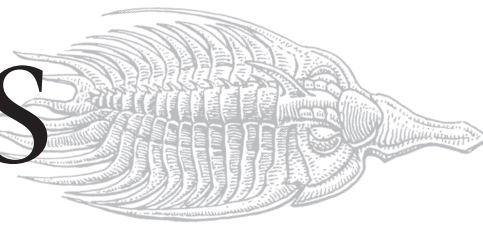


# CONTENTS



## NEWS

- 4** Design on Trial in Dover, Pennsylvania  
*Nicholas J Matzke*  
A local school board persists in promoting ID in science classes, resulting in the first examination of ID in court.
- 9** The Latest Polls on Creationism and Evolution  
*Glenn Branch*  
Different polls with different questions, but a remarkably consistent pattern of response from a skeptical public.
- 11** Low-Price "Intelligent Design" Schoolbooks in Germany  
*Ulrich Kutschera*  
German educational authorities undermined by efforts to flood market with cheap, ID-based texts.
- 12** Updates  
News from Alaska, California, Colorado, Indiana, Louisiana, Maryland, Michigan, Missouri, Montana, Serbia, and the United Kingdom.

## NCSE NEWS

- 16** News from the Membership  
*Glenn Branch*  
A sampling of the activities and accomplishments of our members.
- 26** Otis Dudley Duncan Dies  
A long-time NCSE member and a strong supporter of evolution, Duncan submitted the lead article in this issue shortly before his death.

## ARTICLES

- 26** The Creationists: How Many, Who, and Where?  
*Otis Dudley Duncan and Claudia Geist*  
Surveys on attitudes about creationism and evolution produce an interesting mix of data, but it isn't always easy to decipher the patterns or to compare the results. In this article, the authors examine responses on attitudes toward creationism, evolution, the Bible, and religion in general from the General Social Survey to try to develop an accurate and useful understanding of the nature of creationism and creationists in the United States in the early 21st century.

## FEATURES

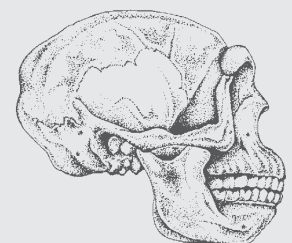
- 33** Kansas Evolution: As I See It  
*Liz Craig*  
After the 1999 debacle that allowed creationists to rewrite science education standards in Kansas, the State Board of Education replaced the creationist majority with one that was more inclined toward modern science. However, recent elections have reversed the composition of the board, and the standards are being reconsidered.
- 34** Impressions of the Claremont Conference & Ernst Mayr  
*John C Greene*  
Grappling with the implications of the worth of Alfred North Whitehead for our modern understanding of the universe, this conference drew scholars from a variety of fields. One prominent voice was missing: that of Ernst Mayr. Greene explores the proceedings of the conference in light of Mayr's recent publications.

## MEMBERS' PAGES

- 19** Polling the Creationism/Evolution Controversy  
A comparison of responses to Gallup polls on this issue over the past 20 years.
- 20** Books by NCSE Supporters  
Books by our supporters run the gamut of topics related to the creation/evolution controversy. Check them out here, and buy them on-line to benefit NCSE.
- 22** NCSE *On the Road*  
An NCSE speaker may be coming to your neighborhood. Check the calendar here. Or write to NCSE to request a speaker.

## BOOK REVIEWS

- 38** *Human Devolution*  
by Michael A Cremo  
Reviewed by  
*C Mackenzie Brown*



# REPORTS

OF THE  
NATIONAL CENTER FOR SCIENCE EDUCATION  
DEFENDING THE TEACHING OF EVOLUTION IN THE PUBLIC SCHOOLS  
CONTINUES NCSE REPORTS & CREATION/EVOLUTION

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For more information on Ray's work explore his website at <www.trollart.com>.

We greatly appreciate the response from our readers on the last issue of *RNCSE*. As we expected, there were no tepid opinions or tentative points of view. In this issue we address another side of the cultural phenomenon that is anti-evolutionism. The late Dudley Duncan sent us the lead article examining the data from the General Social Survey (GSS) on views of Americans on the Bible, religious faith, and creationism. Written with Claudia Geist, this article holds a number of surprises about the assumed relationship between creationism and a host of demographic and religious variables. This was Duncan's last major contribution in this field, and we are honored that he chose *RNCSE* as the venue for this important message.

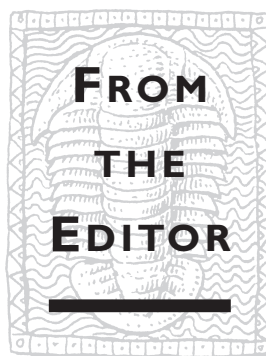
This issue also contains several items about various polls taken around the country on attitudes toward evolution, creationism, and "intelligent design". One thing that they all have in common is the obvious confusion among the general populace about the nature of scientific inquiry and the record of scientific progress — especially in evolutionary biology. Since it is the deliberate strategy of many anti-evolution groups to promote and exploit this confusion, it should be no surprise to see that it persists, as reflected in these polls.

## IN THE NEWS

Over the past few months there has been a lot of anti-evolution activity — both in North America and around the world. Check the Updates for a round-up and read the features that members and friends have sent to us from around the world.

Nick Matzke reports on the run-up to the very first court case that will explicitly test the constitutionality of including "intelligent design" in the high-school curriculum. The Dover (PA) Area School Board has resisted all opposition — including resignations of school board members — and will defend its policy in a lawsuit filed by local parents.

As Kansans prepare for Round Three of their struggles over evolution education, Liz Craig offers her perspective from the first two



rounds of the struggle. And John C Greene combines his review of Ernst Mayr's *What Makes Biology Unique* with his reflections on a recent conference on religious interpretations of evolutionary biology.

We see in our updates and in a report from Germany by Ulrich Kutschera that creationism is alive and thriving in Europe. Kutschera describes a recent effort of German "intelligent design" supporters to deliver very low-cost ID textbooks to German schools.

## REVIEWS

In keeping with the question of who is a creationist and what is creationism, we offer a review by C Mackenzie Brown of the latest book by Michael A Cremo, *Human Devolution*. Although it is based in the Vedic scriptures of India, this book has all the hallmarks of a "creation science" book in the way it approaches evidence, uses the research literature, and "filters" its observations.

## EVOLVING FORMATS

The most recent meeting of the NCSE Board of Directors approved several adaptations in the format and contents of *RNCSE*. Our news coverage will contain mostly summaries and will concentrate on first-person reports from those engaged in promoting evolution "in the front lines". Our breaking news and detailed reports will be available primarily on our website as soon as we work out all the details.

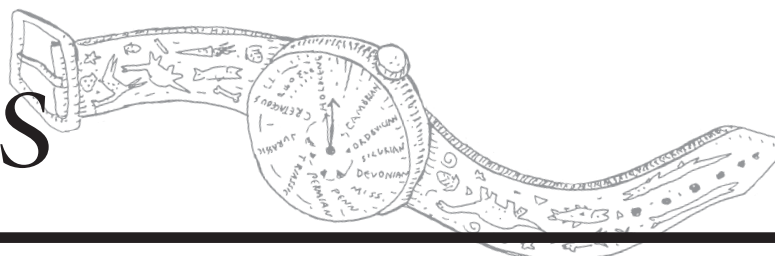
We will also be using our website to provide access to in-depth articles and analysis. The items that we print will be abbreviated versions of those longer articles designed to give sufficient background and analysis for our readers. Those interested in greater analysis will be able to view and download the longer, original articles.

Of course, we will still bring you book reviews, NCSE news, and the best centerfold in the country in every issue. We hope that this will both serve our readers' needs and interests better and help to streamline the production process — so *RNCSE* is your *RNCSE*.

*RNCSE 24 (5) was printed in May 2005.*

VOL 24, NR 5 2004

REPORTS



## Design on Trial in Dover, Pennsylvania

Nicholas J Matzke  
NCSE Public Information  
Project Specialist

On December 14, 2004, eleven parents from Dover, Pennsylvania, filed suit against the Dover Area School District in federal court. The matter at issue is a policy introducing “intelligent design” into the biology curriculum. Although such policies have been proposed several times around the country, none was passed until the decision by the Dover Area School Board (there are, of course, several cases where ID policies “evolved” into milder policies advocating that “alternative theories of origins” or the “strengths and weaknesses of evolution” be taught). The case — *Kitzmiller et al v Dover Area School District* — has attracted national and international media attention, and may help determine the fate of “intelligent design” in the public schools.

The plaintiffs are represented *pro bono* by a team of attorneys from the Pennsylvania American Civil Liberties Union, Americans United for Separation of Church and State, and the Philadelphia-based law firm Pepper Hamilton LLP. NCSE is formally consulting, also free of charge, for the plaintiffs’ attorneys on the science and science education aspects of the case.

### THE EVOLUTION OF “INTELLIGENT DESIGN”

Creationism watchers know well that “intelligent design” has been primarily a *legal* strategy from the very beginning. It emerged shortly after the catastrophic defeats of “scientific creationism” in the courts during the 1980s, particularly the 1987 Supreme Court deci-

sion in *Edwards v Aguillard*. Even according to pro-ID histories of the ID movement (Woodward 2003), the 1989 book *Of Pandas and People*, intended as a supplementary biology textbook for usage in public schools, was the first publication advocating “intelligent design” in its modern form. Frank Sonleitner (a longtime NCSE member and board member) reports that he first heard of *Pandas* at a Bible Science Studies meeting on September 18, 1989, held at the Scopes Ministries in Oklahoma City. Creationist Don Patton was attempting to get *Pandas* adopted as a supplementary biology textbook in Texas, and stated that an advantage of *Pandas* was that it discussed “intelligent design” rather than creationism. Patton held up *Pandas* and said, “Now we’re not going to get scientific creationism in the textbooks; that has been ruled religious. We must avoid that term like the plague!” (Sonleitner 1991).

*Of Pandas and People* is not read often enough by ID skeptics. Virtually all of the arguments later advanced by Discovery Institute Fellows (critique of methodological naturalism, “specified complexity”, inadequacies of homology, gaps in the fossil record, “where does new information come from”, and so on) are present in essentially modern form in the 1989 edition. Even Michael Behe’s “irreducible complexity” argument (though not the signature phrase) appears in print for the first time in the second edition of *Pandas* (Davis and Kenyon 1993), in a new section devoted to blood-clotting. According to Woodward, “Michael Behe assisted in the rewriting of a chapter on biochemistry in a revised edition of *Pandas*. The book stands as one of the milestones in the infancy of Design.” And indeed, pages 141–6 of the revised *Pandas* are about the blood clotting cascade, reaching

the conclusion, “*all of the proteins had to be present simultaneously for the blood clotting system to function*” (Davis and Kenyon 1993: 146, emphasis in original). The Discovery Institute portrays ID as a vigorous young movement of scientific rebels, but the actual history is that *Pandas*, a *textbook*, came first, and the “scientific discoveries” (of Behe, Dembski, and the rest) followed in its wake. This situation is ludicrous from a scientific and educational point of view, but it makes a great deal of sense if *Pandas* and the ID movement generally are simply one extended reaction to the *Edwards* decision.

The problems with *Pandas*, and the history of attempts to sneak *Pandas* into public school classrooms, were documented in the pages of *RNCSE* during the early 1990s. All relevant articles and reviews of *Pandas* have been made available at a new Resources page on the NCSE website (<<http://www.ncseweb.org/article.asp?category=21>>). The second (and last) edition of *Pandas* came out in 1993, and most of the major *Pandas* battles occurred from 1989 through 1995. (In 1995, an effort to adopt *Pandas* in Plano, Texas, was defeated when a large number of citizens turned out in opposition wearing buttons containing a cute panda picture with red slash through it.)

### THE BEGINNING

Because of this inauspicious history, it was quite surprising when, in the summer of 2004, *Pandas* resurfaced in news stories from Dover, Pennsylvania. Dover is a small town (population 1800) on the outskirts of York, in south-central Pennsylvania. The Dover Area School District (DASD) is a rural district with about 40 000 residents. Dover Senior High School has about 1000 students.

The controversy started when the Dover Area School Board





(DASB) began consideration of a new biology textbook. The teachers recommended *Biology: The Living Science*, by Kenneth Miller and Joseph Levine (coincidentally, this is the same text that was challenged in Cobb County, Georgia; see *RNCSE* 2002 May/June; 22 [3]: 9–12). According to local newspapers, at a June 7, 2004, board meeting, the chair of the DASB Curriculum Committee, William Buckingham, objected to the textbook on the grounds that the textbook was “laced with Darwinism,” and stated that he was looking for a textbook that gave a balanced view between creationism and evolution. He added, “This country wasn’t founded on Muslim beliefs or evolution. ... This country was founded on Christianity, and our students should be taught as such.” At the next meeting, on June 14, 2004, Buckingham is reported to have stated, “Two thousand years ago, someone died on a cross. Can’t someone take a stand for him?” (*York Daily Record* 2005 Jan 16).

Although criticized by some on the board, the compromise was that the board majority would not approve the Miller and Levine textbook until it was “balanced” with an alternative view. Buckingham soon settled on *Of Pandas and People* as the desired alternative book and argued that both books be adopted, or none at all. He said, “If we don’t get our book, you don’t get yours.” Motions to approve just the mainstream textbook failed on 4–4 votes. However, on August 2, after acrimonious debate and public comment, one board member, Angie Yingling, changed her vote, saying to Buckingham, “I feel you were blackmailing them. I just want the kids to have their books.” The mainstream book was adopted, without *Pandas* (*York Daily Record* 2004 Aug 4).

If previous *Pandas* battles were any guide, this would have been the end of the controversy in Dover, and everyone could happily move on with their lives. However, Buckingham and his supporters did not give up. They arranged for 50 copies of *Pandas* to be donated, anonymously, to the school district. The superintendent, Richard Nilsen, accepted the donations on

the understanding that these would be optional reference materials. Buckingham announced at an October 4 school board meeting that, since no school district funds were used to buy the books, the decision to accept them was administrative and required no vote. This situation was disagreeable from an educator’s point of view — chaos would result if anyone with a fringe scientific view were allowed to stuff the shelves of the public school classrooms — but in Dover, the donation of *Pandas* books seemed to be perceived as a reasonable compromise that brought a merciful end to the controversy. The *York Daily Record* even awarded “roses” to the DASB for reaching this “reasonable compromise” (2004 Oct 9).

All this time, the science teachers at Dover Senior High School had mostly stayed out of the public fray. The primary public voices of the opposition at school board meetings were retired school teachers and former school board members, and only members of this latter group replied to NCSE inquiries about the situation. However, from speaking with several Dover residents, I got the impression that the science teachers, once they took a look at *Pandas*, did not like it one bit and had no intention of using it in class.

#### “INTELLIGENT DESIGN” VOTED IN

The anti-*Pandas* sentiment of Dover teachers seems to be the most likely explanation of why, on October 18, 2004, the Dover Area School Board surprised everyone by passing the following addition to the official curriculum:

Students will be made aware of gaps/problems in Darwin’s Theory and of other theories of evolution including, but not limited to, intelligent design. Note: Origins of life will not be taught.

*Of Pandas and People* was listed in the curriculum as a reference text. At the October 18 meeting, the reference to “intelligent design” was opposed by the school administration, the head of the science department at Dover Senior

High, and 11 of the 12 citizens testifying at the meeting. For months, representatives from Americans United for Separation of Church and State (AU) had been quoted in the press stating that the DASB was moving in an unconstitutional direction, so the possibility of a lawsuit was a major topic of discussion at the meeting. However, Buckingham stated that a law firm, later revealed to be the Thomas More Law Center of Ann Arbor, Michigan, would represent the district *pro bono* in any lawsuit. After the 6–3 vote approving the ID policy, Jeff and Carol “Casey” Brown, a husband-and-wife pair that had been on the school board for five and ten years, respectively, resigned in protest. The same month, two other school board members, including Noel Wenrich, the third vote opposing the ID policy, also resigned because of impending moves outside of the school district. (Several weeks later, the DASB appointed four new members to the school board to fill the vacancies, and ensured that all four supported the ID policy.)

The next day, the headline across the front page of the *York Daily Record* was “‘Intelligent design’ voted in” (2004 Oct 19). A photocopy of the front page was faxed to NCSE’s office, and the national media started calling NCSE about Dover. Another wave of letters flooded the paper, and the *York Daily Record* editors asked, “Why couldn’t they just leave well enough alone?” (2004 Oct 27).

For the following month, talk of lawsuits was continuous, with AU and the Pennsylvania ACLU putting out word that they were interviewing potential plaintiffs. On November 19, the school district administration issued a press release on the Dover Area School District website describing how the policy was going to be implemented (DASD 2004). Parts of the press release were clearly aimed at avoiding a lawsuit, but the statement also included the following four-paragraph verbal disclaimer that biology teachers would be required to read at the beginning of the evolution unit in January:

The state standards require students to learn about



Darwin's Theory of Evolution and to eventually take a standardized test of which evolution is a part.

Because Darwin's Theory is a theory, it is still being tested as new evidence is discovered. The Theory is not a fact. Gaps in the Theory exist for which there is no evidence. A theory is defined as a well-tested explanation that unifies a broad range of observations.

Intelligent Design is an explanation of the origin of life that differs from Darwin's view. The reference book, *Of Pandas and People*, is available for students to see if they would like to explore this view in an effort to gain an understanding of what Intelligent Design actually involves. As is true with any theory, students are encouraged to keep an open mind.

The school leaves the discussion of the Origins of Life up to individual students and their families. As a standards-driven district, class instruction focuses on the standards and preparing students to be successful on standards-based assessments.

In one of several puzzling inconsistencies in the school district press release, the school district also stated, "The Superintendent, Dr Richard Nilsen, is on record stating that no teacher will teach 'Intelligent design', Creationism, or present his/her or the board's religious beliefs." This seemed to contradict the DASB's curriculum change and the verbal disclaimer. Regardless, civil rights groups were unimpressed by the school district's press release. Vic Walczak, the legal director for the Pennsylvania ACLU, told the press, "The school board's clarification confirms that the district will be presenting a religious view as an alternative to the scientifically accepted theory of evolution. ... This is not going to make us go away" (Associated Press 2004 Nov 19).

In early December, the press reported that the Pennsylvania ACLU, Americans United, and Pepper Hamilton LLP had signed

up plaintiffs and were preparing a lawsuit. On December 7, DASB member Angie Yingling stated that, in light of the lawsuit, she now disagreed with the ID policy and that she would resign unless the DASB reconsidered. The *York Daily Record* editors stated, "Everyone who might help stop the 'Intelligent design' express is jumping off ... Watching what's going on in the Dover Area School District is like watching a train wreck in slow motion" (2004 Dec 9). Many in the community asked Yingling to remain on the board as a voice of opposition, and confusion about whether or not Yingling would actually resign remained a continuing subplot throughout December. Yingling finally resigned on February 7, 2005, telling the DASB, "your appearances in court are an embarrassment to Dover. You people appear to be ... religious zealots preaching from the shadows" (*York Dispatch* 2005 Feb 8).

Ratcheting up the pressure, on December 6, most of the faculty at York College's biology department sent an open letter to the Dover Area School Board, stating in part, "The inclusion of intelligent design in its curriculum as an 'alternative' evolutionary theory reflects a genuine lack of knowledge about the data supporting evolution by natural selection. It also reflects a profound misunderstanding of the scientific process and an equally profound disregard for the science educators and students in the Dover Area School District" (*York Daily Record* 2004 Dec 8). In the following weeks this act drew both compliments and criticism from the community, including suggestions like "Love God or leave America, professors" (*York Daily Record* 2004 Dec 12).

On December 12, Phillip Johnson was interviewed by the *San Francisco Chronicle*. Commenting on the Dover situation, he said, "What the Dover board did is not what I'd recommend. [...] Just teach evolution with a recognition that it's controversial. A huge percentage of the American public is skeptical of it. This is a problem that education ought to address." This echoed public statements from others associated with the Discovery Institute (such as those expressed

in the *York Daily Record*, 2004 Dec 19).

## LAWSUIT FILED

To the surprise of no one, on December 14, 11 Dover parents, the Pennsylvania ACLU, Americans United, and Pepper Hamilton LLP filed suit in Federal District Court against the ID policy of the Dover Area School District (ACLU 2004). A press conference was held at the courthouse in Harrisburg (the Pennsylvania capital, about 20 miles north of Dover). Tammy Kitzmiller, the mother of a ninth grader in the biology class and the lead plaintiff in the case, spoke to the press, as did Vic Walczak of the Pennsylvania ACLU, the Reverend Barry Lynn of Americans United, and Robert Eckhardt, a prominent paleoanthropologist at Penn State. Two protesters with yellow signs reading "ACLU CENSORS TRUTH" were also present. The text of the complaint filed on behalf of the parents, a press release, and a "FAQ" sheet on "intelligent design" were distributed at the press conference and online at the websites of the ACLU, AU, and Pepper Hamilton.

On December 20, the Dover Area School Board voted 7-0 to retain the services of the Thomas More Law Center, which offered to represent the school district *pro bono*. On its website, the TMLC states,

Our purpose is to be the sword and shield for people of faith, providing legal representation without charge to defend and protect Christians and their religious beliefs in the public square. [...] Our ministry was inspired by the recognition that the issues of the *cultural war* being waged across America, issues such as abortion, pornography, school prayer, and the removal of the Ten Commandments from municipal and school buildings, are not being decided by elected legislatures, but by the courts (TMLC nd, emphasis in original)

United States Senator Rick



Santorum (R-PA), who has spoken out in support of the Dover Area School Board on several occasions, is on the TMLC Advisory Board. The President and Chief Counsel of the TMLC is Richard Thompson, who has vigorously assumed the role of spokesperson for the DASB's ID policy and ID in general.

