

# REPORTS OF THE

## NATIONAL CENTER FOR SCIENCE EDUCATION

DEFENDING THE TEACHING OF EVOLUTION AND CLIMATE SCIENCE

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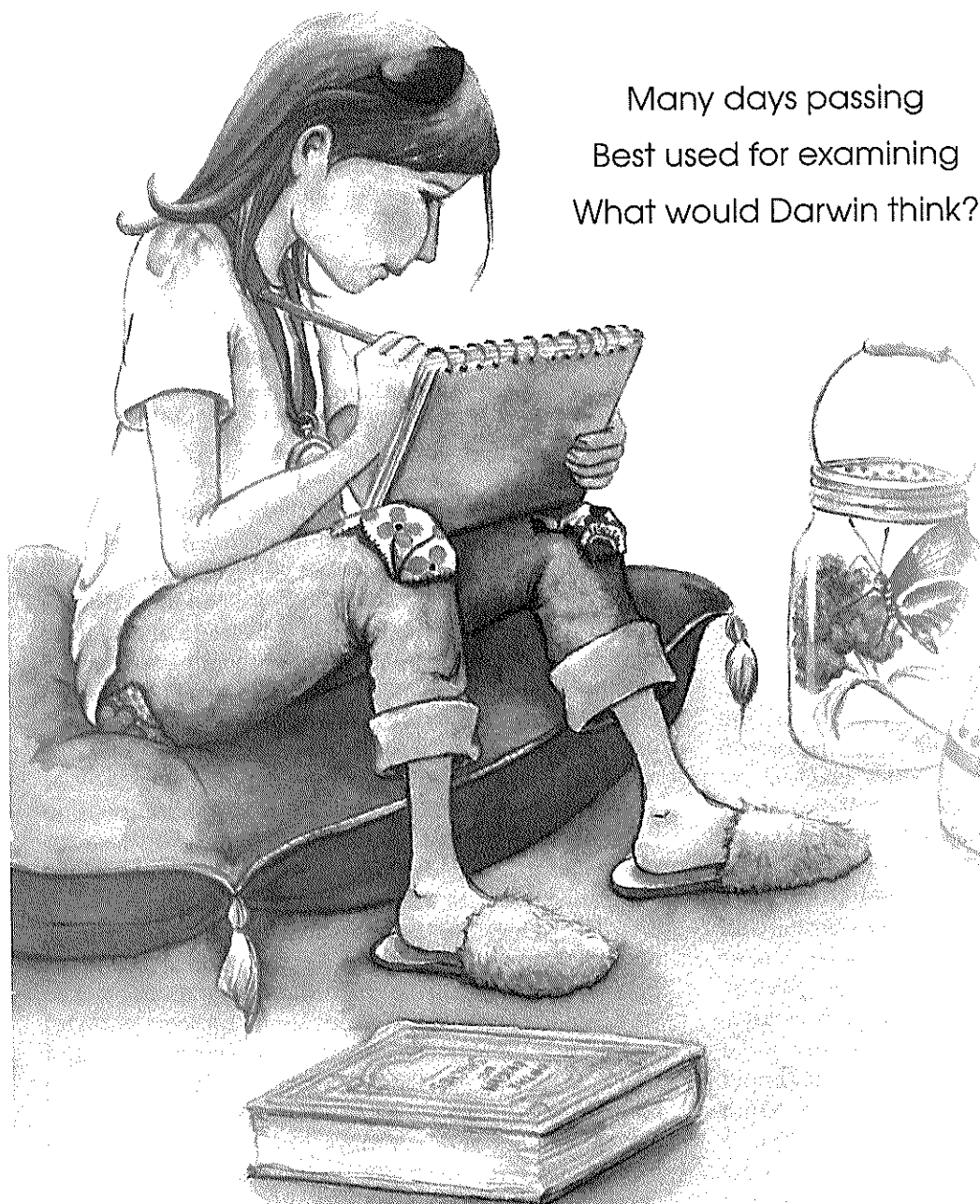
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Many days passing  
Best used for examining  
What would Darwin think?

*The Adventures of Piratess Tilly*

(Piratesstilly.com), illustrated by Karen Watson and written by Elizabeth Lorayne.

# UPDATES

## News from the Field

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

**Indiana:** Indiana's Senate Bill 562 died in the Senate Education and Career Development Committee on February 25, 2015, when the deadline for Senate bills to have their third reading in the Senate passed. If enacted, SB 562 would, in effect, have allowed public school teachers to miseducate their students about science—and would have prevented state and local educational authorities from intervening. The only scientific topic specifically mentioned in the bill was human cloning, which frequently appears alongside biological evolution and climate change in such bills; SB 562 is, however, apparently the first such bill to mention only human cloning. The bill's sponsors were Jeff Raatz (R–District 72) and Dennis Kruse (R–District 14).

Kruse, as it happens, has a long history of sponsoring antievolution legislation. In 1999, while serving in the Indiana House of Representatives, Kruse pledged to introduce a law to remove evolution from the state's science standards, according to the *South Bend Tribune* (1999 Aug 27). Instead, however, he introduced bills that would permit local school districts to require the teaching of creation science—House Bill 1356 in 2000 and House Bill 1323 in 2001. Both bills died in committee. In the Senate, Kruse introduced a similar bill—Senate Bill 89 in 2012—which passed the Senate, but only after it was amended to require the inclusion of “theories from multiple religions, which may include ... Christianity, Judaism, Islam, Hinduism, Buddhism, and Scientology.” SB 89 subsequently died in the House. In late 2012, Kruse told the *Lafayette Journal and Courier* (2012 Nov 10) that he would introduce a bill drafted by the Discovery Institute in the legislature in 2013, but he failed to do so. SB 562 appeared to fulfill his vow.

“Call it a back-door approach to failed attempts to chip away at state standards on teaching evolution and to bring creationism into the public school classroom,” wrote the *Lafayette Journal and Courier* (2015 Jan 20). Raatz told the newspaper, “Could it be seen as an anti-evolution bill? Could be.” He added, “Essentially, we’re saying there are competing theories and we should allow the discussion in the classroom.” NCSE’s Glenn Branch, however, charged that the bill was intended to “free the hands of those few teachers who have funny ideas,” allowing them to “misrepresent the state of the scientific consensus on the issues” with impunity. He added that it would add to pressure on responsible teachers “who ordinarily wouldn’t even consider it, because they know better” to teach creationism or climate change denial.

**Iowa:** House File 272, which would have prevented Iowa from adopting the Next Generation Science Standards (NGSS), died on March 6, 2015, when a deadline for House bills to be reported out of committee passed. According to the *Cedar Rapids Gazette* (2015 Mar 2), the bill’s lead sponsor Sandy Salmon (R–District 63) objected to the fact that the standards were not written in Iowa, but was also “concerned that the standards miss some key math and science concepts, present evolution as scientific fact[,] and shine a negative light on human impacts on climate change.” A lead state partner in the development of the NGSS, Iowa is currently considering whether to adopt the NGSS. After public comments are reviewed, the state board of education will decide.

**Kansas:** The dismissal of 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” is now under appeal. The Associated Press (2014 Dec 31) reported that the plaintiffs in *COPE et al v Kansas State Board of Education et al* filed a notice of appeal with the United States Court of Appeals for the Tenth Circuit on December 30, 2014.

As NCSE previously reported, 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.

In a December 2, 2014, order, Judge Daniel D Crabtree of the United States District Court for the District of Kansas granted the defendants’ motion to dismiss the case. The decision did not address the content of the complaint, instead finding that 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.

As NCSE previously reported, the lead plaintiff, COPE, Citizens for Objective Public Education, is a relatively 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.

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 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>.

**Missouri:** Missouri's House Bill 486, introduced in the Missouri House of Representatives on January 13, 2015, would confer "academic freedom to teach scientific evidence regarding evolution" on teachers. If enacted, the bill would in effect encourage science teachers with idiosyncratic opinions to teach anything they pleased, and discourage responsible educational authorities from intervening. The bill specifically cites "the theory of biological [evolution] and hypotheses of chemical evolution" as controversial.

