balance of powers between nations changed. However, it was risky because a coalition could stop one strong state but then see another one rise.

In many ways, the intense competition between European states drained resources but strengthened them as a whole. States developed professional officer corps through military academies while their use of increasingly sophisticated weaponry intensified their firepower. Despite the fact that China, India, and the Islamic lands had used cannons earlier, they never had the incentive to develop more powerful weapons as their military efforts were primarily focused on internal problems rather than confrontation with foreign enemies with their more powerful armaments.

**EARLY CAPITALIST SOCIETY**

In addition to religious and political changes, Europe also experienced population growth that led to a thriving marketplace. Combined with improvements in communication and transportation, changes in social and economic structure resulted in the development of a broadly based capitalist society. But the effects of wealthy capitalist economies were uneven. The western European countries experienced great economic prosperity while eastern European countries were relegated to providing raw goods such as grain as exports. They remained far away from centers of trade and manufacturing which resulted in little wealth accumulation in the general population. However, wealth had its own wrenching effects on western society.

**Population Growth and Urbanization**

*(Theme: #1 Human-Environment Interaction)*

The increased population growth of western Europe was fueled by enriched diets with the advent of new food crops from the **Columbian exchange**. In particular, potatoes provided an increased source of carbohydrates to northern European peasants and laborers who found bread prices to be beyond their means. Some regions adopted American maize as well (polenta in northern Italy) but it was primarily a welcome addition to the feeding of livestock. Tomatoes and peppers provided welcome new tastes to the European palate.

As American crops improved the European diet, better-nourished populations were able to fend off old diseases to an extent that had not been possible before. While smallpox, typhus, dysentery, tuberculosis, and influenza continued to claim victims in all strata of society, the epidemic scourge of bubonic plague began to retreat. The last significant outbreaks were in Marseilles, France and London during the latter half of the seventeenth and early part of the eighteenth centuries. After that, Europe was largely free of major epidemic disease.

**Decreasing mortality rates** helped increase the population at a time when there was no actual rise in the birth rate. In 1500, Europe including Russia had a population of about 81 million. In the next century, the population increased to over 100 million. Despite a decrease by one-third of the German population during the Thirty Years’ War, the population recovered and climbed to 120 million by 1700. During the following century, Europe’s population grew another 50 percent to 180 million.

Along with the population growth, Europe continued its pattern of **urbanization** that had begun in the late middle ages. Some cities grew as they were designated the site of government. Madrid, for instance was a town of a few thousand in 1561 when Philip II moved his capital there. By 1600 its population increased to 65,000 and within thirty years, it reached 170,000. Other cities became commercial and industrial centers. In the mid-sixteenth century, London and Paris had populations of 60,000 and 130,000 respectively; these grew to half a million each in the next century. Amsterdam, Berlin, Copenhagen, Dublin, Stockholm, and Vienna were among other cities that grew significantly if not spectacularly in the early modern era.
Part V: The Origins of Global Interdependence, 1500–1800

Early Capitalism and Protoindustrialization
(Theme: #4 Economic Systems)

Population growth and rapid urbanization fostered extraordinary economic growth which coincided with the emergence of capitalism—an economic system in which private individuals provide goods in a free market while they bear the costs of production in terms of land, buildings, machinery, tools, equipment, workshops, and raw materials. In capitalism, businessmen hire workers and make the decisions about production rather than depending upon the government or upper classes to direct commerce. However, it can be a risky proposition as the resulting profit or loss is entirely up to the individual.

Individuals accumulating great wealth was common in other regions of the world. In fact, banks, investors, and insurance underwriters had supported private business for over a thousand years in areas like China and the Middle East. However, European merchants transformed their societies during this period in a way no others had. They used efficient networks of communication and transportation to provide their commodities to regions that had the most need and thereby profited enormously. One example was Dutch merchants who imported grain from eastern Europe, stored it in Amsterdam, and sent it to southern Europe when there were crop failures. The Dutch did not produce the grain but they knew how to obtain it cheaply and sell it at the best price.

Europeans began to develop a banking system while insurance companies underwrote the risks of long-distance trade. Banks not only held funds and granted loans but they published the first business newsletters about the markets. Stock exchanges developed in large cities as capitalists sought investors to fund their ventures. Joint-stock companies became essential for the development of overseas trade. The English East India Company and the Dutch Vereenigde Oost-Indische Compagnie (VOC) spread the risks of distant ventures among many investors while they fueled the extraordinary expansion of European trade into the global market.

