National Center for Science Education

# REPORTS

VOLUMES 13:4/14:1 WINTER 1993 / SPRING 1994

INSIDE



# Dean Kenyon and "Intelligent Design Theory" at San Francisco State U

**Eugenie C. Scott**

In January, 1994, the Academic Senate of San Francisco State University voted to instruct the chairperson of the biology department to allow a faculty member to teach creationism in a freshman non-majors course biology course.

To explain this event, we must go to the fall semester of 1992 when five students independently complained to the biology department chairperson, Dr. John Hafernik, that Dr. Dean Kenyon was teaching "unscientific materials in an introductory biology course." "Specifically, Dr. Kenyon had lectured at great length on creationism," during the Origins of Life segment of his course, while skimming through information on any other theories. ("Dean" is Dr. Kenyon's given name, not a title, by the way.)

Students also raised questions about Kenyon's teaching methods and what they called "unprofessional behavior towards students," referring to alleged rudeness and unresponsiveness to student questions.

Kenyon is a biochemist who has had a long association with the scientific creationist movement. In 1981 he was listed by the defendants (creationists) in the Arkansas creationism trial as an expert witness, although he never actually testified. More recently Kenyon appeared on the creationist scene as the co-author of the "intelligent design" high school biology supplementary textbook, *Of Pandas and People*. Earlier in his career he co-authored a book on the origin of life called *Biochemical Predestination* which was considered a mainline scientific discussion of the then-current status of origin of life research.

The course about which the students complained in San Francisco was Biology 100, a multi-section "service" course for non-majors in biology taught by several members of the department each semester. Kenyon regularly teaches one section of the course as part of his teaching assignment. All parties to the dispute agree that the amount of time spent on evolution and al-

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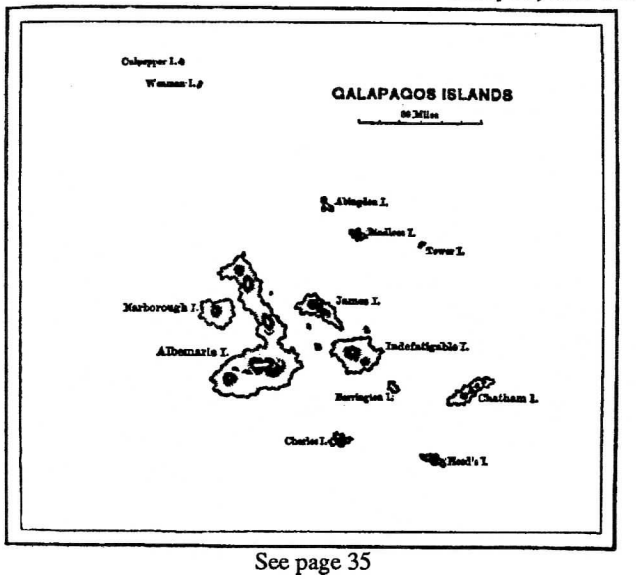


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# EDITOR'S DESK

This issue combines two numbers—13(4) and 14(1). This is not to bedevil librarians (to whom we apologize abjectly) but rather to recognize that last year we published a "free" Index issue and lots of extra journal pages and that the Fall issue was slower to appear than expected; your editor has been slogging an uphill battle against time ever since, trying to publish on schedule, adhere to a budget, and get info out as needed. So we have a double issue this time.

John R. Cole
EDITOR
c/o WRRC, Blaisdell House
University of Massachusetts
Amherst, MA 01003
413/545-5533

Eugenie C. Scott
PUBLISHER

CONTRIBUTING EDITORS:
Karl Fezer
Robert J. Schadewald
Jack Friedman
J. Richard Wakefield
(Canada)
Frank Sonleitner

CONSULTING EDITORS:
Laurie R. Godfrey
Kevin Padian

Deborah Ross
PRODUCTION EDITOR


ISSN: 1064–2358

Cover: Galapagos Islands map from *What Darwin Saw* (1882)

Our last issue included several articles about Religious Right and school voucher campaigns. It also included an editorial note, rather hidden as a reply to a letter, explaining NCSE's approach to such things. NCSE does not take positions on specific political issues, but it does argue for evolution education—as a result, we include articles on topics such as the California "voucher" debate which would have funded antievolutionist schools and curricula. We support evolution education and good science education, in general, and tie the two together—hardly a controversial position, I hope.

While we would like to see all schools teach good science, we respect the right of religious schools to teach whatever their faiths dictate (within reasonable limits such as safety and basic "truth-in-packaging" rules, for example). In the area of higher education NCSE has expressed concern about state-licensed college degrees and teacher-training programs at the ICR which produce "creation science" graduates purporting to be scientists and science educators, but most of our attention has been paid to public schools where most children are educated and where the church-state separation issue is clear. We endorse academic freedom while noting that incompetence is not protected by that doctrine! And we have pursued the theme that in K-12 schools academic freedom is somewhat restricted by curriculum rules or guidelines or laws more so than in higher education where consumers are basically adults and not a captive audience.

Another note—most readers are not "correspondents," but we sprang up from the "Committees of Correspondence" and still rely upon your correspondence and information and tips—not necessarily quoted by name (if that's the way you prefer, tell us). I appreciate receiving clippings and manuscripts from readers; even if they are not published, they become part of an NCSE archive with future uses. (Manuscripts are returned if accompanied with stamped self-addressed envelopes.) But I sometimes receive manuscripts with no author's name or return address on them, which can be very problematical! Some seem excellent, but what do I do with them? If you write something, be sure to put your name and address on the article or letter itself, not just the envelope from which it might be separated easily; ditto especially for diskettes, which all look alike! If an article needs to be reviewed "blind," I'll remove or block out your name before circulating it.

Submission on diskette is **greatly** appreciated—it was probably written on a computer, anyway, these days, so you can save us a lot of time and money by sending me a cheap (**labeled!**) floppy copy, even for a 2-3 page *Reports* manuscript or letter which will cost $5-$10 to retype (Use WordPerfect or ASCII, if possible; Word can also be translated). We can also reuse your 50-cent diskette or return it if you enclose postage. (We're extremely frugal with your subscription money!)

*John Cole*

# Florida Resolution Promoting Creationism Introduced

**Eugenie C. Scott**

Florida State Representative Buddy Johnson has introduced HR 2755, a resolution "recognizing creationism instruction in schools as a choice." The resolution, in a series of "Whereases," cites a number of classic church-state separation Supreme Court cases such as *Board of Education v. Pico*, *Palmer v. Board of Education*, *Epperson v. Arkansas*, and *Abington Township v. Schempp* to try to argue that the Supreme Court has supported neutrality towards religion, and that indeed, a topic needn't be banned from being taught merely because it is based in the Bible. It also reiterates that school districts have great discretion in the management of school affairs. From these principles the resolution inexplicably goes on to state, "That the House of Representatives of the State of Florida hereby recognize that the United States Supreme Court has not ruled against the teaching of creationism in public schools."

Of course, this is precisely what *Edwards v. Aguillard* does, but the only reference to *Edwards* in the pantheon of Supreme Court judgements is to quote Justice Brennan as having said "that religious ideas, no less than any other, may be the subject of debate which is uninhibited, robust, and wide-open." At least Representative Johnson has read the decision, though he apparently didn't learn much from it.

Florida teachers are concerned that this measure may be appended to a bill currently in the Legislature that promotes prayer in school. The prayer bill is felt to have a sure chance of passing.

Also making its way through committee, and guaranteed of passage, is a bill co-sponsored by 46 representatives and the Committee on Education that uses much of the same wording as a law passed in 1992 in Kentucky (see *Reports* 13(2):7). This bill sounds innocent: it allows a school district to post in schools excerpts of "historical documents and records related to American history" of a very wide range. Statements of presidents, members of congress, leaders of the civil rights movement, congressional acts and of course the grand documents of the Declaration of Independence and the Constitution are all included. Sounds innocent, until one considers that the *Congressional Record* prints anything any Congressman sends it, whether presented on the floor of Congress or not. Such legislation has been urged passage in every state by the Institute for Creation Research, which makes one wonder what sorts of postings a school district may have available to it.

In both the Kentucky and Florida legislations, districts are directed not to "censor" based on religious references in these writings, documents, and records. Fortunately, in Florida they are also directed not to choose such documents "because of their religious content." Perhaps this latter clause will restrain enthusiasts from promoting sectarian religion in the classroom. NCSE members have learned that vigilance is necessary to keep such practices from occurring. We encourage our Florida members to monitor their local schools once this bill passes.

Representative Johnson's creationism resolution may also be attached to this "historical documents" bill, which would assure its passage.

Note to members in other states: be on the lookout for this "historical documents" ploy, and let us know if it appears so NCSE can keep everyone informed. ❖

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"The United States Supreme Court has not ruled against the teaching of creationism in public schools."

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## Creationists and the Grand Canyon

"Scientific" creationists argue that the Grand Canyon was formed almost literally overnight by Noah's flood waters. The Institute for Creation Research leads annual field trips to the canyon where they teach their students (and amaze passers-by) that this mile-deep erosion through distinctly bedded rock was caused by a single catastrophic event.

OK. So you're convinced a mile-deep gully could form this way. Then what about El Canon de Colca in Peru, which is 10,574 feet deep? The same amazing arguments apply, I suppose, but I've never seen creationist references to this grander canyon! (It's twice as deep but not as long—still, it deserves some publicity and creationist tourism, I think.) [JRC] ❖

# Louisiana District Narrowly Rejects

## Edwards Decision Echoes In More Than One Way

**Eugenie C. Scott**

The Tangipahoa Parish School System voted on March 1, 1994 to accept a curriculum committee decision not to introduce "non-religious, scientific models for teaching creation and evolution in the public school classroom." The vote of the school was 5-4. Tangipahoa is a rural area east of Baton Rouge and north of New Orleans, writes NCSE member Grant Smith. Hammond, at about 15,000 population, is the largest town in the parish and is the seat of Southeastern Louisiana University.

The controversy began in the fall of 1992 when school board member Jake Bailey requested the district consider teaching "alternatives" to evolution. The topic was turned over to the district's Education and Curriculum Committee, which considered it along with general issues about religion in schools. The community polarized around the issue quickly, and letters to the editor flew from both sides. Leading the charge on the evolution side were professors from science departments at Southeastern Louisiana State University. On the creationism side were members of the Origins Resource Association (ORA) of New Orleans.

Edward Boudreaux and David Prentice are the leaders of the ORA. Boudreaux was a key figure in the Louisiana legislation leading up to the 1987 Supreme Court decision, *Edwards v. Aguillard*. He was consulted by the framers of the legislation and testified on its behalf in the legislature. He is now retired from the University of New Orleans.

At one point, partisans squared off in a public debate held under the auspices of the school board, attended by Tangipahoa Parish citizens and others from outside the area. ORA's Prentice argued that evolution is a belief system, and that teaching "multiple theories of origin" would increase the students' critical thinking. College professors vigorously defended the teaching of evolution, causing one of the school board members to state that she was "glad her children have already graduated from college so they won't have to take classes under these professors" (*Hammond Daily Star*, 1/7/94, p. 1).

Education and curriculum committee members heard testimony from ORA members and scientists from SLU in December, while developing their multi-part policy on religion and education. The proposal included statements about graduation prayer, holiday observances, the distribution of religiously-oriented materials, and student religious organizations as well as the statement "broadening" the teaching of evolution. As expected, the proponents of "alternatives to evolution" were using a loophole in the *Edwards v. Aguillard* Supreme Court decision to try to wedge creation "science" into the curriculum. Saying that the Supreme Court stated that the teaching of "a variety of theories about the origin of mankind may be included if done with clear secular intent of enhancing the effectiveness of science instruction," creationists pushed for including scientific creationism (described by Boudreaux as having "nothing to do with religion"), "intelligent design theory," and "evidence against evolution." Textbooks recommended by ORA included Davis and Kenyon's *Of Pandas and People*, Thaxton, Bradley and Olsen's *The Mystery of Life's Origins*, and Denton's *Evolution: A Theory in Crisis*. (All three of these books are reviewed in NCSE's *Reviews*

### College Textbook Censorship, Too

College professors' relative freedom to select and shape course material does not mean that textbook censorship does not affect college education. When students have spent twelve years reading books based more on market forces than on scholarly excellence, they may not come to college prepared to do college-level work. The increasing use of short sentences and simple words—often called "dumbing down"—in elementary and secondary school textbooks has generated a great deal of print since the mid-1970s, but the watering down of ideas is at least equally dangerous.

Joan DelFattore, in *What Johnny Shouldn't Read: Textbook Censorship in America* (Yale University Press); quoted in *Science* 261, 3 September.

# "Alternate Theories of Origin"

*of Creationist Books*; see Resources.)

Surprisingly and encouragingly, the curriculum committee voted in its January meeting to delete the "alternate theories" policy, and indicated that in its report to the Board.

At the showdown school board meeting March 1, 1994, the curriculum committee brought forth its proposed policy. Members of the school board opened the "alternates to evolution" item for reconsideration, which generated a lengthy discussion. The district's lawyer, Alton Lewis, argued against the policy, stating that the courts would be sure to strike down such a curriculum. "It's all motivated by the intent to allow the teaching of creation science, which is unconstitutional" (*Hammond Daily Star*, 3/2/94). The board was approached by a citizen offering assistance from the Center for Law and Religious Freedom, a Virginia-based organization defending religious-right causes. According to the citizen, the Center supported the wording of the policy on "alternate theories." The board considered inviting a lawyer from the Center to assist it, but declined to do so for financial reasons.

The Board eventually voted 5-4 not to re-introduce the "alternates to evolution" into the religion policy, but this does not seem to have settled the matter. A member called for the curriculum committee to develop a curriculum that would again include "alternates to evolution." Proponent Art Zieske stated that he did not consider the issue dead and anticipated more efforts to get creationism into the classroom.

Readers of *Reports* know that "alternatives to evolution" is a code-word for "scientific creationism," as is "Intelligent Design Theory." Attempts such as this one in Louisiana are occurring more frequently, although there are still efforts to put old-fashioned "scientific" creationism into the curriculum, as well. Members of NCSE are also aware that grass-roots work of the kind done by SLU professors and other concerned citizens is vital to keeping sectarian religious ideas out of the classroom and keeping evolution in curricula. Special thanks go to these professionals who took considerable time out from their regular work to support good public education in their communities. ❖

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Kenyon's department said to have no mechanism to deal with controversies.

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**Kenyon** con't from p. 1

ternatives is only a small part of the total course's 27 lectures.

Kenyon claims he teaches evolutionary biology, and then follows that with a critique of macroevolution and theories that explain the origin of life via natural processes. Although his course outline lists such topics as dust layers on the Moon, decay of the Earth's magnetic field and possible secular changes in the moon, and possible secular changes in the of light of these arguments and implications for radiometric age determination, for example. Kenyon claims not to support young-earth creationism.

Faculty have not sat in on Kenyon's course, but they have had many years of student complaints. Hafernik discussed the student complaints with Kenyon, who denied he was teaching Biblical creationism. When the two could not resolve the problem, the chairperson rescheduled Kenyon to teach other courses in the following semester (Spring, 1993), rather than Biology 100.

Kenyon requested that the Academic Freedom Committee of the Academic Senate study the matter, claiming his academic freedom had been violated. The AFC studied the matter through the spring of 1993 and reported their conclusions in 1993. Their 15-page report, inexplicably titled "Punctuated Equilibrium: A Report of the Academic Freedom Committee," focused primarily on the academic freedom issue rather than the appropriateness of teaching "intelligent design" in a science class. (The report is **available from NCSE for $1.50 and an SASE.**)

Members of the Committee consisted of faculty from the library and the departments of English, Nursing, Broadcast Communication Arts, and Social Work Education. The report noted that for over 15 year there had been complaints about Kenyon's introduction of creationism into the biology curriculum. The department was chided for failing to develop governance mechanisms that would deal with such matters. Members of the Committee faulted the department chairperson for not bringing the matter to appropriate departmental committees for discussion, instead of deciding to re-

**Kenyon,** cont'd on p. 13

# NEWS

## The Big Splash

David Morrison

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Neo-catastrophism is being integrated into neo-uniformitarian-ism

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Next July the solar system will experience the biggest interplanetary collision in recorded history when a disintegrating comet called Shoemaker-Levy 9 splashes into the planet Jupiter. While the energies involved are tiny on a planetary scale, they will dwarf anything achieved by human engineering, and this unprecedented event reminds us of the role of collisions in the origin and evolution of life on the earth.

The evolutionary significance of collisions with asteroids and comets has been apparent to most scientists for about a dozen years, since the publication of the pioneering work by Luis and Walter Alvarez and their collaborators of evidence that the Cretaceous extinction 65 million years ago was caused by an extraterrestrial agent. For more than a decade evidence has accumulated that the impact of a 10-20 km diameter comet or asteroid led to an environmental catastrophe, with consumption of most terrestrial biomass by fire, a global pall of stratospheric dust resulting in rapid drop in land temperatures and cessation of photosynthesis, and large scale changes in ocean chemistry. The resulting collapse of natural ecosystems produced the mass extinction that marks the end of the Cretaceous, including the extinction of the dinosaurs. Discovery of the impact crater (Chicxulub) in the Yucutan and a recent suggested upward revision in its size to nearly 300 km have contributed to the widespread acceptance of this scenario for the Cretaceous extinction.

