improvements in economies and quality of life. So, as we discuss science with the public and our patrons, we face an inherent dilemma: We must demonstrate science's utilitarian returns, but we know that science often thrives while advancing along circuitous pathways toward unpredictable destinations, propelled primarily by human curiosity. Dawkins gives us courage to articulate the latter view—and a means to bridge the gap between ourselves and the public—by showing us how to convey our sense of wonder, by using scientific reasoning to expose all-too-prevalent delusions such as astrology and misapplied statistics, and by providing a keen sense of scientific adventure.

Above all, Dawkins shows us how to discuss science by setting an absolutely admirable example. He informs, inspires, teaches, and challenges us. He helps us to draw out from science its poetry and its beauty. This beauty, observed the late Subrahmanyan Chandrasekhar, is "that to which the human mind responds at its deepest and most profound."

**References**

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BOOKS: EVOLUTION

# Going to Extremes in America

**Peter J. Bowler**

Ronald Numbers has written extensively on the subject of creationism in the United States (*1*), and the topic still looms over this more general study of reactions to Darwinism. Outsiders such as myself still find it hard to credit the hold that creationism has over American popular culture, although—as Numbers points out—it is also strong in Australia and in the Islamic world. This study offers no simple answers to the question of how the 20th-century reaction to Darwinism in America came to be dominated by creationism, but it does dispel many myths about the origin, development, and distribution of this extreme form of anti-evolutionism. It thus offers major new insights for our understanding of how America responded to Darwin.

**Darwinism Comes to America**
*by Ronald L. Numbers*

Harvard University Press, Cambridge, MA, 1998. 222 pp. $39.95. ISBN 0-674-19311-3. Paper, $18.95. ISBN 0-674-19312-1.

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Why should an Englishman resident in Northern Ireland be asked to review this book? One answer, perhaps, is that my province is the one part of the United Kingdom with a strong Protestant Fundamentalist movement (and we are still waiting to see if the violent legacy of our religious and social polarization can be put behind us for good). Another reason is that I have long been interested in the many forms of evolutionism that flourished before the modern synthesis of Darwinism and genetics (*2*).

In the late nineteenth century, "Darwinism" meant only evolutionism and few scientists or laypersons accepted natural selection as the driving force of change. Alternatives such as the Lamarckian theory of the inheritance of acquired characteristics gained great popularity. In the early chapters of this study, Numbers challenges our understanding of what both "evolutionism" and "creationism" meant at that time. It is virtually impossible to decide on an appropriate label for most scientists of that era, because many "Darwinians" denied the role of natural selection and still wanted to accept a divine intervention for the origin of humankind. Alternatives to selectionism abounded, although Numbers warns us that the so-called neo-Lamarckian school was never a coherent unit. On the opposite side of the disputes, the term "creationist" was not then in use and most of those who still believed in miraculous creation would not have accepted modern young-Earth creationism, in which Earth is only a few thousand years old. There is little evidence of any scientist undergoing a deep personal crisis on account of evolutionism.

The main outburst of religious anti-evolutionism did not begin until the 1920s, leading to the trial of John T. Scopes in 1925. Numbers successfully demolishes many of the myths surrounding this trial. It was neither the end nor the beginning of Fundamentalist opposition to evolution, which actually peaked a few years later. The South was not the locus of a particularly active anti-evolutionism; most southern states refused to pass legislation forbidding the teaching of evolution in public schools. William Jennings Bryan did not betray the movement by admitting that he accepted a great age for Earth because he had never been an advocate of the young-Earth doctrine. Numbers also shows how young-Earth creationism arose from the Seventh-Day Adventists' concern for biblical literalism, which generated the "flood geology" of John Whitcomb and Henry Morris (who claimed that the geological formations were all deposited in Noah's flood). His final chapter notes the less sympathetic attitude of the Holiness and Pentecostal traditions to young-earth creationism: although no friends to evolutionism, their emphasis on spiritual inspiration gives them less reason to adopt a literal interpretation of Genesis.

Despite the sophistication of his analysis of the 19th-century debate, Numbers account of the 20th century is dominated by the clash between modern Darwinists and Fundamentalists. Yet he admits at one point (p. 14) that probably 40% of Americans are theistic evolutionists, accepting evolution as the unfolding of a divine plan. Their views, he claims, have been drowned out by the cries of extremists on either side. But shouldn't a study such as this seek to rescue the voice of the middle ground from oblivion?

If we look to the other side of the Atlantic for comparison, we see a wide-ranging debate over the religious implications of evolutionism took place in Britain, especially within the Anglican Church. In the 1920s modernists such as Charles Raven and E. W. Barnes insisted that the Church must take evolutionism more seriously by rethinking the doctrines of the Fall and the Atonement. If humans evolved from apes, there was no original state of grace and the concept of Original Sin must be reinterpreted. Barnes attracted wide publicity by giving what were called "gorilla sermons" in Westminster Abbey. He also collaborated on eugenic projects with R. A. Fisher—a founder of the modern genetic theory of natural selection, who was also a lifelong Anglican. Raven later joined Julian Huxley in praising Teilhard De Chardin's mystical evolutionism.

Were there no equivalent episodes in America? Given the widespread use of Darwinian metaphors in social debates, it seems unlikely that the religious implications of evolutionism were not explored more fully by those who continued the 19th century's search for a compromise that would allow some elements of Darwinism to be incorporated into Christian belief. Is it possible that the polarization of American thought on this topic has concealed an equally interesting story of moderates seeking to reconcile modern science and traditional faith? If so, their story remains to be told.

**References**

1. R. L. Numbers, *The Creationists* (Knopf, New York, 1992).
2. P. J. Bowler, *The Eclipse of Darwinism: Anti-Darwinian Evolution Theories in the Decades Around 1900* (Johns Hopkins Univ. Press, Baltimore, MD, 1983); _____, *The Non-Darwinian Revolution: Reinterpreting a Historical Myth* (Johns Hopkins Univ. Press, Baltimore, MD, 1988).