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## Michigan: NCSE Liaison Fights Creationism in Science Guidelines

Molleen Matsumura

**M**ichigan's State Board of Education shied away from responsibility for science curriculum standards at their July 19 meeting. Arguing a need for increased local control, they defied a state law requiring mandated educational guidelines, offering *suggested* guidelines instead, and renaming the "Michigan Essential Goals and Objectives for Science Education" as the "Michigan Model Content Standards for Curriculum."

Then, in a surprise move going far beyond any possible concern for local control, Board President Clark Durant distributed copies of proposed changes in the guidelines themselves. NCSE's Michigan liaison, Dr. Carl Jay Bajema, professor of biology at Grand Valley State University, reports that "Durant singled out the proposed guideline for the scientific study of evolution and attacked it, proposing to expand it and make connections between science and other belief systems." Durant would have changed, "Explain

how scientific theory traces the origin and development of species . . ." to make ample room for creationism, substituting, "Explain how *various theories* trace the origin of *life* and development of species. . . ." According to the *Grand Rapids Press* (July 21, 1995, p. A9) Durant "insisted the new wording still leaves the door open for teaching that God created the Universe."

Two Board members supported Durant; the sharpest exchange may have occurred when Board member Marilyn Lundy asserted that there is no scientific evidence for either creation or evolution, so "I think it's important for the youngsters to get both views of

it." Board member Barbara Roberts Mason quipped in response, "So is this the place were we discuss the stork?"

In the ensuing public comments period, members of the committee that had written the guidelines informed the board that citizens who testified at public hearings had overwhelmingly opposed teaching nonscientific theories such as creationism. Dr. Bajema used his turn to comment to offer a revision that returned the emphasis to *scientific* evidence: "Explain how scientists construct and scientifically test theories concerning the origin of life and the evolution of species. . . ." This was the stand-

Michigan continued on p. 7



## Welcome to new members!

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Cover: USGS Michigan map

Chimpanzees (pp. 6, 17) from  
*Cassell's Popular Natural  
History*, London, 1865  
(Collection of J. Cole)

**T**he June PBS broadcast about the modern creationist movement generated lots of calls to NCSE—quite a few new members, and even more people saying “thank you for your work” but not joining, so far. In addition, the broadcast generated more business in the form of people calling for information, needing help with a local creationist assault on their schools, asking for help about textbook selections, etc.

That's what NCSE is here for, so it's great to be of more help than ever to local individuals and organizations.

On the other hand, it is chastening to hear about a seemingly increasing rate of school problems. It is also a bit amazing to read creationists' complaints in letters, Internet postings, and newsletters that NCSE represents the overwhelmingly wealthy and powerful Establishment! Many people took issue with Executive Director Genie Scott's on-air comparison of NCSE with “David” in a David and Goliath scenario. Apparently we are rolling in money we don't know about, because

it sure does not make it into decisions about how many times an envelope can be reused or whether to put the second fluorescent tube back into the light fixture and thus increase the electricity bill dangerously!

Of course, if you are reading this you're basically the wrong audience for my griping, because you are already involved.

NCSE needs to expand, so I hope you will consider giving gift memberships, suggesting that friends join, suggesting names we should invite to join . . . using your name, if possible, or keeping your name out of it if you prefer.

I have received a number of comments on the Dennis Feucht commentary in the last issue, and I'll try to include some of them in the next issue. They range from hearty support for his position to outrage that I would publish such nonsense—all in all, a pretty good range of reactions!

—John Cole

### Brochures from NCSE

*Evolution And Creationism: What Can You Do?  
Creation or Evolution?*

*Would We All Behave Like Animals?*

*Evolution, Creationism, and Science Education:*

*Answers to Ten Common Questions*

*The Record of Human Evolution*

*Origin Myths*

*“Scientific Creationism” Evolution and Race*

*The Evolution of Creationism*

*Facts, Faith, and Fairness: Scientific Creationism Clouds  
Scientific Literacy*

Single copies free upon request with a stamped self-addressed envelope. 2-99 copies cost 25 cents @; 20 cents @ for orders of 100 or more. Californians please add 8.25% sales tax. For more information call 800-290-6006.

# Alabama, Round II: Textbook Adoptions

**Molleen Matsumura**

In our last installment (*NCSE Reports* 15(1): 4) we reported that, under pressure from the Eagle Forum, Alabama's State Board of Education had adopted a "Course of Study: Science" containing loopholes that would invite teaching "evidence against evolution" and probably open the door to adoption of creationist materials. (The bland-sounding idea of teaching any "evidence

against evolution" is one of the latest "scientific" creationist semantic ploys; there are no similar coded calls to teach any "evidence against gravity.")

Now the hand-writing on the wall is a flashing neon sign: Alabama's Gov. Fob James' first new appointment to the textbook commission was Norris Anderson, chief author of the Eagle Forum's criticisms of the original science curriculum

proposal. A list of all curriculum materials under consideration for the entire K-12 science program has been issued. NCSE activists in Alabama are studying all 500 items for appropriateness. It will be important for supporters of good science education to make their opinions known. If you live in Alabama, or know people in Alabama who wish to participate, please let us know soon! ■

▼  
What about  
"evidences  
against  
gravity  
theory"?  
▲

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## Churches and Evolution

**Molleen Matsumura**

Just a few weeks ago I was talking about NCSE with a casual acquaintance, when he told me, "I have a friend who teaches biology at Brigham Young University. He says every year he has to explain to at least one student that there's no conflict between evolution and Mormon theology."

"Would that be Duane Jeffrey?" I asked. It was, and soon afterwards I asked Dr. Jeffrey, a member of NCSE's Board of Directors, about these incidents. They do happen, he said, but, "Much oftener than once a year. I have at least one substantive conversation every week." Dr. Jeffrey went on to tell me what happened when his son-in-law, teaching at the University of Nebraska, assigned students in a science education seminar to ask their ministers and priests about their denominations' views of evolution. The great majority of students came back to class with com-

ments like, "I had no idea my church was so liberal about this!"

This is the big, unspoken secret of the evolution-creation non-controversy: not only is there no genuine scientific controversy about evolution, but the majority of Americans belong to religious denominations that have no quarrel with evolution. The problem is, nobody told them. The relationship between science and religion isn't the stuff of Sunday morning sermons, and in the mass media, it's the dramatic "culture warriors" that get the most press. When people don't know the theology of their own denominations, they may rely on the theology of the air-waves, vaguely assuming that it echoes their churches' teachings. Creationists in the media, just by broadcasting their message, extend their influence beyond their own congregations or even their denominations. People who rely on them make decisions about doctrine by default.

The best way to reverse the situation is simply to add your own voice to the conversation. If you are active in your congregation, find out what your fellow-members think about creationism. If it turns out some of them are misinformed, find out the best way to inform them. An NCSE member in Vista, CA has talked about evolution in his church's adult study group; you might also use casual conversation, or a suggestion to your minister. In any case, you might want to discuss the matter with him or her since this controversy is an education and social issue of broad concern. At NCSE we have found that even many biblical literalists or fundamentalists in the clergy are potential allies who value church-state separation and deplore the idea of their flocks learning their theology by rote from a public school teacher! Many people say that "truth wins in the end;" but to begin with, someone has to *tell* it. ■

## PBS Program "In the Beginning" Gives NCSE National Exposure

Molleen Matsumura

In June, PBS affiliates across the U.S. broadcast the two-part documentary *In the Beginning: The Creationist Challenge* in which a Barnard College-Columbia University professor of religion, Randall Balmer, presented an exploration of the evolution-creationism conflict. The program included coverage of local battles and extensive interviews with leading representatives from both sides of the issue. Among the many voices heard were those of Duane Gish, vice-president of the Institute for Creation Research; Phillip Johnson, UC-Berkeley law professor and author of *Darwin on Trial*; and Mel and Norma Gabler, whose work to keep evolution out of Texas textbooks has influenced the content of books used all over the country for decades; Harvard professor (and NCSE Supporter) Stephen Jay Gould, author of numerous books and articles explaining evolution; paleontologist Leonard Krishtalka of the Carnegie Museum of Natural History (now at the Kansas Museum of Natural History); and NCSE's Executive Director, physical anthropologist Eugenie Scott.

