



The volume is divided chronologically into five parts, but the editors resist imposing “an image of continuity.” Indeed, the section on origins includes four essays examining the distinct yet complementary contributions of native American literature, the writing of early explorers, and the English and Puritan traditions. As a result, some unexpected congruities emerge: In both American Indian and Puritan culture, the concept of “literature” is fundamentally spiritual. For the native American, words are “magical,” and a person who utters a prayer or recounts a tale “is dealing with forces that are supernatural and irresistible.” To the Puritans, the “central emphasis was on the Word,” and the sermon united both artistic and divine impulses.

Science and Technology

THREE SCIENTISTS AND THEIR GODS: Looking for Meaning in an Age of Information

by Robert Wright
Times Books, 1988
324 pp. \$18.95

Science and religion, like the lion and the lamb, seldom lie down together. But when a scientist stumbles upon a plausible unifying principle behind the world's workings—Darwin upon natural selection, say, or Einstein upon relativity—he transforms himself from searcher into believer. “The scientist,” says Wright, an editor at *The New Republic*, “enthralled by the principle's power, tries to expand that power” and “looks everywhere for manifestations and affirmations of its unity.”

The three scientists profiled in this wide-ranging book labor in different fields—Edward Fredkin in computer science, E. O. Wilson in sociobiology, and Kenneth Boulding in economics and general systems theory. But Wright sees in their individual efforts to find patterns of meaning in the physical, biological, and human worlds an intellectual convergence. Moreover, the language that best describes this convergence comes from the theory of information. The brainchild of Bell Laboratory scientist Claude Shannon, information theory reverses (or restates in a subtler way) the second law of thermodynamics, which holds that the amount of disorder, or entropy, in the universe increases over time. But according to Shannon, the more disorder within a system, the more information—and therefore, paradoxically, the greater potential for structure and order.

With calculated ingenuousness, Wright induces

his subjects to explain how their arcane labors relate to *What It All Means*. Hearing Fredkin explain how the universe is “governed by a single programming rule,” or Wilson elaborate upon “the evolutionary epic” of gene-culture interplay, or Boulding muse upon the rise of cultural diversity out of the division of labor, we feel as though we had wandered in on the ultimate bull session—with real geniuses as participants. This is science—and science writing—with a refreshingly human face.

**THE QUESTION OF
THE COMMONS:
The Culture and Ecology
of Communal Resources**
edited by Bonnie M. McCay and
James M. Acheson
Univ. of Arizona, 1987
439 pp. \$35



In 1968, ecologist Garret Hardin outlined the principles of a theory that he labeled the “tragedy of the commons.” According to Hardin, the world’s commonly held resources—e.g., air, oceans, fish, grasslands—were in danger because no one is motivated to take care of them. The “rational individual” is impelled to do only one thing: “to take as much as possible before someone else does.” Freedom and equality in the use of the “commons” condemns them to ruin.

Twenty years later, anthropologists McCay and Acheson, of Rutgers and the University of Maine, respectively, have assembled 18 essays by researchers in various fields examining different aspects of Hardin’s much-cited prediction. Their broadest conclusion: It is still too early to judge its general validity.

More immediately helpful are the objections that the contributors raise to various blurred distinctions and hidden assumptions in Hardin’s theory. For example, Hardin too quickly assumes that the terms “commons,” “communal activity,” and “communal tenure” mean roughly the same thing to all cultures. In many societies and subcultures, whether those of Maine lobstermen or Tigray farmers, access to the commons (lobsters in one case, fertile land and pasturage in the other) is limited by any number of natural or established restraints. Social pressures, whether formalized in law or religious taboos, prevent pure selfishness from prevailing.

In the industrialized West or in the jungles of the Third World, interdependence, communication, and cooperation can help lead to what the editors see as “less inexorably tragic outcomes” than Hardin anticipated.