The Seattle-based Discovery Institute, the chief institution promoting ID from the mid-1990s to the present, has apparently been observing the goings-on in Dover with dread, despite numerous articles and books by its fellows promoting ID as good science and legal to teach in public schools. For example, in 1999, DI CSC Senior Fellow David DeWolf, DI CSC Program Director Stephen Meyer, and Mark DeForrest coauthored *Intelligent Design in Public School Science Curricula: A Legal Guidebook*, a 40-page booklet published by the Foundation for Thought and Ethics. Therein they wrote,

In 1987, the US Supreme Court ruled in *Edwards v Aguillard* that "teaching a variety of scientific theories about the origins of humankind to school children might be validly done with the clear secular intent of enhancing the effectiveness of science instruction." As this guidebook will show, teachers and school boards who choose to tell students about the evidence and arguments for intelligent design actually fulfill this Supreme Court mandate. (DeWolf and others 1999)

Nevertheless, on the day the lawsuit was announced, the DI disregarded its past rhetoric and issued a press release, "Discovery calls Dover evolution policy misguided, calls for its withdrawal," which quoted DI CSC Associate Director John West as saying:

While the Dover board is to be commended for trying to teach Darwinian theory in a more open-minded manner, this is the wrong way to go about it. [...] Dover's current policy has a number of problems, not the least of which

is its lack of clarity. At one point, it appears to prohibit Dover schools from teaching anything about "the origins of life." At another point, it appears to both mandate as well as prohibit the teaching of the scientific theory of intelligent design. The policy's incoherence raises serious problems from the standpoint of constitutional law. Thus, the policy should be withdrawn and rewritten. (DI 2004)

Interestingly, during depositions in early January, it was revealed that two DI representatives, attorney Seth Cooper and an unnamed companion, flew to Pennsylvania in December and spoke with Superintendent Nilsen and the DASB, offering Discovery Institute representation to the school board. The depositions do not reveal anything about the substance of the conversations. However, given the DI's public statements and the fact that the DASB did not retain the DI, I speculate that the DI offered to represent the school board, but only on the condition that the board drop its current policy and adopt a DI-written "teach the controversy" policy.

#### OPENING MOVES

After the complaint was filed and the TMLC had been retained to represent the district, the first issue before the plaintiffs' attorneys was whether or not to apply for a restraining order to delay the DASB's implementation of the ID policy. According to the curriculum schedule, the ID disclaimer would be read on January 13, at the beginning of the unit on evolution. The plaintiffs' team therefore sought permission from the judge to depose key witnesses in an attempt to clarify the purpose and effect of the policy. On January 3, depositions were taken for Superintendent Nilsen, Curriculum Chair William Buckingham, School Board Chair Alan Bonsell, and board member Sheila Harkins. During the deposition, the witnesses either denied or professed not to remember making various remarks, such as Buckingham's

statement, "This country wasn't founded on Muslim beliefs or evolution," reported independently in the *York Daily Record* and the *York Dispatch* back in June. Strangely, none of the board members seemed to have much familiarity at all with ID, and none gave anything resembling a direct, coherent answer about what they thought ID meant. For example, Buckingham was asked:

**Q:** I'm just trying to understand so we can have a working understanding here of what intelligent design is if we can. Do you have an understanding in very simple terms of what "Intelligent design" stands for? What does it teach?

**A:** Other than what I expressed, that's — Scientists, a lot of scientists — Don't ask me the names. I can't tell you where it came from. A lot of scientists believe that back through time, something, molecules, amoeba, whatever, evolved into the complexities of life we have now.

**Q:** That's the theory of "intelligent design"?

**A:** You asked me my understanding of it. I'm not a scientist. I can't go into detail and debate you on it. (Buckingham deposition, January 3, 2005)



When asked about the "master intellect" suggested on pages 58 and 85 of *Pandas* (the "master intellect" passage is essentially identical on these two pages, in a strange case of internal text duplication in *Pandas*), Superintendent Nilsen was somewhat more clear:

**Q:** Do you have any explanation for what a master intellect could be referring to in terms of the creation or development of species other than to God?

**A:** Yes.

**Q:** What?

**A:** Aliens.



**Q:** Can you think of anything else?

**A:** No.

**Q:** Using master intellect in that context, it must mean God or aliens?

**A:** In this context, yes. (Nilsen deposition, January 3, 2005)



Statements such as these made a splash in the media (for example, ABC's *Nightline* 2005 Jan 19). However, the school board members denied religious motivations and claimed not to remember the various statements about religion and creationism that had been quoted in *The York Dispatch* and the *York Daily Record*. The York media took special notice of the DASB's "memory woes" and stood by their reporting from June. But because the depositions contradicted the press accounts, the plaintiffs' legal team decided that it would take more research, witnesses, and time to document what actually occurred during the decision-making process that led to Dover's ID policy. They therefore declined to file a preliminary injunction. The Thomas More Law Center saw this as a victory, trumpeting, "ACLU abandons early effort to stop school district from making students aware of controversy surrounding evolution" in a press release (TMLC 2005a). One Christian news service even took the TMLC's declaration of victory seriously and wrote an entire news story based on the inaccurate notion that "the ACLU" had given up the case completely (*Christian Post* 2005 Jan 12).

In another twist, as soon as the news got out that the *Kitzmiller* legal team was not going to file for a preliminary injunction, the Pennsylvania State Educators Association, in consultation with the science teachers at Dover Senior High School, declared that the teachers would refuse to read the ID disclaimer, on the grounds that ID was not science, and therefore their reading the disclaimer would abrogate their professional responsibilities and violate the state professional standards for teachers. Seven science teachers from Dover Senior High School

wrote a powerful letter to Superintendent Nilsen, declaring in part:

"INTELLIGENT DESIGN" IS NOT SCIENCE. INTELLIGENT DESIGN IS NOT BIOLOGY. "INTELLIGENT" DESIGN IS NOT AN ACCEPTED SCIENTIFIC THEORY. (emphasis in original)

The letter demanded that the teachers be allowed to "opt-out" of reading the disclaimer, just as the students were allowed to "opt-out" of hearing it. If the request was denied by the Dover School District administration, the teachers' union was prepared to appeal the decision to Pennsylvania's Professional Standards and Practices Commission, and then to the Pennsylvania Supreme Court. Surprisingly, however, the school district blinked, and the administration agreed to read the disclaimer instead of requiring the teachers to do so (*York Dispatch*, 2005 Jan 10). On January 7, the TMLC's Richard Thompson, speaking for the school district, said, "The Dover faculty have no right to opt out of a legal directive. ... Having said that, because there is pending litigation ... we are going to accommodate their request" (Associated Press 2005 Jan 7). The Dover teachers' successful defiance of the ID policy was widely noticed, including in the pages of *Science* (Mervis 2005).

At the same time, on January 6, over 30 members of the faculty of the biology and philosophy departments at the University of Pennsylvania issued an open letter to the DASB expressing opinions similar to those of the biology department at York College. Richard Thompson responded with alacrity, replying on January 7, "If the level of inquiry supporting your letter is an example of the type of inquiry you make before arriving at scientific conclusions, I suggest that at the very least, your students should get their tuition money back, and more appropriately, the University should fire you as a scientist." Thompson chided the Penn faculty for complaining about ID's appearance in the DASB policy by selectively citing the part

indicating that "Origins of life will not be taught." Thompson also criticized the signatories for including philosophers, writing:

What does philosophy have to do with this issue? This issue is not about science versus philosophy; it is about two different interpretations of the same scientific data by scientists. I assume you would agree that the metaphysical implication of Darwin's theory of evolution has no place in the science classroom. Or perhaps it is for this very reason that you so staunchly and dogmatically defend Darwin and place his theory above all criticism. (*York Daily Record* 2005 Jan 9)

Thompson concluded by citing the so-called Santorum Amendment, present in modified form in the report language of the No Child Left Behind Act but not in the law itself. The Santorum Amendment is a running theme throughout all the TMLC's press releases on Dover and ID (see Branch and Scott 2003 for a discussion of its status).

Finally, it appeared that all short-term barriers to the implementation of the ID policy had been breached. However, one more question remained: the classroom schedule. Teachers reported that their classes had not quite reached the evolution unit yet, and so the disclaimer was delayed from Thursday, January 13, to the following week. Because there were no classes on Monday, January 17, due to Martin Luther King Day, the disclaimer was finally read on Tuesday, January 18. The assistant superintendent entered each biology class and read the disclaimer. About 15 students and all of the teachers walked out. The Thomas More Law Center declared in a press release, "A revolution in evolution is underway." In the press release, Richard Thompson stated:

Biology students in this small town received perhaps the most balanced science education regarding Darwin's theory of evolution than any other public school student

in the nation. This is not a case of science versus religion, but science versus science, with credible scientists now determining that based upon scientific data, the theory of evolution cannot explain the complexity of living cells. (TMLC 2005b)

## SEE YOU IN COURT

Richard Thompson sounds confident at the moment, but he seems not to realize the legal jeopardy that “intelligent design” is in. Comments from across the community of creationism watchers indicate a virtually unanimous opinion that *Kitzmiller* represents about the best imaginable court case on which to challenge the constitutionality of ID. Even if the early comments of the DASB remain in dispute, the district’s recommendation of *Pandas* provides ample material for the expert examination of ID in its original, unabashed form (rather than the rather sly versions of ID that the Discovery Institute has been promoting the last few years).

Despite the Discovery Institute’s qualms about the Dover policy, the TMLC’s Richard Thompson has definitely been using the DI’s game plan — ID is legitimate science, 300 scientists doubt Darwin, it’s only fair to give the alternate view, and so on. If Thompson wants to base his defense on “the science of ID,” so much the better. It will be time for ID advocates to “put up or shut up” about the “scientific theory” of ID. We know that there *is* no science of ID, and we suspect this will become readily apparent to the court if expert witnesses testify.

In addition to the history and motivations of the Discovery Institute — as evidenced in the infamous “Wedge Document” and elsewhere — the roots of ID and *Pandas* in 1980s creationism may also become relevant in the case. *Of Pandas and People* was the first book to collect a wide range of creationist material and put it under the “intelligent design” label, and via *Pandas*, it was the Foundation for Thought and Ethics, not the Discovery Institute, that was the original architect of “intelligent design.” NCSE has a

small, but very interesting, collection of documents on FTE and *Pandas* and on the development of ID in the 1980s. However, any veteran creationism watchers reading this piece should take a look through their old files, and contact NCSE if they find something that might be relevant.

Even though *Kitzmiller* is only at the trial court stage, the implications could be widespread. Buckingham has already stated that he wants to take ID to the Supreme Court, and it seems as though the TMLC will have the temerity to back him. One school district, in Blount County, Tennessee, appears to have already followed in the footsteps of Dover and passed its own ID policy.

NCSE has just learned that the trial will commence in September 2005. As consultants for the plaintiffs’ team, NCSE will leave the legal decisions to the legal experts, but will give advice to help them get the science right. That is, after all, what this is all about.

## REFERENCES

[ACLU] American Civil Liberties Union. 2004 Dec 14. Pennsylvania parents file first-ever challenge to “intelligent design” instruction in public schools [press release]. Available on-line at <<http://www.aclu.org/ReligiousLiberty/ReligiousLiberty.cfm?ID=17207&c=139>>.

Branch G, Scott EC. 2003. The anti-evolution law that wasn’t. *The American Biology Teacher* 65 (3): 165–6.

[DASD] Dover Area School District. 2004 Nov 19. Board press release for biology curriculum. Available on-line at <<http://www.dover.k12.pa.us/doversd/cwp/view.asp?A=3&Q=261852/>>

Davis P, Kenyon D. 1989. *Of Pandas and People: The Central Question of Biological Origins*. First edition. Dallas: Haughton Publishing Company.

Davis P, Kenyon D. 1993. *Of Pandas and People: The Central Question of Biological Origins*. Second edition. Dallas: Haughton Publishing Company.

DeWolf DK, Meyer SC, DeForrest ME. 1999. *Intelligent Design in Public School Science Curricula: A Legal Guidebook*. Richardson TX: Foundation for Thought and Ethics. Available on-line at <<http://arn.org/docs/dewolf/guidebook.htm>>.

[DI] Discovery Institute. 2004 Dec 14. Discovery calls Dover evolution policy misguided, calls for its withdrawal [press release]. Available on-line at <<http://www.discovery.org/scripts/viewDB/index.php?%20command=view&id=2341>>.

Mervis J. 2005 Jan 28. Dover teachers want no part of intelligent-design statement. *Science* 307 (5709): 505.

Sonleitner F. 1991. What’s wrong with *Pandas*? A closeup look at creationist scholarship. Available on-line via NCSE’s Resources Page on *Of Pandas and People*: <<http://www.ncseweb.org/article.asp?category=21>>.

[TMLC] Thomas More Law Center. nd. About us. Available on-line at <<http://www.thomasmore.org/about.html>>.

[TMLC] Thomas More Law Center. 2005a Jan 6. ACLU abandons early effort to stop school district from making students aware of controversy surrounding evolution [press release]. Available on-line at <<http://www.thomasmore.org/news.html?NewsID=275>>.

[TMLC] Thomas More Law Center. 2005b Jan 18. A revolution in evolution is underway [press release]. Available on-line at <<http://www.thomasmore.org/news.html?NewsID=281>>.

Woodward T. 2003. *Doubts About Darwin: A History of Intelligent Design*. Grand Rapids (MI): Baker Books.

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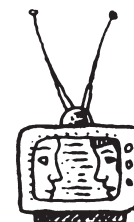
## The Latest Polls on Creationism and Evolution

Glenn Branch  
NCSE Deputy Director

There were few surprises in a trio of polls conducted in late 2004 about public opinion in the United States on issues associated with the creationism/evolution controversy.

A recent article from the Gallup News Service (2004 Nov 19) reports on the pollster’s latest results concerning public opinion on the evidence for evolution, creationism, and biblical literalism. The poll was conducted among a nationwide random sample of 1016 adults interviewed by telephone November 7–10, 2004, and its margin of error is  $\pm 3\%$ . Because Gallup’s polls on public opinion on creationism extend back to 1982, their data are particularly useful for longitudinal comparisons. The latest results are overall consistent with those from previous polls conducted by Gallup.

To assess public opinion on the





evidence for evolution, Gallup asked, "Do you think that Charles Darwin's theory of evolution is a scientific theory that has been well-supported by evidence, just one of many theories and one that has not been well-supported by evidence, or don't you know enough about it to say?" Thirty-five percent of the respondents said that evolution is well-supported by evidence, 35% said that it is not, 29% said that they didn't know enough about it to reply, and 1% expressed no opinion. These results are similar to those in 2001, the first year in which Gallup asked the question.

Demographically, the article reports, belief that evolution is well-supported by the evidence is strongest "among those with the most education, liberals, those living in the West, those who seldom attend church, and [...] Catholics," and weakest among "those with the least education, older Americans [...], frequent church attendees, conservatives, Protestants, those living in the middle of the country, and Republicans."

To assess public opinion on creationism, Gallup asked:

Which of the following statements comes closest to your views on the origin and development of human beings?

Human beings have developed over millions of years from less advanced forms of life, but God guided this process,

Human beings have developed over millions of years from less advanced forms of life, but God had no part in this process,

God created human beings pretty much in their present form at one time within the last 10 000 years or so?

Thirty-eight percent of respondents chose (1), 13% chose (2), 45% chose (3), and 4% offered a different or no opinion. These results are also similar to those from previous Gallup polls, which extend back to 1982 (see p 19).

The article explains that the 10 000 year date was included in the 1982 poll question because "it roughly approximates the timeline used by biblical literalists who study the genealogy as laid out in the first books of the Old Testament." It is perhaps worth remarking that not all biblical literalists agree on interpreting the Bible as insisting on a young earth: there are old-earth creationists, for example, who accept the scientifically determined age of the earth and of the universe, but still accept a literal reading of the Bible and reject evolution in favor of special creation.

To assess public opinion on biblical literalism, Gallup asked, "Which of the following statements comes closest to describing your views about the Bible — the Bible is the actual word of God and is to be taken literally, word for word; the Bible is the inspired word of God but not everything in it should be taken literally; or the Bible is an ancient book of fables, legends, history, and moral precepts recorded by man?" Polled in November 2004, 34% of respondents regarded the Bible as to be taken literally, 48% regarded it as divinely inspired but not always to be taken literally, 15% regarded it as a collection of fables, etc, and 3% expressed no opinion. Again, these results are similar to those from previous Gallup polls.

Following on the heels of Gallup's poll, CBS News conducted a poll of public opinion about evolution, creationism, and science education (2004 Nov 22; available on-line at <<http://www.cbsnews.com/stories/2004/11/22/opinion/polls/main657083>

>). The poll was conducted among a nationwide random sample of 885 adults interviewed by telephone November 18–21, 2004, and its margin of error is +/- 3%.

One question (the exact wording of which was not given in the story) was apparently similar to Gallup's question about the origin and "development" of human beings. Compared to the Gallup poll, the results showed more support (55%, versus Gallup's 45%) for "God created humans in present form" and less support (27%, versus Gallup's 38%) for "humans evolved, God guided the process," with the same level of support (13%) for "humans evolved, God did not guide process." The results were also correlated with voting in the November 2004 presidential election: 47% of Kerry voters and 67% of Bush voters preferred "God created humans in present form"; 28% of Kerry voters and 22% of Bush voters preferred "humans evolved, God guided the process"; and 21% of Kerry votes and 6% of Bush voters preferred "humans evolved, God did not guide process."

The CBS News poll also asked respondents whether they favored the teaching of creationism alongside or instead of evolution in the public schools: 65% of the respondents said alongside; 37% said instead of. The results were again correlated with voting in the November 2004 presidential election: 56% of Kerry voters and 71% of Bush voters said alongside; 24% of Kerry voters and 45% of Bush voters said instead of. Moreover, 60% of respondents who characterized themselves as evangelical Christians said instead of.

Finally, a poll conducted for *Newsweek* "on beliefs about Jesus" included questions (the exact wording of which was not given in the story) about teaching "creation science" in the public schools. The poll was conducted among a

## WI POLL REJECTS "ALTERNATIVES"

The *Intercounty Leader*, a newspaper in Frederick, Wisconsin, conducted a readers' poll on its website. As of January 13, 2005, respondents rejected including "alternatives" to evolutionary theory in science texts by a 3:1 margin. The paper serves Grantsburg, where the school board approved including "alternative scientific theories" in the curriculum.

### HOW DO YOU FEEL ABOUT EVOLUTION THEORY AND EDUCATION?

72%	609 responses	Alternatives should not be mentioned in textbooks
24%	202 responses	Alternatives to evolution theory should be given
4%	38 responses	Neither

The poll was available on-line at <<http://www.the-leader.net/default.asp?twindow=Poll>>.



nationwide random sample of 1009 adults interviewed by telephone December 2–3, 2004, and its margin of error is  $\pm 3\%$ . According to the *Newsweek* story (2004 Dec 5; available on-line at <<http://www.msnbc.msn.com/id/6650997/site/newsweek/>>), “Sixty percent say they favor teaching creation science in addition to evolution in public schools; 28 percent oppose such teaching, the poll shows. Forty percent favor teaching creation science instead of evolution in public schools; 44 percent oppose the idea.” These results are comparable to those of the CBS News poll. (Although slightly more sympathy for creationism was displayed, it is possible that the characterization of creationism as “creation science” in the *Newsweek* poll’s question contributed to its attractiveness.)

In a 2000 poll commissioned by People for the American Way and conducted by DYG Inc (available on-line at <[http://www.pfaw.org/pfaw/dfiles/file\\_36.pdf](http://www.pfaw.org/pfaw/dfiles/file_36.pdf)>, however, only 16% of respondents said that creationism should be taught instead of evolution, and only 13% said that creationism should be taught as a “scientific theory” alongside evolution. Since the PFAW poll offered a finer-grained

set of choices for its respondents, comparisons between the CBS News and *Newsweek* polls and the PFAW poll may not be entirely meaningful.

What exactly to make of these data is regrettably unclear. George Bishop argued in his “‘Intelligent design’: Illusions of an informed public” (*RNCSE* 2003 May–Aug; 23 [3–4]: 41–3) that such “direct to the media” polls are plagued by “chronic problems in the practice of asking survey questions: widespread public ignorance of public affairs, the inherent vagueness of the language used in most survey questions, and the unpredictable influence of variations in question form, wording, and context.” And Otis Dudley Duncan and Claudia Geist illustrate in their “The creationists: How many, who, where?” (p 26) that interpreting the statistics generated by such polls is by no means a simple task. It is clear, at any rate, that as defenders of teaching evolution in the public schools, our work is cut out for us.

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## Low-Price “Intelligent Design” Schoolbooks in Germany

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In 2001, theologian Reinhard Junker and microbiologist Siegfried Scherer published the fifth edition of the standard treatise of the German “intelligent design” creationists, *Evolution: A Critical Textbook* (see *RNCSE* 2003 Sep–Dec; 23 [5–6]: 17–8). This attractive college-level book is sold at a very low price (the sponsors are unknown) and has been translated into Russian, Serbian, Finnish, and Portuguese; an English version is scheduled. According to the publisher, more than 40 000 copies have been sold in recent years, most of them in Germany, Austria, and Switzerland. The book contains hundreds of splendid color photographs and is largely based on facts and data drawn from the most recent literature on evolutionary biology.

However, throughout the text, the authors try to convince the



### CREATIONISM IN THE BARN A SURVEY

A national survey conducted by the Barna Group — “a full-service marketing research company ... providing information and analysis regarding cultural trends and the Christian Church” — in May 2004 suggests that there is widespread support in the United States for teaching creationism in the public schools (BG 2004). The report fails to specify the exact wording of the question or to discuss how responses might have been affected by the other questions in the survey, which pertained mainly to whether religious symbols, mottos, and mores ought to be incorporated in American public life.

#### SUPPORT FOR TEACHING CREATIONISM IN PUBLIC SCHOOLS (AFTER BG 2004)

All adults	59%
Atheist/Agnostic	29%
Non-Christian faith	42%
Catholic	59%
Protestant	69%
Notional	60%
Non-evangelical born again	70%
Evangelicals	86%

“Notional” Christians, in the report’s terminology, are people who consider themselves Christians but who are not

“born again.” “Born again” Christians have “a personal commitment to Jesus Christ that is still important in their life today” and “believe that when they die they will go to Heaven because they had confessed their sins and had accepted Jesus Christ as their savior.” “Evangelical” Christians are “born again” Christians who satisfy a number of further conditions, including “contending that the Bible is accurate in all that it teaches”.