Acting as a good host, Balmer asked short and nonjudgemental questions, leaving plenty of room for proponents of widely differing viewpoints to speak for themselves. Some viewers praised Balmer for his objectivity or neutrality, exulting that, "He gave the creationists plenty of rope to hang themselves;" others complained, "He tried so hard to be balanced, he didn't do enough to show what's wrong with creationism." Some creationists were thrilled with the show, and others were fairly critical. In *Bible*

*Science News*, for example, John Woodmorappe expressed gratitude that creationists were getting major network, prime-time coverage, although he complained that evolutionists tended to be given the last word without rebuttal by creationists. (Evolutionists evinced the same complaint, I'd note—there was no direct point/counterpoint contrast of views.)

But countless viewers drew their own conclusions, and they took what they saw as a call to action. Though the documentary didn't give contact information for any of the organizations shown on-camera, many people found NCSE's telephone number, postal and e-mail addresses on their own. We've gotten calls for help, offers to help, some much-needed pats on the back, and several new members.

Many callers to our office asked whether they could order copies of the tape for classroom use, and NCSE did obtain ordering information (see below). But first some words of caution, and advice: As one college professor commented, "The way the program is organized, the scientists' rebuttals are heard so long after the creationists' comments, it will be hard for students to remember just what arguments a creationist had presented." Eugenie Scott replied, "Professors can try a trick the K-12 teachers use. *Stop the tape* and begin discussing right away why a given argument is unscientific." Before (or besides!) ordering a tape, though, please consider asking your local public television station to broadcast (or rerun) "In the Beginning." It will reach more people that way, and your effort may help someone like the gentleman from Mississippi

who called and said, "I was so glad to hear about you. I thought I was the only one."

Ordering information: *In the Beginning: The Creationist Controversy* is a two-tape program. The first tape presents background information (including a tour of the ICR creationist museum) and interviews with several creationists; the second tape concentrates on interviews with scientists and educators who explain the importance of teaching evolution.

Cost is \$69.95 for both tapes, \$39.95 for either, plus \$5.00 for shipping and handling. Order from PBS Videos, 1320 Braddock Place, Alexandria, VA 22314; phone 1(800) 328-7271 [ie, not from NCSE!]. ■

### Which Way to Walmart?

From *Planet Ocean: A Story of Life, the Sea, and Dancing to the Fossil Record*, by Brad Matson, quoted in *Science* 268: 1514:

Some inspired pack of rhipidistians or Dipnois came ashore for the first time in the Devonian, either looking for a meal or trying to avoid becoming one. Maybe they were pursuing the as yet unknowable vertebrate dream of a future filled with cheeseburgers, pizza, Caesar salads, decent wine, homes of their own, and a new car every two years.

[Ed: Or maybe not....] ■

## Religion and School Guidelines

Molleen Matsumura

**W**hen President Clinton recently directed the Departments of Justice and Education to develop guidelines for school districts facing such issues as religious expression by students, many observers noted that his comments drew heavily on a document that had been issued in April by a broad coalition of religious and civil libertarian organizations. Since "Religion in the Public Schools: A Joint Statement of Current Law" is the work of thirty-five "drafting" and "endorsing" organizations ranging from the American Civil Liberties Union to the Christian Legal Society, it can be expected to influence the work of the Departments of Justice and Education as well. Analyzing the background and content of the "Joint Statement" tells us something about what the guidelines will probably be like, and that they are likely to represent progress, but not a panacea.

When NCSE was asked to comment on an early version of the "Joint Statement," in February, 1995, it had the working title, "What We All Agree the Schools May Do." Because of the great diversity of organizations involved, a more accurate title would have been, "What we all agree on, more or less, with different organizations having reservations about different sections." Not surprisingly, there is still room for disagreement in interpreting the "Joint Statement." For example, it's true that the Supreme Court has ruled that, "Students may be taught about religion, but public schools may not teach religion." But this distinction can be difficult to apply in practice, and textbooks that attempt to describe religious history and ideas can and do come under fire for not portraying them as religious adherents would.

The drafters of the Joint Statement deserve credit for paying close attention to NCSE's comments on the paragraph covering "creation science." They even sought direct advice from scientists who had written to them at NCSE's request. The resulting language is greatly improved, but still not perfect:

These same rules apply to the recurring controversy surrounding theories of evolution. Schools may teach about explanations of life on earth, including religious ones (such as "creationism") in comparative religion or social studies. In science class, however, they may present only genuinely scientific critiques of, or evidence for, any explanation of life on earth, but not religious critiques (beliefs unverifiable by scientific methodology). Schools may not refuse to teach evolutionary theory in order to avoid giving offense to religion nor may they circumvent these rules by labeling as science an article of religious faith. Public schools must not teach as scientific fact or theory any religious doctrine, including "creationism," although any genuinely scientific evidence for or against any explanation of life may be taught. Just as they may neither advance nor inhibit any religious doctrine, teachers should not ridicule, for example, a student's religious explanation for life on earth.

The wording of the final sentence is unfortunate; by saying that "teachers should not ridicule" students, it encourages unfounded fears that teachers will do so, and heightens current tensions. Also, "ridicule" may be open to interpretation.

The most significant problem, however, is the clause "any genuinely scientific evidence for or against any explanation of life may be taught." This phrasing does nothing to end time-consuming local battles over "arguments against evolution," and over what constitutes "genuinely scientific evidence." Books like the creationist textbook *Of Pandas and People* rely heavily on *pseudo* scientific evidence, and efforts to have them adopted could continue unabated. Similarly, the phrase "explanation of life on earth," opens the door for discussions of "origins," a pet subject of creationists; evolutionary theory seeks only to explain changes that occurred after life began. Public school teachers, administrators, and governing boards should have detailed guidelines explaining how to apply these rules in day-to-day situations. These are the concerns NCSE will raise when we send letters of comment to the Departments of Education and Justice. We encourage NCSE members to send their comments, also, to:

Attorney General Janet Reno, Department of Justice Public Affairs Office, Rm. 1228 10th and Constitution Avenue, NW, Washington, DC 20530; and Secretary Richard W. Riley, Department of Education, 600 Independence Ave, SW, Rm. 6263 Washington, DC 20202.

Meanwhile, the paragraph from the Joint Statement may be helpful for parents, teachers, and citizens answering questions that arise in their school districts. If a parent wants a child dismissed from class when evolution is being taught, a principal can explain that, "Even the National Association of Evangelicals agrees that would be illegal." ■

## Iowa Symposium Proceedings Reviewed

**Dave Krupp**

Windward Community College  
Kaneohe, HA

I just received the 1990 *Proceedings of the Public Symposium on Understanding Science and Its Human Impact*, edited by Paul E. Bartelt and Alan D. Copsey published by the Iowa Committee of Correspondence. It provoked me to think seriously about the issue of science's role in our society. While many of the papers were interesting and insightful, several were disturbing.

For example, Dr. Davis Young appears to suggest with conviction that "Christianity submits that it alone lays the appropriate foundation for natural science." Certainly the creationists feel this way as they redefine science in their own terms. However, science needs to operate as freely as possible from the biases of theology and personal philosophies of life. Science should be defined in its own terms and not in the terms of the diverse morals, ethics and beliefs of individuals, cultures and religious institutions.