HB 486 would require state and local educational authorities to "assist teachers to find more effective ways to present the science curriculum where it addresses scientific controversies and permit teachers "to help students understand, analyze, critique, and review in an objective manner the scientific strengths and scientific weaknesses of the theory of biological [evolution] and hypotheses of chemical evolution"; it would prevent such authorities from "prohibit[ing] any teacher in a public school system of this state from helping students understand, analyze, critique, and review in an objective manner the scientific strengths and scientific weaknesses of biological or chemical evolution whenever these subjects are taught." A further section of HB 486 attempts to immunize it against constitutional scrutiny, insisting that the bill "shall not be construed to promote any theistic or nontheistic religious doctrine, promote discrimination for or against a particular set of theistic or nontheistic religious beliefs, or promote discrimination for or against theistic or nontheistic religion."

The sponsor of HB 486 is Andrew Koenig (R-District 99); he is currently the only sponsor of the bill. Koenig was the sponsor of a string of similar bills: HB 1587 in 2014, HB 179 in 2013, HB 1276 in 2012, and HB 195 in 2011. All failed. Koenig was also a cosponsor of a series of bills that would have required equal time for "intelligent design" in Missouri's public schools, including introductory courses at colleges and universities: HB 1472 in 2014, HB 291 in 2013, and HB 1227 in 2012. All failed.

**Michigan:** Michigan's House Bill 4972, which would, if enacted, have required that Michigan's "model core academic curriculum standards shall not be based on the Next Generation Science Standards," died in the House Committee on Education when the legislature adjourned on December 19, 2014.

Although the bill's primary sponsor, Tom McMillin (R-District 45), told the *Petoskey News-Review* (2013 Sep 18) that he was primarily worried about "turning over our standards to unelected bodies," he and cosponsor Greg MacMaster (R-District 105) also acknowledged their concern about the NGSS's inclusion of global warming. "It does get into controversial issues such

as man-made global warming as fact," said McMillin. "That's still somewhat controversial."

Michigan, as one of the twenty-six states that collaborated in the development of the NGSS, is committed to giving serious consideration to their adoption. Michigan Radio (2014 Nov 18) predicted that the state board of education would adopt the NGSS, or a Michiganized version thereof, in the near future.

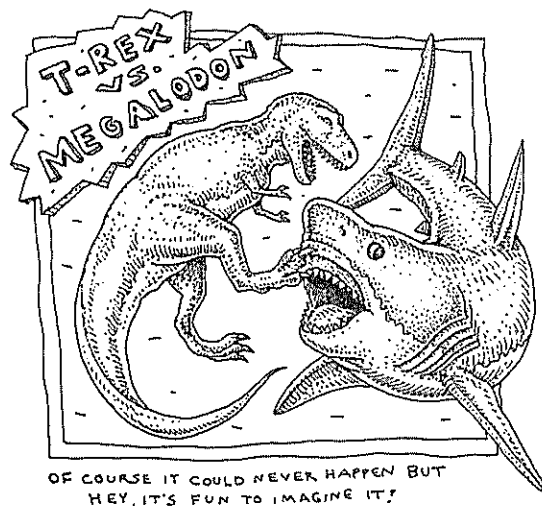
**Ohio:** Ohio's House Bill 597—which, if enacted, would have required students in the state's public schools to "review, in an objective manner, the scientific

strengths and weaknesses of existing scientific theories in the [state science] standards"—died in the legislature, according to the *Cleveland Plain Dealer* (2014 Dec 15).

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

In the House Rules and Reference Committee, the objectionable provision was removed, but it was replaced with the "strengths and weaknesses" language, familiar from antiscience bills across the country. The result was passed by the committee on November 5, 2014, but a member of the committee who voted against the bill told the *Cleveland Plain Dealer* (2014 Nov 5) that she thought that it was unlikely to proceed further or to enjoy wide support in the House.

According to the *Plain Dealer*, Thompson's subsequent attempts to bring HB 597 to a vote and to attach it to other bills were unsuccessful. Thompson told the newspaper, "Repeal will be high on the agenda next year," but was not reported as commenting specifically on the issue of the state science standards.



**Montana:** Montana's House Bill 321, which purported to "encourage critical thinking regarding controversial scientific theories" such as "biological evolution, the chemical origins of life, random mutation, natural selection, DNA, and fossil discoveries," was tabled in the House Education Committee on February 9, 2015.

At the committee's February 6, 2015, meeting, only two testifiers, including the bill's sponsor, Clayton Fiscus (R-District 46), spoke in favor of the bill, while over a dozen testifiers, including scientists, teachers, theologians, school board members, and concerned parents, testified against it.

According to the *Billings Gazette* (2015 Jan 29), the bill "would encourage high school teachers to present evolutionary biology as disputed theory rather than sound science and protect those who teach viewpoints like creationism in the classroom."

"That's all bunk," NCSE's Glenn Branch told the *Gazette*. "[Fiscus] thinks that these whole fields are scientifically controversial, and that's not true." He added that if enacted, the bill would allow teachers with fringe or crank ideas to present them in class, unchecked by administrators.

Craig Beals, a Billings science teacher and the 2015 Montana Teacher of the Year, told the newspaper that he teaches evolution, climate change, and the Big Bang in his classes, adding, "The topics have long been debated not because scientists disagree but because the topics don't always agree with people's beliefs."

**Oklahoma:** Oklahoma's Senate Bill 665, which would, if enacted, have deprived administrators of the ability to prevent teachers from miseducating students about "scientific controversies," died in the Senate Education Committee on February 26, 2015, when a deadline for Senate bills to pass committee expired.

SB 665 would, if enacted, have in effect encouraged science teachers with idiosyncratic opinions to teach anything they pleased—proponents of creationism and climate change denial are the usual intended beneficiaries of such bills—and discourage responsible educational authorities from intervening. No scientific topics were specifically identified as controversial, but the fact that the sole sponsor of SB 665 was Josh Brecheen (R-District 6), who introduced similar legislation that directly targeted evolution in previous legislative sessions, is suggestive.

Brecheen's SB 1765 in 2014—virtually identical to SB 665 in 2015—was opposed by the National Association of Biology Teachers and the American Institute of Biological Sciences, as well as by the grassroots Oklahomans for Excellence in Science Education.

**South Dakota:** South Dakota's Senate Bill 114 is out of commission, following a February 10, 2015, hearing in the Senate Education Committee. The committee voted to defer further consideration of the bill to the forty-first legislative day, and since the legislative session in South Dakota is forty days long in odd-numbered years, the bill is effectively dead.

Identifying "biological evolution, the chemical origins of life, global warming, [and] human cloning" as scientifically controversial, SB 114 would, in effect, have allowed public school teachers to miseducate their students about science—and would have prevented state and local educational authorities from intervening.

Testifying in support of the bill at the committee hearing were representatives of Concerned Women for America, the South Dakota Family Policy Council, and the Discovery Institute; testifying in opposition were representatives of the state department of education, the South Dakota Education Association, and the Associated School Boards of South Dakota.

**Utah:** Utah's new state standards for middle school science education are on hold, reported the *Salt Lake Tribune* (2015 Feb 9)—and evolution and climate change may be the reason.

Although the draft standards were to be released for public review and comment in February 2015, the state board of education's standards and assessment committee decided to postpone their release pending further revisions. Laura Belnap, a member of the board, told the newspaper that the reason for the committee's decision was the incorporation of computer science in the standards.

In a subsequent editorial, however, the *Tribune* (2015 Feb 9) complained that "the state board is in a holding pattern because of a few objections that the proposed standards are too accepting of such 'controversial' scientific principles as evolution and climate change," adding, "in science class they teach science. Evolution and climate change included, or it cannot be called science class."

The editorial may have been prompted by a comment from Vincent Newmeyer, a parent who served on a state committee that reviewed the standards, who felt that the draft standards took a position on controversial subjects. "That is true with global warming, that is true with Darwinian evolution and a number of other things," Newmeyer told the newspaper. "It's not a science class in these areas. It's an indoctrination class."