The results of a previous Barna survey (BG 2003) are in tension with these. In that survey, the Barna Group surveyed “born again” Christians, distinguishing between “evangelizers” — those who actively seek to share their faith — and non-evangelizers, and noted that “evangelizers were more likely to strongly assert that ... public schools should teach creationism (54% vs. 36%).” E-mail to the Barna Group inquiring about the discrepancy and about the wording of the relevant question was not answered.

#### REFERENCES

- [BG] Barna Group. 2004 Jul 26. How “Christianized” do Americans want their country to be? Available on-line at <<http://www.barna.org/FlexPage.aspx?Page=BarnaUpdate&BarnaUpdateID=168>>; last accessed August 19, 2004.
- [BG] Barna Group. 2003 Jul 28. 49 million born again adults shared their faith in Jesus in the past year. Available on-line at <<http://www.barna.org/FlexPage.aspx?Page=BarnaUpdate&BarnaUpdateID=147>>; last accessed August 19, 2004.

# UPDATES

reader that there is no evidence for macroevolution (the emergence of higher taxa, such as the transition of theropod dinosaurs to birds), though they admit that microevolution is a fact of nature. As an alternative to macroevolution, Junker and Scherer present the so-called Basic Types of life, such as the Equidae (horses and zebras), the Maloideae (apples and relatives), and humans (only one species, *Homo sapiens*). This concept, introduced by the second author at the Third International Conference on Creationism ten years ago, is based on the theistic view that the God of the Bible (also called "the designer") created all Basic Types at once about 10 000 years ago; these rapidly diversified via microevolutionary processes and are the basis of the biodiversity we observe today.

In November 2002, this classical textbook of modern Euro-ID-creationism was awarded a German schoolbook prize sponsored by a private conservative religious group (Learning for the German and European Future, LDEZ). In the corresponding press release, a high-ranking politician, Dieter Althaus of the Christian Democratic Union (CDU), recommended this "excellent" book for use in public schools. In response to this promotion of "intelligent design" creationism, the president of the Association of German Biologists, Hans-Jörg Jacobsen, sent a letter to the 16 Ministers of Education and Cultural Affairs of the German Federal States (*Bundesländer*) and asked them not to place this book on the official list of biology textbooks. All 16 ministers responded positively and pledged not to recommend the "award-winning" Junker/Scherer text for public schools.

This latest attempt by members of the German anti-evolution movement to incorporate their theistic version of biology into science classes demonstrates that creationism is not only a problem in the United States, but also in some European countries.

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**Alaska:** A lengthy two-part article on teaching evolution in Alaska's public schools appeared in the *Anchorage Daily News* (2004 Sep 5 and 6). The article began by detailing how, when Alaska's state science standards were under revision in 2003, the word "evolution" was omitted: "In its place was the phrase 'changes in life forms over time.'" According to Greg Danner, program director for the Imaginarium, a science center in Anchorage, the state Department of Education and Early Development overruled the consensus of a 75-member group convened to evaluate a draft of the standards that the word "evolution" ought to be used. In December 2003, the standards were approved, minus the e-word. Interviewed in May 2004, however, administrators in the department were reportedly rethinking their decision, contemplating "either adding a parenthetical reference to evolution to the content standards or making the concept more explicit in a companion set of performance standards — also known as grade-level expectations — that are still being drafted by a panel of Alaska educators."

**California, Ventura County:** Creationism is again on the horizon in Ventura County. Five years ago, Ron Matthews, then a trustee on the Ventura County Board of Education, proposed teaching creationism alongside evolution. Such a curriculum change would have directly affected only the educational programs supervised by the board (which oversees special education, job-training, and juvenile offender programs), but would have also, Matthews hoped, inspire local school districts to follow suit (*Ventura County Star* 2000 Feb 1; *RNCSE* 1999 Nov/Dec; 19 [6]: 9–12). In September 2000, Matthews said that he would not bring the proposal to a vote until after the November election, apparently hoping that sympathizers would join him on the board (*Ventura County Star* 2002 Sep 6), but it was never placed on the agenda. Now, after the November

2004 election, Matthews is the president of the board, and buoyed by the apparent support of two other members, his proposal is back: "It's only a matter of when," he said (*Ventura County Star* 2004 Nov 28). County Superintendent of Schools Charles Weis noted that Matthews's proposal is unconstitutional.

**Colorado, Lafayette:** An eighth-grade student at the Peak to Peak public charter school slashed her arms with a knife in order to protest religiously motivated bullying from her classmates, the *Daily Camera* reported (2004 Dec 10). Her mother told the newspaper that "she was targeted because she doesn't believe in creationism and challenged a small group of fundamentalist Christian students." Other allegations of religiously motivated bullying have plagued the school; a member of the Colorado Board of Education reported receiving three separate complaints about the school's failure to control bullying, and one parent threatened legal action. In a letter to the editor of the *Daily Camera* (2004 Dec 15), Victor J Stenger connected the incident with the "nationwide campaign by fundamentalist crusaders to eliminate the teaching of evolution in science classes and replace it with their own biblically inspired version of creation called 'Intelligent Design,'" adding, "The students who harassed the young lady are not good Christians. Neither are the creationists who claim that evolution is still controversial. They disobey the Ninth Commandment by bearing false witness." Stenger is President of Colorado Citizens for Science and a member of NCSE.

**Indiana, Alexandria:** The Associated Press reported (2004 Jul 15) that octogenarian Alexander Darrah is calling for evolution disclaimers to be affixed to the biology textbooks used by the Alexandria Community Schools. According to the minutes of the July 12, 2004, meeting of the Alexandria School Board, Darrah said that "he felt it was time to make it clear it [evolution] was just





a theory." He requested time to address the board at its next meeting, which was not granted, and his proposal was passed to the board's attorney for evaluation. There was no further mention of his proposal either in the press or in the minutes of the board.

**Louisiana, Livingston Parish:** David Tate, a member of the School Board Curriculum/Policy Committee in Livingston Parish, wants creationism to be taught in the schools there, according to the *Livingston Parish News* (2004 Oct 30). Having consulted with Darrell White of the Louisiana Family Forum, a group associated with Focus on the Family which seeks to "persuasively present biblical principles in the centers of influence on issues affecting the family through research, communication and networking," Tate is urging the school board to adopt creationist supplements — presumably along the lines of those at <<http://www.textaddons.com/>>, a website registered to Charles Voss, a retired professor of electrical and computer engineering at Louisiana State University and creationist who works with the Louisiana Family Forum — for its biology textbooks. "If this is approved, we would provide a copy of the supplement along with the textbook," Tate told the *News*. "We need to be aggressive and teach from the Christian perspective instead of the ACLU perspective." Superintendent of Schools Warren Curtis was quoted as saying "Livingston Parish always has been a conservative parish. But, we also need to be realistic in how we deal with the law." Science teachers in the parish have expressed discomfort at the proposal, and according to Assistant Superintendent Randy Pope, a similar proposal was rejected because of teacher concerns six or seven years ago (*The [Baton Rouge] Advocate* 2004 Oct 22).

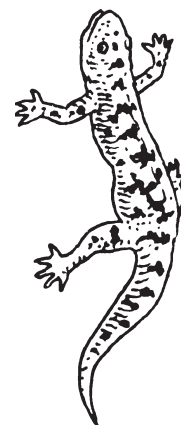
**Maryland, Cecil County:** After a member of the Cecil County School Board objected to the absence of creationism from a proposed textbook for 10th-grade biology, the board postponed a decision on whether to adopt it

until after its members have a chance to read it, according to the Associated Press (2004 Dec 17). The book passed the district's standard textbook approval process, which involves a review by a 50-member committee of teachers, administrators, and parents; Richard Lonie, the district's instructional coordinator for science, was quoted as saying that creationism is not mentioned in either the present or the proposed textbook: "We teach what the state is asking us to teach. We're trying to teach science, not faith."

**Maryland, Charles County:** Evolution is a problem for some of the members of the Charles County, Maryland, Board of Education, to judge from a recently released list of goals and suggestions compiled by its members. Among the entries were recommendations not to use 10th-grade biology textbooks "biased toward evolution" and to provide creationist books and videos to students. Board member Margaret Young told the *Washington Post* (2004 Oct 10), "Certainly only one [theory] has been taught in the public school system, yet the kids go to Sunday school and are taught an opposing point of view ... [They need] both theories, so they're informed students." But biology teacher John Krehbiel said that the recommendation to teach creationism in science is absurd: "Supernatural beliefs simply don't belong in a science class. We deal with the scientific evidence available." None of the proposals on the list has been approved or even brought up for a vote, but the anti-evolutionist proposals, as well as suggestions to censor reading lists and provide Bibles to the students, have been taken as evidence of a radical right agenda on the part of the board. More than 200 people reportedly attended a meeting on October 12, protesting the board's apparent desire to promote a particular set of religious values; it remains to be seen whether any of the objectionable recommendations will be considered further. In an editorial, the *Washington Post* (2004 Oct 13) opined, "[W]e trust that the bright light of public scruti-

ny will ensure that the county schools remain a forum for education, not indoctrination." Reacting to the controversy, three former chairs of the board publicly recommended the establishment of a process to recall members of the board (*Washington Post* 2004 Nov 18).

**Michigan, Gull Lake:** Two 7th-grade science teachers who have been teaching "intelligent design" creationism as part of their regular science classes have taken their case to the public. For the past two years, Julie Olson and Dawn Wendzel, science teachers at Gull Lake Middle School in western Michigan, presented anti-evolutionist materials as part of a two-week unit on evolution. Following a protest by a local parent, the school administration asked Olson and Wendzel to desist. Now, however, the two have distributed a two-page letter protesting the administration's decision, encouraging parents to lobby the school board and claiming, "As a nation, scientists and public schools are awakening to the fact there are new scientific evidences [*sic*] that do not support the theory of evolution. ... Our seventh-grade curriculum is already ahead of the game, as we are currently able to look at evolution critically and also look at other theories of origin" (*Kalamazoo Gazette* 2004 Dec 12). NCSE's executive director Eugenie C. Scott told the *Gazette* that "It's simply miseducating the students of Gull Lake to pretend that evolution is shaky science and there's a debate going on in the scientific community on whether evolution took place," adding, "There's debate over the how, but not the if." The superintendent of Gull Lake Community Schools, Richard Ramsey, was not pleased with the teachers' tactics: "We're taking this through a process, and sending a letter to parents is taking it outside the process," he said. "That is not a responsible thing to do." NCSE and Michigan Citizens for Science (<<http://www.michigancitizensforscience.org/>>) are working with local parents and scientists to help to resolve the situation.



## ¡AY CARAMBA!

Among the interim findings of the Hispanic Churches in American Public Life (HCAPL) research project, which seeks to examine the impact of religion on political and civic engagement in the Latino community: 58% of Latinos responding to a national random-sample telephone survey “support the teaching of both creation and evolution in public schools” (Espinosa and others 2003: 21). The wording of the question was not indicated.

### REFERENCE

Espinosa G, Elizondo V, Miranda J. 2003. Hispanic churches in American public life: Summary of findings. Institute for Latino Studies, University of Notre Dame. Available on-line at <<http://www.nd.edu/~latino/research/pubs/HispChurchesEnglishWEB.pdf>>; last accessed July 22, 2004.

**Missouri:** Anti-evolution legislative activity was stirring early in Missouri. On December 1, 2004, House Bill 35 was introduced in the Missouri House of Representatives. (Although the legislature is not in session until January 5, 2005, in Missouri it is possible to “prefile” bills and resolutions in order to expedite legislation.) HB 35 would require that:

All biology textbooks sold to the public schools of the state of Missouri shall have one or more chapters containing a critical analysis of origins. The chapters shall convey the distinction between data and testable theories of science and philosophical claims that are made in the name of science. Where topics are taught that may generate controversy, such as biological evolution, the curriculum should help students to understand the full range of scientific views that exist, why such topics may generate controversy, and how scientific discoveries can profoundly affect society.

The second and third sentences, of course, are modeled after the so-called Santorum language, present only in the Joint Explanatory Statement of the Committee of Conference for the No Child Left Behind Act and not in the act itself. The sponsor of the bill, Cynthia Davis, was a cosponsor of both of last year’s “intelligent design” bills in the Missouri House of Representatives, HB 911 and HB 1722. HB 911 would have required

“the equal treatment of science instruction regarding evolution and intelligent design” in Missouri’s public schools, and moreover would have provided that “Willful neglect of any elementary or secondary school superintendent, principal, or teacher to observe and carry out the requirements of this section shall be cause for termination of his or her contract” and “Each public school classroom in this state from grades eight through twelve in which science is taught exclusively shall post a copy of this section in a conspicuous manner.” These draconian provisions were absent from its successor, HB 1722, but no action was taken on either bill before the end of the legislative session on May 14, 2004.

**Montana, Darby:** Part of the controversy in Darby (see *RNCSE* 2004 Mar/Apr; 24 [2]: 4–12) involved the hiring of a new superintendent of the school system. Before the May election, the school board voted 3–2 to hire Jim McLaughlin, who was expected to be sympathetic to the proposed “objective origins” policy. After the composition of the school board changed, it then voted 3–2 on June 9 not to approve any written employment contract with McLaughlin, in effect rescinding its offer of employment. Bruceen “Peanut” Fleenor, a major financial contributor to Montana Advocates for True Science, which supported the school board candidates in favor of the “objective origins” policy, then sued the board, alleging that it failed to give proper notice before the June meeting at which the vote took place (see *RNCSE* 2004 May–Aug; 24 [3–4]: 4–6). The judge dismissed the suit in part because the wrong date (June 7) for the meeting was named in the suit (and Fleenor’s attorney failed to correct the error in a timely fashion) and in part because Fleenor failed to show that she was harmed or uniquely affected by the board’s actions (*Ravalli Republic* 2004 Sep 22).

**National:** The controversy over the sale of the creationist anthology *Grand Canyon: A Different View* in the bookstores in Grand Canyon National Park is back in the headlines. On October 13,

2004, Public Employees for Environmental Responsibility — “a national non-profit alliance of local, state and federal scientists, law enforcement officers, land managers and other professionals dedicated to upholding environmental laws and values” — issued a press release (available on-line at <<http://www.peer.org/press/524.html>>) accusing the National Park Service (NPS) of failing to carry out its promised high-level review of the policies governing the selections of books for sale in the bookstores it oversees. The press release also stated that the NPS failed to respond to complaints from the heads of seven geoscience societies about the book and to a scathing memorandum from the chief of its own Geologic Resources Division. PEER’s executive director Jeff Ruch commented, “Promoting creationism in our national parks is just as wrong as promoting it in our public schools.” A spokesperson for the NPS told the *Washington Post* (2004 Oct 15) that the policy review was previously expected to be completed in February 2004, but now is expected not to be completed until some time after that. “It’s difficult on where to draw the line on these issues,” she contended: “We are moving very carefully and very cautiously.” NCSE’s executive director Eugenie C Scott told the *Post*, “The science presented is substandard, inaccurate and greatly at variance with the mainstream scientific view presented at Grand Canyon National Park,” adding, “Nobody is saying this book should be taken out and burned. But it should not be sold at this bookstore.” A reporter for *The New York Times* (2004 Oct 26) subsequently interviewed a former director of the NPS, Roger Kennedy, who expressed concern about the sale of *A Different View*. Referring to the fact that many visitors to the park will assume that any book sold in the bookstores is approved by the NPS, Kennedy remarked: “That’s the problem ... and we need to pay attention to it.” Asked by the *Times* to describe the review process and explain the delay of which PEER complained, a NPS spokesperson said only, “It’s resting with the solicitor’s office.”



(For information about the controversy, see *RNCSE* 2004 Jan/Feb; 24 [1]: 4–5 and 33–6).

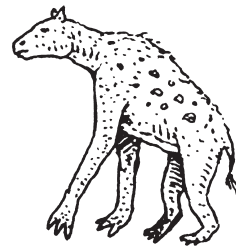
**Serbia:** Evolution was banned and then quickly unbanned in Serbia in September 2004. According to a Reuters report (2004 Sep 7), Ljiljana Colic, the Serbian education minister, ordered that evolution no longer be taught in the biology course for 14–15 year-old students, and said that evolution will not be taught in future years unless given equal time with creationism. Colic, an Orthodox Christian, reportedly said that “[Darwinism] is a theory as dogmatic as the one which says God created the first man.” A Serbian evolutionary biologist, Nikola Tucic, called the ruling a “disaster,” and asked, “Where did the minister get the idea that Darwin’s theory was dogmatic? There were attempts like this in several US states, but they were rejected. It turns out that our fundamentalists are much more successful.” According to the article, Tucic expressed suspicion that the move was an attempt to garner political support for Serbia’s conservative party from the church. Following expressions of outrage in the Serbian press and among Serbian academics, the decision was reversed after Colic met with Serbian Prime Minister Vojislav Kostunica. According to the BBC (2004 Sep 9), the reversal was announced by the deputy education minister Milan Brdar, who quipped, “I have come here to confirm Charles Darwin is still alive.” Colic subsequently resigned. Speaking to Reuters (2004 Sep 9), Tucic credited NCSE with helping

to mobilize resistance to Colic’s ruling in Serbia: “They offered us help. They did the same when creationists tried to kick evolution out of school curriculum in Italy.” (For information about the creationist episode in Italy, see *RNCSE* 2004 Mar/Apr; 24 [2]: 12–3 and 14–7.)

**United Kingdom:** After a protracted and acrimonious public debate, the Vardy Foundation abandoned its plans to establish a “city academy” near Doncaster in south Yorkshire. The Vardy Foundation, headed by millionaire automobile dealer and evangelical Christian Sir Peter Vardy, operates Emmanuel College in Gateshead, Tyneside, which was in the headlines in 2002 for teaching creationism alongside evolution, as a city academy. Seeking to expand its operations, the Vardy Foundation planned to establish up to six new city academies in northeast England (see *RNCSE* 2003 May–Aug; 23 [3–4]: 5–10). Its plan in the Doncaster area was to replace Northcliffe School in Conisbrough, a school classified as “failing” by Ofsted, the Office for Standards in Education. Under the city academy program, the Vardy Foundation would run the new school and contribute up to £2 million to its start-up costs, with the government providing the remaining £20 million. Opponents of the Vardy takeover objected both to the privatization of the school and to the prospect of creationism in the curriculum, and engaged in a variety of public protests, including a tongue-in-cheek auction of Northcliffe School on eBay. As the debate continued, concerns about the cur-

riculum at Emmanuel College resurfaced, worries about the high expulsion rate at the Vardy-run King’s Academy in Middlesbrough emerged, and allegations of financial mismanagement of city academies in general came to light. Finally, in mid-October 2004, the Doncaster Council decided not to pursue the project with the Vardy Foundation. Local activist Tracy Morton told *The Independent* (2004 Oct 15), “It has been a long, hard fight. It seemed as if anybody who comes along and fits the criteria can take over a school with this government. If parents want to send their children to a faith school then that’s fine but this is the only comprehensive in the area so we will have no choice but to send them to a place with a strong Christian ethos whether we want it or not.” (The website of the Conisbrough and Denaby Parents Action Group [CADPAG] is a useful source of information on the controversy in Doncaster: <<http://www.cadpag.pwp.blueyonder.co.uk/>>.) The Vardy Foundation’s city academies have proven to be a clear embarrassment for the Blair government, whose school standards minister, David Miliband, complained of “a lot of myth-making around the academies programme which is serving to ignore their performance” (*Guardian* 2004 Dec 9). The government hopes to see 200 academies established by the end of the decade; so far there are 17, including three operated by the Vardy Foundation.

[NCSE thanks Barbara Forrest, Paul Heinrich, and Allyson C Mathis.]



## DEMBSKI MISUNDERESTIMATES

According to a January 5, 2005, story on the Agape Press web site (<<http://headlines.agapepress.org/archive/1/52005b.asp>>), William A Dembski, one of the intellectual leaders of the “intelligent design” movement, estimates “that only one or two percent of biological scientists believe in God.”

Had Dembski bothered to consult the appendix of Larry A

Witham’s *Where Darwin Meets the Bible* (New York: Oxford University Press, 2002), he would have discovered that 42.5% of the biologists responding to a 1996 survey agreed “I believe in a God in intellectual and affective communication with mankind, [that is,] a God to whom one may pray in expectation of receiving an answer. By ‘answer’ I do not mean the sub-

jective, psychological effect of prayer.” (The question was taken from a classic survey conducted by James Leuba in 1914, which the 1996 survey sought to replicate.) A slightly greater percentage of the biologists (43.5%) disagreed, with 14% expressing agnosticism.

Dembski’s uninformed estimate was thus off by about 1.5 orders of magnitude.



# NCSE NEWS

## News from the Membership

Glenn Branch  
NCSE Deputy Director

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!

**Philip Appleman** was awarded the Long Island School of Poetry Award for 2004 by the Walt Whitman Birthplace Association. Distinguished Professor Emeritus of English at Indiana University, Appleman has published seven volumes of poetry as well as three novels and half a dozen non-fiction books, including the Norton Critical Edition *Darwin*, now in its third edition (New York: WW Norton, 2000). In connection with his award, Appleman gave a reading at the Walt Whitman Birthplace State Historic Site and Interpretive Center, reporting, “I included a good dose of Darwin in this reading, and they loved it.” Appleman was also the featured poet of the autumn 2004 issue of *Light: A Quarterly of Light Verse*, which contained seven of his poems (5-10) and a profile of him, entitled “A decent animal: The Darwinian vision of Philip Appleman” (51-7).

NCSE Deputy Director **Glenn Branch** reviewed **Jay Hosler's** graphic novel *The Sandwalk Adventures* (Columbus [OH]: Active Synapse, 2002) — in which Darwin explains evolution to a follicle mite dwelling in his left eyebrow — for *BioScience* (2004 Oct; 54 [10]: 963-5), praising it for its “engaging art and snappy dialogue” as well as its pedagogical sophistication: “Hosler obviously is aware of the likely misconceptions that his readership will have about evolution.” Branch also was a guest on two radio shows — KAAA and KZZZ radio in Kingman and Bullhead City, Arizona, on December 7, 2004, and KPFA radio in Berkeley, California, on

December 16, 2004 — to discuss recent assaults on evolution education across the country.

