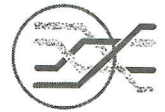


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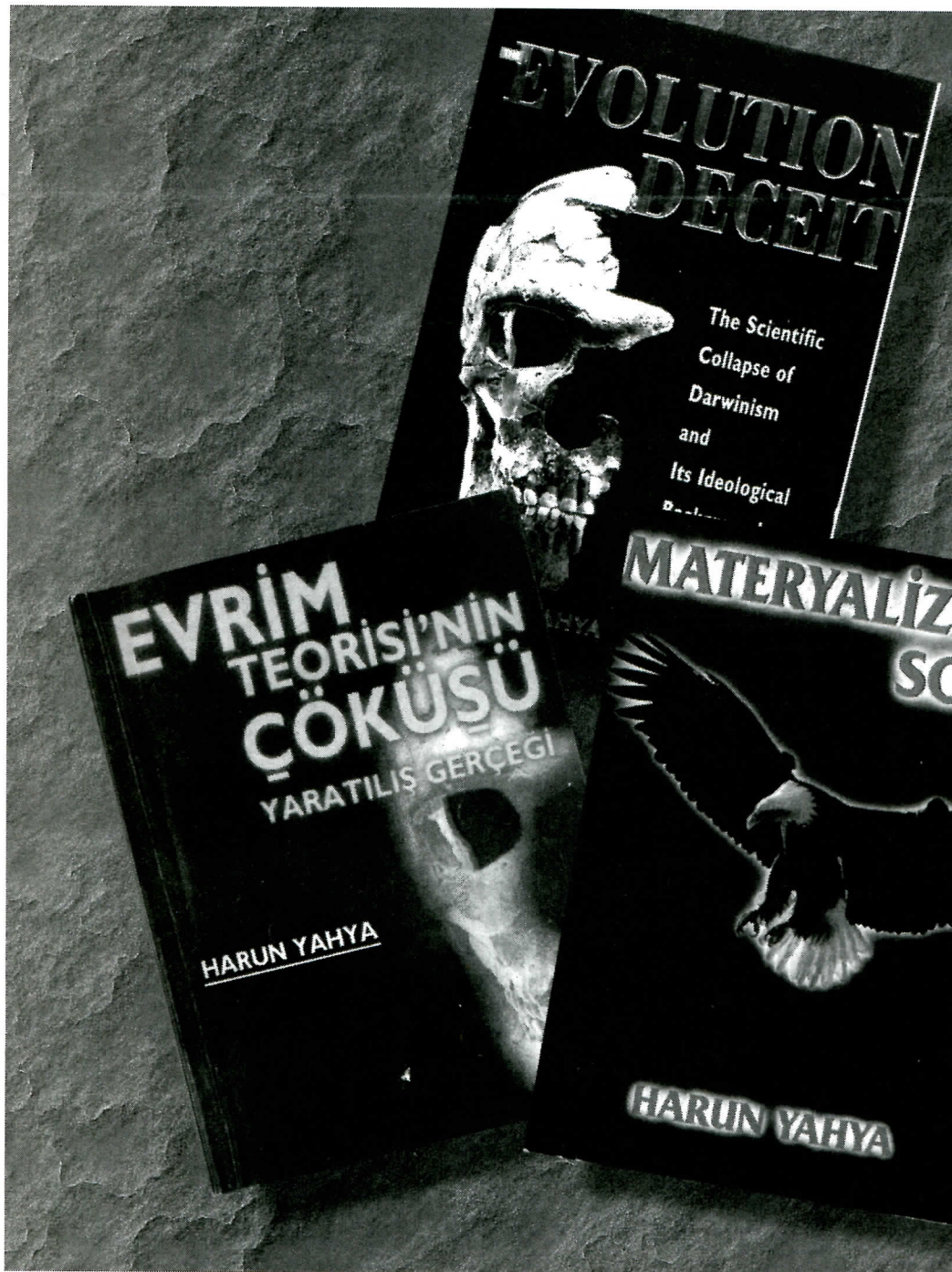
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NATIONAL CENTER FOR SCIENCE EDUCATION

Volume 19, Number 6

Nov/Dec, 1999

CONTINUES
NCSE REPORTS &
CREATION/EVOLUTION



People for the
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on Creationism

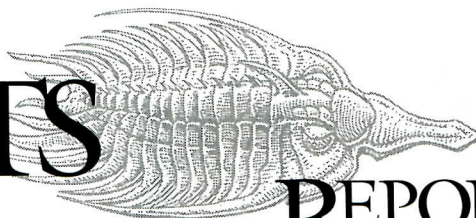
Islamic Scientific
Creationism in

Turkey

Science in the
Islamic World

Robert T
Pennock's
Tower of Babel

CONTENTS



REPORTS

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EDITOR

Andrew J Petto
Division of Liberal Arts
University of the Arts
320 S Broad St
Philadelphia PA 19102-4994
(215) 717-6276 FAX: (215) 717-6620

email: editor@natcensci.ed.org

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National Center for Science Education
PO BOX 9477
Berkeley CA 94709-0477
(510) 526-1674
FAX: (510) 526-1675
Email: ncse@natcensci.ed.org
<http://www.natcensci.ed.org>

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Montage of books by the pseudonymous Harun Yahya

NEWS

- 4 Polls Reveals Most Americans Support Evolution Education
Molleen Matsumura
Encouraging results from the recent People for the American Way poll
- 6 Geologists Explain Evolution
Wilfred A Elders
Report from the annual meeting of the American Geophysical Union
- 8 Minnesota Teacher Sues District over Evolution
Eugenie C Scott
The latest on the Rodney LeVake case
- 9 UPDATES: National and Local
From Alabama to West Virginia, no stone unturned
- 10 Obituary: Thomas H Jukes
Kevin Padian
Remembering one of the giants of 20th-century biology

NCSE NEWS

- 12 NCSE Supporter Lynn Margulis Wins National Medal of Science
John Cole
Well-deserved honor for the distinguished evolutionary biologist
- 13 NCSE's Scott Tapes *Justice Talking* Radio Program
Eugenie C Scott challenges David DeWolf of the Discovery Institute
- 13 The Tangible Benefits of Evolution
David E Thomas
The winning entry in NCSE's essay contest
- 14 NCSE Thanks You for Your Generous Support
Please join us in thanking supporters and patrons through January 2000

ARTICLES

- 15 Fundamentalist Bedfellows: Political Creationism in Turkey
Arthur M Shapiro
An unexpected package reveals the ICR's unlikely allies abroad
- 18 Islamic Scientific Creationism: A New Challenge in Turkey
Ümit Sayın and Aykut Kence
A comprehensive review of anti-evolutionary activity in the Turkish Republic
- 30 Cloning Creationism in Turkey
Taner Edis
Why would Muslims in Turkey imitate the ICR?

MEMBERS' PAGES

- 21 Facts, Faith, and Fairness: Creationism Clouds Scientific Literacy
Thomas A Demere and Steve Walsh
Adapted from the popular NCSE pamphlet
- 22 Last Hurrah
To empty the shelves, NCSE is offering excellent books at ridiculous prices
- 24 *NCSE On the Road*

FEATURES

- 36 Islam Does Not Inhibit Science
TO Shanavas
The advancement of science in the Islamic world
- 38 What Makes Islamic Science *Islamic*?
Muzaffar Iqbal
Science considered from the Islamic point of view

BOOK REVIEWS

- 40 *Tower of Babel: The Evidence Against the New Creationism* by Robert T Pennock
Reviewed by Eugenie C Scott
- 42 *Did Darwin Get it Right? Catholics and the Theory of Evolution* by George Johnston
Reviewed by Thomas Scharle

Nov/DEC 1999

REPORTS

CREATIONISM IN TURKEY

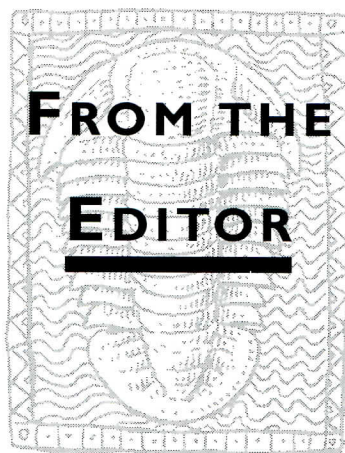
We often think of religious anti-evolutionism as primarily a North American, or US, phenomenon. Certainly it is in the US that a Christian fundamentalism founded on biblical literalism emerged and flourished, in intimate association with anti-evolutionary religious, political, and educational movements. Indeed, one of the more successful exports from the US to the rest of the world is Christian fundamentalism, so we may be forgiven if we overlook the fact that anti-evolutionism has other faces. However, we would be wrong to assume that evolution is opposed on religious grounds only by literalist Christian sects.

Over the past decade, NCSE publications have explored religious anti-evolutionism in several places around the world. In this issue we revisit Turkey — one of the places where religious anti-evolutionism has appeared with a vengeance, but wrapped in the cloak of Islam and the Qur'an rather than Christianity and the Bible. Three of the articles in this issue explore the rise of anti-evolutionism in Turkey and its connections with American anti-evolutionism — particularly its links to the Institute for Creation Research (ICR).

Arthur Shapiro begins the suite with an introduction to the scope of the problem and a brief review of the political, social, and religious context in which anti-evolutionism took hold in Turkey over the past few decades. His article, which originally appeared in *The New Leader*, describes some of the "outreach" efforts of an organization calling itself the Science Research Foundation (BAV, after its initials in Turkish).

Ümit Sayın and Aykut Kence also contribute an article to this series. Sayın and Kence explore the effects on Turkish institutions — including politics, education, the universities, government, and the law — of militant Islamist opposition to evolution. They contrast Turkish culture and society with that of the US to explain how a reactionary religious movement could develop such power even in a nation with a decidedly secular and democratic constitutional government.

Taner Edis explores the connec-



tion between the ICR and BAV, and how the goals of the 2 organizations coincide and differ for their efforts in Turkey. Although both ICR and BAV share the objective of opposing evolution, the doctrinal foundations and the key issues for the 2 groups are not identical. Edis first wrote about the ICR's promotion of creationism among Muslims in the former *Creation/Evolution*, and this article continues the story 6 years later.

ON SCIENCE AND ISLAM

In presenting these 3 pieces, however, we realized how little most of us in the US know about Islam and its scholarly and intellectual history. Just as *Voices for Evolution* demonstrates a variety of Christian attitudes toward science and, particularly, biological evolution, the articles by Muzaffar Iqbal and TO Shanavas present some of their thoughts on the practice of Islam and science.

Iqbal's thoughts first appeared on the META listserve, an international forum on the issues of science and religion hosted by the Philadelphia Center for Religion and Science. What we have reprinted here is the first of a series of postings on the listserve that explore the ways in which the Qur'an instructs Muslims to view and understand the world around them. Iqbal argues that science is a natural part of Islam.

Shanavas first responded to some comments in a book review by Eugenie Scott. However, we thought that his extensive documentation on the support for scientific naturalism within the context of Islam would be a useful comple-

ment to the other articles in this issue. In particular, he explores both the Qur'anic texts and some of the more prominent scholars of the Qur'an on the issues of methodological naturalism in general and evolution in particular.

ALSO IN THIS ISSUE ...

Molleen Matsumura reports on a recent poll by People for the American Way, which indicates that a majority of those polled favor teaching evolution as science, though many would allow creationism in other parts of the curriculum.

Teachers are taking on school districts in several locations. In this issue, Eugenie Scott updates the case of Rodney LeVake in Faribault, Minnesota, who is suing his district after school officials changed his teaching assignments. His curriculum included "arguments against evolution" and evidence of irreducible and incredible complexity, and the district concluded that he was not presenting the approved curriculum to his students. LeVake's suit charges religious and "viewpoint" discrimination.

FOR MEMBERS AND FRIENDS

There is more news from NCSE — some sad, some joyous. We also have special offers and sale items in our members' pages.

Remember that doing business with our affiliates — MBNA America, Amazon.com, and Alamo Car Rental — benefits NCSE.

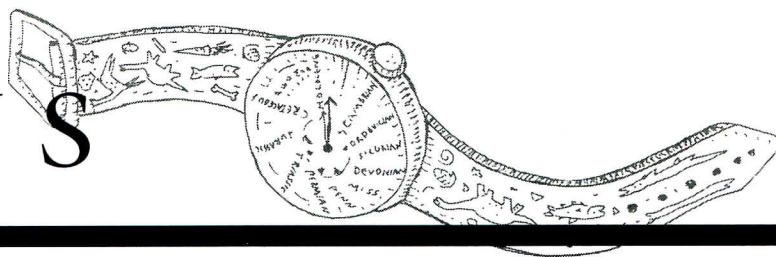
Anj Petto

RNCSE 19(6) was printed in June 2000

Corrections

On page 37 of RNCSE 19 (5) we incorrectly reported the name of Ilona Weyers as Lion Weirs. We apologize to our readers and the bearer of that magnificent name.

In RNCSE 19 (5), the e-mail address listed for William Thwaites was incorrect. The correct e-mail address for Thwaites is <whthwaite@sunstroke.sdsu.edu>. We apologize for any inconvenience.



Poll Reveals Most Americans Support Evolution Education

Molleen Matsumura
Network Project Director

On March 10, 2000, People for the American Way (PFAW) released the results of a survey of public opinion on evolution and creationism in public education conducted by DYG, Inc, the well-known polling firm headed by Daniel Yankelovich. The poll was widely reported, with coverage by the Knight-Ridder syndicate and front-page articles in The *New York Times* and many other papers. However, different stories

(and headline writers!) interpreted the results very differently.

For example, the headline in the Minneapolis-St. Paul *Pioneer Planet* of March 11 said, "Poll Finds Most Would Teach Both Evolution, Creationism", while the Seattle *Post-Intelligencer* headline on the same date was "Most Americans Approve of Teaching Evolution; They Say Religion, Science Co-Exist".



The poll began with a telephone survey of a scientifically selected representative sample of adults, conducted in November 1999. Then, in December, a second series of questions was asked of a subset of the original respondents. Outstanding among the mixture of familiar and surprising results were the findings that the great majority of Americans believe evolution should be taught in our public schools, that only half have even heard of creationism, and that two-thirds agree that "[e]volution ... is too important to be decided by each and every school board. There needs to be a standard,

national approach." The complete report is available on the PFAW website at <<http://www.pfaw.org/issues/education/creationism-poll.pdf>>.

Is There Room for Religion in Science Class?

Not only the most concerned individuals — parents with children in public schools — but all Americans agreed that "[e]volution should be taught in public schools", and both groups agreed to the same extent — an impressive 83%. Even when those who support "equal time" for creationism are taken into account, a clear majority supported teaching only evolution as science.

Differences of opinion centered on questions of whether and how to teach about religious views. (See Table 1: Teach "Both Sides"?)

Reports stating that most Americans support teaching creationism, or that Americans are "of 2 minds" on the subject, ignored a crucial distinction: they added together the numbers of those who supported teaching creationism as science, and those who supported teaching *about* creationism but *not as science*.

Majority support for teaching *only* evolution as science was found in every region of the country.

TABLE 1: TEACH "BOTH SIDES"?

WHAT TO TEACH	% SUPPORT
Teach only evolution	20%
Teach evolution in science class, religious explanations in other classes	17%
Teach evolution as "scientific theory" in science class, mention creationism as "belief"	29%
Subtotal: Teach only evolution as science	66%
Equal time for evolution and creationism in science class	13%
Teach both, unsure exactly how	4%
Subtotal: Teach both evolution and creationism	17%
Subtotal: Teach evolution	83%
Subtotal: Teach only creationism	16%
Don't know	1%

AIG SPINS A YARN

On the Answers in Genesis web site is an interesting, if not exactly mainstream, interpretation of the results of the recent poll on teaching evolution conducted for People for the American Way.

Connect to
<<http://answersingenesis.org/docs2/4241news3-11-2000.asp>>.

[Contributed by Jim Moore.]

**TABLE 2:
REGIONAL
SUPPORT FOR
TEACHING EVOLUTION**

REGION*	Support Teaching Evolution (%)
All Americans	66
Northeast	71
Central	65
West	62
South	61
Bible Belt	62

*Regions were defined as follows:

NORTHEAST:

Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, Pennsylvania, New Jersey

SOUTH:

Delaware, Maryland, West Virginia, Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, Tennessee, Kentucky, Washington DC

CENTRAL:

Texas, Oklahoma, Kansas, Nebraska, South Dakota, North Dakota, Minnesota, Wisconsin, Michigan, Ohio, Indiana, Illinois, Missouri, Iowa

WEST:

New Mexico, Arizona, Utah, Colorado, Wyoming, Idaho, Montana, Washington, Oregon, Nevada, California

BIBLE BELT:

West Virginia, Virginia, North Carolina, South Carolina, Georgia, Alabama, Mississippi, Louisiana, Arkansas, Tennessee, Kentucky, Texas, Oklahoma, Kansas, Nebraska, southern Illinois, Indiana, Missouri, Iowa

These national and regional results underscore the 1999

Kansas survey finding (see RNCSE 1999; 19 [5]: 6, 7) that legislators and boards of education that seek to diminish the teaching of evolution may be responding to their most vociferous constituents, but not to the majority.

A Matter of Definition?

"Wait a minute!" a creationist might object. "This poll just reflects the fact that while 95% of the people surveyed said they have 'ever heard the term *evolution*', only 53% said they have 'ever heard the term *creationism*.'" However, the poll's definitions of evolution and creationism were phrased in a way that could be expected to maximize hostility to evolution. It isn't the evolution of bacteria, cabbages, or even "our best friend, the dog" that disturbs some people, but human evolution, and all the poll's definitions concerned *human* evolution.