While the connection of other mass extinctions with impacts is not so clear as the association of the Cretaceous event with Chicxulub, it is evident that impacts play a significant role in evolution, being responsible for some if not most mass extinctions. David Raup of the University of Chicago and Stephen Gould of Harvard have hypothesized that impacts, and disasters caused by impacts, are among the most important factors in biological evolution. Modern students of evolution are beginning to accept that major impacts, occurring at intervals of tens to hundreds of millions of years, must be considered an important part of the environment in which evolutionary change takes place. Neo-catastrophism is being integrated into neo-uniformitarianism.

There is, of course, a contemporary hazard associated with comet and asteroid impacts. If it happened to the dinosaurs it can happen to us.

Indeed, an impact far too small to produce a mass extinction could still lead to short-term environmental effects that would cause massive crop loss, global starvation, and the possible breakdown of civilization. There is a greater than one-in-a-million chance of such an event taking place in any one year. Although this current hazard is the subject of considerable scientific interest and has led to a 1992 cover story in *Newsweek*, two NASA reports, a major book now in preparation, and a 1993 Congressional hearing, the risk of an impact still seems pretty remote to most people.

The advent of Comet Shoemaker-Levy should stimulate public interest in the general impact idea. When the comet was discovered in the spring of 1993 it had already split into about 20 distinct fragments, and backward projection of its orbit showed that the break-up had occurred on July 8, 1992, as the comet passed extremely close to Jupiter. Forward calculations soon showed that the fragments had been captured in Jovian orbit, and that they would return to Jupiter on about July 22, 1994. This time, however, a worse fate is in store for them: most will impact the planet at speeds of about 50 km/second. We do not yet have accurate measurements of the sizes of the individual fragments, but if the largest are a few kilometers in diameter, their energy approaches that of the Chicxulub impact on earth: tens to hundreds of millions of megatons of TNT. If there are any dinosaurs on Jupiter they had better look out!

What do we expect to happen when a cometary fragment several kilometers across enters the jovian atmosphere? It will initially flash into incandescence like a meteor, before plunging into the opaque clouds of Jupiter and disappearing from view. About 100 km below the clouds it will disintegrate and stop, in effect exploding with the energy of millions of large nuclear bombs. The resulting fireball will be hundreds of kilometers in

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diameter and brighter than the surface of the Sun. This fireball will rise, bursting upward through the clouds and carrying with it vast amounts of water vapor and other gases from the lower atmosphere. For about a minute this fireball will be brighter than the entire reflected light from Jupiter, before it fades and dissipates in the upper atmosphere.

Sadly, we will not get a very good view of these remarkable celestial fireworks. Every one of the cometary fragments is expected to impact on the side of Jupiter that is turned away from the Earth. Unfortunately also we have no spacecraft orbiting Jupiter to provide a close-up look: the Galileo Jupiter orbiter will still be 16 months short of its destination. However, Galileo will get a better view than earthbound astronomers. In addition, there may be significant changes in the upper atmosphere of Jupiter that can be seen from the Earth as the planet rotates to bring the impact sites into view. Virtually every telescope on Earth as well as the Hubble Space Telescope will be turned toward Jupiter for the critical days around July 22 when the impacts take place.

Astronomers are excited about the impact, and the pubic is expected to share some of this interest. Such a collision is unique in our history, and it will likely be many centuries before we see another such event of this magnitude. Actually witnessing the collision of a comet with a planet is much more compelling than trying to reconstruct an impact event that took place 65 million years ago. The example of Comet Shoemaker-Levy will surely draw public and media attention to the role of cosmic impacts in the evolution of life on our own world as well. Thus nature presents us in 1994 with a good opportunity to underline the processes of biological evolution as well as the influence of the cosmic environment on the history of the earth. ❖

**Astronomer David Morrison is co-author (with Clark Chapman) of the 1989 book *Cosmic Catastrophes*, chaired a 1992 NASA study of the impact hazard, and recently testified before Congress on this subject.**

## New Ig Nobel Prizes, 1993

The latest Ig Nobel Prizes have just been announced by *The Journal of Irreproducible Results*, whose current hide-out is MIT, an alleged university reputedly located in or about Cambridge, MA. A share of their exalted Medicine prize goes to the pioneering paper "Salmonella Excretion in Joy-Riding Pigs," by Paul Williams, Jr. and David Jacobs. The Prize for Literature goes to E. Topol, R. Califf, F. Van de Werf, P.W. Armstrong and their 972 co-authors for publishing a medical research paper with ten times as many authors as pages. (Sorry—we've lost the exact reference.) The Committee also honors John Mack, Harvard Medical School, and Temple University's John Mack for their research conclusion that people who believe they have been kidnapped by aliens from outerspace "probably were." (But what about kidnappings by naturalized citizens or landed immigrants from outer space? Is subtle prejudice at work here?) ❖

## Cal Superintendent Follow-up

NCSE has followed the tribulations and literal trials of Bill Honig, former California Superintendent of Public Instruction. His successor was nominated by California Governor Pete Wilson, but she was rejected by the legislature. Honig, an outspoken advocate of evolution education, was ousted last spring as a result of his conviction on charges of conflict of interest.

Governor Wilson has nominated Sanford Sigoloff to the post, pending an election this spring. Sigoloff, who has no background in education, is a 62 year old businessman with a reputation as a business turn-around expert or corporate raider, depending upon whom is asked.

Sigoloff says he will not run for election in 1994 and pledges to work with teacher, parent and administrative groups during his short term. He pledges to turn around California school financial woes, but he has not made clear any specific proposals. His "corporate raider" image worries many observers.

Meanwhile, state school budgets languish in the wake of state economic troubles and state cuts in school aid. He may not be confirmed by the legislature, but the lege may not be interested in confronting the issue before the spring election. The *New York Times* (11/19/93) reports that opponents of the just-defeated school voucher plan welcome his appointment, thinking he may forestall further voucher-plan efforts. ❖

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New California school super named

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PBS "creationism" series planned

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## Creationism in South Africa

**D.M. Maister**
**Schooling in Evolution Project. Cape Town, SA**

A series of free lectures is currently being given in Cape Town (and probably elsewhere), evidently sponsored by some religious organization. "Creation science," so actively promoted in America, is the topic. Religious bookshops more and more are featuring books which promote creationism and ridicule evolution and science.

A few years ago, three "creation science" videos were shown on a [public] television religion programme. Complaints followed about the patently false information it put forward as fact.

During the apartheid era when the "information scandal" news broke, the public learned that great sums of money had been used to further the government's aims. It eventually appeared that some of it had been peeled off to bolster religion and discredit evolution. Anti-evolutionist material was circulated at the University of Cape Town. This author tried to track its author, and the trail led to a certain minister of religion who was never available but who was later mentioned in the press in connection with the scandal as having some shadowy part in it. ❖

## Creationism Provides "Balance" for Public Television

**Eugenie C. Scott**

During the fall of 1993, a number of Public Broadcasting System stations aired a videotape, *Voices for Creation.* The 1-hour video was produced by the Marquette (Michigan) PBS station, WNMU-TV, and consisted mostly of footage from an earlier Jeremiah Films video, *The Evolution Conspiracy*, with added footage of Duane Gish and Richard Lumsden from the Institute for Creation Research.

In promotional material, the program was described as "a point of view documentary produced in response to increasing criticism of public television for its preceived (*sic*) pro-evolution stance." "The well-produced and heavily promoted PBS series *The Secret of Life* and *The Search for Human Origins* will undoubtedly renew the origins issue and bring pressure on PBS stations to present the creation viewpoint. *Voices for Creation* was produced for that purpose."

The video presented the usual creationist position that the evidence for evolution is poor and better corresponds with the special creation view of Biblical literalism, and it presented a young-earth view, with John Morris of the ICR claiming that laboratories that dated paleontological materials cooked their results to correspond with the previously-reported expectations of the researcher. Other misrepresentations of evolutionary science were presented such as the lack of transitional fossils, and mutations being "all harmful."

That such creationist nonsense was broadcast on public television is reason for concern. Most of us have higher standards for public television, and were shocked to see this video from such a source. This was not a national network show, but it was provided free to stations. Apparently, it was mostly smaller and less-well-funded stations that took advantage of the offer. Some showed it immediately following broadcast of *The Search for Human Origins* in March.

The Corporation for Public Broadcasting recently announced funding for a four-part series, *Scientific Creationism with Randall Balmer.* Randall Balmer is a professor of history at Barnard College specializing in religious history. He has been involved in previous PBS productions discussing fundamentalism. Some creationists have reportedly hailed this as a breakthrough, but from appearances, this series will be *about* creation science, rather than advocating it, as did *Voices.* Such a program, if produced intelligently, could help to educate the public about a serious controversy.

(PS: did anyone other than me feel ambiguously flattered over the choice of name of is video, considering NCSE's book, *Voices for Evolution?!*) ❖

*The true scientist never loses the faculty of amazement. It is the essence of his being.*
*— Hans Selye*

# NEWS

## It's the Scopes Trial All Over Again!

**John Cole**

As NCSE members know, the Scopes Trial in 1925 did not put an end to antievolutionism. Fewer probably know that 1925 did not put an end to the Scopes Trial! John Scopes lost the case but didn't have to pay the $100 fine because of a technicality; he went on to become a successful oil company employee, not a professional "cause," a role he rejected.

Dayton, Tennessee, where it all happened in 1925, now performs a reenactment of the trial for tourists each July. They have a summer festival including a live "docudrama" called *The Scopes Trial: Destiny in Dayton*—this year (1994) it's 21-25 July. The original trial transcript is used in the re-enactment, not the widely-portrayed play and movie, *Inherit the Wind*, an openly fictionalized portrayal of the Scopes trial which many critics consider a fictional but aptly dramatized account of the trial.

Creationists heartily disagree and accuse the play and film of distortion. Many local residents say they resent having been portrayed as hicks in the play and film *Inherit the Wind*, a fictionalized treatment of the trial, and H.L. Mencken's depiction of them as the "Booboisie" and ignoramuses.

Their production is "designed to set the record straight," according to a report in the *Atlanta Journal and Constitution* (7/19/92).

The production is designed and coordinated by Bryan College—the fundamentalist college founded to immortalize William Jennings Bryan, who died soon after the trial, diminished in the eyes of many of his populist admirers because of his antievolutionism and crude real estate hucksterism which obscured and diminished a long career of advocacy of causes ranging from social security legislation, anti-imperialism (read Bryan on the US role in the Philippines and WWI!)—I wonder if his Dayton defenders note his radical populist roots!

Bryan College was founded to honor his name and fame—for one, I hope it honors his iconoclasm, as well. Bryan was a rebel against Darwin, the Gold Standard, and many other issues, and frequently an opportunist, but he should not be remembered simply for his last crusade immortalized in *Inherit the Wind*—Bryan was much more complicated than that portrayal, although the play does capture the essence of the argument, I think.

Dayton and Bryan College seem to treat this as a melodrama—people are expected to cheer, boo, hiss, or peddle monkey souvenirs. Local artists, folklorists, and vendors of folk art are encouraged to participate. The scene of the reenactment is the original Rhea County Court House in Dayton, TN, on US 27, forty miles from Chattanooga and 80 miles NW of Knoxville.

Dayton also maintains a (free) Scopes Trial Museum (open year-round).

The festival includes traditional local arts and crafts, an antique auto show, local food booths, and traditional music and dance.

For further information about the "Scopes Trial Play and Festival" call Bryan College, 615-775-7500 or 775-7206. For further information about the Dayton tourist attraction, write the Dayton Chamber of Commerce or the Tennessee state tourist board. It should perhaps be noted that the original Scopes Trial was itself a major 1925 tourist attraction with street vendors, revivalists, etc. William Jennings Bryan used the occasion to advertise Florida real estate deals he was then promoting, and the trial was conceived of as tourist attraction taking advantage of the civil liberties issues, as various studies reveal. ❖

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The original Scopes Trial was itself a major 1925 tourist attraction.

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## Creationism on the Internet

From the Internet computer network dictionary comes an interesting bit of computer jargon: Creationism: n. The (false) belief that large, innovative designs can be completely specified in advance and then painlessly magicked out of the void by the normal efforts of a team of normally talented programmers. In fact, experience has shown repeatedly that good designs arise only from evolutionary, exploratory interaction between one (or at most a small handful of) exceptionally able designers and an active user population—and that the first try at a big new idea is always wrong. Unfortunately, because these truths don't fit the planning models beloved of management, they are generally ignored. [JRC]

# NEWS

## Elvis Sighted on Noah's Ark: Looking at Tabloid News

**John Cole**

Supermarket tabloids are the pariahs of journalism—they sell millions of copies of sensationalized weirdness each week, but no one takes their Elvis, Bigfoot, Noah's Ark and Old Testament UFO sightings seriously, right?

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Mad or silly scientists—a media norm

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Well, CBS Television has just announced two forthcoming "entertainment specials" based on the *Weekly World News*. If these work out, a series is possible. The shows will stress their unrelatedness to CBS News, we are told—a fine point which it will be interesting to monitor for effectiveness.

These tabloids pay huge salaries to writers to see how far they can go (seldom back to real journalism). Two interesting accounts of this odd world can be found in *Smithsonian Magazine* and a novel by Donald Westlake. The novel is *Trust Me on This* (NY: The Mysterious Press, 1988); the ethnographic article is "Tabloids: They Came From Outer Space!" by Sue Hubbell (*Smithsonian* 24(7), Oct. 1993, pp. 70ff.).

These sources are entertaining and informative tours of an alien culture where truth is whatever a publisher can get away with, and science is a sacred cow to readers and a laughingstock to editors ("Find me a professor to say something crazy!"). The public which laughs at them but gives them just a bit of credulity ("where there's smoke, there must be fire") often looks at "normal science" and "creation science" through the same foggy lenses, evaluating claims a bit interchangeably. Interestingly, Adam and Eve, the Ark, and other religious archetypes are common tabloid fodder.

Experts say this or that, so you better believe—yet YOU are as smart as they are, and maybe this makes you a co-expert or even someone fit to judge the Experts with contempt because you know what's what, even if you're not in Who's Who. Professor Phuddy Duddy produces quotes (typically a pseudonym or fake source willing to claim on tape to be a "professor of evolutionary archaeology" or somesuch nonexistent field, but sometimes also an actual scholar with a sentence ripped out of context by an interviewer claiming to be from anything from the Nobel committee to the County Sheriff). An "enquiring mind which wants to know" can usually get a lurid quote from almost anyone—or at least the fact that "Professor Einstein refused to comment on Noah's Ark in a recent seance—is he still stonewalling this investigation?"

The technique may seem a caricature, but it follows eerily close to the pattern exemplified by too many "scientific" creationists.

Sober-sided creationists will be appalled at the comparison, but there it is. And some of the authors are even literally the same folks who bring you fringier creationism. The lurid, apocalypse-soon people capitalizing upon the-fear-of-the-week club are parodied deftly and affectionately by Westlake and described with a bit of affection by Hubbell. If you're interested in popular culture and in drawing comparisons with broader aspects of anti-science, take a look and ask yourself how *The National Enquirer* or *Sun* relate insidiously to the attraction to scientific creationism. ❖

## California Rejects Voucher Plan

**John Cole**

In the November election, California voters rejected the proposal for "vouchers" (13(3)) to pay for private schools.

The defeat was almost two to one, but critics claim it was based on the fact that the proposed plan was too extreme, not basically wrong. The plan would have not only stripped public schools of financial resourses, but it would have provided them to schools which voters felt nervous about supporting—from religious schools to schools set up by "witches" or other unpopular alternative beliefs. The education establishment exploited this fear via a massive media campaign.

Somewhat lost in the election coverage was the fact that most people rejected vouchers because they favored public education and opposed tax support for religious and other private schools. However, people were very strongly interested in improving education.

Voucher proponents pledge to be back soon with a less radical proposal with the same goal of supporting religious education. ❖

# NEWS

## Reviews of Numbers' *The Creationists* (and a Good-Looking Australian Journal)

**John Cole**

A "Review Symposium" consisting of several book reviews and a reply by the author Ronald L. Numbers appeared in Issue Three of an Australian journal, *Metascience*. The journal describes itself as "An International Review Journal for the History, Philosophy and Social Studies of Science," featuring an "Essay Review, Review Symposium, Korn's Column, Reviews, and Notices of Books."

