind man. After three unpleasant years, Rousseau fled to Italy. Thereafter, he worked at many jobs, including music teacher, tutor, and secretary.

Eventually, Rousseau made his way to Paris and won recognition as a writer of essays. Diderot and other Enlightenment leaders tried to befriend him. Yet Rousseau felt out of place in the elegant salons of Paris. He much preferred walking in the woods. Sooner or later, Rousseau quarreled with almost everyone. At times in his later years, he was undoubtedly insane. Nonetheless, his ideas about government were brilliant.

Rousseau's best known book on government was *The Social Contract*, published in 1762. It states, "Man is born free, yet everywhere he is in chains," meaning that liberty was every person's natural birthright, yet many were oppressed.

How did this unnatural state of things come about? In brief, this was Rousseau's answer: In the earliest times, people had lived as free and equal individuals in a primitive "state of nature." As people became civilized, however, the strongest among them forced everyone else to obey unjust laws. Thus, freedom and equality were destroyed.

Like Locke, Rousseau argued that the only legitimate government was one that ruled with the consent of its people. However, Rousseau believed in a much broader democracy than Locke had advocated. The people, not monarchs or aristocrats, should be sovereign (dominant), said Rousseau. He believed that liberty and justice would thrive in a state where the "general will" of the people was all-powerful.

Adam Smith saw the market as an invisible hand that guided the production of goods and services.

Section REVIEW 2

Define: (a) physiocrat, (b) free trade, (c) laissez-faire, (d) supply, (e) demand, (f) market economy, (g) executive, (h) legislative, (i) judicial, (j) separation of powers
Identify: (a) Smith, (b) Montesquieu, (c) Rousseau
Answer:

1. (a) How did the philosophes feel about economic, religious, and political liberty? (b) Who was the greatest champion of economic liberty? (c) Who were the leading champions of political liberty?
2. What were Adam Smith's three natural laws of economics?
3. (a) What did Montesquieu believe led to the fall of Rome? (b) What did he admire about the government of Great Britain?
4. (a) What was Rousseau's view on government? (b) How did it differ from Locke's?

Critical Thinking

5. (a) What did Montesquieu mean when he said, "Power should be a check to power?" (b) How did his viewpoint reflect enlightened ideas?