People who had not heard of creationism (47%) were told:

Creationism is the belief that states God created human beings in their current form. Creationism rejects the idea that human beings evolved from less advanced forms of life over millions of years.

People who had heard of evolution were asked which of the following statements "best fits your definition":

"Evolution means human beings have developed from apes over the past millions of years" or "Evolution means human beings have developed from less advanced forms of life over millions of years."

Even when the emphasis is on *human* evolution, not only do the majority of Americans agree that evolution should be taught, but they find no conflict with their religious beliefs. Of the 95% of individuals who had heard of evolution, 68% agreed that "[a] person can believe in Evolution and still believe God created humans and guided their development." (85% of the sample described themselves as either "very" or "somewhat" religious, and 63% reported attending

church at least once or twice a month.)

What's the Catch?

Given the extent of support for teaching evolution, why are its opponents so successful? The answers are a reminder of the adage "The squeaky wheel gets the grease." The survey explored not only what Americans believe should be taught, but how strong their beliefs are.

In a chapter titled "Certainty and Intensity", DYG reported responses to the question "How important is this issue to you, namely whether or not creationism should be taught in schools?"

Of those who think only creationism should be taught, 70% said the issue is "extremely important".

Of those who think only evolution should be taught, 34% said the issue is "extremely important".

Moreover, while those who support teaching only creationism were found to be motivated primarily by religious beliefs, those who support combining evolution with some teaching about creationism, are motivated by what the pollsters call a 'postmodernist mentality'... reflecting a 'Hey, you never know' attitude (DYG, Inc, p 48). Thus, while respondents who support teaching only creationism agreed most frequently with "moral" and "fundamentalist" arguments (74% and 75% respectively), those who supported teaching evolution as science and somehow acknowledging creationism were most responsive to those "postmodernist" arguments that emphasized "keep[ing] an open mind" or "expos[ure] to both points of view" (75% and 74%; DYG, Inc, p 49).

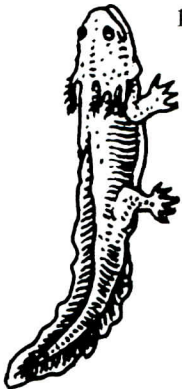
Respondents' openness to teaching "both points of view" is understandable in light of some fairly general uncertainty about evolution, consistent with results in many other polls. When people were asked how accurately evolution explains "how humans were created and developed", the answer most frequently given (38%) was "[m]ight or might not be accurate, you can never be



sure" (DYG, Inc, p 40). This report was also consistent with other findings that some of this uncertainty may be explained by one common interpretation of the term "theory". Of the 95% of respondents who have heard of evolution, 74% agreed that "evolution is commonly referred to as the Theory of evolution because it has not yet been proven scientifically" (DYG, Inc, p 41; emphasis in original).

Playing the Numbers

As RNCSE readers know well, scientific ideas are tested by evidence, not by majority vote! Still, when we work to promote good science education in our communities, we frequently must work with elected and appointed officials who are sensitive to the desires of their constituents. Often they act on the *perception* that most in their community are disturbed when evolution is taught. The PFAW poll is a reminder that policy-makers can be urged to check their perceptions against reality, and then get on with the business of helping children in their community get a good education.



The complete text of the DYG, Inc survey is on the PFAW web site at <<http://www.pfaw.org/issues/education/creationism-poll.pdf>> (to read the report, one must download the Adobe Acrobat reader). Request a print copy by telephone (1-800-326-7329) or by e-mail (<pfaw@pfaw.org>).

Civil-Liberties Organization Releases Creationism Report

In November 1999 the People for the American Way Foundation — the educational arm of the well-known civil-liberties organization — released a special report: *Sabotaging Science: Creationist Strategy in the '90s*.

This 20-page booklet begins with a brief survey of evolution-creation controversies nationwide, followed by a case study of the Kansas Board of Education vote that was the most notorious attack

on evolution education in 1999. It then explains 5 common strategies for undermining evolution education:

- Creationism as Science
- Shifting Rhetoric
- Pitting Science Against Faith
- It's "Just a Theory"
- Local Control

"Proponents of Creationism" profiles several young-earth creationist organizations, quoting Answers in Genesis literature that asserts that "those who do not believe in Christ are subject to everlasting conscious punishment." The report concludes with a discussion of the significance of recent events in Kansas and the evolution-creation controversy generally, concluding that "[a]t the core of this debate is whether we as a nation will stand up to support rigorous science education for all students."

This attractive booklet is well-researched and it would be useful for educating friends, colleagues, and activists about the broad outlines of the evolution-creation controversy.

Sabotaging Science: Creationist Strategy in the '90s is available from PFAW by calling 1-800-326-7329 (ask for Maritza). The price is \$5.00, including shipping. Readers may also purchase the booklet on line at <<http://www.pfaw.org/store>> issues or download a free copy in Adobe PDF format from <<http://www.pfaw.org/issues/education/creationist-strategy.pdf>>.

Geologists Explain Evolution

Wilfred A Elders

On December 16, 1999, geologists at the annual meeting of the American Geophysical Union (AGU) in San Francisco held a special session entitled "Explaining Evolution". It was a spectacular success, if we can judge from the attendance — standing room only for the whole morning. The atmosphere was charged, with an attentive audience, which included at least one vocal creationist, John R Baumgardner from the Fluid

Dynamics Program of Los Alamos National Laboratory.

Brent Dalrymple, the author of that well-known text *The Age of the Earth*, began with a discussion of "The Creation/Evolution Issue: Why Should Earth and Space Scientists Care?" He pointed out that young-earth creationists (YECs) include the history of the earth in their definition of evolution. They try to accommodate the expansion of the universe and radiometric dating within their 10 000-year time frame by arguing that, since the Fall of Adam, the speed of light has increased by a factor of 200 million and radioactive decay constants have increased by a factor of 750 000. These requirements in turn force Planck's constant to increase by many orders of magnitude. All of this would lead to a universe that does not work. For example, before the Fall, each atom undergoing radioactive decay would have released energy equivalent to that of an exploding tactical nuclear weapon.

During the question period, the first response was from John Baumgardner. He began by saying that as a committed Christian he was insulted by Dalrymple's characterization of creationists. He expressed his disappointment that the AGU had not invited speakers to present creationist arguments. His exchanges with Dalrymple became quite heated. This made me apprehensive that he would later come after me because in my presentation I would use a slide making fun of one of Baumgardner's sillier ideas — that giant whirlpools on the continents allowed dinosaurs and other large animals to survive until late in Noah's flood, thus explaining why their fossils occur high in the geologic column.

Readers may remember that Baumgardner was featured in the article entitled "The Geophysics of God" in *US News & World Report* in June 1997 (see RNCSE 1997; 17 [3]: 29-32). He was attending the AGU meeting as the co-author of 4 papers concerning dynamic modeling of the Earth's mantle. However, none of his papers gave even a hint of applicability to a creationist paradigm, whether YEC or any other sort. So it is dif-

difficult to see how the results he presented could produce the changes in the values of physical parameters necessary to make plate tectonics happen in 6000 years.

Leo Laporte, a paleontologist from the University of California at Santa Cruz, then talked about "Darwinian Descent with Modification". He made 4 points about the paleontological record:

- (1) fossils are remains of once-living organisms;
- (2) fossils occur in rock sequences in temporal order;
- (3) the absolute ages of these sequences can be determined from radiometric dating;
- (4) the fossil record provides many examples of transformation of anatomical features through time — for example, the transition from amphibians to reptiles, the evolution of mammalian ear ossicles, and so on. He ended by summarizing his credo that it is the methodology of science that matters, rather than its content.

Baumgardner responded by stating that evolution is not supported by paleontology and challenged Laporte to state his epistemology. Laporte repeated his scientific credo. Baumgardner pressed him again. Eugenie Scott interjected that they were at cross-purposes because Baumgardner was not distinguishing between epistemology and metaphysics. Although scientists should share a common epistemology, she said, they can hold widely different metaphysical positions.

John Hafernik, a molecular biologist from San Francisco State University, then spoke on "Testing Evolutionary Hypotheses: Application of New Developments in Computing and Molecular Biology". His talk was about the advantages of using molecular data for evolutionary studies. Genetic data can be obtained from all kinds of organisms. It provides direct measures of amounts and rates of divergence as well as a nearly unlimited number of characters to

analyze. His examples included cladograms of chipmunks and carp.

Lee Allison, the Director of the Kansas Geological Survey, followed with a talk on "Stealth Creationism: The Assault on Teaching Evolution in Kansas". He reviewed for us the political background to the Kansas State Board of Education decision to drop evolution from the state science standards. He pointed out the strong ties between the Board of Education and the conservative wing of the Republican Party of Kansas, and the influence on the Board's actions exerted by the Creation Science Association of Mid-America. He outlined the actions being taken by the Kansas Citizens for Science to redress the decision. I felt that this was an excellent background to my talk later in the morning.

John Geissman, from the University of New Mexico and a member of the AGU Committee on Public Affairs, spoke about "Teaching Geosciences: Challenges and Opportunities". This talk was mostly about how he handles the issue of creationist challenges in teaching large freshman college classes on physical geology. I feel that, although it is important to treat this issue judiciously at the college level, the main challenges lie in the K-12 arena.

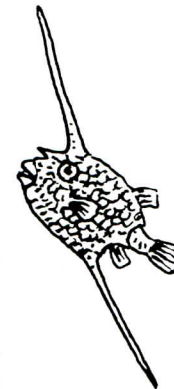
Robert Hazen, of the Carnegie Institution of Washington and the author of the popular book *Science Matters*, gave a talk on "Teaching the Teachers About Evolution and the Nature of Science: Lessons from the NRC's Working Group on Teaching Evolution". As the title suggests, he was a member of the National Research Council committee that produced the 1998 publication *Teaching About Evolution and the Nature of Science*. His paper was perhaps the most philosophical presentation. He posed the question "Are science and religion completely separate domains of knowledge?" He suggested that the issues are not black and white. Many religious beliefs are informed by empirical fact, and we should use the scientific method to decide empirical issues.

My talk considered a more limited, but more practical question, "Should We Teach Both Evolution and Creationism?: The Case of the Grand Canyon". After reviewing the

fairness issue, I posed the question "If we were to give equal time, what textbooks would we use?" I took the geology and paleontology of the Grand Canyon as my test case, quoting liberally from the writings of Gary Parker, Steven Austin, and Larry Vardiman (who cites Baumgardner on whirlpools). I showed how their interpretations were totally at variance with the standard geological interpretations. I suggested that the burden of proof lies with the creationists. Discussing various published pieces of creationist research on the Grand Canyon, I argued that they are wrong, trivial, or irrelevant. Giving equal time to creationism requires us to teach bad science (and, in my opinion, bad religion).

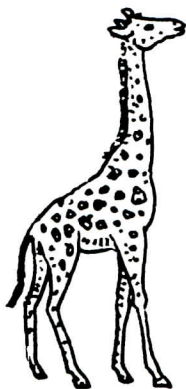
The concluding talk, by NCSE's Eugenie C Scott, was on "Evolution and the American Public: Perceptions Differ Outside the World of Science". She reviewed the 3 reasons why YEC has such a hold in the US (in contrast to more enlightened countries such as my own — the UK). First, the early European settlers were congregational rather than hierarchical. In the early years of this century, fundamentalism and biblical ignorance rose to the fore. Second, unlike in the rest of the world, the US has a decentralized educational system. Third, in the US there is a cultural imperative of fairness, exploited by the YECs. Having had their efforts to require equal time in the classroom thwarted by the courts, they are using different tactics, such as influencing textbook adoptions, banning the teaching of evolution, and proposing "intelligent design theory" as the thin leading wedge to open up academia to anti-evolutionary thinking.

The formal lecture session was followed by a 90-minute strategy workshop on "Promoting Good Science: Countering Creationism in Public Schools", at which Eugenie Scott was the principal speaker. We were given an excellent notebook prepared by the AGU Public Affairs Office full of good advice. All the front-line troops fighting this battle should have this ammunition.



John Baumgardner continued his vocal opposition. He criticized the Public Affairs committee of the AGU for providing a forum for the National Center for Science Education, which he said he regards as an "extremist organization". On the other hand, I would have been most vociferous if the AGU had provided a forum for the Institute for Creation Research to hold a workshop on "Countering Evolution".

Interested readers can examine the abstracts of the papers in this session on the AGU web page at <<http://www.agu.org>>. Follow the links through "Meetings, 1999 Fall Meeting, FM99 Programs & Abstracts On-line". To examine the abstracts in the "Explaining Evolution" session, click on key-word EP41A (the code for the evolution session).



Wilfred A Elders
Riverside CA
E-mail: <welders@pe.net>

Minnesota Teacher Sues District Over Evolution

Eugenie C Scott
NCSE Executive Director

Rodney LeVake was teaching middle school science in Faribault, Minnesota, about 60 miles south of Minneapolis, when he applied for a fall 1997 biology teaching position at the Faribault high school. Because of district policies favoring in-district transfers of teachers with the appropriate credentials, he soon got the job.

According to other teachers at the high school, LeVake "was openly professing ... Christianity. He would argue things from a fundamentalist point of view" (Leiblich 1999). His colleagues became uneasy about his approach to evolution, which was decidedly negative. The science chair at the high school, biologist Ken Hubert, talked with LeVake and decided that he needed to meet with the principal and the district science coordinator

to discuss how he was teaching the class.

During that meeting, LeVake claimed he was willing to teach evolution, but also wanted to teach the "evidence against evolution". The administrators requested that he prepare a white paper that would describe more precisely what he intended to teach. This document presented the following points (among others):

- "[N]either evolution or creation can be considered a science because neither are [sic] observable at the present."
- "[P]roponents of either interpretation must accept it as a matter of faith."
- "The process of evolution itself is not only impossible from a biochemical, anatomical, and physiological standpoint, but the theory of evolution has no evidence to show that it actually occurred."

LeVake also expressed opinions familiar to readers of creationist literature:

- "the amazing lack of transitional forms in the fossil record."
- "the mutation changing a leg into a wing could [not] be beneficial for the creature who possessed it."
- "The theory of evolution is in clear violation of [the Second Law of Thermodynamics]."
- "Natural selection occurs, but it is inadequate to produce 'macroevolution' [by which LeVake means descent with modification]."
- "Homology is the study of similar organs/structures on different creatures that have the same function. It has been discovered that they arise from different locations on the DNA sequence."

He also listed several examples of the "incredible complexity" that supposedly cannot be explained by evolution, and which are part and parcel of creationist objections to evolution:

- "The structure of the microscopic bacterial flagella [sic]."
- "The woodpecker's tongue and shock absorber."

• "The complete metamorphosis of a caterpillar to a butterfly."

LeVake suggested Michael Denton's *Evolution: A Theory in Crisis*, Phillip Johnson's *Darwin on Trial*, and Michael Behe's *Darwin's Black Box*, "although I have not personally read the last two books listed as of yet...."

LeVake claimed he would teach evolution, but never got around to it during his first year of teaching. The district has a detailed curriculum for biology instruction, involving the showing of several videos as well as class lectures, laboratories, and assigned reading. Administrators decided that for the 1998-9 school year, LeVake would be re-assigned to a course in which evolution is not a component: freshman general science. In May 1999, LeVake sued the district in Minnesota state court — as he told a reporter, to "get his course back".

LeVake's complaint claims that the district discriminated against him because of his religious beliefs (see RNCSE 1999; 19 [3]: 24-6). He alleges that the district restricted his employment because of his "adherence or non-adherence to certain religious or philosophical beliefs". He also argues, as have creationist plaintiffs before him, a free speech right to teach what he wants. He asks the court to direct "that the district's policy, of excluding from biology teaching positions persons whose religious beliefs conflict with acceptance of evolution as an unquestionable fact, to be unconstitutional and illegal under the US and Minnesota Constitution." He requests \$50 000 compensation and court costs.

LeVake has some deep-pocketed allies behind him. His lawyer, Francis J Manion, works for the American Center for Law and Justice (ACLJ), a Religious Right organization that views the First Amendment, to put it mildly, quite differently than does the American Civil Liberties Union (ACLU). The ACLJ is a spin-off of evangelist Pat Robertson's

Christian Coalition. At the Christian Coalition's October 1999 annual meeting, chief legal counsel Jay Sekulow described LeVake's reassignment as an example of "educational McCarthyism" (Lieblich 1999). The LeVake case was the topic of a CNN Newsline program broadcast in March 2000.

In earlier lawsuits in Illinois (*Webster v New Lennox*) and California (*Peloza v San Juan Capistrano*), teachers sued their districts over the issue of creationism. LeVake's attorneys take a somewhat different tack by discussing not "creationism" but the neocreationist "evidence against evolution". They may not have an opportunity to introduce this "creationism lite" into the courts, since the school district is approaching the case from the standpoint of employment law. It is the responsibility of the defense attorney to make the best possible case for his client, and much case law supports both the right of a district to determine curricula and the contractual responsibility of a teacher to teach the district-mandated curriculum. The district's position is that LeVake was re-assigned because he did not follow the district curriculum for high school biology. Of course, LeVake could have been fired, but he was merely re-assigned to a course that did not generate the same sort of conflict for him.

The case is scheduled to go to trial in June, though defendants have requested a summary judgment.

REFERENCES

Lieblich J. Teacher wants to debunk evolution in school. *The Detroit News* (Associated Press wire story), October 15, 1999.

