



REPORTS OF THE

NATIONAL CENTER FOR SCIENCE EDUCATION

DEFENDING THE TEACHING OF EVOLUTION IN THE PUBLIC SCHOOLS

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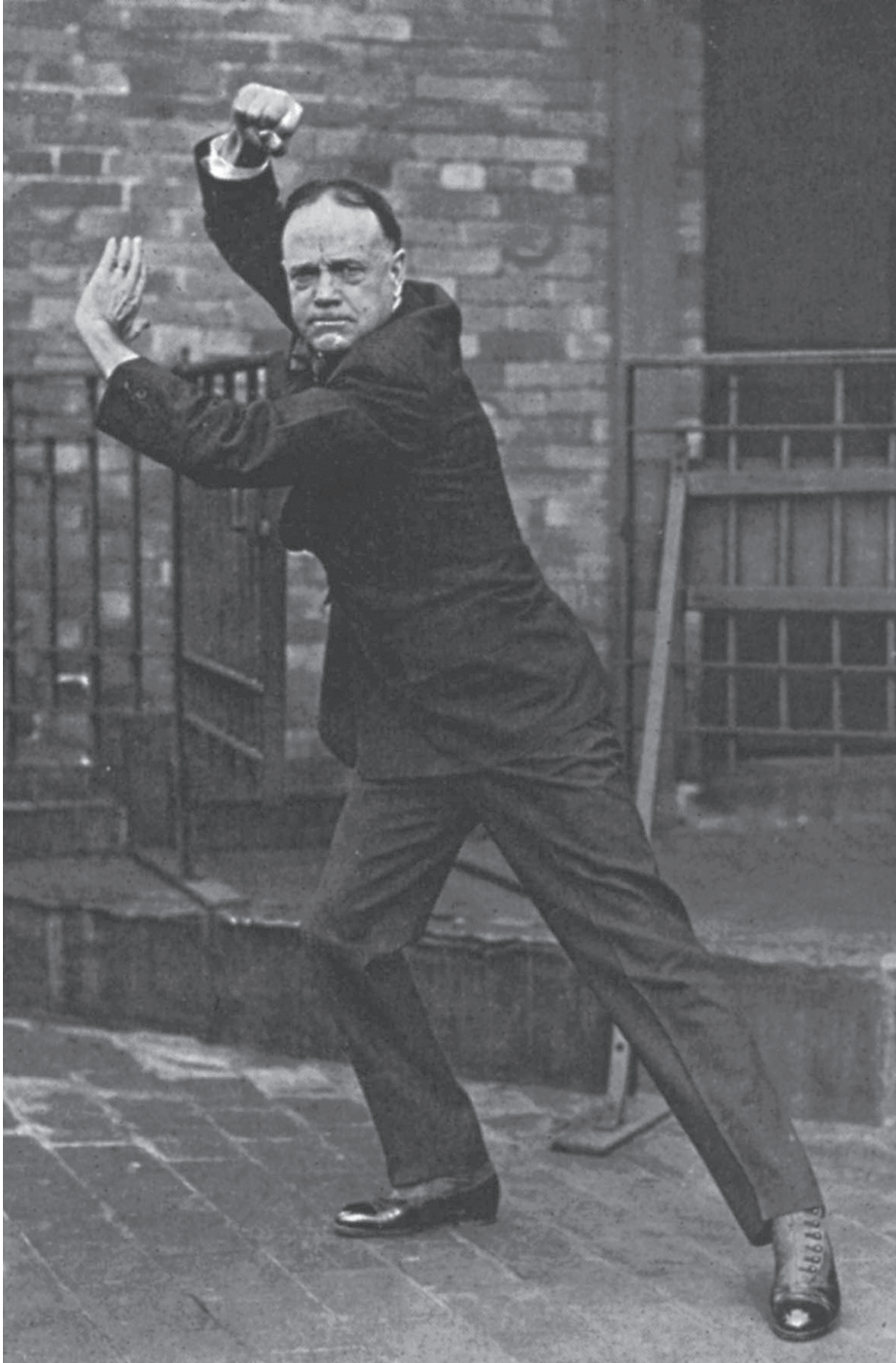


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From time to time we like to report on what our members are doing. As the following list shows, they — and we — have a lot to be proud about!

David Deamer's *Discovering the Connections between Stars, Cells, and How Life Began* (Berkeley [CA]: University of California Press, 2011) was published. The publisher writes:

This pathbreaking book explores how life can begin, taking us from cosmic clouds of stardust, to volcanoes on Earth, to the modern chemistry laboratory. Seeking to understand life's connection to the stars, David Deamer introduces astrobiology, a new scientific discipline that studies the origin and evolution of life on Earth and relates it to the birth and death of stars, planet formation, interfaces between minerals, water, and atmosphere, and the physics and chemistry of carbon compounds. Deamer argues that life began as systems of molecules that assembled into membrane-bound packages. These in turn provided an essential compartment in which more complex molecules assumed new functions required for the origin of life and the beginning of evolution. Deamer takes us from the vivid and unpromising chaos of the Earth four billion years ago up to the present and his own laboratory, where he contemplates the prospects for generating synthetic life. Engaging and accessible, *First Life* describes the scientific story of astrobiology while presenting a fascinating hypothesis to explain the origin of life.

Deamer is Research Professor in the Department of Biomolecular Engineering at the University of California, Santa Cruz.

Douglas Futuyma spoke on "Evolution: The most important theory in biology" on March 24, 2011, at the University of Alabama; his lecture was one in the 2010–2011 Alabama Lectures on Life's Evolution series, known as ALLELE. According to the student newspaper *The Crimson White* (2011 Mar 24), Futuyma began by asserting that evolution is both a theory and a fact: "We have two words which are very loaded words," Futuyma said. "Theory is usually the notion that it is an undemonstrated possibility with very little evidence. However, scientific theory is not a mere speculation or hypothesis, but a statement of well-supported general principles and laws, a complex of statements that together explain many phenomena." A Supporter of NCSE, Futuyma is Distinguished Professor in the Department of Ecology and Evolution of Biology at Stony Brook University.

Glenn Branch is NCSE's deputy director.

