

# Darwinism comes to America

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**R**onald L. Numbers, author of *Darwinism Comes to America* (Harvard University Press, 1998), got his B.A. in 1963 from the Southern Missionary College, now Southern Adventist University. He went on to earn his Masters from Florida State University in 1965, and took his Ph.D. in History of Science at the University of California at Berkeley. He has received numerous awards and recognitions in his field, including fellowship in the John Simon Guggenheim Memorial Foundation, the American Academy of Arts and Sciences, and membership in the International Academy of the History of Science. Having served as past presidents of both the American Society of Church History (1999) and the History of Science Society (2000-2001), Numbers has written or edited over 20 books and articles.

**I**n *Darwinism Comes to America*, Ronald Numbers investigates in great detail a number of specific issues concerning the support and rejection of the ideas of organic evolution, natural selection, and the various subsets of creationism. He tries very hard to make a fair analysis of stereotypes

that have been set by previous publications, including his own. In the first chapter, Numbers delves into a detailed analysis of the early responses to the publication of Darwin's *On the Origin of Species by Means of Natural Selection*, by looking at the individual responses of members of the National Academy of Sciences. In contrast to the commonly held belief that the publication of the *Origin* caused a drastic and far-reaching shift in beliefs, Numbers finds that the publication acted as more of a catalyst than the main cause in the shift from special creationism to organic evolution. He attributes the cause of this transition to the "nearly universal commitment to methodological naturalism" (Numbers, 48). Some statistical analysis is also presented, comparing birth order, social attitudes (including religious views), age, and social class in an effort to find a correlation between these attributes and the transition to organic evolution. He finds that the laterborns and younger members of the Academy were more likely to embrace Darwinism than firstborns and older members. Social class was not determined to be a statistically significant factor.

**I**n a very short Chapter 2, Numbers explores the various meanings and uses of the terms Creationism and 'Creationist'. He finds that around the time of the publication of the *Origin*, the term 'Creationist' was used quite generally by different people. Darwin himself used this word with the same meaning as we would today. Many of the figures we associate with the initial resistance to Darwin's ideas never called themselves creationists. Part of the trouble with categorizing the anti-evolutionists, Numbers explains, was

brought about by the variety of alternate views held. At the time of the *Origin's* publication, approximately half of the Christian public held “the traditional view that God had created the heaven and the earth in six literal days about 6,000 years ago.” (Numbers, 51) The remainder of Christians were approximately divided into two groups,

those who accommodated the findings of historical geology by interpreting the days of Genesis 1 to represent vast ages in the history of the earth (the day-age theory) and those who did so by separating a creation “in the beginning” from a much later Edenic creation in six twenty-four-hour days (the gap theory). (Numbers, 51)

From the anti-evolutionary side, the term “Creationist” did not appear until 1929, when Harold W. Clark, one of George McCready Price’s students, collected Price’s flood geology into a self-published book title “Back to Creationism.”

**O**n of the strongest stereotypes concerning the adoption of Darwinism held today is the notion that the Southern United States’ hostility to Darwinism was much greater than other regions of the country. Numbers takes great care to expose the truth of the situation. Unlike other scholar’s statements that the south was unscientific and backwards, Numbers asserts that “the South was far less uniform in its opposition to Darwinism than most scholarly accounts suggest.” (Numbers, 59) When discussing pre-*Origin* science in the South, he notes that “Numerous southerners in the years before

1859 openly pushed for reinterpreting Genesis in the light of modern geology — and apparently suffered few ill effects for their boldness.” (Numbers, 60) It seems that much of the resistance to the theory of evolution, which was associated with the North, started to rise in the period immediately before the Civil War. This seemed to come to a head with the transformation of James Woodrow, who was appointed to the Perkins Professorship of Natural Science at the Presbyterian Columbia Theological Seminary in South Carolina in 1861. In his inaugural address, he “affirmed his acceptance of the antiquity of Earth and allowed that the deluge might have been a local affair, but he left no doubt about his rejection of the plurality of the human races” (Numbers, 61). He continued with these beliefs until 1884, when, while reviewing the evidence of evolution for a speech to the alumni association, he became convinced that evolution was “probably true”. He presented these views to alumni and they were subsequently published in the *Southern Presbyterian Review*. A veritable storm of outrage erupted, eventually resulting in his dismissal from the university. Numbers is quick to point out that this dismissal should not lead readers to confirm the southern hostility to evolution. He explains that there was a sizable minority that was in favor of Woodward’s right to teach theistic evolution. Numbers concludes by reiterating that southern hostility to Darwinism was not as sizable nor as united as other historians have made it seem.

