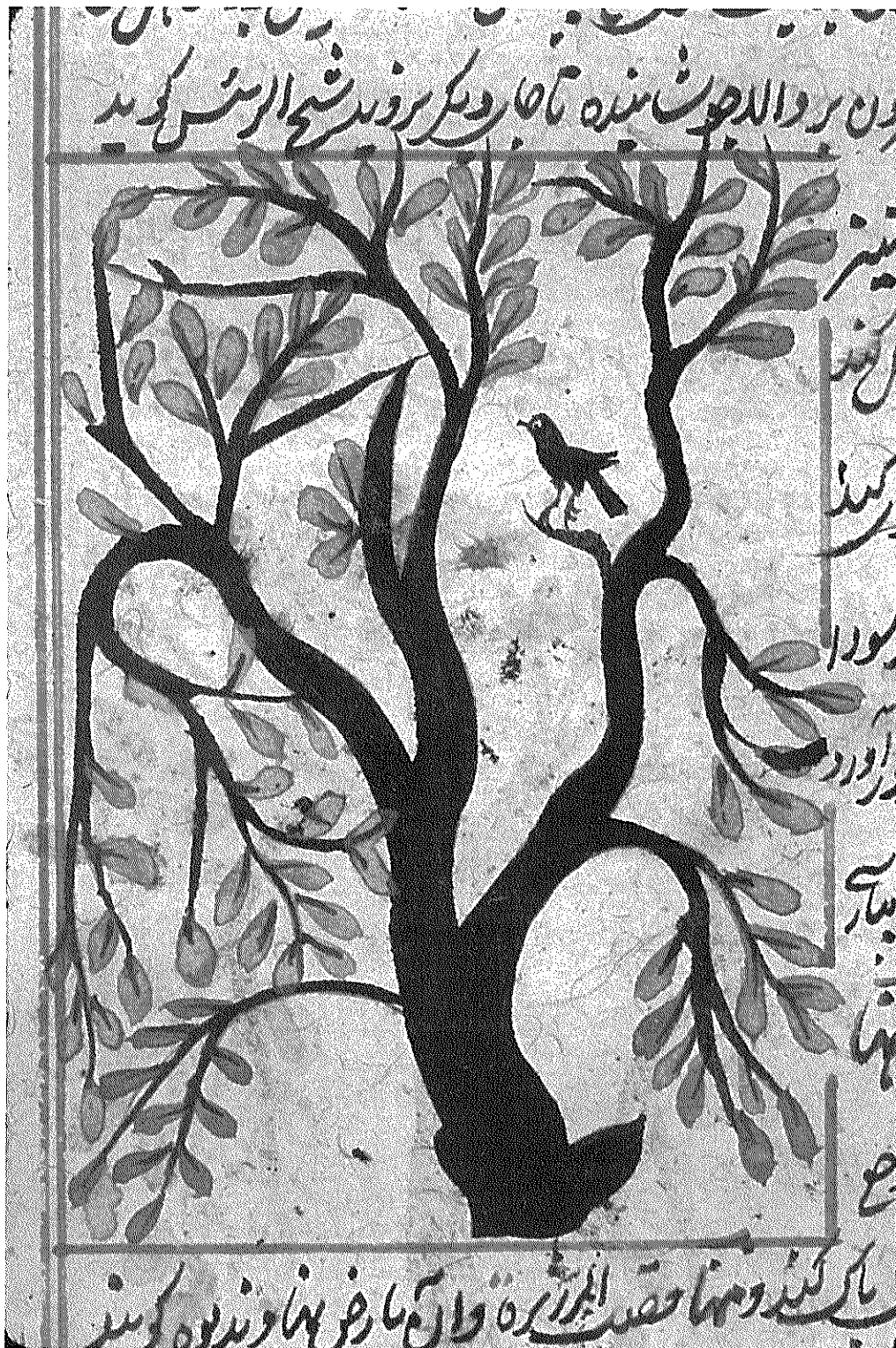


# REPORTS OF THE NATIONAL CENTER FOR SCIENCE EDUCATION

DEFENDING THE TEACHING OF EVOLUTION AND CLIMATE SCIENCE

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A small bird perched in a tree, from 'Ajā'ib al-makhlūqāt wa-gharā'ib al-mawjūdāt (*Marvels of Things Created and Miraculous Aspects of Things Existing*) by Zakariyā' ibn Muḥammad al-Qazwīnī. The copy was made in 1537, probably in western India. Neither the copyist nor illustrator is named. MS P 1, fol 164a. from *Islamic Medical Manuscripts* at the National Library of Medicine.

# UPDATES

## News from the Field

Controversies over evolution and climate science always seem to be happening somewhere. Here is a sampling of recent news.

**Kansas:** A federal court dismissed a creationist lawsuit seeking to prevent Kansas from adopting the Next Generation Science Standards (NGSS) on the grounds that doing so would “establish and endorse a non-theistic religious worldview.” In a December 2, 2014, order in *COPE et al v Kansas State Board of Education et al*, Judge Daniel D Crabtree of the United States District Court for the District of Kansas granted the defendants’ motion to dismiss the case.

The complaint contended that the NGSS “seek to cause students to embrace a non-theistic Worldview ... by leading very young children to ask ultimate questions about the cause and nature of life and the universe ... and then using a variety of deceptive devices and methods that will lead them to answer the questions with only materialistic/atheistic explanations.” Both the Big Bang and evolution were emphasized as problematic.

Judge Crabtree’s decision did not address the content of the complaint, instead finding that the Kansas state board of education and the Kansas state department of education enjoyed Eleventh Amendment sovereign immunity against the suit and that the plaintiffs lacked

standing to assert any of their claims, failing to establish any of the three relevant requirements for standing: injury, causation, and addressability.

As NCSE previously reported, the lead plaintiff, COPE (Citizens for Objective Public Education), is a new creationist organization, founded in 2012, but its leaders and attorneys include people familiar from previous attacks on evolution education across the country, such as John H Calvert of the Intelligent Design Network. The Kansas board of education voted to adopt the NGSS in June 2013, and the lawsuit in effect attempted to undo the decision.

NCSE’s Josh Rosenau, who dismissed the lawsuit as “silly” to the Associated Press (2013 Sep 26) when it was filed, expressed satisfaction at the outcome. He predicted that even if the plaintiffs had established standing, they would have lost the case: “They were trying to say that anything not promoting their religion is promoting some other religion, and that argument has been repeatedly rejected by the courts.”