Ursula Goodenough, who contributes to National Public Radio's 13.7 Cosmos and Culture blog, recently addressed "The guide of critical thinking: How anti-evolution bills mar science education" there (2011 Apr 21; <<http://www.npr.org/blogs/13.7/2011/04/21/135601285/the-guise-of-critical-thinking-how-anti-evolution-bills-mar-science-education>>), writing, "Perhaps an hour after I posted last week's 13.7 blog praising Florida for its newly adopted Science Standards, I was dealt a low blow: an e-newsletter from the valiant National Center for Science Education (NCSE) appeared in my Inbox reporting that the evolutionary essence of these standards was being challenged by something called Florida Senate Bill 1854." After reviewing the current crop of antievolution bills, she added, "The consensus is that all will 'die in committee' for lack of support. But such deaths are the outcome of considerable vigilance and effort by the likes of NCSE, parents, citizen science advocates, and newspaper editorial writers. It's a hassle. And even when the bills die, the collateral damage is considerable, particularly to the beleaguered science teachers caught in the crossfire. ... their very existence gives teachers the sense that they are walking on eggshells when they arrive at the core topic of biological evolution." Goodenough is Professor of Biology at Washington University in St Louis; the author of *The Sacred Depths of Nature* (New York: Oxford University Press, 1998), she is currently involved in reviewing the biology state standards of all fifty states for the Fordham Institute.

Michael Klymkowsky contributed "Why is evolution so hard to understand?" (2011 Mar; available on-line at <http://www.asbmb.org/asbmbtoday/asbmbtoday_article.aspx?id=11724> to *ASBMB Today*, the newsletter of the American Society for Biochemistry and Molecular biology. Observing "while the random drivers active in biological systems and upon which evolution depends are difficult to grasp or credit, it also is the case that our current education system rarely, if ever, attempts to teach them in a serious and effective manner," he asked, "what would happen if the educational system actually addressed these issues head on? What if biology was taught in a way that stressed the fact that the molecular level processes that underlie evolutionary events are difficult to understand?" Klymkowsky is Professor of Molecular, Cellular, and Developmental Biology and co-director of CU Teach at the University of Colorado, Boulder; he recently reviewed **Matt Young** and Paul K Strode's *Why Evolution Works (and Creationism Fails)* in *RNCSE* 2011;31(1):4.1–4.3.

Al Kuelling contributed "It's time for people of faith to accept evolution" to the United Methodist Church's website (2011 May 25; available from: <<http://www>

umc.org/site/apps/nlnet/content3.aspx?c=lwL4KnN1LtH&b=5723451&ct=10843351> “It is time for [t]he United Methodist Church to overcome its qualms about evolution for the sake of our children, each other and the future of society to work together in accepting the findings of science. Together we need to correct the misconceptions and discard the myths,” he wrote. Accompanying Kuelling’s article was a report (2011 May 25; available from: <<http://www.umc.org/site/apps/nlnet/content3.aspx?c=lwL4KnN1LtH&b=5259669&ct=10843177>>) on current assaults on the teaching of evolution and efforts within the United Methodist Church to support science education, in which Kuelling was quoted as saying, “The concept of biological evolution is the fundamental cornerstone—the glue, so to speak—that binds together the biological sciences ... Evolution is also practically important for things held dear to religion. Humans use evolution daily to understand disease, create pharmaceuticals, increase agricultural yields and much more.” A retired physicist, Kuelling was the author of two statements on evolution that were adopted by the United Methodist Church in 2008, one amending a statement on science and technology to include “We find that science’s descriptions of cosmological, geological, and biological evolution are not in conflict with theology,” and one endorsing the Clergy Letter Project founded by **Michael Zimmerman**.

On February 24, 2011, **Matt Lowry**, the president of the North Shore chapter of Americans United for Separation of Church and State, in the Chicago area, spoke at the chapter’s monthly meeting on the topic of the fifth anniversary of *Kitzmiller v Dover*, the landmark case establishing the unconstitutionality of teaching “intelligent design” creationism in the public schools. A high school physics teacher, Lowry maintains a blog (“The Skeptical Teacher”) at <<http://skepticalteacher.wordpress.com>>.

Nick Matzke, a former staff member of NCSE who is now pursuing a PhD at the University of California, Berkeley, was a coauthor of “Has the earth’s sixth mass extinction already arrived?” published in *Nature* 2011;471(7336):51–57. The abstract of the paper:

Palaeontologists characterize mass extinctions as times when the earth loses more than three-quarters of its species in a geologically short interval, as has happened only five times in the past 540 million years or so. Biologists now suggest that a sixth mass extinction may be under way, given the known species losses over the past few centuries and millennia. Here we review how differences between fossil and modern data and the addition of recently available palaeontological information influence our understanding of the current extinction crisis. Our results confirm that current extinction rates are higher than would be expected from the fossil record, highlighting the need for effective conservation measures.

Referring to the paper’s warning that 75% of extant species could be extinct as soon as 300 years from now, he told the *San Jose Mercury News* (2011 Mar 3), “That’s a geological eyeblink,” adding, “Once you lose species, you don’t get them back. It takes millions of years to rebound from a mass extinction event.”

Responding to a recent report that a representative of the Institute for Creation Research claimed, “with evolution there are no eyewitnesses,” **Terry C Maxwell** wrote to the *San Angelo Standard-Times* (2011 Jun 3) to explain, “Evidence of past events is available to be witnessed by anyone with an interest. Cosmology, astronomy, geology, fossils, molecules, genetics, comparative anatomy all point to a history of change for the universe, solar system, planet and life.” He also emphasized that creationists “are marginalizing their young people’s comprehension in an increasingly science-dependent world.” Maxwell is Professor of Biology at Angelo State University and Curator of Birds at the Angelo State Natural History Collections.

When *Earth: Making of a Planet* aired on the National Geographic Channel in March 2011, **Joe Meert** had reason to be proud. As a March 4, 2011, press release from the University of Florida explained:

Meert became involved when Pioneer [Production]’s head researcher Lindsey Truman contacted him to get scientific details on the triggering of the “snowball Earth” phenomenon after reading a paper on this topic by his research group published in the journal *Nature* in 2004.

“That led to a long conversation and they began to contact me about other parts of the show, particularly the first 45 minutes of programming on the early Earth and then later about the breakup of Pangea and the formation of Middle Eastern oil fields,” he said.