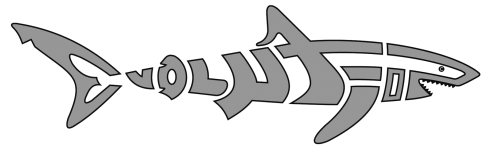
**Jim Bullion** responded in the letters-to-the-editor page of the *Bellingham* (Washington) *Herald* (2004 Dec 6) to a previous letter arguing that “evolutionism” is not scientific and is, indeed, a religion. “Saying that evolution is a religion because it requires belief is silly,” Bullion noted. “Science is based on accumulated, confirmed evidence and produces knowledge, not belief.”

In “‘Teach the controversy’: An intelligently designed ruse” (*Skeptical Inquirer* 2004 Sep/Oct; 28 [5]: 32-5), **Robert Camp** analyzed the popular “intelligent design” slogan, arguing, “The interests of ‘Intelligent Design’ advocates are served by the idea that a scientific controversy exists. But this is not a genuine scientific dispute between evolutionary biologists regarding details of legitimate controversies such as the pace of speciation or phylogenetic classification.” Of interest in the same issue of *Skeptical Inquirer* is Massimo Pigliucci’s “Did Popper refute evolution?” (15, 40; the answer, of course, is no) and **Mark Perakh's** “The anthropic principle and the Big Bang: Natural or supernatural?” (41-5), which argues that “the Supernatural Anthropic Principle is logically unsubstantiated and is an arbitrary assumption.” A subsequent issue of *Skeptical Inquirer* contained letters by **Glenn Branch** and **Ronald H Pine**, among others, commenting on Camp’s article (*Skeptical Inquirer* 2005 Jan/Feb; 29 [1]: 61, 63).

**Robert Cooper** and **Andrew J Petto** teamed up to offer a workshop entitled “Beyond classification: Inquiry-based construction of evolutionary trees” at the New Jersey Science Convention on October 13, 2004. They presented workshop activities to model contemporary taxonomic practice for students to explore evolutionary relationships among organisms. Cooper teaches science at

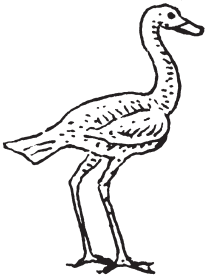
Pennsbury High School in Fairless Hills, Pennsylvania, and contributed “The goal of evolution instruction: Should we aim for belief or scientific literacy?” to *RNCSE* (2001 Jan-Apr; 21 [1-2]: 14-18); Petto is the editor of *RNCSE* and a member of NCSE’s board of directors.

**David J Daegling's** *Bigfoot Exposed: An Anthropologist Examines American's Enduring Legend* (Walnut Creek [CA]: AltaMira Press, 2004) was published. “How do you prove the nonexistence of something like Bigfoot? You can’t. But you can critically examine the evidence and apply scientific ways of thinking to establish probabilities that the wild man of the woods does or does not exist. In *Bigfoot Exposed*, physical anthropologist Daegling shows us how to reason scientifically. Anyone interested in critical thinking will want to read this book,” writes NCSE Executive Director **Eugenie C Scott**. Daegling is Associate Professor of Anthropology at the University of Florida.



**Ron Dodd** reports that his Evolushark web site — selling t-shirts, sweatshirts, hats, and decals in a variety of colors, all bearing the distinctive Evolushark logo — is open for business at <<http://www.evolushark.com>>. Dodd writes in his mission statement, “The Establishment Clause is in a tattered state. I think all secularists (deists, theists, agnostics, nontheists, and atheists) need to join together and vigorously challenge these recent violations (and other longstanding ones) in order to remain a secular society. These secular concerns brought about the creation of Evolushark, the evolution logo that doubles as a science mascot, and the eventual setting up of the Evolushark website.” Five percent of his net profits are donated to NCSE — thanks, Ron!

**Barbara Forrest** and **Paul R Gross** contributed a piece to the December 2004 issue of *Science &*



*Theology News* (available on-line at <[http://www.stnews.org/books\\_authors\\_1204.html](http://www.stnews.org/books_authors_1204.html)>), a monthly newspaper reporting the latest on science-religion issues. "Like any evolving system," Forrest and Gross write, "ID has highly conserved traits. In this case, these qualities reflect the movement's creationist ancestry. The most prominent trait is its scientific sterility .... Such throwback attributes, like this blindness to relevant science, are stable. Others, however, are evolving relatively quickly." Tracing the development of "intelligent design" rhetoric, they conclude, "having evolved away from 'the Wedge' strategy's argument for 'the integration of design theory into public school science curricula,' the ID movement is in an odd predicament, a victim of its own PR campaign. Having developed the strategy to promote ID, they must now defend it with something other than the term 'intelligent design.' This will happen — just like any other evolutionary process — over a good deal of time." Forrest and Gross are the authors of *Creationism's Trojan Horse: The Wedge of Intelligent Design* (New York: Oxford University Press 2004), a comprehensive exposé of the "intelligent design" movement, and Forrest is in addition a member of the NCSE board of directors.

On November 10, 2004, at California State University Hayward's Contra Costa campus, **Phillip Gasper** delivered a Scholar-Olli lecture on "Science, pseudoscience, and creationism," using the creationism/evolution controversy as the focus of his discussion of what distinguishes science from pseudoscience. Scholar-Olli, sponsored by the Bernard Osher Foundation and CSU Hayward, "provides opportunities for intellectual stimulation and learning to mature students — 50+ — in Alameda and Contra Costa counties." Gasper is professor of philosophy at Notre Dame de Namur University in Belmont, California.

On December 6, 2004, the *York Dispatch* published an op-ed column by **Paul R Gross** and **Barbara Forrest**, authors of *Creationism's Trojan Horse: The Wedge of Intelligent Design* (New

York: Oxford University Press, 2004), about the Dover Area School Board's decision to mandate the teaching of "intelligent design" in the district's science classes (see p 4). In "School boards shouldn't compete in creationists' self-serving game" (available on-line at <<http://www.yorkdispatch.com/Stories/0,1413,138~10027~2579796,00.html>>), Gross and Forrest announced that "Dover is the leading contender in the world series of scientific nonsense. What puts Dover ahead is that its board has become the first in the country to explicitly mandate the teaching of both 'intelligent design' and evolution in its biology curriculum." They go on to argue that intelligent design, far from being good science, is a scientifically bankrupt and religiously motivated assault on evolution.

Writing to the editor of the *El Paso Times*, **Arthur H Harris** chided a creationist for repeating the untruth "that evolution is a religious disproved by science." But the people really to blame are those who originated the canard, he argued. His letter appeared on December 27, 2004.

**Eric J Hildeman's** *Creationism: The Bible Says No!* (Bloomington [IN]: AuthorHouse, 2004) was published. The publisher writes, "With this book, the debate between Evolution and Creationism is officially over. Evolution wins! ... Hildeman breaks the deadlock with a radically different approach, arguing not from science, but from scripture. Showing the numerous and frequent examples of scriptural errors, contradictions, and fallacies, he illustrates that a literalistic interpretation of the Bible is dead wrong, and that leaders within the Christian faith who have drawn a line in the sand at a talking snake being a fact of history do so at the peril of their religion's very survival. If you have only a couple of pro-evolution books in your library, one of them should be *Creationism: The Bible Says No!*"

A recent issue of *Basis*, the publication of the Bay Area Skeptics, was devoted to evolution and anti-evolutionism (2004 Apr-Jun; 21 [2]). Featured were "Five major misconceptions about evolution" by **Mark Isaak** (2-6), "What's

wrong with *Icons of Evolution?*" by NCSE Postdoctoral Scholar **Alan Gishlick** (6-7), "Behe's blunder: Irreducible complexity and change of function" by NCSE Public Information Project Specialist **Nicholas J Matzke** (7-9), and "Intelligent design creationism" by NCSE Executive Director **Eugenie C Scott** (9-17).

**William H Jefferys**, the Harlan J Smith Centennial Professor in Astronomy at the University of Texas, Austin, retired on September 1, 2004, and a retirement symposium, dubbed "Priors, quaternions, and residuals, oh my!", was held in his honor on September 24. Jefferys contributed "'Sun, stand thou still': An astronomical critique of a creationist biblical chronology" to *Creation/ Evolution* (1987 Summer; 7 [2]: 18-30; available on-line at <[http://www.ncseweb.org/resources/articles/9711\\_issue\\_21\\_volume\\_7\\_number\\_2\\_\\_6\\_30\\_2003.asp](http://www.ncseweb.org/resources/articles/9711_issue_21_volume_7_number_2__6_30_2003.asp)>).

On August 12, 2004, **Duane Jeffrey** presented a paper on "Noah's flood: Modern scholarship and Mormon tradition" at the Sunstone Symposium, a yearly meeting of Mormon intellectuals. The abstract: "The story of Noah's Flood has long been a matter of contention in discussions of science and religion. Though it has been discounted as baseless folklore by scientists and other scholars, recent years have seen a provocative case being made for a real event ca 5600 BCE upon which the Noachian account may conceivably be based. This paper will briefly review the now voluminous data surrounding classical discussions of the Flood, the data involved in the new hypothesis of a massive but localized event centering on the Black Sea, and possible impacts of these new findings on traditional Mormon interpretations." Jeffrey's paper was covered by the *Salt Lake Tribune* (2004 Aug 14; available on-line at <[http://www.sltrib.com/healthscience/ci\\_2393180](http://www.sltrib.com/healthscience/ci_2393180)>), which reported, "For his part, Jeffery believes that scripture is 'cosmic history, intended to teach moral lessons and to make clear that deity operates in the affairs of men.' The moral of the Flood story is that Noah was faced with a problem and, when given knowledge about it, took steps to



meet the challenge, Jeffery said. 'I fear by making it into a tale for primary children and junior Sunday school, we are missing the real meat.' Jeffrey is Professor of Biology at Brigham Young University and a member of NCSE's board of directors.

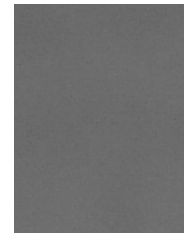
A letter from **Andrew Koenigsberg** appeared in the *Boston Globe* (2004 Nov 25), responding to a letter (2004 Nov 21) that criticized a front-page article in the *Globe* entitled "Evolution foes see opening to press fight in schools" (2004 Nov 16) by arguing that the theory of evolution ought to be called the hypothesis of evolution. Koenigsberg wrote in part, "A hypothesis is a provisional idea whose merit is to be evaluated. A scientific theory is an idea, supported by a wealth of facts, that describes and predicts conditions in nature. Good scientific theories breed new avenues for investigation and lead to other testable predictions. The theory of evolution explains the facts we know: The earth is 4.65 billion years old, life has existed on it for more than 3 billion years, and life has changed over that time. The theory of evolution explains that process of change. Has its merit yet to be evaluated? Hardly. Far from complicating anything, recent fossil and biochemical discoveries only continue to support evolution and provide us with fascinating new questions to answer."

On September 28, 2004, NCSE member **Jack Krebs** gave a speech at the University of Kansas in Lawrence, Kansas, entitled "Kansas science standards — 2004: Will it be 1999 all over again?"; about 450 people attended. Krebs is a Kansas public school teacher, Vice President of Kansas Citizens for Science, and a member of the state science standards review committee in Kansas. In his speech, he warned of the possibility of attempts to undermine the treatment of evolution in the state science standards following the November election, in which the balance of power tilted toward the anti-evolution faction of the school board (see p 33). Krebs thus urged his fellow Kansans to get involved ahead of time, saying, "In 1999 all of the uproar was after the fact. The right thing to do is to get peo-

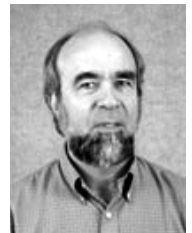
ple talking about it now." The speech received wide coverage in the state's newspapers, including the *Lawrence Journal-World*, the *Kansas City Star*, and the *Johnson County Sun*. "Intelligent design" advocate John Calvert was quoted in the *Sun* (2004 Sep 30) as saying that the speech "reminded me of the Ku Klux Klan with the grand wizard on the stage promoting hate on a particular group, suppressing criticism." Krebs discusses the lecture in a post on the Panda's Thumb web log (<<http://www.pandasthumb.org/pt-archives/000529.html>>).

Responding to Mark Hartwig's op-ed in the *Philadelphia Inquirer* (2004 Dec 9) defending the evolution disclaimer in the Cobb County, Georgia, school district, **Bruce Levine** wrote a forceful rebuttal: "Mark Hartwig argues that there is skepticism in the scientific community about evolution. It's not true. ... This is a manufactured controversy that isn't science; it's religion and philosophy." He added, "Teaching critical thinking doesn't mean presenting irrelevant and ill-founded alternatives to basic knowledge that we want all students to understand. ... intelligent design or other rehashed creationist beliefs should not be part of science curricula or enabled by disingenuous disclaimers who are a disservice to the scientific education of students." Levine is Assistant Professor of Pathology and Laboratory Medicine at the University of Pennsylvania School of Medicine; his letter was printed on December 13, 2004.

Under the sobriquet "Sweet Reason", former NCSE Network Project Director and enduring friend **Molleen Matsumura** is writing a humanist advice column for Humanist Network News, a weekly e-zine of the Institute for Humanist Studies. She writes, "In my view, humanism relies on reason and compassion. Reason guides our attempt to understand the world about us. Both reason and compassion guide our efforts to apply that knowledge ethically, to understand other people, and to have ethical relationships with other people." For more information, and to read her columns, visit <<http://humaniststudies.org/sweetreason.html>>.



Nicholas J. Matzke



Jack Krebs

**Nicholas J. Matzke**, NCSE Public Information Project Specialist, was on the air three times recently. First, on August 9, 2004, Matzke and **Jack Krebs**, Vice President of Kansas Citizens for Science, appeared on Mark Levine's Radio Inside Scoop. Krebs discussed the prospects for science education in Kansas in the wake of the imminent anti-evolutionist shift on that state's board of education (see p 33), and Matzke reviewed the national situation as well as the motivations and tactics of the "intelligent design" movement. To hear the show, visit <<http://radioinsidescoop.com/mt-posts-archive/000162.html>>. (Note that there is about 75 seconds of music before the discussion starts.) Second, in the first hour of NPR's show Science Friday for November 19, 2004, host Ira Flatow and his guests, including Matzke, discussed the recent decision by the Dover Area School District to require the teaching of "intelligent design" in its science classrooms (see p 4), as well as other recent battles over evolution education. Also appearing on the show were NCSE Supporter Kenneth R. Miller, Charles Haynes of the First Amendment Center, law professor and Senior Fellow of the Discovery Institute's Center for Science and Culture David K. DeWolf, and two former members of the Dover Area School Board who resigned to protest the "intelligent design" decision. For the archived version of the show, look under the "Archived Audio" section of <[http://www.sciencefriday.com/pages/2004/Nov/hour1\\_111904.html](http://www.sciencefriday.com/pages/2004/Nov/hour1_111904.html)>. Third, on December 22, Matzke was a guest on the syndicated Michael Medved show. In a post on the Panda's Thumb web log (<<http://www.pandasthumb.org/pt-archives/000690.html>>, he writes, "All in all, the show went surprisingly well despite being a

*continued on page 23*





# Polling the Creationism/Evolution Controversy

Andrew Lang is reported to have complained of someone who “uses statistics as a drunken man uses lamp-posts — for support rather than illumination.” Here are the most widely cited poll data — Gallup’s — on the public’s views on human evolution, together, for comparison, with data on the scientific community’s views. Use them wisely!

Which of the following statements comes closest to your views on the origin and development of human beings?	United States Public							Scientists
	2004 Nov	2001 Feb	1999 Aug	1997 Nov	1993 Jun	1991 Nov	1982 Jul	1996
God created human beings pretty much in their present form at one time within the last 10 000 years or so	45	45	47	44	47	47	44	5
Human beings have developed over millions of years from less advanced forms of life, but God guided this process	38	37	40	39	35	40	38	40
Human beings have developed over millions of years, but God had no part in this process	13	12	9	10	11	9	9	55
Other (volunteered response) or no opinion	4	6	4	7	7	4	9	-

*Note: the question in the 1982 and 1991 polls used “man” rather than “human being.”*

*Sources: United States Public — Gallup. Scientists — Witham 1997; the scientists were randomly sampled from the 1995 edition of American Men and Women of Science.*

## SELECTED BIBLIOGRAPHY

Bishop G. 1998. The religious worldview and American beliefs about human origins. *Public Perspective* 9 (5): 39-44.

Bishop G. 2003. “Intelligent design”: Illusions of an informed public. *Public Perspective* 14 (3): 40-2; reprinted in *Reports of the National Center for Science Education* 23 (3-4): 41-3.

Brown CM. 2003. The conflict between religion and science in light of the patterns of religious belief among scientists. *Zygon* 38 (3): 603-32.

Duncan OD, Geist C. 2004. The creationists: How many, who, where? *Reports of the National Center for Science Education* 24 (5): 26-33.

DYG Inc. 2000. *Evolution and Creationism In Public Education: An In-Depth Reading of Public Opinion*. Washington DC: People for the American Way. Available on-line at <[http://www.pfaw.org/pfaw/dfiles/file\\_36.pdf](http://www.pfaw.org/pfaw/dfiles/file_36.pdf)>.

Griffith S. 2002 Oct 17. Ohio scientists give opinions on intelligent design versus evolution. *Case Western Reserve University Campus News*. Available on-line at <<http://www.cwru.edu/pubs/cnews/2002/10-17/intelldesign.htm>>.

Larson EJ, Witham L. 1997. Scientists are still keeping the faith. *Nature* 386: 435-6.

Larson EJ, Witham L. 1998. Leading scientists still reject God. *Nature* 394: 313.

Larson EJ, Witham L. 1999 Sep. Scientists and religion in America. *Scientific American* 281: 88-93.

Witham L. 1997. Many scientists see God’s hand in evolution. *Washington Times* Sect A: 8.

Witham LA. 2002. *Where Darwin Meets the Bible*. New York: Oxford University Press.

# FROM NCSE'S SUPPORTERS

The three dozen or so Supporters of NCSE — listed on our letterhead and on the back of every issue of *RNCSE* — are a group of distinguished scientists, scholars, and educators whose prestige we respect, whose support we value, and whose insight we cherish. They differ among themselves on a number of issues, of course, as any such group would, but they all agree on the importance of evolution education and the need to defend it, as their official support of NCSE testifies. Featured here, therefore, are books by our Supporters on a variety of topics: evolution, science in general, and, of course, the creationism/evolution controversy. (Obviously it is only a sampling: our Supporters are prolific authors!) To see what our Supporters have to say, consult the following books, now available through the NCSE web site: <<http://www.ncseweb.org/bookstore.asp>> — look in the “In the latest *RNCSE*” section. And remember, every purchase benefits NCSE!



Illustration by Dave Smith, used with permission of the University of California Museum of Paleontology.

## ON EVOLUTION...

### ***From DNA to Diversity: Molecular Genetics and the Evolution of Animal Design***

by Sean B Carroll, Jennifer K Grenier, and Scott D Weatherbee  
“Animals diverge from common ancestry through changes in their DNA, but what are the genes that control morphology?” That is the question that *From DNA to Diversity* seeks to investigate by synthesizing evolutionary biology with genetics and embryology. “With almost poetic ease, the authors tell a highly complex story without distorting its scientific substance. The story lines starts from the large scale features of the history of life, goes through the levels of biological hierarchy all the way to the details of gene regulation and emerges with a deeper understanding of biological diversity,” writes Günther Wagner: “In Sean Carroll developmental evolution has found its Darwin.”

### ***The Pattern of Evolution***

by Niles Eldredge

Niles Eldredge, a curator in the Department of Invertebrates at the American Museum of Natural History, may be best known as the coauthor of the concept of punctuated equilibria. Here Eldredge

explores how the physical forces shaping our world relate to the process of biological evolution in the context of the history of ideas about evolution. *The Pattern of Evolution* was praised by Ian Tattersall for “weaving together an extraordinary diversity of information into a single coherent theory of the evolution of the biosphere” and as “smoothly flowing and highly readable” and by the reviewer for *Choice* as “a very readable account of the history of the theories of evolution.”

### ***Evolution***

by Douglas J Futuyma

From the publisher: “*Evolution* is a readily recognized descendant of the author’s previous textbook, *Evolutionary Biology*. However, it is much shorter and is exclusively directed toward an undergraduate audience. Teachers and students will find the list of important concepts and terms in each chapter a helpful guide, and will appreciate the radically different dynamic figures and lively photographs. The content of all chapters has been updated, and material has been reorganized into new chapters such as ‘Conflict and Cooperation’ and ‘How To Be Fit.’ ... A new final chapter on ‘Evolutionary Science, Creationism, and Society’ treats such topics as the nature of sci-

ence and the practical applications of evolutionary biology.”

### ***From Lucy to Language***

by Donald Johanson and Blake Edgar

Paleoanthropologist Donald Johanson teams up with science writer Blake Edgar to discuss human history, from the appearance of bipedal walking to the origin of language, in a volume lavishly illustrated with original (and often life-size) photographs of fossils and artifacts. Part 1, “Central issues of paleoanthropology”, concentrates on interpretation of the evidence, considering such topics as migration, diversity, anatomy, society, bipedalism, tools, customs, and “imponderables” (such as clothing and the problem of consciousness). Part 2, “Encountering the evidence”, comprehensively summarizes the evidence on which our knowledge of human prehistory is based.

## ABOUT SCIENCE...

### ***Science As a Way of Knowing: The Foundations of Modern Biology***

by John A Moore

From the publisher: “For the past twenty-five years John Moore has taught biology instructors how to teach biology — by emphasizing

<<http://www.ncseweb.org/bookstore.asp>>

the questions people have asked about life through the ages and the ways natural philosophers and scientists have sought the answers. This book makes Moore's uncommon wisdom available to students in a lively and richly illustrated account of the history and workings of life. Employing a breadth of rhetoric strategies — including vividly written case histories, hypotheses and deductions, and chronological narrative — *Science as a Way of Knowing* provides not only a cultural history of biology but also a splendid introduction to the procedures and values of science."