Some of the other papers (e.g., that of Dr. Paul Johnson) suggested that good science also involves instilling values. I would like to express my opinion that good science should steer clear of attempting to establish values. This opinion is not expressed with the ignorance and naivete that our biases and values do not influence our interpretations of observations and experimental results. Nor am I suggesting that scientists should avoid expressing opinions about these values. However, scientists should be clear about when they are being scien-

tists and when they are being moralists.

This scientist-versus-moralist issue has become particularly apparent when scientists and science educators discuss human impacts upon the environment. Understandably, the sense of urgency for action spawns emotional responses from the most objective of us (it certainly gets me agitated!). However, these emotional responses often lead to negative interactions, rather than productive discussion, among scientists that disagree. Recently, two of my colleagues have engaged in a bitter, name-calling, debate concerning the impact of open-ocean sewage outfalls on nearby coral reefs in Hawaii. This battle has led to a less cooperative community of environmental scientists in Hawaii. A few even seem to be reluctant to speak out for fear of possible reprisals (e.g., termination of contracts, tenure or promotion refusals, etc.). This kind of situation suppresses

the collegiality and scholarly work that should fill our ivory towers! It also leads to negative public perception about scientists. When we don our scientist hats we need to be objective and passionless. When we don our moral and political hats we should avoid flaunting our academic credentials to gather support for our moral and political views.

Another comment that disturbed me was Dr. William Paul's statement that "science should be non-reductionistic, emphasizing a holistic world view, using an ecological model." This restrictive statement ignores the role that a reductionist approach may ultimately play in establishing a "holistic" worldview. Sometimes we are forced to dissect a phenomenon to its fundamental parts in order to understand how these parts are integrated. ■

## Chimp Pharmacology

Chimps not only use tools, they dose themselves with effective herbal remedies, according to recent field researchers. A AAAS symposium on zoopharmacognosy (!) in February 1994 featured reports from Africa which maintained that chimps intentionally used specific plants for specific remedies (e.g., particular plant leaves effective against worm infestations).

This adds to growing awareness of chimpanzee culture and cultural differences from one area to another. Chimps in the wild are highly endangered, however. Some researchers hope

that demonstrating that chimps are useful informants about medical uses of plants will inspire greater efforts to save the lives of our closest nonhuman relatives. Not driving chimps extinct should not be such a dollar-related issue, and the more we learn about them, the more amazing they become. ■



# IQ and Evolution Education

John Cole

**W**hen as editor I published a brief review of *The Bell Curve* in *Creation/Evolution* Issue 35, I was not surprised to receive a number of complaints that the review author was an "anti-evolutionist," that I was an idiot, etc. The former charge, at least, is not true—molecular biologist Jonathan Marks is a prominent evolutionist who happens to think the controversial book is largely pseudoscientific. Without rehashing the entire debate here, it may be worth noting that the book in question has largely been lionized in the popular media but widely attacked by many experts—usually writing in less mainstream publications.

Jim Naureckas, writing in *Extra!* (8(1):12-15; Jan/Feb 1995) (a leftist journalism review) dissects the sensational media coverage of what is, after all, a very thick and technical book which one would hardly expect to make such an impact. He surveys the extensive coverage, from the *New York Times* to *The McLaughlin Group*, and finds a very widespread "Gee whiz!" attitude from usually uncritical and nonscientific reviewers. (For what it's worth, conservative John McLaughlin called the book "largely pseudoscience" and extremely unhelpful in improving race relations!)

NCSE interest comes to play especially because the book attempts to document and explain the evolution of racial differences in America. In other words, the book is intended to be a major product of evolution research. Unfortunately, as Naureckas points out, the authors rely largely on rather suspect sources of data and ideas rather

than upon new empirical research or a wider spectrum of research which might contradict their claims. Nearly all of the research authors Charles Murray and Richard Herrnstein relied upon was funded by the Pioneer Fund—a "pioneer" in eugenics research rather than mainstream biology. It was set up in 1937 by millionaire Wickliffe Draper, an advocate of sending Blacks back to Africa. The Fund's charter was to aid people "deemed to be descended primarily from white persons who settled in the original 13 states" prior to independence. Its first president, Harry Laughlin, testified before Congress that 83% of Jewish immigrants were inherently feeble-minded. Another founder endorsed Nazi Germany's laws about sterilizing inferiors as a "most exciting experiment." In recent years the Fund has supported South African Apartheid. According to another Fund favorite, J. Phillippe Rushton, evolution shows that "It's a trade-off: More brain or more penis. You

can't have everything" (p. 14). And the Pioneer Fund has funded *Mankind Quarterly*, a long-time journal of "racial anthropology," as a supposed antidote to mainstream science.

So what? After all, what I have just described is a form of guilt by association. Perhaps the book is accurate (it was not itself funded by the Pioneer Fund, although its head says he would have given them funding instantly!). My answer is that when most of the studies cited by a book come from a seemingly suspect source—in this case, the Pioneer Fund—it is not unfair to question a book's thesis and conclusions. This is an albatross which once hung around evolutionists' collective necks 75-100 years ago when social theorists pounced upon Darwinism as supporting their eugenics and class stratification ideas, and it has taken decades to outgrow that early stigma. Reviving it in the 1990's shows a poor sense of history. ■

## Michigan continued from p. 1

and that the board voted to adopt.

Several science teachers attending the meeting opposed Durant's change, and science teachers statewide expressed relief at the reprieve from the last minute change. The President of the Michigan Earth Science Teachers Association commented, "If our job is to train students in science, that does not include creationism." The President of the Michigan Science Teachers Association said members would have been "up in arms, absolutely."

Perhaps science teachers should keep those arms handy. Brian Willats of the Michigan Family Forum said that, although his group was disappointed but the door is not closed, "This opens it up a little bit for folks to be able to examine a number of different theories. . . ." But, while creationists continue to try to get a foot in the door, we can thank NCSE's state liaison for not allowing it to be thrown wide open. Good job, Dr. Bajema!

[Thanks to NCSE member Leonard Lieberman for one of the clippings used in writing this article.] ■

▼  
"If our job is to train students in science, that does not include creationism."  
▲

## Robert S. Dietz (1914–1995)

### Rasoul Sorkhabi

Department of Geology  
Arizona State Univ., Tempe, AZ

**N**CSE Supporter and Arizona State Professor Emeritus of Geology Robert S. Dietz died at his home in Tempe, AZ on May 19th, 1995. He was internationally well-known for his pioneering research on marine geology, plate tectonic theory, and meteorite impact structures and was the kind of astonishingly accomplished scholar seldom seen before and perhaps not to be seen again. He was a frequent contributor and consultant to NCSE—an active monitor of creationist activities and claims always anxious to share his time and expertise. With John Holden he wrote *The Creation/Evolution Satyricon: Creationism Bashed* (1987; available from NCSE at discount).

Dietz graduated from the University of Illinois, earning a Ph.D. in 1941 under Francis Shepard (“father of modern marine biology”), specializing in bathymetric mapping and deep-sea morphology off

the California coast. During WWII he was an Army Air Force pilot, mainly involved in aerial photomapping South America. From 1946 to 1963 he was a marine geologist with the San Diego US Navy Electronics Laboratory, and from 1963 to 1977 he was with USGS and NOAA in Washington, DC. Upon retirement he joined Arizona State as Professor Emeritus where he continued his research and writing.

Dietz and Jacques Piccard developed the bathyscaph *Trieste* which took a 2-man crew seven miles into the Pacific Ocean’s Challenger Deep, the deepest place in the world—a feat they described in the book *Seven Miles Down* (1961).

