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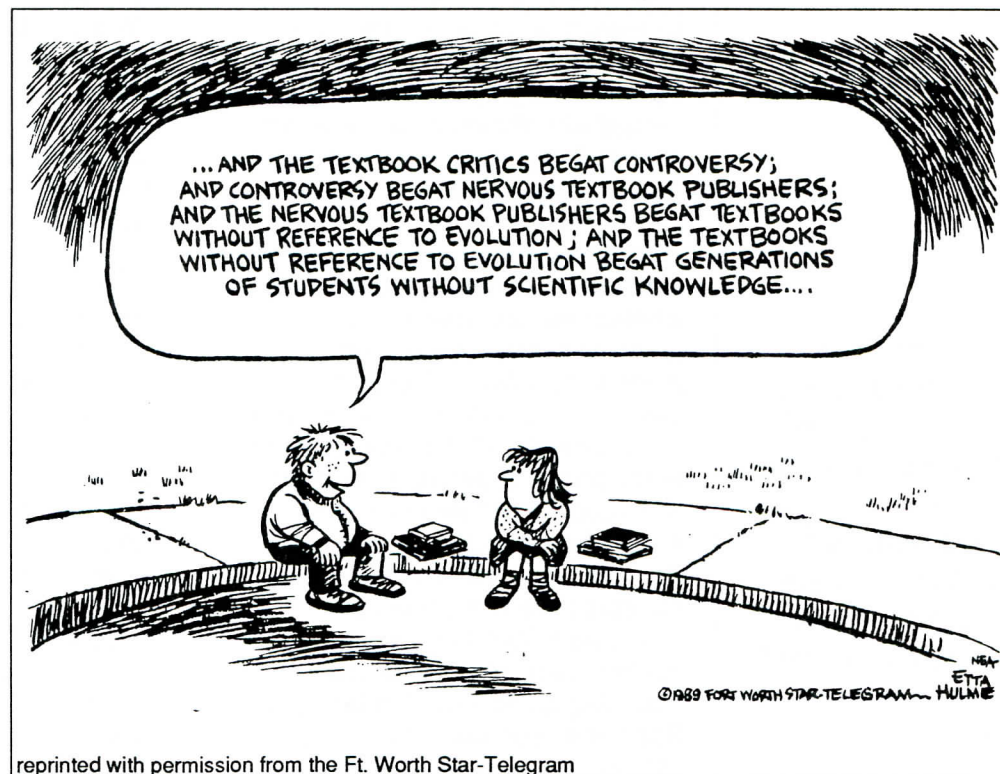
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Evolution in Geology Books Challenged in Texas

"But after eight years, I still have to urge that they — and by that I mean you — take the advice and counsel of legitimate, trained scientists over that offered by untrained and scientifically ignorant individuals espousing religious or pseudoscientific views of nature (such as creationism).

"The fact that I still have to urge such a thing as listening to scientists about science education only underscores the immense problem our country faces as we fall further behind other industrialized countries in the scientific education of our youth. ... There are many things that must be done to correct this problem, but there is one thing that you can do: insure that proper textbooks are adopted for science courses in our schools."

Thus testified Texas CC Liaison Steve Schafersman at the Texas Textbook Committee regarding geology books on July 12, 1989. According to curriculum guidelines, both physical and historical geology are to be covered in the two-semester geology course offered at the high school level. However, the only two books submitted by publishers for this course *see Texas, p. 9*



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NUCLEUS

Scott Talks on Christian Radio

NCSE Executive Director Eugenie C. Scott had the opportunity to appear on two Christian radio talk shows recently. On June 26, 1989 she appeared on *John Stewart Live*, on KKLA in southern California, and on August 14, on *Talk Back with Bob Larson* on the International Broadcast Network. It was an opportunity to reach large numbers of people who, like most Americans, are largely ignorant of evolutionary science, but who also may have been sold the idea that evolution is an evil idea that will corrupt their children. Scott's approach was to present science as an epistemology independent of - not hostile to - religion, with the hope of converts to "scientific" creationists, and perhaps even winning a few to the evolution side.

Scott's opponent on the John Stewart show was Hugh Ross of Reasons to Believe Ministries. Ross, a physicist, is an upholder of special creation, but not a young-earth creationist of the ICR variety. He holds a Ph.D. in Astronomy from the University of Toronto, and is the author of *Genesis One: A Scientific Perspective*. He is particularly concerned with the origin of the earth, the Big Bang, and the possible role of a Creator in that event. Scott's strategy was to stress that the real argument between evolutionists and creationists is not First Cause but whether the universe as we see it today was produced suddenly, in its present form (what Craig Nelson calls "quick creation") or whether the universe today is different from that of the past (i.e. whether evolution has occurred.) One of the callers was Robert Kofahl, of the Creation Science Research Center, who protested the California Science Framework for being "dogmatic" on evolution and thus in violation of the 1981 *Seagraves v California* decision. Ross had seen the Framework, and although he suggested some re-

writing of sentences that did not distinguish between science and scientism, praised it, saying: "overall it's a commendable document that is really trying to encourage a thrill for science learning amongst students." Scott and Kofahl had a lively exchange when Kofahl accused the Framework of "robbing the Christian student who believes in creation of all constitutional rights in the classroom." Scott countered by ridiculing the hyperbole of "all constitutional rights" (*Habeas corpus*?!), and, having a copy of the Framework draft handy, took the opportunity to read to the radio audience the section of the Framework in question. Kofahl persisted in protesting that the Free Exercise Clause of the First Amendment was violated by the teaching of evolution, and about then the host of the show cut him off and went on to another caller.

The two-hour Bob Larson show is broadcast to 91 stations nationwide, and claims an audience of two million. Trailers for the show began by intoning "Atheism — Evolution — New Age! Atheism — Evolution — New Age!" as if there were a logical connection (which the host firmly believed). The show was titled "The Dinosaur Dilemma," though the discussion had little to do with dinosaurs. As usual in exchanges with fundamentalist Christians, Scott stressed the large number of Christians who find evolution compatible with their faith; Larson rejected them as "creationist wimps," "confused Christians who didn't have their heads on straight," and "crummy Christians." The first caller was "Frank from Louisville", none other than Kentucky liaison Frank Lovell, whose sane and sensible comments were supportive of Scott and her definitions of science and evolution, and the strengths and limitations of science. When Larson challenged Lovell with the familiar "show me a species evolving into another one and I'll believe it," Frank mildly responded that the failure to do in a few years what it took nature millions of years to do is not grounds for rejecting the

Scott stressed the large number of Christians who find evolution compatible with their faith. Larson rejected them as "Creationist wimps" and "Crummy Christians."

idea that evolution occurred. Other callers made good points as well, and the two hours went by quickly. One caller began by jovially ribbing Larson that "you've met your match today" and "this guest really makes a lot of sense." Scott and Larson got into a spirited exchange over whether "scientific" creationism should be taught in schools, and touched on numerous other subjects.

Tapes of both programs are available on loan from NCSE. See the centerfold for details.

Teacher Harrassed Over Evolution

An Ohio school teacher (who for legal reasons has asked to remain anonymous) has filed a suit against his principal and superintendent in Federal District Court. The complaint alleges that the defendants denied the teacher's right of freedom of association regarding the teachers' union, and subjected the teacher to discipline for exercising free speech rights within and outside of the classroom. A few parents had complained about the teaching of evolution, and the plaintiff claims to have been neither supported by the principal, nor given a chance to see or respond to the complaints. The district subsequently instituted a vaguely-worded policy on "controversial issues" requiring "prior administrative approval" before they were taught. NCSE will assist this teacher where possible.

"Teaching creationism as a science is like teaching witchcraft in medical school. To teach it as a science is to cheat the student and to debase the educational system of this country."

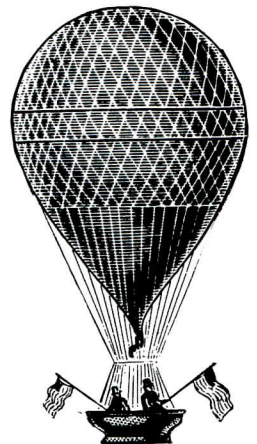
Donald Johanson, paleoanthropologist
Lynchburg News, 3/23/83

How Can We Get the Word Out?

Even after over a decade of anti-evolutionist activity, the "scientific" creationism movement is still not taken seriously by many scientists and educational administrators. Teachers know that this movement threatens the integrity of science, and they need our support. NCSE is the only organization specializing in the creation/evolution controversy, and we can and do help teachers, parents, scientists, and others oppose "scientific" creationism on the local level. Will you help us reach more people? Recommend to your local school, university, or public library that they subscribe to *NCSE Reports*. Tell them that the institutional subscription is no more than the individual subscription, and a bargain at \$10/year. We will reach many more people if our information can get into libraries. Please help. Write to Liz Hughes, NCSE, Box 9477, Berkeley, CA 94709 if you would like us to send a sample copy to your library.

NCSE Rises, Literally

NCSE opened its first national office in January of 1987, in the basement of its Executive Director, Eugenie C. Scott. Although the Carnegie Corporation grant that provided the start-up funds included money for rent, it was felt that a small office could meet our needs — and we could better use that money for text-book improvement! Finally, however, NCSE has outgrown the basement, and in February, 1989, we moved up to the surface! Now the office staff can work without stepping on one another. Come and visit us in our new, airy, if modest, quarters in downtown Berkeley! Our address is 2107 Dwight Way #105, Berkeley, CA 94704. The P.O. Box remains the same. We hope you can come and see us some time!



LETTERS

Spreading the Word

Dear Editor:

I would like to suggest that the readership join me in spreading the words of the serious matters brought to our attention in the NCSE Reports.

I made reproductions of the recent articles (9(2):9) on the dangerous film "Dinosaurs," and distributed copies to my local school district, State Superintendent of instruction and local politicians.

I made reproductions of the 9(3):16 article "Newspaper Exposes Textbook Selection Process" and made the same distribution, requesting copies of policies per the last paragraph.

I copied the terrifying article on the proposed Constitutional amendment by the Neanderthal Danne-meyer (9(3):1), and am sending copies to my Senators and the entire Washington State delegation to Congress. Copies are also going to local newspaper, local politicians and everyone else I can think of. Can this really be 1989?

Lastly, I copied the frightening article from 9(2):20 titled "Disturbing Trends at the National Science Foundation. (I believe the Foundation was started by Jefferson.) This too has been sent to all Congressional representatives and local politicians.

I invite all readers to join me in this kind of activism. If we are to succeed, we must be innovative and seize every opportunity to press our points.

Arthur W. Schneider
Seattle, WA

Science is the great antidote to the poison of enthusiasm and superstition.

— Adam Smith
The Wealth of Nations, 1776

Clarification on the Location of Eden

Dear Editor:

Two thoughts regarding your discussion of the L.D.S. World History chart in *Reports* 9:3. The L.D.S. church does not hold the position that the American Indians are "relics of the lost tribes of Israel." The Church believes that some are simply descendents of one Hebrew father and mother and their families who came to the New World on an ocean-going craft directed by a supernatural compass (the Liahona.) Father Lehi had two sons, one of which was Laman, who, because of warring and sinning, was cursed with a dark skin. This curse of darkness resulted in a good percentage of the Indian peoples we know of today. The term "Lamanites" in L.D.S. jargon refers to these "unfortunate" people.