**T**he Scopes Monkey Trial is one of the most frequently mentioned items in the history of Darwinism in America. Numbers explains, “De-

spite a shelf of scholarly studies on Fundamentalism, anti-evolutionism, and Bryanism, the Scopes trial remains a grotesquely misunderstood event — largely the result, I think, of its ability to serve so many competing interest.” (Numbers, 76) Many traditional historians have classified the Scopes Trial as the beginning of the end of the anti-evolution movement, but Numbers explains that he has found no record of any of the pro-evolutionists declaring victory at the end of the trial. Even though the defense lost the trial, contemporaries have claimed small victories for the evolutionists, such as exposing the youth of Tennessee to the illegal theory of evolution. More importantly, Numbers continues, was that

Legislators might go on passing anti-evolution laws, and in the hinterlands the pious might still keep their religion locked in a science-proof compartment of their minds; but civilised opinion everywhere had regarded the Dayton trial with amazement and amusement, and the slow drift away from Fundamentalism certainly continued. (Numbers, 85)

The Fundamentalists, however, perceived the trial as a victory, with prosecutor William Jennings Bryan vowing to, “strike while the iron is hot,” and bring anti-evolution laws into other states. Unfortunately, Bryan died only five days after the end of the trial, depriving the Fundamentalist of their unofficial leader. Numbers continues to detail and document the events in the aftermath of the Scopes trial, including the trend for textbook publishers to remove or downplay the role of evolution in their books. Altogether, he

asserts, the Scopes trial did little to slow down the anti-evolution crusade, and may have even cast the evolutionists in a bad light, and contributed to the anti-scientific and anti-evolutionary image of the South. The largest effect of the Scopes trial, according to Numbers, is the creation of a number of legends, “about Bryan and Darrow, about Fundamentalism and modernism, about science and religion.” (Numbers, 91)

**I**n the final two chapters, Numbers researches the response to evolution of two religious groups, the Adventist group, and the Holiness and Pentecostal groups. A few trends are identified for each group. The Adventists, followers of visionary Ellen G. White, were one of the groups of Christians who steadfastly refused to allow any other interpretation of Genesis than the ultra-literalist, ‘Flood Geology’. They were not opposed to what they called “true science”, only “hypothetical science in conflict with revelation (Numbers, 95) The champion Adventist ‘scientist’ was George McCready Price, who attacked modern geology with a vengeance. He offered a thousand dollar reward to anybody who could prove that one fossil was older than another. He believed geology to be illogical and unreliable, especially with matters of such importance as the creation and history of the earth. Educated geologists did not take him seriously, as Price had no formal geological background. One of Price’s students, Harold W. Clark, replaced him as the professor of geology at the Adventists’ Pacific Union College. During his summer vacations, Clark decided to travel the country and obtain some experience doing real geological field work. Clark’s observations of the

glaciation effects in the mountains of the West and the order and logic of the rock strata in oil fields in Oklahoma quickly converted Clark's opinions away from the flood geology championed by Price. He returned to his teaching post, and soon began teaching that Price's book on geology was "entirely out of date and inadequate in its handling of its problems." (Numbers, 104)

**B**oth the Holiness and Pentecostal movements, formed around the turn of the 20th century, have shown a limited reaction to the spread of Darwinism and evolution in the United States. Most Pentecostals, comfortable in their ruin-and-restoration theory (gap-theory) of creation, did not see any reason to abandon their theory for the Fundamentalist's "creation science" of flood geology. The *Dake's Annotated Reference Bible*, which included the gap-theory explanation, was a very popular work among conservative Pentecostals, which helped contribute to their resistance to flood geology. Below the surface, however, the everyday Pentecostals appeared to be picking up the creation science calling, notably in unofficial church newsletters and bulletins. The Holiness churches, sometimes called Wesleyan-Holiness, were much more interested in and focused on their main task, of healing and evangelizing. When push came to shove, Wesleyan-Holiness members could be counted on to stand with the Fundamentalists on the issues of evolution, but they let others lead the battle. Holiness evangelist Andrew Johnson, after suspending his lecture series attacking evolution, reassured his community that,

the lectures on Evolution are absolutely secondary to the main

line work of intense, soul-saving evangelism to which we have been called and in which we expect to remain. (Numbers, 85)

In recent years, some believers have begun to accept the principles of evolution, but as it is of secondary concern to their religion, they have not been very vocal.