With Harry Hess, he is regarded as the discover of the sea-floor spreading process which effectively explained the continental drift hypothesis. In 1961 he published an influential paper in *Nature* in which he proposed the concept (and term) of sea-floor spreading at mid-ocean ridges. Subsequent work made this the cornerstone of plate tectonics

theory. His article “Breakup of Pangea” in *Scientific American* (1970) helped cement the idea in public awareness.

Dietz also pioneered the study of meteorite impact structures, identifying several clear impact sites on Earth.

Author of nearly 300 papers on various aspects of geology, Dietz sailed the seven seas, flew over a million miles into the stratosphere, traveled more than a mile deep into the ocean, and did geological research on seven continents. He earned awards such as the Walter Bucher Medal of the American Geophysical Union, the Alexander von Humboldt Prize, the Francis Shepard Medal of the Society of Economic Paleontologists and Mineralogists, and the Penrose Medal of the Geological Society of America.

His death is a tremendous loss to world science and to NCSE and the public understanding of science to which he devoted so much of his life. ■

▼  
Dietz laid  
the  
cornerstone  
of plate  
tectonics  
▲

## Hawaiian National Park Removes Its Creationist Display—at Suggestion of NCSE Member

### Richard Palmer

Dept. of Botany, Univ. of Hawaii  
Honolulu, HA

**T**he Hawaiian Islands represent one of the world’s showcases of evolution. It surprised me, then, to see the display at the Kipahulu District of Haleakala National Park that depicted the origins and migration of the Polynesian peoples. The timeline included in the display began with “Creation Events” in the Tigris/Euphrates Valley. A biblical

timeline continued, with some spectacular genealogies of men living for hundreds of years, a Noachian Flood, and post flood dispersal. When I asked the ranger attending the visitor center about the display, he said that “Some people believe in evolution, some don’t. The District Ranger here is very conservative.”

Upon my return to Honolulu the next day, June 27, I called the Information Officer at Haleakala National Park headquarters to inquire about the display.

He said that he had just taken over responsibility for the Kipahulu District Visitor Center and would look into my observation. I also wrote him a letter detailing the contents and context of the display and sent a copy to the park superintendent. On July 13, I received a letter advising me that the display in question had been removed. Many issues can be resolved without confrontation and battle. Sometimes just pointing out a problem to the right person can get it resolved calmly and promptly. ■

## Did the AHA Beget the NCSE?

Eugenie C. Scott

In its July issue, the Institute for Creation Research's *Acts and Facts* presents a review of the PBS special broadcast *In the Beginning* (see related article, "PBS Program Gives NCSE National Exposure," p. 4). Generally, John D. Morris, the article's author, approved of the even-handedness of the program. But I was brought up short by one phrase, referring to my participation in the program. "Usually she claims her organization, *an offshoot of the American Humanist Association*, is interested in good science education, but in this program she admitted that it exists to fight creationism" (my italics). HUH?

NCSE is an offshoot of AHA? That's news to me, and it surely would be news to Stan Weinberg, Jack Friedman, Wayne Moyer, and the others who founded NCSE back in the early 1980's. Perhaps the confusion arose because Fred Edwards, the Executive Director of AHA, was the first editor of *Creation/Evolution*, which was later sold by AHA to NCSE. Fred was also a board member of NCSE when I was hired as the first national Executive Director of NCSE in 1987. I well remember my first meeting with the Board of Directors, and Fred himself pointing out that NCSE was about to embark on a different scale of operation from its former seat-of-the-pants level: we had start-up money from Carnegie Corporation of New York and some other foundations (raised by Stan Weinberg), and it was time to truly define what this organization was about and what it was going to do. He made it clear that it was his expectation that NCSE would be a relig-

iously-neutral organization, focusing on science and education. We weren't going to deal with the theology of creationism at all, except when that theology was claimed to be supported with scientific data and theory. Other board members were in complete agreement, and NCSE has worked hard to communicate its religious neutrality. NCSE members themselves span the gamut from conservative, evangelical Christians to mainline Protestants and Catholics, Jews and other religious minorities, and, yes, indeed, humanists and atheists, too. There is no test for religious affiliation or lack of same to be an NCSE member! Perhaps the best "evidence" that this is not an anti-religious organization is the composition of the Board of Directors, which mirrors that of

the general membership. Our Board has included Mormons, evangelical Christians, Jews, mainline Protestants, Unitarians, and nonbelievers. Maybe it has included a Catholic or two; I never really asked! I notice that a couple of our Supporters are Roman Catholic priests.

NCSE is sometimes privately criticized by some atheist members for not taking an anti-religious stance. We explain to them that religion-bashing is not our policy, and we avoid publishing articles that have that tone. "Some of our best friends are humanists," but that doesn't make NCSE a branch (much less a clone) of the AHA. ■

### "Angel" Sighting at NCSE!

Long-time, staunch NCSE supporter Anonymous Q. Member (Anon" for short) couldn't wait for a fund-raising letter. In early July he sent a thousand dollars. When the winning envelope was opened, joy mingled with just a little consternation in the halls of NCSE. We had just mailed out one of our twice-yearly fund-raising requests, and we didn't want our friend Anon to get it and think we were—well, "greedy?" Trusty office manager Erik Wheaton immediately called Anon and left a long message on his answering machine explaining the situation, assuring Anon of our gratitude, and inviting him to recycle the fund-raising letter or make a paper airplane or origami out of it, or

whatever, but we were not meaning to nag him!

A few days later, Anon called us back. He'd gone ahead and read the letter anyway. He told us once again how impressed he was that NCSE does so much with so little, and wanted us to know that *another* check was in the mail. WOW!

We can't thank Anon here by name, but we can say: "Dear Angel: Thanks to folks like you, we can keep going without waiting for any Special Creations of Cash (which don't seem very likely). Friends like you are NCSE's miracles!" And thanks, of course, to all you other contributors, as well, whether first-time or long-time donors!



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### Molleen Matsumura

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**Erik Wheaton**  
NCSE Office Manager

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*These listings often include items available from NCSE, but the list changes each issue. Consult back issues for other resources—they are still in our files and available for distribution even if we can't keep listing them!*

Bada, J.L. 1995. Cold Start. *The Sciences* May/June, pp. 21-25. First life may have evolved in a cold "soup."

Beardsley, T. 1995. Darwin Denied: Opponents of Evolution Make Gains in Schools. *Scientific American* 273(1): 12-13 (July).

Bengston, Stefan, ed. 1994. *Early Life on Earth*. NY: Columbia Univ Press. x+630 pp, illus., \$45. 43 Technical papers from a 1992 Swedish Nobel symposium. "Essential," says John Sepkoski in *Science*. And comparatively cheap.

Bower, B. 1995. Chimp the Hunter. *Science News* 147(20): 316-317.

Chiappe, L.M. 1995. A Diversity of Early Birds. *Natural History* 104(6): 52-55. Fossils more bird-like than Archaeopteryx.

Dennett, D.C. 1995. Darwin's Dangerous Idea. *The Sciences* May/June, pp. 34-40. Impact of Darwinism [See Centerfold for Dennett's book by same name—at an NCSE discount]

Feduccia, A. 1995. Explosive Evolution in Tertiary Birds. *Science* 267: 637-638, 3 Feb.

Finlay, B.L., and R.B. Darlington. 1995. Linked Regularities in the Development and Evolution of Mammalian Brains.

*Science* 268: 1578-1584, 16 June. Selection for one behavioral trait may cause greater processing capacity for all others.

Fraser, Nicholas C., and Hans-Dieter Sues, eds. 1994. *In the Shadow of the Dinosaurs. Early Mesozoic Tetrapods*. 435 pp, illus., \$89.95. Evolution of smaller vertebrates. Technical.