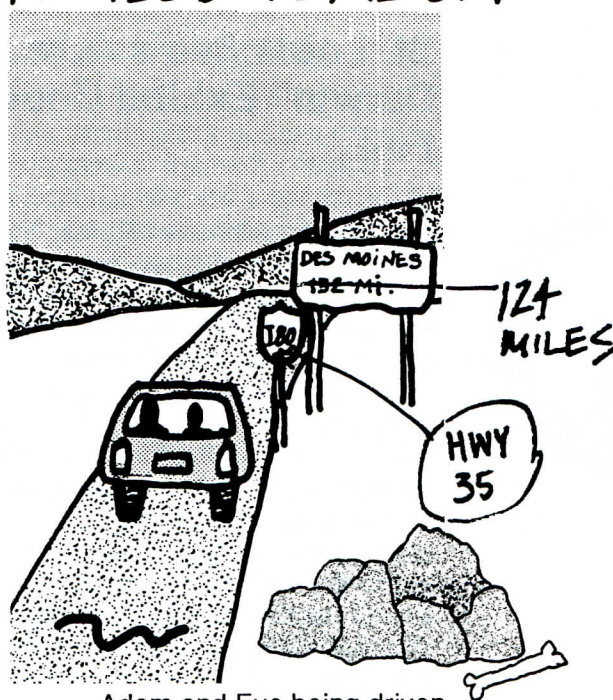
As to the exact location of the Garden of Eden, this is a rather simple task because Joseph Smith "discovered the actual altar made out of stone" that Adam built and at which location he held divine services. In the text *Mormon Doctrine* by Bruce R. McConkie, we find, "The early brethren of this dispensation, taught that the Garden of Eden was located in what is known to us as the Land of Zion, an area for which Jackson County, Missouri, is the central place (1966:20). At that great gathering Adam offered sacrifices on an altar built for the purpose. A remnant of that very altar remained on the spot down through the ages. On May 19, 1838, Joseph Smith and a number of his associates stood on the remains of the pile of stones at a place called Spring Hill, Davies County, Missouri" (p.21). The highly respected late L.D.S. scholar and historian B.H. Roberts, made the following statement regarding the exact location of the Garden of Eden: "When the altar was first discovered, according to those who visited it frequently, it was about sixteen feet long by nine or

ten feet wide, having its greatest extent north and south. Such was the altar at 'Diahman' when the prophet's party visited it. Now, however, it is thrown down, and nothing but a mount of crumbling stones mixed with soil and a few reddish boulders mark the spot which is doubtless rich in historical events."

The land of the altar is owned by the L.D.S. church. I would think that archaeologists at BYU would be eager to dig the site and to save this precious site for all mankind as a relic of father Adam. The altar must be rather well made to have survived the Flood of Noah!

Ernest C. Conrad
Rancho Cordova, CA

REVISED VERSION



Adam and Eve being driven
from the garden

Science as a Liberal Art

Leon Lederman

One of my colleagues wrote, outraged, to a Federal judge in Louisiana, in the town where he comes from. This judge had ruled in favor of giving equal time to creationist science in the schools, and replied, "One group of scientists says that it's nonsense; another group of scientists says it's valid. I'm not a scientist, so I decided to give them equal time."

I think that's a cop-out. It brings us back to what I think is one of our fundamental issues: public understanding of science. One usually starts out discussing that with the horror statistics. Surveys show one out of three American citizens has no idea what a molecule is. Only one high school student in ten takes a course in high-school physics. One of our local surveys revealed that only half the people understood that the Earth circles the sun, and it takes 365 days.

A long-range solution is that we have to do better in grade school. But these kids enter schools where

teachers, who are presumably college graduates, teach them science. We know what a bad job is being done by many teachers. You can stop at any point in a child's life and educational cycle to see why so many of our citizens are uncomfortable with science. The jobs we do in colleges are just as terrible. We in the academic community have a responsibility, because these students are under our control for four years. From inside the university, I've seen social scientists and humanities professors in some sense become alienated from what is a tremendous intellectual activity in science, and they therefore become hostile to it.

Somehow, in the university, we have to find a way of not only teaching science better, but also of teaching science as part of history and the humanities. So, in four years, people will graduate feeling somewhat more comfortable with science. If we get that comfort-level up, then judges in Louisiana will make sounder judgments about which group of people to trust.

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CC UPDATE



St. Louis Zoo's "Living Darwin" Exhibit Under Fire

Missouri CC liaison Ranse Traxler reports that the Missouri Association for Creation, an ICR-affiliate located in St. Louis, has instituted a letter-writing campaign against the St. Louis Zoo's "Living World" display, which includes a life-size, Charles Darwin robot. (See *NCSE Reports* 9(2):6). The exhibit is forthright about evolution, and invites visitors to go on "a journey ... to trace life's evolution from one-celled creatures too small to see with the naked eye, to jellyfish, worms, and insects, and then to the parade of vertebrates: fish, frogs, reptiles, birds, and mammals." Ohio member Timothy Berra reports, "I visited there last month and was very impressed by the forceful statements about evolution."

The leader of MAC is Dr. David Menton, an associate professor of Anatomy at Washington University in

St. Louis. Menton requested that the display be "less dogmatic" in its presentation of evolution, and that qualifying statements such as "some scientists believe" be inserted to indicate that "there is room for doubt" about the evolutionary model. NCSE informed its St. Louis area members about the controversy, and requested that they send letters of support for the exhibit to the Museum. The St. Louis-based TV evangelist, Larry Rice, broadcasting on his own channel, has now jumped into the fray as well, showing the "Crossroads Creation" series of videos, and D. James Kennedy's sermons against evolution interspersed with attacks on the zoo for "spending \$17.7 million dollars of your tax money" to "teach our children that they came from monkeys."

Anyone wishing to write a letter in support of this strongly evolutionary display and the museum staff which is standing firm against the creationists should write to Editor, St. Louis Post-Dispatch, 900 North Tucker Blvd., St. Louis, MO 63101-1069.

Creationists Speak in Michigan Public School Assemblies

In *NCSE Reports* 9(3):21 we wrote that ICR's Ken Ham had visited a series of science classes in Illinois, allegedly delivering the creation "science" message to thousands of students. Presenting creationist ideas to students through guest speakers may be a strategy being used more frequently. It avoids some legal or regulatory problems raised by having teachers present the material.

Michigan liaison Carl Jay Bajema reports that last spring "during the 'Annual Talkfest' at Grand Rapids City High School (the elite school for talented students), Mr. Craig James, a fundamentalist TV weatherman personality, presented his case for why evolution is a religion just like all religions (and therefore not a science) and another fundamentalist preacher presented his views on religion and against humanism. No one was

invited to present the case for evolution as a science nor the case for humanism as opposed to religions. All students in grades 9-12 were required to attend these talks. To the best of my knowledge no time was spent by teachers in preparing the students with respect to the scientific and constitutional issues involved nor in any meaningful followup. When I requested information from the teacher advisor for the student committee that organized the talkfest she was unable to provide me with any information as to how these talks were being integrated into the education of the students.

"This is not the first time such an 'event' has taken place at City High School. My wife and I protested several years ago and were given verbal assurances it would not happen again. With a change of administrators at

Liaison Update

In *NCSE Reports* 9(1):18 we listed the liaisons of the Committees of Correspondence by state. Here are two more:

Rob Day
Computer Science Dept
University of Manitoba
Winnipeg, Manitoba,
R3T 2N2, Canada

David Benner
Biology Department
Eastern TN State Univ
Johnson City, TN 37614

City High School it happened again. The initial attitude of the teachers and administrators at City High is that evolution is taught in their classes and that it is only fair that creationism be given a hearing."

Bajema protests this activity on two grounds: no one was invited to present the case for evolution, and the assemblies were not integrated in a meaningful way with the curriculum of the school. Thus there was no follow-up to indicate to the students that they had received a very one-sided view of evolution that was not shared by scientists. Bajema will monitor the situation and keep us posted.

Missouri CC at VP Fair

Each year over the Fourth of July weekend, St. Louis holds a massive fair on the grounds of the Gateway Arch. This year, the Veiled Prophet Fair for the first time hosted a science education booth, sponsored by the St. Louis Association for the Teaching of Evolution (SLATE), the Gateway Skeptics, and NCSE. Missouri liaison Ransom Traxler put in many hours planning, organizing, and finally staffing the booth, with help from Skeptics and members of the Rationalist Society of St. Louis. Beneath their banner, "Science or Pseudoscience: Which is in Your School?" Traxler and his helpers sold books, distributed brochures and publications, and engaged in lively discussion with both supporters and defenders of pseudoscience. Many thanks to the people who helped, especially Earl Myers, Robert Essman, and Ransom Traxler.

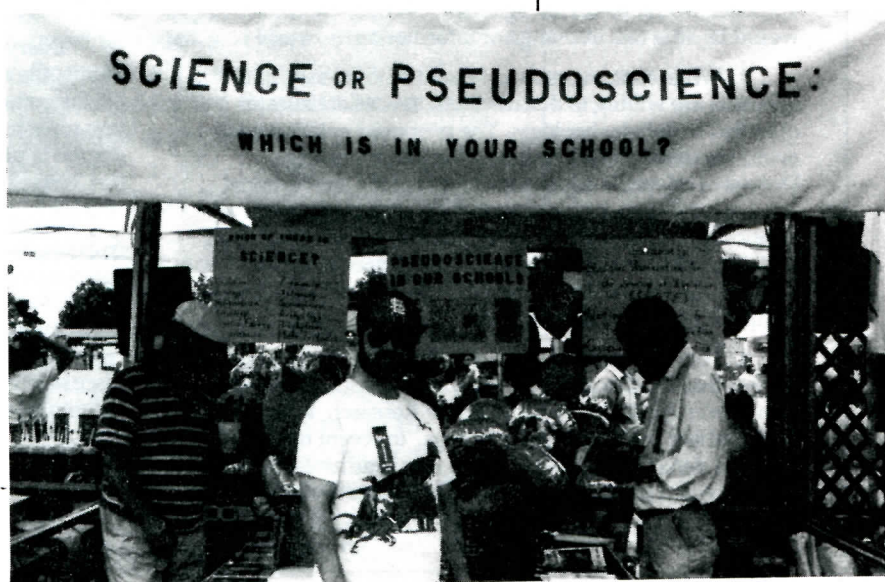
NCSE/SLATE/Gateway Skeptics booth at the Veiled Prophet Fair in St. Louis.

l to r: Earl Myers, Ransie Traxler, Robert Essman.