"Creation Museum" Moves Forward

On March 5, 2000, the *Cincinnati Enquirer* reported the end of a 3-year battle to oppose the construction of a

"creation museum" in Boone County (see RNCSE 1999; 19 [2]: 5). Answers in Genesis (AIG), the evangelical Christian ministry headed by Ken Ham, will build a 95 000-square-foot museum close to Big Bone Lick State Park, a site rich in geological and paleontological resources near the state's border with Ohio. AIG was denied permission to build a museum on a site even closer to the famous fossil site, after meeting opposition from county officials and a coalition of concerned scientists and area residents (see RNCSE 1996; 16[4]: 1, 8-9).

Local opposition continued when AIG applied for a zoning variance at a new location, but the last roadblock was removed in February 2000, when a county judge ruled that there was no conflict of interest on the part of a zoning commissioner who has ties to AIG and had voted in favor of granting a zoning variance to build the museum. Opponents of the proposal will not appeal the decision.

Answers in Genesis staff anticipate that construction will begin in 2001 and that the first exhibits will open in 2002. AIG officials told the *Cincinnati Enquirer* that the museum will include the exhibits typical in natural history museums, such as dinosaur replicas, fossils, and a DNA exhibit, but they will be presented as a walk-through history of the world from a biblical perspective.

The AIG reaction to the story, is available on the web at <<http://www.answersingenesis.org/docs/4233news3-6-2000.asp>>.

Details of this story are available at the web site of the Cincinnati Enquirer, <http://enquirer.com/editions/2000/03/05/loc_opponents_of_genesis.html>.

UPDATES

Alabama: An advisory committee has been appointed to update state science curriculum standards. After a public review of the revisions, recommendations will be submitted to the

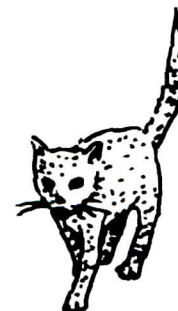
State Board of Education in 2001. Weakening of evolution in the 1995 standards provided the rationale for the evolution disclaimer that is currently inserted in state biology textbooks (NCSE Reports 1995; 15 [1]: 4, 5; 15 [2]: 3; 15 [4]: 10, 11). NCSE members and friends are monitoring the process and actively encouraging improvement of the standards' coverage of evolution.

California, Colton: Local media report that earth science teacher John McIntosh has been using his own search for Noah's Ark as an example of scientific method and a vehicle for teaching geology. The first reaction of the administration and board of education in this Southern California community has been to accept McIntosh's assurances that he is teaching only science, despite his public statements that the existence of the Ark would support literal acceptance of Genesis. Concerned citizens in the area are urging administrators to investigate further.

California, Ventura County: A member of the county board of education proposes adopting a policy requiring creationism to be taught alongside evolution. The policy would affect programs administered by the county, such as job retraining programs and education of incarcerated youth, but not local public schools. Board action is expected in early autumn. NCSE will monitor further developments.

Colorado, Durango: A local newspaper reports that teachers at local charter schools claim to teach evolution as "theory, not fact". NCSE is investigating this report as well as Colorado's state regulations concerning charter schools.

Idaho: The state Board of Education approved science standards that include evolution among the subjects students must understand before graduating from high school, but a legislative committee refused to fund development of tests based on the standards. (*Gary Bennett's report will appear in RNCSE 20:1.*)



Obituary

THOMAS H. JUKES

KEVIN PADIAN
NCSE President

We are deeply saddened to report the death on November 1, 1999, of Dr Thomas H Jukes, aged 93, after a long bout with pneumonia. Tom was a staunch supporter of NCSE, a crusader for scientific integrity, and a tireless opponent of the absurd arguments of anti-evolutionists. He was accomplished in many fields of biology, from biochemistry to nutrition to molecular evolution, and yet it was the grand sweep of the history of life itself that Tom felt most keenly. At his retirement he was a professor in 3 departments at UC Berkeley (Biochemistry, Nutrition, and Biophysics). He and Jack King almost singlehandedly established the empirical basis for the concept of non-Darwinian or neutral evolution, the realization that neutral variants of alleles accumulated in genomes with time. Although these variants may have little or no effect on the phenotype, their relative accumulations can be compared among species to give estimates of relatedness and degree of divergence. This understanding became much of the underpinning for all later studies of molecular evolution (the Cantor-Jukes model was a robust method of calibrating these divergences and differences). Tom eventually published over 550 scientific papers.

Tom was born in England, immigrated to Canada when he was 18, and earned a PhD in biochemistry at Toronto in 1933. He

then served his first stint on the UC faculty at Berkeley and Davis, where until 1942 he and his colleagues did groundbreaking work on the vitamin B complex, including the isolation of pantothenic acid. At that point Tom left the University to join Lederle Laboratories. In the 1940s and 1950s, he continued his work in nutrition, chemical research, and the use of chemotherapy in the treatment of cancer. He discovered that feeding small amounts of antibiotics to livestock increases growth — a discovery that revolutionized the meat-producing industry, which now uses far more antibiotics than does medicine.

The emergence of DNA as the central focus of molecular biology changed many careers in the early 1960s, including Tom's. He returned to Berkeley and harnessed these great molecular discoveries to produce new insights in genetics, nutrition, and evolution. Tom was one of the founders of the prestigious *Journal of Molecular Evolution* and was one of the few scientists in history ever to have a regular column in the journal *Nature*. He also became involved in controversial issues, such as the fight to ban the use of the pesticide DDT. He argued against the ban because, among other things, DDT had saved many lives in poor countries as a cheap but effective way to kill mosquitoes that transmitted malaria, and he saw no strong

evidence for its deleterious effects on ecosystems. Although he was a long-time member of the Sierra Club, he fought it and the Audubon Society on this issue. And, although the public may still largely accept the view that DDT is dangerous, the scientific support for this view has largely evaporated.

Tom's most lasting contributions, in addition to his biological work, were in the presentation of science to the public. He strongly believed that scientists share a public trust to educate people about their findings, and to help the public discriminate between valid and invalid claims. He did not suffer fools gladly, and was not interested in diplomacy or kowtowing when scientific principles, scientific practice, or public health was at stake. He carried on a long feud with Linus Pauling, who Tom felt irresponsibly extolled non-existent and untested benefits of vitamin C. He was equally impatient with homeopathic medicine, quack cancer remedies such as Laetrile, and universal cure-alls. He hated humbuggery and puffed-up credentials, and once applied for and received a membership in the American Association of Nutrition and Dietary Consultants for Bellman Jukes, who was in fact his basset hound. One of Tom's great prizes was a photograph of Bellman with his certificate of membership.

But nothing aroused Tom's ire more than what he saw as the humbuggery of the creationists who take it as their life's work to distort and denigrate legitimate science to serve sectarian religious ends. In 1972 Tom protested vigorously when the State Board of Education considered requiring "equal time" for creationism, and he eventually served on the committee that drafted the California Science Framework of 1978. Thanks largely to his influence, evolution was



restored as an important component in science education in California public schools.

This incurred the wrath of many creationists, some of whom objected to students' being forced to learn about evolution in school. The case of *Segraves v California* was filed over the use of a biology textbook that emphasized evolution; Tom Jukes was a primary witness for the state. The creationists did not win their battle on that front; students may not elect to avoid responsibility for learning about subjects with which they disagree. Tom continued through the 1980s and 1990s to expose the flummery of such creationists in his columns in *Nature* and his letters and editorials in other journals.

Tom was as passionate about the outdoors and sports as he was about science; he seldom, if ever, was half-enthusiastic. He was a veteran climber, a lifelong member of the Sierra Club, and a holder of season tickets to Cal Bear football games for as long as anyone can remember. He also ardently followed the San Francisco 49ers and the Oakland Athletics; few sights could give him more pleasure than Dennis Eckersley's striking out the side in the ninth. Although he was never diffident about expressing his views, Tom earned the respect and friendship of a tremendous number of colleagues, administrators, and officials over the years. At holiday times, the Jukes's house was filled not just with a great contingent of welcoming family members, but with some of the most important people in the University and from all over the world who counted Tom among their most respected friends. He is survived by his wife Marguerite, their daughters Mavis and Caroline and their husbands, his daughter-in-law Sheila, and 7 grandchildren. We have lost one of the giants of 20th-century biological science.

UPDATES Continued

Indiana: In early February, anti-evolution legislation introduced in the House of Representatives was defeated in committee.

Kentucky, Boone County: A court has ruled that no conflict of interest was involved when county officials voted to approve an application for a zoning variance by Answers In Genesis (AIG). This ruling removed the last roadblock to AIG's plans to build a "creation science" museum. Boone County is located near Cincinnati, a major transportation hub, and AIG's hopes to make its museum a major tourist attraction had aroused concerns that the area's rural character would be affected. The "creation science ministry" has also made its presence felt by distributing an anti-evolution book to students at a local high school. (See p 9.)

Kentucky: NCSE members and other concerned organizations continue to work to have explicit mention of evolution restored to state science standards (RNCSE 1999; 19 [5]: 11, 36). Meanwhile, legislation has been introduced that would forbid teaching about human evolution. Observers report that the legislation is likely to fail. NCSE is monitoring developments.

Louisiana, Tangipahoa Parish: On February 22, 2000, the Tangipahoa Parish School Board reconsidered its earlier vote and decided to ask the US Supreme Court to consider hearing an appeal of lower court rulings opposing its controversial evolution disclaimer. To read the entire story, connect to <<http://www.theadvocate.com/news/story.asp?storyID=11122>>. [Barbara Forrest's report appears in RNCSE 20:2.]

Minnesota, Faribault: When a local teacher said that his coverage of evolution in an introductory biology class would include "evidence against evolution", he was assigned to teach a different course. He subsequently sued the district. (See p 8.)

New Mexico: The March 2000 newsletter of New Mexicans for Science and Reason reports that the state senate's Education Committee voted unanimously on February 15 to pass a "Memorial" requesting the State Board of Education to "allow the use of materials in the classroom for the study of creation theory...." There was only one abstention from the vote. The bill was never discussed on the senate floor, however, and it died when the legislature adjourned on February 17.

North Carolina, Charlottesville: A high school student in the Charlottesville suburb of Mecklenburg announced to the local press that he would petition his school district to discontinue or modify the teaching of evolution. He said that he hopes to address the local board of education; meanwhile, district officials are reviewing his request.

Ohio: The state Board of Education, acting on draft science standards recommended by Department of Education staff, strengthened language concerning evolution. Several NCSE members had encouraged the board to do so.

Oklahoma: An evolution disclaimer adopted by the state Textbook Committee (RNCSE 1999; 19 [5]: 7, 8) has been ruled unconstitutional by the state's attorney general, on the grounds that the committee has no authority to make such policies. Authors of a March 1999 statement affirming their intention to continue covering biology in science textbooks (see RNCSE 1999; 19 [1]: 11) issued a second statement reaffirming the importance of evolution and urged the Textbook Committee to rescind its decision. A bill, HB 1876, was introduced in the legislature that would have empowered the committee to set conditions on the



adoption of textbooks, such as requiring disclaimers. The bill was actively opposed by NCSE members and others, and subsequently died in committee. Since then, a Senate bill concerning the composition of the Textbook Committee was amended by voice votes on the House floor. One amendment, adopted by a 99-0 vote, read "[w]hen adopting science textbooks, the Committee shall ensure that the textbooks include acknowledgment that human life was created by one god of the universe." Another amendment, passed by a slightly smaller margin, provides that "[t]he State Textbook Committee shall have the authority to insert a one page summary, opinion, or disclaimer into any textbook reviewed and authorized for use in the public schools of Oklahoma." The amended bill will have to be discussed by a conference committee. At press time, the conference committee had not been appointed. While many observers are sure that the amendments will be deleted by the conference committee, some House members have vowed that the House will not pass a bill lacking the amendments.

Oregon, Bend: Administrators at Central Oregon Community College (COCC) investigated complaints about biology instructor Alex Haley, including allegations that he did not adequately cover evolution in an introductory course, taught "creation science" under the guise of "evidence against evolution", proselytized in other ways, and discriminated against some students. Some community members raised the concern that substandard teaching about evolution would harm COCC's efforts to expand into a four year college. Haley told the press that the investigation was motivated by religious discrimination. On March 28, the *Oregonian* reported that Haley's contract with COCC will not be renewed and that Haley will not contest the decision.

Washington, Burlington-Edison: Controversy continues in

this community. Biology teacher Roger DeHart was told to stop teaching "intelligent design", and limit his presentation of supposed evidence against evolution to "irreducible complexity"—another catchword used by "intelligent design theorists". Concerned parents are still considering litigation, and area scientists have also sought to explain to administrators and the public why these concepts should not be presented in science classes.

Washington, Kettle Falls: NCSE member John Hill was elected to his board of education with 61.5% of the vote in his favor. Hill told NCSE that evolution was not an issue in his campaign, but his position was well-known because, in the wake of the vote to eliminate evolution from Kansas science standards, he wrote several letters to the local newspaper countering creationist letters to the editor, some of which appeared alongside letters supporting his candidacy.

West Virginia, Kanawha: The chief proponent of an anti-evolution resolution rejected by the Board of Education (RNCSE 19 [5]: 12) was appointed to a textbook committee which then recommended purchasing some copies of the "intelligent design" textbook *Of Pandas and People* for use by district teachers. Although the recommendation was endorsed by the district's science curriculum supervisor, it was rejected by the Superintendent. [*Karl Fezer's report will be in RNCSE 20:1.*]

National: National Heritage Academies (NHA) is a national chain that contracts to operate charter schools under various state regulations. In Grand Rapids, Michigan, litigation is in progress against the NHA's Vanguard National Academy. The state ACLU is representing parents who complained that some teachers have presented "creation science" and that there have been other church-state violations. Meanwhile, NHA is planning to open the Rochester Leadership Academy in Rochester, New York, under the auspices of the State University of New York (SUNY) at Rochester. The school reportedly planned to teach both

evolution and creationism "as theories" (see *The New York Times*, February 18, 2000, B1, B6). The report brought inquiries from the Monroe County chapter of the National Committee for Public Education and Religious Liberty, members of NCSE, People for the American Way (PFAW), and the American Jewish Committee (AJC). Both state officials and administrators of NHA were warned that teaching creationism would be unconstitutional. The Leadership Academy has made assurances that creationism will not be taught. Rochester-area residents are continuing to monitor the school.

[NCSE thanks Ken Atkins, Gary Bennett, Bob Bragg, Jerry Day, Karl Fezer, Barbara Forrest, George Gumbert, Tony Hiatt, Michael Hopkins, Nigel Hughes, Byrd Humphreys, Martha Laties, Andrew Lutes, S Matteson, Robert Melton, Val Mullen, Daniel Phelps, David Rich, Jeff Seaver, David Smullin, Frank Sonleitner, and David E Thomas for material used in writing this report (and apologizes to any members whose names have been inadvertently omitted).]

NCSE NEWS

NCSE Supporter Lynn Margulis Wins National Medal of Science

John Cole
Contributing Editor

Congratulations to NCSE Supporter Lynn Margulis for winning the 2000 Medal of Science! Margulis, an evolutionary biologist at the University of Massachusetts at Amherst, joins a number of past winners who are Supporters, members, and friends of NCSE. The prize is awarded for

distinguished research, writing, and public service. Past winners with NCSE connections include C Ledyard Stebbins, Ernst Mayr, Leon Lederman, Frank Press, James V Neel, and Maxine Singer. Like Margulis, most medalists have devoted a considerable amount of time and energy to promoting better public understanding of science. Up to 6 recipients are chosen each year by a panel of the National Academy of Science.

The Tangible Benefits of Evolution

[In RNCSE 19:2, Dave Longtin and Duane Kraemer announced NCSE's essay contest to describe the tangible benefits of evolution. As promised, we publish the contest winner in this issue. The prize goes to ...]

David E Thomas

One huge area of tangible benefits from the application of evolutionary theory involves development of medicines and treatments for disease. For example, chimpanzees have long been favorites for the study of vaccines or other treatments for a variety of diseases, including AIDS, because they are about as close to human as an animal can be without actually *being* human. Chimp DNA is about 99% the same as human DNA. And many chimp biomolecules, such as cytochrome c, are identical to those in humans. Treatments tested on chimps often are effective on humans because chimps are, indeed, our close cousins. Additionally, treatments against certain kinds of pathogens can be developed by studying the pathogens that afflict close cousins.

For example, the results of the huge 5-year "Deep Green" project on plant evolution, involving more than 200 scientists from 12 countries, were announced August 4, 1999, at the 16th International Botanical Congress in St Louis, and were also reported in the journal *Science* (1999 Aug 13; 285: 990-1).

Deep Green is responsible for several important findings key to our understanding of plants and plant relationships. And one of these announcements was of a potential "biomedical payoff" directly involving evolutionary theory. Deep Green scientist Patrick Keeling of the University of British Columbia in Vancouver reported that the Microsporidia, an opportunistic intracellular parasite found in people with compromised immune systems, are not protozoans evolved from a pre-mitochondrial ancient eukaryote — as scientists had thought till now — but instead evolved from a fungus. So we now have a new lead to examine in the fight against their Microsporidia — drugs that disable proteins in their fungal "cousins".

With these and other examples, evolution is put to the test daily. If the theory never yielded any useful predictions — if, for example, anti-fungal drugs did nothing against the Microsporidia, and *all other* evolutionary predictions also failed — then the theory would be quickly abandoned for a more useful explanation. But such is not the case. Evolution is useful precisely because it does describe the world around us elegantly and accurately, and the case of the Microsporidia is another example of how evolutionary theory makes specific, testable predictions about the world around us.