He assisted Truman and assistant producer Zoe Elliot last summer and fall via phone and e-mail. Once the sections of the film using his information were completed, he previewed clips for technical accuracy.

Meert is Associate Professor of Geology at the University of Florida.

NCSE congratulates **Kenneth R Miller** for winning the 2011 Stephen Jay Gould Prize from the Society for the Study of Evolution. Professor of Biology and Royce Family Professor for Teaching Excellence at Brown University, Miller is a Supporter of NCSE as well as a recipient of its Friend of Darwin award. Miller will receive the Gould Prize and present a public lecture on June 18, 2011, at the Evolution 2011 conference in Norman, Oklahoma. The announcement of the award from the SSE described Miller as “an eloquent and passionate defender of evolution and the scientific method,” citing his testimony in *Kitzmiller v Dover*, the 2005 case establishing the unconstitutionality of teaching “intelligent design” in the public schools, as well as his widely used high school textbooks coauthored with Joseph Levine and his books *Finding Darwin’s God* (1999) and *Only a Theory* (2008).

The Stephen Jay Gould Prize is awarded annually by the SSE “to recognize individuals whose sustained and exemplary efforts have advanced public understanding of evolutionary science and its importance in biology, education, and everyday life in the spirit of Stephen Jay Gould.” NCSE’s executive director **Eugenie C Scott** was the recipient of the first Gould Prize, in 2009, followed by NCSE Supporter **Sean B Carroll** in 2010.

Roberta L Millstein reviewed Daniel W McShea and Robert N Brandon’s *Biology’s First Law: The Tendency for Diversity and Complexity to Increase in Evolutionary Systems* (Chicago: University of Chicago Press, 2010) for *Science* 2010;330(6007):1048–1049. Unconvinced by the authors’ claim that their “Zero-Force Evolutionary Law” really is a zero-force law, she nevertheless concluded, “A generalization does not have to be a zero-force law, or a law at all, in order to be important, useful, and informative.” Millstein is Professor of Philosophy at the University of California, Davis; she recently reviewed **Stephen G Brush**’s *Choosing Selection* for *RNCSE* 2010;30(6):32.

Randy Moore, along with D Christopher Brooks and Sehoya Cotner, published “The relation of high school biology courses & students’ religious beliefs to college students’ knowledge of evolution” in *The American Biology Teacher* 2011;73(4):222–226. They explain:

We examined how college students’ knowledge of evolution is associated with their self-described religious beliefs and the evolution-related content of their high school biology courses. On average, students entering college know little about evolution. Religious beliefs, the absence of evolution-related instruction in high school, and the presence of creationism-related instruction in high school were all associated with significantly lower scores on an evolution exam. We present an ordered logistic model that helps to explain (1) students’ diverse views and knowledge of evolution, and (2) why college-level instruction about evolution often fails to significantly affect students’ views about evolution.

A long-time member of NCSE who received its Friend of Darwin award in 2004, Moore is Professor of Biology at the University of Minnesota, Twin Cities.

Ronald L Numbers spoke to the Madison (Wisconsin) Science Pub on March 27, 2011. Former NCSE staffer **Skip Evans**, who helped to organize the event, reported that about fifty people attended to hear Numbers discuss the historical roots of creationism and dispel the misconception that creationism is a uniquely American phenomenon, citing creationist movements in Europe, Turkey, and Australia, as well as strong creationist influences in South Korea and the former Soviet Union. “Many people in the audience told about their own experiences interacting with creationists and speculated about why people accept anti-scientific views like young-earth creationism,” Evans said. Numbers is the Hilldale

Professor of the History of Science and Medicine at the University of Wisconsin, Madison, and the author of several books, including *The Creationists: From Scientific Creationism to Intelligent Design* (Cambridge [MA]: Harvard University Press, 2006). The Madison Science Pub (<<http://madsciencepub.org/>>), sponsored by Wisconsin Citizens for Science, Madison Skeptics, and the Humanist Union of Madison, offers free monthly discussions with experts from various fields on topics of scientific interest.

Gregory S Paul’s *The Princeton Field Guide to Dinosaurs* (Princeton [NJ]: Princeton University Press, 2010) was named one of *Library Journal*’s best reference works for 2010. The journal’s reviewer commented, “Paul, a leading dinosaur illustrator and researcher who served as a consultant for the movie Jurassic Park, discusses 735 species, 130 with color life studies including scenic views and 450 with skeletal, skull, head, and muscle drawings. The species accounts are preceded by sections on dinosaur history, biology, and extinction.”

David N Reznick was elected to the American Academy of Arts and Sciences. According to a press release from the Academy issued on April 19, 2011, “The 212 new members join one of the nation’s most prestigious honorary societies and a leading center for independent policy research. Members contribute to Academy studies of science and technology policy, global security, social policy and American institutions, the humanities, and education. ... Since its founding in 1780 by John Adams, James Bowdoin, John Hancock, and other scholar-patriots, the Academy has elected leading ‘thinkers and doers’ from each generation, including George Washington and Benjamin Franklin in the eighteenth century, Daniel Webster and Ralph Waldo Emerson in the nineteenth, and Albert Einstein and Winston Churchill in the twentieth. The current membership includes more than 250 Nobel laureates and more than 60 Pulitzer Prize winners.” Professor of Biology at the University of California, Riverside, Reznick is the author of *The Origin Then and Now: An Interpretive Guide to the Origin of Species* (Princeton [NJ]: Princeton University Press, 2010; reviewed in *RNCSE* 2011;31(2):7.1–7.3).

After New Jersey’s governor Chris Christie stated that he believed that school districts should decide for themselves whether to teach creationism, **Thomas P Smith** replied in a letter published in the *Times of Trenton* (2011 May 20). Smith noted that New Jersey’s acclaimed science standards “strongly support the teaching of evolution as the foundation for understanding biological science.” Referring to the research scientists employed in the state’s pharmaceutical industry, he added, “To refuse to comment about the pseudo-science espoused by creationism is to denigrate the work of these scientists. It also brings into question the state’s support of a strong and well-educated scientific work force.” And he concluded, “There is no scientific evidence for creationism. If it is taught at all in public

schools, it should be in a comparative religions course, not biology.” A veteran science teacher in the Garden State, Smith currently serves on the executive boards of the New Jersey Science Teachers Association and the New Jersey Mathematics–Science Education Coalition.