As the English and Dutch governments realized the enormous profits and prestige that could be obtained through capitalist venture, they instituted policies that fostered private business. They were encouraged by the presence of merchants in the upper echelons of government. Thus England and Holland protected the individual’s right to own property, enforced private contracts, protected financial institutions, and settled disputes. They also chartered the joint-stock companies and granted some of them the right to overseas exploration. As the companies developed colonies to obtain raw materials, the governments took an active interest in their successes, so the concept of imperialism and colonial rule went in hand in hand with capitalist expansions into the global market.

As individuals took over the responsibility of business, they began to reorganize their manner of manufacture. The guild structure that had controlled the production of goods for centuries protected its members and decreased competition, while a capitalist economy thrives on competition. So, entrepreneurs avoided guilds by organizing production centers in the countryside rather than in urban settings. In the “putting-out system,” raw materials such as wool were given to family households to spin, weave, and be fashioned into garments. Then, the businessman picked it up, paid the family, and sold his goods in town.

The system proved to be very profitable as rural labor was cheap and available. Recognized as an early attempt to organize efficient industrial organizations, some historians call this period the era of “protoindustrialization” and it remained in place until the advent of the factory system in the nineteenth century.

Social Change in Early Modern Europe
(Theme: #5 Social Structures)

The putting-out system changed life in rural Europe with large infusions of cash that hitherto was unavailable to the peasant class. Western European households acquired more material objects such as cabinets and furnishings while rural people ate and dressed better. With more income, individuals could choose to follow their own pursuits rather than the traditional family pursuits. This became worrisome for older people as they contemplated young adults and women abandoning their agricultural families to fol-
low other lines of work. In eastern Europe, this was not the case as they persisted in traditional agricultural roles, but their landlords pushed them much harder than before so life grew more miserable for peasants in Poland, Russia, and Bohemia.

Conditions were particularly harsh in Russia where the Romanov tsars had restricted the freedom of peasants and tied them to the land as serfs, mimicking what had existed in western Europe in the early middle ages. The Romanov goal was to gain the support of the nobility by guaranteeing that their lands would be worked. Although the legal code of 1649 strictly determined social status and occupation, it did not include a designation of chattel slavery. Yet later nobles bought and sold serfs as though it had. All of this provided the landlord with inexpensive labor and huge profits.

The contrast between eastern and western Europe was profound as the east provided raw materials such as grains and timber using an almost enslaved work force and the western Europeans became a thriving capitalist marketplace with its free labor force. The two systems were so interdependent that the development of capitalist society was dependent on its non-capitalist counterpart.

Capitalism had moral implications as medieval churches had regarded profit as akin to sinfulness. In particular, interest on loans was considered an immoral profit. Nevertheless, loans and huge profits were the signs of a thriving capitalist economy. Philosophers such as Adam Smith (1723–1790) assuaged these concerns by asserting that a prosperous society was the result of individuals pursuing profit.

The evolution into a capitalist society was wrenching as people watched their neighbors and family members move away from traditional pursuits while refusing to help them in hard times. The social upheaval was especially evident in the growth in banditry in the countryside and muggers in the cities. Some historians believe that the witchcraft craze also indicates social dislocation and concerns as women moved into new areas and out of the control of husbands and family.

Capitalism appears to have strengthened the nuclear family as an economic and social unit. Traditionally, European couples had married later—in their mid-twenties—in order to set up independent households, and capitalism only enhanced this trend. As the nuclear family grew in economic importance, love became more important in the choice of a spouse instead of value to one’s extended families. Furthermore, affection between parents and children took on more importance.

SCIENCE AND ENLIGHTENMENT

Enormous scientific changes took place that ousted the Greek and Roman beliefs and substituted them with mathematics and scientific observation. During the seventeenth and eighteenth centuries, scientists completely revised their understanding of the earth and its universe. Later philosophers decided to apply those concepts to human beings and their political and social endeavors.

The Reconception of the Universe
(Theme: #2 Development and Interaction of Cultures)

Europeans before the seventeenth century followed the scientific beliefs of Hellenistic scholar Claudius Ptolemy of Alexandria. His Almagest postulated a motionless earth surrounded by hollow, crystalline, concentric spheres in which were embedded the larger planets, the stars, and the sun. The ninth sphere was the cosmos that provided the spin of the others. Beyond that was heaven. Later scientists added a quality of purity and perfection to the spheres and their heavenly bodies. But there was a problem: the planets did not follow absolutely regular movements. The Greek word planetes means “wanderer.”

They slowed down, reversed directions, and even appeared to stop which proved hard to explain. Most astronomers attempted to reconcile their observations with the Ptolemaic view. However, in 1543, Polish astronomer Nicolaus Copernicus posited that the earth was not the center of the universe and instead
the sun stood at the center with the planets, including the earth, revolving around it. In his treatise, *On the Revolutions of the Heavenly Spheres*, Copernicus completely rejected Ptolemy’s view, but this stand threatened both religious views and accepted scientific beliefs. Its implication was that the earth was no better than any other planet and therefore humans were also less significant than was acceptable. And, worst of all, there might be other populations beyond the uniquely God-created ones on earth.