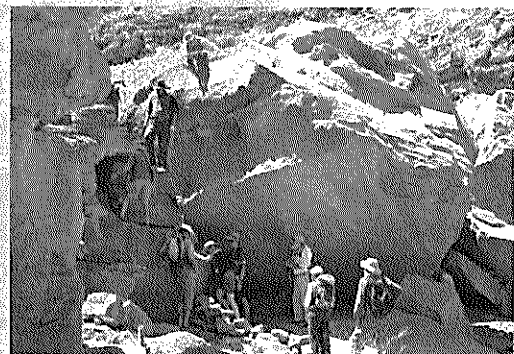
The NGSS have been adopted in thirteen states—California, Delaware, Kansas, Kentucky, Illinois, Maryland, Nevada, New Jersey, Oregon, Rhode Island, Vermont, Washington, and West Virginia—plus the District of Columbia. The treatment of evolution and

## FOR A FEW LUCKY TEACHERS, THE ADVENTURE OF A LIFETIME

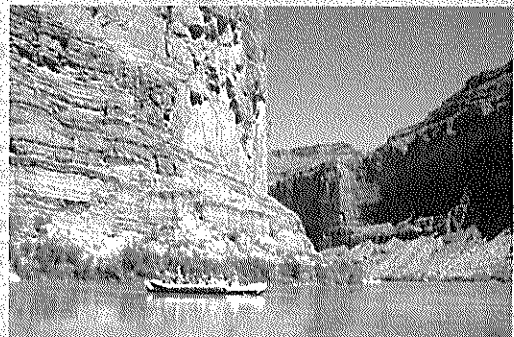
NCSE is pleased to announce a new program: Grand Canyon Teacher Scholars. A few lucky K–12 classroom teachers will be given an all-expenses-paid seat on NCSE’s annual Grand Canyon expedition, an eight-day voyage through some of the world’s greatest geological wonders. It’s an opportunity of a lifetime, giving deserving teachers a hard-earned vacation and an incomparable learning experience. **And you can help!**

For over a dozen years, NCSE has chartered a raft trip through Grand Canyon. NCSE staffers Steve Newton and Josh Rosenau offer unique and tongue-in-cheek “two model” tour of the canyon’s geological history. Rafterers descend through the strata, considering the hundreds of millions of years revealed on the canyon’s walls, and examine how creationists try to explain that same evidence, and why such efforts are doomed to fail.

“The Grand Canyon is the best geology classroom in the world,” explains Newton, not only a programs and policy director at NCSE but also a geology professor at the College of Marin. “There’s no better way to see deep time and explore



Photograph: Steven Newton



Photograph: Steven Newton

climate science in the standards occasionally provokes controversy (especially in Wyoming, where the legislature derailed their adoption over climate science), but *COPE v Kansas* is the only lawsuit to have resulted.

Documents from the case are available on NCSE's website: <http://ncse.com/legal/cope-v-kansas-state-boe>.

**Kentucky:** "Kentucky's Tourism Arts & Heritage Cabinet Secretary Bob Stewart informed representatives of the proposed Ark Encounter tourist attraction today that their project will not be eligible for up to \$18 million in tax incentives from the state, due to their refusal to pledge not to discriminate in hiring based on religion," Insider Louisville (2014 Dec 10) reports.

As NCSE previously reported, in 2011, the Kentucky Tourism Development Finance Authority voted to grant tax incentives—in the form of retained sales taxes—to the proposed creationist theme park in northern Kentucky, to be run by Ark Encounter LLC, a for-profit company, and the young-earth creationist ministry Answers in Genesis.

The state agency's decision prompted concerns about whether it would be consistent with the federal and Kentucky constitutions for the state to grant the incentives to the project, but there was no consensus, and until recently all signs were that the state remained willing for Ark Encounter to benefit from the tax incentives.

In Stewart's letter, dated December 10, 2014, however, he writes (with a notable choice of verb), that "it is readily apparent that the project has evolved from a tourism

attraction to an extension of AIG's ministry that will no longer permit the Commonwealth to grant the project tourism development incentives."

"There are two reasons for this conclusion," Stewart explained in his letter. "1) [T]he Commonwealth will not grant incentives to a company that intends to discriminate in hiring its employees based on religion; and 2) It is a violation of the Constitution for the Commonwealth's incentives to be used to advance religion."

Daniel Phelps of the Kentucky Paleontological Society, a persistent critic of Answers in Genesis and Ark Encounter, told NCSE, "I am glad to see that Tourism did the right thing after the bigoted hiring practices of Ark Encounter and its convoluted relationship with Answers in Genesis and the Creation 'Museum' were exposed."

**Ohio:** Ohio's House Bill 597—which if enacted would require students in the state's public schools to "review, in an objective manner, the scientific strengths and weaknesses of existing scientific theories in the [state science] standards"—was passed on a 7–2 vote by the House Rules and Reference committee on November 5, 2014, according to the *Cleveland Plain Dealer* (2014 Nov 5).

As NCSE previously reported, HB 597, aimed primarily at eliminating Common Core, also contained a provision requiring the state's science standards to "prohibit political or religious interpretation of scientific facts in favor of another." A sponsor of the bill, Andy Thompson (R–District 95), explained that local school

the processes that shape our Earth than to raft down the Colorado River as it cuts down through the eons, past the Great Unconformity, to rocks almost half the age of the Earth."

"Any teacher would be lucky to be chosen for this scholarship," added Rosenau. "Aside from the wonders of the canyon and the inspired presentations Steve and I prepare, the great joy of the NCSE expedition is the mix of scientists, scholars, and brilliant polymaths who join us. The winning teachers will have a chance to learn from a lot of brilliant people, and bringing more teachers into the campfire conversations will enrich all of our experiences."

"We all want to find ways to honor the amazing work science teachers do, and I'm glad NCSE has this opportunity," explained NCSE executive director Ann Reid. "It'll be exciting to see all the applicants, and to give everyone a chance to help give teachers this spectacular reward." Since she wrote, the January 5, 2015, deadline for applications passed, with no fewer than 140 teachers applying. **But you can still help to support the program:** <https://ncse.secure.force.com/GCscholarship>.



Photograph: Eugenie C. Scott

districts would be allowed to teach creationism along with evolution and global warming denial alongside climate science.

The objectionable provision was removed in committee, but it was replaced with the “strengths and weaknesses” language, familiar from antiscience bills across the country. NCSE’s deputy director Glenn Branch commented, “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, they’re not doing a good job.”

After the committee’s passage of the bill, Tracy Maxwell Heard (D–District 26), who voted against HB 597, told the *Cleveland Plain Dealer* that she doubted that the bill would progress further. Although the committee’s vote was on party lines, with Republicans uniformly supporting the bill, “[s]he said there is little support for it from Republican leaders in the Ohio Senate and she doubts there are enough votes for it in the House as a whole.”

**South Dakota:** A South Dakota state senator dislikes a proposed new set of state science standards, according to the *Sioux Falls Argus Leader* (2014 Nov 18). At a November 17, 2014, public hearing—the second of four—on the standards, Phil Jensen (R–District 33) expressed concern about the treatment of evolution and climate change.

Jensen’s primary complaint about the standards was that they are “inappropriate and unlawful,” since a recent state law prohibits the state board of education from adopting standards intended for multi-state adoption. The new standards were developed in South Dakota, but include elements of the Next Generation Science Standards.

According to the *Rapid City Journal* (2014 Nov 18), “Jensen and other opponents of Common Core said Monday the proposed standards for science and social studies are linked to such multi-state efforts. Their comments included references such as ‘communist,’ ‘evolution,’ ‘leftist,’ ‘climate change’ and ‘environmentalism.’”