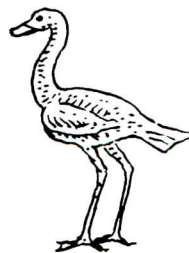
In molecular studies, evolution demands that the structures of microscopic biomolecules like cytochrome c must be similar for organisms that are closely related by descent from a common ancestor (say, horses and zebras, or humans and chimps) — and that the degree of similarity must reflect the closeness of the evolutionary relationship. And that is just what the molecules show. By contrast, under the "intelligent design" model, molecules of various species could be completely different or absolutely identical, or anywhere in between. How can a "theory" that can make no specific predictions ever be scientifically tested? How could it be used to solve the problem of the Microsporidia?

The most tangible benefit of this evolutionary prediction is the opening of a whole new avenue for treatment of seriously ill people based on the study of evolutionary biochemistry. Perhaps we should consider granting "intelligent design" scientific status only when it is responsible for saving as many lives as the study of evolution has. It will be a very long wait.

NCSE's Scott Tapes *Justice Talking* Radio Program

On April 10, 2000, Eugenie Scott taped an appearance on the syndicated legal-issues radio show *Justice Talking*. Scott squared off against David DeWolf of the Discovery Institute and Gonzaga University Law School on the issue of whether schools ought to teach "Intelligent Design" theory. The program is entitled "Creation v. Evolution: Will Religion or Science Prevail?" and will be distributed to subscribing radio stations on June 5, 2000.

The show will also be available on the web by connecting to <<http://www.justicetalking.org/shows.html>>. To hear the show via the internet, you will need to download the audio player from Real.com. The download is free and the *Justice Talking* "Shows" web page provides a link for convenient access to the audio player.



NCSE Thanks You for Your Generous Support

The NCSE Board of Directors and staff would like to acknowledge and extend their warm gratitude to all the individuals, organizations, and firms that donated to NCSE. We also extend a special thanks for their much-appreciated support to the following people who donated \$100 or more between June 1999 and January 2000 (* indicates an NCSE board member or supporter). Those in the Patrons' Circle (indicated by a +) donated \$1000 or more — a level of support that we consider heroic and that allows us a firm foundation for our efforts. Thank you to all donors!

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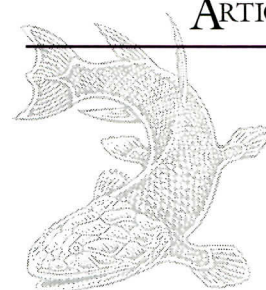
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Fundamentalist Bedfellows: Political Creationism in Turkey

Arthur M Shapiro



The FBI says that you should be wary if you receive an unexpected package from abroad — it might be a letter bomb. But I am just an academic biologist. Who would want to letter-bomb me? So when I got a mystery mailing sent from Britain via an air-mail carrier service in early December, I opened it.

It did not explode. It was a bomb of another kind: a lavishly produced, full-color illustrated paperback called *The Evolution Deceit: The Scientific Collapse of Darwinism and its Ideological Background*. It had been published in Istanbul, and the author was identified as Harun Yahya.

The volume itself is fascinating. It is closely modeled on the commonest arguments used by American Christian creationists, but cleverly recast in a Muslim mold with frequent references to Allah and the Qur'an. It omits any reference to the age of the earth and Noah's Flood, however — both staples of the Christian creationist argument. It places the issue of creation-versus-evolution solidly in an ideological context, in a way that American creationists rarely do up front. It equates Darwinism with materialism with atheism with Marxism and claims that adherents of any of these "can never possess idealistic notions such as patriotism, love for one's people, justice, loyalty, honesty, sacrifice, honor, or good morals".

It also contains a bibliography of Harun Yahya's works. They include not only anti-evolution literature (including, bizarrely, *Darwin's Antagonism Toward the Turks*) but a broad spectrum of political titles embracing Holocaust denial, Jewish Freemasonic plans for world conquest, the secret role of Israel in the Kurdish rebellion, and the West's covert aims in the Balkans. Most of these are apparently available in both Turkish and English. The English of *The Evolution Deceit* is good and fairly idiomatic, but is clearly that of a nonnative speaker.

All that rang a bell. I dimly recalled that *Creation/Evolution* (1994; 14[1] nr 34) had published an article on Turkish creationism several years ago. In his introduction to the piece, the editor tied Turkish creationism explicitly to the activities of the Institute for Creation Research (ICR) in southern California: "[T]he movement in Turkey is a 'literalist' translation of Christian creationism à la Henry Morris

and the Institute for Creation Research. Islam has traditionally been relatively 'old-earth creation' in orientation, but this new alliance is not as odd as it might seem, since Islam, Christianity and Judaism share so many common religious ideas" (inside front cover).

BUT WHY TURKEY?

Perhaps it is not surprising that the ICR would establish a foothold in that Muslim country. Turkey, after all, is the home of Mt Ararat, the traditional resting place of Noah's Ark, and explorers with a Christian agenda have been looking for traces of that big boat for many decades. As it happens, though, the ICR was invited into Turkey for political purposes in the early 1980s. To understand this requires a brief reprise of recent Turkish history.

A century ago the question of westernization was as burning an issue in Turkey as it was at the time in Russia. Some intellectuals equated modernization with westernization and secularization, while others claimed that Islamic institutions and culture could be selectively hybridized with Western technology. Once Kemal Atatürk solidified his power and became president of the new Turkish Republic in 1923, Turkey's lot was solidly cast with the secularists. There has never been any extended period since the secular state was established, however, when Islamism has not had some kind of political presence. For example, there is practically always a fundamentalist party in Turkey. It gets outlawed by the government periodically, and quickly resurfaces using a different name. The Progressive Republican Party, the Free Republican Party, and the Nation Party were all outlawed before 1955. The next Islamist incarnation, the National Order Party, was outlawed in 1971. But the tide was already turning in favor of the Islamists and, soon, of creationism.

Political and cultural tensions rose steadily in Turkey in the 1970s, and the country seemed headed toward civil war. Campaigning on the slogan "A great Turkey once again", a clever appeal to Ottoman nostalgia, the National Salvation Party (NSP) came in third in the general election held within a year of its founding, taking 11.8% of the vote. From 1973 to 1978, it participated in 3 coalition governments and succeeded in equalizing the status of religious and secular high schools. This aided the entry of significant numbers of young Islamists into the universities and planted the seeds of a new Islamist elite. Some of these pioneering young men have gone on to political prominence, like Recep Tayyip Erdogan, the former Mayor of Istanbul.

Arthur Shapiro is an NCSE member and Professor of Evolution and Ecology at the University of California at Davis.

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By the time of the coup of September 12, 1980, the military, which has traditionally considered itself the protector of Kemalist ideology, had become relatively favorable to what might be called "a tame Islam", to be used as a weapon against Marxism. While leaders of the NSP were singled out for prosecution and imprisonment, a significant part of its program was actually embraced by the new regime. In 1983, the State Planning Organization called for a "Turkish-Islamic Synthesis"; religious instruction was reintroduced into the public schools, and Darwinism was officially identified as a secularist notion that was to be discouraged.

Two years later, Minister of Education Vehbi Dinçerler, an avowed Islamist, commissioned a "report" on Darwinism from a known fellow anti-evolutionist Adem Tatlı for dissemination among Turkish educators as a "working paper". He also phoned the ICR in San Diego and asked it to furnish materials suitable for translation and distribution in Turkey. Tatlı's report reproduced the ICR's arguments, but omitted all Christian references and specifically such Christian fundamentalist hobbyhorses as the age of the earth. Predictably, it concluded that evolution had been falsified by scientists and was still being taught only because of its ideological value to Marxists. Soon afterward, Tatlı's effort was amplified into a booklet called *Evolution, a Bankrupt Theory*, widely distributed by the political Islamists. It includes an inflammatory introduction by Ubeydullah Küçük that refers to Darwinism as a "demonic hypothesis" inflicted upon society by the "fundamentally flawed Western civilization". But, Küçük assures the reader, defenders of "atheistic evolutionary theory are fighting for a cause that is already lost."

The first explicitly Islamist party formed after the coup was the Welfare Party, founded in 1983. Welfare assiduously cultivated its base, providing social services the government could not or would not deliver. Led by the veteran strategist Necmettin Erbakan, Welfare rose steadily at the polls — from 7.2% of the vote in 1987 to an amazing 21.4% in 1995. In 1994 the party captured 327 local governments. In 1996 it entered into an unlikely and intrinsically unstable coalition with the secularist True Path Party; Erbakan, who had once been banned from politics, became Prime Minister. During Welfare's ascendance, ICR's Duane Gish and John Morris (son of ICR's founder and former president Henry Morris) appeared at a creationist congress in Istanbul, and anti-Darwinism became a solid plank in the Islamist platform.

The army perceived Erbakan and Welfare as tilting dangerously close to militant pan-Islamism, particularly since it had begun courting Libya's Muammar Qaddafi and was trying to forge close ties to Iran. A group of Islamist officers was cashiered, and finally

— under significant pressure from the military — the Constitutional Court outlawed the Welfare Party on February 28, 1997. Thirty-three Welfare deputies, seeing this coming, therefore formed the Virtue Party.

POLITICAL CREATIONISM IN TURKEY

ICR had already helped to establish a Turkish clone of itself, the Science Research Foundation, known by its Turkish initials as BAV. After Welfare was outlawed, BAV began an intense campaign of creationist agitation, staging 3 "international conferences" in 1998 with star speakers recruited from ICR and other American sources. Although hardly eminent figures at home, the visitors were publicized as very important American researchers and leaders of international science (see sidebar, p 17). Between August 1998 and May 1999, BAV staged local meetings and rallies in some 60 Turkish cities. Simultaneously, Turkey was flooded with the copious outpourings of the mysterious Harun Yahya, who had never been seen and was thought to be a corporate alias for the BAV staff (see sidebar). All these activities have been very richly funded, but the sources of the funds remain obscure.

Does ICR care that its Turkish friends are using its materials and assistance to destabilize Turkey? Does it have any concern about the potential effect of political creationism in Turkey on the future of NATO or the stability of the eastern Mediterranean? Or is it content to operate at the simplistic level of the ancient Middle Eastern adage that "the enemy of my enemy is my friend"? Its own materials suggest either complete disingenuousness or incredible naïveté. The ICR's *Impact* leaflet number 318, published in December 1999, presents its work in Turkey as an effort to bring the Turks to Christ. But the Turks with whom the ICR is working have little interest in coming to Christ. They are too busy trying to come to power.

When secular Turkish scientists and intellectuals began mounting public opposition to the Islamists "evolution strategy", they found themselves vilified as atheists, Marxists, Maoists, or worse in an organized campaign of defamation. In May 1999, the Ankara Civil Court ordered BAV to pay monetary damages to some of the victims of this campaign. But in the meantime, BAV's most prominent opponents have been "profiled" in *Akit*, an Islamist newspaper often described as the voice of terrorism. In the early 1990s, several secularist intellectuals were murdered after being profiled in its pages. The treatment is thus a powerful tool of intimidation, and it can still be fatal. On October 21, 1999, the secularist intellectual Ahmet Taner Kısali was blown up by parties unknown after being targeted in *Akit*.

Those of us who received *The Evolution Deceit* are wondering why. Clearly someone wanted us to know about the situation in Turkey. But it seems unlikely that anyone would go to the expense of preparing and publishing an entire English-language version just for that purpose. One thing I do know, though: now that I have learned more about ICR's allies in Turkey, I am

going to be a lot more careful about unexpected packages in the mail.

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AUTHOR'S ADDRESS:

Dr Arthur Shapiro
Division of Biological Sciences
Section of Evolution and Ecology
University of California
Davis CA 95616

American Creationists Invited to BAV Conferences

These summaries of the qualifications and topics of the American presenters at BAV's Turkish creationism conference are adapted from the conference materials.

Professor Dr John Morris: Presented as Professor of Geology, author of 8 books and hundreds of articles, and participant in more than 200 conferences. According to the conference summary, Morris claimed that scientists still insisting on evolution have ideological, not scientific, motives. He claimed that because these scientists are materialists, atheists, or communists, they do not want to admit that science has proven creation.

Professor Dr Duane Gish: Presented as Professor of Paleontology and Genetics, formerly of the University of California at Berkeley and Cornell University, author of 10 books about evolution, and participant at conferences in 29 countries. He discussed the origin of life. According to the conference summary, Gish claimed that fossil records have disproved evolution, and argued that there is no evidence that *Homo sapiens* evolved from apes.

Professor Dr Carl Fliermans: Presented as a world-renowned microbiologist, currently a professor at Indiana University, previously a professor in 6 universities, 2 colleges, and 1 institute, author of 124 scientific publications, and currently a researcher for the US Defense Department. According to the conference summary, Fliermans discussed the origin of macromolecules, arguing that organic molecules are perfect and complex and cannot happen by chance, so they must have been created.

Professor Dr David Menton: Presented as Professor of Anatomy at Washington University and recipient of the 1997-1998 Professor of the Year award and the "grand award" from the American Dermatological Association.

According to the conference summary, Menton has more than 30 publications to his credit and has given more than 100 lectures about evolution. He discussed evidence for design in feathers, trying to demonstrate that birds must have been created.

Professor Dr Edouard Boudreaux: Presented as Professor of Chemistry at New Orleans University, lecturer in chemistry for more than 29 years, author of 4 books and 30 articles, participant at 54 conferences, and recipient of more than 20 national or international scientific awards. According to the conference summary, Boudreaux discussed chemistry by design, claiming that chemical structures have a design that can only be explained by God and special creation.

Professor Dr Michael Girouard: Presented as Professor of Biology and participant at numerous conferences about evolution. His talk was entitled "Is Life Just Chemistry?" According to the conference summary, Girouard argued that atoms and molecules are inanimate objects; they cannot by themselves form life; therefore there must be an "animator" or creator.

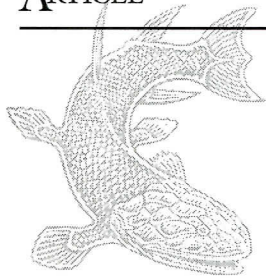
Professor Kenneth Cummings: Presented as Professor of Biology completing his career at Harvard University, author of 40 scientific articles, and participant in many conferences about evolution. According to the conference summary, Cummings addressed mutations, proposing that mutations are always deleterious and very harmful to organisms; therefore there can never be a useful mutation and mutation cannot explain evolution.

WHO IS HARUN YAHYA?

According to the biography now posted at
<<http://www.harunyahya.org/Eng/whois.html>>:

Adnan Oktar, using the pen-name "Harun Yahya", devoted his life to explaining the existence and the unity of Allah and the magnificence of the morals of the Qur'an. He spent all his life serving for this purpose from his early ages. He has never given up against the difficulties that he faced.

The biography states that Oktar entered university in 1979 and has authored over 100 books since 1986 — a remarkable output indeed for a single person.



ISLAMIC SCIENTIFIC CREATIONISM: A NEW CHALLENGE IN TURKEY

Ümit Sayın and Aykut Kence

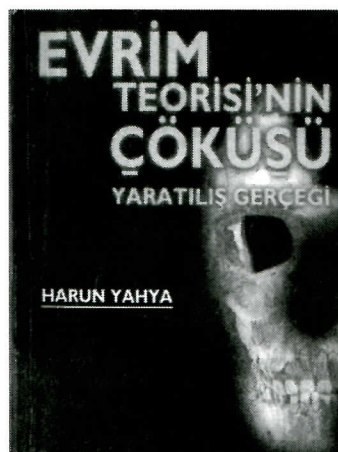
At the time that "Creation Science: A Successful Export?" was published in *RNCSE* (Matsumura 1998), there was an notable debate among intellectuals, scientists, lay people and fundamentalist Islamists concerning Islamic scientific creationism in Turkey. Since the early 1990s, the Science Research Foundation (Bilim Arastırma Vakfı, or BAV) has undertaken a new mission of spreading an Islamic version of scientific creationism in Turkey, the ideology of which was mainly imported from the US. However, it was not until late 1998 that many scientists and academics, as well as Turkish science institutions, such as TUBITAK (the Turkish Scientific and Technical Research Council) and TUBA (the Turkish Academy of Sciences), protested the pseudoscience of BAV and published declarations against Islamic scientific creationists. To understand better the Islamic scientific creationism movement in Turkey, it is expedient to review the history of the Turkish Republic and the rise of Islamic fundamentalism in Turkey.

THE TURKISH REPUBLIC: A UNIQUE DEMOCRATIC AND SECULAR ISLAMIC COUNTRY

Turkey is one of the few secular and democratic Muslim countries. Ninety-nine percent of the population is said to be Muslim — although the definition of "being Muslim" in Turkey makes it unlikely that all of these Muslims practice orthodox Islam. In most of the other Islamic countries, Sharia, Allah's Law for Muslims, dominates the constitution and the legal system, so that the state and the religion are united. Separation of the state and religion remains alien and unrealistic to such countries. In contrast with the constitutions in many other Islamic states, the Turkish Constitution forbids the religious laws from dominating government and society and requires that the state and religion be separated (Article 2, Turkish Constitution [revised in 1982]).

Ümit Sayın is in the Department of Neurology in the School of Medicine at the University of Wisconsin, Madison; Aykut Kence is in the Department of Biology at the Middle East Technical University, Ankara, Turkey. Both have long been active in promoting science and opposing creationism in Turkey.

The Turkish Republic was founded in 1923 after the fall of the Ottoman Empire and a period of revolution and reformation led by Mustafa Kemal Atatürk, who became Turkey's first president. When the new republic was formed, the government took many precautions to prevent Islam from being as influential in governance as it was during Ottoman times. Among these reforms were replacing the Arabic alphabet with the Roman alphabet, which is more suited to expressing the Turkish language; granting equal rights to women; and reforming education, including the elimination of compulsory religion courses and the introduction of evolution theory as an important part of the biology curriculum. Prayers once recited only in Arabic were translated into Turkish, so that everyone could understand them; religious education based in extremist sectarian centers called *Tekkes*, *Tariqas*, and *Zaviyes* was banned; and a new legal system based on a European model was adopted. In 10 years (1923–1933), a new modern Western country, with a new identity and ideology, was quickly created from an oriental empire. There was a clear-cut shift in the whole state precept, toward secularism.



