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Darwin's Gift to Science and Religion

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place, far superior to the surface world. Standish's hilarious discussion of Symmes is, by itself, worth the price of admission to *Hollow Earth*.

Standish devotes several chapters not so much to the actual belief in a hollow earth, but to the exploitation of that concept by fiction writers, including the usual gang of suspects: Edgar Allen Poe, Jules Verne, Arthur Conan Doyle, L. Frank Baum, and Edgar Rice Burroughs. Almost certainly, none of these authors believed in the validity of Symmes Holes, rotating hollow spheres, or mole people, yet all used the mysterious, unexplored frontier inside the earth as a setting, the curious stage on which their fictional dramas unfolded. In locating their lost worlds in the interior of the earth, these and myriad other authors were part of a longstanding tradition of situating invented, mysterious realms in places unattainable as a result of location and distance. Writers and movie producers have long done exactly this, from Plato who placed Atlantis in the middle of the Atlantic Ocean and in a time far removed from his own to George Lucas who positions his *Star Wars* action "a long time ago, in a galaxy far, far away." For the above-mentioned late nineteenth- and early twentieth-century authors, the notion of a hollow earth was not a fixation but merely a convenient fiction, an expedient place to locate their utopias — and dystopias.

If I have one criticism of Standish's book, it would be that he devotes too much of the book (three and a half chapters out of eight) to this literary exploitation of the hollow earth concept. I would have preferred a far more extensive discussion of late twentieth- and early twenty-first-century claims concerning the reality of a hollow earth, an issue that Standish only touches upon in his final chapter.

But these are minor complaints. For the wealth of information provided and a wonderfully readable, smart-alecky writing style, David Standish's *Hollow Earth* belongs on the bookshelf of every scientist, historian, and fan of speculative fiction, especially those who are

interested in "strange ideas that just won't go away."

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DARWIN'S GIFT TO SCIENCE AND RELIGION

by Francisco Ayala
Washington (DC): Joseph Henry Press, 2007. 237 pages

Reviewed by
Michael R Dietrich

In this book targeted at a general audience, Francisco Ayala brings both his theological and biological expertise to bear on the challenge of contemporary "intelligent design" creationism. Trained in a Catholic seminary in Spain and now a distinguished evolutionary biologist, Ayala sees no conflict between religion and science. Indeed, he argues that evolutionary biology provides an important solution to the theological problem of evil.

The problem of evil is a classic theological conundrum that faces Christians who believe that God is simultaneously all powerful and all good. How could such a deity allow evil to exist in the world? Ayala's solution is "Darwin's gift" of evolutionary biology. Translated into evolutionary terms, the problem of evil becomes the problem of why numerous imperfections could be allowed in a wide range of organisms if in fact they were created by an all powerful and all good deity (p 159). Why would God design human eyes with a blind spot. Ayala asks, and squid eyes without? "Did the Designer have greater love for squids than for humans and, thus, exhibit greater care in designing their eyes than ours?" (p 154). Evolution by

natural selection provides the answer for these imperfections. Evolution is a tinkerer, working with what is available to make what it can, imperfections and all. To ascribe the "dysfunctions, oddities, cruelties, and sadism that pervade the world of life" to the direct agency of the Creator, according to Ayala, "amounts to blasphemy" (p 160). Ayala's advice to religious persons is to accept that evolution by natural selection saves them from this blasphemy. At the same time, Ayala counsels that science has its limits and does not exclude religion or religious understanding. For Ayala, science provides sound understanding of the natural world, while religion speaks to questions of meaning and value that simply lie beyond the domain of any scientific investigation.

Ayala's explanation of evolutionary biology in *Darwin's Gift* is masterful. He effortlessly explains the conceptual foundations of evolution in sections on natural selection, adaptation, and speciation. With characteristic clarity, Ayala also includes recent results from genomics and molecular biology. The result is a rich portrait of evolutionary biology that is accessible to a wide range of readers. Chapters 3 to 7 in *Darwin's Gift* are dedicated to a careful explanation of the basic processes of evolution and natural selection, their application to human evolution, and the relevance of new understanding drawn from the study of molecular sequences of DNA and proteins. The incorporation of results from molecular biology is especially valuable to a general audience that rarely sees the intersection of genomics, bioinformatics, and evolutionary biology.