More Newsletters

Five Committees of Correspondence produce regular newsletters, and all accept out-of-state subscriptions. Here's how you can subscribe:

- CALIFORNIA. *BACC Science! Newsletter of the Bay Area Committee of Correspondence for Science*. 4 pages. Editor: Eugenie C. Scott, BACC, Box 9477, Berkeley, CA 94709. Subscription: \$5; send to same address.
- IOWA. *Iowa Committee of Correspondence Newsletter*. 13 pages. Editor: Paul Bartelt, Waldorf College, Forest City, IA 50436. Iowa membership - \$10; Subscription - \$5; send to Don Huffman, Treasurer, Iowa CC, Central College, Pella, IA 50219.
- ILLINOIS. *The PseudoScience Monitor*. Newsletter of the Midwest Committee for Rational Inquiry. 8 pages. \$17 membership includes 1-year subscription. MCRI, P. O. Box 977, Oak Park, IL 60303-0977.
- OHIO. *Newsletter of the Ohio Center for Science Education*. 11 pages. Editor: Michael Zimmerman, Biology Dept, Oberlin College, Oberlin, OH 44074. Membership \$10; send check payable to OCSE to Mark Evans, P. O. Box 21011, Columbus, OH 43221-0011.
- ONTARIO. *OASIS Newsletter*. Ontario Association for the Support of Integrity in Science Education. 11 pages. Editor: J. Richard Wakefield, 385 Main Street, Beaverton, Ontario, Canada LOK 1A0. Subscription \$5; send check payable to J. R. Wakefield, same address.



Why Massachusetts Declines to Debate

Last July, 7 University of Massachusetts faculty received certified mail letters from a Rev. John Volante from the Heritage Baptist Institute in Easthampton, MA, challenging them to debate Duane Gish of the Institute for Creation Research on October 26. Also receiving the letter were a total of 16 faculty members from Amherst, Smith, Mt. Holyoke, and Hampshire Colleges, President Bush, Senator Edward Kennedy, Governor Michael Dukakis, and Massachusetts Representatives Silvio Conte and Shanon O'Brien, and "31 selected news media outlets." Upon receiving no response, Volante wrote to the list in early August saying, "if you are planning to ignore the challenge and

make no response, (either a gracious refusal based on lack of qualifications or acceptance), that would indicate that the evolutionary model of origins does not have a worthy proponent in your institution. If not one qualified individual in the institutions of higher learning in our area responds to accept the challenge, this will be a truly news worthy (sic) story. We will not hesitate to share this with the media."

In *NCSE Reports* 9(3):20 strategies were discussed for presenting evolution to the non-scientific public, such as in debates. Laurie Godfrey and John Cole of the Massachusetts CC composed a response to Rev. Volante's request that presents some good reasons for not debating at all. Feel free to use their ideas if you are asked to take part in an ICR circus-type debate:

Dear Rev. Volante:

With regard to your letters of July 1 and August 1, I decline your invitation to debate or to produce a debater to "defend" evolution at the proposed October Heritage Baptist Institute meeting. My reasons are as follows:

1. Evolution is the central organizing principle of biology and essential to the understanding of many other sciences including astronomy, geology, anthropology, and biochemistry. From a scientific standpoint, it does not need defending, any more than cell theory, electricity, or gravity need defending.

2. A debate on this subject in this religious setting would not be a worthwhile expenditure of time for the scientist. Judging from your letter, most minds in the audience would be biased against evolution, and there would be little real exchange of information.

3. While controversies are essential to science, and scientists are willing to discuss them, few scientists are qualified to debate theology. The proposed creation and evolution debate would not be a scientific exchange. Dozens of scientific organizations including the National Academy of Sciences have declared that "scientific" creationism is not science, as has the Federal District Court decision in *McLean v. Arkansas*. To compare "scientific" creationism with science is no more parallel than comparing tigers with tiger lilies.

4. To elaborate on point 3, let me call your attention to the fact that Dr. Duane Gish, the special creation defender, comes from the Institute for Creation Research, which is an unaccredited institution in California. In recent months, ICR was denied state approval to grant graduate degrees in science and education. In the opinion of the state of

California, ICR does not teach science, as claimed, but a sectarian religious view. Well-informed creationists have also indicated that the ICR "science" training program is a sham, I might add. Scientists, similarly, reject "scientific" creationism as science. Recent articles published in the *New York Times*, the *Los Angeles Times*, and the *El Cajon Californian*, strongly discourage scientists from engaging in debates with representatives from the ICR.

Here are some quotes from recent newspaper articles:

"No one is stopping the Institute of Creation Research from granting degrees in religion or creation," said Dr. Bill Honig, the state school superintendent. "But they are holding their people out to have science degrees, which they don't. The vast bulk of what they learn is not science" (*NY Times*, 12/8/88).

"Everyone agrees creationism is not science", said Bill Honig, the state superintendent of public instruction. "The US Supreme Court said two years ago it's not science, so, if you want to call it creationism, fine, but you can't call it a degree in physics or geology. It's not science, it's religion." (*LA Times*, 12/9/88)

I decline your invitation for a "scientific" debate on creation versus evolution on the grounds that no public education would ensue, and that creationism is not a scientifically defensible position. There are, of course, opposing theological viewpoints concerning special creation versus theistic evolution, but these should be discussed within the religious, rather than the scientific community.

Sincerely,

Texas ...

were physical geology books from publisher Wm. C. Brown. Schafersman, NCSE member Basset Maguire, and Elizabeth Judge of Broader Perspectives, Inc., all testified as to the inadequacies of teaching a complete geology course using a text which only covered physical geology. Historical geology, of course, would require the inclusion of evolutionary topics and the age of the earth, the source of some of the opposition to what little historical geology would be taught.

Maguire, biologist and ecologist at UT-Austin, pointed out the lack of historical geology in the submitted texts, and suggested that the staff of the Texas Educational Agency (TEA) confer with scientists from the University of Texas to re-write the required-content guidelines for geology texts. This is something NCSE has been strongly advocating, on the basis of our experience in California and other states. It is essential that university scientists become involved in pre-college education to insure that the content of materials used by students is up-to-date and accurate.

David Muralt represented Citizens for Excellence in Education (CEE), a spin-off of Robert Simond's National Association of Christian Educators (NACE). He challenged the geology books on the grounds that they dogmatically presented the earth as old, excluding the "evidence" for the young earth "theory." This omission, according to Muralt, would lead children to misbehave. Citing TEA documents, he noted that "'(3)(B) Textbooks should not contain material which serves to undermine authority.' These sections are violated by the old age theory being in opposition to the teaching of the Bible, the church and the parents of Christian children and anyone that believes in a young earth age. This violates their rights and undermines parents, the church and the Bible.... Why does the Grand Canyon need billions of years to form when the eruption of Mt. St. Helens

"The fact that I still have to urge such a thing as listening to scientists about science education only underscores the immense problem our country faces ..."

formed a canyon with 110 foot walls in just 30 days?"

Interestingly enough, the California Statement on Science (the revised "Anti-Dogmatism Statement", see *NCSE Reports* 9(1):20) came in for praise: "California has an excellent anti-dogma statement they recently adopted and we should adopt it too. It states, 'Nothing in science or any other field of knowledge shall be taught dogmatically. A dogma is a system of beliefs that is not subject to scientific test and refutation. Compelling belief is inconsistent with the goal of education; the goal is to encourage understanding.' When only one point of view, namely old age earth is presented excluding the evidence for the young age theory, that is teaching dogma." The California Statement on Science, of course, is widely interpreted as distinguishing between accepted science and pseudosciences such as creationism, and discouraging the teaching of the latter.

Schafersman reports that Textbook Committee voted on Aug. 22 to reject the two geology textbooks on the grounds that they didn't contain enough material on historical geology nor evolution. This is a victory for those who support good science, and good textbooks. However, the Committee's recommendation must be approved by the Board in November, so there is yet another hurdle.

Texas Text Dispute Information

The Means and End of Freethought
G. Richard Bozarth

The introduction of this 28-page booklet discusses the author's definition of Freethought, but most of it deals with the struggle to change the Texas Education Agency's rules for textbook adoption in 1983 and following. Cost is \$2.85, from G. Richard Bozarth, P.O.Box 313, Round Rock, TX 78664.

IN MEMORIAM

William V. Mayer, 1920 - 1989

Science education lost a vigorous and well-known leader June 30, 1989, when Dr. William V. Mayer, Biology Professor Emeritus at the University of Colorado and Director Emeritus of the Biological Sciences Curriculum Study, died unexpectedly of a heart attack. NCSE lost a supporter who had been with us from the beginning, as well as the Editor-in-Chief of *Bookwatch Reviews* and the Chair of the Textbook Task Force. Those of us who worked with Bill over the years lost a friend and mentor who will not easily be replaced and who will be fondly remembered. We extend our condolences to his widow, Margaret Laird Mayer, and their children, William L. Mayer and Ann Elizabeth Mayer.

William V. Mayer received his Ph.D. in zoology at Stanford University, after obtaining a B.S. at the University of California-Berkeley. He taught biology at the University of Southern California, was chairman of the Biology Department and associate dean at Wayne State University in Detroit, and then moved to the University of Colorado in 1967, where he taught until his retirement in 1982. He has to his credit over 300 books, articles, and reviews, including the edited series *Physiological Mammology*.

Bill was generous with his time and his talents, and he had a vast knowledge of science education. Rare among science educators, he had a distinguished career as a scientist; rare among scientists, he had an abiding dedication to science education, and worked with one foot in each camp. He had the gift of bringing people together into a dynamic, productive group, and through his organizational skills gained the respect of many colleagues around the country. Serving on a committee with Bill meant getting things done.

He was a former president of the National Association of Biology Teachers (NABT), and was active in many other scientific and educational societies as well. For NABT he edited the periodical *Scientific Integrity*. In addition, he chaired the American Society of Zoologists' Committee on Public Issues, and was a member of the Commission for Biological Education of the International Union of Biological Scientists. Service was also extended to volunteer organizations of a variety of types from model train societies to the civil liberties organization, Voice of Reason, and to the Colorado-based Rocky Mountain Skeptics.

Bill Mayer is perhaps best known to us as, first, the Associate Director (1963-1965) and then the Director (1965-1982) of the Biological Sciences Curriculum Study (BSCS). Begun in 1959, BSCS was originally funded by the National Science Foundation during the "science education panic" following the launch of Sputnik in 1957. It took the then-novel approach of having professional scientists write the textbooks, rather than textbook company editors. As described by Grabiner and Miller (1974), BSCS books "completely transformed the profile of high school biology texts." One important way in which BSCS books differed from their conspecifics was in the uncompromising presentation of evolution as an organizing principle of biology. "Despite significant state and local opposition to their evolutionary content, the three tenth-grade BSCS texts quickly gained and held half the biology textbook market. Explaining their success, one of the BSCS authors, biologist John A. Moore, observed that BSCS, 'unlike an individual author, carried sufficient clout to insist that evolution be included in texts even though sales would suffer'" (Larson, 1985:96).

Bill felt that the attacks of the anti-evolutionists against biology education should be opposed forthrightly, and took every occasion to do so. In 1981 he was a

consultant to the State of California and a trial witness for the *Segraves v California* case, a significant recent creation/evolution case. When *McLean v Arkansas*, a 1982 Federal District Court creationism trial, was held, Bill Mayer testified, along with Stephen Jay Gould and other nationally prominent scientists and educators. With Wayne Moyer (former President of NCSE) he wrote the textbook review book, *A Consumer's Guide to Textbooks, 1985* as part of a Texas campaign waged by People for the American Way to counter anti-evolutionist textbook censors. He also spoke frequently upon the topic of protecting the science classroom from sectarian incursions of "scientific" creationism, and devoted many of his publications to it.