### ***Flim-Flam! Psychics, ESPs, Unicorns, and Other Delusions***

by James Randi

Published first in 1982 and still relevant today, *Flim-Flam!* explores — and debunks — a wide variety of paranormal, occult, and supernatural claims, all in Randi's characteristic buoyant and charming style. Not merely a pleasurable read, the book serves in effect as a practical tutorial in evaluating the claims of pseudoscience. Randi is internationally famous not only as a debunker of the paranormal but as a magician and escape artist; he also runs the James Randi Educational Foundation (on the web at <<http://www.randi.org>>), which aims to "promote critical thinking by reaching out to the public and media with reliable information about paranormal and supernatural ideas so widespread in our society today."

### ***Darwin and Design***

by Michael Ruse

Writing in *BioScience*, NCSE's Eugenie C Scott and Glenn Branch comment, "For a truly synoptic view of the intellectual backdrop, Michael Ruse's *Darwin and Design* (2003) — the final volume in a trilogy containing *Monad to Man* (1996) and *Mystery of Mysteries* (1999) — is just the ticket. Ruse explains in exhilarating detail how the attempts to explain the apparent design of the biological world have shaped the history of biology from Plato and Aristotle to the present day. In his final chapter, 'Turning Back the Clock,' he cleanly dissects the arguments for ID ... then suggests that the future

of a rapprochement between Christianity and evolution is ... with the development of a 'theology of nature'."

### ***Taking Darwin Seriously, second edition***

by Michael Ruse

"I do not know if *Taking Darwin Seriously* is my best or most important book," Ruse writes in the preface to the second edition (1998), "but I do know that it is my most personal and the one which in respects means the most to me." In it, he attempts to "work out a full and satisfying position on the basic questions of epistemology (theory of knowledge) and ethics (theory of morality)" in the light of evolution. The second edition includes a new chapter — "Darwin's new critics on trial" — in which Ruse scrutinizes the anti-evolutionary claims of Phillip Johnson, Michael Behe, and Alvin Plantinga.

## **AND AGAINST CREATIONISM...**

### ***Science on Trial:***

#### ***The Case for Evolution***

by Douglas J Futuyma

Michael Ruse describes Futuyma's *Science on Trial* as "the book to show someone who is worried about the threat of creationism. ... It can be read for pleasure and profit by people at all levels of biological sophistication." Originally published in 1982, *Science on Trial* was reissued in 1995 with extensive notes bringing it up to date. Futuyma writes in the 1995 preface that "in an age in which some understanding of science is a virtual necessity for everyone, it is incredible that the single most fundamental principle of biology and one of the most fundamental in modern thought should still be an object of controversy and disbelief."

### ***Scientists Confront Creationism***

edited by Laurie R Godfrey

"This scholarly, richly documented anthology is also a slashing, two-fisted attack on the scientific imbecility of today's ... creationists," writes Martin Gardner: "It won't alter the opinions of any leading creationists — their mind sets are unalterable — but for anyone open to reason and overwhelming evidence, it couldn't

be more effective." Contributors include Alice B Kehoe, John R Cole, George O Abell, Stephen G Brush, Russell F Doolittle, John W Patterson, Thomas H Jukes, Stephen Jay Gould, David M Raup, Joel Cracraft, Laurie R Godfrey, Steven D Schafersman, C Loring Brace, Robert J Schaedewald, and Frederick Edwords. Godfrey and NCSE Editor Andrew J Petto are currently preparing a second edition!

### ***Abusing Science: The Case Against Creationism***

by Philip Kitcher

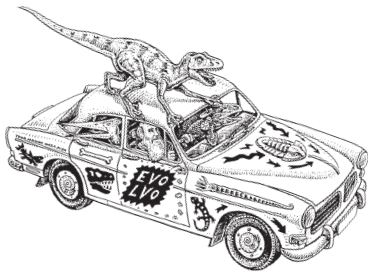
In the words of Stephen Jay Gould, "a brilliant book by a gifted scholar." Martin Gardner, writing in *Discover*, raves, "*Abusing Science* does more than just explode moldy arguments. ... As a philosopher concerned with the way science operates, Kitcher is good at showing how creationists distort Karl Popper's views on scientific method, and how they misuse such books as Thomas Kuhn's *Structure of Scientific Revolutions*." Well-written and understandable even by those with little or no scientific or philosophical background, and still a useful refutation of young-earth creationism. The author is the John Dewey Professor of Philosophy at Columbia University.

### ***Perspectives on an Evolving Creation***

edited by Keith B Miller

From the publisher: "According to the authors of this book, who explore evolutionary theory from a clear Christian perspective, the common view of conflict between evolutionary theory and Christian faith is mistaken. Written by contributors representing the natural sciences, philosophy, theology, and the history of science, this thought-provoking work is informed by both solid scientific knowledge and keen theological insight. The three sections of the book address (1) relevant biblical, historical, and scientific background, (2) the scientific evidence for an evolving creation, and (3) theological issues commonly raised in connection with evolution, including the nature of God's creative activity, the meaning of the miraculous, and the uniqueness of humankind."





# NCSE on the Road

## A CALENDAR OF SPECIAL EVENTS, PRESENTATIONS, AND LECTURES

**DATE** June 3, 2005  
**CITY** Berkeley CA  
**PRESENTER** Eugenie C Scott  
**TITLE** Evolution in Public Schools  
**EVENT** Berkeley Breakfast Club  
**TIME** 8:00 AM  
**LOCATION** Berkeley City Club  
**CONTACT** Philip Spieth, spieth@ncseweb.org

**DATE** June 13, 2005  
**CITY** Napa CA  
**PRESENTER** Eugenie C Scott  
**TITLE** Evolution vs Creationism: What are We Teaching Our Kids?  
**EVENT** Napa Valley Arts and Lectures  
**TIME** 7:00 PM  
**LOCATION** Napa Valley Opera House  
**CONTACT** Eugenie C Scott, scott@ncseweb.org

**DATE** June 22, 2005  
**CITY** Batavia IL  
**PRESENTER** Eugenie C Scott  
**TITLE** Creationism, Evolution, and Science Education  
**EVENT** Fermi National Accelerator Laboratory Colloquium Series  
**TIME** 4:00 PM  
**LOCATION** Fermi National Accelerator Laboratory  
**CONTACT** Michael Albrow, albrow@fnal.gov

### NCSE SPEAKERS AVAILABLE

**NAME** Eugenie C Scott  
**TITLE** NCSE Executive Director  
**CONTACT** scott@ncseweb.org

**NAME** Andrew J Petto  
**TITLE** NCSE Board Member  
**CONTACT** petto@ncseweb.org

**NAME** Glenn Branch  
**TITLE** NCSE Deputy Director  
**CONTACT** branch@ncseweb.org

**NAME** Wesley R Elsberry  
**TITLE** NCSE Information Project Director  
**CONTACT** elsberry@ncseweb.org

**NAME** Susan Spath  
**TITLE** NCSE Public Information Project Director  
**CONTACT** spath@ncseweb.org

**NAME** Philip Spieth  
**TITLE** NCSE Director of Operations  
**CONTACT** spieth@ncseweb.org

**NAME** Nicholas J Matzke  
**TITLE** NCSE Public Information Project Specialist  
**CONTACT** matzke@ncseweb.org

[Check the NCSE web site for updates and details — <<http://www.ncseweb.org>>.]

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**TOTAL** \_\_\_\_\_

continued from page 18

total food-fight. Whether or not anyone learned anything is debatable, but it probably made for engaging talk radio."

Responding to a news article in the *Baltimore Sun* (2004 Dec 19) about the Dover Area School Board's decision to mandate the teaching of "intelligent design" and the subsequent filing of a lawsuit (see p 4), **Douglas E McNeil** predicted that "[t]he taxpayers and the students will be the big losers from the Dover PA school board's decision to 'balance' evolutionary science with 'intelligent design' pseudoscience" and expressed "hope that Dover taxpayers will revolt before too much money is wasted defending against the inevitable lawsuit, and demand a school board with more common sense — or more education." His letter to the editor appeared on December 27.

**Karen Mesmer** conducted a week-long workshop in August 2004 on "Evolution for middle school teachers" for the Wisconsin Teacher Enhancement Program at the University of Wisconsin, Madison. The workshop's description: "This course will focus on student learning of the natural selection model. Participants will gain knowledge of the components of natural selection including variation, population, selective advantage, heredity, reproduction and survival. They will explore activities to teach all of these components and then use the model to solve evolutionary case studies. All of the activities are appropriate for middle level students. Research supporting this learning method will also be presented." Mesmer also wrote a letter to the editor of the *Wisconsin State Journal* (2004 Nov 20), explaining that, contrary to what a previous letter asserted, the so-called Santorum language was not present in the No Child Left Behind Act. With reference to "intelligent design", she also remarked that "for me to teach an idea that is far from being accepted by the scientific community would be irresponsible whether the designer has been identified as God or not identified at all." Mesmer teaches at Baraboo Middle School in Baraboo, Wisconsin.

**Randy Moore** contributed "How well do biology teachers understand the legal issues associated with the teaching of evolution" to *BioScience* (2004 Sep; 54 [9]: 860–5). The abstract reads, "Courts throughout the United States have consistently supported the teaching of evolution and have rejected the teaching of creationism in the science classes of public schools. Although knowledge of these court decisions can help teachers resist pressures to spurn evolution or to teach creationism, many teachers have a poor understanding of the legal issues associated with the teaching of evolution and creationism. Incorporating these court decisions into undergraduate courses, pre-service training, and in-service workshops would educate and support teachers who want to teach evolution, while helping them avoid costly and embarrassing lawsuits." Moore teaches biology at the University of Minnesota and is the author of *Evolution in the Courtroom: A Reference Guide* (Santa Barbara [CA]: ABC-CLIO, 2002). Of interest in the same issue of *BioScience* was Miranda Richardson's obituary for **Francis Crick** (808–9; see also *RNCSE* 2004 May–Aug; 24 [3–4]: 8).

**Loren Raymond**, Professor of Geology at Appalachian State University, wrote a letter entitled "No room for creationism" to the editor of *Geotimes* (2004 July; 49 [7]: 6), responding to two previous letters. Rejecting a proposal that "the best way to deal with creationism is perhaps to allow it to be taught in public school classrooms," Raymond commented: "The argument that intellectually immature children led by public school teachers, nearly all of whom are not practicing scientists, should be asked to evaluate the merits of the scientific concept of evolution and the philosophical merits of creationism as a scientific concept is ridiculous. I would say that these ideas reflect a serious naiveté with regard to the intellectual abilities of children and the depth of scientific understanding of most teachers." And to a letter arguing that there is no evidence in the fossil record for common ancestry, he replied, "This is typical creationist rhetoric that

reflects a complete misunderstanding of the fossil record and fossil lineages, the processes of scientific study, and the philosophical concepts underlying the practice of science." [Thanks to Bob McDonnell for the news.]

**John Relethford**, Distinguished Teaching Professor and Chair of the Department of Anthropology at SUNY Oneonta and Adjunct Professor of Anthropology at Binghamton University, was awarded the WW Howells Book Prize in Biological Anthropology for 2004 for his



book *Reflections of Our Past: How Human History is Revealed in Our Genes* (Boulder [CO]: Westview Press, 2004). The Howells Prize, established in 1993 to honor books in biological anthropology that "represent the highest standard of scholarship and readability ... inform a wider audience of the significance of physical/biological anthropology in the social and biological sciences, and demonstrate a biocultural perspective," is awarded by the Biological Anthropology Section of the American Anthropological Association.

NCSE Supporter **Michael Ruse's** most recent book *Darwin and Design: Does Evolution Have a Purpose?* (Cambridge [MA]: Harvard University Press, 2004) was reviewed by Simon Blackburn in *The Times Higher Education Supplement* (2004 Aug 13) and by Daniel W McShea in *American Scientist* (2003 Nov/Dec; <<http://www.americanscientist.org/template/BookReviewTypeDetail/assetid/28372>>). Blackburn, Professor of Philosophy at Cambridge University, wrote, "the book is notable for its history and, in particular, the way it brings to life so much of the 18th- and 19th-century context within which Darwinism evolved." McShea, Assistant Professor of Biology at Duke University, wrote, "Ruse is one of the leading philosopher-historians of biology today, and his story is a fascinating one, enlivened especially by his accounts of various imaginative attempts before Darwin to solve the design problem without



recourse to a deity." *Darwin and Design* was also the subject of a book symposium in *Florida Philosophical Review* (2004 Summer; 4 [1]; available on-line via <<http://www.cas.ucf.edu/philosophy/fpr/>>), consisting of opening remarks by Ruse (61-3), comments by Ronnie Hawkins (64-7) and Paul Draper (68-75), and a discussion session (76-9).

NCSE's executive director **Eugenie C. Scott** was in the national spotlight twice in late November 2004. First, she appeared on the "Fair and Balanced" segment of Fox News on November 27 to discuss "intelligent design" opposite John West of the Discovery Institute's Center for Science and Culture. The segment began with a reference to the decision of the Dover Area School Board to require the teaching of "intelligent design" (see p 4), a subject that West evidently preferred not to discuss. After Scott said that the "intelligent designer" spells its name with three letters, the host pursued the question of the designer's identity with West, who struggled to explain that "intelligent design" is incapable of identifying the designer as God. Scott stressed that there is not a genuine scientific controversy about evolution, although questions about its patterns and processes remain. Second, Scott also appeared on CNN on November 29 to discuss evolution and creationism with host Paula Zahn. The program began with a segment narrated by CNN correspondent Tom Foreman, who interviewed young-earth creationist Walter Brown and Jim Miller of AAAS's Dialogue on Science, Ethics, and Religion. In the studio, Scott and Jason Lisle of the young-earth creationist ministry Answers in Genesis were quizzed by Zahn. Emphasizing that evolution is good science and not necessarily antithetical to religion, Scott also noted that by lobbying school boards to include creationism or weaken evolution in their science curricula, creationists are politicizing science education.

NCSE executive director **Eugenie C. Scott's** *Evolution vs. Creationism* (Westport CT: Greenwood Press, 2004) received a generally favorable review (available on-line at <<http://www.icr.org/pubs/btg-a/btg-191a.htm>>)

from a surprising reader: the founder and president emeritus of the Institute for Creation Research, Henry M. Morris. To be sure, Morris was not entirely uncritical of the book, taking issue with its title, a few of the details in the chapter on the history of modern creationism, and what he described as Scott's "self-serving refusal to recognize that scientists who believe in creation are true scientists." And, predictably, in discussing the point/counterpoint section of the book, he judged that "the creationist side is much more impressive in each case." But he also credited Scott with having "conscientiously tried to be objective in discussing this inflammatory subject" and praised her book as "one of the most authoritative" of its kind and as "well written," adding "creationists can read it with interest and appreciation."

The cover story of the December 2004 *Phi Delta Kappan* was **Mark Terry's** "One nation, under the designer" (available on-line at <[http://www.pdkintl.org/kappan/k\\_v86/k0412ter.htm](http://www.pdkintl.org/kappan/k_v86/k0412ter.htm)>), which warns of "a sea change in the tactics of the anti-evolution forces, whose efforts have waxed and waned ever since the Scopes Trial." Terry writes:

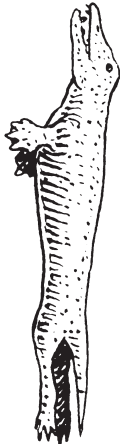
[A] couple of years ago I began to sense something new in the air. The school where I work is just a couple of blocks up the hill from downtown Seattle, and, in one of the nearby high-rises, a great searchlight seemed to be scanning the country. If only it had been a light designed to illumine and promote great science teaching! But no. I began to see that the search was for efforts to revise statewide science standards, so that the forces of the Discovery Institute might weigh in on the side of weakening or eliminating evolution and substituting something called "Intelligent Design".

In addition to reviewing the motivations, tactics, and rhetoric of the "intelligent design" movement, Terry also provides a host of useful

suggestions for resisting its attempts to undermine evolution education across the country, writing: "[A]cross the country, in the battles on the revision of state standards, in curriculum writing, and in textbook adoptions, Intelligent Design, especially as promoted by the Discovery Institute of Seattle, is causing great confusion. Those who care must not stand idly by. It is time for science educators and their colleagues in the humanities and in religious education to join with administrators and get into the discussions and on the appropriate committees." Terry is a veteran science teacher now at the Northwest School in Seattle; *Phi Delta Kappan*, published by Phi Delta Kappa International, bills itself as "the professional print journal for education."

Due to the publication of his new book *Rapture of the Deep* (Berkeley: University of California Press, 2004), **Ray Troll** was profiled in the *Anchorage Daily News* (2004 Sep 26). The article describes not only his new book but his career to date, including such highlights as his book *Planet Ocean* and a subsequent museum installation "which included murals, tanks, an interactive computer, a tricked-out Volvo turned 'Evolvo' with a trilobite hood ornament and Charles Darwin at the wheel, a dance floor and an original soundtrack with various scientists poetic about life in the sea." Thanks to Troll's generosity, his illustrations adorn every issue of *RNCSE*.

In *Why Intelligent Design Fails: A Scientific Critique of the New Creationism* (New Brunswick [NJ]: Rutgers University Press, 2004), edited by **Matt Young** and **Taner Edis**, a team of scientists call on their expertise in physics, biology, computer science, and archaeology to examine "intelligent design". (The chapters are authored by **Taner Edis**, **Matt Young**, **Gert Korthof**, **David Ussery**, **Ian Musgrave**, **Alan Gishlick**, **Niall Shanks**, **Istvan Karsai**, **Gary Hurd**, **Jeffrey Shallit**, **Wesley Elsberry**, **Mark Perakh**, and **Victor Stenger**.) They take design claims at face value, without attempting to rule out the hypothesis of a designed universe just because of its supernatural





overtones. They consistently find grandiose claims with no scientific merit. "Intelligent design" turns out to be a complete scientific mistake, but also a useful contrast highlighting the amazing power of Darwinian thinking and the wonder of a world filled with complexity without design. NCSE President **Kevin Padian** describes *Why Intelligent Design Fails* as "[a] terrific book that explores, fairly and openly, whether proponents of ID have any scientifically valid gadgets in their toolbox at all. ... Accessibly written throughout and an invaluable aid to teachers and scientists." Writing in the *Rocky Mountain News* (2004 Aug 28; available on-line at <[http://www.rockymountainnews.com/drmn/news\\_columnists/article/0,1299,DRMN\\_86\\_3143283,00.html](http://www.rockymountainnews.com/drmn/news_columnists/article/0,1299,DRMN_86_3143283,00.html)>, Linda Seebach comments, "many people believe evolutionary biology is wrong, or at least incomplete. Some of them are actively seeking to replace it in school science curricula with what they believe, and since I think they're wrong, I don't want them to be able to do that. And that's why I think it would be good if lots of people read ... *Why Intelligent Design Fails*." And writing in the e-Skeptic newsletter for October 30, 2004 (<<http://www.skeptic.com/eskeptic10-29-04.html#2>>), **Paul R Gross** describes *Why Intelligent Design Fails* as "a patient assessment of all the scientific claims made in connection with ID," adding, "This is honest, technically competent — patient — inquiry; the critique of the newest form of creation science is devastating." He concludes his review with a call for more along the same lines: "So it seems a trouble for busy scientists to give their time to truth-squads, examining (scrupulously, as do the WIDF contributors) the incessant nay-saying of creationists, and now of creationists who use the language of science and mathematics comfortably. But it must be done. There will be more anti-evolution, religiously motivated nay-saying, and there must be more books like WIDF. The stakes are high. Nothing less hangs in the balance than the hope that some fraction of the next generation — of our children — will get serious education in science, and that they

## Roland Mushat Frye Dies

The eminent scholar Roland Mushat Frye died on January 20, 2005, at the age of 83, in Gladwyne, Pennsylvania. Born in Birmingham, Alabama, in 1922, Frye earned three degrees, including his PhD, from Princeton University. He served in the United States Army during World War II and was awarded the Bronze Star. After the war, he taught at Emory University and was a research professor in residence at the Folger Shakespeare Library before settling at the University of Pennsylvania, where he was the Felix E Schelling Professor of English Literature until retiring in 1983. A devout Presbyterian, Frye was professionally trained in theology as well as in the humanities, and his books, including *God, Man, and Satan* (1960) and *Shakespeare and Christian Doctrine* (1963), reflected his interest in the interplay of religion with literary and cultural history.

Frye was also the editor of *Is God a Creationist? The Religious Case Against Creation-Science* (1983; now out of print), a collection of essays that together (as Frye wrote in his prefatory overview) "present a comprehensive picture of central religious responses to, and rejections of, the oversimplified and misapplied literalism of modern creationism and creation-science"; the authors include Langdon Gilkey, Davis A Young, Conrad Hyers, Owen Gingerich, Pope John Paul II, and Frye himself, who contributed a prefatory overview and a concluding epilogue on "The two faces of God." *Is God a Creationist?* was recommended by James S Trefil "even to those who, like myself, prefer to conduct this particular battle solely on scientific grounds. It is immensely heartening to learn that creationists, if anything, are farther from the religious mainstream than they are from the scientific."

See also the obituary in the *Philadelphia Inquirer* (2005 Jan 20).

will be capable of speaking truth not only to power, but to and for all their peers." (*Why Intelligent Design Fails* will be reviewed in a future issue of *RNCSE*.)

**Matt Young** gave presentations on "Why intelligent design fails" to the Department of Physics at Truman State University in Kirksville, Missouri, on November 9, 2004, and to the Working Group on Ethics and Technology at the University of Denver on November

13. Young is the coeditor (with **Taner Edis**) of *Why Intelligent Design Fails: A Scientific Critique of the New Creationism* (New Brunswick [NJ]: Rutgers University Press, 2004), and Senior Lecturer in the Department of Physics at the Colorado School of Mines.