Art Shapiro was on the cover of the alternative weekly *Sacramento News & Review* (22[46]; 2011 Mar 3) under the title “Butterflyman”. “Shapiro happens to be one of the world’s butterfly experts, a ‘biodiversity guru’, as one of the students in the class puts it, or ‘a walking encyclopedia’, says another—and, as it happens, the mastermind behind one of the United States’ leading indicators of a changing climate as well as a changing landscape.” The article reviewed Shapiro’s career, from fifth-grade entomologist to undergraduate studying with Robert MacArthur to professor at the University of California, Davis, where he has been teaching and researching for thirty years, and also explained his extensive work on how climate change is affecting the ecology of butterflies. Shapiro is Professor of Ecology and Evolution at the University of California, Davis.

Pat Shipman’s *The Animal Connection: A New Perspective on What Makes Us Human* (New York: WW Norton, 2011) was published. The publisher writes:

Why do humans all over the world take in and nurture other animals? This behavior might seem maladaptive—after all, every mouthful given to another species is one that you cannot eat—but in this heartening new study, acclaimed anthropologist Pat Shipman reveals that our propensity to domesticate and care for other animals is in fact among our species’ greatest strengths. For the last 2.6 million years, Shipman explains, humans who coexisted with animals enjoyed definite adaptive and cultural advantages. To illustrate this point, Shipman gives us a tour of the milestones in human civilization—from agriculture to art and even language—and describes how we reached each stage through our unique relationship with other animals. *The Animal Connection* reaffirms our love of animals as something both innate and distinctly human, revealing that the process of domestication not only changed animals but had a resounding impact on us as well.

Shipman is Adjunct Professor of Anthropology at Pennsylvania State University.

David R Vinson delivered a Darwin Day talk on “How to talk to evangelicals about evolution” to the San Francisco Atheists on February 27, 2011. He reported by e-mail, “I used an analogy from Dawkins’s *Climbing Mount Improbable*, which avers that big changes happen in small, incremental, cumulative steps. So rather than disparaging the Christian who shifts from ‘magic Bible and anti-science’ to ‘human Bible and pro-science’, atheists should celebrate that evolutionary move toward more rational thought. My teaching among evangelicals hopes to facilitate that transformation by providing

gentle ‘environmental pressures.’” A clinical researcher and emergency physician, Vinson maintains a website devoted to science-and-religion issues at <<http://sites.google.com/a/drvinson.net/home/>>; his review of Denis Alexander’s *Creation or Evolution: Do We Have to Choose?* will appear in a future issue of *RNCSE*.

David B Wake, NCSE Supporter **Marvalee H Wake**, and Chelsea D Specht’s “Homoplasy: From detecting pattern to determining process and mechanism of evolution” was published in *Science* 2011;331(6020):1032–1035. The abstract of the paper:

Understanding the diversification of phenotypes through time—“descent with modification”—has been the focus of evolutionary biology for 150 years. If, contrary to expectations, similarity evolves in unrelated taxa, researchers are guided to uncover the genetic and developmental mechanisms responsible. Similar phenotypes may be retained from common ancestry (homology), but a phylogenetic context may instead reveal that they are independently derived, due to convergence or parallel evolution, or less likely, that they experienced reversal. Such examples of homoplasy present opportunities to discover the foundations of morphological traits. A common underlying mechanism may exist, and components may have been redeployed in a way that produces the “same” phenotype. New, robust phylogenetic hypotheses and molecular, genomic, and developmental techniques enable integrated exploration of the mechanisms by which similarity arises.

Both Wakes are professors in the Department of Integrative Biology at the University of California, Berkeley.

Reacting to House Bill 368—later dubbed “the monkey bill”—in Tennessee, **George Webb** wrote a column for *The Tennessean* (2011 Mar 1), commenting, “I find the most recent effort to compromise the quality of science teaching in the public schools ... both curious and disquieting.” Acknowledging that it is useful to discuss historical scientific controversies in science classes, he emphasized that the “controversial” topics itemized in HB 368—including evolution—are not scientifically controversial; to claim otherwise “reveals an inadequate grasp of the history and practice of science.” Moreover, he argued, “If teachers are expected to examine these so-called controversies in the science classroom, they will obviously have less opportunity to discuss the topics included in the Tennessee Science Framework.” Observing that the Framework reflects the consensus of the scientific and science education communities, he remarked, “It is difficult to imagine how teaching less science so that so-called controversies may be included in the curriculum will result in greater scientific knowledge.” Webb is Professor of History at Tennessee Tech University and the author of *The Evolution Controversy in America* (Lexington [KY]: University of Kentucky Press, 1994).

from THE STAFF

A sampling of what we at NCSE headquarters have been doing to defend the teaching of evolution in the public schools—and beyond.

PETER HESS writes:

Since December 2010, I have been corresponding with teachers in Santa Rosa, California, where the appointment of a new Roman Catholic bishop has become a cause for alarm. Robert Vasa (pronounced “Vasha”) is a very conservative, authoritarian former Bishop of the Diocese of Baker in Oregon, a product of the Diocese of Lincoln, Nebraska, which under Archbishop Fabian Bruskewitz is the most conservative diocese in the United States. Vasa was recently appointed Coadjutor Bishop of Santa Rosa, with right of succession, and science teachers in Diocesan schools have become legitimately alarmed for their ability to teach science properly.

Part of the reason for their alarm is that while in his last post, in Bend, Oregon, Vasa penned the foreword to a book (sponsored by the YEC-oriented Kolbe Center), by Victor P Warkulwiz, *The Doctrines of Genesis 1–11: A Compendium and Defense of Traditional Catholic Theology of Origins* (Bloomington [IN]: iUniverse, 2007). Vasa wrote positively of this turgid and repetitive book,

He very cogently points out that many of the accepted scientific conclusions which contradict the days of creation and the great flood are based on a variety of unproven premises which are pillars set firmly on sand. Father [Warkulwiz] very adeptly tackles the complex issues of cosmogony, astronomy, astrophysics, mathematics, nuclear science, evolutionary theory, geological uniformitarianism, radiocarbon dating, big bang theory, and others to show that the observed phenomena which they try to explain are just as readily, properly and easily explained by such Genesis factors as direct creation by God and the Genesis Flood. (p xxxi)

The concern of science teachers in Santa Rosa is that Bishop Vasa may decide that it is within his purview to purge the curriculum of old-earth and evolutionary ideas. While not a direct threat to public school science education, such a move could set up a false and un-

A BELATED THANK-YOU

Inadvertently omitted from the list of donors in *RNCSE 2011;31(1):10–11* was a donation from Peter K and Incy Brooks in honor of Kevin Padian. We apologize for the error.

necessary antagonism between religious schools and the scientific community.

