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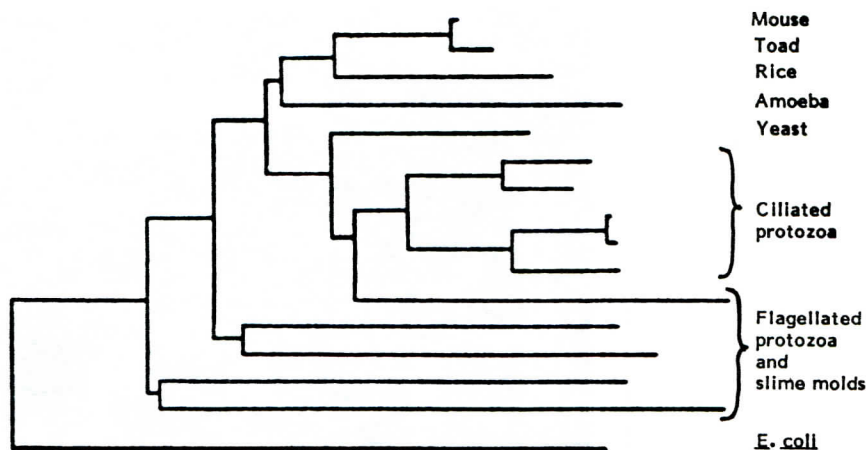
Evolution Has Occurred!

CREATION/EVOLUTION NEWSLETTER

Dedicated to promoting and defending the integrity of science education.
Published by the National Center for Science Education, Inc.,
sponsor of the Committees of Correspondence.

Volume 8, Number 4

July/August 1988



Phylogenetic Relationships between Protists and Some Other Eukaryotes, Calculated from a Portion of 28S Ribosomal RNA Sequences. Adapted from Baroin *et al.*, 1988. See page 6.

The *Creation/Evolution Newsletter* has evolved into *NCSE Reports*. For some time now, there has been confusion between our sister journal, *Creation/Evolution*, and the *Creation/Evolution Newsletter*. A name change seemed in order, and we decided to combine it with a fresh, new appearance of a re-designed newsletter. There will be some editorial changes, but *NCSE Reports* will be quite familiar to readers of *C/EN*. We will continue to provide you with important and interesting information on the creation/evolution controversy, and we will also be reporting more NCSE and CC activity as well. More resources for both pre-college and college level teachers will be made available, and we will also present informative articles on new and important issues in evolution.

We hope you like the new format, and will write us to tell us your reaction. And -- as always -- do send us your clippings, articles, and letters. NCSE is *your* organization!

NUCLEUS

NCSE Symposium "Only a Theory" Left No Room At The Inn

The National Center for Science Education Annual Symposium, "Only a Theory: Presenting Evolution to the Public" held in conjunction with the 14-19 January 1989 AAAS Annual Meeting in San Francisco, was a major attraction to scientists, science educators, theologians, and the general public. Attendance was greater than expected, which left "standing-room only" inside the conference room, and a hallway packed with people. The list of prestigious presenters, and local media coverage prior to the symposium contributed to the successful turnout.

Scheduled symposium presenters were: G. Brent Dalrymple of the U.S. Geological Survey; Kate Nyquist, Editorial Vice President of Science and Health, Scott Foresman and Company; Robert M. West, Cranbrook Institute of Science; Robert John Russell, Center for Theology and Natural Sciences, Graduate Theological Union; Gerald D. Skoog, Texas Tech University; and William Thwaites, San Diego State University. An additional presenter was Kevin Padian of the University of California at Berkeley who provided a history of the California State Board of Education "Anti-Dogmatism Policy" and a review of the new California Science framework. Dr. Dalrymple was unable to attend the meeting, and NCSE Past-President Wayne



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Local news and publicity for the symposium were good, perhaps in part because of the timely announcement of the California Science Framework Committee's adoption of a new Science Framework Policy (see article, below) as well as one local newspaper's erroneous treatment of the new policy as, "State Backs Ape Theory."

A. Moyer read West's paper. Abstracts of the presentations are included in this article and tapes of the presentation can be ordered from NCSE (see p. 11).

The success of the symposium was also reflected in the question and answer period following each presentation. Dr. Russell's presentation elicited many good

questions from theologians and concerned parents. Questions from parents detailed the concerns parents have regarding how they, as individuals, can deal with the controversy in their own homes and school districts. One parent commented, "It's an issue that has now begun to divide friends, people I've known and worked with for years. I feel so helpless." The same concern was expressed by theologians.

Dr. Thwaites' presentation, "Evolution Must be Taught in the Context of Sociology and Religion," dealt with controversial issues in a serious manner at the same time expressing the humorous side of the controversy. His humor was an especially effective way of pointing out creationism's lack of logic, and the tape of Dr. Thwaites' presentation is recommended for lay persons interested in the issue, as well as those attempting to understand the principal differences between science and non-science.

Dr. Padian, in discussing the efforts of the California Science Framework Committee to develop a new science framework, provided remarkable insights into ways scientists, science educators, parents, and bureaucracy can work together to achieve a position acceptable to all (but the creationists). Dr. Padian's assessment of the local media's treatment of the Science

"It's an issue that has now begun to divide friends, people I've known and worked with for years. I feel so helpless."

Framework decision was a hard-hitting, and perhaps long overdue, critique of the media's continued popularization of inaccurate views of science. Dr. Padian's view of the ignorance of

the media with regard to the nature of science, may be worth considering as an NCSE cause. Next to television, the newspaper media reach a larger general audience than perhaps any other form of mass communication.

At the conclusion of the symposium, Eugenie C. Scott, Executive Director of the NCSE, addressed some concerns of the audience as to how individuals should deal with the issue at a local level, and also provided information about local Committee of Correspondence Liaisons, what the role of the Liaison is, and offered NCSE's assistance at the local level. She also gave an impromptu survey of "scientific" creationism outside the U.S.

Many audience members lingered to continue discussing topics raised by the speakers. There was a general feeling that each year the Annual Symposium gets better and better. So, if you weren't able to be with us, listen to the tapes, and try to join us next year in New Orleans!

Frances Roelfs, Editor

ABSTRACTS

Stranger in a Strange Land; A Scientist Goes to Court. G. Brent Dalrymple (U.S. Geological Survey)

The courtroom is an unfamiliar environment for the scientist who is called upon to appear as an expert witness in a trial. Even though a recognized authority, the scientist may find himself or herself at a disadvantage because the proceedings and tactics of the legal arena are unfamiliar. In 1981, four scientists, including myself, were asked by the ACLU to testify in the "scientific" creationism trial in Little Rock, Arkansas. These scientists provided expertise on evolution,

biology, biochemistry, paleontology, stratigraphy, geophysics, and thermodynamics. They helped to educate the legal staff in these fields and acted as a vehicle for the dramatic courtroom presentation. But it was the lawyers who defined the issues, devised the tactics, crafted the questions and answers, and prepared the scientists for questioning by the opposition. The trial was successful in part because the scientists were successful in communicating the facts, complexities, and uncertainties of science to the lawyers and because the lawyers came to thoroughly understand the scientific issues.