Bill had much concern about scientific illiteracy, and also about the importance of "science as a way of knowing." Being able to separate different epistemologies and to understand what science was good for and not good for was very important to him, and he dealt with it frequently in his writings. In a speech on "Science and Pseudoscience" at the national Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP) meeting he said:

"No one questions the importance of religion to humankind. But epistemology, the vast structure of knowledge which gives us our disciplines and our major groupings thereof, demands student comprehension of ways of knowing and validity of those ways of knowing in given situations. One of the prime duties of education is to acquaint students with how humankind interprets the world and how the various disciplines not only view a given phenomenon, but how one can value and equate such views. A poet may speak of a mountain's purpled majesty; a forester may view it as a source of lumber; a geologist, as a granite dike; an artist, as an example of nature's beauty; a transportation engineer, as a tunneling problem; a mineralogist, as a source of economically valuable ore; a historian, as a natural barrier to invading hordes; and a vacationer, as a place to fish, hike, camp, or hunt. Each of these individuals is looking at a mountain in a different way. None is wrong, but each can ignore the views of the other in a pursuit of his or her own interpretation. ...as the explanation of none accounts for the totality of our planet, each can be said to have only a piece of the truth."

He was an articulate communicator, in print or at the lectern. In the *Segraves v California* creationism case, Judge Perluss stated, "I was so impressed with the words of Dr. Mayer that I asked the reporter to transcribe them for me, and I would like to read them again to you," and proceeded to quote two pages of Bill's testimony as part of the final decision itself.

In his later years, he seemed to enjoy playing the curmudgeon, putting on a crusty exterior that never lasted very long once the conversation was engaged. His lively and creative mind was always directed to idea exchange and debate. At the same time, he could establish rapport upon meeting a shy five-year-old by discussing — with a straight face — his favorite Sesame Street characters, and why he liked them. He clearly enjoyed his four grandchildren. Although he allegedly "retired" in 1982, he didn't get many chances to lie back and go fishing: he was able after retirement to spend even more time serving the organizations and causes to which he was devoted.

Bill had generously offered to donate his evolution/creation archives to NCSE. These valuable materials include books, articles, court cases, and personal papers, and are quite extensive. NCSE is grateful for the opportunity to establish a scholarly resource in his name. Mrs. Mayer has requested that donations in Bill's memory be sent to NCSE to support the (tentatively named) William V. Mayer Evolution/Creation Archives.

Bill was an institution in the world of science education, and he will be greatly missed by all of us who were privileged to work with him.

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8 1/2 x 11, 91 pp.

Transcript of the 1988 debate (also available on tape), transcribed and annotated by Kenneth Saladin. Includes assessments printed in this newsletter and the ICR's *Acts & Facts*.

"Debate: Duane T. Gish vs. George S. Bakken," at Indiana State University, 17 March 1987.
8 1/2 x 11, 19 pp.

From a debate sponsored by SCAMPS/Campus Crusade for Christ; transcribed by George Bakken.

Video "Debate" Still Available

P.D.Q. Piltdown vs. Charlene Darwin *Science Showdown*, an amusing creation/evolution "debate" held at the American Association of Physical Anthropologists annual meeting, is available on videotape. It includes appearances by Oprah Donohue (Eugenie C. Scott, Executive Director, NCSE), P.D.Q. Piltdown (William Thwaites, former California liaison), Charlene Darwin (Linda Wolfe), and Billy Joe Pollitzer (William Pollitzer, North Carolina liaison), as well as a "cameo" appearance by Charles Oxnard. Also features most of the mistakes scientists make when debating creationists.

The tape may be borrowed for 10 days for \$10, or purchased for \$20. Please use order form at left.

Retracking Those Incredible Man Tracks

Glen J. Kuban

Despite partial backtracking on the Paluxy "man track" claims by creationist leaders in 1986 and 1987, the claims were never fully abandoned, and some new claims were initiated by "man track" enthusiasts Carl Baugh and Don Patton in late 1988. Subsequently, the "new" claims were publicized and partly encouraged by an ICR *Acts and Facts* article by John Morris, and have been promoted by Baugh and Patton throughout 1989.

An update on the continuing saga of the Paluxy River "man tracks"

Morris explained in his article that he had returned to the Paluxy in September of 1988 to investigate "new evidence" gathered by Baugh and Patton.¹ Although Baugh and Patton acknowledge that the Taylor Trail is dinosaurian, they now propose that a human being followed the same trail, leaving a human track inside each dinosaur track. Although Morris stated that this "overprinting" model "may sound bizarre," and that ICR does not advocate it, he proceeded to do just that, maintaining that the new model was "supported by the existence of somewhat human-like impressions, each rather consistent in length..." and "in several cases, toe-like impressions are seen in the proper location. Some are best denoted by an accentuated discoloration."²

Although Morris tempered these assertions by suggesting that "certain identification is lacking," what actually is lacking is any real evidence for the new claims. Having intensively studied the Taylor Site since 1980 (and as recently as August 1989), I can testify that none of the Taylor Trail tracks (or other tracks on the site) contain clear human features, and most do not even closely resemble human prints. In fact, the new "man track" claims are not really new, but are simply variations on the old, thoroughly refuted claims.³ What Baugh and Patton are now claiming as human prints are merely vague or ambiguous features within

the largely infilled metatarsal segments (soles and heels) of the dinosaur prints—essentially the same depressions previously misinterpreted by various creationists as human prints.

Morris claimed that the "human-like" depressions are "fairly consistent in length;" however, the dimensions of the supposed human tracks are not consistent or clearly defined, nor do they contain complete suites of human features. Further, many of the prints contain features incompatible with genuine human footprints. In fact, the same depressions have been interpreted in vastly different ways by different creationist authors—some claiming they were "giant human prints" from 16 to 19 inches long,^{4,5} and others, such as Morris and Stanley Taylor, indicating that the "best" prints in the trail represented normal sized feet about 10 inches long.⁶

Baugh and Patton contend that the "new" human tracks (inside the dinosaur tracks) are each about 11 1/2 inches long. This they attempted to demonstrate by pouring muddy water into most of the depressions until puddles about 11 1/2 inches long were achieved. The resultant shapes often contained irregular or problematic features, and the actual track depressions often continued beyond the largely arbitrary boundaries of the puddles. Of the remaining "man prints" in the trail (those not defined by these puddles), one consisted of a selectively applied film of water on a largely depressionless, well-infilled track (IIS+4). Another consisted of ambiguous, shallow features within the infilled metatarsal region of track IIS-3B; and the last (in track IIS+6) contains a network of mud cracks on the bottom and other features contrasting with normal human contours.⁷

In promoting these "new" Taylor Trail "man tracks" at the recent (August 10-12) Bible-Science conference in Dayton, Tennessee,⁸ Don Patton showed photos of most of these tracks only in selectively moistened or partially water-filled conditions (even though the site was dry

for several weeks). Often Patton focused on the water outlines or any indistinct marking that could be imagined to resemble some part of a human foot, while deeper or more obvious features not resembling human features were largely neglected. Line drawings somewhat resembling topographic images on overlay transparencies also were used to encourage the appearance of man-like features. However, it

The recent Paluxy "man track" claims ... represent an unfortunate sign for young earth creationism. They indicate ... an unwillingness to fully abandon past claims (no matter how thoroughly discredited), and return to the same kind of faulty research, deficient documentation, and inaccurate reporting that characterized much of the past creationist work on this subject.

was later learned that these images were subjective, freehand drawings—based not on the tracks themselves, but on photos of the tracks in their selectively moistened or water-filled states. Because of this, many of the drawings did not accurately represent the real contours of the track, but rather reflected the largely arbitrary water lines and/or the imaginative interpretations of Patton and the artist.⁹

The ambiguity of these supposed "man tracks" is further exemplified by the fact that neither Morris nor other creationist leaders who re-examined the Taylor Site on several occasions between 1985 and 1988 reported seeing *any* clear (or new) human features there, and the tracks have changed very little since then. In fact, when confronted with abundant evidence in 1986 that the tracks here were dinosaurian, Morris and other creationist leaders admitted (in contradiction to their previous claims) that Taylor Site tracks do not, *and never did*, have clear human features.^{10,11} Baugh himself also stated, while discussing the Taylor Trail in one of his brochures (distributed in 1986 and 1987), "there never were any clear toe depressions.... the trail now appears to have been made by a dinosaur."¹² Now both Baugh and Morris appear to be reversing themselves—again!

Also unfounded is Morris' assertion that several prints contain "properly configured toe-like impressions" or that such features are "accentuated by colorations." The only distinct and nonsuperficial color contrasts, which occur at the boundaries of an infilling material and the surrounding sediment, define dinosaurian, not human, features. In contrast, any "colorations" on the alleged human tracks are merely superficial features within (and atop) the gradually eroding and spalling infilled regions. These features are quite unlike the more distinct and significant color, texture, composition contrasts that occur *at the infilling boundary* (as confirmed by core samples, discussed below), which, along with varying degrees of corresponding topographic relief, define dinosaurian—and only dinosaurian—features.¹³

Curiously, Morris evidently does not question superficial and ill-defined colorations misapplied to dubious "man track" claims, but previously suggested that the distinct color and texture features indicating dinosaurian digits might be fraudulent stains (despite overwhelming evidence to the contrary), and that his core samples of the tracks were "inconclusive."¹⁴ Core samples taken by Ron Hastings and I were quite conclusive; they showed a definite continuation of the infilling/coloration boundary well into the subsurface, further confirming the genuineness of the colorations and the dinosaurian origin of the tracks (which was already evident from other features of the tracks).¹⁵

One might wonder why Baugh and Patton have been hunting "man tracks" among (and within) previously well-refuted Taylor Site depressions, when Baugh himself claimed to have found over 50 human tracks (some allegedly "perfect") along his previous excavation sites along the McFall ledge. Perhaps part of the reason is that even most creationists realized that Baugh's past claims did not match the evidence.¹⁶ In any case, although most of the McFall sites were largely neglected after 1986, one section of the McFall ledge (at the western end) was excavated in early 1987, and slightly extended in later efforts. At this site Baugh claimed at least two "human" tracks and later (June 1987) a "human" tooth.¹⁷ Although "man track" claims relating to this site were repeated in 1988 and 1989,¹⁸ no convincing documentation to support such claims has been published. From my own observations at the

site, the "best" of the supposed "man tracks" there (called the "Clark print" by some) was a vague elongate mark situated along a large crack that traversed the site.¹⁹ Moreover, the alleged human tooth, which for many months was hailed by Baugh and others as uniquely human,²⁰ has been shown to be "fishy."^{21,22}

At the recent BSA conference, Robert Helfinstine presented the preliminary conclusions of the "BSA Paluxy Task Force," which was formed in 1986 to reevaluate the Paluxy evidence and BSA's position on it. Helfinstine stated that the present conclusion of the Task Force is that the Paluxy does contain human evidence near dinosaur tracks, citing the new Taylor site "evidences," the "Clark print," the fossil tooth, and the Caldwell cast. Although Helfinstine acknowledged that this evidence entailed some problems, and although I informed him of other, more serious problems relating to the same evidence (that the Caldwell track is a known carving, for example),²³ he nevertheless stuck to his original conclusion. When I asked him why, he replied that it was because he "would expect to find human remains with dinosaurs."²⁴ Further attempts to bring the reason, objectivity, or empirical evidence to bear on his considerations appeared ineffective. Although the newly-elected leaders of BSA indicated a desire to bring more credibility and integrity to the research and writings of BSA, if the approach and methodology of the Paluxy Task Force is any indication, they have a long way to go.