**H**aving written or edited over a half-dozen books<sup>1</sup> concerning evolution and religion in America, Numbers is certainly an expert in this field. As such, his books and essays often build off his other writings, both in the same book or in other collections. This observation leads into what I believe is one of the largest problems with this book. While the subject materials of all six chapters are all the changes observed in America as Darwinism was incorporated, there is little to no continuity between chapters. The book feels more like a grab bag of somewhat disconnected ideas; a sort of catch-all of his smaller research projects; or an update to his devoted readers since the publication of *The Creationists*. Instead of transitioning from one chapter to the next, the reader is abruptly jarred into a new story. This book feels less like a connected book by a single author, and more like a collection of essays from different authors, collected into the same book. Unfortunately, this discontinuity makes the book better suited for readers with experience in the history of Darwinism, but Numbers makes amends for this by writing

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<sup>1</sup>*Prophetess of Health: Ellen G. White, God and Nature: A History of the Encounter between Christianity and Science, The Creationists, Creationism in Twentieth-Century America: A Ten-Volume Anthology of Documents, Disseminating Darwinism: The Role of Place, Race, Religion, and Gender, When Science and Christianity Meet*



with a simpler style than many other writers. I explore this idea to greater lengths in the next section.

Continuity issues aside, Numbers has a number of advantages to his writing that appeal to the reader. He is direct and to the point about identifying his research goals and possible biases. He points out fallacies and problems in previous writing on these topics, and usually corrects or expands on these troubles in the work of others. In chapter one, Numbers points out that Bert James Loewenberg's 1933 article, *The Reaction of American Scientists to Darwinism*, only considered the opinions of three men, Louis Agassiz, Asa Gray, and James Dwight Dana, in determining American scientists' response to Darwinism. While subsequent writers have expanded the base of their research, Numbers notes,

we still lack a systematic, broad-based survey of changing scientific opinions in America. We do not have, for example, satisfactory answers to such basic questions as which American naturalists converted to organic evolution, when they did so, why they did so, what evolutionary mechanisms they embraced, and what psychological and theological consequences resulted from their encounters with evolution. (25)

True to his word, Numbers spends the rest of the chapter describing his investigation into the very specific details of American scientists' reactions. His seemingly informal style of speaking directly to the reader, a practice not seen in many academic books or articles, has the wonderful effect of

reassuring the reader that they aren't merely reading the sanitized opinions of one man, but they are actively participating in a conversation, with a caring mentor who takes the time to explain everything he is going to do. I believe these styles of writing show a greater concern for the reader, and an attempt to make the writing more accessible to readers outside of academia.

**O**n a similar note, Numbers has even acknowledged problems with his previous publications, and attempted to fix his own errors. There is a good example of this at the start of chapter two, where he muses that there has never been a comprehensive analysis into the past usage of the terms 'creationism' and 'creationist.' He admits, "Even I, in a 450-page book on the history of modern creationism, failed to address the issue of when these terms first came into use." (49) The rest of chapter two is an in-depth analysis of his research into the birth and subsequent adoption and modification of these terms. There is no better way to humble yourself to your readers than to admit error, and do an excellent job in correcting your previous error.

**N**umbers appears to enjoy correcting incorrect stereotypes or impressions from the past, as that is his concern in chapters three and four, where he sheds light on the true reactions to Darwinism in the American south in chapter three, and then brushes away the false knowledge most Americans have about the Scopes Trial in Dayton, Tennessee. In a convincing way, Numbers explains the current state of affairs and incorrect stereotypes, and continues on to present new facts and interpretations of the events. Often overlooked factors and issues are brought to light by way of explanation of

‘what really happened.’ You can almost hear Numbers claiming victory over other writers with statements such as, “Writers who describe the South as a bastion of anti-evolutionism typically neglect to mention that most southern legislatures refused to outlaw the teaching of evolution in the 1920’s.” (74) These sorts of statements excite the reader, and encourage them to read further. When clearing up the confusion surrounding the Scopes trial, Numbers starts with a strong and direct statement about the trial,

In this chapter I take a fresh look at the Scopes trial, focusing specifically on its representation (I am tempted to say misrepresentation) in popular and scholarly works. I would like to test some of the most widely held claims against the available evidence. Did the Scopes trial mark the end of the anti-evolution crusade? If not, how did this view come to enjoy such immense popularity? Did Bryan’s testimony at Dayton destroy his credibility and the plausibility of special creation? How did contemporaries—Fundamentalist and modernists alike—interpret the celebrated event? Finally, I would like to explore the creation of legends about the trial and the interests that they served.(78)

Statements like these are really what make this book shine. Numbers is clear, direct, and to the point. He explains exactly what he is going to investigate, and follows through with it.