Historical Trends in The Coverage of Evolution in High School Biology. GERALD D. SKOOG (Texas Tech University)

Evolution was treated in a cursory and noncontroversial manner in most high school biology textbooks before 1960. The activities and influence of the Biological Sciences Curriculum Study (BSCS) resulted in several textbooks that gave unprecedented emphasis to evolution in the 1960s. In the 1970s, deletions, subtle word changes, and editorial decisions resulted in reduction of the coverage of evolution in many high school biology textbooks. In the early 1980s, the coverage of evolution remained the same in many textbooks but decreased in others. There is some evidence that the decline in the coverage of evolution came to a halt in 1985, and treatment is becoming more honest and comprehensive. However, the coverage of evolution in most textbooks still does not reflect the importance of evolution as a unifying concept in the biological sciences and as an important construct in understanding the natural world. Special creation, as a possible explanation for the origin of life, has been mentioned in several

recent textbooks but not in the manner desired by creationists. Only 3 of 68 biology textbooks published from 1900 to 1968 mentioned special creation and/or catastrophism.

Public Museums and Evolution: Treatment of a "Controversial" Subject. ROBERT M. WEST (Cranbrook Institute of Science, Bloomfield Hills, MI).

Science and natural history museums are looked to by a broad public for objects and experiences which illuminate science. Natural history museums in particular, as the repositories of enormous systematic collections in biology, paleontology and physical anthropology, have the opportunity to expose this broad public to much of the material evidence for evolution. As museum exhibits have improved in their presentation techniques, much more interpretive material is being made available to museum visitors. Thus, over the past decade, presentation of evolution in public natural history museums is becoming more sophisticated and comprehensive. Few 1980's exhibits use "many scientist believe" or substitute euphemisms such as "change" or "history" for evolution. The phenomenal current popularity of dinosaurs has also helped museums discuss evolution. Traveling exhibits of robotic, life-like dinosaurs have brought evolutionary concepts into science and nature centers, complementing the more basic efforts made by specimen-oriented natural history museums.

Although public museums are tax-exempt not-for-profit organizations, they have not been susceptible to creationist "two-model" or "fairness" approaches. The single prominent court case against the U.S. National Museum of Natural History, was a late 70's creationist failure and has not been repeated.

Developing Science Textbooks - Who Really Has the Clout? Kate Nyquist (Editorial Vice President for Science and Health, Scott, Foresman and Company)

Many misconceptions surround the development of science textbook material. Most seriously misunderstood are the differences between external and internal factors that affect publishers. Historically, those who have been most successful in influencing textbook content have used external factors to shape the desired curriculum. A growing awareness of this technique on the part of the professional scientific community is resulting in more effective involvement in the textbook development process.



William Thwaites © Frances Roelfs 1989

Evolution Must Be Taught in the Context of Sociology and Religion. WILLIAM THWAITES (San Diego State University)

According to Gallop, forty-four percent of the U.S. public accepts supernatural young-earth creationism with a world-wide flood. Most of the rest assume that evolution is not entirely a natural process. Many people in both groups seem to equate biological evolution and Social Darwinism. This equation may explain much of the public's resistance to the

teaching of evolution. It is doubtful that the perceived conflict of evolutionary theory with Biblical literalism could sustain widespread concern without the simultaneous confusion of evolution with Social Darwinism. The teaching of evolution must deal with all of these problems. Along with showing how natural selection can account for descent with modification, we must also teach that Social Darwinism is naive and outdated rhetoric, that there is no evidence for people cohabiting the earth with dinosaurs, etc.



Robert J. Russell © Frances Roelfs 1989

What the Church Should Know about Evolution. ROBERT JOHN RUSSELL (Center for Theology and the Natural Sciences, Graduate Theological Union).

Religious people vary considerably in their reaction to evolution. Broadly speaking there are three types of responses; i) rejection, ii) accommodation, iii) acceptance. Rejection is often directed towards evolution as it presumably undermines the special origin of humanity and the argument from design (teleology); cf. Charles Hodge (19th c), "creationism" (20th c). Accommodationists believe that God works primarily through natural causes which science discovers; cf. Jim McCosh (19th c), most current Protestant and Roman Catholic theologians.

Integrationists welcome the evolutionary perspective as bringing essential knowledge to the constructive theological project; cf. *Lux Mundi* (1889) and such diverse thinkers as Ian Barbour, Ralph Burhoe, Teilhard de Chardin, John Cobb, Jr., Arthur Peacocke, Gerd Theissen. Hence the church (and the scientific community) should know that conflict need not exist, is seldom productive (to either side), and that there are much more creative and defensible options relating Christianity and evolution in which science and religion co-exist and overlap on a broad continuum of knowing and acting.

New Grant from Carnegie Corporation to NCSE

The Carnegie Corporation of New York has informed NCSE that it has funded our recent request for two years' operating expenses.

The grant will fund about 3/4 of our salaries, postage, insurance, rent, and other office expenses for the first year, and about one third of these expenses during the second.

NCSE began as a dedicated band of partisans in 1981, and was incorporated in 1983. It has been a full-fledged organization with a professional director and a central office only since 1987. Carnegie Corporation money helped get us started, and they have watched us grow. It is particularly pleasing that they have given us a second grant: it shows that they have confidence in our accomplishing our goals, and that they recognize that we are moving forward. Thank you, Carnegie Corporation!

NCSE will still have to conduct fund raising and membership campaigns to raise the remainder of our office expenses, build membership, and to fund our many projects. We hope that when we request donations, you will be able to respond.

Special Thanks to 1988 Donors

The following individuals kindly donated \$100 or more to NCSE during 1988. We wish to sincerely thank them for sharing the goals of NCSE, and for helping us to accomplish them.