"With the public review now on hold," the *Tribune* commented, "it is not clear what the next steps for the science standards will be."

**West Virginia:** "At the request of a West Virginia Board of Education member who said he doesn't believe human-influenced climate change is a 'foregone conclusion,' new state science standards on the topic were altered before the state school board adopted them," reported the *Charleston Gazette* (2014 Dec 28).

In December 2014, West Virginia became the thirteenth state to adopt the NGSS. But before the standards were offered for public comment in the state, Wade Linger, a member of the state board of education, asked for changes to downplay climate change. He later told the *Gazette*, "We're on this global warming binge going on here," adding, "We need to look at all the theories about it rather than just the human changes in greenhouse gases."

Tom Campbell, a member of the board who expressed his agreement with Linger, told the newspaper, "Let's not use unproven theories." Asked why he was concerned especially with the "unproven theory" of climate change, he responded, "West Virginia coal in particular has been taking on unfair negativity from certain groups."

What were these changes? Where the NGSS called for high school students to "[a]nalyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems," the revised standard asked them to assess the "credibility" (*sic*) of such data.

Even more strikingly, where the NGSS called for middle school students to "ask questions to clarify evidence of the factors that have caused the rise in global temperature over the past century"—which would include the burning of fossil fuels—the revised standard asked them about "the rise and fall in global temperature."

"When asked how the state Department of Education would ensure that teachers instructing students on the climate change standards actually foster fair debate backed up by solid evidence," the *Gazette* reported, "school officials argued they have little control over local curricula or ability to monitor it."

In the wake of the revelation that the board tampered with the NGSS before adopting them, "[g]roups that support teaching students about the evidence showing that humans are contributing to a global rise in temperatures are speaking out against West Virginia's changes to the state's new K-12 science education standards," reported the *Gazette* (2015 Jan 4).

Among the groups denouncing the changes was NCSE. Mark McCaffrey contributed a column to the *Gazette* (2015 Jan 4), observing, "On climate, the standards follow the National Research Council's Framework for K-12 Science Education, which in turn reflects the consensus of the scientific community."

But, he explained, the revisions compromise the scientific integrity of the NGSS, misrepresenting the facts and conveying "the misrepresentation that climate change is scientifically controversial." He concluded, "the board's revisions to the standards undermine the quality of West Virginia's public education system."

In a January 8, 2015, statement, the West Virginia Science Teachers Association complained that the board's unilateral revisions compromised the scientific integrity of the standards "specifically by casting doubt on the credibility of the evidence-based climate models and misrepresentation of trends in science when analyzing graphs dealing with temperature changes over time."

A few days later, *The New York Times* (2015 Jan 13)

reported that West Virginia's board of education would reconsider its decision to undermine the treatment of climate science in its new state science standards at its January 14, 2015, meeting.

NCSE's Minda Berbeco told *The Times* that the board was "changing the composition of the science to match their own personal views," explaining, "That defeats the purpose of having standards developed by scientific advisory boards." (The NGSS are based on a framework devised by the National Research Council.)

Amy Hessl, a professor of geography at West Virginia University who studies climate change, indicated that the board's changes were misguided, and compared the idea that the board's changes brought balance to the standards with the idea of "bringing someone into the classroom who says smoking is actually good for your health."

At its meeting, the board voted "to withdraw changes proposed to the state's science education standards," reported the *Charleston Gazette* (2015 Jan 14). Following a recommendation from the state department of education, the board agreed to revert to the original version of the sections addressing climate science. After a public comment period, the board is expected to have a final vote in March 2015.



**Wyoming:** Governor Matt Mead signed House Bill 23 into law on March 2, 2015, according to the Associated Press (2015 Mar 2), so Wyoming is now free to adopt the Next Generation Science Standards (NGSS).

The law repeals a footnote in the state budget for 2014–2016 that precluded the use of state funds for "any review or adoption" of the NGSS. The treatment of climate change in the standards was cited as the reason for the footnote.

The blockage of the NGSS was widely condemned by the state's scientists, educators, and newspapers, and the state board of education declined to develop a new set of science standards independent of the NGSS.

Whether the NGSS will in fact be adopted by Wyoming is up to the state board of education, since the law directs the board to "independently examine and scrutinize any science standards proposed or reviewed as a template."

**Scotland:** There was first bad news and then good news for a proposal to ban the teaching of creationism as scientifically credible in publicly funded schools in Scotland. As NCSE previously reported, the Scottish Secular Society filed a petition with the Scottish parliament, calling for a ban on "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."

Part of the impetus for the petition was recent creationist incursions into the Scottish classroom. In 2013, for example, as the *Telegraph* (2013 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 told the parliament, "It is almost impossible to determine the extent to which such creationism has influenced classroom teaching."

The petition received a hearing before the Public Petitions Committee on November 11, 2014. (Among the organizations submitting testimony supporting the proposed ban was NCSE, in a November 7, 2014, letter.) The committee agreed to write to the Scottish government as well as 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.

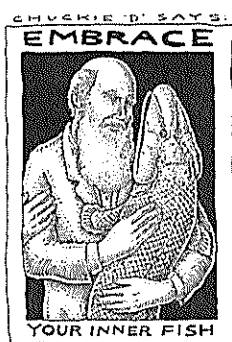
But the government rejected the proposal to ban the teaching of creationism in publicly funded schools in Scotland, according to the *Glasgow Herald* (2014 Dec 16). The head of Curriculum Unit at the Learning Directorate told the newspaper, "I can ... confirm that there are no plans to issue guidance to schools or education authorities to prevent the presentation of creationism, intelligent design or similar doctrines by teachers or

school visitors. The evidence available suggests that guidance on these matters is unnecessary."

The Scottish Secular Society expressed disappointment with the government's response in a December 16, 2014, press release. "The government's submission is not only disappointing but at the same time short sighted and evasive, and fails to recognise the issue," Spencer Fildes commented. "It would seem they are willing to openly endorse the teaching and discussion of Creationism in what they call 'context'; but are unwilling to explicitly state it is forbidden even in the science class."

The petition was revived, however, when, at its January 27, 2015, meeting, the Public Petitions Committee of the Scottish parliament decided to forward the petition to the Education and Culture Committee for further action. The Scottish Secular Society applauded the action in a January 27, 2015, press release, describing the members of the Education and Culture Committee as "the people best placed to consider the matter and understand the importance of good science education to Scotland."

Subsequently, at its March 10, 2015, meeting, the Education and Culture Committee "agreed to write to the Scottish Government to ask it to: clarify its position on the petition; comment on the different approaches to this issue adopted in other parts of the United Kingdom; and, provide its view on the prevalence of creationism teaching in Scottish schools," according to the minutes



## 2015 DARWIN DAY RESOLUTIONS

No fewer than four resolutions were introduced in legislatures to recognize Darwin Day, 2015. In chronological order:

**House Resolution 67.** Introduced in the United States House of Representatives on February 2, 2015, H Res 67 would, if passed,

express the House's support of designating February 12, 2015, as Darwin Day, and its recognition of "Charles Darwin as a worthy symbol on which to focus and around which to build a global celebration of science and humanity intended to promote a common bond among all of Earth's peoples."

Jim Himes (D-Connecticut), the lead sponsor of the bill, explained in a January 26, 2015, press release from the American Humanist Association, "Charles Darwin's discoveries gave humankind a new, revolutionary way of thinking about the natural world and our place in it. His insatiable quest for knowledge and decades of meticulous observation and analysis opened new pathways for advancements in biology, medicine, genetics and ecology." He added, "Without Darwin's contributions to science, philosophy and reason, our

understanding of the world's complexity and grandeur would be significantly diminished."

H Res 67 is the latest in a string of similar bills in the House: H Res 467 in 2014 and H Res 41 in 2013, introduced by Rush Holt (D-New Jersey)—who, having not run for re-election, recently became the chief executive officer of the American Association for the Advancement of Science—and H Res 81 in 2011, introduced by Pete Stark (D-California.) All three of the previous resolutions eventually died in committee.