Pages 41-64 of the journal consists of reviews by Christopher P. Toumey (Raleigh, No. Carolina), Tim M. Berra (Ohio State University), David Oldroyd (New South Wales), and Dorothy Nelkin (NYU), and a reply by Numbers. Numbers applauds Toumey and is less thrilled with his other reviewers. The composite review, however, provides a useful way to examine an important book without relying on one, possibly quirky, opinion. Unfortunately, the journal seems to have been slightly arbitrary in its selection of reviewers; for example, the longest review, by far, is by an Australian who is largely amazed by the whole matter. Toumey and Berra, while disagreeing strongly, exhibit the best command of the issues involved.

NCSE's Cole, Godfrey, Feder, Harrold and Scott are identified by one reviewer as debunkers, with McIver, Toumey and Michael Cavanaugh cited as more "ethnographically" oriented in their approach to creationism. We're all NCSE colleagues in one way or another, I should assure Professor Numbers—there's room for differing approaches!

*Metascience* is published by the Australasian Association for the History, Philosophy and Social Studies of Science; subscriptions are $25/yr (Australian) for two issues, $50 for institutions. Write Dr. David Miller, School of Science and Technology Studies, University of New South Wales, Kensington, Sydney, Australia NSW 2033, Australia; FAX 61-2-692-3329. (Note: I've only seen this one review section, but the journal looks excellent on this basis.) ❖

## Creationist Prof Suspended

**John Cole**

As we go to press, news arrives of a part-time instructor at Wright State University in Dayton, OH, suspended from teaching his biology class because of student complaints that he was teaching creationism. Dan Scott was suspended with pay after allegedly telling students God held atoms together and assigning a paper which required students to discuss whether creation and evolution could co-exist. Many students complained that he diverged so far from a normal biology intro course that they would not be prepared for advanced courses. Some students defended him, however, as an enthusiastic teacher.

Before the course began, he was given a written warning by the department head about letting his religious beliefs interfere with his teaching—a very odd prelude to hiring someone for a part-time course. Scott holds a Master's degree in plant breeding. He also teaches three courses per term at nearby Clark State College, according to news reports. Pat Robertson's television network and the Family Research Council have taken up this situation nationaly, which suggests that a lawsuit is planned over this instructor's academic freedom and religious rights. Dayton has been the scene of other creationist activity recently. NCSE will keep you posted. ❖

**Computer Bulletin Board:** To call the NCSE-FREENET computer bulletin board use the number (216) 368-3888 via modem, or use Gopher and the Internet at Cleveland Freenet. They post NCSE info and have a vast, free system of computer services and information. They can now handle up to 70 calls and 300 users at a time, so an earlier bottleneck problem should be improved.

# NEWS

## Vatican Assails Biblical Literalism

Biblical literalism is a form of "intellectual suicide," according to a 125-page document released in March by the Vatican. "The Interpretation of the Bible in the Church" was written by Pontifical Biblical Commission, a group of scholars appointed by the Pope. Literalism, they say, "refuses to admit that the inspired word of God has been expressed in human language . . . by human authors possessed of limited human resources."

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"There was no stenographer, no one with a tape recorder on at the time."

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One commission member, Father Joseph Fitzmyer, was quoted by Reuters News as saying that fundamentalists failed to recognize that years passed between the time Jesus spoke and the time when the gospels were written. "There was no stenographer, no one with a tape recorder on at the time." He added that one of the dangers posed by the burgeoning literalist movement was that converts first seize upon the new simplicities with enthusiasm but then grow disillusioned and "throw everything overboard" when the logical flaws become clear.

The study was also rather critical of feminist and liberation theology approaches to studying Scripture, although it concluded that they—along with semiotic and psychoanalytic approaches—can make useful contributions to scholarship.

The Roman Catholic Church has felt considerable membership erosion, especially in Latin America where fundamentalists are very actively seeking converts. Perhaps we missed it, but we did not see this story in any newspaper; it was covered in two different wire service stories. ❖

## Lewis Thomas Dies at 80

Lewis Thomas died in late Fall of a disease of the blood which produced an abnormal proliferation of lymphocytes. Thomas was aware of the irony, having spent a life rich in accomplishment as a doctor, medical researcher and writer concerned with the nature of cells. His best-known books were *Lives of a Cell* and *The Medussa and the Snail.*

Thomas was a popular medical philosopher who did much to explain medical research to the public—and to popularize with concrete examples Darwin's oft-quoted observation that we living creatures "are all one." Thomas could ask with puckish humor whether he was taking a walk in the park, or whether his cells were using his body to fulfill their own biological needs. (In this he was a bit more holistic than Richard Dawkins, popularizer of the "selfish gene!") Chet Raymo, in the December 27th *Boston Globe*, quotes his comment that "We are shared, rented, occupied" by our trillions of cells. Such comments out of context could be seen as anthropomorphizing — attributing human motives, thought, and faculties to cells, but in fact he argued strongly against this basic idea, using the format to advance his ideas about the evolutionary and ethically neutral nature of life while advocating strong ethical standards for biologists and doctors. "The thing we're really good at as a species is usefulness," he wrote. He passionately argued that we should always try to make a difference for the better.

His matter-of-fact description of his own dying process was captured in a long interview from his hospital bed by Terry Gross on her NPR program *Fresh Air* and a more recent *NY Times Magazine* article by Roger Rosenblatt. Lewis even had good things to say about the impersonal treatment hospital patients receive, understanding the pressures on doctors and nurses as well as on patients and their families. He died feeling optimistic about the human race and the fact that his remains would have a useful place in the Earth's biological cycle which, more than his writings, would make him immortal.

**John Cole**

## What Color Are Your Purines?

A California high school biology teacher, Jim McCammon, is marketing "DNA Earrings" made of beads of various colors. The earrings sell for $5 (add $1 for shipping) and can be ordered from McCammon at 695 Pine Avenue, San Jose, CA 95125. You can specify what color beads you want for the purines and the pyrimidines, and even the sugars and phosphates. Your NCSE director bought a pair at a science teacher conference and thinks the black and silver combination is spiffy, but everyone to his/her own taste. They generated many comments among the cognoscenti. Sold in pairs only—cheapskates can't buy one and wait for it to self-replicate. ❖

**Kenyon** con't from p. 5

assess Kenyon (based on counsel of the dean and individual faculty members).

In light of this lack of due process, the AFC recommended that Kenyon be reassigned to teach Biology 100.

Hafernik declined to reinstate Kenyon in the class during either the fall, 1993, spring, or 1994 semesters. This caused Kenyon to request that the full Academic Senate review the situation, with the hoped-for outcome that Hafernik and the department would be forced to reinstate him in Biology 100.

On Dec. 7, 1993, the Academic Senate voted to uphold the AFC decision directing Hafernik to allow Kenyon to teach the course. Kenyon has been assigned to teach Biology 100 during the summer session of 1994.

The position of the department must be made clear. Most consider this a staffing decision, beyond the necessity of university oversight. Kenyon was prevented from teaching ideas outside the realm of science in an introductory biology class where students are not sufficiently prepared to understand why he is in error. He should not, they say, teach students insufficiently prepared to understand why he is in error or to argue in free debate. He may teach "intelligent design theory" in graduate courses, or in advanced courses for biology majors. The restriction was limited to this one non-majors introductory course, not the widely-publicized "muzzling" of an unpopular view.

In February, 1994, the Department of Biology voted to adopt a "Resolution in Support of Appropriate Curricular Standards" which included a statement in support of academic freedom. It also stated, "The Department of biology has the responsibility for maintaining both the highest standards of scholarship and the accuracy of material presented in its classroom; and there is no scientific evidence to support the concept of intelligent design; therefore be it resolved that we hold that the design view is not scientific."

This statement may be seen as a step towards the department developing procedures to evaluate

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A lack of clear and due process

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the content of its instructors' classes, part of the due process recommendation of the AFC. Kenyon's class this summer will also be evaluated. University of California law professor Phillip Johnson, author of the antievolution book, *Darwin on Trial*, has been a supporter of Kenyon's throughout the controversy. Johnson's legal specialty is criminal law, and he is a skilled, combative litigator. Should the Kenyon/SFSU case eventually result in a lawsuit, it is intriguing to speculate whether Johnson's legal rather than scientific abilities would be called upon.

The issue raises important questions of academic freedom. Court decisions already limit the academic freedom of K-12 teachers: they must teach the curriculum of the district for which they work. University teachers are less constrained: some say they are not at all constrained. But the 1991 case of *Bishop v. Aronov* suggests academic freedom is not unlimited at the college level, either, with peer evaluation of competence a relevant issue. Phillip A. Bishop is an assistant professor of physical education whose course in physiology included references to what would today be called "intelligent design." He also offered an optional "Christian Perspectives" class for students. The classic tension between the two First Amendment clauses of free speech and establishment of religion arose. The Appeals court came down on the side of the "establishment" issue and directed Bishop to cease proselytizing in class.

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Academic freedom vs. responsibility

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NCSE supports academic freedom and the right of college professors to dissent (and defends school teachers' rights to diverse viewpoints but not the right to religious proselytizing, but there is also a peer-review issue which dictates that, for example, Marine Biology not devote its class time to archaeology (a real case, by the way) and an assumed competency rule does in fact hold college professors to minimal standards.

Academic freedom is important, but it is not *carte blanch* to teach religion in a physics class, and it never justifies breaching the wall between government and establishment of religion. We will keep you posted about legislation, issues and arguments trying to entangle creationists with science education. ❖

# TRACKING THOSE

## Odds Are That Too Few People Understand "Chance"

**Kent Harker**
**Past Editor, BASIS, Bay Area Skeptics**

In nearly every creation/evolution debate I have heard or read there is a recurring theme: chance. The opponents of evolution exploit this theme at every opportunity—very effectively, we must admit. They emphasize with modifiers like "random" to drive home a sense of purposelessness. Then they like to soften the target a little more with another powerful and misleading modifier: "pure." How many times have you heard a creationist spout that evolutionists want us to believe that *pure* chance is responsible for the awesome complexity of life on earth?

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"pure chance" sounds pejorative—"purposeless"
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This gambit is compelling on an emotional level. There is something in humans that cries out against the notion that what to us appears truly miraculous could "just happen." The senselessness of "pure chance" makes most wince and feel as though life is devoid of any significance, so it is natural that the public is hostile to what it mistakenly believes is evolutionary theory. We hear repeatedly that "it couldn't just happen." The best answer is that it *didn't* "just happen."

We must confront such misunderstandings of evolutionary biology. The problem is exacerbated when many scientists state, in one way or another, that chance is indeed the author of life. These professionals understand what is meant by the word *chance*, but they usually are not careful enough to see that those who read or hear understand as well.

First we need a mathematical definition of *chance*, for the term is a mathematical one. It is a synonym of *probability* (James, 1977). (Mathematicians prefer to avoid the word "chance" because of its popular usage.) When one says: "What is the chance that . . . ," one is posing a probability problem. Since it is a probability problem, it must be answered mathematically. Few, especially the creationists, are familiar with even the basic propositions of probability theory. If we are to offer some light we must ourselves develop fundamental understanding. Second we need a formal definition of *random*. Random means *equally likely*.

Here I must insert a slightly technical clarification of "equally likely" that an example will best illustrate. In a container of twenty balls, one of which is white and the others black, the likelihood of choosing a white ball is not equiprobable, but choosing a ball of *any* color is the same (1/20) if the balls are otherwise identical. Without this uniformity—randomness—we cannot speak of the probability of choosing a black ball as 19/20. If there is a variable or operant that makes an unequal likelihood the sample is not random. If a pollster were to draw a *national* conclusion about the morality of homosexuality from a sample of fundamentalist Christians we would object that the sample was not representative, i.e., not random.

We are getting closer to the crux of the problem, this question of randomness. Focus the thinking a little finer with another example: Suppose we have fifty quarters that we dump from a jar onto a table. We count and record the number of heads and tails each time as we repeat the experiment 100 times and find that the occurrence of heads was 56.3%. What may we infer? That heads is more likely when we use quarters? Hardly. We need first to know how unlikely it would be to have 56.3% heads in 5,000 trials. For that we resort not to the quarters, but to probability theory, which provides us with means to compute such a probability *if the sample was truly random*. The mathematics tells us if we are justified to look for symptoms of nonrandomness, not that we have discovered a new property of quarters. Armed with information that the 56.3% outcome is sufficiently unlikely to have been random, we examine each quarter for some nonrandom bias—perhaps minting flaws or uneven wear that weight some of the coins in a biased manner. It is critical for us to keep in mind that no matter how unlikely the 56.3% may be, it does not constitute *proof* that the sample is nonrandom. Also, note that at no time would we posit a paranormal or supernatural rationale solely because our outcome is however unlikely. To do so is to commit yet another logical fallacy: a false dichotomy.

With an understanding of randomness we are ready for the next step. What happens if we apply random probabilities to what we *know* are nonrandom samples? Well, it is perfect nonsense. Then why don't we point this out to the opponents

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of evolutionary theory when they use arguments that do precisely this? As important as this is—understanding the requirement of randomness in the sample—there is something even more fundamental: we must know the *initial conditions* of the sample set. What would we think about an investigator in a frenzy about the outcome of a coin-tossing experiment in which a string of 100 successive heads occurred when he or she did not check to discover that the coin had heads on both sides? The degree of uncertainty in the initial conditions will multiply the degree of uncertainty in any conclusion one deduces.

Now let's apply these two principles—randomness and surety of initial conditions—to the question of the origin of life. Do we know what were the initial conditions five or ten billion years ago? Does it make any sense to talk about equiprobable (random) variables acting through all systems in all time? Creationists consistently abuse and misunderstand these two fundamental principles. Their probability "computations" about the likelihood of a DNA molecule happening by "random chance" are dead in the starting gate because they assume, for example, that $H_2O$ is just as likely as $O_2H$ and that there were essentially no initial conditions that would make it more likely for the production of carbonic acid than sulfuric acid. The laws of chemistry are at work here, and those laws preclude the random association of atoms; chemical compounds form only in certain, specific ways, greatly favoring some compounds over others, depending upon conditions. The mistakes creationists make here are not just stupidity, they are high-handed stupidity. Almost all the variables operating in biogenesis and evolution are clearly nonrandom. Even in mutation there is some evidence that certain pathogens have a mutating mechanism in their DNA that is triggered by the presence of lethal conditions, i.e., they seem to be able to "mutate" their way out of a potential extinction.

The foregoing discussion is the very reason that some evolutionary biologists make a careful distinction between biogenesis and evolutionary theory. The latter *assumes* the existence of life in some rudimentary form and theorizes how it has diversified with time. In truth we scarcely have a clue how life might have begun; research in that area is in its infancy, and I don't think there will be much credibility to the theories until we are able to produce something like a self-replicating molecule in a laboratory setting. Creationists love to exploit the relative weakness of biogenesis hypotheses by including them with evolutionary theories to dilute evolutionary theory. This is a simple but effective logical fallacy (guilt-by-association), and it disturbs me that we so rarely call them on it.

Third, there is the matter of *pure* chance, yet another point on which few debaters confront their creationist opponents. Who says that chance is the *only* factor in the outcome of descent with modification? Certainly not evolutionists. In fact, I challenge anyone to find a *single* evolutionist who teaches that chance alone is the driving mechanism of evolution. Evolution has many, many factors operating other than chance. The laws of chemistry and physics are also at work here, and who in his right mind supposes that those laws operate by chance alone?

When discussions of probabilities arise, there is one last problem that I must address: *post hoc* ("after this") probabilities, those computed *after* the fact. Of all the nonsense analyzed in the foregoing, the crowning nonsense is the post-hoc probability. At a debate I attended I asked the audience to do some mental arithmetic estimates. I asked each to imagine the probability, starting before birth, that he or she would be there in San Jose, in that building in that specific seat at that precise time. Then I asked each to add to that incredible unlikelihood the fact that all the rest of the individuals had estimated a probability, and to now combine those probabilities to see the grand picture that had us together in time and space. This post-hoc probability is so minuscule that some unseen force could compel itself upon us as an explanation. The point is they were all there for a *reason*, not as a random event, so assuming randomness after the fact is reckless disregard for the truth. For another example, suppose, after having been dealt a bridge hand you decided to call the Guiness people because that hand has a probability of less than one in 653 billion. Your cardmates would think you mad. *Every* hand has that same (unlikely) probability, and it is only significant if you call the hand *before* the cards are dealt and then get that exact hand. Creationist's DNA probability computations are *post-hoc* probabilities. Post hoc, anything goes.

The opponents of evolution commit all of these errors, and they do it in spades. Let's see that we put a stop to it by painting their mistakes red with the fraud that they are.

(Ref.: James & James. *Mathematics Dictionary*. Van Nostrand, 1977) ❖

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Probability "computations" about the likelihood of a DNA molecule happening by "random chance" are dead in the starting gate because they assume, for example, that $H_2O$ is just as likely as $O_2H$.

