The opposition was forceful. Boston's medical community, led by Dr. William Douglass, was violently opposed to such an experiment, especially one borrowed from the Moslems. Mather's medical opponents expressed themselves in language more religious than medical. Inoculation, the doctors argued, would violate "the all-wise Providence of God Almighty" by "trusting more the extra groundless machinations of men than to our Preserver in the ordinary course of nature." That is, human beings were daring to do the work of God.

The *New England Courant,* a newspaper founded by James Franklin (whose younger brother Benjamin had recently begun to assist him), added its voice to the chorus of opponents. Surprisingly, the clergy by and large supported Mather. The debate was vigorous, raging all that summer and into the fall. Dozens of pamphlets were written supporting each side of the question. Controversy developed into violence: In November, Mather's house was bombed.

Despite such fierce opposition, Mather succeeded in inoculating some three hundred people. By the time the epidemic was over, in March of the following year, only six of these had died. Of the five thousand other people who contracted the disease (nearly half of Boston's population), nine hundred had died. The evidence, according to Mather's figures, was clear: Whether or not inoculation made much sense to scientists, it worked.

An illustration from a book about the Salem witch trials called *The Wonders of the Invisible World* by Cotton Mather (1693).

Rare Books and Manuscripts Division, New York Public Library.

## *An American Pattern: Thought in Action*

The episode of the smallpox controversy illustrates a number of interesting points about American life in the early eighteenth century. First, it is important to remember that seemingly opposite qualities of the American character often existed side by side. A Puritan theologian such as Mather was not necessarily guided only by religious principles. Mather may have been a devout Christian, but he was a practical scientist as well. And what was true of individuals was also true of historical periods. Puritan life was not characterized solely by Bible reading and witch hunting. Similarly, the period of rationalism that followed the Puritan era was not guided solely by the principles of reason.

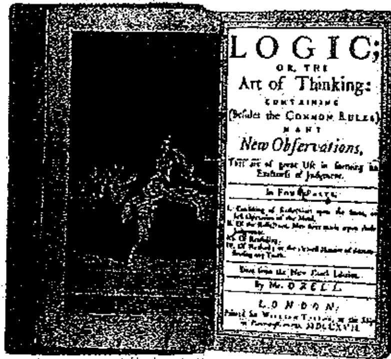
Perhaps more important, Mather's experiment reveals that a practical approach to social change and scientific research was a necessity in America. From the earliest Colonial days, Americans had to be tinkerers. The frontier farmer with little access to tools shared a problem with the scientist who had few books and a new world of plants and animals to catalog. They both had to make do with what they had, and they had to get results.

European thinkers had the leisure to specialize in nonproductive areas and to study the grand theoretical designs of scientists and philosophers. But Americans had to be generalists, and the evidence of experience had to come first. As Michel Guillaume Jean de Crèvecoeur wrote in his classic *Letters from an American Farmer* (1782), the American pioneer farmer "finds himself suddenly deprived of the assistance of friends, neighbors, tradesmen, and of all those inferior links which make a well-established society so

beautiful and pleasing. He and his family are now alone. On their courage, perseverance, and skill their success depends."

American thought, then, had to be thought in action. And so at times even a Puritan theologian was willing, for practical reasons, to trust the "groundless machinations of men."

## The Age of Reason in America




*Logic; or the Art of Thinking* (1717). An English book owned by Benjamin Franklin.

The Library Company of Philadelphia.

The Age of Reason, or the Enlightenment, began in Europe with the rationalist philosophers and scientists of the seventeenth century. Rationalism is the belief that we can arrive at truth by using our reason rather than by relying on the authority of the past, on religious faith, or on intuition.

The emergence of modern science and the scientific method had much to do with this new emphasis on reason and free inquiry. Discoveries made by physical scientists and mathematicians were changing the ways people viewed the universe. Scientific investigation seemed to show that the universe was organized according to certain unchanging laws, and that people could discover those laws through the use of their reason.

The Puritans saw God as actively and mysteriously involved in the workings of the universe; the rationalists saw God differently. Sir Isaac Newton (1642–1727), who discovered the laws of gravity, compared God to a clockmaker who, having created the perfect mechanism of this universe, then left His creation to run on its own. According to this view, God would not interfere with the operation of this perfect mechanism, and it made no sense to ask Him to do so.

God's special gift to humanity was reason—the ability to think in an ordered, logical manner. As the French philosopher and mathematician René Descartes affirmed in the opening sentence of his *Discourse on Method* (1637): "I think, therefore I am." This gift of reason enabled people to discover both scientific and spiritual truth. In the rationalist view, all human beings were born with an innate ethical sense, and all had the ability to regulate and improve their own lives.

The theoretical background for the Age of Reason, then, took shape in Europe in the work of such figures as Descartes, Newton, and John Locke. In America, however, as the story of Cotton Mather and the smallpox epidemic illustrates, a home-grown practicality already existed. This American pragmatism was characterized by an interest in the public welfare and a willingness to experiment, to try things out, no matter what the authorities might say.