**Senate Resolution 66.** Introduced by Senator Richard Blumenthal (D-Connecticut) in the United States Senate on February 4, 2015, S Res 66 would, if passed, express the Senate's support of designating February 12, 2015, as Darwin Day, and its recognition of "Charles Darwin as a worthy symbol on which to celebrate the achievements of reason, science, and the advancement of human knowledge."

S Res 66 is the first Darwin Day resolution to appear in the Senate. In a February 5, 2015, press release from the Secular Coalition of America, which worked with Blumenthal on the resolution, Kelly Damerow expressed her "hope that all members of Congress will see these resolutions as a reminder of the historical impact of



of the meeting. Meanwhile, the debate over creationism spread to the Scottish parliament.

**Scotland:** As a result of a controversy over creationist encroachments in the public schools in South Lanarkshire, Scotland, and a petition to the Scottish parliament to ban the teaching of creationism as scientifically credible, there are now dueling motions about creationism in the Scottish parliament.

Motion S4M-12148, lodged on January 23, 2015, and entitled “Crackdown against creationism,” “congratulates South Lanarkshire Council on taking decisive action to prevent the teaching of creationism in schools by introducing new guidance; condemns any promotion of creationism in publicly funded schools, including the reported distribution of creationist books at Kirktonholme Primary School; believes that creationism should not be presented as a scientific theory and viable alternative to the established theory of evolution, and supports the Society of Biology and the Scottish Secular Society position in opposing the teaching of creationism in the classroom.”

The “decisive action” to which the motion refers was the adoption of what the *Glasgow Herald* (2015 Jan 23) described as “a raft of new rules for non-denominational schools including criminal records checks for chaplains and the insistence that teachers should be present during

visits by religious groups” as well as “guidance to ensure homophobic or creationist teaching is barred.” The new rules were adopted after it was discovered in 2013 that young-earth creationist material—books published by Apologetics Press entitled *How Do You Know God is Real?* and *Exposing the Myth of Evolution*—was distributed to students at Kirktonholme Primary School.

Motion S4M-12149, lodged on January 23, 2015, and entitled “Creation and evolution,” notes South Lanarkshire Council’s action without comment, adding, unobjectionably, “some people believe that God created the world in six days, some people believe that God created the world over a longer period of time[,] and some people believe that the world came about without anyone creating it.” But the motion further expresses the view “that none of these positions can be proved or disproved by science and all are valid beliefs for people to hold.” John Mason, who lodged the motion, told the *Glasgow Herald* (2015 Jan 23) that his motion was a response to the “Crackdown against creationism” motion.

In addition to S4M-12148 and S4M-12149, the Scottish parliament may find itself contemplating the issue owing to the Scottish Secular Society’s petition to ban the teaching of creationism in the public schools, which was recently referred to the government by the Education and Culture Committee. ■

science on humanity and its continued importance in our everyday lives.”

**Arizona House Resolution 2002.** Introduced in the Arizona House of Representatives on February 9, 2015, HR 2002 would, if enacted, express the House’s recognition of February 12, 2015, as International Darwin Day.

The resolution acknowledges the 206th anniversary of Charles Darwin’s birth, honors his discovery of natural selection, and cites the theory as “the foundation for ongoing advances in science, health, philosophy, art, education, and many other areas of modern life.” It also celebrates Darwin’s “strength of character” and the “great courage, wisdom and honesty required to explore and publish” his work on evolution, and deems his birthday “an appropriate day on which to celebrate and to reflect and act on the principles of intellectual bravery, perpetual curiosity, and the hunger for truth.” The resolution was introduced by Andrew Sherwood (D–District 26) and Rebecca Rios (D–District 27), whose districts include Arizona State University.

**Pennsylvania House Resolution 83.** Introduced in the Pennsylvania House of Representatives on February 26, 2015, HR 83 would, if enacted, express the House’s recognition of February 12, 2015, as Darwin Day in Pennsylvania.

The resolution acknowledges the 206th anniversary

of Charles Darwin’s birth, honors his discovery of natural selection, and cites the theory as “the foundation for ongoing advances in science, health, philosophy, art, education, and many other areas of modern life.” It also celebrates Darwin’s “strength of character” and the “great courage, wisdom and honesty required to explore and publish” his work on evolution, and deems his birthday “an appropriate day on which to celebrate and to reflect and act on the principles of intellectual bravery, perpetual curiosity, and the hunger for truth.” There are nineteen sponsors of the bill; Brian Sims (D–District 182) and Mark B Cohen (D–District 202) appear to have taken the lead.

“Six states have introduced antievolution measures in 2015, so it’s wonderful to see resolutions like these that recognize the importance of teaching evolution,” commented NCSE’s executive director Ann Reid. “I encourage members and friends of NCSE to urge their representatives to support such Darwin Day resolutions. The problem is real: one of eight US public high school biology teachers are explicitly presenting creationism, and six of ten are reluctant to teach evolution properly. So, yes, support Darwin Day resolutions when you can, but don’t overlook the many ways to defend the teaching of evolution locally.”

# 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!



Photo by Tim Koehel, courtesy of the Department of Biochemistry and Biophysics, The University of California San Francisco via Wikimedia Commons

NCSE is pleased to congratulate **Bruce Alberts** on receiving the National Medal of Science, the nation's highest honor for achievement and leadership in science. In a press release issued on October 3, 2014, President Obama said of the most recent recipients of the National Medal of Science and the National Medal of Technology and Innovations, "These scholars and innovators have expanded

our understanding of the world, made invaluable contributions to their fields, and helped improve countless lives ... Our nation has been enriched by their achievements, and by all the scientists and technologists across America dedicated to discovery, inquiry, and invention."

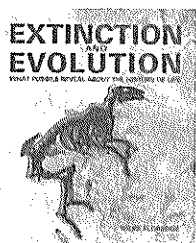
Alberts is Professor Emeritus in the Department of Biochemistry and Biophysics at the University of California, San Francisco, a former president of the National Academy of Sciences, and a former editor-in-chief of the journal *Science*. A member of NCSE's Advisory Council, Alberts received NCSE's Friend of Darwin award in 2004, in recognition of his support of and advocacy for the integrity of science education while at the National Academy of Sciences, when it published both *Teaching about Evolution and the Nature of Science* (1998) and the second edition of *Science and Creationism* (1999). He also received the AIBS Education Award from the American Institute for Biological Sciences in 2009.

**Niles Eldredge's** *Extinction and Evolution: What Fossils Reveal about the History of Life* (Richmond Hills, Ontario: Firefly, 2014) was published. According to the publisher,

This book chronicles how Eldredge made his discoveries and traces the history of life through the lenses of paleontology, geology, ecology, anthropology, biology, genetics, zoology, mammalogy, herpetology, entomology and botany. While rigorously accurate, the text is accessible, engaging and free of jargon.

*Extinction and Evolution* features 160 beautiful color plates that bridge the gap between science and art, and show more than 200 different fossil specimens, including photographs of some of the most significant fossil

discoveries of recent years. This is a book with appeal to a broad general audience, including natural history readers and students.



A member of NCSE's Advisory Council and a recipient of its Friend of Darwin award in 2011, Eldredge is a paleontologist at the American Museum of Natural History.

NCSE is pleased to congratulate **Patricia Kelley**—a professor of geology at the University of North Carolina, Wilmington, and a member of NCSE's Advisory Council—on her selection as one of four Outstanding Professors of the Year by the Carnegie Foundation for the Advancement of Teaching. The award, launched in 1981, is the only national initiative specifically designed to recognize excellence in undergraduate teaching and mentoring. According to a November 20, 2014, press release from the Carnegie Foundation for the Advancement of Teaching, "Judges said they admired Kelley as



Photo by Daniel Peck

a 'highly creative teacher' who has revitalized the study of paleontology at her college, transformed classes to use more active learning strategies and given students a real science experience. They also noted her efforts to help students explore evolution in a spirit of respect."