As evidence was accumulated with more precise observations and mathematical calculations, it became clear to scientists that the Copernican view was correct, but it continued to be challenged in other quarters. Scientists and mathematicians began to investigate other possibilities when they applied their analytical methods to mechanics, the branch of science that deals with moving bodies. Two mathematicians, Johannes Kepler of Germany and Galileo Galilei of Italy, were at the forefront of the research. Kepler demonstrated that the planetary orbits were elliptical which explained some of the anomalies in Copernicus’s work. Galileo used the recently invented telescope to scan the heavens and determine that there were spots on the sun, mountains on the moon, and distant stars that no one had ever seen before. In addition to astronomy, Galileo proved that the speed of falling objects depended upon their weight rather than the height of their fall; this anticipated an understanding of gravity. He also described the idea of inertia in which a moving body will go in a straight line unless some other force alters it.

In 1687, English mathematician Isaac Newton (1642–1727) combined the ideas of astronomy and mechanics in his work, *Mathematical Principles of Natural Philosophy*. He theorized that a great universal system existed in which all bodies were affected by gravitational forces, and he was able to prove mathematically that those forces were exhibited in the movements of bodies on earth. His gravitational theories allowed him to explain a large number of seemingly unrelated phenomena such as the ebb and flow of tides and the oddities in orbits by planets and comets. Until Einstein in the twentieth century, Newton’s theories were the framework for all discoveries in the physical sciences.

Newton’s ideas which synthesized observation and mathematics provided the foundation for revolutions in every area of the physical sciences. His work was followed by extensive investigation of the natural world in the seventeenth and eighteenth centuries. European scientists used direct observation and mathematics to revise thinking in anatomy, physiology, microbiology, chemistry, and botany.

**The Enlightenment**

*(Theme: #2 Development and Interaction of Cultures)*

Newton’s concept that the universe operated under a set of laws that could be observed and explained by scientists soon was applied to the thoughts and actions of human beings themselves. Applying human reason to human problems, philosophers of the Enlightenment rejected Aristotelian philosophy, Christian religion, and other traditional authorities.

In their search for natural laws that would govern human society, philosophers went in many different directions. English philosopher John Locke (1632–1704) worked on the laws of politics. He attacked divine-right theories and believed that sovereignty lies in the people rather than their rulers. This provided much of the theoretical justification for constitutional government and, in particular, the Glorious Revolution. Scottish philosopher Adam Smith turned to a rational explanation of economics which held that the laws of supply and demand determine the actions of the marketplace. The Baron de Montesquieu (1689–1755) also took on politics as he attempted to discover the laws that would provide political liberty in a prosperous state.

The center of Enlightenment thought was France, where prominent intellectuals known as *philosophes* publicized the new ideas to an educated public rather than other scholars. Instead of formal philosophical works, the philosophes composed histories, plays, satires, and pamphlets as a form of public discourse on philosophical subjects. In *salons* put on by prominent women, the leading intellectuals could meet and discuss the current thinking within an atmosphere of social refinement. François-Marie Arouet (1694–1778), known as Voltaire, was the quintessential French philosophe. He published his first book at seventeen and went on to write some seventy volumes of letters and essays. His works were filled with criti-
cism and stinging wit as he championed individual freedom and attacked the institutions of European society, which included the Catholic church and the French monarchy. When the French monarchy announced it would pare down the number of horses in its barns to reduce costs, Voltaire responded that it would be better to reduce the number of asses who rode the horses. His bitter battle against the Catholic church was exemplified in his cry of écrasez l’infame which means “crush the damned thing.”

While Voltaire detested organized religion, he was one of many philosophes who were deists rather than atheists or conventional Christians. That is to say, they believed in a deity who set the universe in motion and devised the laws that governed it. However, he did not have an interest in its later development, nor did he involve himself in the daily concerns of humanity. God was a watchmaker who manufactured the machine but did not need to interfere as it moved along under natural laws.

The philosophes were an optimistic group who believed that once one had determined the laws of human beings, humanity would move constantly forward. Their belief in rational progress became a near ideology that most thought would lead to a state of individual liberty for all and ultimately a just, prosperous, and equitable society. However, despite enormous efforts to attain the ideal, it never came to pass. Nevertheless, the Enlightenment permanently weakened the influence of organized religion, replaced religious thought with secular reasoning, and encouraged political and social experimentation by leaders in order to promote progress. Europe was permanently changed and the influences of the Enlightenment are felt to this day in both Europe and the Americas.