When Atatürk died in 1938, there were still many other reforms of governmental and cultural affairs to be finished, for the improvement of the new country. After 1950, the Enlightenment-based ideals and reforms of the revolution started to decline. Right-wing and conservative cliques and political parties were ready to exploit the weaknesses of the inexperienced government. Some of the social changes and civil rights attained by the revolution in 1923 were lost. Some politicians appealed to the uneducated and illiterate majority of Turks, who were still very religious and

strongly influenced by local religious authorities (*Sheiks* and *Mullahs*), who promised a return to the good old Ottoman days. This turmoil continued until the military coup in 1960. A new constitution based on a Western legal system was approved in 1961, which banned efforts to support the establishment of a non-secular religious state based on *Sharia* Law.

Despite this setback, fundamentalist self-assertion continued into the 1970s. Various fundamentalist parties founded and headed by Necmettin Erbakan were able to attract as much as 9% of the vote, while other

right-wing parties also continued to appeal to religious sentiments in order to attain power. In 1980 a right-wing junta headed by Kenan Evren took power, warning of the threat of communism. This was a milestone for the fundamentalists and extreme religious groups, which started to gain even more power. Soon Evren was succeeded by Turgut Özal, an active member of a religious order.

Fundamentalist groups organized within the government, in the bureaucracy, in the armed forces, and among the public, while the secularist, leftist opposition was suppressed. During the 1980s and 1990s, thousands of writers, scientists, journalists, and ordinary people suffered years of imprisonment for criticizing Evren's regime. During this period, no critique of or comment on the possible consequences of the deeds of the government was allowed, since this would be considered a thought crime — the equivalent of being involved in a conspiracy against the Republic, and being a separatist or even a communist. The fundamentalist vote increased to about 20% through the 1990s before declining to 16% in 1999. The main aim of one of these fundamentalist parties (known as the Welfare [*Refah*] Party), as stated many times by Erbakan and other party members in public talks, was to establish a theocratic and *Sharia*-based state (as in Iran or Afghanistan) through civil war and to promote *Jihad* (religious war).

By the late 1990s, things began to change. On February 28, 1997, the National Security Council responded to the fundamentalists and took steps to protect the constitution and the secular-democratic structure of the state by issuing a strong declaration that the Turkish military would protect the constitution and its secular and democratic system by any means necessary. The government toppled, and in 1998, the supreme court revoked Erbakan's senatorship and disbanded the Welfare Party. A few months later, the fundamentalists re-organized under the name of the Virtue (*Fazilet*) Party.

The Islamic version of "scientific creationism", as promoted by BAV, sprang up and gained power under these circumstances in the early 1990s, with the support of the Islamic fundamentalists and radical Islamic sects (*Tariqas*).

ISLAM AND CREATIONISM

The Qur'an, like the Bible, accepts the creation of the universe, the earth, and life on earth by Allah (the God of Muslims) in 6 days. According to Islamic sources and the Qur'an, Allah created the soil first, then the mountains, light, and the animals, and then Adam (Qur'an: *Hijr* 26-29; *Zumar* 6; *Ta Ha* 116-119; *Baqarah* 31-34, 36-37; *A'raf* 19; also see Arsel 1996,

1997a, 1997b, 1999; Dursun 1992). Adam is created from the soil. However, scholars acknowledge that the Qur'an has been modified and rewritten through the centuries (Lebster 1999; Dursun 1992).

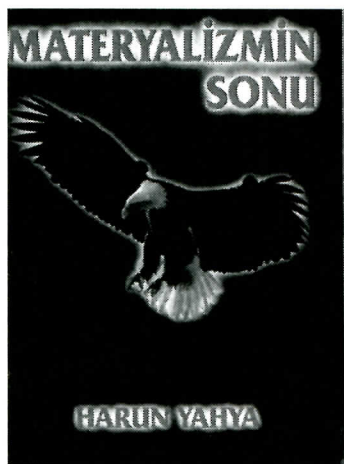
The Qur'an accepts the divine validity of the information presented in the sacred books of Jews and Christians; consequently the creation accounts in the other sacred books are also accepted by the Qur'an. In the Qur'an, the description of Adam and Eve's adventures in Eden is not as detailed as it is in Genesis, but it is obvious that the creation story in the Qur'an was influenced by Genesis. However, the Qur'an provides no basis on which to estimate the age of the earth, in contrast to the scriptural accounts that form the basis of much of Christian "scientific creationism".

SCIENCE IN ISLAMIC CULTURE

In Islam, philosophers use the word *ilm* to refer to science in the broader sense of human knowledge, which can accommodate religious as well as natural studies. In contrast, the Western tradition sees science as a valuable way of describing and predicting the natural world without reference to any religious precepts. Christian fundamentalists promoting "creation science" cloak religious precepts in the trappings of science because of the pre-eminence of scientific method in Western countries. However, such an approach was rare in Islamic countries, where science emerged in a different cultural and religious context—that is, until BAV arose as an Islamic missionary to become the Muslim champion of "scientific creationism" in Turkey and in other Islamic countries.

BAV's activities are integrally connected to the rise of Islamic fundamentalism in Turkey, where secularism and science have become rooted to some extent and more strongly established than in many other Islamic countries (Sayin 1998a, 1998b; OECD Report 1996). In the style of the Institute for Creation Research, BAV is now trying to supply "scientific" data to the public that, it proposes, proves the religious accounts of the creation, instead of appearing to appeal strictly to dogmas or sacred books.

Even though the Qur'an describes the creation of life on earth as a purposeful action by Allah, some Muslim philosophers have defended evolutionary ideas based on the notion of the Great Chain of Being. This interpretation is similar to that advanced by Christian theistic evolutionists, who claim that evolution is also created by God. One such philosopher was Ibn Khaldun (1332-1406), who proposed an evolutionary theory in which created life originated from minerals, evolved into plants, and then evolved into animals.



Ibn Khaldūn wrote:

It should be known that we — May God guide you and us — notice that this world with all the created things in it has a certain order and a solid construction. It shows nexuses between causes and things caused, combinations of some parts of creation with others, and transformations of some existent things into others, in a pattern that is both remarkable and endless. ...Each one of the elements is prepared. It started out from minerals and progressed, in an ingenious, gradual manner, to plants and animals. The last stage of minerals is connected with the first stage of plants...The last stage of plants is connected with the first stage of animals. ...The word "connection" with regard to these created things means that the last stage of each group is fully prepared to become the first stage of the next group (Ibn Khaldūn 1967:194-5).

Ibn Khaldūn is also one of the philosophers who suggested that humans evolved from apes:

The animal world then widens, its species become numerous, and in a gradual process of creation, it finally leads to man, who is able to think and to reflect. The higher stage of man is reached from the world of monkeys, in which both sagacity and perception are found, but has not reached the stage of actual reflection and thinking. At this point we come to the first stage of man after the world of monkeys. This is as far as our physical observation extends (Ibn Khaldūn 1967: 195).

Al-Afghānī (1839-1897), who initially opposed the theory of evolution, later accepted it, proposing that Muslim thinkers preceded Darwin in advocating the theory of evolution (Bezirgan 1972).

There is considerable room for interpretation within Islam as to the date of the Creation, since there are no explicit statements about it in the Qur'an as there are in the Bible. Other aspects of the Qur'an afford room for interpretation as well. In one place in the Qur'an, a single day is said to correspond to 1000 years, yet in another verse, a day is said to correspond to a period of 50 000 years (Edis 1994). Thus geological time scales do not disturb the Muslim conception of creation (Edis 1999). It is also interesting that those contradictions and many uncertainties in the Qur'an do not disturb Muslims, and the interpretation of the *surabs* (parts of the Qur'an) can vary depending upon the circumstances or the reader (see Dursun 1992; Arsel 1996, 1997a, 1997b, 1999).

TEACHING RELIGION, CREATIONISM, AND EVOLUTION IN HIGH SCHOOL IN TURKEY

During the Ottoman Period (13th-20th centuries CE), *Medreses* — Ottoman schools for teaching science and religion, roughly equivalent to sectarian religious universities in the West — taught Islam and the Qur'an as a part of the official curriculum; science was seen as a small part of religious education. It was not only compulsory to learn the Qur'an, but also to believe it under penalty of imprisonment, exile, or execution by order of *Sharia* judges. There was no tolerance for contradictions between science and creation according to the Qur'an. Ottoman religious authorities banned printing presses and kept Ottomans isolated from the Renaissance, Reformation, and Enlightenment until late in the 18th century.

When the Turkish Republic was established in 1923, the whole education system was reformed from high school to the universities. Atatürk himself wrote some chapters in the famous *Tarih ve Medeni Bilgiler* (*History and Civilized Knowledge*) textbook for high schools, which defended evolution, materialism, and Western science (Afetinan 1968; Perincek 1994). The participants in the reforms of the Turkish Revolution included intellectuals, scientists, politicians, law professors, and so on, who were educated in Europe (especially France and Germany). Between 1928 and 1948, books about quantum theory, relativity, evolution, Western literature, and modern and classical art were translated into Turkish by the government and delivered to people for free or at low cost. Creationism and compulsory religious instruction were nonexistent in the education system of Turkey during this period.

Under the rising influence of the fundamentalist party of Erbakan through the 1970s, the right-wing governments made religion courses, as well as the recitation of prayers in high schools, compulsory once again. Memorizing and reciting Arabic prayers became obligatory in the 1980s. Thousands of Qur'an courses followed, some outside of the high school curriculum, but all meant to institute government-sanctioned religious instruction.

At first, creationism was taught only in religion and ethics classes in high schools (Ayas and Tumer 1994). Later, in the mid-1980s, creation was made compulsory in biology courses (Kence 1985, 1995; Edis 1994). In 1985 Vehbi Dinçerler, the Minister of Education in Özal's government and a member of a religious *tariqa*, sent a bulletin to high schools that accused educators who taught and defended evolution of being communists. The fear of communism was as effective for intimidating people in Turkey as it was in the McCarthy era in the US and has been used successfully more recently by BAV to combat evolution.

FACTS, FAITH AND FAIRNESS:

CREATIONISM CLOUDS SCIENTIFIC LITERACY

Thomas A Demere and Steve Walsh

Scientific literacy is in short supply among American students. This problem makes controversial proposals to teach creationism in science classes all the more disturbing. The most important questions in this debate are: "What are the differences between science and religion?", "Is creationism science?", and "Does fairness require that creationism should be taught alongside the theory of evolution?"

DEFINING SCIENCE AND RELIGION

Science and religion are different. Scientific explanations are based on human observations of natural processes; these explanations may be changed or abandoned as additional facts are discovered. Science does not claim that God does not exist. However, whether or not scientists believe in God, by the very definition of science, they cannot offer God's intervention as the explanation for whatever they seek to explain.

Scientists who investigate the past must proceed in the same way that detectives work when solving crimes without witnesses. Suppose you are accused of a murder and you have overwhelming evidence to prove that you were 3000 miles away from the scene of the crime when the murder was committed. Now suppose that the prosecutor claims that you made yourself invisible, flew at the speed of light to commit the murder 3000 miles away, and returned an instant later. Any judge who heard a prosecutor accuse a defendant of using such supernatural powers to commit a crime would immediately rule that the accusation is inadmissible in court. In just the same way, the explanation of material facts by supernatural forces is not admissible in science.

Religious explanations of the universe, in contrast to science, are based upon belief in certain forces that are beyond the realm of human understanding. Many religions also depend on a faith that certain documents are infallible.

IS CREATIONISM SCIENCE?

Creationists are fundamentalist Christians who believe that the account of creation in the Book of Genesis is literally true. According to creationists, the earth is only about 6000 years old, Adam and Eve were the actual ancestors of all living people, and Noah's flood occurred exactly as described in the Bible.

Creationists ignore the basic premises of science. For example, the public-school edition of Henry Morris's textbook, *Scientific Creationism*, states: "It is precisely because [b]iblical revelation is absolutely authoritative and perspicuous that the scientific facts, rightly interpreted, will give the same testimony as that of Scripture. There is not the slightest possibility that the facts of science can contradict the Bible." This principle directly contradicts the requirement that scientific explanations must be modified when new facts are discovered.

Similarly, the textbook *Earth Science for Christian Schools*, published by Bob Jones University Press, states: "For the Christian, earth science is a study of God's creation. As such, it is subject to God's infallible Word, the Bible. The final authority of the Christian is not man's observation but God's revelation." Yet scientific explanations depend on human observation of natural processes, not on supernatural revelation.

These statements are objectionable from both scientific and religious points of view. Many Christians accept the theory of evolution, but these statements imply that the only true Christians are those who interpret the Bible in exactly the same way as their authors do. They also imply that the fundamental scientific procedure — human observation — is wrong and useless when it contradicts the creationist interpretation of the Bible. These and many other creationist statements unmask creationism for what it is — not a science, but a narrow-minded religious belief, immune to evidence or potential correction.

Creationists often insist that evolution is "only a theory" — little more than a guess. But in science, a theory is a statement of general principles that explain many facts by means of natural processes. The proposition that planets revolve around the sun (Copernican theory) explains a great many astronomical facts and also is considered true beyond a reasonable doubt. In the same way, geological examination of rocks demonstrates beyond a reasonable doubt that the earth is extremely old. The theory of evolution explains a tremendous number of biological and paleontological facts, and it, too, is true beyond a reasonable doubt. Nevertheless, all these theories could be altered or replaced based on new observations contradicting their predictions. The proponents of creationism, on the other hand, have decided in advance that no amount of evidence will change their beliefs.

FAIRNESS AND THE FACTS

Does fairness demand that creationism should be taught alongside evolution? Creationists argue, "You cannot prove that evolution is true (you were not there, it is 'just a theory') and you cannot prove that creationism is false, so it is only fair to teach both." By this argument, astrology, which is based on supernatural forces, should be taught alongside astronomy. And voodoo, which uses supernatural forces to explain disease, should be taught in our medical schools. This is a mistaken notion of fairness.

The fact is, our students are taught science so they can learn to observe facts accurately and to understand how scientific theories are developed. Bringing in religious creeds and supernatural explanations can only impair their ability to understand how science works. Our children deserve to gain scientific literacy so they can solve the scientific and technological challenges of the 21st century.

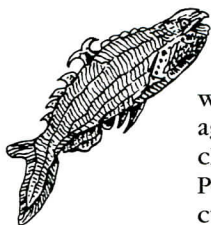
It is only fair.

LAST HURRAH

In September 1999, NCSE's discount book catalog migrated to the World Wide Web at <<http://www.natcensci.org/bookcat.htm>>. Members can read descriptions of books about evolution and related topics. When you order copies from the on-line bookstore Amazon.com, NCSE receives a percentage of every purchase that originates on our web site (for the full story, see "NCSE Expanding Book Program" RNCSE 1999 Jun/Jul; 19 [3]: 9). Meanwhile, we still have the following books in stock, priced to move at 50% of their list price (plus \$2.00 shipping per book). Quantities are limited, so order by calling 1 (800) 290-6006.

Evolution and the Myth of Creationism: A Basic Guide to the Facts in the Evolution Debate
by Tim M Berra

Praised by Paul R Ehrlich as "a powerful antidote to those who imagine there is a controversy in the scientific community over evolution", this clear, comprehensive survey describes the theory of evolution and the evidence on which it rests while also answering "arguments against evolution". The closing chapter on "Science, Religion, Politics, Law, and Education" discusses the opposition to evolution and why it must be resisted. Sale price \$6.00 (paperback).



Charles Darwin: A New Life
by John Bowlby

A highly regarded biography described by Frank Sulloway as "perhaps an ideal introduction to Darwin's life and work for the nonspecialist". A psychologist by trade and the author of *Attachment and Loss*, Bowlby is particularly interested in Darwin's invalidism; he suggests that Darwin "developed a vulnerable personality as the result of a childhood shadowed by an invalid and dying mother and an unpredictable and often intimidating father, and that his symptoms can be understood as responses to stressful events and situations." Sale price \$7.50 (paperback).

Darwin's Dangerous Idea: Evolution and the Meanings of Life
by Daniel Dennett

Tufts University philosopher Dennett thoroughly describes evolutionary science, including its current controversies, and then goes on to spell out its implications for modern philosophy and modern life. Dennett argues that

natural selection "is a universal solvent, capable of cutting right to the heart of everything in sight". Sale price \$8.00 (paperback).

Blueprints: Solving the Mystery of Evolution
by Donald C Johanson and Maitland Edey

The history of the idea of evolution is told through the stories of its discoverers, from household names such as Gregor Mendel and Charles Darwin to relative unknowns such as Matthew Meselson and Arthur Kornberg. Praised by Paul Ehrlich for "bring[ing] the essence of evolution to the general reader". Sale price \$8.00 (paperback), \$10.00 (hardback).

The Whole Shebang: A State-of-the-Universe(s) Report
by Timothy Ferris

"We live in a changing universe, and few things are changing faster than our conception of it." So begins *The Whole Shebang*, in which Ferris, the author of *Coming of Age in the Milky Way*, provides an excellent popular synthesis of the state of the art in cosmology. James Gleick exults, "What luck that the universe has Tim Ferris to report on its condition!" Sale price \$12.25 (hardback).

Digging Dinosaurs
by John Horner and James Gorman

Jack Horner is well known as the model for the iconoclastic Jurassic Park paleontologist, but the real story of his discovery of the stupendous 10 000-specimen Maiosaur site, complete with nests, eggs, and hatchlings, is even more impressive than the movie. His collaborator, science writer James Gorman, keeps the prose moving in a conversational style. Well-illustrated. Sale price \$9.00 (hardback).