Reacting to a series of creationist letters to the editor of the *Lincoln Journal-Star*, **Les Lane** reiterated the vast evidential basis for evolution:

Each year, tens of thousands of biological science research papers use the keyword "evolution" and none use the keyword "creationism." Evolution has been widely accepted by the biological community, and no alternative threatens to displace it. For those who read the scientific literature, evidence for evolution has become stronger with time, not weaker. Evolution is central to understanding biological classification and behavior of pathogens. Armchair rationalizing is unlikely to disprove it.

Lane is Professor Emeritus in the Department of Plant Pathology at the University of Nebraska, Lincoln; his letter appeared on December 31, 2014.

NCSE is delighted to congratulate **Richard Lewontin** on being named as a recipient of the Crafoord Prize in Biosciences for 2015. Lewontin and Tomoka Ohta of the National Institute of Genetics in Mishima, Japan, were honored "for their pioneering analyses and fundamental contributions to the understanding of genetic polymorphism," according to a January 15, 2015, press release from the Royal Swedish Academy of Sciences. They will receive their awards at a ceremony in Stockholm in May 2015. A member of NCSE's Advisory Council, Lewontin is Professor Emeritus in the Department of Organismic and Evolutionary Biology at Harvard University.



NCSE is pleased to congratulate **David Morrison**, who received the 2015 Education Prize from the American Astronomical Society. According to a January 16, 2015, press release, the honor recognized “a lifetime of outstanding contributions to the understanding of astronomy by college students and the public and to the debunking of astronomical pseudoscience through his textbooks, popular books, slide sets, websites, articles, public talks, and work with the media. As the primary spokesperson for the scientific response to public fears of a doomsday on 21 December 2012, Morrison exemplified the dedication of scientists who devote themselves to sharing their knowledge and enthusiasm with the public while maintaining the highest standards of technical accuracy.” A member of NCSE’s Advisory Council, Morrison is director of the Carl Sagan Center for Study of Life in the Universe at the SETI Institute.

**Brian Myres** wrote to the *Loveland Reporter-Herald* in Loveland, Colorado, to urge the practical importance of knowledge of evolution. “Knowledge of evolution is critical in medical fields, with evolved antibiotic resistance rampant,” he wrote. “Human genetic conditions must also be examined in terms of their history and evolutionary development; this includes diseases such as sickle-cell anemia and many others. As we engage in the 6th great extinction of life, caused by humans, it is critical to understand how ecological adaptation takes place, and adaptation requires evolution.” His letter appeared on January 11, 2015.

With Lindsay M Barone and Benjamin C Campbell, **Andrew J Petto** published “Predictors of evolution acceptance in a museum population” in *Evolution: Education and Outreach* 2014;7(13), <http://www.evolution-outreach.com/content/7/1/23>. Their paper sought to test whether “acceptance of evolution is a function of both religion and education” in natural history museum patrons as it is in the general population, concluding that it is. They noted that it may be useful for museum staff to understand the attitudes toward evolution of their patrons in planning and assessing the effectiveness of exhibits with evolutionary content. Petto is Senior Lecturer in the Department of Biological Sciences at the University of Wisconsin, Milwaukee, as well as a former member of NCSE’s board of directors and a former editor of *RNCSE*.

Responding to a letter calling for the teaching of creationism in the public schools, **Norman D Smith** wrote to the *Lincoln Journal-Star* (2014 Dec 6) to explain, “Big-bang and evolution are powerful concepts drawn from the works of science. Creationism is not. It is fundamentally a religious idea and is not permitted to be taught as science in public schools, as has been repeatedly affirmed over

the past five decades by federal courts in defense of the First Amendment of the US Constitution.” He added, “If anyone is tempted to take McDermott’s advice to push creationism by getting involved with school boards, they should first examine the Kitzmiller case where a misguided school board met a disastrous outcome for doing exactly that with intelligent design, creationism’s fancy-dress sibling.” Smith is Professor Emeritus in the Department of Earth and Atmospheric Sciences at the University of Nebraska, Lincoln.

**Elliott Sober** received the Carl Gustav Hempel Award from the Philosophy of Science Association for 2014. According to a press release from the association, the award is intended “to recognize lifetime scholarly achievement in the philosophy of science and to acknowledge the example of scholarly excellence and collegiality set by Professor Hempel (1905–1997).” The release noted, “Sober has played a formative role in the establishment of the field of philosophy of biology and has also made essential contributions to the topics of causality and confirmation. He has brought standards of philosophical rigor, clarity, and deep knowledge of evolutionary theory to his philosophical practice, which inspired many younger philosophers to enter the field of philosophy of biology.” A member of NCSE’s Advisory Council, Sober is the William F Vilas Research Professor and Hans Reichenbach Professor in the Department of Philosophy at the University of Wisconsin, Madison.

The February 2015 issue of *The American Biology Teacher* (77:2) was devoted, as usual, to evolution, and **Jason Wiles** along with B Elijah Carter and Lynn M Infanti contributed “Boosting students’ attitudes & knowledge about evolution sets them up for college success” (113–116), in which they explain,

Students who enter college with a solid grounding in, and positive attitudes toward evolutionary science are better prepared for and achieve at higher levels in university-level biology courses. We found highly significant, positive relationships between student knowledge of evolution and attitudes toward evolution as well as between introductory biology course achievement and both precourse acceptance of evolution and precourse knowledge of evolution, among students at a medium-sized private northeastern university. Teachers who scant the teaching of evolution or who do not foster good attitudes toward evolution are compromising their students’ potential for success in science at the college level.

Additionally, NCSE’s deputy director **Glenn Branch** reviewed Kostas Kampourakis’s *Understanding Evolution* (New York: Cambridge University Press, 2014), describing it as a tour de force (150–151). ■

# Ancient Forests and Peripatetic Primates: Alan de Queiroz's *The Monkey's Voyage* Nicholas J Matzke

Biogeography is the study of the geographic distribution of species in space and time. Historical biogeography focuses on estimating the evolutionary events that led to observed geographic ranges. The subject *seems* simple enough—the raw data are basically nothing more than records of where and when identified species have been found. On a local scale, and from a straightforward functionalist perspective, biogeography usually “makes sense.” Form fits function, and function plus environment predicts biogeography. This fits commonsense notions of “design,” and, if one’s view is restricted to a small region, the creationist design argument seems reasonable.

However, the design perspective breaks down as soon as biogeography is examined at larger scales. First, almost all species have restricted ranges, rather than appearing in any habitat where they would thrive. Second, species are often more closely related to species in nearby regions with different habitats, than they are to species in far-away regions with identical habitats.

These sorts of observations are extremely puzzling from the creationist perspective. During the *Beagle* voyage, the young Darwin, not yet a convinced evolutionist, contemplated the peculiar biota of Australia, writing in 1836, “An unbeliever in everything beyond his own reason might exclaim, ‘Surely two distinct Creators must have been at work’” (quoted in Armstrong 2002). Biogeographical data thus revealed some of the first cracks in the creationist paradigm, starting Darwin on the path towards the conclusion that these general biogeographical patterns are better explained as the natural byproduct of species being produced by descent from other species.

The discovery of descent with modification explained the most general and obvious biogeographical patterns, but it also made a certain biogeographical phenomenon puzzling: range disjunction. Range disjunctions are cases where the geographical range of a group of closely related species, such as those within a single genus, is split into two or more distant regions, with the species being absent in between. Such disjunctions were as obvious in the nineteenth century as they are now, and the major explanations in play today can be traced back to Darwin and his contemporaries.

Darwin’s position was “dispersalist”: he argued that even apparently poor dispersers could sometimes make long journeys by hitching rides on birds, floating

vegetation mats, or even icebergs. However, Darwin’s close friend and colleague, the botanist Joseph Hooker, preferred the explanation that disjunct ranges were once connected, and that the contiguous range was broken up by environmental or geological change in intervening regions. This idea, called “vicariance,” became the new conventional wisdom in the 1980s and 1990s.

In *The Monkey’s Voyage*, de Queiroz argues that long-distance dispersal is a crucial process in biogeography, and that vicariance biogeography, “while taking advantage of cladistics and incorporating continental drift, also made a turn down an intellectual cul-de-sac” (2014:76). The book offers a fascinating tour of the science and scientists behind the dispersal/vicariance debate. In particular, I enjoyed his exploration of why vicariance biogeography proponents seem so resistant to letting it go. De Queiroz makes the most of an almost unique combination of interests and abilities. He is familiar with the modern methods of phylogenetics and divergence-time estimation, but also has a knack for boiling the subject down to essentials.

