



REPORTS OF THE

NATIONAL CENTER FOR SCIENCE EDUCATION

DEFENDING THE TEACHING OF EVOLUTION AND CLIMATE SCIENCE

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Photograph: William Silverman. Courtesy of the Smithsonian Institution, Acc. 10-042, William Silverman Photographs, 1925



Clarence S Darrow interrogating William Jennings Bryan, Scopes trial, Dayton, Tennessee, July 20, 1925.

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Ohio: Ohio's House Bill 597, introduced in the Ohio House of Representatives on July 28, 2014, would, if enacted, require the state's science standards to "prohibit political or religious interpretation of scientific facts in favor of another"—and a sponsor of the bill told a newspaper that it would allow local school districts to teach creationism alongside evolution and global warming denial alongside climate science.

Andy Thompson (R-District 95), who along with Matt Huffman (R-District 4) introduced HB 597, which is primarily aimed at repealing Common Core standards for English language and mathematics, told the *Cleveland Plain Dealer* (2014 Aug 19) that the clause in question (in the newspaper's words) "prevents teachers and schools from only presenting one side of a political and scientific debate—global warming, for example, without presenting the other side."

Asked whether the law would require "intelligent design" to be taught alongside evolution, Thompson explained, "I don't know that it needs to be treated on par, but districts will be able to choose based on their judgment." Asked whether faith-based beliefs belong in a science class, he demurred: "I'm not prescribing that to classes," Thompson said. "There's not one settled perspective they should be doing, to another perspective."

"The problem here," explained NCSE's executive director Ann Reid, "is that there simply isn't a debate within the scientific community over evolution or over climate change. Instead, there's a consensus, with the vast majority of scientists, of whatever political or religious inclinations, agreeing on the facts. By encouraging local school districts to misrepresent the overwhelming scientific consensus, HB 597 is a recipe for miseducation."

Thompson subsequently told the *Columbus Dispatch* (2014 Aug 20), "we want to provide them the flexibility to consider all perspectives, not just on matters of faith or how the Earth came into existence, but also global warming and other topics that are controversial." Patricia Princehouse, director of Case Western Reserve University's Program in Evolutionary Biology, replied, "It sounds exactly like the kind of things intelligent design and creationist promoters say."

According to the *Columbus Dispatch* (2014 Aug 19), HB 597 was assigned not to the House Education Committee, as might have been expected, but to the House Rules and Reference Committee, "which is run by top House GOP leaders and rarely hears bills." Huffman told the *Dispatch* that "he plans to hold six hearings over three weeks. The plan is to vote it out of committee to set up a full House vote soon after the November election."

The legal implications of the bill were immediately

apparent. NCSE's Glenn Branch told the *Cincinnati Enquirer* (2014 Aug 22), "It's a hugely bad idea. ... Some [local school districts] will be tempted to push the limits and teach creationism. If they do, they'll get sued over it." The *Cleveland Plain Dealer* warned (2014 Aug 22), "Count on a serious court battle if a few state legislators have their way and Intelligent Design and other religious interpretations of science are allowed to be taught in public schools."

Sara Clark and Hollie Reedy, lawyers for the Ohio School Boards Association, told the *Plain Dealer* that the language of the requirement was ambiguous. But if the requirement is understood as Thompson explained it, Reedy told the *Plain Dealer*, "Absolutely it's going to be challenged." And she predicted that the challenge will succeed, citing the decision in 2005's *Kitzmiller v Dover* case: "That case has been cited as the leading case on this, including by the Ohio Supreme Court."

Subsequently, the "political or religious interpretation" provision was removed from HB 597 by the House Rules and Reference Committee on September 4, 2014—only to be replaced by a provision requiring students to "review, in an objective manner, the scientific strengths and weaknesses of existing scientific theories in the standards." The same language is familiar from antiscience bills across the country, including Tennessee's "monkey law."

Also added to HB 597 was a similarly familiar provision—"Nothing in ... this section shall be construed to promote any religious or nonreligious doctrine, promote discrimination for or against a particular set of religious beliefs or nonbeliefs, or promote discrimination for or against religion or nonreligion"—which is apparently intended to immunize the bill from the charge that it would violate the First Amendment's Establishment Clause.

"If the sponsors of the bill are trying to reassure the public that they're not trying to open the classroom door to creationism, climate change denial, and pseudoscience of all kinds," commented NCSE's Glenn Branch, "they're not doing a good job." He added, "As a product of Ohio's public schools myself, I earnestly hope that the state legislature will not accept such a bill that would compromise the integrity of science education."

Subsequently, Branch told Ohio Public Radio (2014 Sep 8) that the "strengths and weaknesses" language in the new version of the bill is invariably selectively applied to evolution, climate change, and similarly socially—but not scientifically—controversial topics. "You're surely not going to see the scientific strengths and weaknesses of osmosis or photosynthesis being presented under the provision of the bill should it pass," he commented.

What are the prospects of HB 597? Huffman, a sponsor of the bill and chair of the Rules and Reference Committee, would not predict when the committee would vote on the bill, according to the *Columbus Dispatch* (2014 Sep 5). The Speaker of the House was not willing to predict whether the bill would receive a floor vote in the House, and Gerald Stebelton (R–District 77) predicted that there were not enough votes for it to pass.

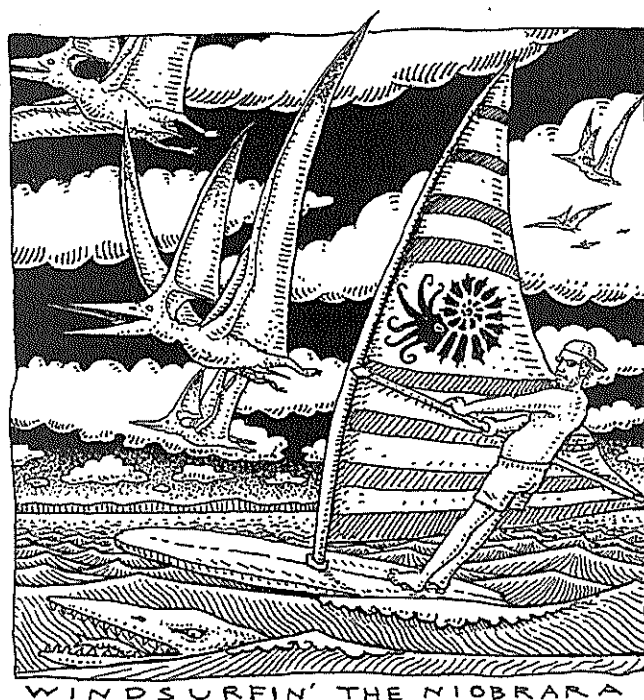
Oklahoma: Oklahoma’s new set of science standards were in peril in the late spring and early summer of 2014, owing to the objection of state legislators to their treatment of climate change. But ultimately, they were adopted without change.