Gaffney, E.S., L. Dingus, and M.K. Smith. 1995. Why Cladistics? *Natural History* 104(6): 33-35 (June).

Gibbon, Anne. 1995. When It Comes To Evolution, Humans Are in the Slow Class. *Science* 267:1907-1908, 31 Mar. Conference proceedings argue that the human "molecular clock" runs slower than other primates' (and a quarter the rate of rats'), as Morris Goodman has long argued. Controversial and technical.

Gordon, Malcolm S., and E.C. Olson. 1995. *Invasion of the Land. The Transitions of Organisms from Aquatic to Terrestrial Life*. NY: Columbia Univ Press. xix+312 pp, \$65. Technical. Major issue, mixed review in *Science*.

Lewin, R. 1995. Birth of a Tool-maker. *New Scientist* 145(1968): 38-41, 11 Mar. Ape toolmaking.

Lockley, M. 1995. Track Records. *Natural History* 104(6): 46-51. Footprints.

Moen, Mathew C. 1995. Political and Theological Adjustment in the US Christian Right. *Contention* 4(2): 75-90 (Winter). How the Christian Right has changed and adapted, 1980 to the present. History, sociology of theological-cultural movement.

Monaghan, Peter. 1995. Revelations from Fruit Flies. *Chronicle*

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of *Higher Education* A8-A9 (26 May). Interviews major theorists about recent discoveries re: induced eyes in flies. What are the implications for theory and for theory about eye evolution, specifically?

Nisbet, E.G., J.R. Cann, and C.L. Van Dover. 1995. Origins of Photosynthesis. *Nature* 373: 479-480. Technical.

Nord, Warren A. 1995. Rethinking Religious Indoctrination in Schools. *Education Week* 14(35). U of North Carolina Prof. argues that evolution education (etc.) is dangerously close to religious indoctrination.

Norman, David. 1994. *Prehistoric Life: The Rise of the Vertebrates*. NY:Macmillan. NP. Well-illustrated and well reviewed popular paleontology.

Paabo, Svante. 1995. The Y Chromosome and the Origin of All of Us (Men). *Science* 268: 1141-1142. News report on recent research suggesting divergence ca. 270,000 BP—much longer ago than mtDNA results. (Much publicity about differences, but both data argue for a relatively recent origin of *modern sapiens*—after *erectus*.)

Powell, C.S. 1995. Crisis? What Crisis? Reports of Cosmology's Demise Have Been Greatly Exaggerated. *Scientific American* 272(6), June. Comments on press accounts of recent age of Universe debate.

Provenzano, Joseph P. 1993. *The Philosophy of Conscious Energy—Answers to the Ultimate Questions*. Nashville: Winston-Derek. \$8.95, pb. Survey and extension of Teilhard de Chardin's mysticism and evolution ideas.

***Science on Trial*  
by Douglas J. Futuyma  
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Rothstein, Edward. 1995. *Emblems of Mind; The Inner Life of Music and Mathematics*. NY: Times Books. 263 pp, \$25. The latest popular book trying to explain how math and music relate; outstanding presentation of math for the amateur and music lover.

Sapp, Jan. 1994. *Evolution by Association. A History of Symbiosis*. NY:Oxford Univ Press. xvii+255 pp, \$49.95. Technical.

Streisand, Barbra. 1995. The Artist as Citizen. *New Perspectives Quarterly* 12(2). Adapted from her speech at JFK School, Har-

vard. The singer-director-actress attacks the anti-intellectualism of the 1994 electoral revolution embracing creationism and other attacks on the "cultural elite."

Wilford, John Noble. 1995. The Dinosaurs Reappear in Top Form. *New York Times*, June 2. Science section lead and 2 full pp inside; excellent, detailed review of new AMNH dino exhibit, with many illus., accompanying info.

Zimmer, Carl. 1995. A Reptile Rookery. *Discover* 16(6):32-33. Apparent fossil pterosaur breeding colony found in Chile.

Zimmer, Carl. 1995. Coming Onto the Land. *Discover* 16(6):118-127. Where did Devonian legs come from, and why? ■

## NEW BOOKS

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### **Planet Ocean** *Matson and Troll*

The Grateful Dead meet Stephen Jay Gould? Actually—a well-written, non-technical, personal journey of understanding of evolution that remains scientifically accurate. Off-beat illustrations by contemporary artist Ron Troll. Genie Scott loved it! ■

# Video Reviews

**John Rebers**

Dept. of Biology  
Northern Michigan University  
Marquette, MI

▼  
The "Joint Statement" discussed on p. 5 is available from ARL  
▲

**A**lthough the evidence for evolution has been presented very clearly in many books, finding good videotapes that give an accurate and concise presentation can be challenging. Two videotapes that are available, *Evolution* (Hawthill Associates; 1-800-422-4295) and *The Evidence for Evolution* (Carolina Biological/BBC, distributed by CLEARVUE/eav; 1-800-253-2788), both give a good overview of evolutionary ideas coupled with a visually appealing presentation. Either tape would be suitable for the general public, high school, or introductory college audiences. *Evolution* can be obtained with a learning guide for students that gives the script of the video along with a glossary and bibliography. *The Evidence for Evolution* comes with a set of teacher's notes that summarize the video and brief descriptions of the video footage and graphics.

## The Evidence for Evolution

This 30 minute video has four sections: The Record in the Rocks, Evidence from Living Things, The Theory of Evolution, and Variation and Evolution. The video footage is of high quality, matching the expectations that students would have from nature programs available on television. The narrative is clear and concise, with a logical progression of ideas. Formation and dating of fossils are discussed, along with the general ideas of stratigraphy and the gradual appearance and disappearance of different fossil types. Homologous and analogous structures in living organisms are then

illustrated, with a discussion of how these structures provide evidence for evolution. There is a brief description of how similarities in protein structure, embryological development, and behavior also provide evidence for evolution. After a brief historical overview of the history of evolutionary thought, pointing out the differences between Lamarck's ideas and those developed by Darwin and Wallace, the video describes how "Evolution by Natural Selection" works.

## Evolution

The historical perspective in *Evolution* is more complete than that in *Evidence*. The video begins with a description of the Scopes "Monkey Trial" and then summarizes ideas from early Greek scientists, Linnaeus, and Buffon as well as the later ideas of Lamarck, Darwin, and Wallace. The second section of the video shows the fossil record support for evolution and summarizes changes in living forms that have occurred. In order to put the geological time scale in perspective, an analogy is made to a time-lapse movie, with the history of life on earth compressed to one year. The

time at which trilobites, dinosaurs, mammals, and humans would appear in this compressed view of life is shown. The video concludes with a discussion about disagreements between scientists about some aspects of evolutionary theory, and there is a brief description of scientific creationism, pointing out that the vast majority of biologists, geologists, and paleontologists disagree with the creationists.

Overall, I felt that the quality of the video footage and narrative in *The Evidence for Evolution* was better than that in *Evolution*. *Evidence* also shows some of the modern molecular evidence for evolution. However, *Evolution* does give a much more complete perspective on evolutionary thought, and in particular provides a discussion of the controversies surrounding evolutionary thought, including mention of "scientific" creationism. Its briefly but directly addressing the ideas presented by creationists would be useful for some audiences. Either video can be previewed before rental or purchase to decide which would be most appropriate for your audience. ■

## Religion in School: A Consensus

"Religion in the Public Schools: A Joint Statement of Current Law," a 7-page, brochure, was published in April 1995. Drafted by the American Jewish Congress, ACLU, American Muslim Council, Baptist Joint Committee, National Association of Evangelicals, National Council of Churches, People for the American Way, and other groups across the spectrum. It is endorsed by a larger number of other organizations such as the American Humanist Association, National

Sikh Center, Christian Science Church, Church of the Brethren, and many others. The statement summarizes what can be agreed upon by these diverse groups, and it illustrates the fallacy of the Religious Right argument that current law bannishes all religion from public schools.