**A**nother very useful feature of this book is the extensive notes that accompany the book. For each chapter, Numbers has written a short

summary of the source of the chapter's materials, whether it was a lecture given by the author, a paper prepared for a conference, or a previously published essay. Included after the summary are the customary footnotes citing sources for the material in the text. It appears that Numbers has added a large number of comments for many of the citations; more comments than other books I have read. The summary and sourcing information add much in the way of accountability and allow for further reading if so desired. In addition to the end notes, Numbers has added over 20 pages of biographies of the naturalists in the National Academy of Sciences that he considers in chapter one. These are based on a large number of sources, and lists each scientist's details for the following categories: Family, Education, Employment, Religion, Evolution, Publications. While these biographies will probably not be of much interest to the casual reader, historians of science, specifically of this time period or this subject matter, would be very excited by this documented and organized source of information.

Scott F. Gilbert's essay *Cellular Politics*<sup>2</sup> is a similar article that can be used for comparison with *Darwinism comes to America*. Gilbert's essay is an in-depth look at the politics between two groups of scientists concerning the split between embryology and genetics. This is similar to one of the main themes of Number's book, specifically the relations between both sides of the Darwinism debate. There is a great similarity between the two articles.

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<sup>2</sup>Gilbert, Scott F. (1986). Cellular Politics. In Rainger, Ronald, & Benson, Keith R., Maienschein, Jane (Eds.), *The American Development of Biology* (pp. 311-341), New Brunswick and London: Rutgers UP.

Gilbert's research into a few of the scientific leaders of the cellular politics reveals that the side on belonged to was often influenced by more than just scientific beliefs, such as political opinions, or socioeconomic standing. He explains how on one side of the issue were the "Cellular Federalists" associated with E. E. Just. They believed that the cytoplasm and the nucleus played a complementary role in cell development, where the cytoplasm's structures determined the cell's development, and the nucleus influenced this process by removing certain 'obstacles' from the cytoplasm. This was in contrast to the views of Richard Goldschmidt's believers in the "Nuclear Aristocracy", where the nucleus was in direct control of the cell's development. They believed the cytoplasmic structures played only a secondary role in cellular development. Gilbert notes that Goldschmidt viewed the nucleus as the king of the cell, a monarch, if you will. He says,

This view of the nobility of the nucleus was agreeable to Goldschmidt's view of both himself and science. Richard Goldschmidt strove for a noble life. He considered himself an aristocrat, a self-aware king in the scientific world of interbellum Germany. (Gilbert, 337)

We can see how these scientists' views of purely scientific topics were influenced by their perceived status in the world.

In chapter four of Number's book, *The Scopes Trial: History and Legend*, the various assumptions about the Scopes trial are investigated. In a similar fashion to Gilbert's essay on Cellular Politics, Numbers looks deeper

than surface-level to find relationships and motives in the individuals involved. He credits the 1960 film *Inherit the Wind* with spreading many of the fallacies we associate with the Trial. With Williams Jennings Bryan, for example, many historians have written that “his clumsy defense of the Bible severely undermined his credibility” (Numbers, 79) Taking the direct approach, Numbers has reprinted select portions of the original trial record, which indicates that Bryan was stuck between a rock and a hard place. His testimony indicates that he rejected the flood geologists’ 6000 year-old earth, but he allows for creation ‘days’ of indeterminate length, an important part of the day-age theory. Numbers reasons that his testimony could have been interpreted by the ‘creationists’ of the time as betraying their flood geology, while citizens in other parts of the country dismissed him as yet another creationist, thinking they were all the same. When the myths of the Scopes trial are removed, as Numbers clearly states in the chapter summary,

Because Bryan’s espousal of the day-age interpretation of Genesis 1 represented Fundamentalist orthodoxy at the time, he did not betray his cause while on the witness stand. He did not cave in under pressure from Darrow; he merely stated his long-held views. (Numbers, 91)

This shows how Bryan was not only interested in the science of creation/evolution, but his personal feelings and beliefs played a significant part of his testimony. He was true to himself and his religion. This is similar to the article

of Gilbert's, where non-scientific issues played a part in the motives and actions of the people involved.

Altogether, *Darwinism comes to America* will be more interesting to historians of science than the general public. There is no real conclusion to the book, but the introduction brings the argument to the present (1998), with a short discussion on "Darwinism, Creationism, and Intelligent Design" The disconnected, very specific chapters make this book targeted more towards academia than the public library, but Numbers does a commendable job in writing with an accessible style. He provides clear, precise statements of intent, and delivers on those promises. The sources for his research all appear to be reputable, and Numbers frequently references his own past writings. Having this much material to draw on is wonderful for further reading, but forces this book to feel like a companion to his larger collection. Numbers writes with a somewhat vindictive edge, pointing out areas of history that have been overlooked or possibly misrepresented in previous literature. Even his own previous works are not immune. When compared to other contemporary literature, Numbers' articles have similar methods and styles of historical research. The issues of Darwinism and Creationism will continue to be important in the future of America, so I would recommend this book to any individual interested in these topics.