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# THE CREATIONISTS:

Otis Dudley Duncan, University of California at Santa Barbara,

This is a report on an epidemiological inquiry. The morbid condition — so to speak — under study could be variously characterized as a deficit of knowledge or a disease of the intellect, one that involves accepting a theological answer to a historical question. Present means of identifying those afflicted do not provide a clear distinction between these two disabilities or mixtures of them. But of the two most useful bodies of data now available — the Gallup Poll and the General Social Survey (GSS) — one puts the emphasis on theology, the other on knowledge of science.

On 6 occasions, the first in 1982 and the others between 1991 and 2001, the Gallup Poll asked respondents to choose among three statements: “God created man pretty much in his present form at one time within the last 10 000 years (46%). Man has developed over millions of years from less advanced forms of life. God had no part in this process (10%). Man has developed over millions of years from less advanced forms of life, but God guided this process, including man’s creation (38%).” (“Other” or “Don’t know” responses accounted for the remaining 6%.) The numbers in parentheses are the averages of the 6 poll results.

*The late Otis Dudley Duncan was Professor Emeritus of Sociology at the University of California, Santa Barbara. Claudia Geist is a graduate student in the sociology department of Indiana University.*

Averaging is justified because there is no indication of an upward or downward trend, and changes from one poll to the next are insignificant (see p 19).

The GSS question, asked in 1993, 1994, and 2000, “was conceived as part of a short science test” and presented as though it were a multiple choice question with 5 alternative answers in a school examination. Respondents could evaluate the statement, “Human beings developed from earlier species of animals,” as Definitely true (14%), Probably true (29%), Probably not true (15%), Definitely not true (33%), Don’t know (9%). Again, aggregating the data from the 3 surveys is justified by the absence of a trend.

There is no easy way to reconcile the percentage distributions from the two polls. An important project for the future is to ask the same people both questions in different sections of one survey, randomizing the order in which they are asked (Duncan and Schuman 1980; Duncan 1984). Such a design could help in deciding whether the two questions are isotopes, so to speak, of the same elemental reaction to evolutionary biology. What we can do in the meantime is compare the two sources with regard to how the responses vary by selected characteristics of the respondents or their other attitudes and beliefs.

## HOW MANY?

But first, it is important to note that there can be no unique answer to the “How many?” question until a

## Otis Dudley Duncan Dies

The eminent sociologist and long-time NCSE member Otis Dudley Duncan died on November 16, 2004, after struggling with advanced prostate cancer for two years. His article “The creationists: How many, who, where?” (p 26), coauthored with Claudia Geist, is his last contribution to the literature of quantitative sociology.

Born on December 2, 1921, in Nocona, Texas, Duncan completed a BA degree at Louisiana State University in 1941 and an MA at the University of Minnesota in 1942 before serving three years in the United States Army during World War II. After the war, he completed his studies for the PhD in sociology at the University of Chicago in 1949. He began his career of teaching and research in quantitative sociology at Pennsylvania State University and continued at the universities of Wisconsin, Chicago, Michigan,

Arizona, and California. He was a professor on the University of California at Santa Barbara faculty for three and a half years, retiring in 1987.

He was author (often with coauthors) of several major books and numerous professional articles. Best known is *The American Occupational Structure* (New York: The Free Press, 1967), with Peter M Blau, which was awarded the Sorokin prize of the American Sociological Association. In his own estimation, his best book, the only one likely to be of enduring and not merely historical value, was *Notes on Social Measurement* (New York: Russell Sage Foundation, 1984). He was also proud of his most fully developed mathematical-theoretical article, published in *Synthese*, which presented a solution of a problem that had vexed some of the leading social scientists of the time (1986): Why do people’s verbal-

# How Many, Who, Where?

*and Claudia Geist, Indiana University*

great deal of further research convinces the science community that some one question is unequivocally preferable to any other as a single indicator of a complex, multidimensional phenomenon. We are here referring to the “Definitely not true” response in GSS as the “creationist” answer. Some might prefer to label it the “evolution denial” answer. But our labeling is only a matter of convenience and does not presuppose any theoretical justification. We make no pretense that this working definition, adopted for lack of a better alternative, resolves the essentially meaningless question of how a true “creationist” is to be recognized. It is, however, in accord with the dictum of the Institute for Creation Research that creation and evolution are mutually exclusive and jointly exhaustive of the basic explanations of the evidence (Marsden 1991: 154). ICR may be well advised. The several varieties of “old-earth creationism” (Scott 1999) have neither scriptural nor scientific support, although they might invoke the authority of Augustine. Preliminary analyses indicate that “Probably not true” is more closely akin to “Don’t know” than to “Definitely not true.” Hence we estimate that only one third of adult Americans are creationists in the strict sense of “evolution denial” whereas the Gallup question yields an estimate of 46% who implicitly rely solely on Genesis.

If this is confusing, consider the responses to the question asked in the Fox News/Opinion Dynamics

Poll in August 1999: “Which do you think is more likely to actually be the explanation for the origin of human life on earth: the theory of evolution as outlined by Darwin and other scientists (15%), the biblical account of creation as told in the Bible (50%), or are both true? (26%)?” (Not sure responses accounted for the remaining 9%.) If forced to choose among these alternatives, many respondents find the task too difficult. In February 2001, the Gallup Poll asked, “Would you say that you believe more the theory of evolution (28%) or the theory of creationism (48%) to explain the origin of human beings, or are you unsure (14%)?” (The remaining 10% of responses were Don’t know.) The high proportion who are unsure or do not know is consistent with other poll data showing that many people do not claim to know very much about the evolution/creationism debate. The evidence does not justify the assumption that respondents will always be logically consistent in their responses to different questions. (Why should that be a surprise?)

## Who?

Turning to the “Who” question: Bishop (1998) provides a useful compilation of the Gallup data on factors related to creationism (“created man ... within the last 10 000 years”) which can be compared with similar data from GSS. In both data sets, women are somewhat more likely than men to be creationists, the

ly expressed attitudes so often seem unrelated to their actions?

Among other awards and honors, Duncan was elected a member of the National Academy of Sciences in 1973. He served on a wide variety of committees involving social science expertise. He was a member of the Commission on Population Growth and the American Future, chaired by John D Rockefeller III, and was president of the Population Association of America in 1969. He was awarded honorary doctoral degrees by the universities of Chicago, Arizona, and Wisconsin. But of all his achievements, he was most proud of the record of outstanding achievement in quantitative sociology racked up by so many of his former students.

In retirement, Duncan spent his time in researching and performing music, working with computer

graphics, and writing articles on such topics as the prevalence of creationism, the rising public toleration of atheists, the increasing number who specify “none” as their religion, the increasing public approval of euthanasia and suicide for terminally ill persons experiencing great pain, the inefficacy of prayer for political undertakings, and the irrationality of laws prohibiting same-sex marriage. Along with his wife Beatrice Farwell, he was a loyal and active member of the Humanist Society of Santa Barbara, to which memorial donations may be made: PO Box 30232, Santa Barbara CA 93130.

*[Adapted from the obituary — written by Duncan himself — in the Santa-Barbara News-Press (2004 Nov 20). See also the obituary in The New York Times (2004 Nov 28).]*



elderly more so than the young, African-Americans more than whites, those who attend religious services often more than those who attend seldom or never, political conservatives more than liberals, and those agreeing with the pro-life position than those classified as pro-choice on abortion. The similarity of the patterns is not quite so unequivocal for rates of creationism in relation to political party identification and religious denominational preference. Both GSS and Gallup, however, do show relatively high rates for Baptists, much lower rates for Catholics, and the lowest rates for those with no religion.

The most interesting failure to replicate a relationship pertains to education. Table 1 shows the percentages of creationists in the two data sets:

TABLE 1. EDUCATIONAL LEVEL OF CREATIONISTS		
EDUCATION	GALLUP	GSS
LESS THAN HIGH SCHOOL	64%	36%
HIGH SCHOOL GRADUATE	57%	37%
SOME COLLEGE	44%	36%
COLLEGE GRADUATE	31%	22%

The GSS pattern will be seen below (Figure 1) to be a rather misleading average of quite different relationships observed within categories defined by religion variables.

On the other hand, the association of creationism with beliefs about the Bible is somewhat the same in the two data sets, albeit stronger in the Gallup data. See Figure 1 for the wording of the Bible question, which is the standard wording in Gallup as well as GSS polls, and in the responses. The heights of the dark bars show the percentages of creationists among the biblical skeptics, the liberals who think the Bible is inspired but not to be taken literally, and the literalists: 7%, 28%, and 53% respectively. The corresponding rates of creationism in the Gallup data are 16%, 39%, and 77%. The width of the bars represents the relative popularity of the 3 Bible responses. About one-third of Americans are literalists, a half are rather more liberal, and one-sixth are outright skeptics. (These fractions agree approximately with the Gallup data as well.)

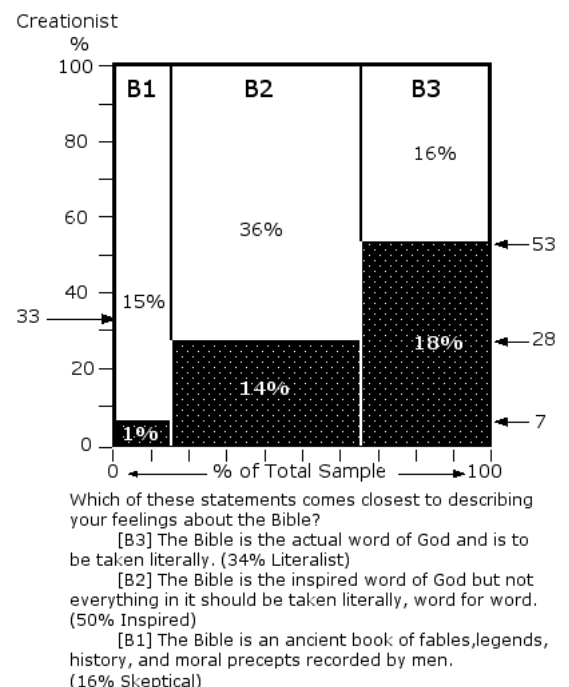
Apart from the differential rates of creationism that turn up in the cross-classification of creationism by response to the Bible question, it is important to analyze the makeup of the 33% of all people who are creationists (GSS definition). This information is conveyed by the areas of the dark bars, that is, their width multiplied by their height. We see that 18% are both literalists and creationists, 14% are creationists who take a more liberal view of the Bible, and 1% are creationists who are outright biblical skeptics. Thus, even though biblical literalism and creationism are clearly associated, only a little more than half of all creationists ( $18/33 = 55\%$ ) are literalists. The sum of the 6 percentages given inside the bars is 100%, the area of the entire square.

A puzzled reader, inspecting these results, remarked, "It is not clear how one can really be a biblical literalist and not be a creationist." The source of his perplexity is the commonsense resort to typologi-

cal thinking rather than population thinking. In sociology, typology is deplored in discussions of the "stereotyping" of minority populations by ordinary people but approved when the same logic is used by sophisticated theorists and researchers. Emphasis on the importance of this distinction is especially strong in the writing of Ernst Mayr, who has frequently discoursed (1963, 2000, 2001) on the mischief typology has done in biology. One might as well wonder how a "real" fish can have legs, a reptile can have feathers, or a man can have nipples. When we encounter the word "really" used in this way, it is a reflection of Platonic essentialism in the speaker's thinking about the domain of human belief systems, although he would not make such a mistake when speaking of biological variation among organisms.

One way we — all of us — can easily get trapped in essentialism is by relying on summaries of poll results that show only one variable at a time instead of cross-classifications like the simple one in Figure 1 or the more complicated ones examined later herein. To be sure, about one-third of Americans are "literalists" and one-third are "creationists," understanding these terms as mere labels. But the two are not synonymous, and looking at the two figures separately gives no clue as to what proportion are both literalists and creationists, except that it must fall within the limits of 0 to 33%. The lesson for those who would improve science education is to avoid the oversimplification of thinking of the challenge as pertaining solely to creationist/literalists. There are many non-literalists out there who likewise need to be better

**FIGURE 1. PREVALENCE OF CREATIONISM BY FEELINGS ABOUT THE BIBLE, UNITED STATES, 1993, 1994, 2000 (SOURCE: GENERAL SOCIAL SURVEY)**



informed about evolution; because they are not strict literalists, it may be easier to communicate with them. Our point is not new; compare Cole (1987-1988: 7): "Scientifically, theologically, and politically, people seem to be much more confused or heterogeneous than narrow-issue partisans claim." Partisans (a typological concept itself) are especially prone to the use of typologies.

Just as the proportion of creationists depends on what question is asked, the proportion that could reasonably be labeled literalist varies from one question to another. In a Gallup/*Newsweek* poll of December 1988, respondents were asked only to agree or disagree with the statement that "the Bible is the actual word of God and is to be taken literally, word for word"; no alternative responses were suggested. The literalist proportion was 54%, and the same result, 53%, was obtained in a CBS News/*New York Times* poll in July 1994, well above the 34% identified as literalists by the standard question. It must also be acknowledged that even when the same wording is used for the question, the proportion of literalists may differ among polling organizations, for reasons that are, at this point, far from clear (Duncan 2003). In paleostatistics, as in paleontology, we can only work from what has been preserved from the past for our inspection and study in the present. The evidence is always incomplete and is often equivocal.

#### WHERE?

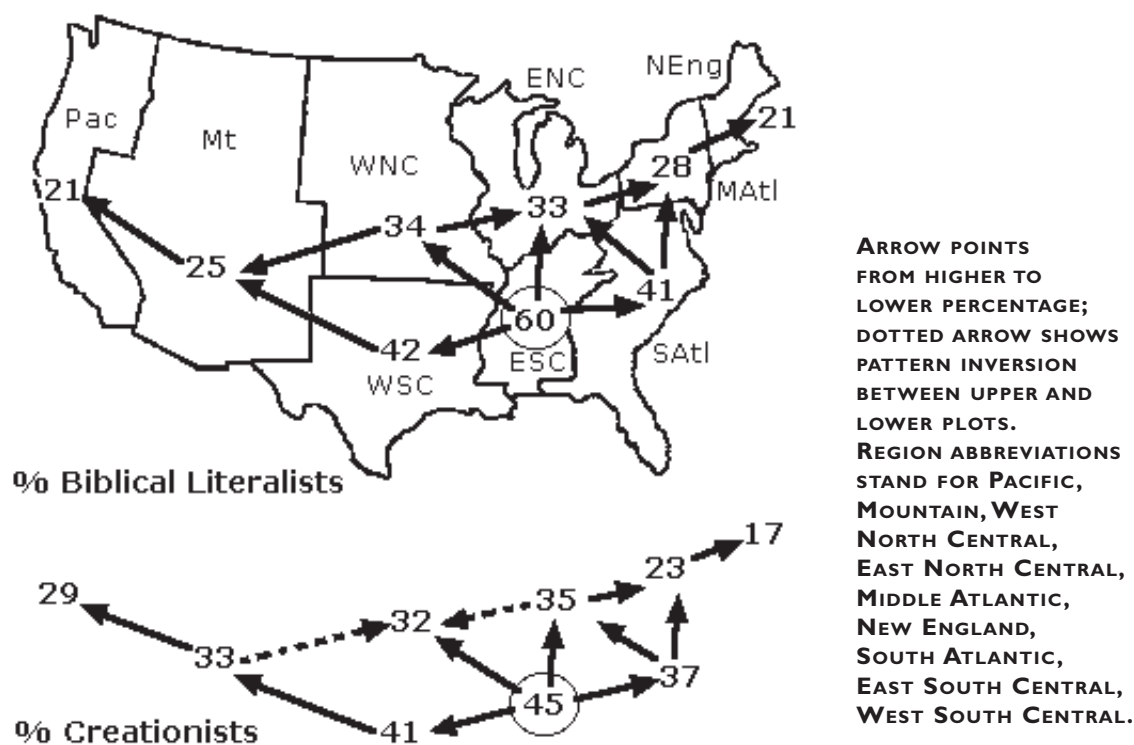
Inasmuch as biblical literalism and creationism are usually and stereotypically linked to the so-called

Bible Belt, we now take a first look at the "Where" question. There is indeed a strong geographic correlation between the percent taking a literalist view of the Bible in response to the question on feelings about the Bible in GSS and the percent who respond "definitely false" to the proposition that humans developed from earlier species of animals. Figure 2 brings out the differential prevalence of biblical literalism in regions of the United States and contrasts the proportion of literalists with the proportion of creationists in the regions. In both displays, the Bible Belt is the focus. But there are some anomalies. In the Bible Belt narrowly defined, there are quite a few more biblical literalists than creationists, whereas in the two western regions creationists considerably outnumber literalists. This is another telling bit of evidence warning against presupposing too tight a relationship between literalism and creationism. One could suggest that the questions eliciting the creationist and literalist responses do not have quite the same meaning in California and Tennessee. But the methodological issues raised by such a suggestion are formidable (Duncan 1986). We return to the regional differences after examining some additional religious variables related to the prevalence of creationism.

#### BEYOND TYPOLOGIES

In Figure 3, we summarize the information in the 5-way cross-classification of creationism by belief in God (G), denominational preference (R), and frequency of attendance at religious services (A), as well as feelings about the Bible (B). With a sample of only

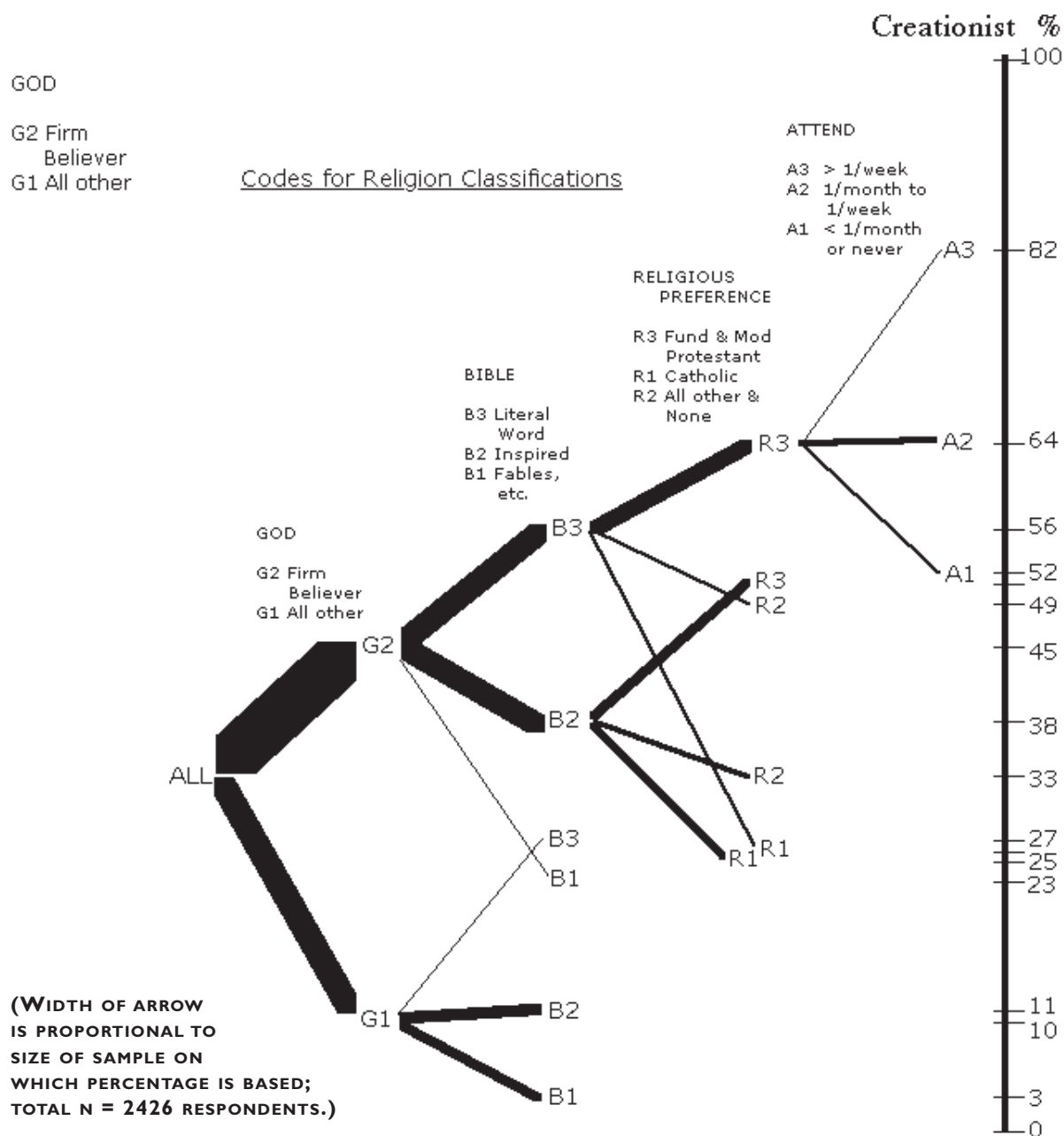
**FIGURE 2. BAD NEWS FROM THE BIBLE BELT: GEOGRAPHICAL CORRELATION OF BIBLICAL LITERALISM AND CREATIONISM, 1993, 1994, 2000 (SOURCE: GENERAL SOCIAL SURVEY)**



2426 respondents, we must resort to drastic simplifications. For example, the question on belief in God as presented in the interviews had 6 response categories, one for the modal category — the category with the most cases — which we term “firm believer” (G2), and five for the several responses indicating belief but with doubts, wavering belief, belief in a higher power but not a personal God, profession of the impossibility of knowing anything about God, and denial that there is a God. (For full details, see the GSS codebook: Davis and others 2000). Fundamentalist and Moderate Protestants (R3) comprise a large number of separately identified denominations. Please note that “Fundamentalist” here is not a label vouchsafed or approved by the respondent but a grouping

of denominations developed by Smith (1990) for GSS on the basis of historical origins and statements of doctrine by the various denominations. In particular, a person can prefer one of the denominations classified as Fundamentalist without personally affirming all or any of the “five tenets” historically presented and advocated since early in the past century by some as “The Fundamentals”. Marsden (1991) is a basic source on this matter as well as the complex evolution of fundamentalism. Especially interesting to NCSE readers is Marsden’s testimony in the historic case of *McLean v Arkansas* (now available on-line at <[http://www.antievolution.org/projects/mclean/new\\_site/pf\\_trans/mva\\_tt\\_p\\_marsden.html](http://www.antievolution.org/projects/mclean/new_site/pf_trans/mva_tt_p_marsden.html)>) in which, among other things, he emphasizes the heterogeneity of funda-

**FIGURE 3. PERCENT CREATIONIST FOR TWELVE COMBINATIONS OF RELIGION VARIABLES, GENERAL SOCIAL SURVEY, 1993, 1994, 2000.**





mentalists; some have five, others different numbers of precepts. Here is another place where typological thinking can do great mischief. Not all Fundamentalists are fundamentalists and vice versa. Some fish do have legs.