Carl Baugh, who was not at the BSA conference, recently has been promoting a single "man track" in the Kisatchie National Forest of Louisiana. This is an isolated marking (not in a trail) which has been known for many years, and which appears to be an erosional feature to which someone added "toes."²⁵

On August 13 (right after the BSA conference) a small group of creationists (dominated by members of CRSEF, an Ohio creationist group that has supported Baugh's work)²⁶ began reexposing Baugh's first "man track" site along the McFall ledge. They also were attempting to remove a small section of overlying rock using a backhoe and jackhammer. Evidently this was in preparation for an advertised "seminar and dig" to take place August 26th and 27th.²⁷ I and other researchers not associated with the team were allowed to

observe the activities during the first two days. We saw nothing humanlike, although by the end of the first day the team seemed to focus on two shallow, ambiguous depressions near the middle of the site, and the next day they appeared to concentrate on an area of cracks and invertebrate burrows near the section of overlying rock they were attempting to remove.²⁸

When we asked whether they were interpreting any markings as humanlike, we were told that the answer was "classified" and "confidential." The next day—when they evidently planned to move the overlying rock they had loosened—we were told that the site would be roped off, and that the group "preferred to work by themselves." One member of the team, Wilbur Fields, seemed more scientific and competent than the others (as he has in the past).²⁹ Unfortunately, Fields left before the completion of the dig. As to what took place at the Paluxy seminar, or what ultimately may be claimed about this dig, stay tuned.

The recent Paluxy "man track" claims, and their encouragement by John Morris and the BSA Paluxy Task Force, represent an unfortunate sign for young earth creationism. They indicate (at least among some creationist leaders) an unwillingness to fully abandon past claims (no matter how thoroughly discredited),

Having intensively studied the Taylor Site since 1980 ... I can testify that none of the Taylor Trail tracks contain clear human features, and most do not even closely resemble human prints.

and a return to the same kind of faulty research, deficient documentation, and inaccurate reporting that characterized much of the past creationist work on this subject. The once-clearing waters of the Paluxy controversy are now unnecessarily muddled again. Some creationists have even called for the film *Footprints in Stone* to be reinstated.³⁰ Evidently little if anything was learned from past mistakes.

REFERENCES

- 1 Carl Baugh is a former pastor of a baptist church, and has been excavating and promoting "man tracks" and other alleged fossil anomalies along the Paluxy River since 1982. He claims advanced degrees in science, but they trace to questionable sources. Don Patton is vice chairman of MIOS (Metropolplex Institute of Origin Science), a small creationist group near Dallas, Texas that supports Baugh's work.
- 2 Morris, John D., 1988, "Continued Research on the Paluxy Tracks," *Acts and Facts*, 17(12). Although the article was anonymous, subsequent correspondence with John Morris confirmed that he was the author.
- 3 Kuban, Glen J., 1986, "The Taylor Site 'Man Tracks'," *Origins Research*, 9(1):2-10.
- 4 Beierle, Fred, 1976, *Man, Dinosaur, and History*, Perfect Printing, Prosser, WA, pp. 41-49. Beierle depicted the Taylor Trail prints as giant barefoot human tracks 19 inches long.
- 5 Fields, Wilbur, 1980, *Paluxy Field Explorations*, privately published by Fields, Joplin, MO. Fields described the Taylor Trail tracks as "very large probable man tracks...15-16 inches long."
- 6 Morris, John D., 1980, *Tracking Those Incredible Dinosaurs*, Creation Life Publishers, San Diego, CA, p. 207.
- 7 When track IIS+6 is filled with water, one of the mud cracks at its anterior end superficially resembles mud between human "toes"—a feature that has been exploited by Patton and others.
- 8 Bryan '89, National Conference on Biblical Origins, August 10-12, Bryan College, Dayton, TN. Sponsored by the Bible-Science Association and Bryan College.
- 9 Enlargements of the photos and overlay drawings Patton used in his slide presentation were displayed on the auditorium wall during the BSA conference. It was apparent from a close inspection of these (and from my own study of the tracks) that in many cases the overlay drawings severely misrepresented the actual track contours. Patton later confirmed that the drawings were done by a free-hand artist, and had some "problems."
- 10 Morris, John D., 1986, "The Paluxy River Mystery," ICR Impact Article #151 pp. i-iii, in *Acts/Facts/Impacts*, 15(1).
- 11 Taylor, Paul S., 1986, "Footprints in Stone: The Current Situation," *Origins Research*, 9(1):15.
- 12 Insert in Baugh's "coloring book," *Creation Evidences in Color*, 1986, Creation Evidences Museum, Glen Rose, Texas, by Carl Baugh (director) and Martha Baugh (editor). Baugh also stated, while he and I stood on the site in 1987, "No one would call these tracks human."
- 13 Kuban, Glen J., 1989, "Color Distinctions and Other Curious Features of Dinosaur Tracks Near Glen Rose, Texas," in *Dinosaur Tracks and Traces*, edited by David D. Gillette and Martin G. Lockley, Cambridge University Press, New York, pp. 61-64. Originally presented in 1986 at the First International Symposium on Dinosaur Tracks and Traces, Albuquerque, NM.
- 14 Ref. 10, p. iii.
- 15 Kuban, Glen J., 1989, "Elongate Dinosaur Tracks," in *Dinosaur Tracks and Traces*, edited by David D. Gillette and Martin G. Lockley, Cambridge University Press, New York, pp. 61-64. Originally presented in 1986 at the First International Symposium on Dinosaur Tracks and Traces, Albuquerque, NM.
- 16 John Morris (ref. 10, p. iii) stated, "The various controversial prints labeled as human by Carl Baugh in recent years are of uncertain origin...providing no support for the original position." Although not stated by Morris, Baugh's "mantracks" included elongate (metatarsal) dinosaur tracks (or portions thereof), indistinct elongate marks (possibly plant impressions), vague shallow markings, invertebrate burrow patterns, and non-existent tracks (ones never documented, or visible only to Baugh). Some "man tracks" appeared artificially altered, and at least one "giant man track" (over 24" long, named "Max") was a outright carving in the hard clay overlying the track surface.
- 17 Baugh, Carl, 1987, "Major Discovery at Glen Rose," *Creation Evidences from the Paluxy* 3(1):1, Creation Evidences Museum, Glen Rose, TX.
- 18 Gibbs, Jim, 1988 (Jan. 7), "New Track Uncovered in County," *The Somervell Sun*, 2(18):1. The article stated that Baugh's team uncovered a new dinosaur track, a fossil tree, and a new human track. Baugh said that a tree washed in, and "A man then came by and stepped down with his left foot and then he put his right foot down and later a dinosaur stepped on it." He did not explain whether the "it" was the tree, the man's foot, the man's footprint, or the man.
- 19 Another alleged human track on the site (see ref. 17) was a vague elongate mark, which may have been a plant impression. A large plant fossil was found here; Baugh suggested the man stepped on the plant. The "Clark" tracks here were claimed by Baugh to have "toes," but such toes were irregularly shaped and positioned, and appeared to have been artificially encouraged. When thoroughly cleaned, the marking has no human features.
- 20 Ref. 17, pp. 1-3. Baugh's newsletter declared that the tooth was "human," based on the testimonies of dentists and dissimilarities with certain fish teeth (see ref. 22). Initial reactions from other creationist groups varied from strong support of the human tooth claim (MIOS and Genesis Institute) to partial encouragement (ICR) and mixed reviews (BSA).
- 21 Hastings, Ron, 1987, "Creationists' Tooth Claims Evolve Into a New Fish Story," *Creation/Evolution Newsletter*, 7(5):18-20.
- 22 Hastings, Ron J., 1989, "Creationists' 'Glen Rose Man' Proves to be a Fish Tooth (As Expected)," *NCSE Reports*, 9(3):14-15.
- 23 The Caldwell print has been acknowledged to be a carving even by creationist researchers, including John Morris, Paul Taylor, and Leonard Brand. It was cross-sectioned in the early 1970's; the subsurface features confirmed that it is a carving.
- 24 Helfinstine seemed to assume that if humans and dinosaurs lived at the same time, they should also have walked in the same mud flat (an unnecessary extrapolation).
- 25 The marking reportedly occurs on a sandstone outcrop in the Natchitoches parish. In Baugh's museum a photo and cast of the marking are displayed.
- 26 The Creation Research Science Education Foundation (CRSEF) is located in Columbus, OH. Those participating in the dig included George Detwiller, Hugh Miller (an active CRSEF member) and his son, and a few others.
- 27 *Dino Tracks* (MIOS Newsletter), July 1989, 2(7):1 (mismarked as vol. 5).
- 28 The two markings near the middle of the site were more thoroughly cleaned than of the rest of the site, but appeared to be merely natural features (composed of cracks and crustacean burrows). The other marking, of similar nature, was being cleaned the next day by two team members, one of whom acknowledged that it was not a footprint.
- 29 Wilbur Fields, a professor at Ozark Bible College, has been researching the Paluxy tracks for many years, and self-published a booklet (*Paluxy River Exploration*) in the late 1970's supporting some of the "man track" claims. However, he expressed skepticism over others, and has taken a cautious attitude toward Baugh's "man tracks" (using indefinite terms such as "manlike" to describe the depressions). Fields was doing mapping some at the new dig, and formerly made some fairly good maps at other sites.
- 30 MacKinney, Paul (Ed.), Winter 1988/89, "Creation Evidences Museum," Midwest Creation Fellowship Newsletter. The author stated, "I think it is time to update and reinstate the fine film *Footprints in Stone*." This was a 16mm film produced by Stanley Taylor (since deceased) of Films for Christ Association (now in Mesa, AZ.). The film strongly promoted the "man track" claims, and was shown for many years, but was withdrawn from circulation soon after John Morris and representatives of FFC met with me at the Paluxy in late 1985 to discuss the Taylor Site evidence.

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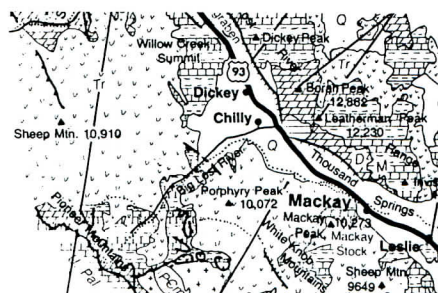
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RESOURCES

Denton's book is just another typical anti-evolution tract....

Evolution: A Theory in Crisis

Michael Denton. Bethesda, MD: Adler & Adler (1985)

Reviewed by William M. Thwaites
Associate Professor of Biology
San Diego State University

Denton's book has been prominently featured by creationists in California, Texas, Ohio, Illinois and elsewhere as "proof" that evolution should not be taught "as fact." Biochemist Thwaites' review may be useful as a counter if creationists are using Denton in your state.

