

A Latin Protestant Ethic

"Latin America's Reformation" by Timothy Goodman, in *The American Enterprise* (July-Aug. 1991), American Enterprise Inst., 1150 17th St. N.W., Washington, D.C. 20036.

Protestant evangelicalism has made great inroads in traditionally Catholic Latin America. Evangelicals—most of them Pentecostals, who practice faith healing and speaking in tongues—have grown from 15 million in 1960 to over 40 million. More than half of them live in Brazil, making up nearly one-fifth of its 150 million people. Sociologist Peter Berger and others think that the evangelical upsurge will encourage the growth of capitalism and democracy in Latin America, just as the spread of Calvinism and the Protestant ethic did in Europe beginning in the 16th century. But this may be too optimistic a reading, cautions Goodman, a research associate at the American Enterprise Institute. Evangelicalism, he says, is "more likely to retard than to hasten the onset of 'modernity' in Latin America."

Berger, sociologist David Martin, and other optimists, notes Goodman, contend that evangelicalism "inculcates a 'bourgeois' message of self-improvement, tames *machismo*, fosters peaceability, and encourages hard work as a service to God. It promotes the 'small' capitalist virtues of dependability, thrift, and sobriety." It also encourages self-reliance and skills and practices conducive to self-government.

Yet, Goodman argues, evangelicalism still promotes "values typical of traditional society." It scants such "modern" values

as individualism, rationalism, "the need for achievement, and identification with society at large rather than just the immediate family circle." Latin American evangelicals are inclined "more toward emotionalism and superstition . . . than toward rationalism," he says. Their religion seems to breed disharmony rather than a sense of the common good: "Competition, rancor, and polarization are often rife among, and even within, their churches."

Nor is it likely, in Goodman's view, that evangelicalism "will unleash the acquisitive drive." Evangelicalism "upholds taboos against the accumulation of material things; Pentecostals work hard for many reasons, but making money is rarely prominent among them."

Perhaps most important, even if the new religion should provide "a positive cultural context" for modernization, that would not be enough to lift Latin America out of poverty. The new culture could not by itself overcome "the economic and political factors—especially statist economic policies, weak political institutions, and inept leadership—that historically have left the region underdeveloped and poorly governed." That will require fundamental reforms. Latin America may blaze a path to the promised land of prosperity, but "[a] Protestant Reformation alone will not do it and may not even contribute to it."

SCIENCE & TECHNOLOGY

The Viceroy's Doublecross

"Butterflies and Bad Taste: Rethinking a Classic Tale of Mimicry" by Tim Walker, in *Science News* (June 1, 1991), 1719 N St. N.W., Washington, D.C. 20036.

For decades, biology textbooks have held up the viceroy butterfly as a classic example of Batesian mimicry. The bright orange wings of the viceroy (*Limenitis archippus*) closely resemble those of the toxic monarch (*Danaus plexippus*), and bi-

ologists have long believed that the viceroy was concealing an appetizing body beneath its monarch-like colors. English naturalist Henry Walter Bates, after observing butterflies in the Amazon river basin in the mid-1800s, first advanced the idea that a

Why Scientists Can't Write

"Science is the great adventure of our age. It's ironic that its reports should be so dull to read," says novelist Michael Crichton, author of *The Andromeda Strain* and other works. In *American Scientist* (Jan.-Feb. 1991), he speculates about the source of this barrier between layman and expert.

I have often been struck by the fact that scientists in conversation are crisp and clear about their work. The same scientists, writing in a journal, produce a nightmare of incomprehensibility. Various explanations have been proposed, but I think the real problem may be structural: Scientific writing now demands a passive, abstract literary form.

In conversation, the scientist provides information in the way we ordinarily expect to receive it: as a narrative. "We had an unanswered question in our field. The question was important for these reasons. So we approached it in this way. Here's what happened when we did." . . .

Unfortunately, science has chosen to re-

place active personalized storytelling with passive abstract discourse. It's the difference between saying "I got up this morning and wrote a letter to American Scientist" and saying "Letter-writing on some mornings may occur."

Passive abstraction has many drawbacks. Since nobody in the real world communicates this way, it's an alien mode that we must shift into, like a foreign language. It's a struggle to write. It's agony to read. Particularly in reports of experiments, it doesn't reflect what actually happened. But most important, abstraction actually provides less information than narrative, by removing the flavors, the feelings, the juice, and sometimes even the substance. . . .

Of course there are historical and intellectual reasons why scientists choose to depersonalize their reports. But the absence of the observer is no longer so fashionable a posture as it once was. It may be time for scientists to return to the more vigorous prose tradition of Galileo.

species of butterfly tasty to birds could thus protect itself. New research, however, indicates that it is scientists, not birds, whom the viceroy has been deceiving all these years, reports Tim Walker, an intern at *Science News*.

The butterfly's secret was revealed in an avian taste test conducted by David B. Ritland and Lincoln P. Brower of the University of Florida, Gainesville. The wingless abdomens of viceroys, monarchs, and other butterfly species were served up to local red-winged blackbirds. Despite the textbook wisdom, the birds found the viceroy just as unappetizing as the monarch. In

fact, the birds frequently turned up their beaks after just one peck. The results "clearly refute the traditional hypothesis that viceroys are palatable Batesian mimics," Ritland and Brower said.

Why had scientists assumed that the viceroy was a taste treat? In part simply because the viceroy evolved from admiral butterflies, which are known to be tasty. But also because the viceroy, in its caterpillar stage, does not feed on poisonous plants—the only way, many biologists have believed, that a butterfly could acquire toxic chemicals. But the viceroy, it seems, knew better.

High Drama

"The Height of Ambition" by David H. DeVorkin, in *Air & Space/Smithsonian* (Apr.-May 1991), 370 L'Enfant Promenade S.W., 10th Fl., Washington, D.C. 20024.

In the 1920s and '30s, the stratosphere beckoned to both adventurers and scientists. But their interests in exploring it were not the same, and a conflict developed that foreshadowed the debate in later decades over manned versus unmanned

exploration of space.

To prewar scientists, explains DeVorkin, curator of astronomy and space sciences at the National Air and Space Museum's department of space history, the stratosphere offered a chance "to solve the rid-