I had previously been in contact with a director of religion education for the Diocese of Santa Rosa, who had hoped to organize an ongoing diocese-wide workshop for elementary school faculty on the subject of science (particularly evolution). It is not an encouraging sign that since the appointment of Bishop Vasa, there has been complete silence from the director’s office.

ERIC MEIKLE writes:

In February 2011, I attended the annual meetings of the American Association for the Advancement of Science (AAAS) in Washington DC. I was able to meet and talk to many NCSE members and friends while staffing our booth in the exhibit hall (along with Robert Luhn and Genie Scott). We distributed hundreds of our new Darwin buttons, with our URL, to booth visitors. I was also able to attend various interesting sessions dealing with some of NCSE’s major concerns, including “The Challenge of Teaching Evolution in the Islamic World”, “Evangelicals, Science, and Policy”, and “Aiming for Scientific Literacy by Teaching the Process, Nature, and Limits of Science”. The most light-hearted (and crowded) session I saw was on “The Science of Comedy: Communicating with Humor”, which was filled with good advice for anyone who talks to the public, as well as some good jokes.

While in Washington, I was also able to participate in a very interesting workshop, not part of the AAAS meetings, organized by the Human Origins Program at the Smithsonian and the National Evolutionary Synthesis Center’s working group on communicating the relevance of human evolution. The workshop, “Overcoming the Stumbling Blocks to Communicating Human Evolution”, brought together about four dozen anthropologists, teachers, writers, and other educators who have collective experience across the entire spectrum of human evolution education for lively discussion of some of the common problems or challenges we have all faced in dealing with this topic. We were also able to tour the excellent new Hall of Human Origins at the National Museum of Natural History, which I strongly recommend to anyone visiting the area.

Then in March 2011, I attended the National Science Teachers Association meetings in San Francisco in my new capacity as Education Project Director at NCSE. This annual convention of the largest organization of science teachers gave me the chance to make or renew contacts in the education community, while touching base with more of our friends and colleagues. I was again able to attend sessions dealing with how to teach evolution at various grade levels, teaching materials and techniques, and the development of science standards. The exhibit hall contained a very large range of currently available materials and textbooks relevant to all the sciences, not just evolution.

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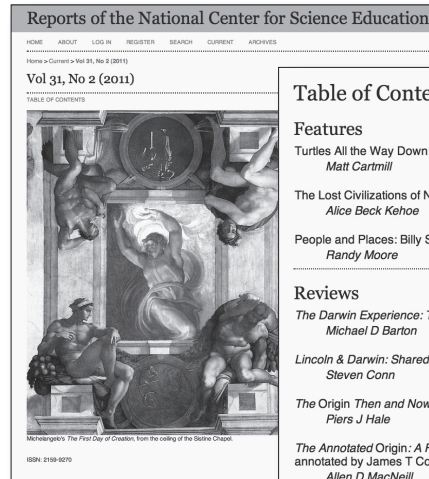


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STEVEN NEWTON writes:

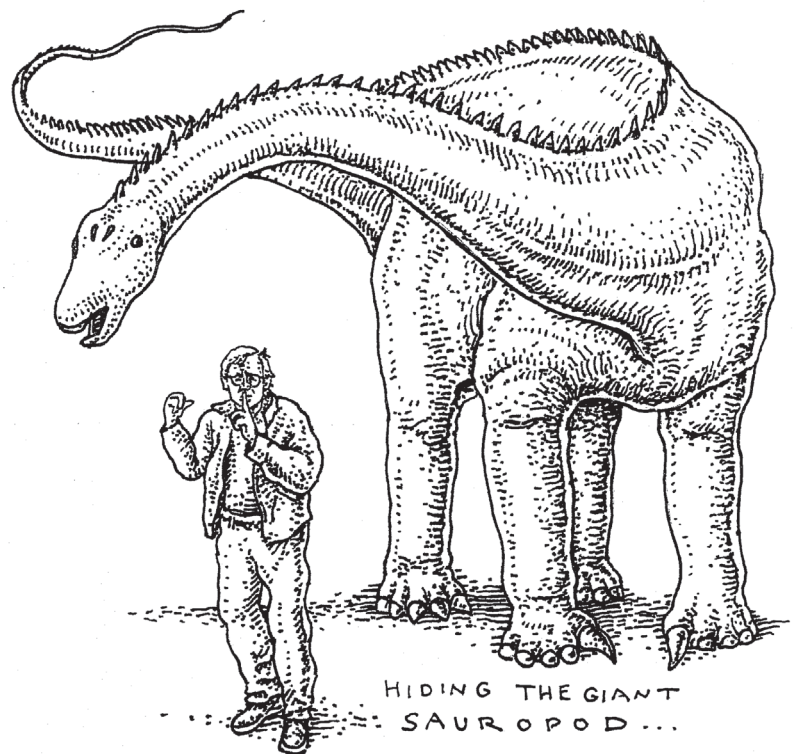
Josh Rosenau and I were invited to speak at a symposium called Science & Technology in Society: Effective Communication Strategies, at the West Virginia University at Morgantown in April 2011. This conference focused on issues of science communication, and Josh and I did quite a bit of communicating, speaking to four separate audiences on a variety of topics.

Josh and I first spoke to West Virginia University geography and geology majors on the topic of how long-held creationist tactics against science are now being employed by climate change denialists. This is a topic near and dear to us; it is startling—and sometimes even amusing—to discover the same hackneyed creationist tactics being retasked for another anti-science purpose.