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# TRACKING THOSE

## Ancient Dinosaurs from Alaska's North Slope

**W.A. Clemens**
**Dept. of Paleontology**
**University of California, Berkeley**

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The fossil excavator replies to distorted interpretations of his work

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"Fresh dinosaur bones found" trumpeted the misleading headline of a recent news release.[1] The author, Margaret Helder, Ph.D, science editor of "Reformed Perspective," was not describing the discovery of the fresh remains of last night's turkey or chicken dinner. This is a valid interpretation of the phrase "fresh dinosaur bones." These and other birds are now known to be closely related to ancient dinosaurian carnivores, such as *Tyrannosaurus rex*, and are properly recognized as a subgroup of the dinosaurs. Dr. Helder, however, was editorializing about the discovery of the **little modified** bones of duck-billed dinosaurs (hadrosaurs), ceratopsians (forms related to *Triceratops*), as well as several different kinds of carnivorous dinosaurs found in Alaska. There is a world of difference between the meanings of "fresh" and "little modified."

The bones of contention were found in rocks now exposed in the banks of the Colville River on the Alaskan North Slope just a few miles south of the Arctic Ocean. Dr. Helder's claim that these little modified bones from Alaska are "fresh" and demonstrate that dinosaurs (other than birds) lived only a few thousand years ago is based on a long-recognized false premise. The degree of modification of the remains of prehistoric animals is not directly and tightly correlated with their antiquity.

Preservation of bones of ancient animals is a complex process[2]. Although soft tissues decay rapidly after death of an individual, its bones, formed of the mineral hydroxyapatite, are relatively stable tissues. Discoveries of remarkably well preserved skeletons found deep within caves demonstrate that if protected from wind, rain, or chemical attack vertebrate bones can remain essentially unaltered for many tens of thousands of years.

Natural burial of an animals' skeleton, being covered by the mud deposited by a flooding river, for example, provides additional protection against destructive attack by the elements and opens the door for preservation of the bones by permineralization. Permineralization is the name given to a variety of processes that result in the deposition of minerals in cavities within ancient bones or, at the extreme, replacement of their hydroxyapatite structure by other minerals. It is the result of ground water percolating through the bone. Usually minerals in the ground water either simply stain or crystalize within porous areas of the bone. In some instances the original hydroxyapatite formed during the life of the animal is replaced by other minerals. Rarely this replacement appears to have occurred at a molecule by molecule basis so that images of minute passages or other structures of the bone are preserved.

The rate at which permineralization occurs depends on a variety of factors. The kinds and amounts of minerals in the ground water make a difference as does the rate at which this water percolates through the bone. Anyone who has the opportunity to collect fossils of the same age in different areas quickly realizes that the kinds and degrees of permineralization can very greatly. These differences reflect the different histories of ground water composition and circulation.

In 1961 Robert L. Liscomb, a geologist working for Shell Oil Company, discovered dinosaurian bones weathering out of rocks forming steep banks along the Colville River near a bluff called Ocean Point on the Alaskan North Slope[3]. Two geological formations are exposed in the cliffs along the river. The upper part of the cliffs are formed of sands and clays of the Gubik Formation that was formed during and just before the Ice Age (Pleistocene). Gubik sediments were deposited about a million or two million years ago. They contain the remains of a variety of different animals. Bones of mammoths are not uncommon.

The sands and clays of the Gubik were deposited on the eroded surface of the underlying Prince Creek Formation, which contains the remains of a variety of different kinds of dinosaurs. This eroded surface is evidence of a long period following deposition of the Prince Creek when either new sediments were not deposited or were deposited and subsequently destroyed by erosion. We now know that this eroded surface represents a gap in the rock record of more than 65 million years duration.

On the Alaskan North Slope the bones of Ice Age mammals and those of dinosaurs that lived over

# INCREDIBLE CREATIONISTS

65 million years earlier are roughly similar in mode of preservation. In both deposits the soft tissues of the animals' bodies have been lost by natural decay. The bones are stained a dark brown color, probably the result of iron compounds in the ground water. Otherwise the much younger mammalian bone and the dinosaur bone have been little modified. The conditions for rapid permineralization, an abundant supply of mineral-rich ground water, did not occur on the Alaskan North Slope. Although these bones are little modified they are long past what could be reasonably called a "fresh" condition.

Three lines of evidence establish the great antiquity, an age of some 70 million years, of the Alaskan dinosaurs. The kinds of dinosaurs found in Alaska are the same species or closely related to species found in Alberta and areas to the south. This resemblance allows the Alaskan dinosaurs to be fit into the history of evolution of the North American fauna that is much better documented at these lower latitudes. Likewise, the remains of plants found in the same rocks with the dinosaurs represent kinds that can be shown to have become extinct some 65 or more million years ago[4].

Finally, two kinds of radiometric age determinations, the so-called potassium-argon (K-Ar) and the argon-argon ($^{40}Ar/^{39}Ar$) methods, have been applied to volcanic ashes that were deposited during the time that dinosaurs lived on the North Slope. Both methods give concordant results indicating that these volcanic ashes were erupted some 70 million years ago when dinosaurs lived on the North Slope.

Paleontologically the exciting result of the discovery of dinosaur bones on the Alaskan North Slope is what it reveals about the levels of environmental tolerance of some species of dinosaurs. It clearly shows that dinosaurs were able to live at high latitudes, about 80° N. latitude, some 70 million years ago. At that time, the latest Cretaceous, the world's climates were much warmer. The associated fossil plants indicate the Alaskan North Slope had a cold temperate climate apparently characterized by winter frosts but not long periods of freezing. At least some species of dinosaurs were able to tolerate this cold environment as well as long periods of winter darkness.

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## Creationism at the Back Door

**John Cole**

In my own district's October election to fill a vacancy in the state House of Representatives, Democrat Steven Kulik defeated Republican Edmund Smith who had questioned the continued teaching of evolution in public schools. Kulik becomes the first Democrat elected in the district since early in the century. He had considerable Republican support—including losing opponents of Smith in the earlier primary election.

Smith had campaigned on a familiar religious right platform beyond the creationism issue. The *Daily Hampshire Gazette* (11/13/93) quoted a refreshing comment from the losing candidate. He said he got his views across to people pretty well, and they didn't buy them. "The truth of the matter is," Smith said after the election, "we don't represent the mainstream." Hats off to Smith who did not run as a stealth candidate and lost with grace rather than bitterness.

On the other hand, only about 22% of registered voters bothered to vote, and a more devious candidate could have exploited that level of apathy. ❖

# TRACKING THOSE

## Revenge of the "Mammal-like Reptiles"; or, Night of the Living Ancestors

**Kevin Padian**

One of the real coups you can pull in paleontology—and there aren't many fields left where you can do this on a regular basis—is to start a lecture with a premise that everybody agrees on, and at the end you pull out a new fossil that nobody has seen before that overturns everything that everyone knows. This is great fun for everyone, but the bigger fun comes later, when it comes time to resolve the mystery.

One such case happened at the 1990 meeting of the Society of Vertebrate Paleontology in Lawrence, Kansas. Dr. Richard Fox, an eminent paleo-mammalogist at the University of Alberta, unveiled a small toothed jaw that set the audience on its collective ear. It was not so much the features of the jaw itself—those were typical of a garden-variety mammalian relative from the Triassic. The only problem was that this jaw was found in the Paleocene, some 150 million years later. And that's where the problem began.

Dr. Fox is no slouch when it comes to early mammals; in fact, he's one of the world's experts. There was no question about the age of the deposits in which the tiny jaw was found. So how is it that a mammalian precursor could survive in the middle of North America for 150 million years and never be detected in the fossil record?

Dr. Fox (1992a) published a report on the unusual jaws in *Nature* along with Gordon P. Youzwyshyn and David W. Krause. The specimen has a strange mixture of characters of mammal relatives. The cheek teeth (molars and premolars) have a single roots, like the teeth of all non-mammals, but there are several cusps on the crowns, like the teeth of mammals and their relatives. Occasionally reptiles have several cusps on their teeth, but reptile jaws don't have large coronoid processes, like this jaw; that feature is only found in mammal relatives. The enamel is pseudoprismatic, a fairly general character in vertebrates, including many mammals. And the lower jaw has a series of bones that identify it as a mammal relative.

At this point, the paleontological community is collectively scratching its head over the puzzle (the new specimen was dubbed *Chronoperates paradoxus*, or 'paradoxical time-wanderer'). Either the identification is mistaken, or the jaw was washed in from an earlier sediment, or a group of mammal precursors survived a great deal later in time than anyone has suspected.

The new find has not escaped comment. Dr. Michael Novacek, Dean of Science at the American Museum of Natural History in New York, and a pre-eminent mammal paleontologist himself, commented in *Nature* (*ibid.*, p. 192) that the dentition showed only 'subtle' differences from those of Late Cretaceous symmetrodonts; still, the other features do not match up well. Why then, he asked, have so many small mammals been found from these Paleocene deposits without encountering anything like *Chronoperates* until now? Fox *et al.* suggested that the diversity of mammal relatives might have decreased drastically once mammals evolved, so we might not be likely to encounter them. Dr. Hans Sues, of the Royal Ontario Museum in Toronto, suggested in a later issue of *Nature* (1992) that the jaw and teeth were not like any non-mammal group, and that perhaps more material should be sought before a classification is attempted. Fox *et al.* (1992b) responded that neither they nor Sues could establish the taxon as mammalian, and rested on their earlier case that *Chronoperates* is a survivor of a lineage of mammalian precursors.

As Novacek noted, this kind of controversy is what sends paleontologists back to the field for a second look. However, there is a bit more to clarifying the terms of the debate. First is a matter of terminology. Fox *et al.* referred to their new find as a "mammal-like reptile," a conventional term from the days when every tetrapod was divided into amphibian, fish, reptile, or bird, every amniote that wasn't a bird or mammal was a reptile, and reptiles were supposed to have given rise to birds and mammals. Hence "mammal-like reptiles" were those reptiles that were on the road to being mammals, but not quite there yet.

The advent of cladistic terminology has changed this picture, and despite some initial confusion of terms, winds up making the whole picture clearer. The first tetrapods diverged into two major branches, one leading to am-

# INCREDIBLE CREATIONISTS

phibians and the other to amniotes (which evolved an amniote egg). From among a nexus of early amniotes, two major lineages diverged. One is the reptiles, which split successively into lines leading to turtles, lizards and snakes, crocodiles, and the dinosaurs; birds evolved from dinosaurs. The other lineage, called the synapsids, led to the mammals; but this lineage was never reptilian, so it is a misnomer to call any mammal relatives "mammal-like reptiles." (It's less confusing to call them synapsids.) The early synapsids included the familiar fin-back forms *Dimetrodon* and *Edaphosaurus*, often called reptiles in children's books or included in bags of plastic dinosaurs. Synapsids with more upright posture, shorter tails, bigger cheekbones, and more derived dentition are called therapsids, and it is from within this group that mammals evolved.

The first critters that have the common mammal features of multiple-rooted cheek teeth with several cusps, a jaw joint formed of the dentary and squamosal bones (rather than the articular and quadrate bones), and three small bones in the ear that used to be involved with the jaw joint, show up in the latest Triassic, about when the dinosaurs evolved. Representatives of the living groups of mammals, such as marsupials and placentals, are found several million years later, in the Jurassic Period. Most of the non-mammal groups disappeared by the end of the Jurassic, so the discovery of *Chronoperates* in the Paleocene, which postdates the Cretaceous, is a real surprise.

A second problem in resolving the *Chronoperates* question is that scientists are not in agreement on how to identify a mammal, especially in the fossil record. Living forms, even the platypus, have posed no problem for classification, at least since the 1840s. But many fossil forms have some, but not all, features of living mammals. So the question is, when is a mammal not a mammal? Some paleontologists suggest confining the term "mammal" to the living groups and all fossil forms that are descended from their most recent common ancestor. By this criterion, only legitimate monotremes, marsupials, and placentals would be included as mammals. This focuses the criterion on descent, not on the possession of any single feature or combination of features apart from those found in mammals today. Other proposed criteria focus on features or combinations of features, but these are more arbitrary to critics. Besides, when you find forms like *Chronoperates*, the definitions tend to destabilize. (A recent discussion of this problem by Spencer G. Lucas (1992) and Timothy Rowe and Jacques A. Gauthier (1992), in the journal *Systematic Biology* is a good summary; for other views, see Ahlberg [1993] and Forey [1993].)

So, the discovery of *Chronoperates* brings up some basic and fascinating questions. What is a mammal? How should we best define groups of organisms? How do we treat problematic fossils? And what does this new discovery mean? One thing it does not mean is that the whole world of paleo-mammalogy is turned upside down, and nothing is certain anymore. At most, we may find that a lineage of non-mammalian therapsids survived several million years longer than we thought. Or, it could be that this little critter turns out to be a mammal after all—maybe a weird one, or just a young one. Or, maybe it will turn out to be a wash-in from older sediments. Time may tell; it often does. However, one caution is not to make too much too soon from a single specimen. If there's something to this story, we should be finding more specimens of this odd little beast.

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**Kevin Padian is Professor of Integrative Biology and a curator at the Museum of Paleontology, University of California, Berkeley, CA and an NCSE Board Member.** ❖

❖

Synapsids led to the mammals; but this lineage was never reptilian, so it is a misnomer to call any mammal relatives "mammal-like reptiles."

❖

# TRACKING THOSE

## ICR's "Whale" of a Tale

**William Thwaites**
**Biology Department**
**San Diego State University**

❖

Whales may be one of the creationists' weakest cases

❖

In the past few years it seems that many *ICR Impact* articles have been religious, philosophical, or political in nature, even though they are advertised as scientific and technical. Of course there isn't any way to judge those articles as right or wrong in the light of science. They are just opinions, and most everyone has opinions about almost everything.

On the other hand, "When is a Whale a Whale?" (*Impact* 250, April 1994) by Duane Gish will definitely be one that Frank Awbrey and I can use in our course on creation and evolution. It is much like the early *Impact* articles in that it has the critical omissions, temporal slight-of-hand, non-sequiturs and illogical conclusions that we grew so fond of during the early days of our studies into creationism. Just off the top of my head, here are some of the critical omissions:

(1) Whales have four-chambered stomachs. Only ungulates and whales have such stomachs. The four-chambered stomach is a wonderful adaptation for an animal that lives on a high cellulose diet. It permits "chewing of the cud," a process that breaks down cell walls that would not be broken during normal chewing. Also a rich microbial culture can be maintained in the stomach. This allows the ungulate to take advantage of microbially-manufactured cellulase, thus deriving sugar from the otherwise indigestible cellulose. Modern cetaceans, on the other hand, never eat cellulose. Their diets consist of easily-digested proteins. There is no need whatsoever for the four-chambered stomach, yet there it is. It looks like a vestigial feature to us.

Creationists will just have to say that the stomach shape in whales must be there for some good reason that isn't immediately obvious and maybe someday someone will understand its purpose, and maybe not.

(2) Then there are vestigial hind "legs" that have been discovered in a few sperm whales. Most sperm whales get along famously without even a trace of hind legs. When the "legs" are found, they usually consist of only a bone or two. Often the "legs" don't even raise a bump on the outside of the body. These "legs" are not a very popular feature with sperm whales, and one can easily understand why. For one thing the "legs" are completely useless. The whales can neither swim nor walk with them. And the "legs" are literally a drag when they are so large as to cause protrusions on the outside of the body.

The "legs" certainly are not tumors the way Gish says human tails are. When found, the "legs" are on both sides of the body and some even have a recognizable femur, tibia, and fibula. Tumors, excepting teratomas, perhaps, are never that differentiated. Evolutionists think that these little "legs" are vestigial features. Creationists will just have to speculate that they are not really legs at all, but just features that some sperm whales have, the use of which will probably have to remain unknown. "God works in mysterious ways," they will sigh.

(3) Then there is the skull of a toothed baleen whale sitting down in the Natural History Museum in Balboa Park. I guess it has been described in the literature, at least briefly. This creature retained its teeth into adulthood, yet there is clear evidence that it also had baleen. This toothed baleen whale is just what any red-blooded evolutionist would expect as a transitional form between the toothed and baleen whales. In fact such an intermediate is almost certainly required for the switch.

For creationists the toothed baleen whale is just an extinct form that had both teeth and baleen. I think they're going to have to be quite creative when it comes to thinking of a good reason why the toothed baleen whale could not be another transitional form.

(4) And how about the fetal teeth that are reabsorbed before birth in modern baleen whales? The readership of "Students for Origins Research" tried to tackle this one. To Frank and me it seemed that the best reason anyone could come up with was that fetal whale jaws must need teeth for some reason that we don't understand yet. Apparently the creator just couldn't figure out how to make a jaw that didn't have teeth, at least while the jaw was part of a fetus.

The nasty godless evolutionist, the godless evolutionist, and the church-going evolutionist all regard these fetal teeth as vestigial features. If they are vestigial features, they are strong evidence for evolution. Whether or not they are vestigial features, they say nothing about the existence of God.