"Evolution: A Theory in Crisis" is said not to be an ordinary "scientific creationism" tract because the author is non-religious. Thus, Denton's objections to evolutionary theory are supposed to be free of the strong religious bias that clouds the logic and objectivity of creationist writing in general. Unfortunately Denton's book is just another typical anti-evolution tract. It shows that Denton is motivated, not by a desire to understand the workings of nature, but by an apparent fear of the "agnostic," "materialistic," and "skeptical outlook of the twentieth century." Just as with all the other writers of creationist tracts, Denton too has an essentially religious axe to grind. Logic and clear thinking take second place to the underlying religious or philosophical message.

Although he apparently accepts the scientific value for the age of the earth, and does not hold that the Noachian flood was a real historical event, his whole approach to evolution-bashing is from a creationist script. He seems to have taken many of his major ideas straight from the ICR, especially from Duane Gish. Only in creationist writings do we read of the "Special theory of evolution" and the "General theory of evolution." The "Special theory," according to the ICR, states that new species can arise through genetic modification or "micro-evolution." This type of evolution is

accepted by Denton, most creationists, and everyone else.

The so-called "General theory," as creationists see it, is the extrapolation from the "Special theory" to account for "large" evolutionary changes, i.e. "macroevolution." This would include such transitions as that from reptile to mammal, and of course the special case of ape to man.

It is the so-called "General Theory of Evolution" that Denton takes exception to. He tries to show that there is a limit to the amount of change a biological system can undergo before it falls apart. Denton scolds Darwin and evolutionists for extrapolating from microevolution to macroevolution, or claiming that finch and tortoise evolution in the Galapagos Islands explains the origin of major groups such as reptiles and mammals. Yet Denton is quite willing to extrapolate from examples based on language, computer programs, and machines to reach conclusions about living systems. I find no evidence in his book that these analogies and extrapolations are in any way appropriate.

Denton's examples of what would be required to "mutate" one English sentence into another are nothing more than a straw-man argument. Obviously the genetic code is read in quite a different manner than is English, and Denton provides no biological examples to corroborate his limit-to-change thesis. Denton simply fails to support his main assertion, i.e. that macroevolution can not be inferred from examples of microevolution. The relative importance of microevolution in macroevolution is hotly debated among evolutionists. But even if it is demonstrated that microevolution produces little macroevolution this would not disprove the fact that evolution occurred. Microevolution is only one mechanism by which evolution can take place.

Not only does Denton fail to support the principal theme of his "Crisis" book, but he provides several

glaring examples of flawed scientific logic and style. In his treatment of homology (Chapter 7), he tries to establish that the genes for homologous structures are not homologous. The primary source for the argument is an Oxford reading supplement for high school students. Although the Oxford "Reader" is apparently written by Sir Gavin DeBeer, the date of the *Reader* is better than a full decade after Sir Gavin retired from active publishing.

Be that as it may, the examples DeBeer gives to show the enigmas of embryological development seem designed more to titillate the scientific curiosity of young readers than to provide any useful knowledge. It is strange that grown-ups, with post-high-school scientific training, no less, would fall for such nonsense. One example given is of a simple suppressor gene in the fruit fly. The gene is touted in the "Reader" as evidence that the genes for homologous structures are not homologous. It is evidence for no such thing. Perhaps DeBeer intended to fool high-school students. It is distressing to see that he was able to fool Ph.D.'s as well.

Another interesting portion of Denton's book is Chapter 12. Here we find thirty-three pages devoted to disproving a long-since discarded model of evolution. The model is called "ladder-of-life," and it basically says that modern-day reptiles are perfect copies of the earliest reptiles, that neither they, nor the proteins of which they are made, have evolved in any way since that group of organisms first appeared in the fossil record. No responsible evolutionist holds such a view, yet we are treated to page after page showing how this view is invalid.

Denton doesn't come right out and say that he is attacking the "ladder-of-life" misconception of evolution. Instead he presents a diagram (Figure 1) showing the amino acid sequence differences between a primitive type of jawless fish (the lamprey) and various other vertebrates. Denton seems to think that the hemoglobin of

the lamprey should be as primitive as its morphology. This is "ladder-of-life" thinking.

Biologists, on the other hand, regard the persistence of the "primitive" lamprey morphology as a measure of the evolutionary success of this body plan. While natural selection has held the morphology of the lamprey relatively constant for a half billion years, selection has had no such hold on the trivial changes in the hemoglobin of the lamprey.

Thus the hemoglobin sequence differences shown in Figure 1 are exactly what a biologist would expect. For the lamprey and the other vertebrates shown in Figure 1, that split occurred about a half billion years ago. The numbers that Denton has quoted are devastating to the "ladder-of-life" view, but they provide an amazing confirmation of the modern understanding of evolution.

Gary Parker, formerly with ICR, used to say that the phylogenetic trees (evolutionary histories) drawn from amino acid sequence data can only be drawn if one *wants* to obtain an evolutionary tree. Parker often said that the data alone do not suggest a tree at all. Unfortunately he never told us what the data did suggest.

Now apparently Denton has come to the rescue. He has given us Figure 2 to show how one can represent the totality of the hemoglobin sequence data without drawing a phylogenetic tree. Denton says it's not a phylogenetic tree, just a set of nested areas. Since the lamprey is equi-

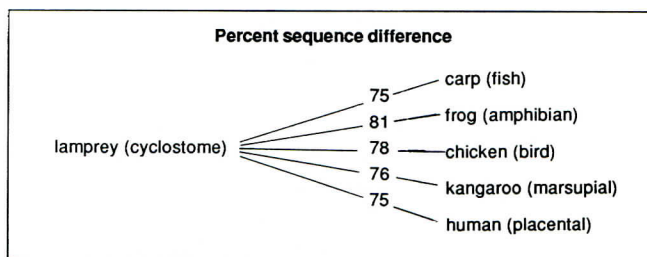


Figure 1 Hemoglobin sequence differences in several vertebrates.

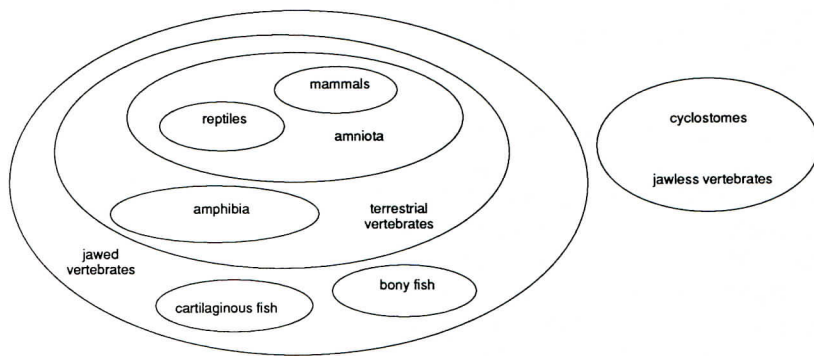


Figure 2 Denton's nested areas that can be calculated from hemoglobin amino acid sequence data.

But you don't need to look at Figure 2 very long until you realize that you are looking down on the top of a somewhat unorthodox phylogenetic tree. If one makes the simple assumption that the sequence differences represent the time since the two organisms last shared a common ancestor, one can construct a vertical dimension to Figure 2 and view Denton's set of nested areas from the side as shown in Figure 3. Presto! we have a phylogenetic tree. With only cosmetic changes we can convert Denton's unorthodox tree into a standard tree, as shown in Figure 4.

If Denton, with his creationist bias, could get no further from a phylogenetic tree than he did, we can be quite certain that protein sequence data do, indeed, provide a powerful confirmation of evolutionary theory. Denton's expectations that lamprey hemoglobin should be more like fish hemoglobin and less like human hemoglobin are his own expectations, not those of biologists. The hemoglobin difference reflects not ancestor-descendant relationships, but cousin relationships. Lampreys are not ancestral to the other animals, but distant cousins that shared a common ancestor in the remote past.

It is not that Denton doesn't know any better than ladder-of-life; finally on page 294 he admits that, "The only way to explain this [pattern of protein differences] in evolutionary terms is to propose that since all the different lines of a group diverged each partic-

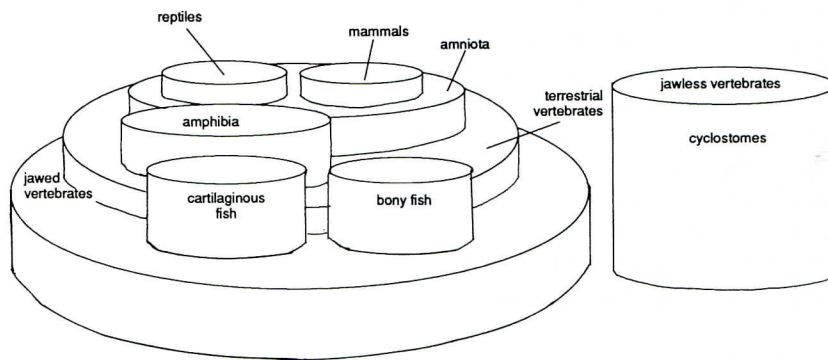


Figure 3 Denton's nested ellipses showing time (i.e. sequence divergence) dimension.

distant in sequence from all the jawed vertebrates, it is shown separately from them. Bony fish are jawed vertebrates, but they are equidistant from all the terrestrial vertebrates, so all the terrestrials fall into a subgroup of the jawed vertebrates, etc. Figure 2 exhibits protein sequence data without an evolutionary bias. Denton has at last shown what Parker predicted!

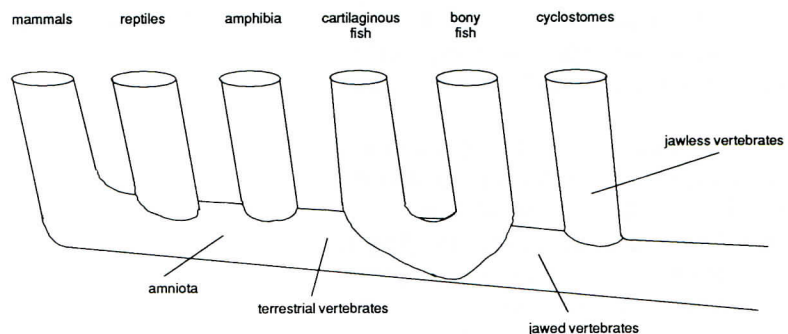


Figure 4 Standardized phylogenetic tree (after Denton).

ular protein, such as haemoglobin or cytochrome C, has continued to evolve in each of the lines at its own characteristic uniform rate." This is essentially one of Darwin's original postulates, i.e. that the longer it has been since two organisms shared a common ancestor, the greater will be the differences between them.

Once Denton has admitted the real evolutionary model, he spends the remainder of the chapter trying to show that evolution couldn't be true because the numbers for protein sequence differences are too good. Evolutionary biologists are not quite sure why the numbers are so good, but our uncertainty in no way disproves evolution.