Anonymous
Louise Bourquin
Gordon Collins
Jay Dalsen
Thomas P. Fletcher
Del Fuller
Amy M. Goldsmith
George Greer
Helen Hancock
Mark Hoover
Eric Kirschner
Jocelyn Markey
Kevin Padian
Eleanor C. Robbins
Larry Sebring
Edward Talbash
Edward Teeters
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Robert Brooks
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Virginia Fry
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Quality Science Education and the National Center for Science Education Goals

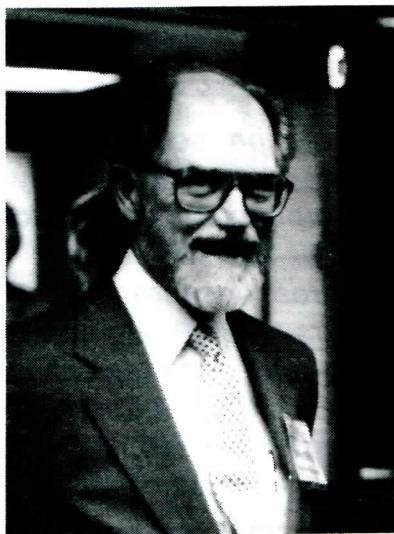
Wayne Moyer
Past President, NCSE

Impetus and Lessons Learned

A number of organizations exist in the United States having as their purpose suppression of teaching of evolutionary theory in public schools and introduction of so-called "creation science". These groups or their predecessors have been active since the 1920s, and effectively removed evolutionary theory from high school science textbooks for 40 years. The subject was reintroduced only in the 1960s, through the Biological Sciences Curriculum Study textbooks and National Science Foundation sponsored summer workshops for teachers. In the following years, anti-evolutionists attempted to legislate mandatory teaching of "creation science" if evolutionary theory was taught. These attempts, most notably in Arkansas, California and Louisiana, suffered ringing defeats in well-publicized court cases.

Despite clear decisions holding "creation science" to be religious in nature and therefore not permissible in public schools, anti-evolutionists continue to press their demands at the local level. They are supported by politically active fundamentalist churches, television evangelists, and a national swing toward conservative politics. They are successfully electing people sympathetic to their views to school boards, encouraging teachers to disregard court findings and teach "scientific creationism", and introducing their religiously-slanted instructional materials into schools.

Mayor Daley of Chicago reputedly said, "All politics is local politics," and that is certainly true of current efforts to suppress



Wayne Moyer

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evolutionary theory. Small groups of committed anti-evolutionists are frequently able to persuade well-meaning but misinformed school boards to offer students both evolutionary theory and "scientific creationism" in the name of fair play. Teachers whose religious beliefs cause them to reject evolutionary theory are persuaded that academic freedom permits them to ignore local curricula, teach "scientific creationism", and introduce their sectarian materials into schools. Librarians and media specialists are persuaded to shelve books and instructional materials dealing with "creation science" in the science sections of their collections rather than with religious books. All too frequently, teachers who do not support "scientific creationism" avoid teaching evolutionary theory on the grounds that it is a controversial subject. Thus, by persuasion and intimidation, the teaching of an important, well-established scientific theory is being systematically undermined.

How can the scientific and education communities best respond to this threat to the accurate teaching of science posed by modern anti-evolutionists?

We have learned an important lesson during the last ten years: whenever anti-evolutionists have

[Creation "science" supporters] are successfully electing people sympathetic to their views to school boards, encouraging teachers to disregard court findings and teach "scientific creationism", and introducing their sectarian instructional materials into schools.

been thwarted, it has always been the result of action by a few well-informed people acting at the community or state levels. In 1980, a loosely organized system of autonomous committees, one for each state, was established to respond to anti-evolutionist pressure. Calling themselves *Committees of Correspondence*, they coordinated their activities with those in other states through a liaison, who in turn remained in telephone and mail contact with a central office operated by Stanley Weinberg, of Ottumwa, Iowa. It was soon recognized that a more formal structure was required to support the Committees of Correspondence in what promised to be a long-running series of confrontations. The result was the National Center for Science Education (NCSE). Subsequently, money was raised through grants, membership fees and publication sales to hire an executive director and establish a national office.

Today the mission of the NCSE and affiliated CCs is twofold: (1) to confront anti-evolutionists and proponents of "scientific creationism" wherever they attempt

to undermine the teaching of science; and (2) to educate the public and educators on the nature of science and the scientific method.

The Goals of NCSE

The organization of NCSE may be thought of as three concentric circles. The innermost circle includes the Board of Directors, directors of special projects, and the executive director. These are the people, both paid and volunteer, who are committed to maintaining a viable national organization. In the next circle are active members who volunteer their time and skills to further various projects. Here are found Task Force members, Committee of Correspondence members and liaisons, and individuals actively contributing to the NCSE mission. The outermost ring includes those who believe in the goals of NCSE and who support the organization through contributions and occasional direct action.

NCSE members are drawn from many communities of interest, ranging from biology teachers to defenders of the First Amendment. We have identified the following groups as sharing common goals with us.

- Secondary science teachers, particularly those of biology, earth science, and life science.
- Science Supervisors
- Scientists and university faculty in both education and the natural sciences
- Science "fans"
- Humanists and skeptics
- Clergy of denominations that have accepted evolution
- Civil libertarians

From its inception, the NCSE was designed as a communications network, a collection of concerned people linked by the mails and xerography. Today we are about to add computer bulletin boards. The national office is the nerve center, uniting task forces, liaisons

and supporting members, and reaching beyond the organization to supply information on evolution education to the media, textbook publishers and school boards.

Our main artery of communication to members is our bimonthly newsletter. It provides every member and supporter with the news of NCSE activities, anti-evolution flare-ups, discussions of issues, and articles on evolution. The newsletter serves to unite our diverse and scattered membership while encouraging individuals to extend their involvement in NCSE activities.

Our second level of communication is the Committees of Correspondence. Loosely organized in virtually every state and several Canadian provinces, the committee members are the grassroots political activists. They have agreed to represent the interests of evolution education to textbook adoption committees, boards of education and the public. But most important of all, they inform the national office of anti-evolution activities and pressures in their communities and states or provinces. The level of activity varies from committee to committee, with some publishing regular newsletters, while others merely respond as individuals when the need arises.

NCSE supports a number of special projects designed to further the efforts of state and provincial committees and to support the goals of the national organization. The Textbook Task Force publishes *Bookwatch Reviews*, providing critical reviews of biology, life science, and earth science textbooks. This publication is reaching a national audience of people who select and purchase textbooks, while supporting CC members follow local textbook adoptions. The same task force also provides

publishers with the names of scientists willing to conduct pre-publication reviews of textbooks for scientific accuracy.

The Teacher Education Task Force has the mission of improving the understanding of evolutionary theory by teachers. This is being done through workshops at state and area meetings of science teachers, development of inservice education material for use by CCs and local districts, and by the writing of curriculum support materials.

The Network Task Force has been charged with developing and disseminating a database providing access to: organizations with goals overlapping those of NCSE; media representatives; audio and video tapes on evolution and related topics; creationist organization; and similar material. When completed, the database will be available both in disk form and online, accessible by telephone.

How can the scientific and education communities best respond to this threat to the teaching of science posed by modern anti-evolutionists?