# INCREDIBLE CREATIONISTS

For temporal slight-of-hand, I think the *1955* quote from Colbert is a good example. There have been several significant discoveries of possible intermediates since that time. Whales no longer seem to be a group of related species that sort of pops up in the fossil record without apparent ancestry. Oh yes, there still are groups of organisms like the pterosaurs that still *seem* to appear "fully-formed" in the fossil record, but whales no longer are a good example of such a group. Creationists are making themselves look silly by continuing to push the whales as a group that has no obvious fossil ancestry relating it to other groups.

As far as non-sequiturs and illogical conclusions go, the whole article seems to be a good example. As I understand its thesis, Gish says that *Ambulocetus* could not have been a whale ancestor since it looks so intermediate and that it could not be an intermediate since it looks so much like a land-dwelling ungulate that was adapted for swimming! Also, the claim that *Ambulocetus* was related to the carnivores is completely unsubstantiated in the *Impact* article—what carnivore ever had feet that resembled hooves? To my mind, an ungulate that looks like it had feet adapted for swimming is a very good possibility for an intermediate between land-dwelling ungulates and whales. ❖

# Wall Street Journal Letter

**Eugenie C. Scott**

In his op-ed piece on professor Dean Kenyon's troubles at UCSF, Stephen C. Meyer exhibits serious misunderstandings of science, academic freedom, and the creation/evolution controversy. First, either life originated naturally or supernaturally. Science is limited to only natural explanations. Yes, theoreticians in this area rely on materialist explanations: they are doing science. Kenyon's teaching of "intelligent design" is indeed religion, not science. Further, if today we don't know all the steps involved in the origin of life, this doesn't mean we have to leap to a supernatural explanation, or to conclude that evolution didn't occur, which is Kenyon's message and why he is opposed by his chairman and other scientists.

Second, academic freedom also requires academic responsibility. The first responsibility is to students, who should get what they sign up for. In a biology class, students should be taught state of the art biology, not theology. Regardless of its luke-warm support in the general public, evolution is the foundation principle of biology and teaching that it didn't occur is equivalent to teaching flat-earth geography. It is not a violation of Kenyon's academic freedom to ask him to teach standard biology. In fact, he teaches his non-standard biology in upper division classes and in graduate seminars.

It is only in a freshman course, where students are least prepared to understand why Kenyon's ideas are wrong, that he is restricted. Doesn't sound too onerous to me.

What Kenyon is teaching, by his own admission and the testimony of students in the class, is a view of evolutionary theory exemplified in his book, *Of Pandas and People*, which presents "intelligent design theory," a mutation, so to speak, of scientific creationism which reflects the same religiously-inspired caricature of evolutionary theory and bad biology as its ancestor. Kenyon claims in Pandas that "two completely hybrid (*sic*) individuals could produce offspring exhibiting the complete range of possible skin colors," a statement breathtakingly ignorant of genetics, but "explaining" how the great range of human skin colors could arise from Noah and his family.

Students deserve better.

[Note: A slightly edited version was published by the *Wall Street Journal* 12/15/93 along with a letter from Thomas H. Jukes—and many supporters of Kenyon and the *WSJ* position.] ❖

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Armstrong, Karen. 1993. *A History of God; The 4000-year Quest of Judaism, Christianity and Islam.* NY: Knopf. 160 pp, illus. $27.50. Glowingly reviewed by theologian Harvey Cox; looks at similarities, common threads and tales, and eventual splits among the 3 faiths, and changing emphases on different parts of sacred texts.

Bernstein, Alan E. 1993. *The Formation of Hell; Death and Retribution in the Ancient and Early Christian Worlds.* Ithaca: Cornell University Press. 392 pp, $32.50. Like so much of "Old Time Religion," Hell barely appears in the Bible but has become a fairly recent obsession of some Christian sects. Is evolution ed the path to it, then?

Berta, Annalisa. 1994. What is a Whale? *Science* 263:180-181, 14 Jan. News article summarizing issues raised by Thewissen et al. re: whale evolution.

Brenner, S. 1994. The Ancient Molecule. Review of R. Gesteland and J. Atkins, eds., *The RNA World.* Cold Springs Harbor Press, 1993. In, *Nature* 367: 228-229. Technical book on earliest life theories.

Burney, David A. 1993. Recent Animal Extinctions: Recipes for Disaster. *American Scientist* 81(6):530-541. Climate and vegetation change, human hunting, and intro of exotic species have been major forces in prehistoric evolution.

Cavalli-Sforza, Luigi L., Paolo Menozzi, and Alberto Piazza. 1993. Demic Expansions and Human Evolution. *Science* 259:639-646. Modern human geographic range expanded rapidly in last 100,000 years; genetic as well as cultural remains trace the explosion. Technical.

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Crews, David. 1994. Animal Sexuality. *Scientific American* 270(1):108-115. A new framework for understanding the origin and evolution of sexuality. VIP for teachers' reference.

Deamer, David W., and Gail R. Fleischaker, eds. 1994. *Origins of Life: The Central Concepts.* NY: Jones and Bartlett Publishers. Pb reprint of 46 papers from 1908 to the present, with life dated to ca. 3.7 billion years ago but not yet definitively explained.

Dronamrju, Krishna H. 1993. *If I Am To Be Remembered: The Life and Times of Julian Huxley.* River Edge, NJ: World Scientific. xxiv+294 pp, + plates. $38. "An old fashioned biography."

Holton, Gerald. 1993. *Science and Antiscience.* Cambridge: Harvard University Press. 188 pp, $24.95. Controversial bk about antiscience as a "threat" to democracy; critics attack it as too smug or elitist about science virtues. **Available at discount from NCSE—See p. 22.**

Horodyski, R.J., and L.P. Knauth. 1994. Life on Land in the PreCambrian. *Science* 263: 494-498. Technical look at microfossils on land, 800-1,200 million years ago.

Kerr, Richard A. 1993. The Greatest Extinction Gets Greater. *Science* 262:1370-1371 (26 Nov). News article summary of D.H. Erwin's *The Great Paleocene Crisis: Life and Death in the Permian* (Columbia Univ. Press, 1993). 250 mya predators caused a bigger, more basic extinction wave than the paltry end of the age of dinosaurs.

Lemonick, Michael D. 1994. Human origins (cover story). *Time*, March 14, pp. 80-87. Is *Homo sapiens* older than thought in Asia? More than one origin out of common ancestry? Good "*Time*"-style treatment.

MacPhee, Donald G. 1993. Directed Evolution Reconsidered. *American Scientist* 81(6):554-561. What seemed a serious challenge to classical Darwinism may be as easily explained by facets of bacterial metabolic regulation.

Miller, Kenneth R. 1994. Life's Grand Design, *Technology Review* pp 24-33, Feb/March. NCSE Supporter Miller argues that seemingly perfect examples of "intelligent design" such as the human eye and the genetic code actually display many errors and more properly reflect the opportunistic forces of natural selection. **$1.00 + SASE from NCSE.**

1993 Science education publications from AAAS, published by Oxford University Press:

*Benchmarks for Scientific Literacy.* 448pp, pb. $21.95

*Science for All Americans.* 272pp, pb. $11.95

From bookstores or Oxford University Press, Dept EC, Madison Ave., NY, NY 10016

Nitecki, Matthew H., and Doris V. Nitecki, eds. 1993. *Evolutionary Ethics.* Albany: State University of New York Press. x+368 pp, hardcover. NP. From Huxley and Dewey to sociobiologists and their critics. Outstanding range and some excellent new studies. Incl. papers by NCSE's Ruse and Godfrey.

Noll, Mark A. 1993. The Scandal of the Evangelical Mind. *Christianity Today* 25 October, pp. 29-32. Theme is: evangelicals have al-

## *Kansas Biology Teacher* an Excellent Resource

We have just received vol. 4, No. 1 of *KBT*—this one featuring articles on issues of animal rights and biology teachers. Other topics are covered, as usual, including School Law and the Biology Teacher, evolution education, and useful book and periodical reviews.

This issue includes several pages of bibliography on the issues of animal rights, experimentation, etc.

Published by the Kansas Academy of Science, this is a refereed journal. [Truth in newsing says I should note that *KBT* reviews *Creation/Evolution* issues, often favorably, but hey! I can't blacklist publications with good taste!] *KBT* is a quarterly, $16/yr ($10 for students) from Box 4050, Emporia State University, 1200 Commercial St., Emporia, KS 66801-5087. ❖

# RESOURCES

ways founded colleges and campaigned as intellectuals until recent antievolutionism, etc.

Olson, Richard. 1993. *The Emergence of the Social Sciences, 1692-1792*. NY: Twayne. 230pp, NP. Good reviews; origins of ideas of progress and political evolution.

O'Neill, Luke, Michael Murphy, and Richard B. Gallagher. 1994. What Are We? Where Did We Come From? Where Are We Going? *Science* 263:181-183. News report on a Sept. Dublin meeting, "What is Life?"

Phelps, Daniel J. 1994. Review of D. Gish, *Dinosaurs by Design*. In *Skeptical Inquirer* 18(2):187-191, Winter. A very detailed review of Gish's 1992 book about the dinos and humans who lived alongside them. **Available from NCSE for $.50 and SASE.**

Plantinga, A. 1991. When Faith and Reason Clash: Evolution and the Bible. *Christian Scholar's Review* 21(1):8-32. Conservative Christian view, highly rec'd by M. Ruse.

Rachels, James. 1990. *Created from Animals: The Moral Implications of Darwinism*. NY: Oxford Univ Press. 224 pp, $22.95. Reviewed by E.C. Scott, *Journal of Human Evolution* 24(6): 508-510, 1993. **Review avail from NCSE for $.50+SASE.**

Renfrew, Colin. 1994. World Linguistic Diversity. *Scientific American* 270(1):116-123. More on the evolution of language, world population growth and movement, and genetic evidence—this time from a leading archaeologist.

Richards, Robert J. 1993. *The Meaning of Evolution*. Chicago: Univ of Chicago Press. Argues that Darwin was motivated by the doctrine of progress, contrary to most scholars of Darwin.

Ruse, Michael. 1993. Booknotes. *Biology and Philosophy* 8:353-358. Ruse reviews Numbers, NCSE's book of reviews, etc. and discusses his dismay at Phillip Johnson for misinterpreting his AAAS comments. **Available from NCSE for $1.00 + SASE**

Schaeffer, Frank. 1992. *Portofino*. NY: Macmillan. 248 pp, $15. Novel by son of leading Calvinist creationist, Frances Schaeffer, about growing up in a family like the author's. Good reviews.

Scharmann, Lawrence C. 1993. Teaching Evolution: Designing Successful Instruction. *The American Biology Teacher* 55(8):481-486. How-to ideas.

Schrock, Richard. 1994. *Biology Education Notes* No. 26. Biology and science ed in China. 16 pp; privately published "review of biological education and recent literature for colleagues." NP.

Shermer, Michael. 1993. How Do You Explain That? 25 Creationist Arguments and 25 Evolutionists' Answers. *Skeptic* 2(2): 23-29. A sort of primer for debaters.

Stafford, Tim. 1993. Move Over, ACLU. *Christianity Today* 37(12):20-24 (25 Oct). Review of the Rutherford Institute, American Center for Law and Justice, and National Legal Foundation, evangelical Christian challengers to the ACLU re: creationism, etc.

Sun International. 1993. Sun Pictures Responds to Ark Hoax. *Skeptic* 2(2):14-17. Sun producers stick by their claims re: CBS Arkeology.

Tear, Timothy H., J.M. Scott, P.H. Hayward, B. Griffith. 1993. Status and Prospects for Success of the Endangered Species Act: A Look at Recovery Plans. *Science* 262:976-977 (12 Nov).

Thewissen, J.G.M., S.T. Hussain, and M. Arif. 1994. Fossil Evidence for the Origin of Aquatic Locomotion in Archaeocete Whales. *Science* 263:210-212, 14 Jan. **Major** article on a favorite creationist theme—New discovery of "whale" fossils with functioning hind legs probably able to walk on land or swim.

Toumey, Christopher. 1993. Evolution and Secular Humanism. *Journal of the American Academy of Religion* 61(2):275-301. How do antievolutionists now use "secular humanism" as the late-20th C carrier of evil, and how does their traditional opposition to evolution fit in? **Available from NCSE for $1.50 and SASE.**

Turner, Michael S. 1993. Why Is the Temperature of the Universe 2.726 Kelvin? *Science* 262:861-866 (12 Nov). Clues to dark matter and the origin of the universe from the COBE probe.

*Wonder Science* is the publication of the American Chemical Society education division for kids from 6-12, and is a monthly publication mailed to home or school. Each issue is full of hands-on activities having to do with physical science. It is really good stuff. Write ACS, 1155 16th St. NW, Wash DC 20036. Call 1-800-333-9511.

# RESOURCES

Waters, C. Kenneth, and A. Van Helden, eds. 1993. *Julian Huxley: Biologist and Statesman of Science.* Houston: Rice University Press. xii+344pp. $32.50. Papers from a 1987 conference.

Wills, Christopher. 1993. *The Runaway Brain; the Evolution of Human Uniqueness.* NY: Basic Books. 320 pp, $25, illus. General evolution with emphasis on cognitive evolution; treats human evol as directional, which will dismay many.

Wood, Colin. 1986. Evolution of Man. *Mensa* July pp. 9-10. One of many pubs by Wood, an enthusiastic British Fortean antievolutionist from whom we hear regularly.

Wood, Colin. 1993. Illustrated Guide to Transitional Fossils. 2pp flier claiming there are no transitional fossils; NO illustrations—perhaps to make a point?! Available from the author at Mansion Cottage, Kenwood, Hampstead Lane, London NW3 7JR, UK. English antievolutionism.

*Young Environmentalist's Action.* Monthly newsletter for elementary school science classes. Global Response, P.O. Box 7490, Boulder, CO 80306-7490. English or Spanish. $9 donation, waived for low income. ❖

### Journal of Irreproducible Results

A mini-version of the *Journal of Irreproducible Results* is available free to computer buffs with access to electronic mail. To subscribe, send an e-mail message consisting only of the words "SUBSCRIBE MINI-JIR" followed by your name. Send this to listserv@mitvma.mit.edu or LISTSERV@MITVMA.

## Texas Textbook Wars Continue

This year the Texas textbook battle is over health education rather than evolution. In a pattern familiar to evolution advocates, guidelines had been established, books submitted, and hearings held—and the hearings then changed the rules of the game. Holt decided to forego the $7.5 million sale—about 8% of US sales (second only to California with 12%). Texas and California are among 22 states with statewide adoption policies. Other publishers said they would try to make the requested revisions.

The Texas Board of Education examined five books for statewide adoption and requested a total of 400 revisions. Typically, publishers in the past negotiated and ultimately agreed to make many changes in order not to lose the lucrative Texas market. This year, however, Holt, Rinehart and Winston, Inc. decided to withdraw its widely praised textbook rather than accede to demands from religious right organizations opposed to its treatment of sexual issues.

"Some of the mandated revisions are in opposition to the fundamental philosophy of our program and are potentially injurious to the students of Texas," wrote Holt president William A. Talkington, according to the *New York Times* (17 March 1994). Critics had objected to inclusion of information on birth control, abortion, sexually transmitted diseases, homosexuality, and self-examination for tumors, among other things. They also required inclusion of the text of Texas laws against sodomy. This would make *Holt Health* a Texas-only book, the publisher decided. ❖

## Correction, or Arkeoastronomy

Editorial condensing of "Dan Quayle on Noah's Ark?" (13(3):6) garbled one point and also mislabeled Carl Baugh's Glen Rose, TX museum: It is called the "Creation Evidences Museum," not the Glen Rose Ark Museum. More importantly, I confused the work of two very different humorists. Cartoonist Gary Larson's "Bozone Layer" was designed to protect the rest of the Universe from Earth's harmful effects, not Carl Baugh's pre-Flood ice canopy! Baugh said the ice canopy amplified the digitized symphonic music he claims is being beamed from the stars, and it provided a metallic hydrogen shell (from the hydrogen in the ice) which contained a hyperbaric atmosphere that caused plants, animals and humans to grow into giants.

I hope this scientific point is now clear. Thanks to Brad Corum for pointing this out! ❖

# KEEPING TABS

## NCSE at Illinois Science Meeting

**David Bloomberg**
**Chair, Rational Examination Association of Lincoln Land Springfield, IL**

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The majority of teachers we met seemed quite good—and concerned about the unscientific ones in their profession.

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On October 1st and 2nd, NCSE, REALL, the St. Louis Association for Teaching and Education (SLATE)—the Committee of Correspondence for Missouri and Southern Illinois, and Gateway Skeptics cosponsored a booth at the annual meeting of the Illinois Science Teachers Association (ISTA). The booth was staffed by Gateway Skeptics Chairman Steve Best, SLATE Director Ranse Traxler, and myself, the Chairman of REALL.

NCSE sent a great deal of literature to hand out or sell. Our hope in getting the booth was to inform science teachers of the problems with creationism and other anti-scientific beliefs in schools and to interest them in our organizations. Ranse Traxler also gave a presentation on anti-evolution activities in public schools.

