CHAPTER 18

Toward a New World-View

0CHAPTER OUTLINE0

I0.   The Scientific Revolution0
    A0.   Scientific Thought in 1500
        10.   Scientific thought in the early 1500s was based on ancient and medieval ideas.
        20.   European notions about the universe were based on Aristotelian principles.
        30.   A chief feature of this view was the belief in a motionless, static earth at the center of the universe.
        40.   Ten crystal spheres moved around the earth.
    B0.   The Copernican Hypothesis
        10.   Copernicus overturned the medieval view of the universe.
        20.   He postulated that the earth revolved around the sun and that the sun was the center of the universe.
        30.   This heliocentric view was a departure from the medieval view endorsed by both Catholic and Protestant churchmen.
    C0.   From Brahe to Galileo
        10.   Scholars from Brahe to Galileo refined and collected evidence in support of Copernicus's model.
        20.   Brahe built an observatory and collected data.
        30.   Galileo discovered the laws of motion using the experimental method.
    D0.   Newton's Synthesis
        10.   Newton synthesized the integral parts into a whole.
        20.   Newton integrated the astronomy of Copernicus and Kepler with the physics of Galileo.
        30.   He formulated a set of mathematical principles to explain motion.
        40.   At the core of Newton's theory was the universal law of gravitation.
    E0.   Causes of the Scientific Revolution
        10.   Medieval universities had provided the framework for the new view.
        20.   The Renaissance stimulated science by rediscovering ancient mathematics.
        30.   Better ways of obtaining knowledge about the world, including improved tools such as telescopes and sextants, improved the scientific method.
        40.   Bacon advocated empirical, experimental research.
        50.   Descartes emphasized deductive reasoning and was the first to graph equations.
    F0.   Some Consequences of the Scientific Revolution
        10.   The Scientific Revolution helped create the international scientific community.
        20.   It resulted in the development of the scientific method.
        30.   The Scientific Revolution had few economic and social consequences for the masses until the eighteenth century.
II0. The Enlightenment0
    A0.   The Emergence of the Enlightenment
        10.   The overriding idea of the Enlightenment was that natural science and reason can explain all aspects of life.

20. The scientific method can explain the laws of nature.
30. Progress is possible if the laws are understood and followed.
B0. The Philosophes and the Public
    10. Many writers made Enlightenment thought accessible to a wide range of people.
    20. Fontenelle stressed the idea of progress.
    30. Skeptics such as Bayle believed that nothing can be known beyond all doubt.
    40. Locke stressed that all ideas are derived from experience.
    50. The French philosophes were committed to the fundamental reform of society.
    60. Montesquieu's theory of the separation of powers was fundamental.
    70. Voltaire challenged traditional Catholic theology.
C0. The Later Enlightenment
    10. The later Enlightenment writers (Condorcet, Rousseau) created inflexible and dogmatic systems.
D0. Urban Culture and Public Opinion
    10. The European market for books grew dramatically in the eighteenth century.
    20. Popular titles addressed a wide range of subjects.
    30. The illegal book trade included titles denouncing high political figures.
    40. The nature of reading changed.
    50. The reading public joined with the philosophes to call for the autonomy of the written word.
    60. Salons were centers of discussion and debate.

III0. The Enlightenment and Absolutism0
A0. Enlightened Absolutism
    10. Until the American Revolution, most Enlightenment thinkers outside of England and the Netherlands believed that political change could best come from above.
    20. Absolutist rulers had mixed results ruling in an "enlightened" manner.
B0. Frederick the Great of Prussia00
    10. Frederick II built on the accomplishments of his father.
    20. He fought successfully to defend Prussia from external threats.
    30. Frederick allowed religious freedom and promoted education and legal reform.
    40. He was unwilling to change Prussia's social structure and rejected calls for civil rights for Jews.
C0. Catherine the Great of Russia
    10. Catherine deposed her husband Peter III and became empress of Russia.
    20. Catherine imported Western culture to Russia, supported the philosophers, and introduced limited legal and penal reforms to her adopted country.
    30. Pugachev's rebellion put an end to Catherine's efforts to reform serfdom.
    40. Under Catherine, Russia continued to expand.
D0. The Austrian Habsburgs
    10. Joseph II (r. 1780–1790) and Maria Theresa (1740–1780) introduced reforms in Austria.
    20. Maria Theresa introduced measures aimed at limiting the power of the papacy in her realm, strengthening the central bureaucracy, and improving the lot of the agricultural population.
    30. Joseph II pursued reforms aggressively when he came to the throne in 1780.
    40. His rapid reforms sent Austria into turmoil and, after Joseph's death, his brother was forced to repeal his radical edicts.
E0. Absolutism in France
    10. The effect of the Enlightenment on France was complex.
    20. Financial difficulties forced French monarchs to attempt governmental and economic reforms.

F0. The Overall Influence of the Enlightenment
10. France diverged from its neighbors in its political development in the eighteenth century.
20. In eastern and east-central Europe, proponents of reform from above dominated.
30. Absolutist monarchs wanted reforms that would strengthen the state.

0INTERNET RESOURCES0

10. Copernicus (www-gap.dcs.st-and.ac.uk/~history/Mathematicians/Copernicus.html)

20. The Galileo Project (es.rice.edu/ES/humsoc/Galileo)

30. Isaac Newton Resources (www.newton.cam.ac.uk/newton.html)

40. John Locke (plato.stanford.edu/entries/locke)

50. The Enlightenment (www.wsu.edu:8080/~brians/hum_303/enlightenment.html)

60. The Scientific Revolution (web.clas.ufl.edu/users/rhatch/pages/03-Sci-Rev/SCI-REV-Home)