In 2014, Jensen was a cosponsor of South Dakota’s Senate Bill 112, which if enacted would have provided that “[n]o school board or school administrator may prohibit a teacher in public or nonpublic school from providing instruction on intelligent design or other related topics.” The bill was killed in the Senate Education Committee.

In 2010, while serving in the South Dakota House of Representatives, Jensen was a cosponsor of South Dakota’s House Concurrent Resolution 1009, which called for “a balanced approach for instruction in the public schools relating to global climatic change.” The resolution was adopted by both houses of the legislature.

Jensen is asking the state attorney general to provide an official opinion on the legality of the standards. The president of the state board of education told the *Argus Leader* that there is plenty of time: there are two further public hearings to be held before the board decides whether to adopt the standards in May 2015.

**Wyoming:** The *Wyoming Tribune Eagle* (2014 Oct 26) reviewed the status of the state’s science standards. As NCSE previously reported, a footnote in Wyoming’s budget for 2014–2016 precluded the use of state funds “for any review or adoption” of the Next Generation Science Standards, in part owing to their treatment of climate change. The Wyoming state board of education subsequently declined to develop a new set of science standards independent of the NGSS.

Mary Throne (D–District 11), who wrote the final version of the footnote, told the *Tribune Eagle* that it was misinterpreted: “My goal was to allow the state board to use the Next Generation Science Standards as a template and then basically ‘Wyomingize’ them—tweak them to fit Wyoming better, but not to throw them out all together.” Throne said that she hoped to seek a repeal of the footnote in the next session of the legislature.

Marguerite Herman of Wyoming for Science Education defended the NGSS, saying, “They are high-class, 21st century, peer-reviewed [standards] and are based on what students need to know, what industry needs students to know and an understanding of how people learn science.” She expressed hope that in the future Wyoming education would be free of political interference. “The Legislature set the review process back, and our kids are the losers in the process.”

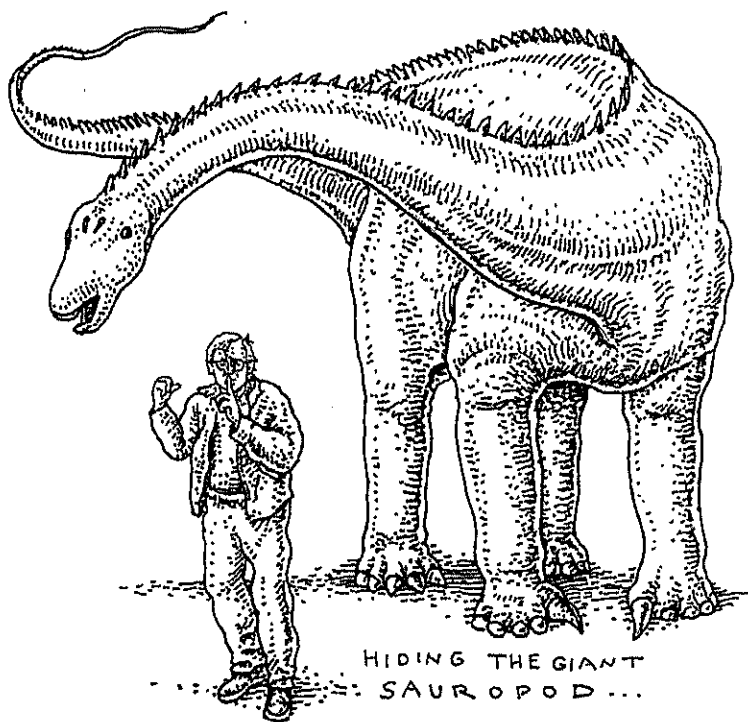
Despite the legislature’s decision, local school districts are apparently free to adopt the NGSS, and about fifteen (of forty-eight) have done so. Still, the decision was disruptive: Jack Cozort of Laramie County School District 2 commented, “We saw the footnote, and we slammed on the brakes.” Melanie Fierro of Laramie County School District 1 added, “It does put us in a little bit of a bind,” but approvingly described the change to the NGSS as a “paradigm shift.”

Herman worried about the effect of the lack of a set of state standards that cover climate change on teachers: “If you’re in a district without [the NGSS], your hands may be tied, and you won’t have the resources.” NCSE’s Minda Berbeco added, “Standards help set the guidelines for professional development and what teachers should know going into the classroom ... If you leave out a topic, they’re less likely to learn about it.”

**Brazil:** A bill introduced in the Brazilian Chamber of Deputies would, if enacted, require creationism to be taught in the country’s public and private schools. Introduced by Marco Feliciano, a controversial federal deputy and Assembly of God pastor, on November 13, 2014, bill 8099/2014 calls for the inclusion of “the ideas that life has its origin in God, the supreme creator of the whole universe and of all things that compose it.”

Accompanying the bill is a justification that complains that the existing curriculum is “propagating [the idea that] life originated from a ‘primitive cell’ that was set in motion by the ‘Big Bang’” and charges that teaching evolution without teaching creationism violates the Brazilian constitution’s guarantee of freedom of





and “intelligent design” are not legitimate scientific theories and “therefore do not form part of the science National Curriculum programmes of study.” Subsequent actions by the government added evolution to the national curriculum at the primary level and required that free schools and church academies in England—the equivalent of charter schools in the United States—teach evolution and not creationism.

As the *Glasgow Herald* (2014 Aug 30) reported, the petition to enact a similar ban in Scotland was endorsed by three Nobel laureates, Harold Kroto, Richard Roberts, and John Sulston. Roberts commented, “This is really an important issue. One should be teaching facts to children, not religion.” A spokesperson for the Scottish government, however, replied, “Teachers, head teachers and professional educationalists decide what is taught in Scotland’s schools. This longstanding tradition that politicians should not determine the curriculum is highly valued and remains a cornerstone of Scottish education.”

Part of the impetus for the petition was recent creationist incursions into the Scottish classroom. In 2013, for example, as the *Telegraph* (2014 Sep 13) reported, it was discovered that a school chaplain in East Kilbride distributed creationist literature calling evolution a myth. The petitioners fear that such incidents may have been just the tip of the iceberg. As the Reverend Michael Roberts, writing on behalf of the British Centre for Science Education, told the parliament, “It is almost impossible to determine the extent to which such creationism has influenced classroom teaching.”

“NCSE applauds the effort to ensure that students in Scotland can learn science without the interference of creationists,” NCSE’s executive director Ann Reid commented. “It’s entirely appropriate for the government to ensure that science and only science is taught in the science classroom. Without official guidance from the Scottish government, the risk is that schools will fail to present evolution to their students altogether, or present it alongside a pseudoscientific alternative such as ‘creation science’ or ‘intelligent design,’ or fail to present it forthrightly—as happens all too often in the United States.”

The Public Petitions Committee of the Scottish Parliament heard testimony supporting the proposed ban on teaching creationism as scientifically credible in Scotland’s public schools on November 11, 2014, according to the Press Association (2014 Nov 11). The committee agreed to write to the Scottish government, the Educational Institute of Scotland, the Scottish Secondary Teachers’ Association and the Association of Headteachers and Deputies in Scotland to receive their views on the matter.