All of the NCSE brochures were gobbled up by interested science teachers, along with some of the local groups' information sheets. In fact, several people signed up to get NCSE materials sent to them when we ran out and interest continued.

The ISTA formerly featured talks by creationists, but they have put together a resolution supporting evolution education and no longer allow such "equal time" talks. (In fact, Traxler's talk was almost rejected because he dealt with the subject). The creationist who had previously given a presentation to the ISTA was at the Traxler talk, as was an officer of the ISTA and a consultant to the Illinois State Board of Education who commended Traxler for his work and courage in speaking out against the unscientific behavior of some schools.

The majority of teachers we met seemed quite good—and concerned about the unscientific ones in their profession. Many of the attendants from larger cities simply couldn't believe this was still an issue. But those from rural areas knew it was, because they generally knew someone who was teaching creationism. Unfortunately the rural areas are unlikely to be exposed to scrutiny of scientists, unlike Peoria, for example, where Traxler and others were able to document creationist inroads. And unlike Vista, CA, they simply teach creationism without talking about it.

Happily, most of the people who came by and talked to us agreed that evolution needs to be taught and that creationism should not be. Some were going through controversies in their districts, and one woman told me she had actually quit her previous job because they required her to teach creationism.

Of course there were others there who thought we were all wet.

The most notable opponent we encountered was actually a representative from a scientific equipment company (microscopes, etc.) in the booth across from ours. It turns out that he is a Biblical literalist and friend of the Missouri creationists group. When he realized we were promoting evolution and attacking creationism, he came over and gave us a rather loud piece of his mind. He attacked us for trying to influence science teachers (by giving them scientific information?), and he confused the theory of evolution by suggesting it dealt with the rise of life from non-life, calling evolution "scientific gobbledygook" (this from a man selling scientific supplies for a living). He informed Steve Best and I that we are going to hell.

After a while he stormed back to his booth and seethed. A couple of hours later he came back and offered, "No hard feelings," and we shook hands. But then he proceeded to pound me more quietly with religious and philosophical topics which had nothing to do with evolution or science ("Do you accept Jesus Christ as your Lord and Savior? What are you going to do when you face God and he sends you to Hell for promoting evolution?," etc). Needless to say this was not the most fruitful discussion.

There were other creationist visitors to our booth. I think I impressed at least one of them by listening to what she had to say and trying to give her information rather than attacking her viewpoint. Apparently her father is a scientist who despises her outlook and merely ignores her whenever she tries to discuss creationism. She assumed that being for evolution meant being opposed to dialogue, and I showed that was not true. ❖

# KEEPING TABS

## Popper and Evolution

**Stephen G. Brush**
**Institute for Physical Science and Technology**
**University of Maryland at College Park**

In connection with the discussion of Karl Popper's philosophy of science (*Reports* 13(1) and 13(3)), it should be recalled that this philosophy played a small but significant role in the creation-evolution controversy in the early 1980s, and it is still used by anti-evolutionists a decade later.

Popper asserted that making testable (and thus potentially falsifiable) *predictions* of previously unobserved phenomena was a necessary condition for a theory to be called "scientific." This was known as the "falsifiability" criterion. Popper himself concluded that Darwinian evolutionary theory failed to satisfy that criterion so it was not a scientific theory but only a metaphysical research programme—a way of explaining what had already happened, not a theory that can predict what will happen in the future. There is an obvious flaw in the criterion, at least in the extreme version originally proposed by Popper: it excludes not just evolutionary biology but also historical geology and much of astronomy, even though these are recognized sciences. A more subtle objection is that even in testing theories that obviously are scientific, such as Einstein's general theory of relativity, scientists do not give any more weight to predictions of previously unknown phenomena (such as the bending of light by the Sun) than to deductions of known phenomena (such as the advance of the perihelion of Mercury).

Popper reversed himself in 1978 and asserted that Darwinian theory *is* scientific. But the damage had been done; creationists used Popper's original statement to argue that evolution is not a science and hence does not deserve precedence over creationism in the classroom. For example, in 1982 a proposed "equal-time" law in Maryland argued that "evolution-science like creation-science cannot be . . . logically falsified."

In a society where the word "science" implies reliable knowledge and the authority that goes with such knowledge, lots of people (especially including creationists) want to grab that label, and many of us feel a strong need for an objective test or formula to distinguish between science and nonscience. Popper's falsification criterion once seemed to be the answer, but it was too simplistic. I don't think there is a single test that can capture the multidimensional nature of real science. At the same time we can insist on several factors that should be involved in judging theories: internal coherence, compatibility with other accepted theories, agreement with empirical evidence, etc. A careful reading of Popper's works shows that he advocated such a multifactor approach when he wasn't discussing the falsifiability criterion which made him famous. (References for the statements mentioned here can be found in my article in *Science*, 1 December 1989.)

*Ed: C/E Issue VI, 1981, quotes Popper's "reversal" directly in "Misquoted Scientists Speak Out," by J. Cole.* ❖

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Popper reversed himself in 1978 and asserted that Darwinian theory *is* scientific.

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## Alaska SBE Contemplates "Equal Time"

**Eugenie C. Scott**

During November of 1993, the Alaska State Board of Education held hearings on whether to include creationism along with evolution in the state science curricuunder revision. We are happy to report that sanity prevailed and the SBE voted to include only evolution in the guidelines. The Science Subject Matter Standard, in fact, requires that students "Distinguish between the documented evidence of changing life forms over time and the proposed explanation for those changes (Evolution and Natural Selection.)"

It is amazing that in 1993, six years after the *Edwards v. Aguillard* Supreme Court decision, that a major government body could even contemplate such a thing. In *Edwards* the court declared that creationism (even the "scientific" variety in the law in question) was religion, and that to require it to be taught resulted in state support of religion. "Equal Time" laws have gone by the wayside, for the most part, replaced by more subtle arguments for the same thing via "Alternate theories" or opposition to "philosophic naturalism." ❖

# KEEPING TABS

## Richland, WA Report

**Earl Fleck**
**Department of Biology**
**Whitman College,**
**Walla Walla, WA**

Well, last evening was interesting. The school board for an adjacent city, Richland, Washington, is considering incorporation of scientific creationism as part of their science curriculum. Last night there was a presentation by the local creationist group to the science curriculum committee and to the general public.

A local physician lead off. He stated that evolution is not testable since it is not repeatable—the standard creationist treatment of evolution: since evolution isn't repeatable and "intelligent design" isn't repeatable, both should be taught as equally likely explanations. I'm really surprised that he used the terms "scientific creationism" and "intelligent design" since both have religious connotations and have recently been heartily critiqued. Never once did he mention *falsification*—the concept that ideas should be subjected to disproof. Further, he did not distinguish between evolution as a fact and the mechanisms of evolution.

Second up was a physical chemist in a polymer group at a local government lab. Very impressive credentials. He gave a sample mini-lesson to 15-16 year old high school students (10th graders in US). This lesson was supposed to be a neutral treatment of the origin of life from the abiotic world. The chemistry was brilliant, as one might expect; however, it was stacked. He explained the present information transfer system in cells (replication, transcription and translation) and then showed these processes in an eucaryotic cell. To cap this section of his mini-lesson, he estimated the probability of spontaneous assembly—of course, he came out with an extremely low probability,about $1/10^{120}$. I was astounded that this scientist, with such an impressive research background, could gloss over the problems with this type of analysis. He didn't even consider that the earliest information transfer systems would likely not be as complicated as present day ones (Remember ideas about an RNA world??). I was further astounded to see him include the eucaryotic cell as the final product of his instantaneous evolution model. Even, a physical chemist in polymer chemistry should have some comprehension that procaryotic cells preceded eucaryotic cells. However, it is clear that he recognized where the weak spots are in prebiotic origin of life theory. His take home lesson was that since there are so many holes in the scientific ideas about the prebiotic origin of life that intelligent design must be considered. He even used an analogy of an abandoned jeep deep in the jungle found by natives as the illustration of intelligent design (the intelligent watchmaker).

Third, and last, up was a local architect who demanded that the science curriculum include the following:

1. Avoid presentations on origins that state or imply the scientific issues are solved. (Reasonable-enough—teachers should stress that scientific knowledge is tentative.)

2. Present the intelligent-design concept in parallel to evolution. Main concept: the complexity of life appears to require some intelligent design.

3. Incorporate [several] non-religious supplemental materials. A few examples are: a. *Of Pandas and People* by Davis and Kenyon. b. *The Natural Limits of Biological Change* by Lester and Bohlin. c. *What is Creation Science? by Morris* (Henry Morris) and Gary Parker. 4. The architect also would be happy to supply in-service instruction for those teachers who are not comfortable with the teaching of creation-science.

These presentations took about 1½ hours, and there was about 45 minutes of response time. Some good responses came, although there was very little time to refute the misinformation presented.

All three original presenters, in the question period, felt convinced that the trend during the past century of taking the supernatural out of science (naturalistic philosophy) must be redressed.

Luckily, there were representatives of mainline scientists in the audience, the ACLU, and some very intelligent non-scientists. However, the bulk of the audience was hooting in support of the presenters. I was there on request of the National Center for Science Education, by the way. ❖

# KEEPING TABS

## Duane Gish and InterVarsity at Rutgers

**Richard Trott**
**Rutgers University**

On Monday, March 21, 1994 over 100 people came to hear ICR vice president Duane Gish on the Busch Campus of Rutgers University in New Jersey. The lecture was sponsored by Rutgers InterVarsity Chinese Christian Fellowship. Dr. Gish was touted in fliers for the event as "one of the world's leading experts on Scientific Creationism. Unfortunately, scientists have a lot to fear from the overly credulous victims of pseudoscientific sophistry.

None of Dr. Gish's supporters that evening seemed to notice the numerous times Gish contradicted himself by changing his position on a subject when it suited the needs of his argument. Occasionally, Gish's claims were laughable. He said, for example, that evolutionists "predicted" life on Mars. In other words, since there is no life on Mars, that's another strike against evolution on Earth. This is such an incredible grasp for straws that it deserves no comment. Gish claimed that anti-creationist books "don't say a word" about the origin of fishes. I found this assertion peculiar, so I looked in the best anti-creationist book available. Allow me to highly recommend Arthur N. Strahler's *Science and Earth History* to anyone interested in all the information that Gish likes to pretend doesn't exist. [**Available at discount from NCSE—See Centerfold.**] Glancing through the table of contents, I found "Chapter 42—Invertebrates to Vertebrates." Flipping to the appropriate page, there was a section on the evidence for evolution from invertebrates to jawless fishes. Before that, there was also a section on precursors to Cambrian metazoans, which Gish also told us had never been found.

Lest anyone think this was a simple case of a crackpot outsider coming to Rutgers for a one-shot lecture of ludicrous assertions, allow me to point out that Rutgers InterVarsity seems to have actively participated in this campaign of misinformation for Jesus' sake. Before the lecture, a pamphlet was distributed to the audience. The pamphlet appears to be untitled and there is no apparent author listed. However, "Rutgers InterVarsity Chinese Christian Fellowship" does appear on the pamphlet, and I will assume that they are at least indirectly responsible for the distribution of it.

The pamphlet is a classic pastiche of selective quotations and creationist nonsense. For example, it states, "The Second Law of Thermodynamics states that there is a general tendency of all observed systems to go from order to disorder." This is, of course, complete nonsense. The Second Law of Thermodynamics only applies to systems that are isolated and in thermal equilibrium. The pamphlet's drivel continues with, "A fundamental law of physics says that natural systems go from order to disorder; evolutionists say that these same systems will go from disorder to order." Again, I wish to point out that the Second Law of Thermodynamics only applies to isolated systems in thermal equilibrium, and evolution only applies to living systems. Living systems are not isolated systems in thermal equilibrium. Therefore, the systems that an evolutionary scientist talks about are not the same systems that the Second Law of Thermodynamics talks about. The author sums up with the outrageous claim that the "evolutionary hypothesis . . . contradicts one of the most well-established laws of science (the Second Law of Thermodynamics)." The fact that the creationist author of this idiocy knows nothing about thermodynamics doesn't keep him from trying to use it as evidence for the cause of creationism; unfortunately, this seems to be true of the typical "scientific" creationist's knowledge and attitude towards all fields of science❖

## Usborne Wimps Out?

**Eugenie C. Scott**

The Usborne publishing company, publishers of some excellent evolution references for children, seems to be following the lead of too many American publishers who feel the need to soft-pedal evolution. In a "product knowledge" information sheet from Usborne's American distributor, EDC, a "revamping" of the Picture World History Dinosaurs book states that the revised text presents "More neutral evolutionary slant (pg. 13): 'The way animals and plants slowly change . . . The idea that plants and animals slowly change . . . ' " Also, the publisher has added the following sentence "Some people disagree with Darwin's ideas about Evolution." We doubt they are discussing the controversy over gradualism vs. punctuation. It is regrettable that a good publisher feels it is necessary to pander to antievolutionists in order to sell books in the US. ❖

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Publisher goes "neutral" on evolution.

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# KEEPING TABS

## Ken Ham Leaves ICR—Mostly

**John Cole**

Australian creationist Ken Ham has resigned from the Institute for Creation Research to head his own ministry, ICR reports in January 1994. He will remain affiliated in some loose way as he strikes out on his own, joined by former ICR staffer Gary Parker and others with whom he was associated in his earlier Australian ministry. Aparently he will continue to work with ICR as time permits, perhaps cooperating on speaking arrangements, for example.

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Fire and brimstone evangelist moves on.

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Ham Joined ICR and rather quickly redefined that organization into a much more blatantly religious and "Religious Right" lobby. When Ham spoke or wrote, he was often as much interested in abortion and school prayer and homosexuality and other clearly religious and cultural arguments as he was in the supposed focus of ICR on an alternative "science" to substitute for evolution education (or the demand or equal time for the "other" theory). His aggressive leadership and outspokenness on such issues seemed to be redirecting ICR's publicly-acknowledged priority into an unabashedly religious category. Ham's zealous evangelism contrasted rather markedly with some "scientific" creationists' claim to be dissenting scholars rather than a religious lobby.

Even without Ham, ICR was always closely allied with what has become known as the "Religious Right," of course; ICR and Heritage College grew out of the work of co-founder Tim LaHaye, one of the most influential and least-known American ultra-conservatives (co-founder of the Moral Majority and other national organizations as well as the ICR, for example).

Minus Ham and his tabloid-style, unabashed religiosity, it will be interesting to see what public path ICR adopts next. A Hamless ICR will be dedicated to the same basic goals, but it is unclear whether there will be any serious changes. "Genesis Institutes" and other gatherings continue to combine Christian revival meeting hoopla with a claimed sudden gear shift into "objective science" and back again on a given weekend. Will it now be more subtle? Only time will tell, but the latest *Acts and Facts* seems to have Henry Morris taking up the fire and brimstone torch left behind by Ham. ❖

## "Charter Schools" in Mass.

In the wake of voucher plan defeats by voters in California, Colorado and elsewhere, Massachusetts has joined the ranks of seven states now licensing "Charter Schools." Fifteen have been approved for next year; three of these are contracts with the Edison Project, and 12 are local initiatives.

Hoping to increase public school quality by setting up competing systems, the idea is to allow a wide range of schooling philosophies to take flight. Administrators will be awarded the per-pupil average expenditure per year ($4,858 in Massachusetts, compared with the national average of $6,043). Several of the schools will be operated by colleges, and others are being founded by groups of teachers and parents. A retired admiral will head a Cape Cod school concentrating on the marine environment, for example, and an art-centered curriculum will be tried in Williamsburg with 35 K-4 students. Others will be "back-to-basics" in style, and at least one will be focused on family-wide social services in a low income housing project. Edison schools will add a month to the regular school year and an extra hour each day. State-wide, the experiment will enroll less than 1% of the student population, but officials hope to expand it drastically.

The Edison Project of Whittle Communications has had difficulty getting up and running after early fanfare. It had planned to start private schools using vouchers, but it is now turning to the idea of running otherwise public schools for profit.

Everyone concerned with education will be watching experiments in Massachusetts, California, Oregon, Colorado and elsewhere. On the one hand, there is wide frustration with existing schools. On the other hand there is also concern about the effect of privatizing public services by supporting selective schools, leaving public schools the problem students and older facilities. Charter schools will be required to meet basic state guidelines and for now, at least, they do not include religious schools. Governor Weld had earlier indicated he would like to contract with Edison to run all schools in the state. ❖

# KEEPING TABS

## More On Johnson

**Arthur M. Shapiro**
University of California-Davis, California

The new edition of Phillip Johnson's *Darwin on Trial* discusses Michael Ruse's controversial comments at the February 1993 AAAS symposium on "Nonliteralist anti-evolutionism," and proceeds to comment on my analysis of those remarks in these pages (NCSE *Reports*, Spring 1993, pp. 20-21). On p. 164 he pays me a backhanded compliment by saying "Shapiro's level of misunderstanding is far advanced over that of his many colleagues, who still parrot the 'self-justifying positivist propaganda about ultimate objectivity.'" Aside from the fact that this odd wording can be read as meaning I am *more* confused than my colleagues—I think he means *less*—it appears at the end of a paragraph that thoroughly misrepresents my position. Johnson does this in a lawyerly way, not attributing directly tome the position he caricatures, but associating it so intimately with my name that any but the most Jesuitical reader would assume it *was* mine.