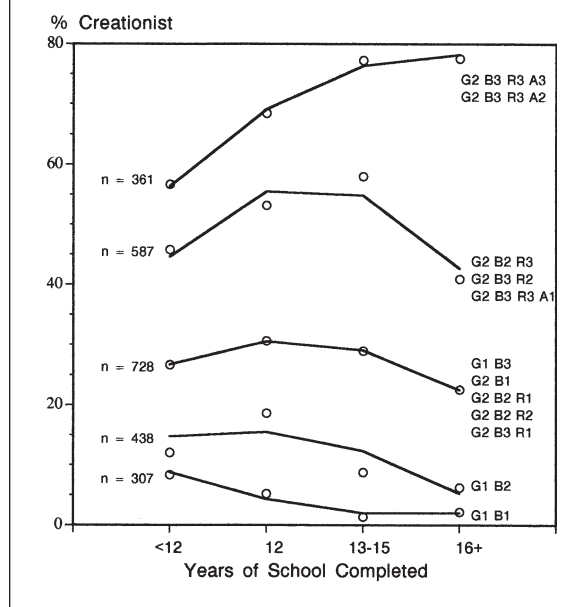
The tree diagram (Figure 3) is intended to convey information about both the heterogeneity of the American population with respect to religious commitments and the variation in prevalence of creationism among the subpopulations that can be identified with the variables at our disposal. There are 54 logically possible subpopulations in the 4-way cross-classification of  $G \times B \times R \times A$  with the categories defined in Figure 3. Many of them are thinly populated, to be sure, but all of them would be encountered in significant numbers in the American population. It would be interesting to study the variation in creation prevalence across these 54 subpopulations. But because of the small sample size, the estimates of percentage creationist for most of them would be statistically meaningless. Hence we resort to a grouping of the 54 into 12 combinations that are produced as one variable after another is introduced to create cross-classifications. Even with this drastic compression of the data, several of these 12 occur so infrequently that the prevalence estimates, shown on the right-hand scale of Figure 3, are not highly reliable. What we have here can be likened to a small-scale highway map of a large state as contrasted with a detailed road map of a single county. We must ignore interesting interactions that might be reliably estimated with much larger samples. Sample size is a pervasive problem in analyzing data from surveys of religious behavior, which are not supported by funding from such major government programs as is space exploration.

Let us indicate explicitly how to read the figure. Taking "ALL" the population as 100%, the relative widths of the two arrows leading to G2 and G1 indicate that about two-thirds of the sample are Firm Believers (G2), one third being "All Other" (ignoring the heterogeneity of this residual category). When G2 respondents are classified according to feelings about the Bible, we find that about 31% of them are Firm Believers who take the Bible literally (G2 B3) and nearly the same percentage regard it as an inspired book but not necessarily to be understood literally (G2 B2), while only 4% are Firm Believers but biblical skeptics (G2 B1). Reading horizontally to the scale on the right, we find the contrasting percentages of these groups who are creationists to be 56, 38, and 23%, respectively. To identify a subpopulation with a higher prevalence of creationists, we need the further subdivision labeled by G2 B3 R3, who comprise 21% of the sample with a prevalence of 64% creationists. And to isolate a subpopulation with more than a two-thirds majority of creationists, we must isolate the G2 B3 R3 A3 sector that accounts for only 98 respondents (4% of the sample), where there is anything near unanimity — 82% prevalence of creationists — as to the falsity of human evolution. The estimate of 82% prevalence is of course subject to a large margin of sampling error. But the contrasts among the three subcategories of G2 B3 R3 defined by A3, A2, and A1 levels of attendance are unmistakably significant. Leaving other interesting comparisons to the reader, we simply note that the

variation in prevalence of creationism among the 12 subpopulations dramatically illustrates the extreme heterogeneity of the religious sectors of the American public with respect to acceptance or rejection of evolution. Any one of the four variables by itself can give only an inkling of that heterogeneity.

The most startling finding of our study, one not hitherto anticipated by earlier research as far as we know, turns up when we look at the religion variables and education simultaneously. In Figure 4, we compare groups of adults of all ages with differing levels of educational attainment. Hence, the data for older people generally pertain to educational experiences undergone at more or less distant times in the past, not to the current output of the educational system.

**FIGURE 4. PERCENT CREATIONIST BY LEVEL OF EDUCATIONAL ATTAINMENT, FOR FIVE CLUSTERS DEFINED BY FOUR RELIGION VARIABLES, 1993, 1994, 2000 (SOURCE: GENERAL SOCIAL SURVEY)**

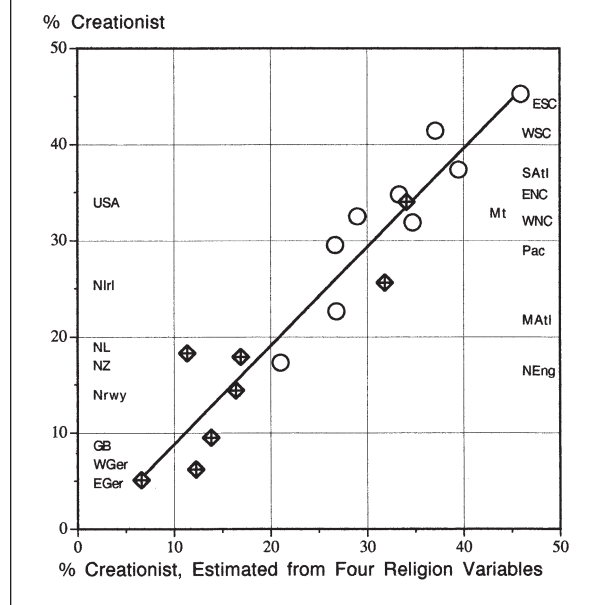


The interaction of education and religion is highlighted when we reduce the 12 combinations of religion indicators in Figure 3 to just 5, by grouping those with similar prevalence rates of creationism. In the sector defined by firm belief in God in combination with biblical literalism and medium to high frequency of attendance at religious services (top curve in Figure 4), persons with more advanced schooling actually are more likely to be creationists than those with lesser amounts of education. Pennock (2000: 37) observes that proponents of creationism have been successful in seeing to it that "many students of [fundamentalist and evangelical] religious backgrounds now enter university primed to resist evolution." And nowadays there is no shortage of institutions similar to Bob Jones University whose programs in biology are specifically intended to convert simple ignorance of evolution into terminologically sophisticated evolution denial. The positive relationship of creationism to education among the very religious may become even stronger in the future.

To find the expected negative relationship of edu-

cation to creationism which we see in the Gallup data, we have to look at the one-eighth of the population who are not firm believers (including explicit non-believers) and who are skeptics in regard to the Bible (bottom curve). The three intermediate curves track the distortion of that relationship as more serious religious commitments of one kind or another are specified in identifying the groupings. Here and throughout the inquiry we must be wary of assuming well-defined causal chains. People who come to doubt the dogma of creationism upon learning about evolution in school may revise their religious beliefs and commitments accordingly. Or, to the contrary, those who maintain their creationist stance all the way through graduate school may use their education

**FIGURE 5. CREATIONISM IN RELATION TO RELIGION, FOR 8 COUNTRIES AND 9 REGIONS OF THE UNITED STATES (SOURCE: ISSP 1991, 1993; GSS, 1993, 1994, 2000)**



only as a means of defining more clearly what it is that they are against. Others — those experiencing early indoctrination in creationism and growing up in the religious environment in which this is likely to occur — may be less likely to pursue advanced education. And we cannot distinguish between the people who completed college without ever having a decent course in biology from those who followed the preacher's advice to college students heard in Oklahoma in the 1930s: answer the biology quizzes in such a way as to satisfy the teacher while maintaining faith in the Bible as the only infallible authority.

Such uncertainties notwithstanding, it seems reasonable to suggest that religion defeats education, or has done so in the past, in the United States in a way or to an extent that is not observed in other countries comparable to the United States in regard to political maturation, economic development, and history of religious commitments. We have data from the International Social Survey Program for seven such countries. We calculated the percentage of creationists that would be observed in each of these histori-

cally Protestant countries, given their actual distributions of responses to the four religion variables and assuming the rates of creationism associated with combinations of those variables to be the same as those in the United States. In Figure 5, we treat the nine geographic regions as if they were so many additional countries.

If in all cases the percentage of creationists observed in each country or region were to be identical to the percentage expected on the basis of the kind and degree of commitment to religion in these areas, all the data points would lie on the diagonal of the chart. That is very nearly true. The plotted line that best fits the data is very close to that diagonal. Hence the striking result that most of the variation in the proportion of creationists among regions and countries is explained by the varying grades of religiosity measured by our indicators.

This conclusion is not as robust as we would like. The preferred strategy would be to look at tree diagrams for each geographic entity in the fashion of Figure 3. But the sample sizes would not support such a detailed analysis. Moreover, for the foreign countries, the data on feelings about the Bible are available only for 1991 and cannot be cross-classified with creationism, which is available only for 1993. Hence we are limited to the indirect approach just described. But we can be sure that the summary results in Figure 5 average out some interesting interactions that occur in certain countries but not in others. Pending a more adequate database, it is not productive to speculate about reasons for the larger deviations from the diagonal — positive for the Netherlands, negative for Northern Ireland, for example. What is most striking in Figure 5 is the very slight overlap of the US regions and the foreign countries. It is as though only the northeastern states are in the same civilized universe as the countries while Northern Ireland might well be regarded as an overseas extension of the American Bible Belt.

## CONCLUSIONS

The Bible Belt is bigger than readers may have thought, not only geographically but also metaphorically, in the sense that biblicism in the United States clearly affects the reaction to evolution on the part of persons who are not in any strict sense biblical literalists. Scholars in the humanities, accustomed to look at broad historical patterns rather than details of statistical analyses, may nonetheless come up with diagnoses that have the ring of truth. Thus, a remark of Sloan (2000), discoursing on the "Bible belting" of this country, is relevant in pondering the results laid out here, even if it goes beyond what can be rigorously demonstrated: "Ecclesiastical institutions ... continue to implant powerful psychological deterrents to independent thought." To the institutions most likely to have influenced our older respondents may be added the burgeoning creationist web sites and the Discovery Institute — well known to readers of *RNCSE* — not to mention the legion of TV preachers and other sources of disinformation in various media and the clear willingness of some prominent legislators to destroy whatever science gets in the way of their program to make these United States into a Christian theocracy.



# Kansas Evolution: As I See It

Liz Craig

It's déjà vu all over again with the Kansas Board of Education. Remember 1999? Steve Abrams, a young-earth creationist veterinarian from Arkansas City, short-circuited the science standards writing process then, too.

The board-appointed science standards writing team of 26 scientists, educators, and curriculum experts was doing what it was charged with doing: making Kansas's public school science standards up-to-date and the equal of any in the nation. However, the committee made one mistake, as far as the creationist 6-4 majority on the board was concerned: it accurately identified evolution as the unifying concept of all the life sciences. Oops!

So Abrams brought in some so-called "science standards" written by a Missouri young-earth creationist group, and the 6-4 creationist majority adopted those standards with slight modification. The prestigious conservative organization that reviewed them gave the creationist "sub-standards" a grade of "F-minus".

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The rest of the world reacted by (a) scratching their heads in disbelief; (b) pointing and laughing at backward Kansas; or (c) both.

After the 1999 debacle, the moderates regained a majority in the next BOE elections, and our current world-class science standards were instated.

So fast-forward to 2005. The current BOE also appointed a committee of 26 experts to revise the standards, and again, the creationists did not like what the committee came up with. This time, Abrams has realized that he had better not work with blatant young-earth creationists. Now he is acting as a bag-man for the Intelligent Design Network, which promotes a form of creationism that is intelligently designed to get around the First Amendment prohibition against teaching religion in science class by cleverly not mentioning the G-word: God. Now, Abrams has gotten an IDnet-authored Resolution passed that decrees that three young-earth creationists on the BOE will bring in so-called "experts" on "both sides" of the non-existent scientific "controversy" over evolution to advise them.

My question is, why bother with bringing in out-of-town "experts" from the Institute of Creation Research, Answers in Genesis, or the Discovery Institute, home of "intelligent design" creationism? The majority can do whatever it wants, which is to leave the door open for the teaching of creationism in Kansas public schools. Why don't they just do it and spare Kansas taxpayers the expense of bringing in these "experts" to recommend degrading Kansas's "Grade A" science standards? We'll be needing that money to pay for the lawsuits.

If they maul the science standards again, I hope the result is déjà vu all over again in the next BOE elections. On the other hand, if the voters let the creationists retain their seats, I think we should change our new state tagline ("Kansas: As Big As You Think") to one more reflective of reality: "Kansas: As Dumb As You Think".

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#### REFERENCES

- Bishop G. 1998. The religious worldview and American beliefs about human origins. *Public Perspective* 9 (5): 39-44.
- Cole JR. 1987-1988. Creationism and the New Right agenda: An opinion survey. *Creation/Evolution* (1): 7-13.
- Davis JA, Smith TW, Marsden PV. 2000. *General Social Surveys, 1972-2000: Cumulative Codebook*. Chicago: National Opinion Research Center. Available on-line at <<http://www.icpsr.umich.edu/GSS/>>. Last accessed January 6, 2004.
- Duncan OD. 1984. Rasch measurement in survey research: Further examples and discussion. In: Turner CF, Martin E, eds. *Surveying Subjective Phenomena*, vol 2. New York: Russell Sage Foundation, 1984. p 367-403.
- Duncan OD. 1986. Probability, disposition, and the inconsistency of attitudes and behavior. *Synthese* 68 (Jul): 65-98.
- Duncan OD. 2003. Facile reporting: The supposed decline in biblical literalism. *Public Perspective* 14 (3): 40-3.
- Duncan OD, Schuman H. 1980. Effects of question wording and context: An experiment with religious indicators. *Journal of the American Statistical Association* 75 (370): 269-75.
- Marsden GM. 1991. *Understanding Fundamentalism and Evangelicalism*. Grand Rapids (MI): William B Eerdmans Publishing Company.
- Mayr E. 1963. *Animal Species and Evolution*. Cambridge (MA): Harvard University Press.
- Mayr E. 2000. Darwin's influence on modern thought. *Scientific American* 283 (1): 79-83.
- Mayr E. 2001. The philosophical foundations of Darwinism. *Proceedings of the American Philosophical Society* 145 (4): 488-95.
- [NCSE] National Center for Science Education. 1999. Science and religion in America (poll and survey data) [flyer].
- Pennock RT. 1999. *Tower of Babel: The Evidence against the New Creationism*. Cambridge (MA): MIT Press.
- Scott EC. 1999. The creation/evolution continuum. *Reports of the National Center for Science Education* 19 (4): 16-23.
- Sloan G. 2000. The Bible belting of America. *Free Inquiry* 20 (3): 22-3.
- Smith TW. 1990. Classifying Protestant denominations. *Review of Religion Research* 31 (3): 225-45.

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# Impressions of the Claremont Conference & Ernst Mayr

John C Greene

*[After attending a conference October 21–24, 2005, in Claremont, California, entitled “Religious Interpretations of Evolutionary Biology”, John C Greene reflects on the conference in light of his recent study of work by Ernst Mayr on evolutionary biology. Greene responds to the events and presentations at the Claremont conference in terms of Mayr’s perspective on the main themes in the program.]*

The participants invited to the conference included eminent biologists, philosophers, and theologians and one physicist-astronomer as well. I had corresponded with a few of these participants but had never met any of them before. Since the conference was organized by two devotees of the “process philosophy” of Alfred North Whitehead (1861–1947), David Ray Griffin and John Cobb, it seems best to begin with Griffin’s lengthy paper expounding Whitehead’s philosophy as a corrective to the “neo-Darwinism” of the 1930s–40s as modified and amplified by the

DNA revolution, gene sequencing, and the like. In Griffin’s view, “process philosophy provides a version of scientific naturalism that allows for a theory of evolution that is more adequate for science and is supportive of a religious world view supportive of morality.” Here Griffin touches on the apprehensions that fuel the “scientific creationism” crusade (including “intelligent design”). “Those who wish to bring about a change in the way that evolution is taught in schools and presented ... to the public need to confront this thing called neo-Darwinism,” Griffin concludes.

Griffin describes the “metaphysical doctrines” he sees as underlying neo-Darwinian biology and thereby generating the anxieties just mentioned. They are (1) the “undirectedness” of evolution, ruling out any form of theism; (2) positivistic materialism — the idea that all causes of evolution must be potentially verifiable through sensory observations; (3) predictive determinism, hence the absence of free will; and (4) nominalism, that is, a rejection of Platonic realism, according to which forms, archetypes, and ideas “are inherent in the nature of things.” From these metaphysical assumptions and various neo-Darwinian scientific doctrines such as step-by-step gradualism and antiprogressionism, Griffin argues, various philosophical implications — atheism, meaninglessness, amorality — follow. These doctrines and their implications have been spelled out, Griffin explains, in order to show that evangelical and fundamentalist objections to neo-Darwinism are not without some justification.

Neo-Darwinian scientific naturalism — sensationist, atheistic, materialist — needs to be replaced by the theistic scientific naturalism of process philosophy, Griffin argues.

In Whitehead’s philosophy, Griffin explains, we start from our own experience, of which we have direct knowledge, and move backward in time to envisage the actual entities with which science deals. From a panexperiential viewpoint we see them not as enduring individuals but as momentary events or happenings, as occasions of experience exercising both final and efficient causation. Thus the human brain is a society of billions of cellular experiences; the human psyche is “the unification of these experiences into an ordered society of dominant occasions of experience,” resulting in the capacity for self-determination we share with all other compound individuals.

As a mathematician and logician, Whitehead, after having long been agnostic or atheistic, came to believe in the existence of ideal forms (his “eternal objects”) which must have a home somewhere, namely, as components of the primordial nature of God, conceived as “the active entertainment of ideals, with the urge to their finite realization, each in its due season.” Thus, like the Demiurge of Plato, Whitehead’s God is not omnipotent — “there are principles which the divine being cannot violate” — but acts in the world by persuasion.

The average American on first becoming acquainted with Whitehead’s idea of God and his influence in nature might wonder whether this philosophy would relieve the apprehensions and anx-

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ieties of evangelicals and fundamentalists about evolutionary theory. But this did happen to one of the conference participants, Howard J Van Till, who was reared in conservative Dutch Calvinism and subsequently became professor of physics and astronomy at Calvin College in Michigan. Devoted to science, he tried various ways of reconciling it with his religious faith in his discussions with his colleagues, fending off charges of deism and materialism until David Griffin's book *Religion and Scientific Naturalism* came to the rescue with Whitehead's idea of non-coercive, persuasive divine influence in nature. Griffin, Van Till concludes, has identified "broad metaphysical weaknesses" in the neo-Darwinian world view, especially with regard to life, evolution, consciousness, moral and aesthetic values, and "our sense of living in the presence of the Sacred," but has identified no *scientific* problems that in principle might not be solved by additional research.

RNCSE readers will be especially interested in Van Till's characterization of Phillip Johnson's blurring of the distinction between maximal naturalism and minimal naturalism as "intellectually irresponsible" and his scathing attack on William Dembski's idea of "specified complexity" and the related argument from probability theory in his *No Free Lunch*.

### THREE MAIN POINTS OF VIEW EXPRESSED AT THE CONFERENCE

The criticisms of neo-Darwinism by Griffin and Van Till are mild compared to the onslaught mounted by Lynn Margulis, a microbiologist, and her co-author Dorion Sagan, champions of Gaia, the science of the earth and its atmosphere proposed by the English geochemist James Lovelock. Neo-Darwinism, says Margulis, is not so much wrong as it is "intellectually anachronistic," useful only in "tracing gene flow in Holocene mammalian, avian, and tracheophyte populations" but ignoring the tendency of the earth's lower atmosphere to regulate its oxygen concentration, temperature, and alkalinity by means of the self-maintaining properties of living organisms, all of which, says Margulis,

emerges from Darwin's original legacy but disappears from view in its "bastard know-all offspring" neo-Darwinism.

Far from seeking to win over apprehensive "scientific creationists" with a theistic naturalism, as Griffin hopes to do, Margulis rejects Judaeo-Christian monotheism because it identifies paternal family control with nationhood and regards the earth as made for human exploitation. To the contrary, Gaia teaches that humanity is made for the earth and is dispensable if it does not act accordingly by adopting "healthier ways of relating to our home without denial of modern scientific thought," which, in turn, like art and technology, is only "a tiny part of nature's greater whole."

At this point Margulis, borrowing Richard Dawkins's idea of the "extended phenotype" (for example, a beaver dam), launches into a discussion of the evolution of man-made machines described as "machinate extrasomatic structures" and conceived of as "one of DNA's strategies for continuation and expansion of the ancient autopoiesis (self-maintaining and self-regulating systems) of which Gaia herself is the supreme example. Machines, says Margulis, are more evolutionarily advanced than people in their rate of change, their ability to survive extreme environments, and their penetration of space and deep seas. As Darwin's critic Samuel Butler said in 1863: "... machines will treat us kindly, for their existence is as dependent on ours as ours is on the lower animals." Some of them, Margulis adds, may become our descendants.

For Margulis's co-author Dorion Sagan, energy flow dominated by the laws of thermodynamics is the key to understanding evolution. As thermodynamically open systems organisms "may merge bodies, cells, and genes in sexual, parasexual, symbiotic mixtures." They also act as complex agents of energy transformation involving selection for energy use, efficiency, entropy production, the breaking down of gradients, and the generation of flow patterns which, says Sagan, "may provide the non-genetic mechanism Samuel Butler intuited

as missing from Darwin's account." With respect to God, Sagan concludes: "God as a capricious humanlike entity is dead. God as a lawful eternal being of which we are a part is still consonant with science."

