
MATTHEW ARNOLD:
A Life
 by Park Honan
 McGraw-Hill, 1981
 496 pp. \$19.95

Matthew Arnold (1822–88) grew up under the long shadow of his father, the liberal but demanding headmaster of England's famous Rugby School. Dr. Arnold died while Matt was still an indolent student at Oxford, but the poet who wrote "Dover Beach" and the critic who penned *Culture and Anarchy* never forgot his father's strong sense of duty. In this excellent biography, Honan, a reader in English at Birmingham University, shows that this stern moral legacy probably damaged Matthew's career as a poet. Not only did it compel him to leave an easy sinecure for the socially responsible position of school inspector, a grueling and ultimately frustrating job; it also eventually led to moralizing in his verse. The man who had first written poems to please his mother came to believe that poetry, as the essential voice of culture, must carry on the civilizing mission that was once, in the Middle Ages, the work of the Church. Burdening his verse with philosophical instruction, he gradually suppressed his best poetic instincts—though happily this did not happen until after he had produced an impressive body of work. Heavily burdened by job and family, he still managed to write, albeit more criticism than poetry. Stiff at first, his prose soon developed grace and quick flashes of insight. In essays, lectures, and books, Arnold made his eloquent argument for a broad humanist education, available to all, as the best defense against social anarchy.

Science & Technology

EMERGING COSMOLOGY
 by Bernard Lovell
 Columbia, 1981
 208 pp. \$14.95

New discoveries about the nature of the universe are often suppressed by the prevailing cosmology, until theory eventually catches up to them. Lovell, a Royal Society astronomer, recounts this process of resistance and gradual acceptance from Aristotle's time to the present. Thomas Aquinas's tempering of literal biblical views with Aristotelean science in the 13th century, for instance, was a monumental achievement, but, Lovell notes, it also helped forestall widespread accept-

ance of a sun-centered model of the universe (formulated as early as the third century B.C.) for another 300 years. Lovell attributes the eventual adoption of Copernicus's model of the solar system, in the 16th century, to its compatibility with the ancient Greeks' belief in a harmonious, concentric universe (which made his idea appear less revolutionary), as well as to Galileo's persuasive demonstrations. The same classical emphasis on harmonious heavenly relationships led Johannes Kepler, in 1609, to discover elliptic orbits; his principles of planetary motion, in turn, laid the groundwork for Isaac Newton's laws of gravity and inertia (1687). Theory and observation were unified in Newton's cosmology. In our own century, Albert Einstein exploded the concepts of absolute time and motion and forced scientists to recognize the subjective, man-centered nature of their ordering principles. As a consequence, most scientists now believe there is no absolute order of the universe to be discovered—only more useful cosmic models to be devised.

**A NEW SCIENCE OF LIFE:
The Hypothesis of
Formative Causation**
by Rupert Sheldrake
Blond & Briggs, 1981
229 pp. \$12.50

Heredity, we are told, depends on the arrangement of nucleic acids on the double helical strands of DNA. But this "mechanistic" explanation of the ultimate mystery of biology has serious limits. The differences between the DNA sequences of, say, humans and chimpanzees amount to only 1.17 percent. The genetic discrepancy between two species of mice is actually greater. And why does one cell become a kidney tubule while another with the identical DNA structure becomes a brain cell? Some "mechanistic" scientists claim that such cells are simply "programmed" differently. But programming implies a programmer, an implication from which these mechanists recoil. Sheldrake, a Cambridge biochemist, sees a need for a nonmechanistic, nonphysical theory of biology to account for such phenomena as the relative constancy (both structural and behavioral) within an animal species. Reviving the *vitalism* of philosophers such as Henri Bergson and Alfred North Whitehead, who