The state board of education unanimously voted to adopt the new standards on March 25, 2014. The new Oklahoma Academic Standards for Science are the product of more than a year of work by a committee of more than sixty members, the state department of education’s director of science education Tiffany Neill told the *Oklahoman* (2014 Mar 26). The standards were widely regarded as a vast improvement on their predecessors, which received a grade of F in the Fordham Institute’s 2012 study of state science standards.

When House Joint Resolution 1099—a routine resolution approving or disapproving proposed permanent rules of Oklahoma state agencies—went to the House Administrative Rules and Government Insight Committee, however, the new standards were attacked. The attacks focused on the use of the Next Generation Science Standards as a resource and on the presentation of climate science in early grade levels, according to a May 13, 2014, post on the blog of the Oklahoma Science Teachers Association.

The committee amended HJR 1099 to reject the state department of education’s rules implementing the new standards. To derail the new set of science standards, the resolution would still have to be passed by the legislature. The Oklahoma House of Representatives passed HJR 1099 on a 55–31 vote on May 21, 2014. Part of the reason, the *Tulsa World* (2014 May 22) explained, was that “[s]ome legislators ... objected to language they said appeared to encourage an ‘agenda’ concerning climate change.”

The bill proceeded to the Senate Rules Committee, which showed no signs of wanting to consider it. Undeterred, opponents of the standards took their fight to the Senate floor, where Anthony Sykes (R–District 24) moved to amend the similar House Joint Resolution 1097 to include disapproval of the rules implementing the new standards, saying, “global warming is the main concern.” The amendment was accepted on a 25–14 vote, and the amended bill was then passed on a 32–9 vote.



HJR 1097, as amended by the Senate, then returned to the House, which, however, failed to consider it before the legislature’s sine die adjournment. On June 19, 2014, Oklahoma’s governor Mary Fallin approved the state’s adoption of the science standards, according to *US News & World Report* (2014 Jun 20).

South Carolina: A panel approved a proposed revision to the section on evolution in South Carolina’s new state science standards, according to *The State* (2014 Jul 29). If the revision is approved by the state board of education and the Education Oversight Committee (EOC), it will end the impasse over South Carolina’s state science standards that began with the EOC’s refusal in December 2013 to accept a standard covering evolution.

According to the panel’s agenda, the proposed revision adds a new standard and a related performance indicator as follows:

H.B.5D. Conceptual Understanding: Science is the systematic gathering of information through both direct and indirect observation, and the testing of this information by experimentation with the aim of developing concepts and formulation of laws and theories. Scientific conclusions are tested by experiment and observation, and evolution, as with any aspect of science, is continually open to and subject to experimental and observational testing.

Performance Indicator: Student who demonstrate [*sic*] this understanding can:

H.B.5D.1 Explain how scientists develop theories and laws by using deductive and inductive reasoning in situations where direct observation

and testing are possible and also by inference through experimental and observational testing of historical scientific claims. Students should understand assumptions scientists make in situations where direct evidence is limited and understand that all theories may change as new scientific information is obtained.

The language of the revision largely derives from the National Science Teachers Association's position statement on evolution.

Rob Dillon, president of South Carolinians for Science Education and a professor of biology at the College of Charleston, told *The State* that the language of the proposed revision is itself unobjectionable. But he expressed concern about the potential effect of singling out evolution for special treatment, saying, "I would hope that a science teacher at the high-school level would see that language and understand that it is general principles about the scientific method."

The panel, with members from the state board of education and the EOC, was convened after the last clash between the two bodies. As NCSE previously reported, in June 2014, the board rejected the EOC's proposal—backed by the Discovery Institute—to revise the standards to require students to "[c]onstruct scientific arguments that seem to support and scientific arguments that seem to discredit Darwinian natural selection."

Wyoming: The Wyoming Association of Churches endorsed the adoption of the Next Generation Science Standards (NGSS), according to the *Casper Star-Tribune* (2014 Jun 16). In a June 4, 2014, press release, the organization wrote that it "strongly supports the advancement of an education system founded upon 21st[-] century evidence-based science standards, like NGSS." Mary Walker, a Jackson representative of the Wyoming Association of Churches, told the newspaper that it is a right of parents and students to agree or disagree with what's being taught in classrooms, but it is not the state's or any one parent's right to restrict from children the opportunity to learn about evolution or other topics, like climate change. As NCSE previously reported, a footnote in Wyoming's budget for 2014–2016 precludes the use of state funds "for any review or adoption" of the NGSS, in part owing to their treatment of climate change.

National: "Political debates surrounding climate change and creationism are now making their way into America's schools, as more states are deciding whether to adopt or reject new common science standards "that put a greater emphasis on controversial topics like global warming and evolution," according to *US News and World Report* (2014 Jun 20).

Twelve states—California, Delaware, Kansas, Kentucky, Illinois, Maryland, Nevada, New Jersey, Oregon, Rhode Island, Vermont, and Washington—and the District of Columbia have already adopted the Next Generation Science Standards (NGSS). But, as the

story observes, "Critics of the standards have said they do not present the issue of human influence in global warming objectively and do not consider 'all sides' when discussing evolution."

In 2014, as NCSE previously reported, the Wyoming legislature blocked the adoption of the NGSS because of concerns about their treatment of climate science. Although Oklahoma's new state science standards are not identical to the NGSS, there were legislative efforts to block their adoption; these were ultimately unsuccessful, however, and the governor approved the new standards on June 19, 2014.

As for evolution, the story reports, "A group that opposes the NGSS also filed a lawsuit last September in Kansas—one of the states that has already adopted the science standards—claiming the standards promote atheism and are therefore unconstitutional for violating the separation of church and state." Documents from the ongoing case, *COPE et al v Kansas State Board of Education et al*, are available on NCSE's website.

Supporting the NGSS nationally are the American Federation of Teachers, the National Education Association, and the National Science Teachers Association. There is also widespread support for the standards at the state level. In Wyoming, for example, the Wyoming Association of Churches and a group of current and former educators at the University of Wyoming have both recently issued statements in their favor.