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In 6 fascinating essays, distinguished historian of science Ronald L Numbers explores the reception of Darwinism in the US. Eugenie C Scott, executive director of NCSE, writes, "Numbers's carefully researched study helps us understand the origin of the wide-ranging attitudes toward creation and evolution found among conservative Christians today. *Darwinism Comes to America* is a worthy successor to *The Creationists*." Sale price \$9.50 (paperback).

Planet Ocean: A Story of Life, the Sea, and Dancing to the Fossil Record
by Brad Matsen and Ray Troll

Dozens of Ray Troll's imaginative full-color paintings and block prints are accompanied by Brad Matsen's text explaining the history of life on our ocean-covered planet. It is difficult to say which is more entertaining, the illustrations (such as "Trilobite Safari", which depicts 2 plaid-wearing human hunters bearing a huge trilobite on a stick between them) or the text, which, referring to the Burgess Shale, says, "The clearest notes of complex life's first songs echo in the dark shale of the Canadian Rockies. We heard them just after the turn of the century, though we didn't hear the tune clearly until the mid-1970s. But what's a few decades among eukaryotes?" Sale price \$10.00 (paperback).

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by Tom McIver

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ing occult and psychic evolution. Each entry contains complete bibliographic information and a revealing capsule summary. The Guide is a fascinating survey of anti-evolutionary thought, and an indispensable resource for anyone who wants to learn more about the modern creation science movement. Described by Euan G Nisbet in *Nature* as "a splendid bestiary of anti-evolution ideas". *Sale price \$8.00 (paperback).*

Science as a Way of Knowing: The Foundations of Modern Biology
by John A Moore

NCSE Supporter Moore examines 4 major topics in the history of modern biology: understanding nature, the growth of evolutionary thought, classical genetics, and the enigma of development. "No one is better qualified to provide citizens with an understanding of the essential principles and concepts of biology than John A Moore, distinguished as an educator and admired for the vastness of his knowledge in all branches of biology", writes Ernst Mayr. *Sale price \$18.00 (hardback).*

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by Carl Sagan

The science popularizer par excellence argues that irrationality, pseudoscience, and superstition are detrimental to our democratic institutions and our technical civilization: "The candle flame gutters. Its little pool of light trembles. Darkness gathers. The demons begin to stir." Enlivening his discussion with anecdotes from his own life, Sagan is, as always, lucid, enthusiastic, and enthralling. *Sale price \$13.00 (hardback).*

The Fossil Trail: How We Know What We Think We Know about Human Evolution
by Ian Tattersall

"Most popular books about evolution in recent years," Tattersall comments, "have been based on the experience of individual paleoanthropologists in the field, and ... the notion that reconstructing the past is essentially a matter of discovery..." But much depends on what we are looking for and how we interpret what we find. So

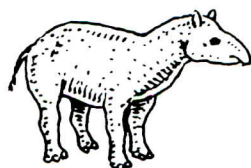
Tattersall follows a different trail: observing that "the starting point for any new set of hypotheses is the set of hypotheses that preceded it," he interweaves the story of the discoveries with the changing theoretical concerns of the discoverers, including conflicting interpretations of paleontological evidence, how these change in the light of new discoveries and new analytical techniques, and what it all means for our understanding of the human story. *Sale price \$12.50 (hardback).*

The Human Odyssey: Four Million Years of Human Evolution
by Ian Tattersall

Perfect for the scholarly shelf and the coffee table alike, *The Human Odyssey* combines scientific accuracy with lavish illustration, including vivid photographs of the fossils and reconstructions in the American Museum of Natural History's Hall of Human Biology and Evolution. The foreword is by NCSE Supporter Donald C Johanson, who remarks, "I have no doubt that you will lay down this book with a greatly enriched understanding of your place in nature." *Sale price \$13.75 (hardback).*

Imprints of Time: The Art of Geology
by Bradford B Van Diver

This rare gem is a collection of 147 breathtaking photographs of geological formations large and small, illustrating the forces that shape our landscape and the mineralogical delights they produce. Sections include Canyonlands, Badlands, Dunescapes, Playas, Ice, the Art of Pele (i.e., volcanoes), Microcosms (featuring crystals photographed under the polarizing microscope), and Other Places, Other Times. Introductory remarks to each section explain the formations photographed. *Sale price \$5.00 (paperback).*



Did the Devil Make Darwin Do It? Modern Perspectives on the Creation-Evolution Controversy
edited by David B Wilson with the assistance of Warren D Dolphin

In this practical, comprehensive collection of essays covering the historical background, and legal, religious, and scientific issues in the creation-evolution controversy, the authors "are not merely rejecting creationism but, at a deeper level, employing it as a handy foil to help explain aspects of modern science and scholarship to a nonspecialist audience. We ... [also] hope that those who make ... public policy decisions involving the creation-evolution controversy will be as well-informed as possible on relevant matters." Foreword by NCSE Founder Stanley L Weinberg. *Sale price \$10.00 (paperback).*

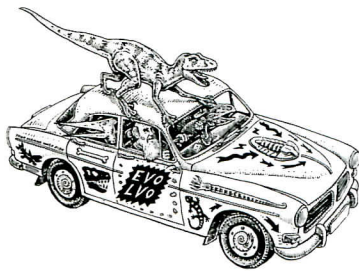
Science, Nonscience, and Nonsense: Approaching Environmental Literacy
by Michael Zimmerman

As environmental issues increase in importance, public unfamiliarity with science is increasingly dangerous. Zimmerman valiantly promotes environmental literacy in *Science, Nonscience, and Nonsense*, in part by attacking the distortions of charlatans and spin doctors, and in part by describing how and why good science is done. "Highly readable and comprehensive," writes the reviewer for *American Scientist*. *Sale price \$7.50 (paperback), \$13.00 (hardback).*

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DATE: June 11, 2000
CITY: Oakland CA
PRESENTER: Eugenie C Scott
TITLE: The Creation/Evolution Controversy:
A Philosophical Examination
HOST: Center for Theology and the Natural
Sciences
TIME: 1:00 - 5:15 PM
LOCATION: Executive Inn
CONTACT: Marty Maddox, mmaddox@ctns.org

DATE: July 14, 2000
CITY: Kansas City, KS
PRESENTER: Eugenie C Scott
TITLE: Creationism and Scopes
HOST: Kansas Citizens for Science
TIME: TBA
LOCATION: TBA
CONTACT: Liz Craig, liz6849@concentric.net

DATE: October 14, 2000
CITY: Sacramento CA
PRESENTER: Eugenie C Scott
TITLE: Ancestors, Transitional Fossils, and Evolution
EVENT: California Science Teachers
Association Annual Meeting
TIME: TBA
LOCATION: TBA
CONTACT: Sharon Janulaw, sjanulaw@aol.com

DATE: October 19, 2000
CITY: Manhattan KS
PRESENTER: Eugenie C Scott
TITLE: TBA
EVENT: Lou Douglas Lecture Series
TIME: 7:30 PM
LOCATION: TBA
CONTACT: Beverley Earles-Law, (785) 539-8763

DATE: November 16, 2000
CITY: San Francisco CA
PRESENTERS: Eugenie C Scott & Eric Meikle
TITLE: Teaching Evolution
EVENT: American Anthropological Association
TIME: 9:00 AM - 12:00 noon
LOCATION: San Francisco Hilton
CONTACT: Lucille Horn, LHORN@aaanet.org

DATE: December 1, 2000
CITY: Lexington KY
PRESENTER: Eugenie C Scott
TITLE: TBA
EVENT: Kentucky Academy of Science
Annual Meeting
TIME: 1:00 - 2:30 PM
LOCATION: Lexington Hyatt Regency
CONTACT: Ron Rosen, ron_rosen@berea.edu

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

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Thus creationism was introduced to high school biology textbooks as an alternative "hypothesis" (Güven and others 1985). This form of creationism was mostly adopted from Henry Morris's Scientific Creationism (Morris 1974), which was translated into Turkish by the Ministry of Education in 1985. Creation was explained in the biology textbooks as follows:

In creationism's opinion, all living entities and species were created by Allah separately. Although they may have undergone some changes since the day they were created, neither did any evolve into other species (Güven and others 1997: 68).

Even though evolution was still in the textbooks, it was taught in a biased, ludicrous, and non-scientific way, so that it could be discredited easily by some of the religious high school biology teachers. One of the ridiculous statements found in the high school books is:

contrary to what evolutionists claim, it has been demonstrated that frog, mouse, and snake bloods are closer to human blood than that of monkeys (Ayas and Tümer 1996: 12).

Another sentence misconstrued Darwinism by stating that

according to Darwin, strong ones would live, and weak ones would be eliminated. However strong organisms such as dinosaurs, and mammoths have become extinct, whereas some weak organisms such as earthworm could survive (Ayas and Tümer 1996: 13).

When the Social Democrats came to power in 1998 under prime minister Bülent Ecevit, the biology textbooks were revised, and chapters related to Darwin and Lamarck were rewritten more objectively (Korkmaz and others 1998). Creationists' arguments were still presented as alternative hypotheses, but to make the books appear more secular, phrases such as "according to Islam" were replaced with "according to sacred books".

The modifications in the biology textbooks infuriated and mobilized those who wanted evolution to be taken out of the curriculum, including fundamentalists and BAV. The result was a series of belligerent actions against Turkish scientists at universities and at institutions such as TUBA and TUBITAK.

With its considerable political support, it seems that BAV could achieve its goal of replacing evolution with a form of creationism. The BAV aims to convince the majority of the politicians in the parliament that evolution is not a fact, but a hoax. In February 1999 a representative from the fundamentalist Virtue Party proposed a *Bill of Anti-Evolution* to ban teaching of evolution in the schools and to collect and destroy all

the books about evolution in the official libraries, on the grounds that evolution is against Islam (*Hürriyet*, March 9, 1999).

BAV (SCIENCE RESEARCH FOUNDATION) AND ITS ACTIVITIES

BAV is a radical fundamentalist foundation established in 1991 by Sheikh Adnan Oktar. It is an integral part of the rise of fundamentalist Islam in Turkey. BAV is not an independent organization and the source(s) of its funding remain very obscure. Its activities and publications utilize millions of dollars each year, so it is difficult to imagine that this amount of funding can be supplied just by donations, as some at BAV claim. The newspaper *Hürriyet* recently revealed that Adnan Oktar and BAV have strong connections with Necmettin Erbakan, the former leader of various fundamentalist parties. The newspaper *Cumburiyet* recently reported that other support for BAV comes from Fettullahcılar — a *tariqa* established by Fettullah Gülen, who used to preach the evil and wickedness of evolution (*Cumburiyet*, June 29, 1999).

BAV has also published several books under the pen name Harun Yahya and has delivered copies to the public free of charge. It is generally believed that Harun Yahya is actually a commission formed by BAV, although recent reports have claimed that Harun Yahya is Necmettin Erbakan or a collaboration between Erbakan and Adnan Oktar (*Hürriyet*, September 13-15, 1999).

However, considering the vast range of subjects and the sheer number of books — from *The Qur'an-Islam*, *Free Masonry and Anti-Semitism* to *Evolution and Molecular Biology* — it is unlikely that Harun Yahya is a single person. Both BAV and Harun Yahya are still poorly understood. No one claiming to be Harun Yahya has made any public appearances or has granted any interviews.

BAV has a long history of contact with American creationists, including receiving assistance from ICR. Duane Gish and Henry Morris visited Turkey in 1992, just after the establishment of BAV, and participated in a creationist conference in Istanbul. Morris, the former president of ICR, became well acquainted with Turkish fundamentalists and Islamic sects during his numerous trips to Turkey in search of Noah's Ark (*Acts & Facts* 1998a, 1998b). BAV's creationist conferences in April and June 1998 in Istanbul and Ankara, which included many US creationists, developed after Harun Yahya started to publish his anti-evolution books, which were delivered to the public free of charge or given away by the daily fundamentalist newspapers *Akit* and *Zaman* as promotions (see p 17).

BAV also organized local conferences on creationism in almost every major city and town in Turkey (about 120 locations) about creationism, defending Harun Yahya's claims (Harun Yahya 1997) and similar arguments by ICR (see <<http://www.geocities.com/>

evrimkurami> for details). The main premise of the conferences was that science has disproved evolution and proved the truth of creation (for details of these conferences and more information, see the web pages attributed to Harun Yahya <<http://www.harunyayha.org>> and BAV <<http://www.bilimarastirmavakgi.org>>).

TURKISH SCIENTISTS RESPOND TO BAV

During the early 1990s, when Harun Yahya's small inexpensive books started to circulate among the public, academics did not take BAV and Harun Yahya seriously, despite the long continuing dissonance between university and scientific circles and right-wing governments over democracy, secularism, and the creation/evolution issue. University academics simply ignored the books, and most of the biology and medicine professors considered it beneath their dignity to answer the arguments of Harun Yahya and

[A]t the turn of the millennium, scientists and academics in Turkey realized that they were besieged by fundamentalist Islamists and a public convinced ... that evolution has collapsed.

other creationists. A similar position was taken by the intellectuals before 1980s — disregarding the majority of the public and some peripheral movements was an important factor that probably contributed to the rise of fundamentalism in Turkey (for details, see Narlı 1999).

However, at the turn of the millennium, scientists and academics in Turkey realized that they were besieged by fundamentalist Islamists and a public convinced by Harun Yahya that evolution has collapsed. Even so, most of the scientific organizations and university professors remain unmoved to act against the pseudoscience of BAV. However, the authors of this article believe that defending science and evolution is indispensable in a democracy, and we believe that every single statement of Harun Yahya and BAV should be opposed by using scientific knowledge. As a part of our effort to do so, we have written numerous articles to

defend evolution and inform the public about what science really says (see Kence 1982, 1985, 1994a, 1994b; Sayın 1998c, 1998d, 1998e).

After BAV's conferences in 1998, we organized an independent commission to answer the arguments of BAV and to warn the public about the pseudoscience of Islamic scientific creationists. The short-term goals of the commission were to:

- 1) Publish declarations about the scientific facts to the public in response to the activities of BAV;
- 2) Gather support from scientists in Turkish universities;

- 3) Write and/or translate books about evolution and inform the public, as well as other scientists, about current scientific information;
- 4) Contact other centers, foundations, and scientific institutions, especially in the US and Europe, that are also defending science and evolution against scientific creationists;
- 5) Publish and distribute answers to the arguments of the Islamic creationists and their pseudoscience; and
- 6) Inform governmental agencies, universities, schools, and the mass media about the danger of Islamic creationists and their pseudoscience.

This commission made 2 declarations to the public about Islamic scientific creationists in October 1998 and January 1999. In addition, more than 2000 university professors and scientists, along with TUBA and TUBITAK, signed and supported the first declaration. A similar commission had already been formed by TUBA, which also issued a separate declaration in the summer of 1998 defending science and evolution (TUBA 1999; for TUBA's declaration, connect to <<http://www.geocities.com/evrimkurami>> or see sidebar, p 29).

When BAV realized that scientists and scientific organizations were publicly opposing its campaign, it responded by trying to intimidate the members of our commission and TUBA, accusing them of being communists, Maoists, atheists, and separatists. Each issue of the BAV bulletin was distributed by mail and by fax to 11 793 addresses, including the high courts of the state, the attorney general's office, district attorneys' offices, governorships, army headquarters, police headquarters, and various government offices. Furthermore, BAV included photographs of some of the scientists and described them as Maoists. The addresses and names of 6 members of the commission were published in the militant fundamentalist daily newspaper *Akit* (December 2, 1999). *Akit* published the names and photographs of some of the scientists from the commission (Aykut Kence, Isik Bökesoy) who were giving public lectures on evolution, accusing them of spreading propaganda and atheism.

However, BAV's intimidation tactics did not succeed. Academics and researchers in universities and scientific organizations were galvanized into action by BAV's tactics. Some of the authors of the declaration, Professor Aykut Kence, Professor Yaman Örs, Professor Isik Bökesoy, Professor Dinçer Gülen, Dr Ümit Sayın, and Dr Serhat Özyar, whose names were particularly targeted in the BAV announcements, filed a complaint in the 3rd Civil Court of Ankara against BAV over its accusations. In May 1999, the court ruled against BAV and ordered it to pay the equivalent of US\$6000 to the scientists for damages (*Cumhuriyet*, June 25, 1999; for the English translation of this news, see <<http://www.geocities.com/evrimkurami/press.html>>).

ISLAMIC SCIENTIFIC CREATIONISM AND ITS CHRISTIAN ALLIES

Even though they are using arguments that ICR has developed and passed on to them, Islamic creationists usually adapt ICR's arguments to fit their view of Islam or construct their own arguments to meet their own objectives for defeating evolution. So the Islamic creationism of BAV is not merely a carbon copy of ICR's creationism; it has its own style and format.

Part of the difference between ICR's and BAV's versions of creationism relate to their different scriptural bases. The flexible and interpretable text in the Qur'an allows BAV to avoid the issue of the date of creation. In contrast to some of the ICR's positions, BAV asserts that the Qur'an does not give any date for creation and that the Flood may have been a local, rather than a worldwide, event.

Here are some examples of the basic ideas defended in Harun Yahya's books, which were also featured in the nationwide conferences (Harun Yahya 1997, 1998a, 1998b, 1998c). There are several points of departure from the creation model commonly promoted by the ICR.