Among the organizations submitting written testimony was NCSE, which in a November 7, 2014, letter (printed on the next page) expressed its support for the proposed ban, citing the statements from scientific and educational organizations contained in *Voices for Evolution* as well as case law from legal cases in the United States. ■

conscience and belief, especially “since the creationist doctrine is prevalent throughout our country.”

Maurício Tuffani, blogging for *Folha de S Paulo* (2014 Nov 15), described the bill as “a monument to ignorance,” and disclosed that the bill repeated, almost verbatim, a bill filed in the Paraná state legislature in 2007. In a later post (2014 Nov 16), Tuffani quoted the president of the Sociedade Brasileira para o Progresso da Ciência as saying that her organization “will stand forcefully against this bill.”

According to a report of a 2005 poll using a version of the Gallup questions, 31% of Brazilian respondents preferred the “God created human beings” option, with 54% preferring the “God guided process” option and 9% preferring the “God had no part in the process” option. Additionally, 89% of respondents supported teaching creationism alongside evolution, and 75% supported teaching creationism instead of evolution.

**Scotland:** A petition calling on the Scottish government to ban creationism from Scottish public schools received a hearing in the Scottish parliament on November 11, 2014. Filed on behalf of the Scottish Secular Society, the petition asks the parliament “to bar the presentation in Scottish publicly funded schools of separate creation and of Young Earth doctrines as viable alternatives to the established science of evolution, common descent, and deep time,” adding, “Nothing in this request precludes the discussion of such doctrines in their proper place, as part of the study of ideas, neither does it nor can it infringe on individual freedom of belief.”

Such a ban is in place elsewhere in the United Kingdom. In 2007, as NCSE previously reported, the Department for Children, Schools, and Families in England issued a statement explaining that creationism

November 7, 2014

## Submission Regarding PE01530



I am writing on behalf of the National Center for Science Education (NCSE) to express support of petition PE01530: Guidance on how creationism is presented in schools, which calls for “official guidance to bar the presentation in Scottish publicly funded schools of separate creation and of Young Earth doctrines as viable alternatives to the established science of evolution, common descent, and deep time.”

NCSE is a non-profit organization based in the United States that works to defend the integrity of science education. NCSE is religiously neutral, supporting the right of every individual to hold, practice, and advocate their beliefs, religious or non-religious. NCSE is affiliated with the American Association for the Advancement of Science and the National Science Teachers Association.

Controversy over the presentation of such doctrines in the public schools of the United States has been prevalent over the last half century, ever since state laws banning the teaching of evolution were ruled to be unconstitutional by the Supreme Court in 1968, and creationists attempted in reaction to require the teaching of “creation science” or “intelligent design” along with evolution.

For the last quarter of a century, NCSE has led the effort to resist creationist attempts to undermine the teaching of evolution in the public schools of the United States. It is with the benefit of the lessons learned from its experiences in doing so that I venture to advise the Scottish Parliament in considering whether to act on the petition under consideration.

NCSE's publication *Voices for Evolution* collects statements endorsing the teaching of evolution and opposing the teaching of creationism in its various forms. Included are 110 such statements from scientific and scholarly societies (available online at <http://ncse.com/media/voices/science>), among them statements from the American Association for the Advancement of Science and the National Academy of Sciences.

Also included in *Voices for Evolution* are statements from educational organizations (<http://ncse.com/media/voices/education>) which, following the lead of their scientific counterparts, similarly endorse the teaching of evolution and oppose the teaching of creationism in its various forms. Among them are statements from the National Association of Biology Teachers and the National Science Teachers Association.

Additionally, courts in the United States have ruled on the question of whether creationism in its various forms is scientifically credible, for example in *McLean v Arkansas* (1982), *Edwards v Aguillard* (1987), and *Kitzmiller v Dover* (2005). The question has consistently been answered in the negative, reinforcing the fact, recognized by the scientific community, that creationism is devoid of scientific merit.

Simply devolving the question of how to address evolution and creationism to individual teachers is not satisfactory. First, teachers are sometimes creationists themselves. Second, even teachers who are not creationists often experience pressure from the community to teach creationism or not to teach evolution. Third, even teachers who are not directly pressured to compromise their teaching on evolution often feel unprepared to teach it.

In a national poll of public high school biology teachers in the United States conducted in 2007, one in seven indicated that they were creationists; one in five reported experiencing pressure to teach creationism or not to teach evolution; and only three in seven had completed a course on evolution. Unsurprisingly, only one in four taught evolution forthrightly—and as many as one in eight presented creationism as scientifically credible.

While I am unaware of any comparable study of biology teachers in Scotland, the incidents cited in the petition and its accompanying materials and in the press clearly show that the same factors are at work, if not necessarily to the same extent. This, coupled with the fact that organizations of Scottish teachers have reportedly sought official guidance on how to address evolution and creationism, strongly argues for the need for such guidance.

Finally, NCSE further endorses the draft language for such guidance offered in the petition, which commendably acknowledges the legitimacy of discussing creationist beliefs in a suitable setting while insisting on the forthright and uncompromising presentation of evolution and allied topics, as a basis for developing scientifically appropriate and pedagogically responsible recommendations for Scottish teachers.

Sincerely,

Ann Reid, Executive Director, NCSE

# NCSE NEWS

## News from the Membership

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!

Ten members of NCSE were elected as Fellows of the American Association for the Advancement of Science: **David G Anderson** of the University of Tennessee, Knoxville; **Gregory F Ball** of the University of Maryland, College Park; **Rane L Curl** of the University of Michigan; **Irene Anne Eckstrand** of the National Institute of General Medical Sciences/NIH; **Robert G Franciscus** of the University of Iowa; **Dan Graur** of the University of Houston; **Patricia A Marsteller** of Emory University; **David G Morgan** of the University of South Florida; **Mark D Ohman** of Scripps Institution of Oceanography and the University of California, San Diego; and **David Hillyer Voorhees** of Waubesa Community College. The new Fellows were presented with an official certificate and a gold and blue rosette pin at the AAAS Fellows Forum in San Jose, California, on February 14, 2015. Congratulations to all. (And let the NCSE office know if we overlooked your name on AAAS's list!)

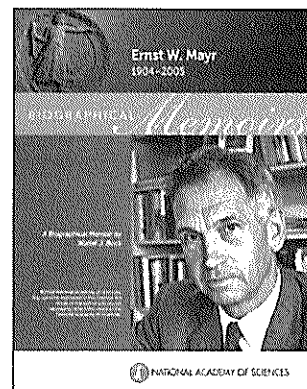
**Richard B Hoppe** contributed a letter to the editor of the *Columbus Dispatch* (2014 Sep 3) criticizing Ohio's antiscience House Bill 597. Although one of the bill's sponsors repeatedly told the press that the bill would, if enacted, allow the teaching of "intelligent design" alongside evolution, Hoppe focused on a different problem: that the bill would also require that the state's science standards "focus on academic and scientific knowledge rather than scientific processes." He wrote, "Science is exactly the process by which knowledge claims are justified. To prohibit education in 'scientific processes' is to pretend that science is merely a collection of facts." Concluding, he recommended, "House Bill 597 should be discarded. It displays shocking ignorance of what students must know about science in the 21st century."