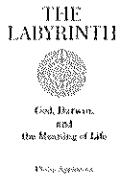
Bill Nye "The Science Guy," a member of NCSE's Advisory Council, told *US News and World Report* that the NGSS "are great, they're fine" as they stand. Having recently engaged in highly publicized debates over evolution and climate change, Nye described those who reject the NGSS on account of their treatments of those topics as "outside of the mainstream of scientific thought."

Israel: "Evolution will soon be a mandatory part of the middle-school science curriculum, after years of being an optional subject that most students were never taught," according to the Israeli newspaper *Haaretz* (2014 Jun 1). "Until now, evolution was taught in high school, and only as an optional part of the biology curriculum. Consequently, most students graduated without ever having been exposed to the theory."

A spokesperson for the Education Ministry told *Haaretz* that "we felt we hadn't given [proper] expression to a scientific theory accepted worldwide, which offers an explanation for developments and processes in our world. It's impossible to teach the curriculum without the theoretical scientific basis that explains these developments. ... Now, it will be in the curriculum, and also in the textbooks."

According to the *Times of Israel* (2014 Jun 1), however, human evolution will not be addressed "out of concern about potential criticism from the Orthodox and ultra-Orthodox populations in Israel." Hagai Netzer of Tel Aviv University, a member of the advisory committee responsible for the decision, was quoted as saying that

We regularly like to report on what our members are doing. As the following list shows, they—and we—have a lot to be proud about!



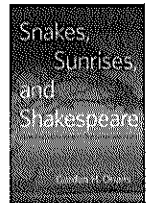
Philip Appleman's *The Labyrinth: God, Darwin, and the Meaning of Life* (New York: The Quantuck Lane Press, 2014) was published. The publisher writes, "Philip Appleman sagely and eloquently addresses the questions that humans have pondered for ages, putting them in the illuminating context of our evolutionary development and cultural history." Distinguished Professor Emeritus of English at Indiana University, Appleman is a recipient of NCSE's Friend of Darwin award.

Gordon H Orians's *Snakes, Sunrises, and Shakespeare: How Evolution Shapes Our Loves and Fears* (Chicago: University of Chicago Press, 2014) was published. The publisher writes:

In this ambitious and unusual work, evolutionary biologist Gordon H Orians explores the role of evolution in human responses to the environment, beginning with why we have emotions and ending with evolutionary approaches to aesthetics. By applying biological perspectives ranging from Darwin to current neuro-science to analyses of our

Glenn Branch is NCSE's deputy director.

aesthetic preferences for landscapes, sounds, smells, plants, and animals, *Snakes, Sunrises, and Shakespeare* transforms how we view our experience of the natural world and how we relate to each other.



Orians is Professor Emeritus of Biology at the University of Washington.

Writing in the *Lexington Herald-Leader* (2014 Aug 17), **Daniel Phelps** expressed concern about the prospect of Ark Encounter—a proposed theme park centering on Noah's Ark—receiving a tax incentive from Kentucky:

When Ark Encounter was originally approved for much larger tax incentives they were required not to discriminate in hiring....However, [t]he ad has specific religious requirements for employment. These include a salvation testimony, a "creation belief statement," and a requirement that applicants agree with the organization's "statement of faith." This required statement includes articles that imply that fundamentalist Christianity is the only acceptable religion and that denigrate non-Christians non-fundamentalist Christians, and homosexuals (regardless of their theological views).

Phelps is president of the Kentucky Paleontological Society and vice president of Kentuckians for Science Education.

the topic of human evolution is "a very sensitive subject in the state of Israel."

A 2006 survey in Israel found that "a minority of only 28% accepts the scientific theory of the evolution [sic], while the majority (59%) believes that man was created by god"; according to the 2000 International Social Survey Programme, a total of 54% of Israeli respondents described "Human beings developed from earlier species of animals" as definitely or probably true, placing Israel ahead of the United States (46%) for its public acceptance of evolution.

United Kingdom: The British government recently clarified and extended its ban on teaching creationism in academies, according to a June 18, 2014, press release from the British Humanist Association, which congratulated the government "on its robust stand on this issue."

Academies, including free schools, in Britain are similar to charter schools in the United States, and as with charter schools, there are concerns about whether creationism is taught in such institutions that are sponsored or operated by religious groups with creationist views.

As NCSE previously reported, in 2012, owing to pressure from the scientific establishment, the British government adopted a policy requiring free schools to "make provision for the teaching of evolution as a comprehensive, coherent, and extensively evidenced theory."

The policy applied only to free schools, however, not to all academies, and only to future free schools: according to the *Guardian* (2012 Nov 29), three free schools run by groups with openly creationist views were approved before the policy was adopted.

"Now the Government has extended such an explicit rule to all new Academies and Free Schools and made it clear that it believes that existing rules mean that no Academy or Free School can teach pseudoscience," BHA's Head of Public Affairs Pavan Dhaliwal explained in the press release.

Additionally, new model funding agreements for church academies require the parties to acknowledge the requirement to teach evolution and not to teach creationism, describing the latter as not according with the scientific consensus or established scientific evidence. ■

Donald Prothero contributed a review of the *Cosmos* reboot hosted by Neil deGrasse Tyson to *Skeptic* (2014;19[2]:63–64). “The new *Cosmos* is amazing!!!” he wrote, adding, “we need *Cosmos* now, more than ever. We need shows that inspire people (especially kids) to be fascinated by science and think about careers about science, so that Tyson can ‘pay it forward’ to them and pass Sagan’s mantle on to another generation” (emphasis in original). Prothero is the author of more than thirty books, including *Evolution: What the Fossils Say and Why it Matters* (New York: Columbia University Press, 2007).