- 1) Earth and life on earth were created by Allah all at once. There is no evolutionary process. No species has ever evolved into another species. Life was probably created on earth during the Cambrian Explosion.
- 2) The Qur'an is the best of the religious scriptures, so it does not make mistakes as do the other sacred books, such as estimating the earth's age as 10 000 years or asserting the occurrence of a worldwide Flood. The Qur'an is the ultimate scientific truth. Nothing can contradict the Qur'an.
- 3) Matter is an illusion of the mind. In truth, only mind exists; matter does not! The outside world is the illusion of the mind, and mind transforms and determines the reality. (However, they try to use data obtained from that illusory world to prove that evolutionists are making mistakes!)
- 4) Evolution is the greatest hoax of all centuries. All the scientific data collected during the last 150 years disprove evolution. All the scientific data prove that, from DNA to organisms, everything has a design and purpose, and that everything was created all at once. Science has proved that Allah exists and created the life on earth.
- 5) Darwinists' or evolutionists' tendency to defend evolution is ideological, rather than scientific. They probably defend it because of their communist, materialist, Satanist, or racist ideologies. People who defend evolution are mentally ill, because they continue to defend it against all scientific evidence.
- 6) Humans are created in the image of Allah, so we cannot have evolved from apes, which are sub-human animals. Science has not found a single clue that apes are relatives of *Homo sapiens*.

7) Modern secular systems are the traps and deceits of Satan. (They are not against science, they say, but they oppose secular modern science and its cooperation with Satan. They propose the way of the Qur'an and *Sharia* as the ultimate and ideal way. Their understanding and definition of science are very obscure, especially since they deny that matter exists!)

8) Evolution is not a fact, because it is not reported in the Qur'an. (When they do not have information or evidence to explain a phenomenon, they cite some surah of the Qur'an and refer to the Qur'an as a scientific source. When they oppose theistic evolutionists, they claim that Allah could have created evolution, if he had wanted to, but since this is not reported in the Qur'an, it cannot be a fact.)

TACTICS AND PSEUDOSCIENCE OF ISLAMIC CREATIONISTS

BAV's tactics and strategies are also adapted from those used by ICR for decades. Most of the information, slides, figures, and ideas they use in their conferences resemble those long used in ICR presentations. A quick overview illustrates both the ICR heritage and the local adaptations in the BAV approach.

- 1) BAV uses pseudoreferences. The references they cite in their books and presentations usually support and defend evolution, but they take just one sentence that they think might seem to support their arguments and use it as their scientific reference. They claim that they can find scientific proof of creation in journals such as *Discover*, *Scientific American*, *Nature*, and *Science*, even though a cursory reading would show that these references support evolution, not creation. Because it is so difficult for Turkish readers to have access to these journals, however, most of Harun Yahya's arguments go unchallenged.
- 2) BAV never acknowledges the overwhelming weight of scientific research supporting evolution, but generally distort a single news item (for example, from a popular journal like *Discover*) to "prove" their conclusion. It does not discuss the fact that the rest of the article or other articles in the same issue of that journal defend and support evolution.
- 3) BAV first concludes that evolution is wrong and then tries to build up a whole system of "proofs". These proofs do not use any traditional logical and scientific methods to reach the scientific conclusions; instead, they cite the Qur'an as the ultimate (and also the *scientific*) truth. They even cite *surahs* as scientific references. Creation is an axiom, not a hypothesis to defend!

A quick overview illustrates both the ICR heritage and the local adaptations in the BAV approach.

- 4) BAV rejects anything that opposes its ideology or that supports evolution. It does not accept any evidence that shows its proposals as unscientific. According to BAV, science is what proves the Qur'an — and BAV's interpretation of it.

These characteristics are consistent in approach and method with the ICR's version of creationism — selective citation, incomplete survey of appropriate literature, prior conviction that evolution must be wrong (and evil) with an emphasis on the scientific truth of scripture, and the conviction that "true" science must be concordant with scripture.

However, there are some significant differences between the approaches of these two groups. For the most part, Harun Yahya is not aiming for a sophisticated scientific presentation. Acting in Turkey, BAV does not face the difficulty of opposing a highly trained and prominent scientific community, as does the ICR in the US where some of the world's most sophisticated scientific knowledge is produced. BAV has not faced much resistance from the universities or scientific organizations until our recent campaign.

CONCLUSIONS

Islamic scientific creationism has become a threat not only to science but also to democracy and the secular system in Turkey. Unlike Christian creationism, it is a critical part of the rise of an extreme religious movement and has actively contributed to the decline of democratic reforms and progress in scholarship and research in the Turkish Republic. If groups like the BAV are unopposed by Turkish science organizations, universities, the government, and individual scientists, they will continue their propaganda unchecked. If they succeed in their efforts, they will influence not only the believers but also the rest of the society, since there is a very weak scientific foundation among the vast majority of the Turkish public. We must recognize the power of the BAV's appeal and take a page from the successful opposition to the ICR and its allies in the US. The only hope for Turkish science and society is a vigorous campaign to expose and oppose Islamic creationism in every forum throughout the country.

ACKNOWLEDGMENTS

The authors would like to thank Dr Taner Edis for reading the manuscript and giving his valuable suggestions. A version of this article can also accessed at <<http://www.geocities.com/evrimkurami>>.

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The Declaration against Islamic Scientific Creationists

Published by the Turkish Academy of Sciences (TUBA) September 17, 1998

Science is the most successful enterprise developed by mankind ... to understand and explain the universe and nature, ... by ... observation, experiment, and testing. For centuries scientists have ... [defended] the supremacy of [our] reasoning and intellect.

Science, due to its nature, works through ... testable hypotheses ... endorsed and approved by the international scientific community after ... repeated testing by independent methods. Those opinions [that] pass this ... test ... and [that] make it possible for new hypotheses to be tested receive the right to be called scientific theories.

In the past few years an organized campaign against modern science and science education has been started in our country. These efforts ... are furthered by the collaboration of certain religious groups from within the country and from abroad ... [that] see the belief that the universe and life was created within a very short period of time by extraordinary and [supernatural] forces as an undebatable fact [and that] have especially declared war upon the theory of evolution ... that all life is derived from common ancestors over long periods of time and ... undergo[es] constant change.

Today the theory of evolution is a fundamental concept [that] brings clarity to many [studies] concerning life; ... it finds very widespread acceptance in the world of science, and it is strongly supported by reputable scientists and scientific organizations. ... [P]ropaganda [that] claims that the theory of evolution is no longer accepted and that it has been demonstrated to be scientifically false is totally incorrect.

The Turkish Academy of Sciences (TUBA) believes that science is the correct path and approach to understanding the universe ... and defining nature. ... The citizens of our country have the right and responsibility not only to consume the products of science ... but to learn the methods and ways of thought of science and contribute to its progress. Therefore we consider it our duty to warn and inform the public on the matters of eliminating the non-scientific elements [from] our educational system [and] installing modern methods of scientific thought and its products in our educational curricula.

[This item was edited for length. The complete original text with the English translation can be found on the web at <<http://www.geocities.com/Athens/Cyprus/8732/tubabildiri.html>>.]

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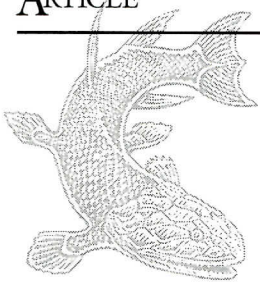
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CLONING CREATIONISM IN TURKEY

Taner Edis

To observers in the industrialized Western world, "scientific creationism" often seems an American phenomenon. In other English-speaking countries, creationism has a much smaller constituency, and though orthodox Israeli Jews or French Muslims occasionally make a stand against Darwin (Numbers 1992; Kepel 1997), creationism has not become the persistent nuisance for public education that it is in the United States. Even within the United States, creationism typical of that promoted by the Institute for Creation Research (ICR) is clearly a sectarian position, drawing support from the evangelical Protestant community but largely unable to reach beyond its boundaries. Tracing the history of US creationism, we find that it is rooted in a populist Protestant culture that demands that both nature and Scripture be accessible to common-sense interpretation (Gilbert 1997). Although followers of many Abrahamic religious traditions express discomfort with Darwinian evolution, a full-blown attempt at creation "science" appears to be largely an American evangelical Protestant peculiarity.

Since "scientific creationism" has such a narrow, if numerous, constituency, defenders of evolution in science education can often succeed by appealing to pluralist principles — allowing creationism into the classroom would favor a blatantly sectarian viewpoint. Although ICR separates "biblical" from "scientific" creationism and emphasizes the latter, evolutionists usually consider this an artificial distinction; after all, the supposedly scientific aspect of creationism is endorsed by few people who are not biblical literalists.

While this is a reasonably accurate picture of "creation science" in the Western world, the emergence of an Islamic creationism, which is practically a clone of ICR's "scientific" vision, means we have to reassess our picture of creationism. Though Turkish creationists hail from a very different religious culture and history, their wholesale adoption of ICR-style arguments means that we cannot explain creationism by narrowly sectarian factors alone. Creationism mobilizes traditional Abrahamic convictions about the *moral* significance of the natural world against the threat of social modernity. Hence successful variants of creationism have a potential to spread beyond the environments in which they originally evolved.

A NEW WAVE OF TURKISH CREATIONISM

Turkey has been the most Western-oriented among Muslim countries, a legacy of modernization efforts going back more than 150 years. Most significantly, the early years of the new Turkish Republic, spanning the 1920s and 1930s, saw aggressive state-sponsored efforts to bring the European Enlightenment to a country with a traditional Islamic culture. While this revolution created some enduring modern institutions and an urban secular elite, a religiously-tinged conservative populism came to dominate politics in the 1950s. However, until the 1980s, explicitly Islamist political movements remained mostly submerged. Evolution was not a flashpoint, partly because it was a religiously unpalatable element in secular public education, and so did not receive major curricular emphasis.

The aftermath of a military coup in 1980 presented new opportunities for Islamist politics and for creationism. Concerned that secular government allowed too much space for left-wing dissent, risking national fragmentation and social unrest, the military junta and subsequent governments promoted a more religious ideology. This naturally affected education policy. While compulsory religion courses and the teaching of a conservative view of history were its most visible results, natural science did not escape untouched. The 1980s saw the state-sponsored translation and distribution of ICR material, explicitly creationist high-school textbooks, and a general anti-evolutionary climate in secondary education (Edis 1994). In 1992, ICR's Duane Gish and John D Morris appeared at a creationist conference held in Istanbul.

Recent years have brought important political changes that affect the creation-evolution conflict in Turkey. Islamists have grown stronger, even tasting power on their own instead of through factions within more moderate conservative parties. Although the Islamist party lost some support to a more nationalist ultra-right party in the elections of April 1999, there is still a powerful constituency that objects to "polluting young minds" with Darwinian biology. However, the Turkish military has emerged as a counterbalancing force. Freed from the need to promote religious conservatism for anticommunist purposes, in the past few years the military has once again acted in defense of the secularist ideals of the early republic. This has extended to applying pressure to remove an Islamist-led government from power in 1997 and insisting upon educational reforms aimed at undercutting the base of Islamist politics.

In this highly charged environment, 1998 brought a new wave of creationism to Turkey. Unlike previous efforts directly aimed at public education, this wave is much more an exercise in popular propaganda through the media. By producing a series of scientific-appearing meetings and books, creationists organized in the Bilim Arastırma Vakfı (BAV; the Science Research Foundation) caught the public eye — not only through the extensive Islamist media which cheered them on and secularist newspapers which expressed concern, but also through the wider commercial media with a nose for controversy. As John Morris observes, BAV has considerable media clout: “As a group, they have access to more than adequate financial resources, as well as to the media, and are able to blanket the country with creation information. They choose to invite international creationists for their publicity value, but especially welcome Christian creationists in the ICR mold rather than those who hold merely an anti-Darwinian stance” (Morris 1998).

In April and July 1998, BAV held 3 “international conferences” in the major cities of Turkey, with a theme of “The Collapse of the Theory of Evolution: The Fact of Creation” [see sidebar, p 17]. Joining Duane Gish and John Morris to support Turkish creationist academics were creationist luminaries Michael P. Girouard, Edward Boudreaux, Carl Fliermans, and David Menton. These meetings were well-attended and well-publicized, producing successful, organized media events for creationism.

This media-savvy attention to production details is apparent in the creationist books distributed by BAV as well. Most representative is Harun Yahya’s text *The Evolution Deceit*. The book comes in 2 versions — a large, attractive 370-page volume notable for its many full-color illustrations and slick appearance (Yahya 1997) and an abridged 128-page booklet with fewer illustrations, which was widely distributed free of charge to the public (Yahya 1998). Especially in light of the sorry state of popular science publishing in an underdeveloped country like Turkey, these lavish productions are very impressive and demonstrate the considerable finances BAV commands.

The arguments presented both in the conferences and the books are very similar to ICR’s; indeed, ICR remains the most important source of material for Turkish creationists. Popular Muslim apologists often present examples of intricacies or harmony in nature and suggest that it is obvious to anyone paying attention that these indicate supernatural design. This is a traditional approach that partly derives from Muslim scriptures: although the Qur’an does not often attempt to support its claims through natural theology, it speaks of God’s manifesting “signs” in nature that we may be convinced. Observing the awesome and orderly aspects of nature — the heavens and the stability of the earth, lightning and rain, useful plants and fruits, and so on — prompts common sense to conclude that all this must be designed for a purpose (13 *Ar-Rad* 2, 3; 30 *Ar-Rum* 20-27). However, in a changing society in which people are exposed to the mass

media and impressed with the products of modern science, a simple appeal to teleological intuitions is no longer sufficient. For Muslim creationists, ICR’s ostensibly nonbiblical arguments supply a scientific veneer while retaining the commonsense thrust vital for an effective media message.

Hence the Yahya book, while drawing on Muslim apologetic styles, ends up reading like a compendium of classic ICR arguments. All the usual suspects appear, including claims concerning the lack of transitional fossils, the impossibility of functioning intermediate forms, the fraud of human evolution, the unreliability of dating methods, and the statistical impossibility of evolution at the molecular level. The book also explains why Western scientists and Turkish fellow-travelers are so enamored of evolution when it is so clearly false. Sounding much like one of its major sources, Henry Morris, the book tells how, beguiled by the secular philosophies of the European Enlightenment, scientists got caught up in a long war against God (Yahya 1997; Morris 1989). The content of Turkish creationism, then, is strikingly unoriginal; with generally trivial modifications, much of ICR’s “scientific” material fits BAV’s needs very well.

Creationism in the mass media naturally produced a reaction from mainstream Turkish academics. Previously there had been scattered, ineffective resistance to the inroads creationism was making at the high-school level; the latest high-profile wave of creationism appears to have prompted defenders of evolution to attempt a stronger response. Shortly after the BAV conferences, the Turkish Academy of Sciences (TUBA) condemned creationist efforts in a statement to the press, warning that “certain interests are continuing a war against the secular system and free and modern education” [see sidebar, p 29]. Declaring that evolution is a vital, well-confirmed part of modern science, TUBA pointed out that creationism was spread by Christian groups but had “been completely rejected in scientifically advanced countries” (TUBA 1999). A commission, including some TUBA members, was formed to combat creationism publicly. Its work continues (see Sayin and Kence 1999).

Just as Turkish creationists rely on their US counterparts, defenders of evolution plan to make use of the experience of Western evolutionists; for example, by translating proven anti-creationist material. Furthermore, in Turkey as well as in the US, scientists can try to get media attention by presenting themselves as experts: the proper authorities on biology. Unfortunately, this can be expected to have only limited success. The difficulties in explaining a counter-intuitive scientific concept that faces populist religious resistance are intensified in Turkey not only because of widespread scientific illiteracy but also

The media-savvy attention to production details is apparent in the creationist books distributed by BAV.

because the scientific community is much less powerful.

The creation-evolution conflict in Turkey is also dissimilar to the controversy in the US in other important ways, and emphasizing the broad picture of scientists and educators battling resurgent fundamentalism might obscure this. The Turkish creation-evolution dispute has a much more intense political aspect. When BAV creationists describe evolutionary scientists in conspiratorial, red-baiting terms, they may seem merely to echo the more rhetorically extravagant of the US creationists, but in the context

of the present political situation in Turkey, and with militant Islam's history of violent action against critics, such descriptions take on a darker meaning. Protestants emphasize individual choice, which becomes more sharply defined against a background of doubt and backsliding. Orthodox Islam, however, is more similar to premodern Christianity: criticizing the faith not only puts the individual's soul at risk but is also treachery against the community. When a prominent Islamist newspaper (*Akit*, December 2, 1998) published the names of the signatories of the TUBA statement on its front page, suggesting they trespassed against Islam, this had overtones of an invitation to violence.

Such a climate does not allow for even a pretense of intellectual debate. Just as creationists rely on their Islamist base, evolutionists also see their dispute in current political terms; the TUBA statement charged creationists with aiming to undermine the secular state and produce a generation incapable of critical thought "who accept the dogmatic and incorrect information given to them without question." Political accusations fly back and forth with regularity, particularly on the part of the creationists (Sayin and Kence 1999).

Set in a culture that is caught between modernity and premodern religious and social ideals, creationism and evolution in Turkey are much more explicitly connected to the struggle between secularism and the Turkish version of the religious right. And though defenders of evolution might mobilize Westernized, secular segments of society, it is hard to see how they can appeal to others in a country that is not religiously pluralist in its common culture. Turkish evolutionists will have to invent new ways to combat creationism in very difficult circumstances.

WHY WOULD MUSLIMS COPY ICR?