Other task forces in various stages of development include: Publications (to provide printed material on issues related to the nature of science and evolution education); Audiovisual (to provide audio and video tapes and slide sets on evolutionary concepts for classroom use); and Public Information (to establish NCSE as the primary source for the media on issues related to evolution education and to provide the CCs and others with material for local release). Other projects of NCSE include a symposium held in conjunction with the American

Association for the Advancement of Science annual meeting, workshops for CC liaisons, and financial support for CC activists.

The Future

The NCSE is an established organization with ongoing projects and a clear sense of mission. Our goals for 1989 are:

1. To bring current projects to fruition.
2. To develop our membership at all levels.
3. To redirect the newsletter toward closer support of NCSE goals.
4. To develop new projects that support our mission and are within our capabilities.
5. To obtain funding for these projects and to support the national office.
6. To promote the teaching of evolution as a unifying theme of biology at all levels of science education.
7. To promote communication with and cooperative projects with faculty who prepare teachers to teach science.
8. To support the Committees of Correspondence.

Many problems cry out for attention. While this will create short term frustration as we make difficult choices among projects competing for scarce resources, we are assured of work for years to come. For example, there is a pressing need for classroom resource materials for teaching about the methods of science and evolutionary theory. Both topics are badly treated in most high school textbooks. There is also a need for an informational packet or short publication to help school boards and interested citizens meet the challenge of an anti-evolution initiative. Such a publication will be of great value to CCs. Finally, we need to bring CC liaisons together to establish the network required for effective response at the local level.

NCSE Members Receive Free Book

Robert Schadewald

NCSE members should have received a copy of *Science As A Way of Knowing: Evolutionary Biology* by the time they read this notice. The volume, originally published in 1984, was recently reprinted, and a grant from Carnegie Corporation enabled NCSE to send free copies to all who had joined NCSE by January 1, 1989. The books were mailed in mid-January.

Science As A Way Of Knowing is the first volume of a continuing series. Beginning in 1983, the American Society of Zoologists (ASZ) has sponsored a symposium at every annual meeting entitled "Science as a Way of Knowing". The proceedings are edited by John A. Moore (Department of Biology, University of California - Riverside) and published annually. The published essays are intended to provide background information for teachers of first year biology in colleges and universities.

The full series and dates of publication are:

- | | |
|-------|---------------------------------------|
| 1984: | Evolutionary Biology |
| 1985: | Human Ecology |
| 1986: | Genetics |
| 1987: | Developmental Biology |
| 1988: | Form and Function |
| 1989: | (proposed) Cell and Molecular Biology |
| 1990: | (proposed) Neurobiology and Behavior |

TO BE REMEMBERED

Luis Alvarez

Luis Alvarez, 1968 Physics Nobel Laureate, died August 31 of cancer. Alvarez had been with the Lawrence Berkeley Laboratory for 35 years and was responsible for the discovery of a number of subatomic particles, for which he received the Nobel Prize.

In recent years, however, he was most noted for his research in theoretical paleontology. With his son Walter, he propounded and popularized the idea that dinosaurs and much of the world's flora and fauna became extinct 65 million years ago as the result of a large asteroid or comet which created a devastating world-wide dust cloud which lowered temperatures. This hypothesis, in turn, became a major factor in the development of contemporary ideas about "nuclear winter" as a predictable result of nuclear war. The Alvarizes argued that iridium deposits found at diverse locations around the globe dating to the end of the Cretaceous could best be explained by a single world-wide atmospheric pollution deposit of particles from the shattered asteroid. The specifics have been severely challenged, but the idea has set in motion an entire genre of neocatastrophist theories, from Oort cloud to Nemesis to prehistoric acid rain as causes for dinosaur extinction. The primary critique is that species did not all go out of business within a couple of years, as the hypothesis would suggest, but rather that the extinction took a very long time, even if it was accelerated. Still, the majority of paleontologists now give credence to some degree of catastrophic extinction event a la Alvarez.

Alvarez is survived by his wife and four children.

T A P E S

new this issue

1989 Symposium Tape

American Association for the Advancement of Science

"Only a Theory": Presenting Evolution to the Public

Presentations by Kevin Padian,
Gerald Scoog, Robert West, Kate
Nyquist, William Thwaites, and
Robert Russell

(2 Tapes) \$8.00

1976 Lecture

University of New Mexico

The Scopes Trial

Kirtley Mather

(1 tape) \$4.00

other tapes

symposium tapes

1988 Annual Meeting, Full Symposium (4 tapes) \$16.00

1987 Annual Meeting, Full Symposium

Scientific Creationism: Facing Up To It! (3 tapes) \$12.00

1988 AAAS Pacific Division Symposium

Communicating Evolution to the Public (3 tapes) \$12.00

1982 AAAS Pacific Division Symposium

Evolutionists Confront Creationists each \$3.00

John Patterson, *Probability & Thermodynamics*

Robert Root-Bernstein, *History & Philosophical Issues*

Russell Doolittle, *Origin of Life*

Brent Dalrymple, *Age of the Earth*

Joel Cracraft, *Systematics & the Fossil Record*

Vince Sarich, *Human Evolution*

William Thwaites, *General Discussion & Questions*

debate tapes

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1979 Milne/Gish (2 tapes) \$8.00

1982 Awbrey/Thwaites/Kofahl/Chui (3 tapes) \$12.00

1987 Fezer/Doughty (2 tapes) \$8.00

1988 Thwaites/Gish (3 tapes) \$12.00

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for children

Dinosaurs

Daniel Cohen

Illustrated by Jean Zallinger

"Dinosaur is the name we give a large group of animals that dominated the earth millions of years ago. The word means 'terrible lizard.' It's a bit misleading. Dinosaurs aren't lizards, and many of them probably weren't very terrible. But the name has stuck.

All dinosaurs lived on land. Most were very big - some were as long as ten cars, could have looked over the top of a four story building, and weighed as much as a dozen elephants. There were small dinosaurs as well, some no bigger than a chicken."

Wonderful illustrations.

700 Science Experiments for Everyone

UNESCO

"Cover a leaf with vaseline and place it on a pane of glass or other smooth surface. Place a circular strip of paper or cardboard around the leaf. Press modelling clay against the strip to hold it firmly. Now mix up some plaster of Paris and pour it over the leaf. When the plaster has hardened, you can remove the leaf, and you will have an excellent leaf print. Some fossils were made this way - by having silt deposited over them, which later hardened into sedimentary rock."

Also for children:

Hominids, A look back at our ancestors

Helen Roney Sattler

Illustrated by Christopher Santoro

Prehistoric Animals

Daniel Cohen

Illustrated by Pamela Ford Johnson

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Cohen, Prehistoric Animals	*9.95	7.95
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new this issue

In the Age of Mankind
The Smithsonian Book of
Human Evolution

Roger Lewin

Ever since the first flicker of consciousness in the human mind, people have wondered about their origins. Where do we come from? How did we get here? Or - in the words of Darwin's colleague Thomas Henry Huxley - What is man's place in nature?