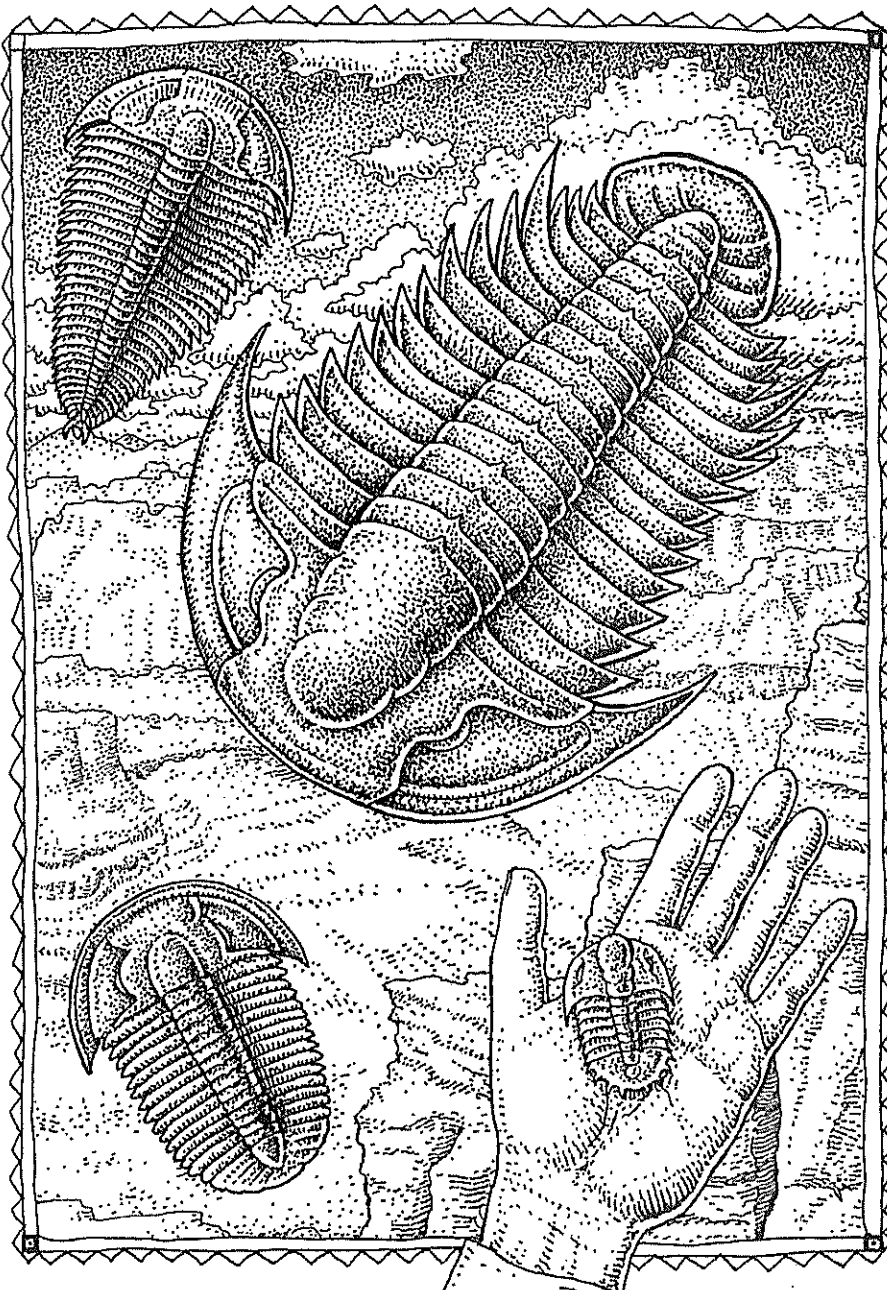
Michael Ruse was profiled in the *Tallahassee Democrat* (2014 Jun 26). “The issue that put Ruse on the map, as it were, is his unwavering defense of Darwinism and his opposition to teaching creationism in public

schools. He was one of the star witnesses (along with Stephen Jay Gould) in the 1981 landmark test case *McLean v Arkansas*, which resulted in that state’s creation science curriculum being declared unconstitutional,” the newspaper noted. Now, he explained, among his interests is “the global warming issue. I’m not a scientist per se, but I’m particularly interested in a lot of the rhetoric.” A member of NCSE’s Advisory Council, Ruse is the Lucyle T Werkmeister Professor of Philosophy at Florida State University.

The late **Stephen H Schneider** is to be inducted into the California Hall of Fame on October 1, 2014, according to a June 16, 2014, press release. Schneider and six others will join the eighty-one Californians previously inducted for exemplifying California’s spirit of innovation. Schneider, who died in 2010, was the Melvin and Joan Lane Professor for Interdisciplinary Environmental Studies at Stanford University and #26 in NCSE’s Project Steve.

Dave Thomas contributed a brief article castigating the Discovery Institute’s critique of the second episode of the *Cosmos* reboot to *Skeptical Inquirer*. (2014;38[4]:6–7). The critique claimed that the show’s host Neil deGrasse Tyson answered the question “If artificial selection can work such profound changes in only 10 to 15 thousand years, what can natural selection do operating over billions of years?” by saying, “anything,” and proceeded to criticize Tyson on that basis. Thomas writes, “The problem is that Tyson said nothing of the sort. Here’s what Tyson really said about what ‘natural selection can do operating over billions of years’: ‘The answer is: all the beauty and diversity of life.’”

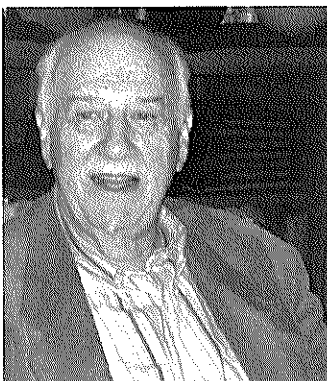
The critique was subsequently amended but not corrected to read: “The answer, Tyson tells us, is ‘all the beauty and diversity of life.’ In other words, Tyson wants you to believe that natural selection provides all the answers for everything since life arose.” Thomas comments that the critique’s author “had no time for actual comprehension of what was being said; he was far too busy looking for talking points.” Thomas is president of New Mexicans for Science and Reason and a recipient of NCSE’s Friend of Darwin Award.



JACK FRIEDMAN DIES

Jack Friedman, a past president of NCSE's board of directors, died on July 31, 2014, at the age of 88, according to *Newsday* (2014 Aug 2). As a master biology teacher, Friedman viewed the surge of antievolution activity in the 1970s with alarm, and consequently helped to mobilize concerned citizens in the New York City area—including Stephen Jay Gould and Niles Eldredge—to take the threat seriously. He served as president of the New York Council for Evolution Education, one of the first Committees of Correspondence that preceded the establishment of NCSE. Subsequently, Friedman helped to found NCSE in 1983, and served on its board for twenty-nine years (1983–2012), including five years as treasurer (1988–1992) and seven years as president (1983–1987 and 1993–1994).