I have looked in vain through the scientific literature to see where Denton has submitted his ideas for peer review, i.e. where he has published them in the scientific literature. Although Charles Darwin, like Michael Denton, wrote a book intended for public consumption, Darwin also presented his ideas to the Royal Society where they could be accepted or rejected by those working in the same field. I can understand why Denton has by-passed peer review with his creationist ideas. They simply would not hold up under the bright light of scientific skepticism.

Another useful review of Denton's book is available from NCSE: P.T. Spieth, Zygon, 22(2):252-257.

New Christian Book

"Biology Through the Eyes of Faith", by Dr. Richard T. Wright, has just been published by the Christian College Coalition. According to a press release, the book "is designed to help both Christian students and interested people off campus align science and faith on critical issues such as creation, evolution, and the stewardship of nature." The Christian College Coalition is an association of 75 Christian liberal arts colleges.

American Scientific Affiliation Article Criticizes Morris

The American Scientific Affiliation consists of evangelical Christians interested in the interaction of Christian faith and science. It considers a variety of subjects from the morality of nuclear war to recombinant DNA to "origins." The ASA has a few "scientific" creationists but a large number of theistic evolutionists, some of whom also are NCSE members. The ASA's journal, *Perspectives on Science and Christian Faith* recently carried articles of interest to NCSE members. See "The Rise and Fall of the Paluxy Mantracks" by Ronnie Hastings (September 1988); "Seeking Ancient Paths: Rediscovering John Ray" by John R. Armstrong (March 1989); "Creation and the Modern Christian" (critical review of H. M. Morris's book of the same title) by John R. Armstrong (December 1988).

Excerpts from Armstrong's review of Morris:

- "Morris claims to offer biblical, theological and scientific evidences. Instead, he removes context, adds assumptions, and distorts statements."
- "A chain of citations from other polemics traces racism and imperialism to evolutionary views, though both offenses occur among creationists as much as among opponents. Charles Darwin is labelled 'a white racist' in blatantly false witness. Stephen Jay Gould's stand for human rights and against racism is ignored, while Morris insinuates that Gould is 'a self-confessed Marxist,' without citing a source. Arguing that evolution is too cruel and wasteful a process to reconcile with a loving God, Morris ignores the harshness of biblical history, which is reconcilable."

Future "Mantracks?"

Science News for July 8, 1989, reports the discovery of an extensive dinosaur footprint quarry in Culpeper, VA. Most of the tracks are of a carnosaur that walked on two legs and stood about 11 feet tall. Creationists like to make much of alleged "man-tracks" found among the dinosaur footprints along the Paluxy River in Texas. If indeed dinosaurs and humans walked the earth together as claimed by "scientific" creationists, then they should be found in this newly discovered site. So far, none have been reported, which is what an evolutionist would expect. But watch out for reports from creationists of mammal footprints being found at the Culpeper site: the *Science News* report described one set of footprints as being "hoof-shaped", and as we know, that can easily evolve in creationist literature to become a claim that ungulates walked with dinosaurs! "Hoof-shaped" does not mean "made by a hoof," but *shaped* like a hoof.

Creationists Praise McIver's Book

NCSE member Tom McIver's *Anti-Evolution, an Annotated Bibliography* has been reviewed by the *Creation Research Society Quarterly* (June, 1989): "Never before has there been a published bibliography of anti-evolution source material as extensive as this one. The book belongs in the personal library of every active creationist.... Having said that, it is necessary to state that McIver is not a creationist. In a personal conversation he described himself as 'an observer.' Based upon his book, that translates into 'agnostic,' although some readers might use the harsher term, 'evolutionist.'" The review then accuses McIver of "nearly 100 cases of bias." McIver's volume lists 1,852 publications, and is exceedingly valuable to evolutionist and creationist alike. It is available at a 20% discount to NCSE members (see centerfold).

NEWS

Darwin Didn't Die From Evolution

Charles Darwin suffered ill health for most of the latter part of his life, after his return from the voyage of the *Beagle*. Many scholars have attributed his vague symptoms of nausea, lassitude, sleeplessness, gastrointestinal pain and the like to hypochondria, or even to a supposed psychosomatic response to the implications of the theory of evolution. Medical scholar Peter Salwen writing in the *New York Times* June 15, 1989, suggests that Darwin may have picked up Chagas' disease in South America. His symptoms throughout his later years match those of chronic sufferers of this disease. The main carrier of the trypanosome causing Chagas' disease is the "assassin bug" which Darwin vividly described: "At night I experienced an attack (for it deserves no less a name) of the Benchuca, a species of *Reduvius*, the great black bug of the Pampas. It is most disgusting to feel soft wingless insects, about an inch long, crawling over one's body. Before sucking they are quite thin but afterwards they become round and bloated with blood." Salwen suggests, "With hindsight, it seems clear that it was this protozoan, and not inner doubts or guilt, that reduced a vigorous adventurer to a frail, prematurely aged man who for 40 years (as his son put it) 'never knew one day of the health of ordinary men.'"

"World History Chart" Metastasizes

NCSE Reports 9(2):18 ran an article about the "World History Chart" that is being promoted in *Discover* magazine. The chart is advertised as providing "a clear, concise overview of our history, archaeology, theology and mythology...." The chart begins at 6000 years ago, presents North America as the site of the Garden of Eden, calls Canada "Ethiopia", shows a land bridge to Asia in southern Florida, and in general is a Mormon religious tract. Although historical events are portrayed, the main objection is the jumbling together of folklore, myth and history with no indications to students which is which. The chart confuses the issue further by *sometimes* distinguishing myth from history, and in doing so, only creates greater confusion over the rest of the mythology in the chart. For example, it discusses the "legendary founding of Rome by Romulus and Remus" but presents unqualified the slaying of Abel by Cain as fact. Advertising copy encourages the purchase of the chart by schools, but this is highly inadvisable.

Now the chart is being advertised in both *Archaeology* (September -October 1989) and, of all places, *Natural History* (September 1989)! When informed of the nature of the chart, *Discover* magazine ceased carrying the advertisement. The issue here is truly "truth in advertising." If a science journal wants to run ads for a sectarian religious tract, that is fine, but the readers shouldn't be misled into thinking that they are getting history and archaeology. Perhaps these other magazines could be similarly educated.

Feel free to send a copy of this article and even the one from *NCSE Reports* 9(2):18 to let the publishers know what they are setting before their subscribers.

Update on Dannemeyer Bill

The Dannemeyer Constitutional Amendment promoting prayer and creationism in school is still in the Judiciary Committee. (see *NCSE Reports* 9(3):1). A list of the thirty-five co-sponsors of the bill appears in the margin at right. These gentlemen accepted Dannemeyer's attempt to overthrow the *Edwards v Aguillard* decision with a Constitutional amendment "permitting" the teaching of creationism in the schools.

In the Constitutional Record for June 23, 1989, Dannemeyer says, "Just as sex education can be adequately taught in a biology class, within the discipline of biology, and just as the Judeo-Christian ethic can be taught in civics or history classes, within the confines of those disciplines, so too can the divine creation of the Earth be taught within the discipline of science. ... Children could be instructed in scientific fact about the complexities that make up our environment. Let the kids decide whether or not an accident could have originated these complexities. Let the kids decide whether or not a faceless nature could wrought this life (sic)."

Phyllis Schlafley's Eagle Forum has come out in support of the Dannemeyer Amendment, as has Jerry Falwell, Marlin Maddoux, and Robert Simonds. In Simonds' July fund-raising pitch to members of NACE/CEE, he says, "Pray much for the new legislation we are supporting by our own Congressman Dannemeyer. The object of this is to end the ACLU and NEA arguments that 'America is *not* a Christian nation, and the Christian influence must be obliterated from our schools.' ... The resolution...will establish forever God as our creator — eliminating evolutions (sic) damnable influencing of all our children to believe 'God is a myth.'"

If *your* representative is a co-sponsor, you might consider writing to educate him as to the nature of science and the lack of scientific credibility for creationism.

ORIGINAL CO-SPONSORS TO THE COMMUNITY LIFE AMENDMENT

Arney (TX)	C
Baker (LA)	C
Ballenger (NC)	C
Barton (TX)	L
Bliley (VA)	C
Burton (IN)	C
Callahan (AL)	L
Coble (NC)	C
Craig (ID)	L
Dornan (CA)	C
Emerson (MO)	C
Fields (TX)	C
Hall (TX)	R
Hancock (MO)	C
Hansen (UT)	R
Holloway (LA)	L
Hubbard (KY)	R
Hunter (CA)	C
Hutto (FL)	R
Hyde (IL)	R
McCrery (LA)	L
McEwen (OH)	R
Moorhead (CA)	R
Nielson (UT)	L
Ortiz (TX)	L
Oxley (OH)	L
Ravenel (SC)	C
Rohrabacher (CA)	L
Shumway (CA)	L
Smith (MS)	(Dec)
Smith (NJ)	R
Solomon (NY)	R
Stenholm (TX)	L
Sundquist (TN)	C

Letters after the names refer to office location.

Write:

Hon. Representative —
Canon House Office Bldg
Longworth House Office Bldg
Rayburn House Office Bldg
Washington, DC 20515

KEEPING TABS

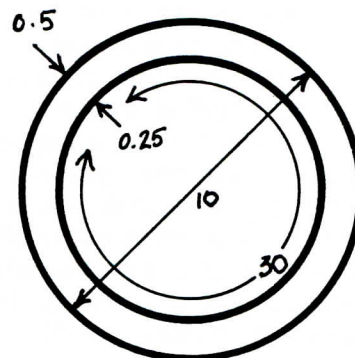
Creationist Mathematics

In the Bible, Solomon builds a "molten sea, ten cubits from the one brim to the other: it was round all about, and his height was five cubits: and a line of thirty cubits did compass it round about." Thus, as the circumference is equal to pi times the diameter, the value of pi is 3.00, rather than 3.14. Critics of biblical literalism have often pointed this error out to biblical literalists as an example of how not everything in the Bible is factual.

The unrepentant professor Dietz, however, retorts, "And you measure the distance to the moon by measuring $\frac{1}{4}$ and multiplying by 4...."

These Doubting Thomases can now retire that argument because, as NCSE member Robert S. Dietz points out, the *Bible-Science Newsletter* has once and for all answered the question of "Does the Bible Err on Pi?" It doesn't, they conclude; we just didn't understand what the Bible was saying. "The solution to the problem is really quite simple. The circumference of the vessel is measured from the inside walls of the vessel, while the diameter is measured from the outside walls of the vessel. The thickness of the walls of the vessel makes up the missing 'one-third' value of Pi! When confronted with this explanation, even many modern critics find it

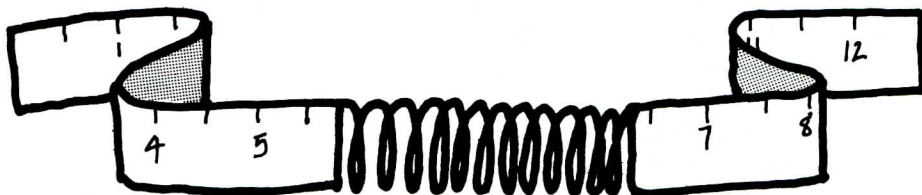
reasonable" (June, 1989.) The unrepentant professor Dietz, however, retorts, "And you measure the distance to the moon by measuring $\frac{1}{4}$ and multiplying by 4..."