We then spoke to conference attendees on how misconceptions about the nature of science can lead to problems in communicating real and alleged controversies in science. We followed this talk by a workshop for scientists on communicating effectively with the media. Our work at NCSE well positioned us to have a lot to say about this latter topic; both Josh and I started with a training in science, but now work on a daily basis communicating science to non-scientists. Josh and I capped the evening by meeting with the Morgantown Freethinkers, who were interested to learn about the variety of anti-evolution activities happening around the country.

Morgantown is a charming town, with old brick buildings rising from steep hills. We don't tend to see that here in California—brick buildings are terrible for quakes, and in order to save a nickel, developers here prefer to build on boring flatlands. But hills give a city views and character (think vertiginous San Francisco versus planar Los Angeles), and Morgantown has both.

I was also much impressed by West Virginia University, which, I learned, plans to hire 100 tenure-track professors in the next year. This struck me as a revealing contrast with the situation in California, where some of the colleges where I have taught are currently considering eliminating entire departments and firing tenured professors. It seems California could learn a few things from West Virginia on how to manage its universities. ■



Turtles All the Way Down: The *Atlas of Creation*

Matt Cartmill

The *Atlas of Creation* (Yahya 2007), a huge, gorgeous creationist treatise by Adnan Oktar (pen name: Harun Yahya), has a big following in Turkey and throughout the Islamic world—so big that a Turkish court acted to block biologist Richard Dawkins’s website, which described the book as “preposterous” and “inane”, in Turkey. Many Christian creationists, who look on the Qur’an and the *Origin of Species* (Darwin 1859) alike as works of the Devil, will be surprised both at the growing, well-funded Islamic opposition to evolution and the familiarity of the arguments.

Oktar is an “old-earth” creationist—he admits that the universe is billions of years old, and that life on earth dates back hundreds of millions of years. He concedes that ancient faunas do not look like modern ones, and that they look less modern the farther back we go in time. However, he insists that evolution is a fraud because there are many fossils that are “identical” to living organisms. His evidence consists of huge, glossy photomontages showing fossils alongside similar-looking modern animals and plants, with captions asserting their sameness.

For example, on page 525 a Cretaceous turtle is paired with a Galápagos tortoise. The fossil is a water turtle 18 cm long; the modern animal is a 250-kilogram land tortoise a meter in length. Oktar insists that the fossil turtle, “which is identical with the turtles of our day, once again stresses what Darwinists are reluctant to see: Living beings have not changed for millions of years. In other words, they have not evolved.”

How can these two grossly dissimilar animals be identical? Apparently, what “identical” means for Oktar is that these turtles can be classified together at some level. A zoologist would say that they belong to the same superorder of reptiles, Chelonia. If Oktar’s argument means anything, it must mean something like: “All turtles are chelonians, and since the earliest chelonians are by definition already chelonians, evolution has not occurred.”

Oktar’s claim that all turtles are “identical” is like saying that humans and mice are identical because they belong to the same superorder of mammals. The argument presented by most of the pages of this beautiful, brainless picture book reduces to something like, “There were turtles of a sort in the distant past; there are turtles of a sort today; therefore evolution is a myth.”

In an on-line posting defending blocking Dawkins’s website, Oktar’s lawyer contrasts Dawkins’s rudeness with the respectful politeness of Oktar. “Not a single disrespectful word about anyone holding different opinions can be found in any of my client’s more than 300 books,” he writes, “nor in any of the dozens of web sites based on his opinions” (<http://armenhes.blogspot.com/2008/10/turkish-censor-celebrates-darwin.html>). I haven’t read all of Oktar’s 300 books, but I can testify that Oktar’s condescending dismissal of Darwin in the book’s first pages exemplifies its tone:

Darwin’s claims were of course based on no scientific evidence or findings. But since the scientific understanding and technological means available at the time were at a fairly primitive level, the full extent of the ridiculous and unrealistic nature of his assertions did not emerge fully into the light of day. (p 14)

I love the phrase “of course” in that first sentence. Anyone who has so much as leafed through a copy of the *Origin of Species* cannot help being impressed by the vastness and breadth of the evidence that Darwin weaves into his long, deep argument. It is contemptuous, foolish, and arrogant to claim that Darwin’s theory had no scientific basis. This is not simply false; it is the exact opposite of the truth.

Oktar might want to consider putting more time into thinking and less into writing. Admittedly, thinking comes slowly and painfully to most of us. Darwin spent 19 years thinking about natural selection before he published a book on the subject. The result is generally regarded as one of the most important monuments of scientific inquiry and triumphs of the human intellect. But then, the *Origin of Species* is only one book. And anyone who wastes so many years thinking about and seriously studying a subject is never going to manage to publish 300 books about it.

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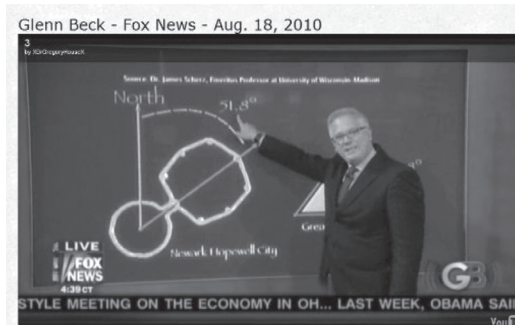
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Summary of *RNCSE* 2011;31(2):1.1–1.10; the full text is available from: reports.ncse.com/index.php/rncse/article/view/22/13

The Lost Civilizations of North America Found ... Again!

Alice Beck Kehoe



Glenn Beck, the Fox Network talk-show personality, recently featured the DVD *The Lost Civilizations of North America* on his show and exclaimed, “I was blown away”—not, apparently, by the Midwest’s impressive earthen architecture of Hopewell, Cahokia, and Mississippians documented in the video, but by their apparent affirmation of a Mormon claim that the Lost Tribes of Israel inhabited North America. Beck converted to Mormonism (<<http://www.religiondispatches.org/archive/politics/1885/>>), which teaches that “lost tribes of Israel” came to America, and “that Zion (the New Jerusalem) will be built upon the American continent” as written in the Book of Mormon. The artifacts discovered in the Midwest during the 19th century and the surviving earthworks were all the evidence Beck needed to fulfill this prophecy.