Writing in *Newsday* (1995 Jul 14), Friedman explained, “Biology makes no sense unless we view it through the eyes of evolution ... Teaching creationism as if it were accepted scientifically deprives students of the most unifying principle of biology.” A good example of his profound commitment to the integrity of science education was featured in *Newsday* (2005 Nov 27), just after the Kansas state board of education's decision to adopt a set of state science



Photograph: Eugenie C Scott

standards that impugned the scientific status of evolution and just before the decision in *Kitzmiller v Dover*. Amid these controversies, Friedman, then 80, was busy “coaching middle school teachers on how to address the issue [of creationism] with their students.” He told the newspaper, “They didn't want to step on anybody's religion and have their parents come in and get them in trouble” even while they were complying with the state's expectation that evolution would be taught.

Friedman was born in Brooklyn, New York, on October 26, 1925. He served in the Army in World War II as a medic. Discharged with the Silver Star, the Bronze Star, and the Purple Heart, he attended Brooklyn College, graduating in 1950, and New York University, from which he earned a master's degree in biology in 1960. In the same year, he helped to write a BSCS high school biology textbook published in 1963. He taught at the Bronx High School of Science for five years and then at Syosset High School, where he founded the science department and chaired it for thirty years. After retiring, he taught biology at Hofstra University and for a decade at Nassau Community College, where he was honored as teacher of the year for 2003.

David R Vinson gave a TEDx talk on “Evolution and Religion: The Battle and Beyond” at San Jose State University on December 7, 2013. In his talk, he distinguished between combatants who “pit science against faith” and “combiners” who “appreciate the compatibility of evolution and religion.” Among the latter are supernaturalists who see evolution as God's tool of creation as well as naturalists who regard a study of religion's evolutionary roots as providing a lens on human cognition and behavior. A bibliography, and a link to a video of the presentation, are available from <http://medicine.drvinson.net/tedx>.

Marvalee Wake was awarded the Henry S Fitch Award for Excellence in Herpetology for 2014 by the American Society of Ichthyologists and Herpetologists (ASIH). According to the ASIH, “[t]he prize is awarded to an individual for long-term excellence in the study of amphibian and/or reptile biology, based principally on the quality of the awardee's research; consideration is also given to educational and service impacts of the individual's career.” Wake, a member of NCSE's Advisory Council, is Professor of Integrative Biology at the University of California, Berkeley.

Wade B Worthen, prompted by a legislator's attempt to derail the adoption of South Carolina's new state science standards based on an objection to natural selection, contributed a guest column to the *Greenville News* (2014 Jul 11). Worthen wrote,

[Representative Mike] Fair doesn't believe in evolution. He has heard of it, he has seen pictures of intermediate fossils like *Archeopteryx*, and he knows that scientists accept that evolution occurs. He even knows that many other people are using the process of natural selection to do useful things...In fact, Fair probably gets a flu shot and eats food produced by the process of selection. But to protect students from the knowledge that evolution occurs, he must protect them from understanding the cause: natural selection. Fair does not want to present “alternatives” in the service of education, he wants to present alternatives to sow confusion. This is the ultimate disservice to our children.

A lifetime member of NCSE, Worthen is professor of biology at Furman University. ■

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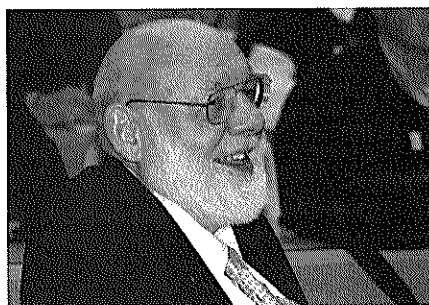
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WALTER GEHRING DIES

The eminent biologist Walter Gehring died on May 29, 2014, at the age of 75, according to the Biozentrum at the University of Basel. His scientific work concentrated on the fruit fly *Drosophila* and the genetic control of its development. He and his colleagues are credited with discovering homeobox genes—which regulate the expression of DNA in development—and identifying the master control genes for the development and evolution of the eyes. Two future Nobel laureates, Christiane Nüsslein-Volhard and Eric Wieschaus, worked in his laboratory. His 1993 Terry Lectures at Yale University were published as *Master Control Genes in Development and Evolution: The Homeobox Story* (Yale University Press, 1998).

Interviewed by the University of Barcelona, from which he received an honorary degree in 2010, Gehring was asked, "Relative to the resurgence of old theories such as intelligent design and creationism. Does the scientist have the responsibility to try to avoid this resurgence?" He replied, "Yes, I think we are always trapped. We are thinking in human terms, we are humans, so we think in human terms. We think that nature was constructed by a human engineer or a human being or a perfect God similar to a human being," and proceeded to describe in detail a case where he assumed, wrongly, that a biological pattern was generated in a way



Photograph: ABiozentrum, University of Basel

that a human engineer would have produced it. In the same interview, he approvingly cited Theodosius Dobzhansky's dictum that nothing makes sense in biology except in the light of evolution. Asked about the compatibility of evolution and religious belief, he expressed agnosticism: "I personally don't [believe] in a personal God that is like a human being. I told you evolution shows that it's not a human engineer sitting in the sky on a cloud who designs life, but life has generated by itself and this doesn't mean that there is a divine superior kind of being behind nature. We couldn't possibly grasp that. I'm trying to find out how nature works, and if there is something else behind nature it is difficult to say."

Gehring was born in Zurich, Switzerland, on March 30, 1939. He received his PhD in zoology from the University of Zurich in 1965, and then went to Yale University, first as a post-doctoral researcher and then as a faculty member. In 1972, he returned to Switzerland, where he was Professor of Genetics and Developmental Biology at the Biozentrum at the University of Basel until his retirement. He was a foreign member of the National Academy of Sciences and the Royal Society of London. Among his honors were the Jeantet Prize for Medicine (1987), the March of Dimes Prize in Developmental Biology (1997), the Kyoto Prize for Basic Science (2000), and the Balzan Prize for Developmental Biology (2002).

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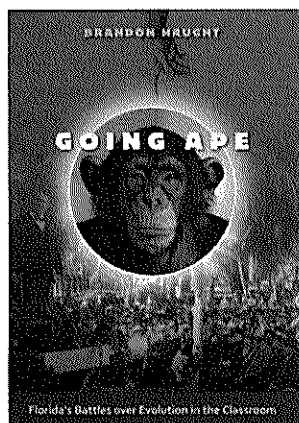
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Evolution in the Sunshine State: Brandon Haught's *Going Ape* William D Anderson Jr

Brandon Haught's *Going Ape* (2014) has disabused me of any lingering ideas I may have held that the crusade of antievolutionists has geographical limitations. Instead that crusade is more like that of a band of thugs looking for targets of opportunity, and unfortunately, they are ubiquitous.