The presentation by Ursula Goodenough, a molecular geneticist and cell biologist, addressed the question that John Cobb, one of the organizers of the conference, had formulated in a letter sent to her before the conference convened: "Is it possible to show that neo-Darwinism does not affirm the mechanistic world view, that it provides for the causal efficacy of free and purposive action?" In an essay entitled "Reductionism and holism, chance and selection, mechanism and mind," Goodenough rejects the term "neo-Darwinism" as obsolete and historically confusing, and endeavors to dispel the apprehensions of materialism, mechanism, and atheism Griffin outlined in his analysis of the concept. As a "bench scientist" experimenting on a type of green alga, she explains, her experiments are reductionistic with respect to higher levels of biological complexity, but they are holistic with respect to lower levels: "... the specifics reside in wholes, where wholes are emergent from parts and hence have different properties from individual parts."

As a member and a leader in the United Church of Christ and a participant in an internet listserv exploring the idea of religious naturalism, Goodenough finds that her fellow participants are looking for truth, values, and meaning beyond chance. But Goodenough finds in Darwinism a natural world "brimming with meaning" and generating "countless emergent properties that build on themselves." What more meaning could one want than "the astonishing FACT of it all?"

But what about the accusation that Darwinism is mechanistic and devoid of purpose? Here Goodenough answers that all machines, whether built by humans, like a car, or resulting from mutation and natural selection, like the bacterial flagellum, have a purpose: "organisms, like machines, are nothing if not purposive." Free will emerges from a



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**Mayr sets out  
to show that  
biology is an  
autonomous  
science  
deserving an  
autonomous  
philosophy of  
biology.**

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co-evolutionary dynamic of language, mind, and cultural transmission of ideas" giving rise to the sense that we can make choices, a sense that is as natural, real, and true as the neural mechanisms that make it possible. Evolution, Goodenough concludes, has endowed humans with the "experience of experience ... apparently rooted in our unique capacity for language," a capacity as yet inexplicable in Darwinian terms.

With due respect to Ursula Goodenough's sense of "the sacred depths of nature," it seems unlikely that her answers to the questions raised by John Cobb will satisfy the Whiteheadians, much less the

apprehensions of the "scientific creationists," who are looking for *intelligent* direction or (in the case of Whiteheadians) influence in biological evolution and are not content with anthropocentric metaphors such as "opportunistic" and "tinkerer" to describe the process of "natural selection."

The other conference champion of "mainstream" Darwinism (he, too, rejects the term "neo-Darwinism") was the eminent population geneticist Francisco Ayala. Linking the Darwinian revolution in biology to the Copernican revolution in astronomy, Ayala proclaimed that "science encompasses all of reality and ... we owe this universality to Charles Darwin." Somewhat later, after reiterating that "nothing in the world of nature escapes the scientific mode of knowing," Ayala concedes that the scientific view of the world is "hopelessly incomplete," having nothing to say about "matters of value and meaning that are all-important for understanding human nature and our place in the universe, and for conducting a meaningful life." On these subjects, says Ayala, philosophical inquiry, theological reflection, literature, and the plastic arts have "illuminated human nature and its relationships to the world beyond." These latter statements seem to this reviewer to be in open contradiction to Ayala's earlier dictum that "science encompasses all of reality."

Dismissing the evolutionary

theories of Lamarck and Bergson as "metaphysical," an objection that presumably applies to Whitehead's process philosophy, Ayala argues that Darwin wrote *On the Origin of Species* chiefly to refute William Paley's *Natural Theology* (1802), a book that Ayala, like Darwin before him, finds admirable for its close reasoning and command of biological facts, but subject to the same flaws as Michael Behe's argument from "irreducible complexity". The chief flaw is failure of this view to account for superfluous, defective, and dysfunctional organs and its attempt to explain them away by invoking the inscrutability of the Creator's thoughts and purposes, whereas Darwin's natural selection "can account for design and functionality but does not achieve any sort of perfection." Here Ayala overlooks Darwin's statement that "as natural selection works only by and for the good of each being, all corporeal and mental endowments will tend to progress towards perfection" — a result brought about by "the laws imposed on matter by the Creator." Also missing is any reference to *The Descent of Man* and to Darwin's gradual transformation from a relatively optimistic deist into an unhappy agnostic assailed by the "horrid doubt" (as he described it in a letter to William Graham in 1881) that his "inward conviction" that the universe and the wonderful nature of man could not be the result of "mere chance" could not be trusted, nor could the deliberations of his own reason be trusted in view of the evidence that human mental faculties had developed from "a mind as low as that possessed by the lowest animal."

In Ayala's view, natural selection, formulated as "a statistical bias in the relative rate of reproduction of alternative genetic units," is a creative process because it generates otherwise extremely improbable genetic combinations and their phenotypes such as "humans who think and love, endowed with free will and creative powers, and able to analyze the process of evolution itself that brought them into existence." Extremely improbable indeed!

Responding to the presentations, conference organizer John Cobb commends Margulis for broadening the study of evolution

to include symbiogenesis and the concept of earth and its lower atmosphere as a self-maintaining and self-regulating system made possible by the activities of microbes and other life forms. But Cobb draws the line at the implication that this system (called Gaia) is a living organism and "somehow divine". Cobb also regrets Margulis's "belittling" of humans as exploiters of nature doomed to a brief tenure on earth. Humans may be a liability to Gaia, Cobb concedes, but they are at the same time its greatest achievement in richness of experience and in power to mold their own future. The evolution of the cosmos from the Big Bang to the appearance of purposeful human beings implies, says Cobb, a "powerful cosmic intelligence" as a plausible explanation providing a solid basis for human freedom and responsibility and "the call to realize such values as we can" — a much firmer basis, Cobb adds, than the neo-Darwinian view that these values are "by-products of materialistically determined processes." Thus we return to the apprehensions and anxieties about "neo-Darwinism" outlined by David Griffin in his essay.

#### **A PERSPECTIVE FROM THE WORK OF ERNST MAYR**

Considering the three main points of view discussed by the participants at the conference, I find myself wondering what centenarian Ernst Mayr, whose recently published book *What Makes Biology Unique?* I had just finished reading before attending the conference, might have had to say had he been there. One thing can be said for certain. Mayr would have aligned himself with the defenders of the evolutionary synthesis of the 1930s and 1940s. Born in Germany in 1904, Mayr abandoned Christianity and theism generally in his mid-teens. He began as a medical student but was soon drawn by his love of ornithology to the University of Berlin. Examined on positivism for his PhD, he was then sent off to explore the natural history of New Guinea, taking with him Hans Driesch's *Philosophie der Organischen* and Henri Bergson's *L'Evolution Creatrice*, both of



which he rejected as being “vitalistic”. In the 1930s he was invited to come to the American Museum of Natural History in New York to write up and publish the Museum’s burgeoning ornithological collections. In 1942 he capped his growing reputation as a systematist with the publication of his *Systematics and the Origin of Species*, one of the founding treatises of the new evolutionary synthesis sometimes called “neo-Darwinism” although Mayr prefers plain “Darwinism”. Called to Harvard in 1953, he became a champion of the new synthesis and began to study the history and philosophy of science in reaction to the domination of those disciplines by scholars trained in the physical sciences. His *The Growth of Biological Thought* appeared in 1982, his *Toward a New Philosophy of Biology* in 1988.

Taking a leaf from an earlier essay by Francisco Ayala, Mayr sets out to show that biology is an autonomous science deserving an autonomous philosophy of biology quite different in important respects from the philosophy of the physical sciences. Physics and chemistry, Mayr says, are addicted to mathematics, universal natural laws, determinism, reductionism and typological thinking, which cannot account for variation and which breeds racism. Functional biology, Mayr continues, shares many of these characteristics of physical science, but evolutionary biology is a historical science based on concepts and historical narratives that are tested, not by experiments, but by observations confirming their predicted consequences. Evolution is controlled, not by universal laws, but by genetic programs generating emergent properties. Thus biological phenomena have “dual causation,” the law-bound proximate causes of functional biology and the evolutionary ultimate causes regulated by genetic programs.

Two basic ontological principles, vitalism and cosmic teleology, says Mayr, have prevented the acceptance of biology as an autonomous science. Vitalism died slowly from lack of experimental confirmation and because of progress in genetics and molecular biology. Darwin exploded cosmic

teleology with his theory of natural selection. By the 1930s–40s, “no competent biologist believed in any causation of evolution or of the world as a whole,” but belief in this sort of causation lingered on among philosophers like Whitehead, Bergson, and Polanyi. Evolution, says Mayr, is not teleological, although it does lead to “progress and improvement” through “emergent properties” that are empirically observable, not the result of a metaphysical principle such as Bergson’s *élan vital*.

In Mayr’s view, the basic structure of Darwin’s theory of evolution by natural selection has emerged victorious in the battles surrounding it, “though with some modifications.” Some of these modifications, it should be noted, are quite substantial. Darwin, says Mayr, never explained the origin of species because he rejected Moritz Wagner’s emphasis on the importance of geographic and reproductive isolation in the production of new species. Worse yet, he failed to note that animal breeders improved their stock not so much by selecting and breeding the best animals but by culling out the worst individuals. By doing this, says Mayr, they preserved a large gene pool capable of producing evolutionary novelties, including the possibility of “a single individual that is the progenitor of a new species or higher taxon.” From Mayr’s argument one might conclude that Darwin should have entitled his earth-shaking treatise *On the Origin of Varieties, Or the Elimination of Inferior Individuals in the Struggle for Life*.

From this account, it should be apparent that Mayr’s participation in the Claremont conference, had it occurred, would have lent support to the so-called “neo-Darwinian” synthesis and done little or nothing to assuage the apprehensions and anxieties of the organizers of the conference or those of the supporters of “creation science” and “intelligent design”. For my own part as an unofficial participant in the proceedings, I would have been troubled by Mayr’s deep antipathy to theism and “the ideology of natural theology,” leading him to ignore John Ray’s role as one of the founders of systematic natural history and classify him simply as a

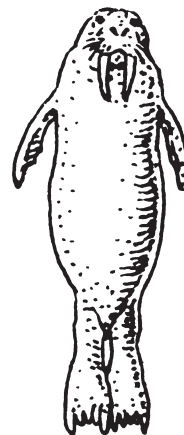
natural theologian because of one book he wrote in that vein. This perspective perhaps arises from Mayr’s assertion that “a literal interpretation of every word of the Bible was the standard view of every orthodox Christian in the early nineteenth century.” This would be laughable news to the majority of scientists and clergy in Britain and the United States during that time who were busy accommodating their interpretations of Scripture to the findings of geology, paleontology, and other sciences.

Finally, as a lifetime member of the National Center for Science Education I am led to wonder whether the struggle to turn back creationist efforts to inhibit the teaching of evolution in the public schools is doomed to have only limited success unless “evolution” is given some kind of religious meaning and students are given a chance to discuss the question freely. The organizers of the Claremont conference are to be commended for presenting Alfred North Whitehead’s process philosophy as one way of giving evolution religious significance and for submitting the question to open discussion. There may be other ways more accessible to the average American’s understanding, as, for example, *Rebuilding the Matrix: Science and Faith in the 21st Century*, by Denis Alexander, a molecular immunologist — both an ardent Christian and an ardent Darwinian — who is a Fellow of St Edmund’s College, Cambridge University. Alexander finds the biblically-based critical realism of the Bible a solid, intellectually coherent, and morally inspiring framework for both science and religion.

A world of possible interpretations lies open for discussion. Bring the students into the discussion, if not in biology classes then in special classes taught by open-minded teachers familiar with the issues and skilled in drawing out student opinions on controversial subjects. Let the experiment be tried!

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By Michael A Cremo. Los Angeles: Bhaktivedanta Book Publishing, 2003. xxx + 554 pages

Reviewed by C Mackenzie Brown, Trinity University

**H**uman Devolution (HD) is Michael A Cremo's promised follow-up to *Forbidden Archeology: The Hidden History of the Human Race* (Cremo and Thompson 1994; henceforth cited as FA). In FA, Cremo and co-author Richard L Thompson, both members of the International Society for Krishna Consciousness (ISKCON), presented an extensive review of existing scientific literature on human origins, as well as an enormous amount of empirical data that they interpreted as challenging established Darwinian evolutionary theory. The evidence, in their view, pointed to the existence of human beings on earth at least two billion years ago. While thus differing from Christian young-earth creationists in their time-scale for human (as well as terrestrial and cosmic) history, Cremo and Thompson share with their Christian counterparts an equally vehement anti-evolutionary perspective, one that I have elsewhere referred to as ancient hominid creationism (Brown 2002).

While the authors in FA were forthright about their own religious affiliation, little of the ISKCON world-view was manifest in that book. They realized that critiquing Darwinian theory without offering an alternative model of human origins was insufficient. *Human Devolution* (HD) presents an ISKCON alternative, based on Hindu Vedic scriptures such as the *Bhagavata Purana*, or *Srimad Bhagavatam* as devotees usually refer to it, and the *Bhagavad Gita*.

Cremo's anti-Darwinian arguments will be familiar to readers of creationist literature: evolutionary biologists and anthropologists are confused and cannot agree among themselves as to how evolution occurred; microbiologists are at a loss to explain how certain organic structures and mechanisms could have evolved gradually — because they are irreducibly complex; Darwinism is ultimately based on faith in naturalism that creates a knowledge filter blinding main-

stream scientists to evidence that challenges the Darwinian paradigm; and finally, an alternative model — which happens to be in accord with or derived from a particular scriptural world-view — offers a better explanation of the scientific evidence.

Accordingly, Cremo concludes that science and religion should not be distinct enterprises (contrary to Stephen Jay Gould's notion of independent domains, or non-overlapping magisteria), and that the Vedic perspective has a substantial contribution to make to any truly open-minded scientific research program. Indeed, the *Bhagavatam*, *Gita*, and other Vedic literature can provide answers to key questions that modern science has failed to answer, such as those regarding the origin of life and of species. Cremo pointedly notes in the introduction to HD that many reviewers of FA did not discount the possibility of including a Vedic perspective in the scientific enterprise, except for a few "extremist groups" like the "unremittingly anticreationist National Center for Science Education" (p xv). (See *RNCSE's* review of Cremo's book *Forbidden Archeology's Impact*, in which Cremo took on the critics of FA: Tarzia 1999)

The Vedic world-view, for Cremo, is not only in accord with *true* science, it is also in harmony with much of *modern* science, even while contradicting certain supposedly ill-supported modern scientific theories like Darwinian evolution. This harmony, for instance, is suggested by numerous parallels between modern physics and the cosmology of the *Bhagavatam*, such as between the Big Bang, with the idea of multiple expanding universes, and the "special expansion of the personality of Godhead [Krishna]" (p 249). Whether such parallels amount to something more than rather vague, superficial resemblances, I leave (as Cremo so often does on questions of interpretation) to the reader. I suspect few who view the parallels

without the aid of the ISKCON knowledge filter, however, will find the parallels compelling.

Another suggestive parallel, according to Cremo, may be found between recent findings in population genetics and events in traditional accounts of ancient Indian history. Evidence from studies of the genetic diversity of the Y chromosome among African populations pointing to bidirectional migrations both out of and back into Africa from Asia, Cremo argues, "is interesting, in light of accounts from ancient Indian historical writings, which tell of the avatar Parasurama [a partial incarnation of Krishna] driving renegade members of the ancient India royal families out of India to other parts of the world ..." (p 93).

In considering this work as a whole, it is important to note that the bulk of HD provides an encyclopedic review of what so-called extremist groups like the NCSE would refer to as pseudoscience. Cremo provides an extensive and thoroughly researched catalog of examples of these "sciences" from the preceding two centuries: alien abductions, séances, paranormal apparitions, psychokinesis, and the like; it is all here. The remainder of this review, however, will not rehearse the standard skeptic arguments against such, but will rather focus on what is by far the most creative and imaginative part of HD: its concluding chapter on the Vedic theory of human devolution.

In simplified terms, from the Vedic view as interpreted by ISKCON and Cremo, we begin as pure beings or units of consciousness in harmonious relation with God (Krishna), and when we forget our original nature we descend (devolve) into physical bodies created by the demigods and demigoddesses. The reasons for this devolution from pure consciousness are not fully explained, except to say that the motivating force is the desire for independence from God (p 484), but why such a desire would arise in the first place is left a mystery.

In any case, the demideities, by mysterious reproductive processes (p xxix, 487) — involving the sort of paranormal production of body parts and materializations of apparitional forms that Cremo argues for in a preceding chapter — produce the originals of the various living species on our planet, includ-



ing humans, who from then on normally reproduce in the usual sexual way. But there is, according to Cremo, a major difficulty in modern biochemical explanations even of this normal replication and developmental process. He notes in the introduction that DNA codes “for the most part” only for the production of proteins without specifying how they are to combine to form the various structures of organisms (p xxix). He concludes in his final chapter that “Modern biologists have difficulty in explaining exactly how the process of development takes place” (p 485). Specifically, Cremo argues, biologists seem unable to explain how, as the initial single cell (egg) of an organism divides into daughter cells that contain the same DNA and the same genes, they differentiate into different kinds of cells that form a great variety of tissues destined to arrange themselves into complex forms.

Cremo goes on to propose a Vedic-based solution to the problem of development: “associated with each form [species or individual organism] is not only the DNA but also a *bija*, or subtle seed, containing the developmental plan for the particular kind of body” (p 485). In developing his concept of the *bija*, Cremo relies in part on general scriptural statements that Krishna is the original seed (*bija*) of all beings, or the seed-giving father of all (*Gita* 7.10; 14.4). In these contexts, *bija* may refer just to the conscious life-spark of *atma*, or “seed of the soul”, which, being the same in all creatures, would not account for the variety of organic forms. So Cremo notes another definition of *bija* (provided not by the classical texts in this case but by his master, Swami Prabhupada) as a “plan” (p 486). Cremo’s interpretation of the Vedic view of the reproductive process in the light of modern science, in sum, seems to require three essential factors: 1) a vitalistic soul seed, 2) a design or plan seed, and 3) DNA. In creating the various bodily forms for all the existing species (some 8 400 000, according to Prabhupada 1972), the demideities rely on such design *bijas*, or plans for “intelligently guided genetic engineering” (p 484) provided by Krishna. The species in turn utilize their *bijas* in combination with their DNA in subsequent reproduction.

Cremo is right that all cells of a developing embryo contain the

## DOMESTIC ANIMALS ON THE ARK

A number of readers asked about the interpretation of the fauna on Noah’s Ark as consisting of *domestic* animals in the review of Chad Berndt’s *Biblical Classification of Life* (RNCSE 2004; 24 [3–4]: 40–1). Stephen C Meyers has posted a discussion of the interpretation, which derives from Gordon Wenham (1978, 1987), on the website of the Institute for Biblical Studies and Science: <<http://www.bibleandscience.com/bible/books/genesis/flood.htm>>.

### REFERENCES

- Wenham G. 1978. The coherence of the flood narrative. *Vetus Testamentum* 28: 336–48.  
Wenham G. 1987. *Word Biblical Commentary: Genesis 1-15*. Waco (TX): Word Books.

same DNA, so something else *is* needed to initiate differentiation. One such factor that modern biologists have discovered, and that Cremo fails to mention, is the chemical polarity of the initial cell or fertilized egg: greater concentrations of some chemicals form at the top or bottom of the cell, sometimes even at the front or rear, and right or left side. Thus, after several divisions, while all daughter cells have the same DNA, their genes in different cells will be exposed to a different sea of chemicals, causing certain genes to be turned on in some cells and not in others.

Another basic factor promoting differentiation is inductive signaling between cells, by which chemical signals released by neighboring cells, or from the external environment, induce or influence different developmental sequences in different cells. Such inductive signaling may itself be influenced or determined by the position of cells within the developing mass of cells.

Differentiation thus commences via diverse chemical interactions between the DNA and the DNA-produced proteins in the cells, brought about by a variety of factors that initially have little to do with the DNA itself. Polarity, inductive signaling, position, not *bijas*, are sufficient to account for differentiation, and thus the beginning of different body plans. One could ask if *bijas* might be necessary “further back,” for example, for effecting polarity in the first place, according to some divine design. But again, there are naturalistic explanations to account for polarity: gravity and point of sperm penetration of the ovum, among others.

Such *ad hoc*, God-of-the gaps — or in this case Krishna-of-the-gaps — solutions as Cremo’s *bijas* often fall prey to advances in science. The theological retreats thus necessitated are a frequent consequence of rejecting the principle of independent domains between science and religion.

I will end with a quotation that Cremo cites from a letter by John D Tyndall, famous supporter of Darwin along with his friend Thomas Henry Huxley. The letter is to Alfred Russel Wallace, co-discoverer of evolution by natural selection, but who became increasingly absorbed with paranormal phenomena later in his life. Tyndall, responding to a publication of Wallace’s on spiritualism, praised Wallace’s great mind but decried his ready acceptance of questionable data: “I see the usual keen powers of your mind displayed in the treatment of this question [of spiritual mediums]. But mental power may show itself, whether its material be facts or fictions. It is not lack of logic that I see in your book, but a willingness that I deplore to accept data which are unworthy or your attention. This is frank — is it not?” (p 108). I, too, will be frank. I have great respect for Cremo’s painstaking research, historical analyses, and scholarly energy. He undeniably provides intriguing insights into various problems in the history, sociology, and philosophy of science. At the same time, with regard to his use of data, often selective, out of context, and incomplete, I find his Vedic knowledge filter actively at work.

### REFERENCES

- Brown CM. 2002. Hindu and Christian Creationism: “Transposed passages” in the geological book of life. *Zygon* 37 (1): 95–114.  
Cremo MA, Thompson RL. 1994. *Forbidden Archaeology*. San Diego: Govardhan Hill.  
Prabhupada AC. 1972. *Bhagavad Gita As It Is*. New York: Collier Books.  
Tarzia W. 1999 [Review of *Forbidden Archaeology’s Impact*.] *Reports of the Natural Center for Science Education* 19 (3): 14–7.

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