Ayala also includes a final chapter on the history and philosophy of science. While he acknowledges that it is not necessary for the arguments he makes earlier in his book, it is a welcome introduction to ideas of evidence, inference, and change in biology.

Darwin's Gift is an masterful addition to the popular literature on evolutionary biology. Ayala does not present an exhaustive survey of now familiar creationists' objections, nor should he. Instead, he offers in clear and lucid prose an

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interesting and incisive critique of design based on his rich understanding of both evolutionary biology and Christian theology. Although *Darwin's Gift* has few imperfections itself, its advice to embrace nature's imperfections and understand them through evolutionary biology is extremely compelling.

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IN THE BEGINNING: FUNDAMENTALISM, THE SCOPES TRIAL, AND THE MAKING OF THE ANTIEVOLUTION MOVEMENT

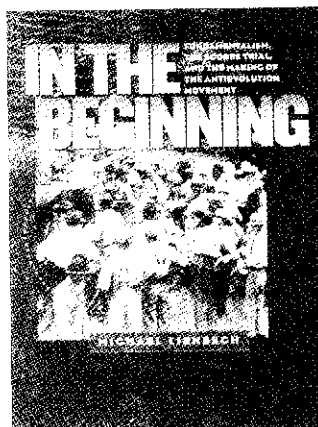
by Michael Lienesch
Chapel Hill (NC): University of
North Carolina Press, 2007.
338 pages

Reviewed by Kevin C Armitage

The May 20, 2007, issue of the *Cincinnati Enquirer* treated the opening of the so-called Creation Museum in Petersburg, Kentucky — just a short drive from Cincinnati — with coverage that can only be described as fawning. The front page featured a red banner that framed the museum opening as a courageous new entrant in the "Creation vs Evolution" debate, followed by a large, bold headline that posed the question, "Did Man Walk Among the Dinosaurs?" The coverage continued into the Forum section under the headline "What the Lord Has Made." The newspaper did not attempt to explain any of the basic scientific facts that contradict young-earth creationist claims.

The coverage by the *Enquirer*

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points to the fact that anti-evolutionists are funding and building institutions, institutions that clearly exert, as in the case of the *Enquirer*, influence over other establishments of civil society. In other words, anti-evolutionism is not just a rejection of science or a political ideology, but a powerful social movement with its own identity, organizations and framing of political issues. It is precisely the understanding of anti-evolutionism as an abiding and powerful political movement that political scientist Michael Lienesch explores in his excellent *In the Beginning*.

Lienesch accomplishes this task by applying social movement theory to understand the history of anti-evolutionism. Happily, he does so in a sophisticated yet jargon-free manner that should satisfy academic and lay readers alike.

Anti-evolutionism as a movement derives from a series of pamphlets titled *The Fundamentals*, published and distributed for free by millionaire oilman Lyman Stewart. These pamphlets not only articulated a fundamentalist reading of biblical texts, but helped their audience forge a common character, an identity — not simply an ideology — "that formed the fundamentalist foundation on which creationism would be built" (p. 9). That identity defined both Christian conservatives and their enemies, setting up the possibility that fundamentalists might be mobilized for political ends.

The mobilization was largely wrought by traveling lecturers — anti-evolutionists copied the Chautauqua circuit in this regard — who brought the fundamentalist message to both conservative and

mainline denominations. Yet Christians were divided by both social and ideological factors and many remained wary of engaging the secular world. The movement needed an issue that would unite its followers and compel them to political action. In other words, the fundamentalist movement needed to frame an issue to perpetuate itself. Evolution, of course, was that issue. What social movement theorists term "framing" is the manner in which activists diagnose a malady, propose solutions, and motivate followers to ameliorative action. It was the theory of evolution — and the teaching of the theory in both university and secondary schools — that, according to fundamentalists, accounted for the growing secularity of society. Furthermore, they argued that teachers were responsible for indoctrinating naïve students into this theory, thereby displacing traditional values of home and community. Evolution, then, summarized and organized an inchoate hostility toward modern life into a specific, tangible enemy.