Haught has produced a very well-researched, well-written book on the history of the conflict between reason and demagoguery as it relates to evolution in the curriculum of public schools in Florida. It began in 1927; an anti-evolution bill was introduced into the Florida House of Representatives but never became law. For the next 30 years the conflict was largely ignored, but things changed in 1957 when the Soviets launched their satellite *Sputnik* into orbit. In 1958, Congress passed the National Defense Education Act, providing money to improve the quality of education in science, mathematics, and foreign languages. With support from the National Science Foundation, the American Institute of Biological Sciences created the Biological Sciences Curriculum Study (BSCS).

Materials produced by BSCS were considered in almost every state. In Dade County, Florida, the school board enthusiastically supported BSCS, an attitude challenged in 1962 when an irate parent called the BSCS books "un-American, atheistic, subversive and communistic" (page 27). That parent threatened to take one of his son's former teachers to court, but no attorney was willing to take the case. In the 1970s, bills were introduced into the Florida legislature to require schools to teach both evolution and the Biblical account of creation (or scientific creationism), but the bills received little support and went nowhere.

In 2001, Kent Hovind opened Dinosaur Adventure Land in his Pensacola backyard to promote young-earth creationist beliefs and the idea that humans and dinosaurs had been contemporaries. In 1988, Tom DeRosa founded the Creation Studies Institute, which runs the Creation Discovery Museum in Fort Lauderdale. DeRosa conducts "Ice Age Fossil Adventure" trips on the Peace River near Arcadia teaching participants "how to collect and interpret Florida fossils using a biblical framework" (page 137).

Haught spends considerable time discussing Florida's science standards. The Thomas B Fordham Institute, which reviews and grades US public school systems, reported in March 1998 that the science standards in Florida were "seriously flawed" earning them, along with eight other states, an F grade. The Institute issued another

report in 2000 with a narrowed focus to just the subject of evolution. The account from the Institute stated that, "Twelve states fail so thoroughly to teach evolution as to render their standards totally useless" (page 151). Florida was on the ugly list, bringing it another F.

In 2008, new science standards were approved and received mixed reviews. Some reputable organizations were pleased with the new standards, but Paul Gross, who reviewed the standards for the Fordham Institute, was more critical. The Fordham Institute's 2012 grade for the standards was initially a D, but under pressure from a complaining Florida school board member, it was upped to a C.

Questions that immediately come to mind when considering science standards are: Given the best standards possible, to what degree will teachers follow them? Are teachers knowledgeable enough to teach evolution adequately? A 2010 survey in Florida's schools suggests not. It found that "only 72 percent of the teachers agreed that evolution is a central organizing principle of biology" (page 225). This finding might help explain how in late 2011, Answers in Genesis drew a crowd of 900 at a conference in Fleming Island, Florida. The gathering included a speaker who "lectured that dinosaurs and humans lived together and that dinosaurs could have been on Noah's ark" (page 228). (I'll bet the ark was hell to keep clean.)

Going Ape puts the nationwide exploits of the antievolutionists in perspective and is enjoyable to read. Haught closes his narrative, "It's a certainty that someone's passions will spark the next battle. My fingers are hovering over the keyboard, ready to chronicle it. I doubt I have long to wait" (page 234).

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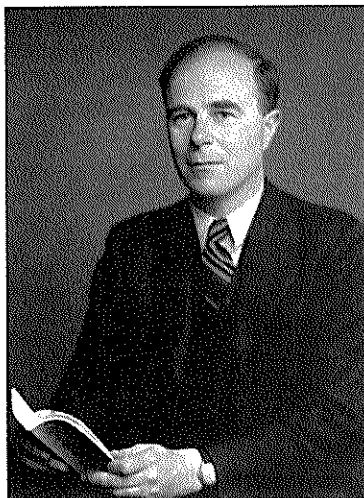
William D Anderson Jr's major interests are in systematic ichthyology and the history of biology. He has published many papers on fishes and a number on the history of biology, including "Andrew C Moore's 'Evolution Once More': The evolution-creationism controversy from an early 1920s perspective" (Bulletin of the Alabama Museum of Natural History 2002;22:i-iv,1-35).

Summary of *RNCSE* 2014;34(5):1.1-1.5; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/321/557>



David Lack (1910–1973)

Randy Moore



David Lack. © Godfrey Argent Studio; courtesy of the Royal Society, IM/GA/WS/4105.

David Lambert Lack was born on July 16, 1910, in London, and in 1936 earned a degree in natural history from Cambridge. He taught school for most of the 1930s, and in 1935 visited the United States, where he met biologist Ernst Mayr at the American Museum of Natural History. Three years later, Lack—at the request of Julian Huxley, the grandson of “Darwin’s Bulldog” Thomas Huxley—took a year off from teaching to go to the Galápagos Islands to study birds for an entire breeding season. While at the Galápagos, Lack witnessed natural selection at work among the islands’ finches. He then returned to New York and spent the next year writing a report of the expedition. Mayr was Lack’s roommate.

From 1940 to 1945, Lack served in the British Army, where he helped to develop the radar program. Lack later used this experience to study patterns of bird migration. In 1943, Lack published *The Life of the Robin*, a popular book that garnered much publicity. Two years later, he became director of the Edward Grey Institute of Field Ornithology at Oxford, a position he held until 1973.

In 1945, Lack had argued that differences in bill-size among Galápagos finches were not adaptations for different diets, but rather adaptations for intraspecies identification. However, two years later—as a result of theoretical insights rather than field observations, new measurements of finch-beaks, or another visit to Galápagos—Lack changed his views. Indeed, in 1947, Lack published his classic *Darwin’s Finches* (Lack 1947), arguing that finches’ beaks are adaptations to dietary niches. Although Charles Darwin had mentioned Galápagos mockingbirds (but not finches) in *On the Origin of Species*, Lack’s book made Darwin’s name synonymous with Galápagos finches.

