
Islamic, etc.) in their approach to the God question," Cere notes, but those traditions "must engage in dialectical encounter." The dialectic, Newman believed, moved toward universality. That these claims might ultimately compete with one another was no excuse for a retreat into exclusive reliance on faith or into relativism. "No traditions have a claim upon us which shrink

from criticism, and dare not look a rival in the face," Newman wrote—a challenge he might well have hurled at the champions of the modern university, from which theology has been banished. Restoring theology to its place alongside its sister sciences, Cere writes, could do much to revive "the shriveled and cramped soul of modern academic discourse."

SCIENCE, TECHNOLOGY & ENVIRONMENT

Creationism's Design Flaws

"Life's Grand Design" by Kenneth R. Miller, in *Technology Review* (Feb.–Mar. 1994), Bldg. W59, MIT, Cambridge, Mass. 02139.

Creationists today tout "intelligent-design theory" as an alternative to evolution. They contend that living organisms have features that are so perfect that they cannot be the result of the random workings of evolution but must be the product of conscious design. However, says Miller, a biologist at Brown University, scientists argue "that complex organisms not only *could* have evolved through evolution's trial-and-error mechanisms, but *must* have done so." And it is the errors that constitute the best evidence.

Take the human eye. It is indeed a marvel, Miller notes. "The eye, like a top-of-the-line modern camera, contains a self-adjusting aperture, an automatic focus system, and inner surfaces surrounded by a dark pigment to minimize the scattering of stray light. [The] sensitivity range of the eye, which gives us excellent vision in bright sunlight as well as in the dimmest moonlight, far surpasses that of any film. Its neural circuitry enables the eye to automatically enhance contrast. And its color-analysis system enables it to quickly adjust to lighting conditions . . . that would require a photographer to change filters and films. Finally, the eye-brain combination produces depth perception that is beyond the range of any camera."

Evolutionary theory can explain such developments in terms of natural selection over thousands of years, along with other factors. The

most persuasive argument for evolution, however, may be the imperfections in nature. Consider the neural wiring for the human eye's light-sensing retinal photoreceptor cells. The wiring is placed not behind the retina but in front of the photoreceptors, thus blocking out some light. That also means that the wiring carrying nerve impulses from the photoreceptors to the brain must go directly through the wall of the retina. As a result, there is a blind spot in the retina, about a millimeter in diameter.

Evolution, which works by repeatedly modifying existing structures, can explain such design "mistakes"; intelligent-design theory cannot. Which is not to say, Miller hastens to add, that evolution and a belief in God are incompatible.

Farewell, Arcadia!

"Ecological Collapses of Ancient Civilizations: The Golden Age That Never Was" by Jared M. Diamond, in *The Bulletin of the American Academy of Arts and Sciences* (Feb. 1994), Norton's Woods, 136 Irving St., Cambridge, Mass. 02138.

Environmentalists often speak of living in harmony with nature, harking back to an idyllic pre-industrial past. Recent discoveries by archaeologists and paleontologists, however, tell a very different story about this imagined golden age, writes Diamond, a professor of physiology at the medical school of the University of California, Los Angeles.

Consider New Zealand, where the Polynesian settlers known as Maoris arrived around



Friends of the Earth? Nineteenth-century Indian hunters drive a herd of buffalo over a cliff.

1000 A.D. A few centuries later—before Europeans appeared—all known species of the moa, a large native bird, were extinct, as were certain types of geese, ducks, swans, and other bird species. Research at more than 100 large archaeological sites reveals what happened: “Maoris cut up prodigious numbers of moas, cooked them in earth ovens, and discarded the remains. They ate the meat, used the skins for clothing, fashioned bones into fishhooks and jewelry, and blew out the eggs for use as water containers. . . . Maoris must have been slaughtering moas for many generations.”

On all the main islands of Hawaii, Smithsonian paleontologists Storrs Olson and Helen James have identified fossil bird species that disappeared during the Polynesian settlement, which began around 500 A.D. At least 50 species perished before Captain James Cook’s arrival in the 18th century.

In the American Southwest, Spanish explorers arriving during the 16th century found gigantic multistory buildings standing empty in the middle of treeless desert. The vanished builders were known to the Navajo Indians in the region only as “Anasazi” (“the Ancient Ones”). Paleobotanists Julio Betancourt, Thomas Van Devender, and their colleagues have been able to reconstruct what happened, Diamond says. When the pueblos were built in what is now New Mexico’s Chaco Canyon National

Monument shortly after 900 A.D., they were surrounded by piñon-juniper woodland and ponderosa pine forest, which the Anasazi gradually cleared. “As deforestation caused progressively increasing erosion and water runoff, and as irrigation channels gradually dug gullies into the ground, the water table may finally have dropped below the level of the Anasazi fields, making irrigation without pumps impossible.” The Anasazi were forced to abandon Chaco Canyon during the 12th century.

What distinguishes late-20th-century humans from their primitive forebears, Diamond says, is not the innocence of the latter but the former’s scientific understanding of the environment. The Anasazi had the excuse of ignorance; today’s humans do not.

Sunny with a Chance of Meltdown

“The Once and Future Sun” by Ron Cowen, in *Science News* (Mar. 26, 1994), 1719 N St. N.W., Washington, D.C. 20036.

The sun’s extinction may not be one of humankind’s more pressing concerns, but the star that gives us life appears, like today’s baby boomers, to be approaching middle age. At about 4.5 billion years of age, it is more than one-