**Mark Levinthal** wrote to the editor of the *Lafayette, Indiana, Journal & Courier* (2014 Nov 8) to correct a previous letterwriter's errors and misconceptions about natural selection. "To imagine that the evidence of more than 200 years, including DNA forensic-like observations supporting the genealogy of life, does not exist is wishful thinking," he explained, adding, "It is a misconception about the claims of natural selection to think that it concerns the origin of the universe or the origin of life. It is a further error to maintain that any scientist doing origin of life scholarship teaches that cells popped into existence 'by chance.'" Levinthal is emeritus professor of biology at Purdue University.

A biographical memoir of the late evolutionary biologist **Ernst Mayr** (a member of NCSE), written by

his former student **Walter J Bock**, was published by the National Academy of Sciences. Bock writes,

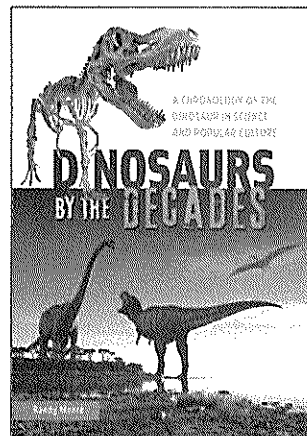
Often called the "Darwin of the twentieth century," Ernst was one of the leading evolutionary biologists of his time, having been a major architect of that famous meeting of the minds known as the modern evolutionary synthesis of 1937–48 and the moving force behind the founding of the Society for the Study of Evolution.



The memoir originally appeared in slightly different format in *Biographical Memoirs of the Royal Society* 2006;52:167–187; the NAS version is available on-line at <http://www.nasonline.org/publications/biographical-memoirs/memoir-pdfs/mayr-ernst.pdf>.

**Randy Moore's** *Dinosaurs by the Decades: A Chronology of the Dinosaur in Science and Popular Culture* (Santa Barbara [CA]: ABC-CLIO, 2014) was published. According to the publisher,

This exhaustive, up-to-date book contains more than 2,000 entries about dinosaurs and dinosaur-related topics. It provides not only detailed information about their discovery, underlying science, and recent technologies and theories but also encompasses all of the facets of dinosaurs in society—for example, their use in consumer marketing and promotion, popularization of dinosaurs in the media, as "proof" for both evolutionists and creationists to substantiate their claims about life's origins, and as cultural artifacts.



Organized chronologically, the book offers an informative and entertaining timeline of how dinosaurs have appeared in science, religion, and society since they were discovered in the 1800s, covering everything from dinosaur museum displays to how dinosaurs served advocates of young-Earth creationism. This fascinating work

enables a broad appreciation for the surprising significance of dinosaurs in many aspects of our daily lives and modern society.

Randy Moore is HT Morse—Alumni Distinguished Teaching Professor of Biology at the University of Minnesota; he contributes a regular column to *RNCSE* and is a recipient of NCSE's Friend of Darwin award.

**Steve Rissing** devoted a column in the *Columbus Dispatch* (2014 Sep 14) to discussing how biologists have recently addressed two ongoing disasters: the Ebola outbreak in West Africa and toxic algae in the tap water of Toledo, Ohio. Alluding to Ohio's antiscience House Bill 597, he ended his column by observing, "Legislation pending in the Ohio House directs Ohio school districts to 'focus on academic and scientific knowledge rather than scientific processes.' Our students—future voters and policymakers—need to understand the predictive power of scientific processes, especially when applied to relevant biological issues and potential disasters."

A professor of biology at the Ohio State University, Rissing is a recipient of NCSE's Friend of Darwin award for his work in defending the integrity of evolution in the Buckeye State.

**Colin Thornton** writes, "I recently performed (as the local district attorney Tom Davenport) in a production of *Inherit the Wind* in Cincinnati. Supporters of Answers in Genesis were invited to one performance, and the skeptics group I organize was invited to a different performance. I offered a challenge: I would make a donation to Answers in Genesis or to NCSE, depending on which group attended the play in greater numbers." One of his fellow actors was so impressed that he offered to provide a further \$100 donation to the winner. At the end of the day, Thornton adds, "The skeptics won! They were further rewarded with a special 'Science Café' that I organized to follow the performance, during which a local evolutionary biologist, Gene Kritsky of the College of Mount Saint Joseph, spoke about the Scopes 'Monkey Trial.'" ■

## Haas Joins NCSE's Board of Directors



NCSE is pleased to announce the addition of **Michael Haas**, a businessman, entrepreneur, and climate activist, to its board of directors. "In the fight with climate change, knowledge is power," Haas explained. "But too many students are not learning what they need

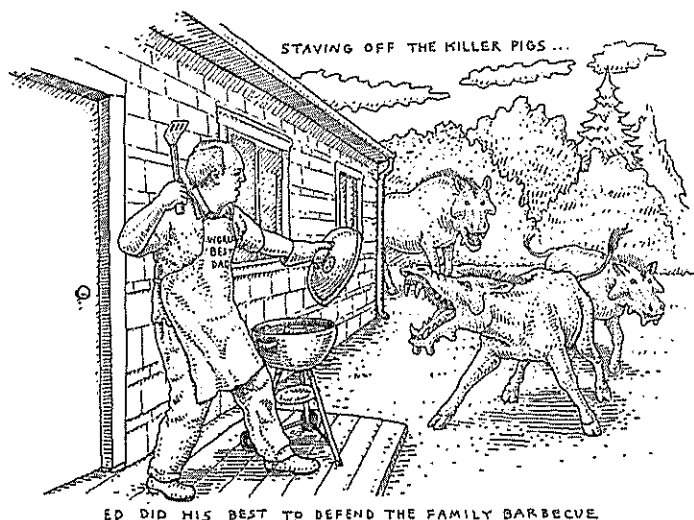
to know about climate change and the solutions. That's why I'm pleased to join NCSE's board of directors and to support its diverse efforts to defend the integrity of science education."

NCSE's executive director Ann Reid commented, "With climate change denial still prevalent in our country, and especially with recent attacks on climate science education in states such as Michigan, Texas, and Wyoming, it's clear that NCSE's work is needed now more than ever." She added, "Thanks to Haas's vision and passion for climate science education, I feel renewed confidence that we will be able to continue our efforts to defend the teaching of climate science as well as the teaching of evolution."

Brian Alters, the president of NCSE's board of directors, was also enthusiastic. "The business community is beginning to wake up to the fact that the fate of the economy is linked to the fate of the environment," he commented. "But what Michael Haas understands—for which he deserves great credit—is that both are linked to the fate of science education, because it's the next generation that needs to be equipped to face the challenge of climate change."