Not content to let face validity — or invalidity — suffice, we did a few calculations, fully knowledgeable of the hopelessness of arguing the Bible with literal believers. But what the heck.

If you calculate the thickness of the vessel, you will get 0.5 cubits. Depending on the value of a cubit, which ranges from 17-21 inches, that would make the thickness of the rim between 8.5 and 10.5 inches. Not knowing what material the "vessel" was made from, or even whether the "molten sea" was water or some other liquid, we can't calculate the weight of the "molten sea" to see if a wall of this thickness could support that much liquid, but there is another avenue suggesting the *B-SN* is on the wrong track. I Kings 7:26 says, "And it was an hand breadth thick, and the brim thereof was wrought like the brim of a cup, with flowers of lilies." Ten-inch-wide hands are pretty impressive, and this would suggest that the interpretation of pi in the *B-SN* was in error. (But we can anticipate the response: There were Giants in the Earth in those days. Genesis 6:4)

On the other hand, one might consider that the Bible was not intended to be a book on natural history, a mathematical treatise, nor a guideline for engineering projects.



Coming Soon - -the Elastic Tape Measure!

Will ICR be Approved to Grant Graduate Degrees?

excerpted from *BACC Science* 2(2)
Eugenie C. Scott

As noted in *NCSE Reports* 9(1), the Institute for Creation Research's (ICR) graduate programs in science and science education are up for approval by the State of California. State approval is not the same as accreditation, but is nonetheless important. Without approval, a school cannot grant degrees, and students are ineligible for funds from many sources. Like all unaccredited California schools, the ICR must have its approval renewed every five years.

In August 1988, a state-appointed committee of scientists visited the ICR. Based on their report, the Private Postsecondary Education Division (PPED) recommended that ICR not be approved to grant graduate degrees in biology, geology, astro-geophysics and science education, because the training provided in these fields was not comparable to that of other, accredited, institutions. The fact that the ICR was teaching "scientific" creationism also came into the decision. The ICR requested a re-visit, claiming that it was possible for them to remove the "scientific" creationism component of their courses and teach straight science. The State agreed to the request.

Why did the state agree to the re-review? It could have disapproved ICR then, and been done with it. The cautiousness of the state was apparently purposeful, and in retrospect, wise. In 1988, the committee originally voted 3-2 *in favor* of approval, and only after consultation with State Superintendent Bill Honig did it reverse its decision. Honig argued that since the 3-2 decision was weak, and that two scientists had each written detailed, highly critical minority reports, the committee should confer further to come up with a solid "yes" or a solid "no." The final vote was 3-2 against. The ICR was expected to institute a lawsuit.

Many suits over state regulations turn on whether the plaintiffs had due process of law. The decision to disapprove was complicated and the ICR may have argued that prejudice was shown them as a religious organization. The state would have wanted to avoid the cost of a lawsuit, regardless of their chances of prevailing.

Consider also the political realities of the situation. There had been a great deal of publicity around the committee's decision to first recommend approval, and then disapproval. At about the same time, the new "Anti-dogmatism" statement was being considered by the Board of Education. Much pressure was being generated by fundamentalist Christians against evolution. It was not a good time to fight over the ICR.

A compromise was reached with the ICR that they would be re-reviewed in 1989, with a new committee.

Some have criticized this decision, seeing in it a perverse conspiracy on the part of the Department of Education to undermine science education, but I think it is folly to conclude this without looking at the context of the decisions made. It seems as if a stronger case could be made against the ICR with a review by a fresh committee, instead of going to court over the weak 1988 decision.

As for a new committee, it was not necessary to have virulent anti-creationists appointed to the committee, but only to have competent scientists who knew that their job was to evaluate the ICR's graduate program on its scientific and pedagogical merits. It was clear from the 1988 minority reports that there were plenty of problems with the ICR program, even if they never taught "scientific" creationism at all. The reports stated that too many of the lectures were taught on videotape, lab facilities were inadequate, at least half the theses were unacceptable by common scientific standards, and so on. Competent scientists, given a clear idea of their charge, would reach an inevitable conclusion. The ICR would not be approved to grant degrees.

Why not just reject the ICR because it teaches creationism? Most NCSE members would consider a graduate science program based on pseudoscience to be obviously inappropriate. But if the ICR is disapproved, they can always go to court. A key issue would probably be the scientific validity of creationism. Wendell Bird, the ICR's chief legal strategist, is working to replace the legally tainted term "creationism" with "abrupt appearance theory" to make the creation/evolution question sound like a genuine dispute between two scientific points of view. Do we want scientifically untrained judges deciding what is science? By and large, the courts (except for the Federal District Court case *McLean v. Arkansas*) have avoided deciding whether or not creation "science" is a science. We are probably better off. Do we want a judge without scientific training decide whether "abrupt appearance science" is a valid scientific discipline in which degrees may be granted?

The outcome we wish for is that the ICR be prevented from granting graduate degrees in science and education. If a solid case can be made against the ICR based on the quality of their program alone, our goal is met.

In mid-summer 1989, a new five-member committee was appointed to visit the ICR. The visit took place between August 7 and August 11. No formal vote will be taken, but the members of the committee will each submit their reports, and then the PPED staff will write the document to be submitted to Honig, using the recommendations and supporting arguments from committee members' reports. This document will make a recommendation for or against approval of the ICR to continue granting graduate degrees.

We'll keep you posted.

Creation Evangelism

or, My Breakfast with Duane

Kent Harker



The unflappable Dr. Duane Gish, fundamentalist and foremost anti-evolution debater, was in San Jose for a three-day conference on "Bible Science." His schedule was for the church: no outside invitations and no planned debates. I attended the informal Saturday morning breakfast fellowship organized to enlighten Christians on how to debate evolutionists.

It was an interesting atmosphere: breaking the fast with early-morning evangelists who had come to learn the fundamentals of fundamentalist crusading against Darwinian devils. Little groups collected here and there while the victuals were prepared. I shuffled around and listened in on several of them; I am very interested to see how they talk to themselves. Heads shook in disgust and disbelief as they made comments about the absurdity of evolutionary theory. Disbelief sometimes turned to a hearty guffaw when someone tossed out some favorite creationist straw man.

We enjoyed a respectable meal as discussion continued over the table. I sat across from a young family and talked casually to the woman. She related her trials in the public schools, assuring me that she had been an excellent student until she got to biology. "The teacher was totally closed-minded," she said. He, according to her, would become very angry when she asked certain questions — questions that "he couldn't answer." I asked her what some of them were, but she couldn't remember. She related how she finally got herself out of that den of humanist snakes and enrolled in a good Christian school where they taught the truth.

"I just couldn't buy all that junk about the dinosaurs being a million years old," she said. "Why, I would not

even let my son play with dinosaur models until I found out the truth: that they were all drowned by the Flood!" I wondered if I tipped my hand when I told her the dratted evolutionists say they are 65 million years old. When she didn't flinch, I guessed there isn't much difference between one million and sixty-five million if one believes the universe is only 6,000 years old.

After the small talk and some plate clearing, the Pastor introduced "the man called by God to do the most important work in our age, Dr. Duane Gish, of the Institute for Creation Research."

"Should we defend Christianity through material evidence?" he began. "Some Christians object to mixing science and theology, faith and reason. Our mission at the ICR is to turn people to the Bible and the Lord," he pronounced.

What? The ICR tells the *public* that its purpose is academic freedom — equal time for alternative viewpoints. The fundamentalists have assured us all along that they are only concerned about science — that religion has nothing to do with it. This testimony went all the way to the Supreme Court as their position. Maybe Exodus 20:15 doesn't cut much when it comes to presenting the "Lord's side."

"The debate format is one of the most effective tools of evangelism we have," he continued. "People come from all over. Every time we stage a debate, the rooms are filled to the walls, and there are many testimonies of those who have gone on to accept Christ. The only disadvantage is that we have to share the podium with the evolutionists."

This is the unvarnished reality. Debates give a platform to the creationists on two false premises: 1) the format is to discuss creation vs. evolution, and 2) that science is the only concern. The format is laid out and orchestrated entirely by the promoters of the debates, the crea-

tionists. *They* organize the debates, set the agenda, invite the people, etc. It is in their control and according to their plan. The topic will be evolution, period. There will be no talk of creationism. Part two is a joke. Science is complex. A real discussion of evolution would require that one have a sound working knowledge of physics, chemistry, biology, geology, paleontology, and taxonomy. How can this fit the average person? The debate is a stage on which creationists can perform.

The legitimate scientist walking into the forensic booby trap is grist for the mill. There is no time to even scratch the surface of important research and developments. The tactic of the creationists is very effective: put the hapless opponent on the defensive and he or she will waste the whole time trying to dig him or herself out of the hole prepared by the organizers. And lose we do. Most of the early debates have been badly lost to creationists, which gives them trophies to place on their shelves. Gish proclaimed that "the truth always wins, and the people can see that!" Anyone who has ever been on a debate team can attest to the reality: debate has precious little to do with truth and everything to do with tactics and forensic skill.

Gish unrolled the basic plan to his breakfast audience. First, it must be simple. (Here he demonstrates his debating skill. Some of his hapless opponents have hamstrung themselves with the complexities of micro- and molecular biology, physics, paleontology, etc.) Second, (of course he did not *directly* say what I am about to say, but it is nevertheless an essential ingredient of creationist success): construct some giant straw men and then pull out all the matches. Here is Gish's formula for a creationist debate success, straight from the horse's mouth: "We must attack from four points: 1) Probability, 2) The fossil record, 3) Thermodynamics, and 4) Metamorphosis of the butterfly." (Number four is a new trick, based on a false dichotomy: if

you can't explain this, it must be a miracle. It's really just the old Argument From Design.)

All of this is tactics, the stuff of debate. What to do? There is a sort of damned-if-you-do and damned-if-you-don't dilemma here. If the evolutionary side refuses to debate because we know it is not a format to produce enlightenment, the creationists win by default. So there is no other alternative: debate we must.

"I just couldn't buy all that junk about the dinosaurs being a million years old. Why, I would not even let my son play with dinosaur models until I found out the truth: that they were all drowned in the Flood!"

But those who accept debate must come to the podium with a firm grasp of the reality: it is a forensic spectacle, not an exercise in elucidation. All the stuff of modern science — theories, evidence, scientific methodology, etc. — is not at all the issue. Since creationists set the agenda — they require their opponents sign statements about the format — the event is in their control. Control must be wrested from them on the stage by requiring them to answer the most basic questions about the absurdity of their position: a 6,000-year-old universe, a world-wide flood that is the cause of the geologic column, and the fact that they are in disagreement not only with evolutionary biology, but in direct conflict with physics, astronomy, chemistry, anthropology, taxonomy, paleontology, and just about every other branch of the physical, social, and life sciences. Another essential is preparation: the evolutionary side must know the creationist position inside out. In some early debates, the evolutionists knew little to nothing about creationist positions, again showing the naivete of some responding to the challenge.

Until we begin to meet creationists at their own level, we will continue to lose debates and we will continue to help them further their fundamentalist religious evangelism.

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