There will always be a need for synthetic works that review important issues in science for nonspecialist readers both inside and outside the professional science community. De Queiroz succeeds spectacularly, and I expect his book will serve as a key introduction for the next generation of biogeography students and biogeography fans.

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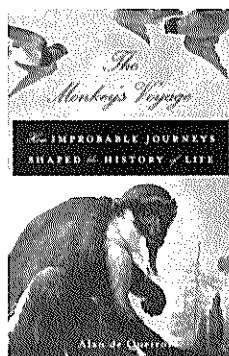
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## AUTHOR’S ADDRESS

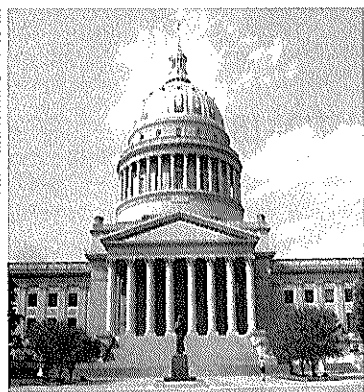
Nicholas J Matzke  
National Institute for Mathematical and Biological Synthesis  
1122 Volunteer Blvd, Suite 106  
University of Tennessee  
Knoxville TN 37996-3410  
matzke@nimbios.org

Nicholas J Matzke is a Postdoctoral Fellow in Mathematical Biology at the National Institute for Mathematical and Biological Synthesis (NIMBioS). He worked at NCSE from 2004 to 2007, assisting the legal team for the plaintiffs throughout the Kitzmiller v Dover case.

Summary of *RNCSE* 2015;35(2):1.1–1.8; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/344/651>



Via Wikimedia Commons.



West Virginia State Capitol Building.

# Speaking Out Against Climate Change Denial in West Virginia

Herman L Mays Jr

In 2014, the West Virginia Board of Education (WVBOE) considered adoption of the Next Generation Science Standards (NGSS). Climate change coverage in the NGSS, however, ran afoul of the interests of some school board members. After content stakeholders, including the West Virginia Science Teachers Association (WVSTA), weighed in on the standards but prior to a thirty-day comment period, WVBOE member Wade Linger introduced language into the NGSS climate-change standards designed to generate doubt in the classroom with regards to the scientific consensus. The changes introduced by Linger attracted media attention ranging from local newspaper articles in West Virginia to *The New York Times*.

A public hearing held on January 14, 2015, provided both supporters and critics of the NGSS changes a forum before the WVBOE. Educators represented a strong voice for robust standards in science education that reflect scientific consensus rather than political ideology and narrow economic interests. Proponents of a climate-change-denial slant in state educational standards were thankfully in the minority at the hearing. I attended as faculty at a West Virginia institution of higher education and as parent of a West Virginia public school student. I voiced my opposition to the watering down of scientific consensus by naïve individuals susceptible to climate change denial rhetoric. In the end, reason and good science prevailed and the content standards on climate change were reverted back to the original language consistent with scientific consensus.

This experience led me to wonder about science denial in general. Why are people so easily led to doubt science? What motivates those who seek to sow confusion and distrust in science, scientists, and our scientific institutions? Climate change denial is but one species in a growing ecosystem of science denial, taking its place alongside creationism. Marc Morano and Craig Rucker of the Committee for a Constructive Tomorrow (CFACT) and a cadre of CFACT-mentored college students were the sole voices in support of climate denial language in the public school science standards at the hearing.

What lay behind their support for educational standards designed to erode acceptance of scientific consensus? Make no mistake, Morano, Rucker, and other climate denialists are hardly interested in a more refined

understanding of nature, nor are they interested in “critical thinking” in education. Climate change denial, like all science denial, is first and foremost driven by ideology. To creationists, a narrow set of religious and ideological precepts trump science. To climate change denialists, adherence to political platforms and desire for private economic gain trump science. Creationists and climate change denialists attempt to mask their ideological motivations because those motivations cannot compete at face value in a public forum. Instead, they follow a time-honored playbook used by industry to combat public policy in everything from leaded gasoline to tobacco. Science denialists invent carefully crafted doubts that they market to a public for the sole purpose of creating a political environment more favorable to their narrow interests. A public poorly prepared to evaluate scientific positions and with an innate, but in this case misplaced, sense of fair play is a fertile ground in which science denialists plant their seeds.

Science denialists seem to be captives of their unexamined ideological motivators. Indeed they seem to think that scientists themselves are their mirror images and captives of an opposing ideology, one that is, in the case of climate change denial, entirely anti-business and, in the case of creationism, necessarily atheistic. They seem to be incapable of conceiving that for scientists, while we are of course prone to bias, that bias in science does not universally point in the same direction nor does it go unchecked. Science denialists are unable or unwilling to accept that scientists are primarily interested in understanding the natural world and less so in furthering narrow economic, ideological or religious convictions.

Climate change, like evolution, is sound science. Imposition of science denial in public education is an especially insidious tactic of the science denial lobby as it erodes the foundation of a representative democratic system to the benefit of a few. Speaking out against climate denial was an eye-opening experience and one that I hope in this recounting will inspire others to confront science denial in all forms in their communities.

## AUTHOR'S ADDRESS

Herman L Mays Jr  
c/o NCSE  
PO Box 9477  
Berkeley CA 94709-0477  
info@ncse.com

*Herman L Mays Jr is an Assistant Professor in the Department of Biological Sciences at Marshall University.*

Summary of *RNCSE* 2015;35(2):2.1–2.11; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/373/663>



# Étienne Geoffroy Saint-Hilaire (1772–1844)

Randy Moore

Étienne Geoffroy Saint-Hilaire was born on April 15, 1772, in Étampes, just outside Paris. Geoffroy earned a law degree from the University of Navarre in 1790. Soon after graduation, however, his interest changed to natural history.

During the French Revolution's "Reign of Terror," one of Geoffroy's university mentors, René Just Haüy, was arrested. Geoffroy, risking imprisonment himself, advocated for Haüy's release, which he finally secured. A grateful Haüy was instrumental in having Geoffroy appointed assistant curator in 1793 at the Jardin des Plantes (later renamed the Museum of Natural History). Soon thereafter, Geoffroy was named professor of zoology.

The following year, a former mentor contacted Geoffroy and recommended Georges Cuvier for employment at the Museum. Although Cuvier and Geoffroy had minor disagreements, their perspectives were somewhat congruent: Cuvier, like Geoffroy, believed that body plans were shared among organisms, but unlike Geoffroy, Cuvier rejected the idea that there was but one body plan template.

Geoffroy's goal of elucidating the common archetypal body plan led him to compare the anatomies of a large number of species, at both adult and embryonic stages. This work resulted in the two-volume *Philosophie Anatomique* (1818–1822). Here, Geoffroy proposed three principles that guide how the basic body plan can be modified: the *principle of development* (organs appear or disappear gradually; this explains the presence of vestigial organs); the *principle of compensation* (the elaboration of one organ requires a corresponding reduction in another organ); and the *principle of connections* (structures can become differentially modified in different organs, but they always maintain the same relative position). Geoffroy used his principle of connections to identify what he called "analogies," or what would now be labeled homologous structures.

Cuvier was not distressed by these proposals; he regarded the vertebrates as sharing one of the four basic body plans that characterized the four branches (or *embranchements*) of animals. However, Geoffroy's *Mémoires sur l'organisation des Insectes* (1820), published in the period between the release of the two volumes of *Philosophie Anatomique*, finally split Cuvier and Geoffroy. In *Mémoires*, Geoffroy extended his argument to propose that arthropods are built upon the same body plan as vertebrates—for example, he suggested that the

exoskeleton of insects is merely a single vertebra used on the outside of the body. Cuvier could not accept this, and he attacked Geoffroy's proposal as being illogical.