In this book Roger Lewin explores how modern anthropologists grapple with these questions. Here participants in one of the most incredible detective stories of all time try to make sense out of the mysterious remains of 25-million-year old apes; puzzle over whether a large brain, walking, or tool use came first; and debate exactly what kind of cause or event it was that first pushed protohumans over the threshold - into the Age of Mankind.

Where most volumes on human evolution stop, however, **In the Age of Mankind** continues, examining the rise of farming and the development of increasingly complex civilizations. More than anything, this is the twentieth-century story of modern humans in search of their past. See how our myths and philosophies - especially the arrogant view of man as nature's pinnacle, above the exigencies of nature itself - have colored our views of human origins. Discover how a wealth of recent finds in East Africa and mounting biochemical evidence have helped to break down these assumptions, and have given us a clearer vision of our place in nature. 287 color illustrations

Natural Acts

A sidelong view of science and nature

David Quammen

"Crows are bored. They suffer from being too intelligent for their station in life. Respectable evolutionary success is simply not, for these brainy and complex birds, enough. They are dissatisfied with the narrow goals and horizons of that tired old Darwinian struggle. On the lookout for a new challenge. See them there, lined up conspiratorially along a fence rail or a high wire, shoulder to shoulder, alert, self-contained, missing nothing. Feeling discretely thwarted. Waiting, like an ambitious understudy, for their break. Dolphins and whales and chimpanzees get all the fawning publicity, great fuss made over their near-human intelligence. But don't be fooled. Crows are not stupid. Far from it. They are merely underachievers. They are bored."

A Brief History of Time
From the big bang to black holes

Stephen W. Hawking

"If everything in the universe depends on everything else in a fundamental way, it might be impossible to get close to a full solution by investigating parts of the problem in isolation. Nevertheless, it is certainly the way that we have made progress in the past. The classic example again is the Newtonian theory of gravity, which tells us that the gravitational force between two bodies depends only on one number associated with each body, its mass, but is otherwise independent of what the bodies are made of. Thus one does not need to have a theory of the structure and constitution of the sun and the planets in order to calculate their orbits."

Asimov's Biographical
Encyclopedia of Science &
Technology

Isaac Asimov

"Darwin showed no particular promise in his youth. At first he studied medicine but found that unlike his father and grandfather he had no aptitude for it. The sight of operations on children (performed without anesthesia) horrified him beyond measure. He thought next that he would make a career in the church but found that he had no aptitude for that either. (His father angrily declared he would disgrace the family.) However, he had made natural history his hobby after reading Humboldt and had grown gradually more interested in the subject during his stay at Cambridge. This was his road to fame...."

Creation/Evolution
Satiricon: Creationism
Bashed

Robert S. Dietz & John C. Holden

"I would believe the Bible was the word of God if it contained so much as one single natural law expressed mathematically. A single formula sometimes elucidates more about the universe than an encyclopedia, e.g., $E=mc^2$, $F=1/2mv^2$, etc. The Bible does mention the relationship between the diameter of a circle and its circumference but gets it wrong. The value for the font (the Molten Sea) at King Solomon's Temple is given as 30 cubits around and 10 cubits across. The value of pi would then be 3.0 and not the correct value of 3.1416. One might argue that this is quibbling but remember the Bible is claimed not to speak in an approximate manner but to be absolutely and literally true."

LETTERS TO THE EDITOR

A Letter From the Editor

Throughout the writing of this newsletter I've found myself talking to myself as an editor and as a deranged individual, and at times becoming (mentally of course) Karl Fezer in order to solve a problem. The difficulties of producing a newsletter can only be imagined and while I imagined many of the problems prior to assuming the editorship of *NCSE Reports*, nothing is ever like the real thing. Thus, I've found myself asking, "Where did I put that?" "Who is this person?" "Karl would do it this way." "Did Karl pay for his own phone calls?" "Would Karl like to have his job back?" And the worst thought of all, "Oh my God, the newsletter ended up with the morning newspaper in the trash burn-barrel!" My nightmares are of people I've never seen before, standing beside my bed and frowning down at me in the most reproachful manner. It's a lot like being a child again. Only this time I have more parents than a child could ever hope for - those who read the newsletter and those who visit me in my nightmares. So, I guess this is a letter to myself the editor but it's more a letter of gratitude for all the work Karl Fezer has done. Without his example and his hard work, there wouldn't be a newsletter. I have only now begun to appreciate the true contribution he has made and I can only hope to survive long enough to carry on with Karl's excellent work.

Frances Roelfs

NABT Fiasco

Between its 1981 passage by the state legislature and its 1987 demise at the hands of the U.S. Supreme Court, the Louisiana "balanced treatment" law that required creationism to be taught alongside evolution in public school biology classes was never legally

enforced. The law was under constant legal challenge from the time it was passed. It was an unusual situation. The State Department of Education refused to implement the law, and sued the Department of Education to force implementation. Meanwhile, the ACLU filed a lawsuit, one that was ultimately successful, claiming the law was unconstitutional.

In 1982 I heard about Raymond Minchew, a biology teacher at University High on the campus of LSU in Baton Rouge. He was teaching creationism despite the law being in legal limbo. In several conversations with him, I learned that he was a devout Christian who believed the creationist material he was presenting to this students. In addition, he spoke at local churches from the perspective of a scientist who had been an evolutionist before being converted to creationism.

After our initial contacts, several years passed without my hearing his name. Then this past November a newspaper article announced his selection as the 1988 recipient of the Outstanding Biology Teacher Award for Louisiana. Inquiries to several science teachers indicate that he is still a creationist, but, after the Supreme Court ruling, he may have been asked by his superiors to soft-pedal creationism in the classroom. Even if he no longer teaches creationism, his understanding of and commitment to evolution as a basic principle of biology is suspect in light of the creationist beliefs he has expressed in the past.

The participation of the National Association of Biology Teachers, sponsors of the award, in this fiasco is distressing. Of all groups, the NABT should be especially sensitive to this pseudoscientific perversion of their profession. All NABT members should be concerned about their

organization inadvertently validating creationism through this back door. Local grassroots efforts to police the nomination and selection process are needed. On the national level, tighter qualifications for the award could eliminate these "enemies from within" from contention.

Some people with whom I have discussed this don't see the harm. In reply, I see an opportunity for creationists to use the award as a propaganda weapon. But there is a more basic problem. Evolution is not just one of a number of ideas that probably should be mentioned in a good biology course. Evolution is the single most important organizing and unifying principle of biology. Within the context of evolution, biology is transformed from a random collection of data to a cohesive history of life on earth. A biology teacher who does not understand and teach this cannot be an outstanding biology teacher.