For the record, then: Johnson says "Scientific naturalists [among whom, by clear implication, he counts me] insist, paradoxically, that the cosmos can be understood by a rational mind only if it was not created by a rational mind." Not only do I not insist upon this position, I don't know anyone at all who does. What is he talking about? Elsewhere in the same paragraph he says: "To theists . . . the concept of a supernatural Mind in whose image we are created is the essential metaphysical basis for our confidence that the cosmos is rational and to some extent understandable." I know people believe this, because it was the cornerstone of a debate position taken by conservative theologian Dr. Greg Bahnsen here on my own campus a few weeks ago.

How could a rational and predictable universe be *inconsistent* with intelligent design? The only constraint upon the putative Designer is that He, She or It be willing to set and then abide by the rules. Like the kings of ancient Babylon (read the Book of Daniel), our Designer, having decreed thus-and-so, must suspend His own omnipotence and let the consequences unroll. Intelligent design in a Deist sense ("God isn't dead; he just doesn't want to get involved") should be perfectly compatible with science, even if redundant or unnecessary by the parsimony criterion as committed materialists see it. Intelligent design by an activist, interventionist Designer who makes the sun stand still and turns people into pillars of salt is another story. To do science in the presence of such a Designer is to bet always against His/Her/Its whims.

The appeal to cosmic order as a demonstration of Divine Mind—the Bahnsen position, which seems to appeal to Johnson—is not the same as the classical "Design demands a Designer" or "watchmaker" argument, but it's related to it. The trouble with it (from where I sit) is that one would predict on evolutionary grounds—invoking no supernatural agency—that organisms, ourselves included, would perceive the Universe as orderly and predictable *if it is*—because only then could they function in it. That is, the fact that we (scientists, but also dogwood trees, mayflies and pussycats) perceive the Universe as orderly and generalize from experience tells us that the Universe probably is orderly, but tells us nothing at all about *why* it is. Once again, evolution duplicates the outcomes predicted from intelligent design, rendering the Designer logically unnecessary, but also not necessarily false.

The position I just articulated is called "evolutionary epistemology" (in one of the two senses the term is used), and the interested reader, including Phillip Johnson, is invited to read *Evolutionary Epistemology and its Implications for Humankind*, by Franz M. Wuketits (SUNY Press, 1990; ISBN 0-7914-0286-X) for a good overview of the subject. Evolutionary epistemology has traditionally been scorned by mainstream analytic philosophers precisely because it appears to reduce many of the traditional questions of philosophy to epiphenomena grounded in the evolutionary molding of nervous systems. It should make Johnson a tad more nervous. ❖

❖

Johnson unclear on evolutionary epistemology

❖

**Manny Sillman Still a Biologist**

We recently noted an NCSE award to Manny Sillman, identifying him as a physicist. He is now and has long been a biologist—and long-time Pennsylvania NCSE CC Liaison.

# KEEPING TABS

## Creationist Fundraising Phenom

**John Cole**

According to the November *Nonprofit Times*, in its annual list of top 100 fundraisers, #42 on the list is "Focus on the Family," the creationist evangelical organization led by Dr. James C. Dobson. Last year they were not even ranked. Their contributions totalled $68,894,869 this year.

Dobson, a televangelist, has been a frequent speaker at "scientific" creationist meetings and frequent "scientific" creationism advocate in his television and personal appearances. He has led numerous "crusades" against evolution education, and this is a major part of his newsletters and mass mail campaigns.

Also new to the rankings was "Campus Crusade for Christ," #21 with $147,904,000 in income. Campus Crusade has wandered in and out of the creationist camp, seldom making "scientific" creationism a big part of its crusade.

The 65th largest fundraiser, "The Navigators" of Colorado Springs, CO raised $46,630,000. It has been a very low profile, high-intensity evangelical college campus ministry often associated with rigid fundamentalist views, but, like Campus Crusade, it has kept a low profile on the creationism cause. Last year they ranked 79th.

NCSE did not, alas, make the top 100 list, because of a picky accounting detail—we only received a few thousand dollars, welcome and useful as they were, not the millions received by some of the opposition! Individual contributions and some small grants from foundations for specific projects, plus subscription/memberships, keep NCSE going. ❖

### Paul K. Feyerabend Dies

Philosopher Paul K. Feyerabend has died in Geneva at age 70. An emeritus professor at UC Berkeley, Feyerabend was initially a protege of Karl Popper. He soon developed a gadfly reputation, however, criticizing science and scientists for claiming to have any particular rationality or factuality for their claims. Science, he said, was a combination of propaganda, rhetoric, subterfuge, politics and conjecture. His radical views were adopted and cherished widely among anti-scientific movements and pseudoscientists who liked his argument that their techniques were no less scientific than mainstream scientists'. He also claimed that a good lawyer could devastate any scientific argument. These views did not endear him to the scientific community which did tend to acknowledge his point that science does not have all answers, as once almost literally claimed. ❖

## Bartz Fired at Bible-Science Association

❖

Bartz criticizes the B-SA for uncritically promoting Phillip Johnson's book, *Darwin on Trial.*

❖

We noted the change in direction at the *Bible-Science Newsletter* previously. Paul Bartz, former Executive Director and then Editor, had only a short devotional column left, we wrote. According to Bartz, he has no connection whatever with the B-SA; they are using a backlog of tapes and devotional columns. In a March 17th speech (*Christian News* 4/4/94), Bartz says he was fired in August 1993 by Executive Director Greg Hull.

Bartz accuses his old organization of promoting "Calvinism," now (the B-SA has always been closely aligned with a branch of the conservative Lutheran Church Missouri Synod). Furthermore, he accuses the association leadership with promoting "decision theology" (roughly, the idea that a person can make a "decision" to be saved rather than having it preordained by God). He accuses them of now defending young Earth claims with Dutch Reformed philosophy rather than Holy Scriptures. Bartz says the change apparently reflects Hull's belief that the Lutheran Church constitutes only a small part of B-SA support, although Bartz disagrees.

Of particular interest to *Reports* readers, Bartz criticizes the B-SA for uncritically promoting Phillip Johnson's book, *Darwin on Trial* which, he says, denies the linkage of sin with death and Adam. This "fatal flaw" led Bartz to refuse even to sell the book, let alone advertise or promote it as editor. "New management" is reaching out to a broader anti-evolution market, and the former editor bitterly regrets the move. ❖

# Discover the Galapagos Islands... in Darwin's footsteps... with NCSE!

**16-20 people can reserve places on a guided tour of the islands where the amazing wildlife Darwin observed crystallized his thoughts on his theory of evolution. The limited number of people allowed in NCSE's tour avoids ecologically-disruptive impacts upon local flora and fauna.**

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**For brochures and further information, write NCSE, P.O. Box 9477, Berkeley, CA 94709 or call (510)526-1674 or 1-800-290-6006.**

# NCSE NEWS

## Network Project News

### Molleen Matsumura

❖

US recognition of TRACS accrediting organization begun by ICR and Henry Morris.

❖

Since the last issue of *Reports* announced that I had joined NCSE's staff as Director of the Network Project, the Project itself has grown in several directions at once. The Project, originally funded by a grant from the Iowa Committee of Correspondence, began with mailings to a number of organizations that could be concerned about creationism, inviting them to work with NCSE. The fruits of this effort are ripening slowly and steadily; as organizations around the country encounter creationist challenges on their home grounds, they will remember hearing from us and call us for help. This kind of outreach is a long term project. We are continually identifying new organizations to approach, and new ways to work with old friends. Can you help? Yes! If you belong to an organization you think should be working with NCSE, let us know about them, or tell them about NCSE.

Meanwhile, the Network Project's scope has grown to include many other aspects of NCSE's work to "win friends and influence people." Our press release announcing the opening of NCSE's toll-free hotline has been widely re-printed. It's working! People are calling both to ask for help and to offer help, and I've been helping Genie Scott to advise people facing creationist challenges in their communities. True to the name of our project, this has often involved putting people in touch with individuals or organizations who can help them. Can you help? Yes! . . . A copy of the press release is included in this newsletter. Feel free to copy and use it where it will do the most good. For example, post it in a teachers' lunchroom, or share it with a sympathetic reporter at your local paper. And if you hear or read about a crisis in your community, call us yourself!

We've also been working with other organizations concerned about the status of TRACS, the Transnational Association of Christian Schools. TRACS is currently certified by the federal Department of Education as an agency that may accredit secondary schools and colleges; the certification was originally granted against the recommendations of Department of Education staff. Not only is NCSE planning to submit comments for the public hearings reviewing TRACS' certification, but we will keep other organizations informed.

The newest offshoot of the Network Project is the FAQS project. The more people hear about NCSE, the more they turn to us for answers to creationist "arguments against evolution." The list of tricky arguments and pseudo-facts grows every day, and we need to put people together with answers in coordinated fashion. Can you help? Yes! . . . Read the accompanying story on "FAQS Facts" (p. 40) and send us your suggestions.

This is a small sample of what I've been doing, and like everything else at NCSE, the Network Project is sure to grow and change in the months ahead. Project News will be a regular feature of *Reports* and in each issue. Besides letting you know what I've been doing, I'll try to suggest at least one new way that NCSE members can help out.

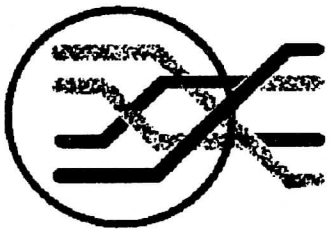
Remember that networking is easier than ever now that NCSE has gone electronic. We've joined everybody's favorite net, the Internet. Those of you who have Internet access can send us e-mail at ncse@crl.com (note: entire address must be lower case). ❖

## Sagan Honored

NCSE Supporter Carl Sagan has been voted the National Academy of Sciences' 1994 Public Welfare Medal. The NAS chose Sagan for the honor because of his preeminence as a scholar promoting public understanding of science. "Sagan's name may be associated more with science than that of any other living US scientist."

Sagan illustrates the bizarre dilemma faced by many NCSE members—His peers recognize him as a remarkably productive scholar and teacher, but he has been an enthusiastic popularizer of science, as well. HORRORS!

Last year, Sagan was nominated for NAS membership and was supported emphatically by his fellow astronomers, but some NAS members subsequently managed to derail his nomination. The only interpretation possible was that a few "gatekeepers" blackballed him, because a search of publications, citations, student sponsorship, etc. demonstrate his effectiveness as a scholar. This NAS honor would seem to be a well-deserved recognition, perhaps also in reaction to last year's embarrassment for the academy. ❖



The National Center for Science Education, Inc.
1328 6th Street
Berkeley, CA 94710-1404

**For Immediate Release**

*Dateline:* *Contact: Dr. Eugenie Scott 510-526-1674*

# Hotline to Defend Evolution Established: 1-800-290-6006

The National Center for Science Education has installed a toll-free 'Hotline" -- 1-800-290-6006 -- to help teachers, school boards, parents, and interested citizens cope with pressure against the teaching of evolution or pressure for the teaching of creationism. NCSE is a nonprofit organization of scientists and teachers and a clearing-house for information on the creation/evolution controversy.

"Calls for information have increased steadily over the last two years, so it is clear that there is a need out there that still has to be met," said Dr. Eugenie C. Scott, Executive Director of NCSE. "With the 800 number, it will be easier for people to get the help they need."

Since the 1987 Supreme Court decision (*Edwards v. Aguillard*) prohibiting laws requiring the teaching of creationism when evolution is taught, "Neo-creationism has evolved", says Scott. "Now in addition to regular creationism, we have euphemisms like 'intelligent design theory' and 'abrupt appearance theory.' We also hear teachers being directed to teach 'weaknesses in evolution', which makes about as much sense as teaching 'weaknesses in spherical-earth theory.' In content, these euphemisms are identical to what the Supreme Court outlawed in 1987."

Teachers themselves are the targets of tremendous pressure. "Responsible science teachers want to teach evolution as a matter of professional integrity," Scott explains, "but many are inhibited because principals and superintendents don't back them up when they face pressure from parents." One teacher who called the "Hotline" told Scott that he is a certified science teacher, but because his principal disapproves of teaching about evolution, he was assigned fewer science classes than other teachers with less training. Another teacher told her that when a committee of teachers in his district split over the choice of what science books to use, they adopted the one that downplayed evolution, because then they wouldn't have to cope with complaints from parents.

"This problem isn't always on the front page, but it's always there at the local level," Scott added. "If chemistry teachers weren't allowed to teach the periodic table, it would be a scandal. Not allowing biology teachers to teach evolution is just as basic."

NCSE has been helping combat challenges to evolution education for over a decade, advising and coordinating efforts of concerned citizens and providing a clearing house for information on scientific, legal, and educational aspects of the controversy. With the toll-free number, NCSE can help more teachers and, hopefully, find ways to solve problems before they become full-blown crises. "Our hotline number, 1-800-290-6006, should be on every bulletin board in every teachers' lounge and superintendent's office in the country," Scott said. "Then we'll have a fighting chance of guaranteeing good science education."

# NCSE NEWS

## NCSE Makes Impact at AAAS Annual Meeting

**Yves Barbero**
**Editor of the California Committees of Correspondence newsletter $C^3$**

❖

St. Augustine thought searching for science in the Bible was "blasphemous."

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It was standing room only as Berkeley paleontologist (and NCSE Board Member) Kevin Padian introduced the four speakers who filled a Sunday afternoon with information around the theme of "Anti-Science and Anti-Evolution." The symposium had been organized by Eugenie C. Scott, executive director of the National Center for Science Education.

This conference was sponsored by the NCSE on February 20th in San Francisco, under the auspices of the American Association for the Advancement of Science. Following the previous day's "Origins" session and that morning's "Current State of Origins of Life Research," the meeting was so well attended that a larger room had to be obtained to accommodate the many interested scholars. Kevin Padian, Integrative Biology Professor at the University of California, Berkeley, in his address, "The Triumph of the Creationist Method," pointed out that creationists often use science's multidisciplinary approach to evolution to pick and choose among the many facts and theories in an attempt to confuse and draw out "constrictions." He offered a thumb-nail sketch of their tactics. After their failure to formally ban evolution, creationists attempted to get "equal time." The courts, firmly rejecting this, were next offered the novel theory that evolution was some sort of "religion of secularism." The latest assault against good science is the so-called theory of "intelligent design" popular two centuries ago.

On the practical level, Padian pointed out that creationists are increasingly working at the local school board level, where they enjoying many successes. The issue, he emphasized, is one of "academic quality," not censorship. Science education "modules" are an increasingly popular curriculum device where teachers get a big kit (the size of a TV set) on "magnetism," "the solar system and you," and the like. Unfortunately, this compartmentalization divides rather than unifies science. And it offers an easy out for a teacher or school to quietly ignore the evolution module; after all, only a few of the boxes can be opened in a semester, right? students don't see the integration of evolution with the rest of science, in any case.

Francisco Ayala, Donald Bren Professor of Ecology and Evolutionary biology at the University of California, Irvine, and president of the AAAS, as an NCSE Supporter and former priest has long been an opponent of teaching creationism in the guise of science. He testified as an expert witness in the 1981 Arkansas trial over a law requiring equal time for "creation science" in public schools. His talk, "Evolution and Bible: What is the conflict?," was a historical survey of religious notions about origins. Ayala suggested that the purported conflict between the Bible and Darwinism has no basis in the traditional Christian interpretation of the Bible. Saint Augustine, for example, concluded that no boat could be built large enough to accommodate two of each species, so the Church father concluded that at the time of Noah, not all species existed, "and some evolved later from pre-existing ones." Thomas Aquinas, he added, had no problem with "spontaneous generation" beyond the first six days. Aquinas apparently thought it was the job of science to discover how these things would come about.

I remember two particularly memorable parts of his talk. "The Bible teaches us how to go to heaven, not how the heavens were made," according to Pope John Paul II, and St. Augustine thought searching for science in the Bible was "blasphemous."

Bernard Ortiz de Montellano, Wayne State Anthropology Professor, discussed "Evolution and Multiculturalism." He argued that all people have cosmological myths as part of their religious heritage. "Problems arise when claims are made by their proponents that these beliefs can be proven scientifically, as in the case of 'scientific creationism.'" He supported this with a number of other examples, including an interesting reversal of White supremacy, some aspects of "Afrocentrism," which claim skin color, the darker a person is, is an indication of virtue, or of being a superior human. The scientific-sounding claim is that intelligence can be measured by the amount of melanin in the skin.

# NCSE NEWS

Melanin has extraordinary properties, and confers great power on people with a large amount of it, according to this "scientific" theory.