In an approach familiar to readers of *RNCSE*, the producers of the DVD, Barry McLerran and Rick Stout, interviewed researchers with expertise on North American archeology—Terry Barnhart, Kenneth Feder, Sonya Atalay, Deborah Bolnick, Bradley Lepper, Alice Kehoe, and Roger Kennedy—at length. Then they skillfully edited the interviews to make it appear that we agreed with the film’s thesis: that various artifacts shown in the film gave evidence supporting the Mormon story.

The producers had said the film would be about appreciating First Nations’ achievements, but the connection to the Mormon legend had not been disclosed. When the producers sent the scholars a rough version of the film in March 2010, it provoked immediate demands for rectification of this misrepresentation. Two of the younger scholars contacted legal counsel at their universities about possible lawsuits, should the film be released with distortions of their interviews.

Proof of the Mormon evangelical purpose of the DVD—and not just poor documentary making—is apparent at the Book of Mormon Evidence website (<<http://www.bookofmormonevidence.org/index.php>>), which describes the DVD as

new evidences for the Book of Mormon as a literal historical record of real people and places. ... Watch ... Glenn Beck on FOX NEWS referencing this documentary film. ... This hour long film will forever change your view about the strength of the claims of the Book of Mormon relative to where it may have taken place.

In response to Beck’s program, archeologist Bradley Lepper of the Ohio Historical Society described Beck’s distortions in the *Columbus Dispatch* (2010 Dec 29; <http://www.dispatch.com/live/content/local_news/stories/2010/12/29/dvd-stirs-up-archaeological-spat.html>). The newspaper noted, “Beck’s program did not respond to requests for comment.” Within the Mormon church, fierce controversy rages over whether the Midwest or Mesoamerica is the location of the Book of Mormon history. *The Lost Civilizations of North America* DVD is ammunition in that war.

The Lost Civilizations of North America DVD can be ignored since it misrepresents reputable interpretations of Midwest archaeological data—except, perhaps, by those interested in the persistence of pseudoarcheological claims about the cultures and peoples of North America before European colonization. It is unfortunate that Glenn Beck did not use his forum to emphasize the true charge that Manifest Destiny propaganda fed the racist denigration of America’s past and its First Nations citizens, a story well told in Roger Kennedy’s *Hidden Cities: The Discovery and Loss of Ancient North American Civilization* (1994). Readers interested in archaeological controversies, serious or pseudoscientific, will enjoy my *Controversies in Archaeology* (2008).

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Summary of *RNCSE* 2011;31(2):2.1–2.3; the full text is available from: reports.ncse.com/index.php/ncse/article/view/23/14



Billy Sunday

1862–1935

Randy Moore

William A “Billy” Sunday was born on November 19, 1862, near Ames, Iowa. After spending his formative years at the Iowa Soldiers’ Orphans’ Home, he played professional baseball, first for the Chicago White Stockings (later the Cubs) and the Pittsburgh Alleghenies (later the Pirates). After quitting baseball to become “Secretary of the Religious Department” at the Chicago YMCA, Sunday became a traveling revival preacher.

Sunday’s sermons were acrobatic, theatrical, and often violent. Although his critics considered him “the worst thing that ever happened to America,” branded him a hypocrite, and labeled his services “circus salvation,” Sunday’s impassioned and unwavering world-saving message of civic cleanup, no-nonsense fire-and-brimstone, patriotism, and simplified “old-time religion” made him the most popular religious figure of his time. Sunday promised the greatest show around, and he delivered.

During his prime, Sunday’s crusades were conducted in enormous, specially constructed tabernacles. For example, “The Glory Barn” for his 1917 revival in New York City seated almost 20 000 people. During a typical crusade, Sunday preached two or three times per day, six days per week for three to eight weeks, and drew up to 40 000 people per day. For example, during his 1917 crusade in New York, conservative estimates projected that Sunday spoke to nearly a quarter of the city’s 5 million residents. He was sought by celebrities such as William “Buffalo Bill” Cody, HJ Heinz, Woodrow Wilson, William Taft, Warren Harding, Herbert Hoover, and Cecil B DeMille, who described Sunday as “the only man who works harder than I do.” Although in baseball Sunday had been a minor star, in evangelism he was king.

Sunday crusaded against a variety of social ills, and especially against the evils of theater, dancing, gambling, and liquor. In 1915, Sunday teamed with William Jennings Bryan to lead a national campaign for temperance; in Philadelphia, Bryan and Sunday told a crowd of more than 25 000 that they were forming a 10 000-man “abstinence army” and declared the first Sunday in November “World Temperance Day”. Sunday’s famous “Booze Sermon” was printed in books and newspapers across the country, and resulted in Sunday’s receiving hundreds of death threats from anti-prohibition activists.

Sunday was proudly anti-intellectual, often proclaiming that when research and scholarship say one thing and the Bible says another, “Scholarship can go to hell.” Sunday, who never graduated from high school, flaunted his lack of theological education; “I know no more about theology than a jackrabbit does about ping pong.”

Sunday saved many of his most venomous attacks for evolution, linking it with prostitution, eugenics, and crime in the early 1900s. Sunday rejected evolution, claiming that it was for “godless bastards and godless losers”. Like most other fundamentalists, Sunday believed that the teaching of evolution poisoned minds, destroyed faith, perverted education, and destroyed society. Always a proponent of a masculine, vengeful God, Sunday’s calls for a moral purge often included prayers for the slaughter of atheist evolutionists. As he did with many of his enemies who Sunday claimed were not “pure 100% American,” Sunday promised his followers that Charles Darwin was spending eternity in hell’s flames.

In June 1925, Bryan asked Sunday to come to Dayton, Tennessee, to testify in the Scopes Trial. Sunday declined, but urged Bryan to equate evolution with atheism, and remind people that a person can’t simultaneously be an evolutionist and a Christian. Sunday closed his response to Bryan by noting that “All the believing world is back of you in your defense of God and the Bible.”

During his remarkable career, Sunday conducted more than 300 revivals and preached to more than 100 million people (without the aid of radio or microphones); no person in history has spoken directly to so many people. However, in his later years, Sunday was increasingly viewed as a relic, and his appeal began to fade. Like many other fundamentalist leaders who opposed evolution, Sunday did not distance himself from groups such as the Ku Klux Klan, and critics denounced his doctrine as materialistic, perverted, and plagiarized. America had changed, but Sunday had not.