Grant Smith

Darwin Deserves Stamp of Approval

February 12, 1809 was the birth date of two of the most influential humans who ever lived - Abraham Lincoln and Charles Robert Darwin. Unfortunately, the February 12th which marked the 180th anniversary of their birth, passed, as usual, with a little acknowledgment of Lincoln but no public notice whatsoever taken of **Darwin** who was probably the greatest naturalist and biological scientist who ever lived!

This is not good for an "enlightened" society. It is high time we properly honored Darwin on a U.S. postage stamp! The United States issues over 20 new stamps each year. Stamps have been issued to honor presidents, sports figures, folk heroes, dogs,

ducks, birds, gemstones, states and even clowns. Religious figures are sometimes honored by the U.S. Postal Service which has issued stamps picturing the Madonna and Child, Martin Luther and St. Francis of Assisi. The work of several noted scientists such as Charles Steinmetz, Joseph Priestley, Einstein, and Luther Burbank has been celebrated on U.S. postage stamps as well. Even the pretentious and pompous William Jennings Bryan, champion of creationism at the Scopes trial, has been featured on a U.S. postage stamp. In fact, a person does not even have to be "famous" to be pictured on a stamp. Obscure historical figures such as the first woman physician and the first woman Army surgeon have been pictured on postage stamps.

So why is it that such a great and influential man as Charles Darwin, a virtual cornerstone of modern science, has **never** been honored by the United States Postal Service? Certainly, the reason is not because Darwin was not an American. U.S. Stamps have commemorated the life and work of such great non-Americans as Copernicus, Leif Erikson, Churchill, Dante, Shakespeare, Sun Yat Sen, Garibaldi and Gandhi. I believe that there are only two possible explanations for the Darwin oversight. Either no one in the postal service has ever **thought** about Darwin as the subject of a stamp or they have **avoided** Darwin because the public perceives evolution as a controversial subject. Either way, the time has come for a Darwin stamp!

The need for a Darwin postage stamp is not just a minor issue of interest only to collectors. As a long-time philatelist, myself, I have found that commemorative stamps educate and inform. Stamps come into the homes of all Americans. They remind us of (or even allow us to discover for the first time) the

great accomplishments and great ideas of Western Civilization. Indeed, a Darwin stamp would go a long way toward "legitimizing" evolution in the public mind. It would be an important tactic in the grass-roots battle for the integrity of science education.

But a Darwin stamp will only become a reality if we get a ground-swell of support from scientists, skeptics, educators and anyone else concerned about science education who will write to the Postmaster General of the United States requesting that Darwin, a man of greatest scientific and historical importance, be honored by a U.S. commemorative stamp. Think about it. Then write to: Postmaster General, Anthony Frank, Postal Service Headquarters, Washington, D.C., 20260. In the interest of education, let us put some **evolution** into every American home!

Al Martin, Liaison
Northern Illinois CC

A Letter to the *Los Angeles Times*

Canoga Park's Ray Green (Letters, Jan. 24, 'On Teaching Science') questions "evolution" as scientifically sufficient to be taught in public schools.

His summary of the bases of "evolution" shows that he severely lacks an understanding of the evolution of "evolution." If he understood that history, he would not say that it is "scientific fraud."

There was enough evidence available in ancient times, available to Aristotle, Thales, and others, for them to propound on the relation by descent of Earth's organisms.

By the late-eighteenth century, CE, European scientists and thinkers were being overwhelmed

with discoveries of the diversities of life, the fossil finds being uncovered with the exploitation of the Earth's mineral wealth, and the development of rigorous scientific thinking. The reality of evolution was seen and written about by many scientists, especially zoologists and biologists.

By the time Alfred Russell Wallace and Charles Darwin simultaneously developed the theory (in the scientific sense) that evolution occurs by means of "natural selection", it was generally accepted on the basis of existing evidence as sound.

Since the time of Wallace and Darwin, the amount of fossil evidence has grown to exceed scientists' ability to examine all of it in detail, and evidence from genetics, all fields of biology and organic chemistry, etc.,etc., confirm evolution.

If Ray Green's children are to be taught that "evolution is scientific fraud," once they find out that it cannot be that, how will they respect their father's ability to consider any evidence for anything?

Kenneth H. Bonnell

Personals

Robert M. Craig requests outlines of courses where students are taught how to distinguish real science from pseudoscience. He seeks course and test materials at both the college and precollege level -- but especially at the college level. Please write him at 5401 Hedgerow Drive, Indianapolis, IN 46226

William McComas requests information on lab manuals for a project to assess the presentation of evolution as a lab topic. He would particularly appreciate nonpublished ideas for teaching evolution. Write him at Science Education Center, Van Allen Hall, University of Iowa, Iowa city, IA 52242 (319-335-1082)

Articles, Etc:

Christianity and the Age of the Earth, Davis Young's book published in 1982 by Zondervan, was widely praised by evolutionists and theologians but not by the "scientific" creationists. Long out of print, it has been re-issued by Artisan Sales, P.O. Box 2497, Thousand Oaks, CA 91360 for \$8.50 postpaid, or ten or more for \$4.50 each.

The current issue of *Creation/Evolution* discusses various non-young earth creationist viewpoints such as the Day-Age Theory, and Gap Theory. It also discusses how "creation scientists" typically read much into the bible which simply is not there -- such phenomena as the vapor canopy and a lack of carnivory or death before Adam's Fall.

"The Origin of the Universe," by Victor Weisskopf, *New York Review of Books* 16 February 1989, pp. 10-14, is an interesting and readable article on cosmogenesis by one of the country's leading physicists. He endorses a "Big Bang" origin without the caveats developed recently by Hawking and others concerned with quantum gravity and the mathematical impossibility of this "singularity". He likes Haydn's oratorio *The Creation* as a prescient metaphor, which would probably please Einstein but trouble Hawking!

"The Uncertainty of Science," Lewis Thomas, *The Key Reporter* vol. XLVI, No. 1, Autumn, 1980. Discusses principle of falsifiability and learning how to learn. Less philosophical than most of Thomas' writings.

New Brochures Available

Four new brochures are available from NCSE. Three are reprinted with the permission of the

American Anthropological Association, and the fourth is an expanded version of a publication originally produced by the New York Council for Evolution Education, Inc., a Committee of Correspondence.

The Record of Human Evolution is written by Dr. Eric Delson, curator of Vertebrate Paleontology at the American Museum of Natural History. Delson, a well-known paleo-anthropologist, summarizes current understandings of the human fossil record clearly and cogently for the non-specialist.