Ortiz de Montellano, a leader in the organization of Hispanic and Native American Scholars, stated that in this age of science, many cultural myths look for validation by science despite the fact that science is not equipped to prove or disprove such notions.

Norman Levitt is a professor of mathematics at Rutgers University. He is the author of *Higher Superstition: The Academic Left and its Quarrels with Science*, Johns Hopkins University Press. In his lecture, "Bewilderment and hostility in the postmodern attitude toward science," he chided the easy acceptance by many academics of almost any theory advanced by minorities or cultural interests as somehow being scientific.

Levitt is a clear proponent of the view that science should at least attempt to rise above cultural concerns and that facts exist whatever the cultural context, and that interpretation of scientific data should not be filtered by partisan ideas.

"Postmodernism has many roots and is kaleidoscopic in its manifestations . . . There is a high degree of philosophical skepticism and epistemological relativism, conjoined with the notion that knowledge is 'socially constructed' by the mores and expectations of the culture," said Levitt. "Thus, 'knowledge,' it is often claimed, is a mode of social authority, a means by which an elite legitimizes and befuddles its underlings. Moreover, it is assumed that the major factors dictating this 'construction of knowledge' deeply involve such categories as gender and race, as well as economic class. Thus, Western culture (and therefore, its appendage 'Western' science) is seen as a particular local historical formation, with no timeless claim to validity, that is destined to slip from its position of dominance rather soon."

Eugenie C. Scott suggested that anti-evolution is a "canary in the mineshaft," alluding to the way canaries were used to indicate gas leaks in mines. The fumes may be getting evolution now, but the rest of science is also vulnerable. Most " . . . critics of science and evolution criticize from a serious lack of understanding of how science works, as well as from a lack of some of the basic understandings of the natural world that science has bought us." She went on to say that evolution is viewed as dangerous, even menacing, by some of these recent critics. "For philosophical reasons, or to achieve social and political goals, these critics distort both the nature of science as an intellectual enterprise, and evolution as a scientific principle."

Scott concluded, "The next generation of scientists is being exposed to these ideas, but more importantly, so too is the next generation of voting, technology-using citizens. As science is largely dependent upon society for its support, it behooves scientists to take these challenges seriously, and strive first to understand them, and then counter them with accurate information on the nature of science and evolution." ❖

❖

Anti-evolution is a "canary in the mineshaft."

❖

## Lemur Evolution Grant to NCSE's Godfrey

Board member Laurie Godfrey, professor of anthropology at the University of Massachusetts at Amherst, has been awarded a National Science Foundation research and travel grant, "Dental Development in Fossil Lemurs: Phylogenetic and Ecological Interpretations." During the 1994-1995 grant year she will be Visiting Professor at SUNY-Stonybrook, teaching one course there in the spring but otherwise devoting her time to the grant-sponsored research which will include work at various laboratories and museums and travel to Europe and Madagascar.

Congratulations! ❖

*If my theory of relativity is proven successful, Germany will claim me as a German and France will declare that I am a citizen of the world. Should my theory prove unture, France will say that I am a German, and Germany will declare that I am a Jew.*

*—Albert Einstein*

# NCSE NEWS

## E-Mail for NCSE

**John Cole**

NCSE is increasingly online for computer fans. We have already joined Cleveland FreeNet, where back issues, indices, etc. are posted.

Now the national office is online at

**ncse@crl.com**
And your editor is online at
**jrc@tei.umass.edu,**
as before.

I (JRC) still cannot receive long ms. very well—I cannot yet transfer major files, but I can receive letters, questions, short items.... My "day job" is not NCSE, so I cannot always respond rapidly, and I do not have home computer communication capability because of my non-digital quality party-line.

Neither of these online addresses is a bulletin board or instantly interactive locale, so responses will not be instantaneous or "chat" mode. Communiques should be in ASCII, DOS format.

In case you have no idea what the above sentences are about, don't worry—NCSE will continue to operate via "snail mail" (post office, etc.), phones, personal interactions, printed newsletters and journals, etc., showing up to argue when we need to, etc. But we are also moving along with the technological revolution in order to counter the rather bizarre creationist "back to basics" movement attacking the bases of modern science (skepticism, for example!) using computer technology! A handful of creationist techies are miles ahead of evolutionists in using computer information technology to push their message; we are on the case and not conceding any ground.

Suggestions are strongly solicited—How can we best counter creationists's efforts to dominate the electronic information highway? How do we do it—and how do we pay for it?

Individual responses to myriad computer bulletin board or e-mail arguments must continue, but how can we respond in a more organized fashion, reaching millions, not just accidental tune-ins to obscure electronic messages—which then get quoted to school boards or publishers? ❖

❖

Let us know the questions and arguments you hear most often.

❖

## Help Wanted: FAQS Facts

**Molleen Matsumura**
**Director, NCSE Network/CC Project, Berkeley**

Readers who like to play with computer programs or on computer bulletin boards are familiar with the acronym "FAQS." It stands for "Frequently Asked Questions." We get plenty of those at NCSE, and when we do, of course we want to answer them with the straight facts.

Questions come from many directions: On one day, a letter arrives from a science teacher who attends a creationist lecture to hear what her students are hearing. She hears a hail of miscellaneous factoids and criticisms, from the claim that there ought to be more dust on the moon to the assertion that *Archaeopteryx* co-existed with true birds. How, she wants to know, will she answer them all? On another day, it's a bulletin board message asking, "I was debating a creationist who wanted to know how chromosome counts could change in the course of evolution, and I didn't have the answer. What is it?" NCSE needs to start a library of FAQS Facts—a set of information sheets and uploadable text files to share with every supporter who needs to answer confusing questions with hard facts. Some of these will be featured from time to time in *NCSE Reports*.

Please help us get started. Let us know the questions and arguments you hear most often. If you've developed some effective standard answers, send those too, and we'll collate them with other answers.

Go electronic, if possible, and send your answers as text files on DOS compatible diskettes, or by e-mail to ncse@crl.com (note — address is case-sensitive; type as you see it here).

In an impossibly short amount of time, quicker than a whirlwind assembling a B-52 airplane in a junkyard, we'll try to have the definitive library of FAQS Facts (subject to revision, of course, like everything else in science)!?? ❖

# NCSE NEWS

## NCSE Offers New Service

### Jack Friedman

There are always times when someone needs to be remembered. Whether it's a graduation, promotion, get well wishes, or any congratulatory message that you want sent, NCSE can provide you with a choice demononstrating your good wishes which has no calories, won't wilt in a day or two and will keep on being useful long after batteries might wear out. Also, sometimes when a friend or acquaintance dies and you wish to express condolences, you may want to do something more meaningful than send flowers. NCSE offers a service to help.

A contribution to NCSE can be a useful salute to whomever you wish to honor.

Let us know, and we will notify the designated person or family that you have sent a gift to NCSE in their name. We will also send you a receipt for your records to show the matter was handled promptly. A donation envelope is enclosed with this issue of *Reports*. If you don't need it this month, stash it away and use it soon.

Many people appreciate a contribution made to an intellectual and academic cause rather than spent on ritual flowers or candy. In addition, it is an opportunity for *you* to support science education.

And all donations are tax-deductible.

If you have any questions or would like more donation envelopes, please call me at (516) 921-5522. ❖

### NCSE's 800 "Hotline"

Now NCSE has an 800 number that people needing information on the creation/evolution controversy can call.

The NCSE "Hotline" is

**1–800–290–6006**

The 800 number should make it easier for teachers and parents to contact us for help, and it also makes it easier for NCSE members to renew their memberships and purchase books and other materials conveniently. (It is not free, though—your "self-subsidized" calls to 510–526–1674 are also appreciated.)

## Florida Creationist to ICR?

### Eugenie C. Scott

Pensacola, Florida creation evangelist Kent Hovind spoke recently in San Diego. Rumor has it he is "interviewing" for the Institute for Creation Research job formerly held by Ken Ham. Ham was the driving force behind the ICR's "Back to Genesis" programs, during which the creation science "message" reached hundreds of thousands of citizens over the last few years. Ham has recently left ICR to found his own ministry (see related story, page 32).

Hovind and I appeared on a radio call-in program in November 1993. According to his information sheet, he holds a Bachelor of Religious Education from Midwestern Baptist College in Pontiac, MI. He also claims a Masters and Ph.D. in education, but does not list the institutions. He is a staunch young-earther, and he repeats most of the familiar arguments. He offers $10,000 to anyone who can offer empirical evidence that evolution has taken place.

Hovind has appeared in the pages of *NCSE Reports* in a story written by John Cole(13(2):9). We reported on a *Peoria Journal Star* article wherein Hovind stated he was preparing to debate Stephen Jay Gould. When contacted, Gould denied any knowledge of this event. Confronted with this information, Hovind apologized to Gould, explaining that he had been misinformed by a contact in Massachusetts who claimed to have arranged such a debate. Hovind has not claimed any more upcoming debates with Gould. Case closed. ❖

*Huxley said, "life is too short to occupy oneself with slaying of the slain more than once."*

# LETTERS

### Bible Answer Man

Correspondent Frank Steiger cites the Christian Research Institute as a powerful opponent of science and reason (*Reports* 12(4):7, 1992). It was not always so. The original "Bible Answer Man," Walter Martin, concentrated on theology, citing Scripture against claims of a common Christian heritage by what he called "non-Christian cults." After Martin's death in the late 1980s, his successor Hank Hanegraff has pushed CRI into politics and dubious "science."

Hugh C. Cunningham
Sommerville, MA

### Other Creationists

As a public school teacher and evangelical Christian, I have been interested for some time in the evolution-creation debate. Wanting both sides of the issue, I subscribed some months ago to *NCSE Reports* and have read 3 or 4 of them. Correct me if I'm wrong, but it seems that the evolutionist's primary (seems like only) target is the young-earth "pseudo-science" of creationists. I too believe these arguments are foolish and unnecessary. If God wrote the Bible and created the Earth, then an honest investigation of each ought to reveal the hand of the Creator. The problem is that creationists and evolutionists alike start with presuppositions and then marshall facts to support them. True investigation should [do] the reverse.

My question is, why don't I read much about old-earth creationists—especially the brilliant scientist Hugh Ross and his prodigious output of factual support for creation? Or agnostic scientists such as Michael Denton and his *Evolution, a Theory in Crisis*. These men offer profound arguments that cannot be ridiculed. Why don't you follow them around and critique their arguments? Is the goal of evolutionists simply to advance their beliefs or to get at the truth? I think the evolutionist community is justified in ridiculing the young-earth theory but remiss in not tackling head-on these other valid arguments.

Greg Switzer

*Ed: We do track other "creationist" ideas, but NCSE is more concerned with the "young-Earthers" who want to take over science classrooms, unlike (usually) the "old-Earth" or theistic evolutionists/creationists; NCSE is not in the theology biz. A review of "Krsna Creationism" is forthcoming, for example.*

### Anti-private school?

I am disturbed by your apparent wholesale opposition to voucher systems and the privatization of public education. While proposals that include religious schools in voucher systems are unconstitutional, and deserve to be defeated, don't throw the baby out with the bath water. Private secular schools do a fine job of teaching evolution as well as the three R's. I wonder if paleontologist Stephen Jay Gould (a Marxist, incidentally) thinks that his students at Harvard are getting a bad education because they are going to a private school. The quality of education at our public schools is very uneven and too often abysmal. Privatization could serve the purposes of NCSE, but less so if the only people crafting voucher plans are those trying to subsidize religious schools. If we equate private schools with parochial schools, then night mares of fundamentalist religious schools living on public funds may become a self-fulfilling prophecy. NCSE has better things to take aim at than private education.

Mark Hoadley
Johnstown, PA

*Ed: Several articles have been critical of voucher plans which would subsidize religious education and schools without sound science curricula, not all private schools. There is a second issue, however, in that NCSE writers have indeed tended to support the concept of the "common school" and the need to avoid turning public schools into repositories for people who cannot get into private schools because of handicap, poverty, etc.*

### More Ammo, Please

I do love *NCSE Reports*. The layout is professional and eye-grabbing. The news bits and comments on creationist activities is a favorite part.

One thing I miss, however: the old *Newsletter* provided more in the way of ammunition to those who battle creationism in the trenches—in classrooms, newspapers, computer nets.

Let's have more of the old point-counterpoint. I hope *NCSE Reports* will try to outline and respond to more of those creationist arguments. And not just the shopworn chestnuts about fossil gaps, thermodynamics or lunar dust. Break new ground.

What about creationist astrophysics, for example? A friend sent a video of Dr. Kent E. Hovind, an especially slick creationist propagandist. Arguing for a young solar system, Dr. Hovind disputed the mainstream (accreted nebula) theory, making much of how Sol rotates contrary to all the planetary orbits, violating conservation of angular momentum. Intriguing. As a non-astrophysicist, I have no way to respond. Is it even true? None of my references either confirm or deny it.

Likewise, a creationist friend once argued that galactic arms would not exist in an old universe. The outer stars of a spiral galaxy move more slowly, or course, so the system should smooth itself within a few rotations. At the time, the argument seemed devastating. Years later, in a private correspondence, Frank Sonleitner explained how galactic spirals are unconnected to particular stars, and seem to be caused by gravitational shock waves rippling through the disc. Better. But I am not entirely clear on the process,a nd would be happy to see an article about it for the layman.

In closing, I encourage your writers to examine and

# LETTERS

respond to a wider variety of creationist arguments. In fact, I would love to see a regular column that explores and dissects a few of these each issue. It would make for lively reading, and help me immeasurably, in this ongoing battle.

Kenneth E. Nahigian
Sacramento, CA

*Ed: You're right about the need to counter specific creationist claims. This was the goal of the "Tracking..." column which may have strayed from this goal, growing too long and verbose for some purposes. C/E tackles the "long" issues, but beginning with the next Reports we plan to include a short Q&A approach to questions. Astronomer David Morrison and others have volunteered to help. We'll try to answer specific questions briefly—which means we need questions as well as people willing to answer a bit more a la Ann Landers than Nature! C/E will remain the more detailed and footnoted, analytical forum, but there are a lot of things which do not need a journal article as a response. On a very simple level, I get questions such as "Has anyone researched X," or "What measurements relate to Polonium?"*

So stay tuned—and send questions!! ❖

## Vista, CA, Update

**Eugenie C. Scott**

Vista, CA, the "poster child" school district for religious right take-overs (see *Reports* 13(2):1,) made the news again in March, as its school board voted in the usual fashion to adopt an abstinence-based sex education program that has heavy religious overtones. "Sex Respect" is already under legal challenge in neighboring districts. The Vista school board majority also voted to replace its staff attorney with one from the Rutherford Institute, an organization active in defending anti-abortionists and other conservative causes.

The attraction of having a conservative lawyer represent the district is clear: there is much case law against the teaching of religious creationism or creation science. Lawyers would normally advise a school board to avoid becoming entangled in creation-evolution cases on the grounds that the district would have to spend a great deal of money (as is true of virtually all legal cases) and would inevitably lose. Lawyers for religious-right oriented organizations such as the Rutherford Institute, the American Center for Law and Justice, and/or the national Legal Foundation are more willing to take cases of this sort and argue them. NCSE has run into this "call a new lawyer" argument in other areas, notably Tangipahoa school district in Louisiana (see p. 4). This seems like a good way for a district to waste ever-decreasing resources that could be better spent for the education of children.

The board has also approved a course in comparative religion, but John Tyndall, accountant at the Institute for Creation Research, proposed that secular humanism be taught as a religion. This provision was voted down. Citizens of Vista attempted to accumulate enough signatures on a petition to recall the three religious-right board members, but did not acquire sufficient numbers before the deadline for the spring election. They are continuing to collect signatures until this fall, when a normally-scheduled election will be held. Conservative board president Deidre Holliday is up for reelection anyway, and the plan is to try to recall the other two thirds of the new majority. ❖

## Crank Letters

A professor at MIT has devised a foolproof way to handle crank letters. One day he received a communication from crank #1 which contained what purported to be a scheme for trisecting the angle. Several days later he received a communication from crank #2 containing a scheme for solving Fermat's last theorem.

He replied to Crank #2: "Thank you for your interesting recent communication. However, I am far from being an authority in this area. You should contact the following person, who has much more expertise than I." He then listed the address and name of Crank #1.

Anonymous Internet message from "Jet Wimp," Dept. Math. Comp. Sci. Drexel University.

## Naked Ape Theory

According to a UPI report, a Texas supermarket chain banned sale of the November issue of *Discover* magazine because the cover featured an artist's reconstruction of 3.2 million year old Australopithecine "Lucy" and cohorts. And they were unclothed (although furry). Minyards Foods said this violated their policy of running "family-oriented" stores. The chain of 77 stores has banned other magazines for risque covers, but this was the first time *Discover*, published by the Walt Disney Company, had been prohibitted. The magazine's circulation is normally 150,000 per month—plus a few extra in Texas towns where it gained status, perhaps? ❖

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