Copies are available for a dollar each from Americans for Religious Liberty, P.O. Box 6656, Silver Spring, MD 20916. ■

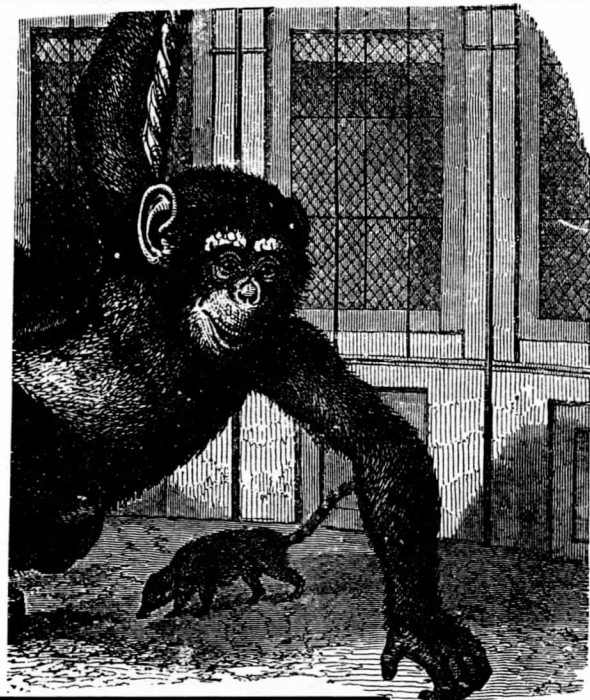
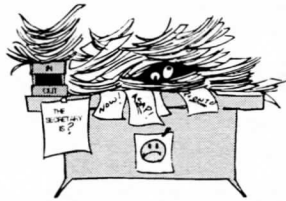
## Book Orders

John Cole

**W**hen you order books, transcripts, tapes, or whatever from NCSE "Resources," make sure you make clear to us what you are ordering—not just "that new Gould book," for example. An order for, say, "E-24" from a catalogue should spell out at least the abbreviated title, also, since there are various catalogues with various listings in circulation.

Also, I hope you will keep a note of what you are ordering, because sometimes we receive "mystery checks" either separated from an

order form in the original mailing or, alas, even in our hands; more than once we have contacted members for clarification about an unclear or incomplete order, only to learn that a reader does not remember what she was ordering! We tend to work these things out, of course, but we'll appreciate any help you can supply in avoiding simple snafus! ■



### National Academy of Sciences Critique of Creationism

The National Academy of Sciences has at last reprinted its outstanding 28 pp color booklet, *Science and Creationism; A View from the National Academy of Sciences*. This 8.5 x 11" full color booklet is available from the NAS, and at original 1984 prices (\$4.00@, 2-9 copies \$3@, 10+ copies, \$1.75@)! This booklet went out of print—a victim of its own popularity. But now that it is reprinted, there is no longer any excuse for school boards and teachers not to have it on hand. It is a clear, concise summary of the issues, and it will be very useful to school boards or teachers tempted by the siren song of "scientific creationism." [Order from the NAS Press, 2101 Constitution Avenue, NW, Washington, DC 20418—NOT from NCSE.] The price includes shipping.

## Bridging Science and Religion

**A** British-based journal of interest, which I do not recall ever being cited in NCSE publications, is *The Teilhard Review: A Journal Bridging Science and Religion*. Founded in 1966, the journal, or information about it, can be ordered from The Teilhard Centre, 24 St. Martin's Close, Stratford-upon-Avon, CV37 9QW, UK.

Teilhard de Chardin was a priest and paleontologist whose evolutionary and philosophical writings became immensely popular

in the 1960s, when published after his 1955 death and a lifelong prohibition by the Roman Catholic Church on publishing his evolutionary research and theory. He was an excavator at the "Peking Man" site and long a respected paleontologist, nevertheless. He never really endorsed "Piltdown Man," whose discovery he took part in—leading Stephen Jay Gould and others to speculate that he might have been behind that hoax/practical joke which grew out of control. ■

## Evolution Online

Paul Handford

Zoology Department, University of Western Ontario, London, ON

I suppose you know about "sci.bio.evolution" newsgroup; and "alt.Darwin" does not exist! Here are some WEB addresses that I find useful in the evolution line:

<http://phylogeny.arizona.edu/tree/phylogeny.html>  
<http://phylogeny.arizona.edu/tree/life.html>  
<http://ucmpl.berkeley.edu/taxaform.html>  
<http://golgi.harvard.edu/biopages/evolution.html>  
<http://life.bio.sunysb.edu/>



# Eye Evolution: Revelations from Fruit Flies

Peter Monaghan

By creating freakish fruit flies with eyes on unusual parts of their bodies, a team of Swiss geneticists appears to have rewritten some important tenets of developmental and evolutionary biology. They have shown that in species as varied as flies and mice, a common genetic key triggers the development of eyes of vastly differing construction.

They also have provided strong evidence that, contrary to common belief, the eyes of animals as unrelated as vertebrates and invertebrates evolved more than half a billion years ago from a common ancestor.

Their findings, published in March in *Science* magazine, are being hailed by researchers in genetics, developmental biology, and other fields. In an article in *Natural History*, Stephen Jay Gould, professor of zoology at Harvard University, calls the team's work "the most exciting event in evolutionary theory during the past decade."

The Swiss team was led by Walter J. Gehring, professor of developmental biology and genetics at the University of Basel's Biozentrum, an interdisciplinary research-and-teaching center. He is well known among fruit-fly geneticists both as a basic researcher and as a developer of techniques for advanced genetic screening and engineering. Still, he admitted in an interview, he was surprised by the extent of the findings. "It came as a total surprise that there is so much shared between verte-

brates and invertebrates," he said.

The experiments were suggested by a finding that Mr. Gehring and three research associates published in *Science* last August, itself greeted as extraordinary, that the fruit-fly gene known as *eyeless* matched almost exactly a gene that is crucial to eye development in mice, and another gene with a similar role in humans.

The *Drosophila* fruit-fly gene is called *eyeless* because mutations result in defective eyes or no eyes at all. The equivalent mouse gene is *Small eye*; mutations result in undersized eyes. The human equivalent is *Aniridia*; defects cause malformations of the iris and other eye parts.

Mr. Gehring wondered how much control the genes had over eye development. To find out, he and two colleagues—Patrick Callaerts, a postdoctoral fellow, and Georg Halder, a doctoral candidate—induced the *eyeless* gene to be switched on in fruit-fly tissues where it normally is not.

When the larvae hatched, the *eyeless* gene had overridden the normal growth patterns in wings, legs, antennae, and other body parts, causing as many as 14 eyes to grow in places where, obviously, they normally don't. Because the eyes were fully developed, Mr. Gehring and his colleagues could conclude that the *eyeless* gene is what he and some other geneticists call a "master-control gene." *Eyeless* appears to activate the cascade of biochemical events that take place in eye development.

Next, Mr. Gehring and his colleagues induced the *Small eye* gene in mice to start the process of eye development in various parts of fruit-fly embryos.

## "These Flies Understand Mice"

In an even more surprising result, fully developed eyes—fly eyes, not those of mice—grew in unfamiliar places. As Mr. Gehring put it, genetically "these flies understand mice."

Finally, the Swiss team was able to suggest, to the astonishment of colleagues, that because homologous, or equivalent, eye genes are found in a variety of species with different eye constructions, those genes must have a common ancestor. Such a gene would date back more than 500 million years and would have been conserved when, much later, insects and mammals evolved.