In 1830, a paper was submitted for consideration by the Académie des Sciences. The authors applied Geoffroy's principle of connections to suggest that mollusks had the same body plan as vertebrates. Geoffroy responded enthusiastically to the paper (and may have even rewritten parts of it) because it integrated yet another of Cuvier's *embranchements* (the Mollusca) into Geoffroy's unified body plan. Cuvier interpreted this as a public repudiation of his work, and forced a public confrontation

with Geoffroy. Over the course of eight public meetings, the two men debated the merits of their respective positions. Cuvier's vast knowledge of comparative anatomy and his clear and organized speaking skills gave him a significant advantage. In contrast, Geoffroy's halting style did not work in his favor. The debates were interrupted by the overthrow of Charles X, and Cuvier died less than two years later.

Some time between 1798 and 1801, while accompanying Napoleon to Egypt, Geoffroy developed a nervous disorder that caused wild mood swings that plagued him the rest of his life. He married Pauline Brière in 1804, and they went on to have three children, including Isidore, who assumed his father's position at the Museum upon Geoffroy's death. In 1807, Geoffroy was elected to the Académie des Sciences, and was appointed professor of zoology at the University of Paris in 1810. In 1840, Geoffroy lost his sight and was forced to resign from teaching and research in 1841. He died on June 19, 1844.

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## AUTHOR'S ADDRESS

Randy Moore  
University of Minnesota, MCB 3-154  
420 Washington Avenue SE  
Minneapolis MN 55455  
rmoore@umn.edu

Randy Moore is the HT-Moore-Alumni Distinguished Professor of Biology at the University of Minnesota. His latest book (with Seheya Colner) is *Understanding Galápagos: What You'll See and What It Means* (New York: McGraw-Hill, 2013).

Summary of *RNCSE* 2015;35(2):3.1–3.3; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/343/640>



Étienne Geoffroy Saint-Hilaire.  
Via Wikimedia Commons.

# An Interdisciplinary Approach to Evolution Education

Mark Terry

When two other high school teachers and I put our heads together in 1974 to plan a joint study of evolution in our humanities and science classes, we didn't realize we were launching a forty-year project—but that's just what we did. Rather than delivering a curriculum set in stone, teachers of biology, history, English, visual arts, theater, and other disciplines have come together each year since then to map out a fresh unit on evolution. This spring, students at the Northwest School—a private school in Seattle, Washington, serving almost 500 students in grades 6 to 12—will meet Darwin in the latest version of the unit, first conceived of all those years ago.

The collaboration began at the Oakwood School in North Hollywood, California, where English and history were already joined in a multi-year team-taught humanities program. Bringing biology into the picture for a couple of weeks by knitting together the nineteenth-century science of Darwin and Wallace with the changing worldviews of the time seemed a good idea. Including classic comparative anatomy labs, readings from Darwin, and discussion of the Scopes trial via *Inherit the Wind* was an immediate success with both faculty and students.

The three teachers who initiated this approach at Oakwood (including me) moved on to found the Northwest School, where the unit has had an unbroken run since 1980. Over the years, dozens of faculty have brought their particular expertise and perspectives to this program, weaving together material from art history, politics, religion, poetry, literature, theater, US history, and world history.

## SUCCESS AND IMPACT AT THE NORTHWEST SCHOOL

We have been heartened and encouraged by the number of our graduates who have pursued careers involving evolutionary biology, and see this as suggestive that our approach to Darwin has been influential. Examples include a children's book author who, as seen on the cover of *RNCSE*, has portrayed her pirate heroine as a naturalist wondering "What would Darwin think?" (<http://www.piratesstilly.com>). Equally satisfying are the many comments we have received over the decades from graduates (not just those who pursued science) who remember the evolution unit fondly. It is not uncommon for faculty to receive an e-mail along the lines of "Did you see this?" or "What do you think of this?" from an alum when something about evolution, creationism, or a new fossil find hits the national news.

## TRYING THE NORTHWEST APPROACH

We recognize that such large collaborative endeavors are difficult in many school settings. That said, even a single instance of cross-disciplinary effort, experienced during a single period, can rally enthusiasm and interest. Here are just three ideas among countless possibilities:

- American History faculty can join a biology teacher in a study of the important court cases that have dealt with evolution in the public schools. *Scopes*, *Epperson*, *McLean*, and *Kitzmiller* make an excellent set. Students can read and discuss material relevant to trials and decisions, most of which is readily available.
- Math faculty can introduce quadratics along with a study of Hardy-Weinberg principles in population genetics. Population genetics simulations can easily generate "Aha!" moments for students who haven't quite understood natural selection, and it can be stimulating to see quadratics at work in the real world.
- World History faculty can use the lives of Darwin and Wallace as examples of class distinctions in Victorian society. Short biographies of these two will show that despite their very different backgrounds, both men were interested in the same questions and independently came up with remarkably similar ideas.

## DEEPENING UNDERSTANDING

Our understanding of evolution progresses amid strong crosscurrents of social, political, artistic, and philosophical ideas. This is as true today as it was in the nineteenth century. When evolution is taught in our schools, most often it is kept under guard in the single box of biology class, and of course we hope that the science is taught thoroughly and well in biology. But opening that box even a little bit through an interdisciplinary effort can give both students and teachers an opportunity for more engagement and deeper understanding.

## AUTHOR'S ADDRESS

Mark Terry  
Science Department  
Northwest School  
1415 Summit Avenue  
Seattle WA 98122

*Mark Terry is a member of the science faculty of Northwest School in Seattle, which he co-founded and where he served as Head of School from 1983 to 1990. His work in evolution education was recognized by the AIBS and NABT with their Evolution Education Award in 2011.*

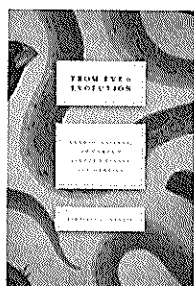
Summary of *RNCSE* 2015;35(2):4.1–4.4; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/356/647>

# SUMMARIES OF BOOK REVIEWS

*Storm of Words: Science, Religion, and Evolution in the Civil War Era* by Monte Harrell Hampton (Tuscaloosa [AL]: University of Alabama Press, 2014; 345 pages). In the 1880s, James Woodrow

lost his professorship at Columbia Theological Seminary over his views of evolution. "Hampton provides a thoughtful historical investigation of this episode, not only within its immediate Southern Presbyterian context but also within the broad regional and national culture of its day," explains reviewer **Walter H Conser Jr**, who concludes, "*Storm of Words* makes an excellent read not just for historians, but for anyone engaged in our own contemporary culture wars."

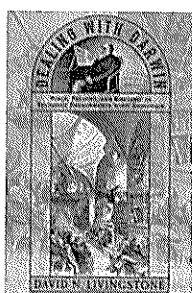
Summary of *RNCSE* 2015;35(2):5.1-5.3; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/330/641>



*From Eve to Evolution: Darwin, Science, and Women's Rights in Gilded Age America* by Kimberly A Hamlin (Chicago: University of Chicago, 2013; 256 pages). According to reviewer **Tina Gianquitto**, *From Eve to Evolution* is mandatory reading "[f]or anyone curious about the reception of evolutionary theory by women in the late nineteenth and early twentieth centuries." She explains that it

"addresses a substantial void in our understanding of the reception and application of evolutionary theory in the United States, offering the first full-length investigation into women's engagement with evolutionary theory and the role that the theory played in the women's rights movement."

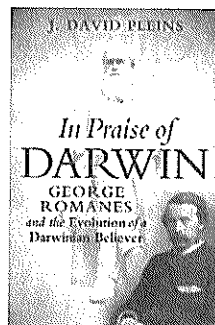
Summary of *RNCSE* 2015;35(2):6.1-6.4; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/363/642>



*Dealing with Darwin: Place, Politics, and Rhetoric in Religious Engagements with Evolution* by David N Livingstone (Baltimore [MD]: The Johns Hopkins University Press, 2014; 265 pages). "Livingston believes that the controversies surrounding Darwinism always reflect the special circumstances of the place where they occurred," writes reviewer **J David Hoeveler**. "Thus, his 'geographies

of reading' take us to five locations in the British Isles and North America ... Edinburgh, Belfast, Toronto, Columbia, South Carolina, and Princeton, New Jersey." Overall, Hoeveler regards the book as "an informing and suggestive examination of the Darwinian episode" with "good guys and bad guys aplenty."