Haas is the founder of Orion Renewable Energy Group LLC and the co-founder of RDC Developments Ltd, companies that help to meet the growing worldwide demand for low-cost non-polluting renewable energy. He is also the founder of Alliance for Climate Education, a non-profit organization that presents climate change and solutions to millions of high school students, putting young people at the center of the story and giving every student a chance to take action.

On NCSE's board of directors Haas joins president Brian Alters of Chapman University, vice president and treasurer Lorne Trottier of Matrox, secretary Robert M West of Informal Learning Experiences, Francisco J Ayala of the University of California, Irvine, Barbara Forrest of Southeastern Louisiana University, Richard B Katskee of Mayer Brown LLP, and Benjamin D Santer of Lawrence Livermore National Laboratory. ■





# NCSE Thanks You for Your Generous Support

The NCSE Board of Directors and staff would like to acknowledge and extend their warm gratitude to all individuals, organizations, and firms that donated to NCSE. We also extend special thanks for their much-appreciated support to the following people who donated \$100 or more during the first half of 2014. Those in the Patrons' Circle donated \$1000 or more—a level of support that we consider heroic and that gives us a firm foundation for our efforts. (An asterisk (\*) indicates a member of the NCSE Board of Directors or Advisory Council.)

## THANK YOU TO ALL OUR DONORS!

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# Measuring William Bell Riley's Anti-Evolution Crusade in Minnesota

Andrew Hughes and Randy Moore

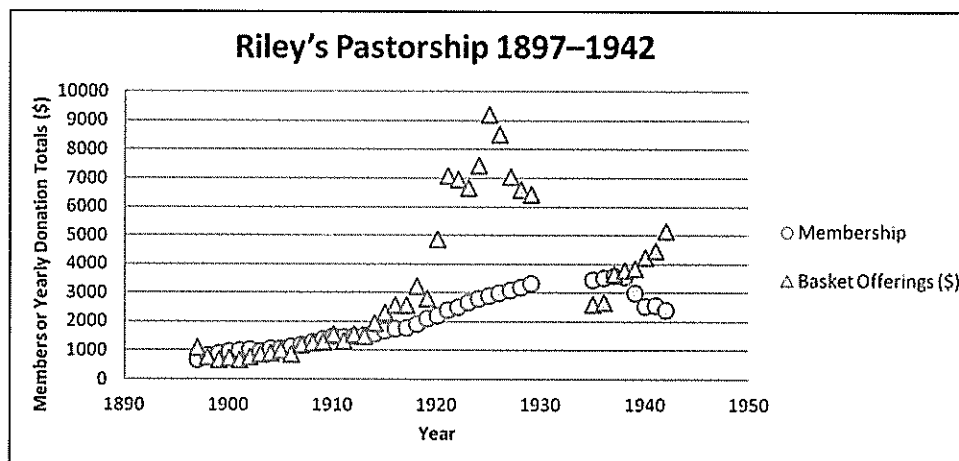
William Bell Riley, a prominent leader of the fundamentalist movement in the United States, led an unrelenting attack in the early twentieth century to ban the teaching of evolution in public schools. Riley promoted his anti-evolution message through public debates, speeches, and sermons, while pastor at First Baptist Church in Minneapolis, Minnesota.

To analyze Riley's anti-evolution crusade with objective and quantitative data, we examined the yearly totals for the First Baptist congregation's membership and monetary donations ("basket offerings") throughout Riley's tenure as pastor. The membership and finances of Riley's church strongly correlate with, and inform us about, the successes and failures of Riley's anti-evolution crusade.

The origin of Riley's anti-evolution crusade can be traced to his establishment of the World's Christian Fundamentals Association (WCFA) in 1919. The average annual increase in basket offerings at Riley's church from 1919 to 1921 far exceeds those of the two decades preceding the start of Riley's anti-evolution campaign. Our analysis shows that the parishioners of Riley's church dramatically increased their individual monetary donations in the early 1920s, indicating that the initial efforts of Riley's national anti-evolution crusade also motivated his congregation in Minneapolis. Indeed, this unprecedented monetary support marked the first time in Riley's long pastorship that his societal efforts energized his congregation to dramatically increase their financial support of his work.

Riley maintained the public's interest and support for his anti-evolution crusade in the years preceding the famous Scopes trial of 1925 by engaging in public debates against proponents of evolution. John Scopes's conviction provided additional momentum for Riley to pursue anti-evolution legislation elsewhere, including in his home state of Minnesota. The monetary donations at First Baptist Church peaked in 1925 and 1926, which correspond to the height of the evolution controversy in the United States. Clearly, Riley's anti-evolution efforts immediately following the Scopes trial were strongly supported by his church. Furthermore, Riley delivered weekly anti-evolution sermons to capacity crowds at First Baptist Church during the spring of 1926.

With some difficulty, Riley convinced the University of Minnesota President Lotus Coffman to grant him (Riley) four appearances on campus to defend Christian



Monetary donations ("Basket Offerings") and church membership during William Bell Riley's pastorship of First Baptist Church, Minneapolis, Minnesota.

fundamentalism. Riley's first appearance was a convocation address, which was attended by more than 3 000 students (Riley 1926; Szasz 1969). However, Riley failed to persuade the University of Minnesota faculty and students to adopt his anti-evolution stance.

Nevertheless, Riley introduced his anti-evolution bill into the Minnesota legislature in 1927. Riley's bill was defeated in the Senate on March 10, 1927, by a vote of 55 to 7 (Szasz 1969). The monetary support at Riley's church subsequently declined dramatically, indicating that Riley's anti-evolution movement was losing momentum even in his own church. Although Riley tried to re-energize his congregation with additional attacks on evolution throughout the 1930s and early 1940s, he was never able to reverse the declining monetary donations that followed the defeat of his anti-evolution legislation. This inability to mobilize support from his congregation suggests that the parishioners' interest, like that elsewhere in America, had shifted away from the once popular evolution controversy.

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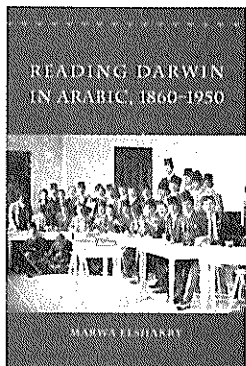
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# Darwinian Ideas in the Middle East: Marwa Elshakry's *Reading Darwin in Arabic, 1860–1950*

Elise K Burton



In the past twenty years, a notion of “Islamic creationism” has emerged as the subject of academic inquiry and research, primarily in response to educational and social developments in Turkey. English-speaking audiences began to notice when the sensationalist media frenzy surrounding Turkish creationist Adnan Oktar (alias Harun Yahya) and his so-called Science Research

Foundation peaked between 2007 and 2009. In an apparent convergence of post-9/11 anxieties about Islam and renewed public interest in the issue of creationism in the United States (in the wake of *Kitzmiller v Dover Area School District* in 2005), major news outlets breathlessly covered the unsolicited distribution of Oktar's *Atlas of Creation* to Western scientists as an episode representative of overall trends in Muslim beliefs.