The researchers speculated that the gene has been conserved, perhaps across all species with eyes or more primitive visual systems. This would be astounding, because the eyes of mice and flies, for example, are so different. mice have simple, single-lens eyes; fly eyes are compound, constructed of 800 eyelets, or *ommatidia*.

"This was contrary to all our expectation on morphological grounds," said Mr. Gehring.

Mr. Gould of Harvard agreed in his article, saying the homology was so unexpected that "such a contribution from common ancestry would have seemed almost risible as few as five or ten years ago." He characterized the finding as "downright revisionary in

forcing a rethinking of many previous certainties."

The reigning theory about eye evolution in animals has long been that the widely varied types of eyes in the animal kingdom—making up, as Mr. Gould put it, a "riotous display of diversity"—must have evolved separately.

## Old View: "Very Improbable in Terms of Darwinian Theory"

College textbooks talk of eyes as the classic case of "convergent" evolution. This theory holds that different eyes evolved as many as 40 separate times, along similar but independent evolutionary pathways, beginning from primordial eye-spots of light-sensitive cells.

That theory has prevailed even though, as Mr. Gehring said, "This was very improbable in terms of Darwinian theory," which would suggest that so complex a structure as the eye could not arise more than once by random selection. "Our finding strongly implies—it doesn't prove—that the prototype was invented only once."

In his *Natural History* article, Mr. Gould speculated that evolution theorists will now search for better explanations of other purported cases of convergence.

Mr. Gehring theorized that, after the eye prototype proved an evolutionary success, its biochemical machinery was passed on to the ancestors of modern animals. The successors of those primitive visual systems, he believes, have "converged and diverged depending on selective pressure."

Mr. Gehring and his colleagues are now preparing a third article for *Science*, about evolutionary aspects of their work.

## Squid and Marine Worms

To fill out the new understanding, they and collaborators elsewhere, including at the National Institutes of Health, are hunting for other homologs of *eyeless*. They have already found some in species as varied as squid and primitive marine worms. The goal, Mr. Gehring said, is "to get as close to the prototype as we can."

They will compare the gene's role in different species and will see if it plays a role in single-cell organisms.

The findings about the "master-control gene" status of *eyeless* are galvanizing other geneticists, too.

Charles S. Zuker, professor of biology at the Howard Hughes Medical Institute at the University of California at San Diego, said the Swiss research "had led to a tremendous amount of speculation." He called the findings "quite incredible."

It was predictable from the study of genetics over the past decade that vertebrates and invertebrates could have almost identical genes playing similar roles, he said. What was striking was that organs as different as fly eyes and human eyes appeared to result from a homologous genetic process.

Gerald Rubin, a professor of genetics at the University of California at Berkeley and an investigator at the Howard Hughes Medical Institute said: "What is impressive about it is that it is a single gene that causes the formation of a whole organ. This is a higher level of influence for one gene that had been demonstrated before."

Mr. Gehring believes the gene is at the top of a hierarchy of some

2,500 genes that engage in the process of eye formation.

While researchers have in the past induced cells to develop briefly but abortively in odd locations, Mr. Rubin said, the Gehring team had induced tissue that normally would have become one kind of structure to become another complete organ.

The out-of-place eyes appeared to be normal and fully formed. They had bristles, *ommatidia*, and pigment cells. Their photoreceptor cells even responded to light.

## "Spectacular" Potential

Mr. Gehring and other researchers now believe that they have a key point of entry that will permit them to document events "upstream" and "downstream" from the triggering of *eyeless* [trait]. That potential, said Mr. Zuker, is "spectacular. It opens up a lot of very important science."

It was an almost accidental discovery that began the Swiss team's series of experiments. Two researchers in Mr. Gehring's laboratory—Rebecca Quiring, a graduate student, and Uwe Waldorf, a postdoctoral fellow—stumbled across the homology between *eyeless* and *Small eye* while looking for something else.

Their finding, and the suggestion that the homologous genes could be key actors in eye development, rang a bell for Mr. Gehring. He recalled a mysterious phenomenon he had noticed 30 years ago as a doctoral student at the University of Zurich.

## "A Very Rare Event"

Fruit-fly-wing cells, grown in a laboratory culture, mysteriously had switched to bright-red eye

Eye continued on p. 20



# Legal Crusaders of the Religious Right

John Cole

Law firms have often provided free services to causes they have supported, but until recently the only legal organizations devoted to the causes of the Religious Right have been the legal staffs of particular churches or organizations. By contrast, the American Civil Liberties Union and the Emergency Civil Liberties Committee have long been active proponents of church-state separation.

In recent years, a number of legal groups have sprung up to advance conservative religious causes. Some brag about having "SWAT teams" on call to pounce on potentially offending school boards, city councils, or whatever with threats of costly litigation unless Religious Right demands are met, says the *New York Times* (7/6/95).

Perhaps the most conspicuous organization is the American Center for Law and Justice (ACLJ), clearly named to sound like "ACLU" but founded by Pat Robertson and his Christian Coalition. Headquartered at Virginia Beach, VA, also home of the Robertson television empire, the ACLJ employs 15 staff lawyers, with Jay Sekulow as chief counsel. It has branches in Atlanta, Washington, Phoenix, Mobile and Louisville. It has 500 affiliate lawyers (ie, not full-time staffers). With 400,000 donors, their annual budget this year is \$8 million.

The Rutherford Institute is much smaller but extremely powerful in conservative circles. Founded by John Whitehead in Charlottes-

ville, VA, the Rutherford Institute provides legal aid to the usual range of creationists, school prayer advocates and anti-abortionists from a perspective a bit more radical than many conservative tastes: "Christian Reconstructionism," which is a movement which advocates what is essentially the "reconstruction" of Christian theocracy.

Smaller outfits include the Liberty Counsel of Orlando, FL, which relies on outside lawyers, the Becket Fund for Religious Liberty of Washington, with three regular staff lawyers, and the Christian Legal Society Center for Law and Religious Freedom. The latter employs three staff lawyers in Annandale, VA, and lists 4500 other Christian lawyers around the US as

affiliates. They have tended to specialize in antiabortion cases and clinic protesters.

Now, when a local teacher or evangelist wants to promote "scientific creationism," there is no need to call a random lawyer—there are highly organized, expert lawyers at hand, working to "counteract the ACLU," as they often freely acknowledge. Heretofore, evolutionists have typically outclassed the opposition in legal talent, when cases have gone to court, but that unilateral situation is a thing of the past. The creationist legal and scientific case is still weak, I would argue—but today they can mount skilled (and relentless) legal challenges and defenses from very deep pockets of funds. ■

## Eye continued from p. 19

cells. "I'll never forget that," he said. "It was a very rare event. It happened only once, but it showed me that it could happen." He still has a color slide of the phenomenon, which he dubbed "transdetermination."

Research techniques at the time were not adequate to investigate or explain it. Still, he was confident of what he had seen, and last year he predicted to colleagues that he could get eyes to develop in odd places. Mr. Rubin said few *Drosophila* geneticists anywhere would have given him much chance of success.

Now Mr. Gehring has assigned some of his research assistants, armed with the new findings, to figure out how transdetermina-

tion happens. Meanwhile, he said, he was willing to bet that at least some of the fruit flies' oddly located eyes are neurologically wired so that they actually function as eyes.

He doesn't give eyes on legs and wings much chance of making the necessary connections but holds out more hope for the ones closer to the head, particularly those on the end of antennae.

"Nobody wants to bet against me any more, even a small bottle of wine," he said. "But I could be wrong."