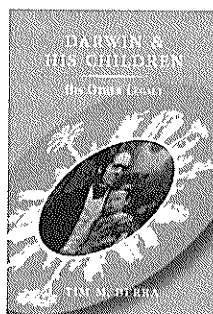
Summary of *RNCSE* 2015;35(2):7.1-7.3; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/323/652>



*In Praise of Darwin: George Romanes and the Evolution of a Darwinian Believer* by J David Pleins (New York: Bloomsbury, 2014; 397 pages). Darwin's disciple George Romanes wrote a poem on the death of his mentor, and, reviewer **John Holmes** writes, "Pleins has made Romanes's poem available to modern readers in full, editing it from a recently

rediscovered typescript and including it as an appendix to his new book *In Praise of Darwin*. ... Pleins's lovingly attentive account of the poem is very helpful in teasing out its engagement with theological questions, Biblical sources, biographical events, and Darwinian evolution."

Summary of *RNCSE* 2015;35(2):8.1-8.3; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/357/667>



*Darwin and His Children: His Other Legacy* by Tim M Berra (New York: Oxford University Press, 2013; 248 pages). "At first glance, the topic of the lives of Darwin's children may seem esoteric and trivial and only of interest to a few Darwinophiles," writes reviewer **Sara B Hoot**. "But reconsider. What better way to get a feel for a man's character than through his interactions with his

family?" She explains, "The first chapter covers Darwin's life and accomplishments, the second discusses his marriage to Emma, and the remaining ten chapters offer biographical sketches for each of his ten children."

Summary of *RNCSE* 2015;35(2):9.1-9.2; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/279/657>

## VIEWS ON CLIMATE CHANGE

Whereas seven out of eight of scientists say that humans are causing global warming, only half of the public agrees, according to a new report from the Pew Research Center. Asked which comes closer to their view, "The earth is getting warmer mostly because of human activity such as burning fossil fuels," "The earth is getting warmer mostly because of natural patterns in the earth's environment," or "There is no solid evidence that the earth is getting warmer," 87% of scientists responding chose the first option, 9% chose the second option, and 3% chose the third option, while 50% of the public responding chose the first option, 23% chose the second option, and 25% chose the third option.

In a separate series of questions, the respondents from the public were asked, "From what you've read and heard, is there solid evidence that the average temperature on earth has been getting warmer over the past few decades, or not?" Yes was the answer of 72% of respondents, with 46% regarding it as "mostly because of human activity such as burning fossil fuels" and 22% regarding it

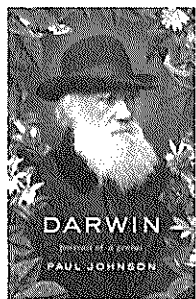




*America's Darwin: Darwinian Theory and US Literary Culture* edited by Tina Gianquitto and Lydia Fisher (Athens [GA]: University of Georgia Press, 2014; 400 pages). According to reviewer **Christoph Irmscher**, “*America's Darwin* collects fourteen

essays that chart, from different angles and with different methods, the ways in which American writers and scientists have tried to normalize Darwin's heterodox vision and integrate it into the cultural fabric of a nation constitutionally averse to thinking that life has no definite purpose. ... after all these years, after torrents of ink spilled, we still haven't quite caught up with that forward-thinking, barnacle-dissecting squire of Down House.”

Summary of *RNCSE* 2015;35(2):10.1–10.3; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/371/668>



*Darwin: Portrait of a Genius* by Paul Johnson (New York: Viking, 2012; 164 pages) and *The Cambridge Encyclopedia of Darwin and Evolutionary Thought* edited by Michael Ruse (New York: Cambridge University Press, 2013; 568 pages). Johnson's biography of Darwin not only is derivative and unexciting but also “says some strange things,” writes

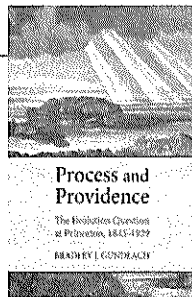
reviewer **John M Lynch**. In contrast, Ruse's encyclopedia, if expensive, offers “a clear survey of the state of contemporary scholarship” on Darwin and his thought, including “a thirty-page introduction by Ruse which details in broad strokes Darwin's life, his ideas, and their influence” that is superior to Johnson's biography.

Summary of *RNCSE* 2015;35(2):11.1–11.3; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/375/669>

as “mostly because of natural patterns in the earth's environment.” No was the answer of 25% of respondents, with 11% agreeing that “we just don't know enough yet about whether the earth is getting warmer” and 13% agreeing that “it's just not happening.”

The respondents from the public were asked whether scientists generally agree that Earth is getting warmer due to human activity, with 57% answering yes and 37% answering no. The report observes, “Perceptions of where the scientific community stands on climate change have fluctuated from a low of 44% in 2010 who said that scientists agree ... to a high of 57% saying this today.” There was a correlation between regarding scientists in agreement on global warming and accepting global warming: “Those who say either that climate change is occurring due to natural patterns in the earth's environment or who do not believe there is solid evidence of climate change are more inclined to see scientists as divided.”

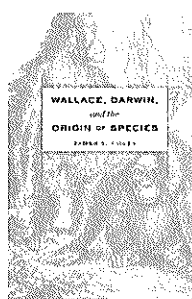
Demographically, the report explains, “[v]iews about climate change tend to differ by party and political ideology, as also was the case in past surveys. Democrats are more likely than either political independents or Republicans to say there is solid evidence the earth



*Process and Providence: The Evolution Question at Princeton, 1845–1929* by Bradley J Gundlach (Grand Rapids [MI]: Wm B Eerdmans, 2013; 408 pages). Reviewer **Matthew Morris** describes *Process and Providence* as providing “a richly

detailed history of Presbyterian responses to the ‘evolution question’ as it developed at the College of New Jersey (today Princeton University) and the related but separate Princeton Theological Seminary” from 1845 to 1929. Despite its detail, Morris recommends the book “to anyone who would like a nuanced historical approach to science–faith interactions, and is not afraid to explore its implications for their preconceived beliefs.”

Summary of *RNCSE* 2015;35(2):12.1–12.3; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/308/660>



*Wallace, Darwin, and the Origin of Species* by James T Costa (Cambridge [MA]: Harvard University Press, 2014; 331 pages). Assessing Costa's account of how Alfred Russel Wallace arrived at the idea of evolution through natural selection, reviewer **Charles H Smith** writes, “This is a very fine treatment of a complicated story; it

benefits from being told by a scientist who understands the biology involved, and who has not taken liberties with documenting the history of Wallace's thought process. This may well be the best single overview of this important episode in the history of thought yet produced, and I highly recommend it.”

Summary of *RNCSE* 2015;35(2):13.1–13.3; the full text is available from: <http://reports.ncse.com/index.php/rncse/article/view/326/661>

is warming. And, moderate or liberal Republicans are more likely to say the earth is warming than are conservative Republicans. Past Pew Research surveys have also shown more skepticism among Tea Party Republicans that the earth is warming. Consistent with past surveys, there are wide differences in views about climate change by age, with adults ages 65 and older more skeptical than younger age groups that there is solid evidence the earth is warming.”

The questions about climate change were part of a larger project, conducted by the Pew Research Center and the American Association for the Advancement of Science, investigating the public's attitude toward science and comparing it to the attitude of scientists. The report relied on two surveys, one conducted by telephone among members of the general public in the United States in August 2014, and one conducted on-line among members of the AAAS in September and October 2014. The broader significance of the project's results are summarized in the Pew Research Center's report ([http://www.pewinternet.org/files/2015/01/PI\\_ScienceandSociety\\_Report\\_012915.pdf](http://www.pewinternet.org/files/2015/01/PI_ScienceandSociety_Report_012915.pdf)), issued on January 29, 2015.

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