Sunday preached his last sermon on October 27, 1935, at First Methodist Church in Mishawaka, Indiana. After suffering a heart attack, Sunday died in Chicago at the home of his brother-in-law on November 5, 1935, just two weeks shy of his 73rd birthday. Sunday’s death was marked by memorial services across the country; his wife Helen even got a telegram of condolences from President Franklin Roosevelt, whose policies Billy had denounced.

Billy Sunday is buried beside his wife along the eastern edge of Forest Home Cemetery in Forest Park, Illinois. He rests beneath an inscription similar to the one that adorns the tombstone of fellow anti-evolution crusader William Jennings Bryan, “I have fought a good fight; I have finished my course. I have kept the faith.”

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Summary of *RNCSE* 2011;31(2):3.1–3.5; the full text is available from: reports.ncse.com/index.php/rncse/article/view/24/15

The Darwin Experience: The Story of the Man and His Theory of Evolution by John van Wyhe (Washington [DC]: National Geographic Press, 2008; 64 pages). Reviewer **Michael D Barton** describes *The Darwin Experience* as “[a] beautifully-produced oversized book” equipped with “a varied assortment of facsimiles of primary documents: illustrations, photographs, letters, pages from notebooks, maps, cards, and more,” intended “for the non-specialist interested in gaining a better understanding of a much-misunderstood topic.” Concluding that it provides “a wonderful window into the life and work of Charles Darwin, suitable for newcomers to the topic as well as those already familiar because of its display-like presentation and the illustrations and facsimile documents,” Barton regrets only the absence of transcriptions of the handwritten facsimile documents and a certain neglect of Alfred Russel Wallace.

Summary of *RNCSE* 2011;31(2):4.1–4.3; the full text is available from: reports.ncse.com/index.php/rncse/article/view/25/16

Lincoln & Darwin: Shared Visions of Race, Science, and Religion by James Lander (Carbondale [IL]: Southern Illinois University Press, 2010; 351 pages). “As the subtitle suggests,” reviewer **Steven Conn** explains, “Lander’s approach to this well-worked material is to focus on three areas—race, science and religion—and argue that these two men shared the same outlook on all three. To make that claim, Lander proceeds carefully and thoroughly through each life, pairing the thoughts and careers of Lincoln and Darwin in virtually every one of the book’s twenty-six chapters.” Sometimes the comparison is too strained, but “more often than not these comparisons and juxtapositions persuade, and they reveal two extraordinary intellects as they wrestled with some of the most important questions of their age.”

Summary of *RNCSE* 2011;31(2):5.1–5.3; the full text is available from: reports.ncse.com/index.php/rncse/article/view/26/17

The Origin Then and Now: An Interpretive Guide to the Origin of Species by David N Reznick (Princeton [NJ]: Princeton University Press, 2010; 432 pages). “There is clearly a need for the general public to understand what Darwin did or did not say,” reviewer **Piers J Hale** argues, “and Reznick’s interpretive guide is a great place to begin.” Discussing natural selection, speciation, and theory, *The Origin Then and Now* offers “a modern interpretation of Darwin’s argument supplemented by ‘evolution today’ sections that are not only informative but also demonstrate where Darwin’s thinking continues to be relevant to modern evolutionary biology and where it has been superseded.” Hale concludes, “Reznick offers insightful analysis and compelling present-day examples, and is wonderfully readable in the process.”

Summary of *RNCSE* 2011;31(2):6.1–6.3; the full text is available from: reports.ncse.com/index.php/rncse/article/view/27/18

The Annotated Origin: A Facsimile of the First Edition of On the Origin of Species, annotated by James T Costa (Cambridge [MA]: Belknap Press of Harvard University Press, 2009; 576 pages). According to reviewer **Allen D MacNeill**, “The introduction to *The Annotated Origin* alone is worth the price of the book” for its biography of Darwin and its discussion of Darwin’s rush to publish in 1859. But “Costa then analyzes and annotates virtually every page of the *Origin*,” with annotations that “run the gamut from personal anecdotes to hard-science references” and “provide a detailed framework for Darwin’s argument, showing how the various explanations and examples are marshaled in such a way as to support Darwin’s underlying argument for ‘descent with modification by means of natural selection.’” MacNeill concludes, “I recommend it with the highest possible praise.”

Summary of *RNCSE* 2011;31(2):7.1–7.3; the full text is available from: reports.ncse.com/index.php/rncse/article/view/28/19

Darwin’s Camera: Art and Photography in the Theory of Evolution, by Phillip Prodger (Oxford: Oxford University Press, 2009; 284 pages) and *The Art of Evolution: Darwin, Darwinisms, and Visual Culture*, edited by Barbara Larson and Fae Brauer (Hanover [NH]: Dartmouth College Press, 2009; 332 pages). In examining these two books on visual elements in Darwin’s work, reviewer **Michael Ruse** notes that the *Origin*, with its single illustration, was the exception: “In other works, there are illustrations galore, and only a fool (or a philosopher) could deny their importance.” *Darwin’s Camera* “does a magnificent job of tracing and explaining Darwin’s illustrations” to *The Descent of Man*, “giving great detail about the sources of the pictures and their background.” The essays in *The Art of Evolution* “argue that Darwin fed back into the culture of his day and of generations succeeding”; Ruse is mildly critical of two essays as vague and unconvincing.

Summary of *RNCSE* 2011;31(2):8.1–8.4; the full text is available from: reports.ncse.com/index.php/rncse/article/view/29/20

Darwin’s Pictures: Views of Evolutionary Theory, 1837–1874, by Julia Voss (New Haven [CT]: Yale University Press, 2010; 340 pages). Reviewer **Keith Thomson** summarizes, “As Darwin was a poor draftsman, Julia Voss’s *Darwin’s Pictures* is not a critical retrospective of the man as an artist. Instead she uses a small number of images—like the figure of Galápagos ground finch beaks in *The Voyage of the Beagle* (editions after 1845), the tree in the *Origin*, and the use of photographic series in *Expression of the Emotions*—to explain the development of his ideas and the history of his career as a scientist of the mid-to-late nineteenth century. In the process she is able to retell a familiar story from a novel and newly illuminating point of view.”

Summary of *RNCSE* 2011;31(2):9.1–9.2; the full text is available from: reports.ncse.com/index.php/rncse/article/view/30/21

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