Soon thereafter, textbooks began including the finches as evidence for Darwin’s theory, and the finches became an icon of evolution. After reading Lack’s book, evolutionary biologist EO Wilson proclaimed that Darwin’s finches “shout the truth of evolution.” Following Lack’s lead, ornithologists such as Peter Grant and Rosemary Grant, have flocked to the Galápagos ever since. Lack’s *Darwin’s Finches* remains a monumental book in the history of evolutionary biology.

In 1951, Lack was made a fellow of the Royal Society. In subsequent years, he published a variety of books (for example, *Evolutionary Theory and Christian Belief* in 1957 after his conversion from agnosticism to Anglicanism, and *Population Studies of Birds* in 1966) and won several prestigious awards, including the Darwin Medal of the Royal Society. Unperturbed that a benevolent deity could reign over nature’s struggle for existence, Lack claimed that humans are unqualified to judge whether nature is evil, or contrary to divine plan.

Lack died on March 12, 1973, in Oxford, England.

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Randy Moore is the HT-Moore–Alumni Distinguished Professor of Biology at the University of Minnesota. His latest book (with Seboya Cotner) is *Understanding Galápagos: What You’ll See and What It Means* (New York: McGraw-Hill, 2013). People & Places of Evolution is his regular column in RNCSE.

Summary of RNCSE 2014;34(5):2.1–2.3; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/320/558>

Programming College Students with “Intelligent Design” Ideology

Gregory Sandstrom

This report presents a critical view of “Intelligent Design” as seen from inside the Discovery Institute’s walls. I attended the Discovery Institute’s summer program “Intelligent Design in Social Sciences and Humanities” (IDSSH), held in Seattle, Washington, from July 11 to July 20, 2008. Nothing contained in this report is in violation of any confidentiality agreement nor did I sign anything at the Discovery Institute that restricts me from publishing it.

When I applied for and was accepted to the IDSSH, I had already rejected “Intelligent Design” as a theory. I wanted to attend the IDSSH to do some undercover ethnography during my graduate studies. I had no intention of supporting, embracing, promoting, or contributing positively to “Intelligent Design” as the Discovery Institute conceives of it.

More than six years have passed since, and for the first time, I’m sharing my thoughts about it, in part to supplement my recently published book *Human Extension* (Sandstrom 2014) and also to tell the story while it is still relevant. My conclusion is that “Intelligent Design” is a well-constructed, religiously veiled, double entendre promoted by a neo-creationist, politically invested organization that is carefully crafted to appear as a revolutionary, game-changing, eventually Nobel-prize-winning, strictly natural scientific theory.

In Seattle, I saw firsthand that the leaders of the “Intelligent Design” movement fashion themselves as intellectual revolutionaries who are bravely leading young people with their protests for “academic freedom,” post-Darwinism, and a supposedly new natural scientific vision. This attitude is summed up in an advertisement for the summer programs: “This free study program is the open door for students who want to join the new scientific revolution” (Smith 2011). Luskin likewise gushes about the “up-and-coming young scientists” who “have graduated from the program with a deep understanding of ID’s bright scientific prospects” (Luskin 2011). The Discovery Institute’s goal is thus to use “Intelligent Design” to strike back against the scourges of non-religious or anti-religious ideology, “New Atheism,” secularism, (neo-) Darwinism, materialism and “methodological naturalism” in the United States.

In my view, the Discovery Institute should drop the pretense that “Intelligent Design” is a strictly scientific theory and embrace the reality that its supposed philosophical and worldview implications are intimately and unavoidably tied together with what it seeks to

establish: a meaningful, divinely created universe. Doing so, though it would properly acknowledge and show respect to theists who accept “design arguments” but reject “Intelligent Design,” would nevertheless contradict the Discovery Institute’s current claim that it is promoting only science, not theology or religion.

All things considered, I am grateful to the people at the Discovery Institute for footing the bill for the event and for feeding my curiosities about “Intelligent Design.” The experience of the summer program was fruitful in that I was seeking to understand what they were presenting as “Intelligent Design in Social Sciences and Humanities.” My conclusion was and remains simply that there is not and never was such a thing.

As a whole, the Discovery Institute did not seem as ignorant, distasteful, or diabolically theocratic as some of the dyed-in-the-wool opponents of “Intelligent Design” and the “Intelligent Design” movement seem to think it is. But it did not seem as prophetic, courageous, rhetorically pure, or politically innocent as it would like to be, either.

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Summary of *RNCSE* 2014;34(5):3.1–3.11; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/322/571>

How to Determine Earth's Age: A Small Clarification and a Big Lesson for *The New York Times*

David Seidemann

I can foresee a day when a proponent of young-earth creationism says, "The 4.5-billion-year age of Earth can't be trusted because it isn't based on analysis of any material from Earth itself." And that argument could be supported using information reported in *The New York Times*, a respected authority with the power to move public opinion.

The *Times* said that the age of Earth (4.54 billion years) was "based on the radiometric dating of meteorites" (Wade 2012). The paper's statement is misleading because isotopic data for both Earth and meteorites were essential to the study that determined Earth's age.

I detailed my objection to the *Times* and requested that it clarify the record. Its staff decided against doing so, concluding it was not wrong to state that Earth's age "is based on radiometric dating of meteorites." (2012 Dec 19 e-mail from Z Johnk of *The New York Times* to me).

Was the *Times's* assertion about dating Earth wrong? That's arguable, because the age was *partly* based on meteorite dating. But the paper's assertion is certainly misleading. Further, its refusal to publish a clarification was particularly surprising because that could have been done by adding just three words: Earth's age was based on radiometric data from meteorites *and from Earth*.

Now there were two issues that concerned me: a misleading explanation for determining Earth's age remained on the record for creationists to misuse, and an authoritative paper had refused to change it.

The following year, history repeated itself. This time, there were clear errors in a *Times* article about the origin of gold on Earth. The paper reported that Earth's gold formed in ancient stars during their collision 4.5 billion years ago, and that it was still anybody's guess how that element (and other metals) arrived on Earth (Quenqua 2013). Both those claims are wrong.

The paper's first claim cannot be true. Considerable time must have elapsed between the time stars collided and formed gold to when the gold accumulated on Earth. Because Earth formed 4.5 billion years ago, the stellar collisions from which gold was created must have occurred well before then, not simultaneously as the *Times* had asserted. As for the second claim, there has been a consensus in the scientific community for decades about the creation of elements in stars, the mechanisms by which they are distributed, and how they accumulated

to form Earth and other bodies of the Solar System.