Yet even as researchers have refined their sensitivity to local contexts within the Muslim world, they have generally taken ahistorical approaches toward measuring the incidence of Muslim resistance to evolutionary ideas, such as survey studies of individuals' acceptance of evolution (see, for example, BouJaoude and others 2011) and evaluations of current biology textbooks in different countries (see, for example, Asghar and others 2013). It is precisely these approaches that Marwa Elshakry challenges in her long-awaited debut monograph, *Reading Darwin in Arabic, 1860–1950* (2013). The book is cause for celebration as it provides a much-needed intervention in both the academic and public discourses surrounding “Islamic creationism” by bringing to light the very complex history of Arabic writing on modern evolutionary theory.

To be sure, this is first and foremost an academic text, participating just as strongly, if not more so, in the scholarly debates surrounding the “Reading” and “Arabic” as in those over the “Darwin” of the title. The general reader will likely find the book challenging, and for those not familiar with Arabic or Middle Eastern political and intellectual history, the dizzying array of unfamiliar names and foreign terms may be intimidating. However, Elshakry is meticulous in identifying and describing the many characters drawn into her narrative and consistently supplying English definitions for the Arabic terms she invokes. Readers with the patience to follow Elshakry through the advanced theoretical arguments will be richly rewarded with fascinating historical anecdotes and a more thorough understanding of what the works of Darwin mean in a Middle Eastern context—a

meaning that goes far beyond a confrontation of “scientific” evolution and “religious” creationism.

As Elshakry demonstrates through her close readings of a diverse cast of historical characters, Middle Eastern awareness of Darwin's work passed through dozens of intellectual filters, whose individual political and philosophical aims manifested in “translation” strategies that either magnified or occluded the potential recognition of common values. This is the crucial perspective that is often missing from other attempts to examine how Darwin and evolution are understood by specific populations, especially in non-Western contexts, which often hinge on surface-level questions of whether these ideas are “accepted” or “rejected” as broad, vague concepts.

Elshakry's emphasis on the process of translation and the politics surrounding it are not completely absent from this literature—indeed, studies that rely on written surveys are acutely aware of the problems. The fresh perspective Elshakry offers is the historical long view: today's translation problems are not the same as yesterday's, and it is important for scientists, scholars, and the interested public to investigate how and why these changes have taken place. Therefore, while *Reading Darwin in Arabic* is primarily a landmark in the specialized academic fields of translation studies, Middle Eastern intellectual history, and the history of evolutionary biology, it also has important insights to offer any engaged reader.

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# David Hume (1711–1776)

Randy Moore



David Hume was born in Edinburgh, Scotland, on April 26, 1711. He entered the University of Edinburgh when he was eleven or twelve years old, but left in 1725, without a degree. Resolved to support himself, Hume began working in 1734 as a clerk with a sugar merchant in Bristol, a foray into business that was short-lived, and which began many years of temporary employment. Hume never married.

Despite these seemingly lackluster beginnings, in 1739, Hume published a masterpiece of philosophical discourse: *A Treatise of Human Nature*. In this work, Hume built upon the empiricism of John Locke to outline a perspective where understanding flows only from direct experience. Thus, according to Hume, understanding of human nature and how it affects our perceptions and conclusions (along with a casting aside of superstition and metaphysics) is central to the goal of philosophy.

For Hume, understanding is a product of our senses alone, and these understandings create beliefs, not objective knowledge. Beliefs in how the world works, in turn, lead to habits. Knowledge, therefore, is non-rational because we are not justified in expecting the future to be like the past. And yet, we are forced to act as if this were so as in when we act out of habit. Hume urged science to employ “mitigated skepticism” that is “sensible of the strange infirmities of human understanding,” especially when interpreting cause-and-effect relationships (Graham 2004).

Though the ideas in the *Treatise* ultimately proved enormously influential, it was not at all successful upon its publication. A shortened and somewhat altered version of the book, *An Enquiry Concerning Human Understanding* (1748), also failed to excite interest. Hume’s prospects improved remarkably, however, when he was asked to serve as secretary to General James St Clair, who was undertaking an expedition through Europe. This led to a two-year position at the British embassy in Paris beginning in 1763. During this time, Hume continued writing, especially on politics and history. The French intelligentsia took note of him, firmly establishing him as a noteworthy writer and thinker.

Hume was not an atheist, claiming that the level of evidence (or faith) needed for such a position equals that required of a believer. In this sense, he was similar to Thomas Henry Huxley, the originator of the term agnostic (and the author of a book about Hume). Hume felt organized religions that claimed special knowledge of the

universe were promulgating superstitions, as questions about the existence of a deity are unanswerable based on information gathered by our senses.

In his posthumously published *Dialogues Concerning Natural Religion* (1779), Hume tackled the “argument from design” for the existence of a creator. In the form of a conversation, the protagonists Philo (anti-design advocate; usually considered to be Hume himself) and Cleanthes (pro-design advocate) discuss inferring the existence of a deity by observing an apparently complex and designed world. Filtered through the limitations of eighteenth-century scientific understanding, Hume rejected the design-based argument by invoking the existence of evil, by noting that human creations are subject to later improvements, and by questioning the assumption of the existence of complexity. Hume’s analysis has formed the basis for subsequent refutations of the design argument, including those countering claims of the modern “intelligent design” movement.

While in France, Hume befriended fellow philosopher Jean-Jacques Rousseau. Rousseau’s books were controversial, and as he was fleeing persecution in France, Hume accompanied him to England. However, Rousseau’s paranoia overcame him, and he incorrectly and publicly accused Hume of treachery. Public opinion mostly sided with Rousseau, and Hume’s reputation suffered. Hume retired to Edinburgh, continued to write, and died on January 4, 1776. He is buried in a large Roman mausoleum in Edinburgh’s Old Calton Burial Ground, and a public statue of him, seen here, was erected in Edinburgh in 1996.



Statue honoring David Hume in Edinburgh.

Photograph: Randy Moore.

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# Scorn, Not Just Rejection: Attitudes Toward Evolution in Egypt

Kyrillus Samaan Shohdy and Meena Beshir

Middle Eastern countries have some of the highest percentages of citizens that reject evolution, presumably due in large part to the impact of religious fundamentalism and the deeply rooted belief in creationism (Hameed 2008). These societies are characterized by the prevalence of rigorism, adherence to a system of strict moral rules and beliefs that are applied to all people at all times (Crisp 1999). In religiously rigorist societies, the more religion-agreeable course of action is favored in cases of doubt. In the Muslim world, Islamic rigorists often work to prevent proper education of the most important and unifying theory in biology—evolution—by misrepresenting it to students and public. Here we will argue that cultural milieu rather than the mere (mis)understanding of evolutionary theory is the main stumbling block for acceptance of evolution among Egyptians. Further, we will draw parallels to the situations in both Turkey and the United States.