The Age of Reason in America, then, combined common sense with ideas from European thinkers. From this mixture of ideas and outlooks came much of the triumph of eighteenth-century American life: the inventive and curious minds of Benjamin Franklin (see page 72) and Thomas Jefferson (see page 100); the drive to improve living conditions, forms of government, and individual minds; and the thinking behind the important statement "We hold these truths to be self-evident."

## Deism and the Rationalist Mind

Like the Puritan, the rationalist also discovered God through the medium of the natural world, but in a different way. Newton's discovery of what seemed to be unchanging physical laws—gravity and the laws of motion—made many thinkers suspicious of claims that those laws were ever suspended by God.

Thus it seemed unlikely to rationalist thinkers that God would choose to reveal Himself only at particular times to particular people. It seemed much more reasonable to believe that God had made it possible for *all* people at *all* times to discover natural laws through their God-given faculty of reason. The title of a pamphlet attributed to Ethan Allen (1738–1789) gives a capsule summary of this point of view: *Reason the Only Oracle of Man.* (An *oracle* is someone through whom God speaks to the people.)

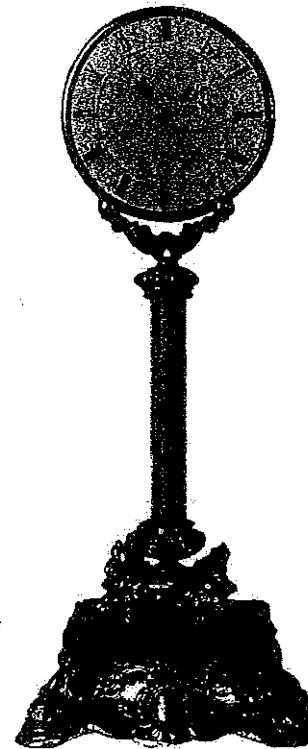
This outlook, called deism, was shared by many eighteenth-century thinkers, including Franklin, Jefferson, Thomas Paine (see page 93), and other founders of the American nation. American deists came from different religious backgrounds. Franklin, for example, had been raised a Presbyterian; Jefferson was an Anglican. But the deists avoided supporting specific religious sects. They sought, instead, the principles that united all religions.

"I never doubted," Franklin wrote in his *Autobiography,* "the existence of the deity, that He made the world, and governed it with His Providence; that the most acceptable service of God was the doing good to man; that our souls are immortal; and that all crime will be punished and virtue rewarded either here or hereafter; these I esteemed the essentials of every religion, and being to be found in all the religions we had in our country I respected them all."

Deists believed that the universe was orderly and good. In contrast to the Puritans, deists stressed humanity's inherent goodness. They believed in the perfectibility of every individual through the use of reason. God's objective, in the deist view, was the happiness of His creatures. Therefore, the best form of worship was to do good for others. There already existed in America an impulse to improve people's lives, as Cotton Mather's struggle to inoculate the citizens of Boston illustrates. But deism elevated this impulse to one of the nation's highest goals.

Deistic ideas were not shared by everyone in the Age of Reason. As rationalism spread in the 1730's and 1740's, a strongly emotional brand of religion, known as the Great Awakening, was flourishing (see page 36). Nevertheless, the rationalist point of view was shared, in varying degrees, by the Founding Fathers. It provided the basis for the principles of the American Revolution and for our system of government. The struggle for independence was justified largely by appeals to rationalist principles.

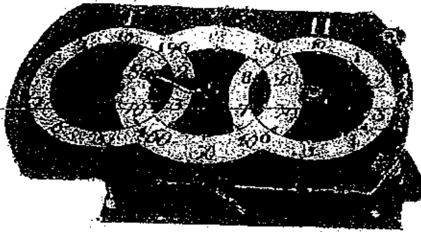
Thomas Paine's *Common Sense* was such an appeal. Published in January of 1776, it was the most influential of many Revolutionary pamphlets and was read by virtually every American within months of its appearance. The very phrase *common sense* had come to mean the reasoning ability that all people share. Paine



A clock made by Benjamin Franklin.

The Franklin Institute, Philadelphia, Pennsylvania.

argued that we should seek independence in order to restore the natural rights that were evident to our reason but that had been taken away by the British. "'Tis repugnant to reason," he wrote, "to the universal order of things, to all examples from former ages, to suppose that this continent can long remain subject to any external power." Jefferson's Declaration of Independence based its arguments on the same rationalist assumptions about the relations between people, God, and the natural law.



An odometer (an instrument for measuring distance traveled) made by Benjamin Franklin.

The Franklin Institute, Philadelphia, Pennsylvania.