As before, I requested that the *Times* publish a correction. This time, although it initially refused, it did eventually relent on the first error, acknowledging that Earth's gold was formed in stars well before Earth formed. However, the paper refused to retract the statement that it was "still anybody's guess" how gold arrived on Earth, although it admitted that characterization may have been too flip (2014 Jan 8 e-mail from S Graham of *The New York Times* to me).

Why was the paper so reluctant to correct obvious errors? Does my experience reflect a systematic problem at the *Times*? An observation by the newspaper's Public Editor in a 2013 article in that paper suggests that the answer to the second question is yes.

Although the Public Editor stated that the *Times* usually corrects factual errors quickly, she identified traits in the paper's staff that I believe explain their resistance to correcting or clarifying the items I cited: "[the paper] is not quick to admit ... that a decision needs to be reconsidered; when questioned, some of its journalists shift reflexively into a defensive crouch"; "openness and the desire to seek improvement seems like the exception to the rule" (Sullivan 2013).

It's human to resist admitting errors, but to do so is antithetical to both good journalism and good science, two fields that share a common goal: get as close to the truth as possible. Achieving that goal becomes more difficult, however, in an entrenched culture in which openness to other views is an exception. The *Times's* staff would do well to adopt the philosophy instilled in me by my mentor, the renowned geochemist Karl Turekian: Confessed ignorance and habitual reevaluation, (the norm in Turekian's group and probably other premier research labs), are, ironically, the quickest path to truth.

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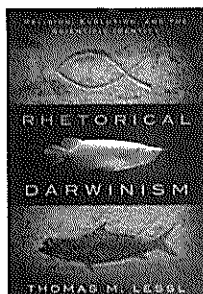
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Summary of RNCSE 2014; 34(5):4.1-4.4; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/313/569>

SUMMARIES OF BOOK REVIEWS



Rhetorical Darwinism: Religion, Evolution, and the Scientific Identity by Thomas M. Lessl (Waco [TX]: Baylor University Press, 2012; 322 pages). Lessl's book is both "a careful historical study of the relationship between science and religion from

the sixteenth to the nineteenth century, and ... a biting critique of the vaulting ambition of contemporary supporters of evolutionary science who fail to respect the division between technical and public spheres as they grasp at a moral and political authority they do not legitimately hold," writes reviewer **Leah Ceccarelli**, who found the former part of the project more impressive than the latter.

Summary of *RNCSE* 2014;34(5):5.1–5.3; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/252/562>



Enquête sur les Créationnistes: Réseaux, Stratégies et Objectifs Politiques by Cyrille Baudouin and Olivier Brosseau (Paris: Belin, 2013; 336 pages). "Cyrille Baudouin and Olivier Brosseau dissect the creationist problem in France and some nearby countries," explains reviewer **Kevin Padian**. "They find some similarities to the American

problem, including the direct importation of some American creationist views to Europe. And they also find differences that reflect indigenously European cultural, political, and social influences. ... This book ... will repay your time for the insight it gives into how the French intellectual community parses an issue that in many ways is treated quite differently than in America."

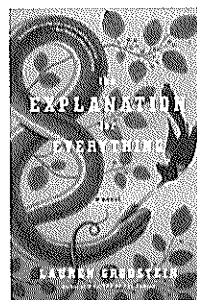
Summary of *RNCSE* 2014;34(5):6.1–6.2; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/292/566>



Evoluzionismo: Il Tramonto di una Ipotesi edited by Robert de Mattei (Sienna: Edizioni Cantagalli SRL and Consiglio Nazionale delle Ricerche, 2009; 258 pages). *Evoluzionismo* is a creationist anthology in Italian, issued for the Darwin anniversaries in 2009. "Readers not specializing in the theory of biological evolution or

in the fossil record of humans can be deceived by the contents of this book and its academic appearance," writes reviewer **Carlos A Quintana**, who warns, "Yet this work should not be underestimated since it shows that 'scientific creationism' can influence the prominent levels of science in a central country of the European Union."

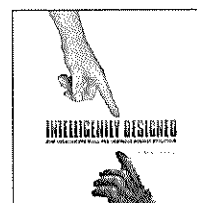
Summary of *RNCSE* 2014;34(5):7.1–7.4; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/271/555>



The Explanation for Everything by Lauren Grodstein (Chapel Hill [NC]: Algonquin Books of Chapel Hill, 2013; 338 pages). What is the underlying message of Lauren Grodstein's "compelling and engrossing work of fiction," wonders reviewer **Laurel Saiz**: "Anti-creationist screed? A fundamentalist Christian Trojan horse disguised as a book exploring concepts about

evolution? My guess [is that it is:] ... Having a belief in a higher order is nice and might be comforting. Science and Darwin's theory of natural selection can answer a lot of truly profound questions, but at the end of the day, they can't help you develop sound romantic or family relationships."

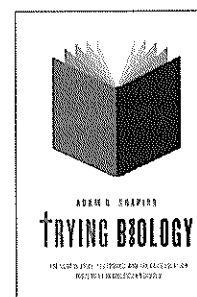
Summary of *RNCSE* 2014;34(5):8.1–8.4; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/295/567>



Intelligently Designed: How Creationists Built the Campaign against Evolution by Edward Caudill (Champaign [IL]: University of Illinois Press, 2013; 216 pages). Reviewer **Adam R Shapiro** explains, "The book's introduction promises 'a history of how creationism

won so many converts.' What follows is a detailed synthesis of organized creationism that says little about the converts themselves. Ultimately, this top-down view of cultural change may be one that activist organizations (on both sides) subscribe to, self-servingly, but serious cultural historians would question the presumption that cultural reform comes from on high in this way." But he suggests that it would be useful as a text.

Summary of *RNCSE* 2014;34(5):9.1–9.3; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/311/568>



Trying Biology: The Scopes Trial, Textbooks, and the Antievolution Movement in American Schools by Adam R. Shapiro (Chicago: University of Chicago Press, 2013; 193 pages). "Any student of the evolution controversy in America will profit greatly from [Shapiro's] discussion of the central role played by those involved with the

publication and marketing of biology textbooks during the early twentieth century," writes reviewer **George E Webb**. "But the equally important role of religious views associated with Protestant Fundamentalism must not be overlooked in crafting a convincing narrative to explain America's continuing difficulties with the teaching of evolution in the public schools."

Summary of *RNCSE* 2014;34(5):10.1–10.3; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/245/506>

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