Origin Myths is written by Robert Carneiro, Curator of South American Ethnology at the American Museum of Natural History. He discusses and compares a wide variety of origin stories from cultures around the world, then briefly discusses the rise of science as a way of knowing.

'*Scientific Creationism*', *Evolution, and Race* is written by NCSE Executive Director, Dr. Eugenie C. Scott. It explores the nature of evolution, the human fossil record, and the origin of races, and compares "real" scientific explanations of these with those of "scientific" creationists.

Education and Creationism Don't Mix, originally published by former NCSE President Jack Friedman and NYCEE, and expanded upon by Eugenie Scott for this education, examines the educational and legal issues involved in "equal time" arguments haunting the public schools.

Single copies of each brochure are free upon request accompanied by a stamped, self-addressed business-sized envelope. Additional copies are available for twenty-five cents each or twenty cents each for orders of 100 or more. Write to NCSE, Box 9477, Berkeley, CA 94709.

RESOURCES

LIAISONS

Current Liaisons

The following is a list of current NCSE liaisons. Liaisons are supporters who head Committees of Correspondence in the various states, or in other ways support evolution education, the public understanding of science, and the opposition to sectarian influences in science classes. We depend upon them for information on challenges to science education at the local level, and we help them to oppose these challenges. Some CC's are very active, producing newsletters and corresponding among active members much as did the original Revolutionary War Committees of Correspondence. Other liaisons need your help to make their CC become more active and vigorous. Not all NCSE members belong to their local CC. Your liaison is someone who would like to be in touch with you for support at the state and grass-roots level. Write him or her today! There can be more than one liaison in a state, so let the NCSE Executive Director hear from you if you are willing to serve.

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Corporate Funding for CCs

Many employers have a policy of matching all or a percentage of contributions by their employees to eligible no-profit organizations such as NCSE. If your company has such a plan, and you donate money to NCSE, please do take advantage of this! In addition, some companies, including Quaker Oats and its subsidiaries, contribute funds to organizations for which employees work as volunteers.

If you have devoted significant energies to the NCSE or state Committees of Correspondence, try to take advantage of such programs in your area. Quaker Oats grants range from \$100 to \$500, but other companies may have different programs. Both kinds of matching programs typically require the recipient to be a legally registered 501(c), not-for-profit organization. NCSE is such an organization, as are a few local CCs. If your CC is *not* eligible, the national office can process small or large matching grants and contribute funds back to specific local projects.

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NATIONAL NEWS

California Framework Committee: Victory for Evolution With a New Anti-Dogmatism Statement

Kevin Padian, NCSE Board Member

In December 1988, the California State Board of Education adopted a new Policy Statement on the Teaching of Natural Sciences, to replace the old Anti-Dogmatism Policy adopted in 1972. This was the right move on the Board's part. The old policy was drafted when Reagan was governor and fundamentalists ran the State Board. Its stricture that "Dogmatism be changed to conditional statements where speculation is offered as explanation for origins" had long confused teachers, publishers, and parents, and had resulted in at least one (unsuccessful) lawsuit by creationists. What is dogmatism? What is a "conditional statement" (does it begin with *if*)? What is "speculation" in science, and what "origins" are being discussed? No wonder textbooks have been so roundly condemned by scientists. No wonder American students know so much less science than their international counterparts.

Last year the Board set up a Committee to redraft the Science Framework, which is a booklet that explains to publishers and educators what is to be presented in this subject area. I am one of sixteen members of the Committee, who range from all corners of the state, from first grade teachers through curriculum specialists and award-winning educators, to internationally respected scientists, and comprise representatives of a broad spectrum of ethnic and religious backgrounds. We knew that the task of constructing a new framework would be impossible without a strong, unambiguous statement on the teaching of science that would define science, distinguish it from non-science, and provide protection for teachers and

private individuals from the intrusion of any non-scientific material into science classrooms.

The new statement states that nothing in science or any other field shall be taught dogmatically. It identifies *dogma* as a system of beliefs that is not subject to scientific test and refutation. It defines *beliefs* as based on faith, and not subject to scientific test and refutation. "Beliefs" are not a part of science, and they should not be presented as such in science education.

The new statement also notes that from time to time, science teachers are asked to teach things that do not meet the criteria of science. It requires that science teachers limit their teaching to science. If a student raises a question outside the bounds of science, the teacher is instructed to handle the question respectfully and refer it to family and clergy. Religious views are not to be allowed time in the curriculum, for constitutional reasons, nor are students to be excused from class simply because they disagree with what is being taught. That is part of the present Education Code.

Opposition to this new statement has come, predictably, from some fundamentalists who feel their world views are threatened by science. In the end, the only threat in this situation is that of the fundamentalists themselves, who presume dogmatically that one cannot accept creation and evolution simultaneously. Their intolerance for any alternative world views is the most chilling aspect of their assault on education. We were shocked to find that they opposed the inclusion of statements such as "Education does not compel belief, only understanding," and "students do not have to accept everything that is taught in school." We thought these were good, broad-minded caveats that separated education from

indoctrination. Evidently the fundamentalists do not wish to separate the two.

The same fundamentalists complain that the new statement prevents the theory of evolution from being criticized. Nonsense. The statement says nothing about evolution, despite a bizarre *Examiner* headline that read "State Backs Ape Theory." Apes and evolution are not mentioned. Any scientific theory can be criticized, but on scientific grounds, not by the bogus crypto-religious claims of the discredited "scientific creationists." There is good reason for this. If crypto-religious criticisms of science are allowed, then in the spirit of science the criticisms themselves are fair game for scrutiny. It takes only moments for a teacher to demonstrate that Noah could never have fit all the animals into the Ark, nor could the vast dimensions of the Ark have even been engineered, without a divine miracle. The mechanics of reproductive biology

suggest that Virgin Birth is impossible, without a divine miracle. But miracles are outside the scope of science. Are these feats to be declared impossible in science classes? In my view it would be unconscionable to expose students to this sort of criticism of their cultural heritages. It is much better to show students the scope of science, its methods and tests, and its limits. Keep religion out of science, and science out of religion. The U.S. Supreme Court and a host of lower courts have affirmed this separation. They have also pronounced "creation science" a thinly veiled attempt to introduce religion into schools, and have denounced "equal time for creation science" as a ploy that does not even advance fairness in instruction. The Board of Education did well in aligning their policy with these decisions, and in affirming the integrity of science.

The domain of the natural sciences is the natural world. Science is limited by its tools - observable facts and testable hypotheses. Discussions of any scientific fact, hypothesis, or theory related to the origins of the Universe, the Earth, and of life (the "how") are appropriate to the science curriculum.

Discussions of divine creation, ultimate purposes, or ultimate causes (the "why") are appropriate to the history/social science and English/language arts curricula.

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.