## American Literature in the Age of Reason

Most of the literature written in America during the Age of Reason was, understandably, rooted in reality rather than in the imagination. The best minds of this period were concentrating on social, political, and scientific improvements. This was an age of pamphlets, since most literature was intended to serve practical or political ends. Relations—and ultimately war—with England were major concerns for many years; following the Revolutionary War (1775–1783), the problems of organizing and governing the new nation were of the highest importance. *The Federalist Papers,* written by James Madison and Alexander Hamilton, may be thought of as the pamphlet form elevated to the highest level. These essays explain the ideas behind our Constitution.

| 1706–1721 | 1722–1723 | 1725–1726 | 1728–1732 |
|---|---|---|---|
| **Benjamin Franklin born in Boston, 1706**<br>Daniel Defoe's *Robinson Crusoe* published in London, 1719<br>Smallpox epidemic, 1721 | Spain occupies Texas, 1722<br>**Benjamin Franklin arrives in Philadelphia 1723** | First American library established in Philadelphia, 1725<br>Jonathan Swift's *Gulliver's Travels* published in London, 1726 | **William Byrd writes *History of the Dividing Line*, 1728**<br>George Washington born in Virginia, 1732 |

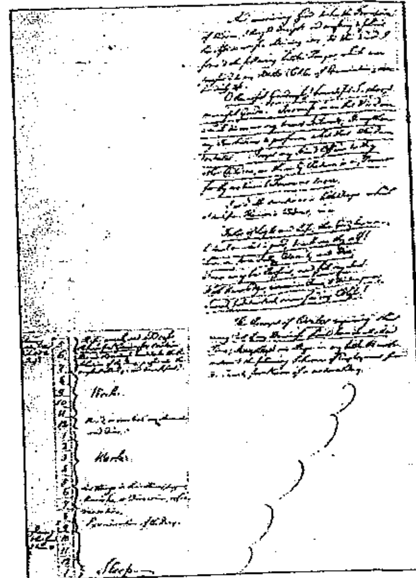
| 1753–1755 | 1760–1762 | 1767–1768 | 1772–1773 |
|---|---|---|---|
| Phyllis Wheatley born in Africa, c. 1753<br>Samuel Johnson completes his mammoth *Dictionary* in England, 1755 | George III crowned King of England, 1760<br>Anne Franklin (Ben's sister-in-law) becomes first woman to edit a newspaper in America, 1762 | Daniel Boone explores territory west of Appalachians, 1767<br>Boston citizens refuse to house British troops, 1768 | Boston Assembly threatens to secede from Britain, 1772<br>Phyllis Wheatley's poems published, 1773<br>Boston Tea Party, 1773 |

| 1789–1790 | 1790–1791 | 1793 | 1793–1799 |
|---|---|---|---|
| French Revolution begins, 1789<br>**Benjamin Franklin dies in Philadelphia, 1790** | First American census sets population at 3,929,214, 1790<br>**Thomas Paine writes *The Rights of Man*, 1791** | Invention of cotton gin leads to increase in slave labor, 1793<br>King Louis XVI and Marie Antoinette of France beheaded by revolutionaries, 1793 | Samuel Taylor Coleridge publishes *Rime of the Ancient Mariner* in England, 1793<br>**Patrick Henry dies, 1799** |

With a few exceptions, American poetry written during the eighteenth century was unoriginal. It was often written in direct imitation of British models. Thousands of broadsides, the poetic equivalent of pamphlets, were produced during this period. These poems and ballads printed on a single, large sheet of paper often ridiculed the British and urged Americans to take political action. They encouraged readers to drink no English tea, to wear domestically produced cloth, and, ultimately, to fight for liberty.

The unquestioned masterpiece of the American Age of Reason was Benjamin Franklin's *Autobiography* (see page 74). Franklin used the personal narrative, a form that was common in Colonial America. He separated it from much of its religious justification (the Puritan impulse toward self-examination). Then he molded it into what became a classic American pattern: the rags-to-riches story. Written in clear, witty prose, this charming account of the development of a self-made American provided the model for a story that would be told again and again. It appears in the moralistic stories about the office boy by Horatio Alger and in F. Scott Fitzgerald's novel *The Great Gatsby.*

With the exception of Franklin's *Autobiography,* however, the many calls for an American literary independence to accompany its political independence were premature. The seeds had been sown, but the true flowering of American literature was still several generations in the future.



A page from Franklin's *Autobiography,* showing his daily schedule.

Henry Huntington Library, San Marino, California.

**1736–1737**

**Patrick Henry born in Virginia, 1736**

**Thomas Paine born in England, 1737**

**1738–1741**

The future King George III of England born, 1738

**Jonathan Edwards preaches "Sinners in the Hands of an Angry God," 1741**

**1743–1744**

**Thomas Jefferson born in Virginia, 1743**

**William Byrd dies, 1744**

**1750**

Franklin's experiments with a kite and key prove that lightening is a manifestation of electricity, 1750

**1775**

**Patrick Henry persuades the Virginia Convention to put itself in a position of armed defense, 1775**

Battle of Lexington and Concord, 1775

**1775–1783**

Revolutionary War, 1775–1783

American Declaration of Independence, July 4, 1776

**1778–1783**

Congress prohibits importation of slaves into the United States, 1778

American Revolution comes to an end, 1783

**1788–1789**

U.S. Constitution ratified, 1788

George Washington inaugurated as first President, 1789

**1800**

**Thomas Jefferson elected President, 1800**

Washington, D.C., named capital of U.S., 1800

**1804–1806**

Lewis and Clark Expedition leaves to chart the Louisiana Purchase, 1804

**Noah Webster's dictionary published, 1806**

**1809–1810**

**Thomas Paine dies in New York state, 1809**

U.S. population passes seven million, 1810