Yet to reach beyond their base and influence the public sphere, movements must engage in a process of "frame alignment" — the continual redefinition of issues so that they resonate with new audiences. One successful example of anti-evolutionist frame alignment was to place the creation story at the center of Christian belief. To cast doubt on a literal reading of creation meant "casting doubt on the fall from innocence, which meant denying the doctrine of the atonement, which meant eliminating any promise of salvation" (p. 86). Thus not only did anti-evolutionists seize the center of Christian thought, but also cast doubt on theistic evolutionists. Controversy over teaching evolution in schools also provided a kind of built-in issue on which the anti-evolution movement could demand institutional change at the local, state and federal levels. And in "the Great Commoner" William Jennings Bryan, the movement found the perfect figure to help translate populist energy into tangible political gains. The state of Tennessee, for example, forbade



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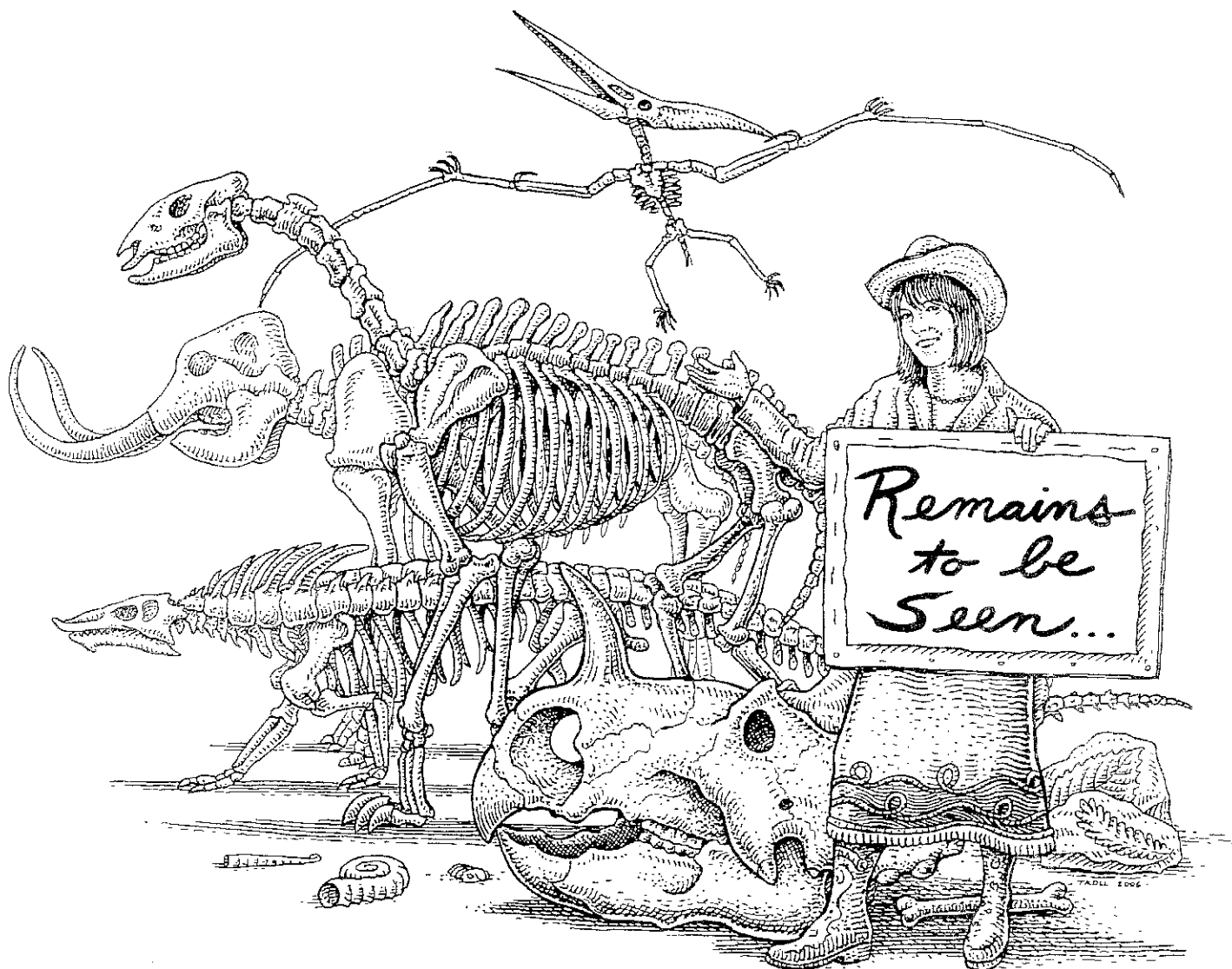
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