To be fully informed citizens, students do not have to accept everything that is taught in the natural sciences curriculum, but they do have to understand the major strands of scientific thought, including its methods, facts, hypotheses, theories, and laws.

A scientific fact is an understanding based on confirmable observations and is subject to test and rejection. A scientific

hypothesis is an attempt to frame a question as a testable proposition. A scientific theory is a logical construct based on facts and hypotheses that organizes and explains a range of natural phenomena. Scientific theories are constantly subject to testing, modification, and refutation as new evidence and new ideas emerge. Because scientific theories have predictive capabilities, they essentially guide further investigations.

From time to time, natural science teachers are asked to teach content that does not meet the criteria of scientific fact, hypothesis, and theory as these terms are used in natural science and defined in this policy. As a matter of principle, science teachers are professionally bound to limit their teaching to science and should resist pressure to do otherwise.

Administrators should support teachers in this regard.

Philosophical and religious beliefs are based, at least in part, on faith, and are not subject to scientific test and refutation. Such beliefs should be discussed in the social science and language arts curricula. ...If a student should raise a question in a natural science

class that the teacher determines is outside the domain of science, the teacher should treat the question with respect. The teacher should explain why the question is outside the domain of natural science and encourage the student to discuss the question further with his or her family and clergy.

Neither the California nor the U.S. Constitution requires, in order to accommodate the religious views of those who object to certain material or activities that are presented in science classes, that time be given in the curriculum to those particular religious views. It may be unconstitutional to grant time for that reason.

... the United States Constitution guarantees the free exercise of religion, and local governing boards and districts are encouraged to develop statements like this one that recognize and respect that freedom in the teaching of science. Ultimately, students should be made aware of the difference between understanding, which is the goal of education, and subscribing to ideas, which is not.

Full text available from NCSE.

Excerpts from:

The New California Policy Adopted January 13, 1989

State Board of Education Policy Statement on the Teaching of Natural Sciences

KEEPING TABS

ICR Takes Umbrage

The February *Acts and Facts* newsletter, published by the Institute for Creation Research, complains that, as discussed in the last issue of the *Creation/Evolution Newsletter* (8(6):4), the California State Department of Education is threatening to revoke ICR's permission to grant graduate degrees in science. They got that part correct, but a fair amount of the other information is wrong. The anonymous author reports that one member of the five person committee filed a minority report; actually, two members filed such reports, each several pages long. The author also states that "It is the contention of California Superintendent of Public Instruction, Bill Honig, that science is not science unless it is taught in a framework of evolutionism, even in private Christian institutions such as the ICR." Honig didn't say anything about "evolutionism" (a materialist philosophy held by only some evolutionists), but he did say that it was clear that creation "science" didn't measure up to the standards of science, and could not be the foundation of a state approved science curriculum.

Somewhat humorous is the assertion that "...the ICR programs are strictly science with all courses taught by highly qualified scientists, containing essentially the same materials as in other graduate science programs." In a letter to Honig, Pennsylvania liaison Mannie Sillman described a visit he once made to an ICR graduate classroom:

"I was permitted to sit in on one two-hour session of a course in molecular biology. Four students were in attendance. Each student had the text open, as did the professor. He just about read from the text!From time to time he would interpolate such remarks as 'but we don't accept that, do we?'

and other 'editorial' remarks. The text was well known to me; it was one of three or four standard biochemistry texts then in use in universities. However, this was certainly not a graduate level course in my experience, both from the standpoint of the material discussed, and the way in which it was presented."

Unfortunately, the ICR has bargained with the State to modify the curriculum by supposedly taking "the interpretive material from the body of 'factual' data on systems, processes, and methods." This does not mean that they are going to take creationism out of the curriculum. On the contrary, "This modification would still retain the creationist interpretation of the scientific data that are given in all courses...."

The ICR will be reviewed again this summer. Let's hope that all five scientists who serve on the committee this time are both competent and willing to stand up for the integrity of science education.

Somewhat humorous is the assertion that "...the ICR programs are strictly science with all courses taught by highly qualified scientists, containing essentially the same materials as in other graduate science programs."

"This is a dangerous attack on freedom of speech and religion and even on true science," says the February *Acts & Facts*, "but it is strongly supported by such groups as the Committees of Correspondence"

Yup. They got that last part right.

NACE Seeks Prayers for California

The latest mailing of the National Association of Christian Educators (Bob Simonds' organization dedicated to promoting Christianity in the public schools) uses the recent anti-creationist activities in California to scare the faithful into reaching deep in their pockets. Both the state's withdrawal of the ICR's state approval to grant degrees and the California Science Framework Committee's re-write of the Anti-Dogmatism Statement came in for criticism, with requests for prayers to bring down God's hand against the pending evils. Regarding the ICR dis-approval, Simonds incorrectly states, "The ramifications of such discrimination against schools teaching creationism could mean that Christian colleges and even Christian high schools could lose state approval because their science classes teach creationism. Pray for this most urgent need!" This of course is nonsense: if the state revokes ICR's approval, it will be because ICR does not offer a degree in science, as they claim, and people are thus not getting what they are paying for. Simonds also gets the details skewed on the Framework Committee actions: "While this is happening, the California Science Framework Committee is seriously considering declaring Evolution as a fact rather than a theory. That means it would be dogmatically taught in all public classrooms. This means total hostility towards any opposing scientific views and a *severe censorship of a particular kind of scientific evidence (that which supports creationism)*." (italics in original) The new "Policy Statement on the Teaching of Natural Sciences" defines science and scientific terms, and creation "science" just doesn't measure up. Scientific evidence can certainly be presented. But not pseudoscience.

NACE is recommending teaching students "discernment" when they are faced with "non-Biblical viewpoints" in the schools. For example, when the teacher is teaching "promiscuous sex education", the Christian

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parent should discuss "Love and Marriage". When Evolution is taught, the Christian parent should discuss "Creation-science" (first time I've ever seen it hyphenated.) By sending a donation to their "Breakthrough 89" campaign, they will send a copy of their Special Report, "How to Legally Teach Creation Science". We'll keep you informed.

More on Australian Ruckus

Australian Barry Price's has produced *A Charge of Heresy*, a 62 page document consisting of papers sent to the Vatican to document his charges of heresy against certain members of the Australian Catholic clergy. It is available from Dr. Ian Plimer, Department of Geology, Newcastle University, Newcastle 2308, Australia. The cost is \$4.00 for printing and another \$4.00 for airmail postage. Price is the author of "The Bumbling, Crumbling, Stumbling Theory of Creation Science" (C/EN 8:(6):p. 8), a stinging attack upon "scientific" creationism originally written for and published by the Catholic Education Office in Australia. The book was withdrawn after threats of a possible lawsuit were raised by Australian creationists.

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