Egypt is a secular state and the topic of evolution is included in the official science education curriculum. Consequently, one of the authors was dismayed to learn of a 17-year-old cousin's encounter with both official and unofficial rejection of evolution in her Egyptian school. Eager to educate herself, the cousin went to her school library and found an Arabic translation of a book on evolution by Carl Sagan (2005). In this version, the translator claimed to have removed "bold" material without changing the author's general point of view. Despite this, and despite the fact that the book was available in the library, gossip about the "atheistic girl" who believes in evolution started to circulate. The cousin became an outcast. Upon being notified of the matter, her teacher took the book away and the cousin was punished with a stick—a cruel, but common practice in schools across Egypt. From all accounts, this example is not atypical of the reactions to evolution throughout the region.

At the root of this resistance is a misunderstanding of the science of evolution. We submit that in the Middle East, this ignorance stems largely from the misrepresentation and partial omission of evolution in curricula, which itself is caused by creationist control of the education system and the paucity of materials about evolution available to the public. The lack of understanding and acceptance about evolution leaves a vacuum that can easily be filled by other ideas and misconceptions that dominate the culture.

Heddy and Nadelson (2012) investigated the link

between evolution acceptance and religiosity in thirty-five countries and found a strong negative correlation—those that accept evolution are less likely to be strongly religious and vice versa. They proposed that this relationship may be due to the ability of religious authorities to convey messages against evolutionary theory. The evidence from Turkey and Egypt (and other Islamic countries in the region) certainly agrees with this assessment, and there is evidence for this in the United States as well (Miller and others 2006). Whether the official curriculum includes evolution or not, the influence of religious authorities can work against public acceptance of the science.

This conflict between the public's beliefs and the accepted views of the scientific community will not be resolved by simply piling facts and standards into the curriculum. Without changes outside of the scientific and educational spheres, acceptance of evolution is not likely to expand. Convincing the public at large of the scientific consensus around evolution will be a long and difficult endeavor.

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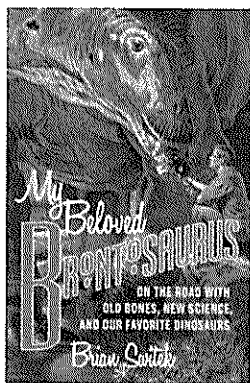
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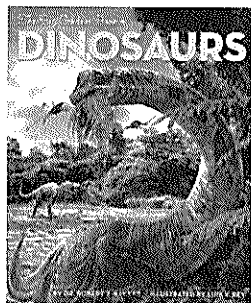
## SUMMARIES OF BOOK REVIEWS



*My Beloved Brontosaurus*, by Brian Switek (New York: Scientific American / Farrar, Straus and Giroux, 2013; 272 pages). "Switek's latest book, *My Beloved Brontosaurus*, is aptly titled," writes reviewer **Andrew A Farke**. "It really is a love letter,

to the dinosaurs of his youth as well as the dinosaurs revealed by the latest scientific discoveries. Switek adeptly navigates the treacherous waters between childhood enthusiasm for overwrought monsters and the living animals of reality. ... I strongly recommend this book for anyone, dinosaur fan or not, who wants to experience a deeply personal and engaging exploration of the latest dinosaur science."

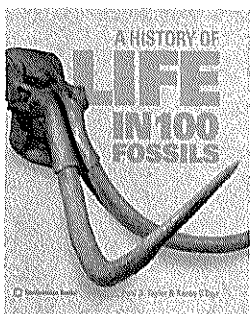
Summary of *RNCSE* 2015;35(1):5.1–5.3; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/283/607>



*The Big Golden Book of Dinosaurs* by Robert T Bakker, illustrated by Luis V Rey (New York: Golden Books, 2013; 64 pages). "I have mixed feelings about *The Big Golden Book of Dinosaurs*," reviewer **Daniel Loxton** concludes. "I feel that it calls for a certain amount of

caution, but I long to recommend it for its energy, and the depth of its ideas, and the poetry of its storytelling. Kids could do much worse than to dig into a book that so eloquently describes the place of the dinosaurs in the broader tapestry of animal life and geologic time."

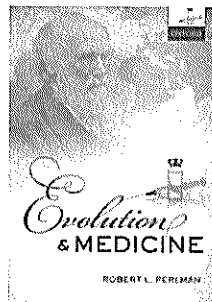
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*A History of Life in 100 Fossils* by Paul D Taylor and Aaron O'Dea (Washington DC: Smithsonian Books, 2014; 224 pages). According to reviewer **David R Schwimmer**, "overall, this is a very good, beautiful book, which illustrates vividly many of the greatest stories in the history of life." He explained, "The text

is readable at any level of knowledge, and although some discussions wander a bit widely, most of the highlighted fossil subjects are clearly annotated. From a near-lifetime looking at fossils, I have become jaded to pictures of exciting fossils, but many of the images here amazed me."

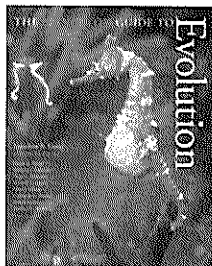
Summary of *RNCSE* 2015;35(1):7.1–7.3; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/341/609>



*Evolution and Medicine* by Robert L Perlman (Oxford: Oxford University Press, 2013; 162 pages). "Robert Perlman's *Evolution and Medicine* is packed with technical details, current research, and important discussions of a number of areas of concern in evolutionary medicine," writes reviewer **Wenda Trevathan**, although she warns, "It is not an

'easy read,' however, and potential readers must be prepared to pay attention." In the end, she concludes, "It is an excellent resource for those desiring to understand evolutionary medicine beyond the more generalized and popular writings and will be especially useful to physicians and medical students."

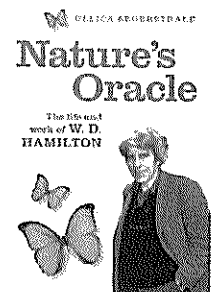
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*The Princeton Guide to Evolution* edited by Jonathan B Losos (Princeton [NJ]: Princeton University Press, 2013; 880 pages). "*The Princeton Guide to Evolution* is intended for undergraduate and graduate students, scientists in fields related to evolutionary biology, and others

with a serious interest in evolution," writes reviewer **Marvalee H Wake**. "[I]t will enhance the libraries of all who teach, at almost any level; students who want to know more about particular topics of interest; and the public, which has long deserved an authoritative and objective presentation of the many facets of evolutionary biology. ... I look forward to the next edition!"

Summary of *RNCSE* 2015;35(1):9.1–9.4; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/306/621>



*Nature's Oracle: The Life and Work of W.D. Hamilton* by Ullica Segerstrale (Oxford: Oxford University Press, 2013; 336 pages). Describing it as "highly readable," reviewer **Marlene Zuk** praises Segerstrale's biography of "probably the most famous evolutionary biologist you have never heard of," appreciating

the details about Hamilton's personal life and his theories, "though the intricacies of the latter can be difficult to follow from someone without a background in biology." "[A]lthough she sometimes comes close, Segerstrale never falls into the trap of assuming that any characteristic of Hamilton's was necessarily a herald, or an essential indicator, of his brilliance."

Summary of *RNCSE* 2015; 35(1):10.1–10.3; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/259/592>

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