*Reprinted with permission from The Chronicle of Higher Education, May 26, 1995 pp. A8-A9. ■*

▼  
ACLJ is *not*  
a typo  
▲

# Creationism in Hemet, CA Fits Familiar Pattern

Molleen Matsumura

**S**ex Respect Class Sparks Dispute: Hemet Program Upsets the ACLU, Planned Parenthood," read the February, 1994 newspaper headline. Now, a little over a year later, in an incident that is already receiving coverage in the local press, this southern California town is on the verge of making headlines again—but this time the issue is creationism.

While the earlier controversy, like the creationism conflict that had occurred in nearby Vista, CA, centered on what curriculum should be adopted by the school board, the issue this time is whether a middle school science teacher should continue presenting a curriculum unit asking students to evaluate the "pros and cons" of the theory of evolution.

The reading materials assigned as sources for criticisms of evolution are primarily publications of the Institute for Creation Research. Like many teachers who want to bring creationism into the classroom, the teacher is defending his assignments as exercises in critical thinking.

According to one citizen, the political atmosphere in Hemet has become so strained that speakers at public meetings frequently attack the motives of anyone with a different religious affiliation. The parent who has complained about the creationist curriculum is doing his best to avoid heating things up even more, and, wisely, has emphasized the issue of good science education. Himself a science teacher at a local community college, he has been careful to make clear that he is not making a personnel complaint, but asking

the school district to clarify its curriculum policy.

In the first step of the process for dealing with parental complaints, the middle school principal has stated that the curriculum unit is appropriate. Discussions have been moved to the district level. NCSE is providing information about the scientific issues and the interpretation of the state Science Curriculum Framework, which does *not* allow for spurious "criticisms of evolution." Logically, "nonspurious" criticisms can't be forbidden, but they have not yet been discovered. But antievolutionists are more and more turning to this new version of "equal time" and "skeptical analysis," despite their admissions that their alternatives are based on faith and show zero tolerance for skeptical analyses of their own "revealed" views. ■

▼  
Teach  
evolution's  
pros and  
cons?  
▲

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## The Last of Peloza? Don't Bet the Rent Money

John Cole

**I**n the closing days of the 1994-1995 Supreme Court session, there was a flurry of decisions, many of which received little press attention. Unsurprisingly, a *non*-decision also received little coverage. The Court declined to hear the appeal of the 9th Circuit Appeals Court which had ruled in *Peloza v. Capistrano* that John Peloza could be forbidden to teach "scientific creationism" by his Capistrano, CA school administration. Peloza had argued that his religious freedom was be-

ing trampled by his employers's insistence that he not teach creationism, as *Reports* readers will probably remember.

The Appeals Court had ruled against Peloza earlier, so he appealed to the Supreme Court, with the aid of nationally prominent "religious rights" lawyers (see Legal, p. 20). Since the Supreme Court declined to hear the case, creationists are taking some solace in the idea that "this has not really been decided yet." Technically, the ruling by the 9th Circuit Court is not binding on other circuits, although

in practice such a legal precedent is routinely honored by other courts. Nevertheless, Peloza and his attorneys may be heard from yet again, and their basic argument will certainly be used by other creationists and other lawyers in other venues. As we at NCSE say too often, stay tuned. . . . Lacking a definitive (perhaps even unanimous) Supreme Court ruling, "scientific creationists" feel they still have the potential for an upset victory in the courtroom, and they are clearly supported by three sitting Supreme Court members, Justices Scalia, Thomas, and Rehnquist. ■



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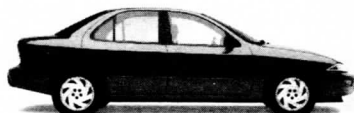
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■ The tribute to Motoo Kimura (14(4):17) is well deserved. Your obituary correctly states that "Kimura was not an anti-evolutionist" [despite some creationist attempts to quote him thus]. He recognized the occurrence of a few beneficial mutations, acted upon by natural selection, in addition to the large number of neutral genetic changes. He died of amyotrophic lateral sclerosis after a long illness. I had the pleasure of collaborating with him in a joint publication in 1984 ("Evolutionary Constraints and the Neutral Gene Theory," *Journal of Molecular Biology* 21: 90-92).

Thomas H. Jukes  
Dept. of Integrative Biology  
UC Berkeley, CA

■ May I make the following pleas to readers who do not happen to hold religious beliefs? No. 1: Do not allow yourselves to be described as "atheists." Not only is that term commonly taken to be pejorative but—and this is worse—it is customarily understood as implying adherence to a belief system in opposition to those of the religious. That is, of course, exactly not the case: there exists no such opposing belief system at all, so "atheists" should be merely "not theists." Any labels are applicable to the religious—Christian, Jew and so forth; but those who hold to no religious belief system at all warrant no such label.

A non-theist is put at a disadvantage by accepting the "atheist" label: An "atheist," presumed holding to an opposing belief system, may properly be considered "against

us;" while a "non-theist" may only properly be considered "not with us." There is a difference, although it is, of course, ignored by many. No. 2: Do not accept the term "skeptic," either. To me that is a defensive, tentative word, describing an intellectual position that is contrary to the norm or that differs from conventional wisdom. I don't take that to be the case today. "Wisdom" today lies in understanding nature—human and otherwise—using the accepted tools of our Age, rational thinking and scientific method. Today's norm includes acceptance of natural selection, of the bio-genetic basis of living things, and of the geological record, for example, as being proper explanations of natural phenomena. So it is those among us who continue to hold to their alternative supranatural explanations who have become the skeptics. And No. 3: Do not answer in the affirmative when asked, "Do you believe there is no God?" Of course you don't believe that; you can't: One can't believe in the non-existence of anything; a belief per se can only be held as regards its existence. It is the same kind of argument I have about "atheist;" this type of phrasing gives the advantage to the person who is asking.

K.C. Herrick  
Oakland, CA

*Ed: NCSE is neutral on religion—and the lack of it. There are obviously times one might wisely avoid flaunting personal beliefs in order to avoid giving unnecessary offense, but don't you think that people should be free to be*

*Baptists or Atheists or Deists or Skeptics or whatever, without apology? However, I agree that disagreement with creationism should not be labeled as "Atheism"—whether the person doing it is a priest or an atheist.*

■ The "Keeping Tabs" editorial by Dennis Feucht was certainly strange. He calls the persecution of Galileo by the church a myth. It is certainly true that there were various forces in the church, but the ones who prevailed had Galileo imprisoned. (The Church has long recognized the virtue of a diverse gene pool, for example supporting both revolutionaries and the aristocracy in Latin America).

Later he seems to equate materialism with an eternal universe. I am not at all sure how this jump gets made. If I make a wild guess at the neologism, it might be that an eternal universe does not require a creator. Of course, one can logically have any four of the combinations (an eternal, spiritually enhanced universe; an eternal materialist universe; a universe created by a purely physical agency; or a universe created by God). Perhaps he is taking off from the comments of Hawking, who is in the second of these camps, as the only possible alternative to the fourth.

Severe misunderstanding of physics seems to be present here as well. It is true that a large camp of physicists are seeking a kind of fundamental explanation very far from experiment. However, the physics community will not accept such theories, which are under

development in many competing forms, until they make contact with data. I recommend the works of Weinberg, particularly "Dreams of a Final Theory," for these topics. Unlike Hawking, Weinberg draws clear lines between accepted physics, speculative physics, and his own philosophical perspective. It is unfortunate but inevitable that people will draw on popularized books to try to prove things about science. In this case, Mr. Feucht has apparently taken off from those who think they can construct a logical edifice without recourse to experiment. This tendency has always existed in science, as well as that of the face-in-the-mud experimentalist who sees real science as only the accumulation of data with no attempt to make sense of it. Science is enriched by the interaction of these types with each other, as well as the new breed of computer simulators. Science works because of this interaction. However, few books that make it big in the popular press are written by pure experimentalists.

Adrian L. Melott  
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*Ed: More comments will follow.* ■

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