In Turkey we find a significant creationist presence outside the United States; indeed, one altogether outside the culture of evangelical Protestantism. Although its flourishing is recent, this Islamic creationism is in some ways more powerful than its Christian counterpart — it probably enjoys better prospects for success. It is no surprise that a tradi-

tional Abrahamic religion would inspire opposition to Darwinian evolution. On the other hand, it is somewhat strange that some Muslims borrow so extensively from ICR. After all, we tend to think that creationism is a product of a particular religious history and social needs that is manifested in biblical literalism: it is not nature that constrains ICR but a narrowly sectarian religious point of view. But the history of orthodox Islam has little similarity to that of Protestant Christianity; socially it is quite different, and it does not share the same scripture. Protestantism is religiously individualist while orthodox Islam is a communal, premodern faith in which religious doctrines have a different social function. And although Islam also tends to scriptural literalism, and the Qur'an affirms special creation in a general sense (for example, 55 *Ar-Rahman* 13), it does not contain detailed creation stories as does the Bible. If the driving force behind creationism is a literal interpretation of the Genesis story, it is hard to see why Muslims would copy ICR — except perhaps because they will accept any aid in opposing evolution.

Some similarity among varieties of creationism is only to be expected; after all, there are only so many ways to argue that transitional fossils do not exist or that the complexity of biological molecules precludes a naturalistic account of their origin. Indeed, Islamists occasionally published anti-evolution books before the 1980 coup; these presented a few typical creationist arguments, such as the improbability of protein formation, independently of ICR (for example, Akbulut 1980). But such examples also illustrate that there are many ways of standing against evolution besides copying ICR. Since Islam is but a distant relative of Protestant Christianity, we might have expected a broader version of anti-evolutionary "science" than ICR's would have appealed to Muslim apologists. In fact, it would seem just the thing has recently been developed: "Intelligent Design" (ID) theorists present not only a more sophisticated position, but a view that lays claim to very general theistic intuitions about creation without getting bogged down in too many sectarian details (for example, Moreland 1993; for critiques, see Davis 1998; Pennock 1999). Islamists could presumably adapt this strategy, attaching specifically Islamic details as needed. But although the BAV material quotes ID proponents such as Phillip Johnson with approval, it treats ID as the ICR does — citing it to bash evolution and quickly moving on to arguments that would embarrass Johnson.

BAV does not, of course, crib indiscriminately from ICR. Their most striking divergence is BAV's omission of flood geology — ICR's signature doctrine. This is largely because Islam supports a different theological view of history than Christianity's. Traditional Christian theology includes a strong sense of salvation history. Not only does the Bible contain something like a story line, which is easily read as a historical narrative, but even long-established Christian sects harbor millenarian strains looking forward to an imminent culmination of history. Orthodox Islam, though retaining the overall framework of time

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unfolding between Creation and Judgment, does not convey this sense of a cosmic salvation history. Occasionally, God sends messengers to the different nations, punishes a disobedient tribe, or performs miracles through a prophet. But such stories in the Qur'an are told as "a collection of interesting anecdotes about persons who had lived at some period in the past — a collection not in any way chronologically ordered" (Watt 1968). In Muslim culture, history is not important as a straightforward sacred narrative but because Muhammad, the final prophet, spoke the words of God, and from then on everything was radically different. Even non-Arab Muslim peoples tend to see their history before Islam as a time of darkness, as if history only began for them once they received Muhammad's message.

This means that geological time scales do not much upset Muslim conceptions of history. So Muslim creationists generally advocate an old earth or downplay the question because establishing a specific time scale is simply not that important for them. Although ICR gnashes its teeth at modern cosmology, BAV cites old-earth Hugh Ross in its magazine and triumphantly proclaims that the Big Bang proves the existence of God (BAV 1999).

However, BAV creationists are not committed to an old earth. A young earth, after all, would make evolution very implausible, so Harun Yahya once again copies ICR and cheerfully attacks all modern dating methods (Yahya 1997, ch 4). This brings up the interesting question of whether Muslim creationism could evolve in a young-earth direction. After all, a world only a few thousands of years old makes better sense if humans are central to the purpose of creation, and so the Abrahamic traditions all leaned this way before modern science. Critics of creationists like to cite Augustine's admonitions against naive literalism, but often overlook how he also wrote about history's moving through 6 ages corresponding to the days of creation, and how these ages were most naturally understood as lasting thousands of years (Patrides 1972, ch 2, 3). Muslim thinkers of the classical period also adopted the view that the earth was 6–7 thousand years old. So it is possible that some Muslims will toy with young-earth ideas. But it is very unlikely that this will ever become an important issue among conservative Muslims.

Another interesting difference from ICR emerges when BAV explains how a godless conspiracy established evolution. Much of what appears under the pseudonym Harun Yahya comes straight from Henry Morris, but it identifies the main forces behind evolution as Masons and Jews. This fits in with the all-too-common antisemitism among Islamists; indeed, Harun Yahya is also listed as the author of a book entitled *The Holocaust Hoax*, which borrows much from well-known American holocaust-deniers (Yahya nd). Bashing Masons may seem peculiar, but this is actually a common motif in Islamist tirades, where Freemasonry, as for many Christian conspiratologists in the past, serves as a symbol personifying the Enlightenment culture that helped to erode tradition-

al religiosity. Usually the ancient enemies — the Jews, who refused to accept Muhammad as the final prophet — turn out to be behind Masonry, secularism, communism, and just about every godless evil.

BAV and ICR differ in some other particulars, but these are trivial. And even the differences involving flood geology and antisemitism do not obscure the fact that BAV's creationism is nearly a clone of ICR's. If anything, such differences highlight the need to explain this similarity. Clearly BAV does not *blindly* copy ICR; rather, it introduces minor adaptations for a Muslim environment. Why are the adaptations so minor?

We can begin to sketch an answer by observing that like the Christian version, Muslim fundamentalism is *not* a traditionalist movement. Islamists draw support from newly urbanized populations rather than from peasants; they are likely to be led by engineers instead of religious scholars in the traditional mold (Roy 1994). In this, they are similar to American creationists, who also find their constituency among a modernizing population, including many who have become part of the professional classes, who are trying to reproduce their culture in a changing social environment (Eve and Harrold 1991). Muslim as well as Christian creationists widely accept science as a cognitive authority, in part because Muslims perceive that their once superior civilization has been humiliated by the West's technological advantage. This is fertile ground for pseudosciences claiming that modern knowledge validates the old stories.

ICR's "creation science" appeals to BAV not because it upholds the authority of the Bible, but because it upholds divine moral order.

In these circumstances, evolution is an obstacle, though not just because it does not fit particular scriptures. ICR's "creation science" appeals to BAV not because it upholds the authority of the Bible, but because it upholds a divine moral order — an order manifested in the evident design of Nature. As with most traditional religions, old-time Abrahamic faiths sanctify a social order by inscribing it into the very structure of the universe. Origin myths function as communal constitutions; the divine purpose in creation underwrites moral convictions. Theological conservatives want to retain this morality-infused view of nature as the social disruptions of modern life encroach upon their communities.

This difference between traditional Abrahamic and modern views of morality is starkest in matters like sex roles, where fundamentalists of all stripes uphold very rigid roles discovered in nature as well as scripture (Kintz 1997). Popular Muslim apologetics, in fact, lean even more heavily on nature. Consider how the theologian Suleyman Ates justifies 2 *Al-Baqarah* 228 in the Qur'an, which asserts that men are superior to women:

It is true that as a whole, the male sex has been created superior to the female. Even the sperm

which carries the male sign is different from the female. The male-bearing sperm is more active, ...the female less. The egg stays stationary, the sperm seeks her out, and endures a long and dangerous struggle in the process. Generally in nature, all male animals are more complete, more superior compared to their females.... Man, being more enduring at work, and superior in prudence and willpower, has been given the duty of protecting woman (Ates 1991: 37; translation by author).

Such Aristotelian views of biology are quite common, even among theologians like Ates who think that some form of development in time may be acceptable to Islam.

Darwinian evolution severely undermines all such views of nature; for evolutionists, biological facts no longer carry a clear moral significance deriving from specially designed roles for each living thing. Fundamentalists quite correctly perceive that evolution radically threatens their conception of morality, though they often mistakenly go on to claim that evolution sanctions moral attitudes they consider degener-

erate. More modern-minded religious thinkers, of course, see opportunity here. If biological nature is no longer strongly coupled to morality, it also becomes easier to suspect that our moral convictions derive from a source transcending nature. However, exploring such an apologetic strategy is not an option for conservatives committed to a premodern social ideal. Taking a liberal point of view would in effect endorse a fluid, human-created moral environment, however sugar-coated by mystical intuitions.

Religious conservatives, then, have very good reasons to attack evolution, and this goes for Muslims as well as Christians.

When, in another echo of Christian creationists, Harun Yahya digresses to denounce evolution because it describes homosexuality as natural, therefore "seeking to legitimize perversion" (Yahya 1997: 307), this might seem bizarrely out of place in an argument that is ostensibly about biology. From a fundamentalist perspective, however, it makes perfect sense — worries about morality and social decay are intimately connected to the fundamentalist view of biology.

This, then, is the key to why BAV copies ICR. They hail from doctrinally and socially different religions, but they represent constituencies confronting modernity in similar ways. They both answer a need to claim science for the side of old-time social morality, and both correctly see that evolution is a major intellectual obstacle. So BAV can borrow from ICR because ICR has already done the work of constructing a populist pseudoscience that is, in fact, relatively free of narrowly Protestant literalist doctrinal idiosyncrasies. ICR has a product which will work for almost any Abrahamic fundamentalism. Conservative Christians and Muslims may strongly disagree about

religious matters — Yahya rails against the Trinity, and Henry Morris hopes the Muslims influenced by the ICR will come to know Jesus (Morris 1998) — but they can agree on their overall conception of social morality and upon "creation science".

BACK HOME

Watching a familiar "creation science" take root in a different culture can give us a new perspective on creationism back home. To begin with, we can more easily see the real difference between "scientific" and "biblical" creationism. They are not as separate as creationists claim — reading Henry Morris worrying about matters like the water table in the Garden of Eden (Morris 1976), it is easy to see the literalist motivations behind much of "creation science". Nevertheless, much of ICR's work has a broader potential appeal than its narrowly literalist base suggests. Defenders of evolution too often oversimplify creationism (Edis 1998); reducing US creationism to an obsession with Genesis also misses much. Becoming more aware of the wider motivations behind anti-evolutionary views, particularly the moral concerns driving them, might improve critiques of creationism.

More importantly, however, observing Turkish creationism shows the comparative weakness of the US variety. While Western cultures have secularized over the past few centuries (Bruce 1996), the Muslim world has not. There are, of course, scholars who propose more liberal approaches to Islam, hoping that it will become a matter of personal conscience rather than a communal ideology. But many also realize that liberal Islam does not exist as a significant social force and that popular sentiment leans towards political Islamists (for example, Tibi 1998). To most Muslims, especially those fundamentalist leaders who are very aware of the decline of Christianity in the industrialized West, liberal religion presents only a pale remnant of a once glorious God. And so, although unsuccessful in solving real-world political and economic problems, political Islamists remain stronger than modernists, who appear culturally alien. In such an environment, Turkish creationism enjoys some success both at the grassroots and at the governmental level.

US evolutionists can be more optimistic. The rise of ICR's creationism was part of a wider evangelical resurgence, when the "Southern style" of religion spread to the rest of the country. However, it now appears that this has come at the cost of a "Californification" of Southern religion, in which doctrinal rigidity becomes diluted through increasing individualism and shallowness in commitment (Shibley 1996). In fact, even evangelical theologians have begun to express concern over how evangelicals have come to emulate the wider culture, where religion serves as a source of therapy rather than of truth (for example, Wells 1993). This suggests that the wild popularity of evangelical religion does not effectively threaten American religious pluralism. Working against a pluralist culture and a strong legal tradition of church-state separation, US creationists face a severe struggle.

[W]orries about moral and social decay are inti- mately con- nected to the fundamentalist view of biology.

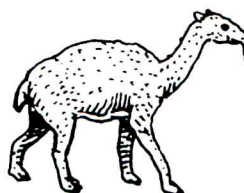
With some vigilance, our homegrown creationism should not become more than the major nuisance it already is. In Turkey, there is a real possibility that we will find out what happens to science when creationists actually succeed.

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AUTHOR'S ADDRESS:

Dr Taner Edis
Department of Physics
Truman State University
Kirksville MO 63501
E-mail: edis@grant.phys.subr.edu



Islam Does Not Inhibit Science

TO Shanavas, MD

As a Muslim and a scientist, I must disagree with the misconception expressed recently by Dr Scott: "[T]he progress in learning achieved by Arab astronomers and mathematicians ground to a halt when the necessary ability to seek where the data lead conflicted with strictures of Islam that anything important was already available in the [Qur'an]." It is lack of familiarity with Islamic culture that preserves this mistaken impression in Western countries.

Therefore, I would like to bring some of the highlights of the Islamic tradition to the attention of RNCSE readers in order to illustrate that it is not Islam, but some Muslims' interpretation of Islam, that is responsible for the supposed conflict. In many ways, this confrontation of science and religion in Muslim countries is not very different from that in Christian countries in the West. Although in both religions there are those who seem to think that no reconciliation or constructive dialogue is possible, neither religion prevents or inhibits science per se. Islamic culture has produced many first-rate scientists who were also devout in their religious observances.

MUSLIMS AND SCIENCE

In asking Muslims to observe and learn from the world, the Qur'an instructs them to engage in science with the expectation that the "signs in the earth" will be comprehensible to them.

There are signs in the earth for those who are firm in their faith, And within yourselves. Can you perceive? (Qur'an 51: 20-1).

Says Muhammad: "Travel in the earth and see how God originates creation; so will God produce a later creation" (Qur'an 29: 20).

These verses from the Qur'an guided early Muslims to investigate Nature and the creation of human and other life.

On specific issues, the Qur'an is consistent with current scientific hypotheses and models. For example, the Qur'an anticipates the contemporary Big Bang Theory:

Do not these unbelievers see that the heavens and

NCSE member TO Shanavas wrote to RNCSE in response to Eugenie C Scott's review of Robin Dunbar's The Trouble with Science (RNCSE 1998 Nov/Dec; 18 [6]: 25). Rather than printing his comments as a letter to the editor, we elected to present them in this issue's special discussion of the views of science and inroads of creationism in Muslim countries.

the earth were an integrated mass, then We split them and made every living thing from water (Qur'an 21: 30).

It also refers to the expanding universe:

And it is We who built the universe with [Our creative power]; and, verily, it is We who are steadily expanding it (Qur'an 51: 47).

CREATION/EVOLUTION

The Qur'an states that the human species was created through a gradual process:

Seeing that He [Allah] created you in successive stages (Qur'an 71: 14).

Centuries before Darwin, when the West was in the Dark Ages, the Muslims believed that the appearance of humans on earth was not an instantaneous event, but a gradual process in which humans were derived from earlier life forms. The Muslim scholar Ibn Khaldūn wrote 500 years before Darwin that humans belong to the animal kingdom:

[M]an belongs to the genus of animals and that God distinguished from them by ability to think, which He [Allah] gave man and through which man is able to arrange his actions in an orderly manner (Ibn Khaldūn 1967).

He further stated:

One should look at the world of creation. It started out from the minerals and progressed, in an ingenious, gradual manner to plants and animals. The animal world then widens, its species become numerous, and, in a gradual process of creation, it finally leads to man, who is able to think and reflect (Ibn Khaldūn 1967).

The last quotation embodies the Qur'anic approach of reaching conclusions by observations of the natural world.

CREATION, EVOLUTION, AND ADAM AND EVE

Ibn 'Arabī, who lived about 650 years before Darwin, is one of the most respected exegetes of the Qur'an. His views on the origin of life and humans can be summarized in his own words from the Uqlatū'l-Mustawfiz:

On they rolled to perfection: Thus the meaner world was born. Mineral passed to vegetable life, out of which animal life was born. ... Then creation

continued on earth, minerals, then vegetation, then animals, and then man. God made the last of every one of these kinds. The last of the minerals and the first of the vegetation is the truffle. The last of the vegetation and the first of the animals is the date palm. The last of the animals and the first of mankind is the monkey.

The goal of all this was man[']s coming in perfect form. When the field was thus prepared, Man came in the nicest form.

When God desired the perfection of human evolution, He collected and bestowed on Man all realities of the Universe and illuminated him with all His names. ... The first of human species whom God made was the Perfect Man. He was Adam (may peace be on him). Thus God demonstrated the stages of perfection for the species. He who attains to it is the man who attains perfection, and he who goes down from that stage is one who possesses the human quality in proportion to where he is (Hussani 1979).

ACTIVE NATURE

In the Classical Period (500-1200 CE), Muslims had no problem with natural processes that produce change over time on the earth. Those Muslims who lived before the dawn of science in the West believed that an active Nature performed delegated duties and tasks as an extension of God. For example, al-Birūnī (800 years before Darwin) wrote:

[W]hen Nature, whose task it is to preserve the species as they are, finds some superfluous substance, which she forms into some shape instead of throwing it away; likewise, animals with imperfect limbs, when Nature does not find the substance by which to complete the form of the animal in conformity with which the structure of the species to which it belongs; in that case she forms the animal in such a shape, so that the defect is made to lose its obnoxious character, and she gives it vital power as much as possible (al-Birūnī 1879).

Concerning active Nature, Ibn Khaldūn wrote:

[S]oil becomes plants and plants becomes animals. This can come about only with the help of living spirit and active Nature which has the ability to generate substances and change essences.

MUSLIMS AND NOAH'S CURSE

Ibn Khaldūn also wrote that Nature can produce changes — even in humans. For example, he rejected the Judaeo-Christian doctrine of the curse of Noah.

Genealogists who had no knowledge of the true nature of things imagined that Negroes were the children of Ham, the son of Noah, and they were singled out to be black as a result of Noah's curse, which produced Ham's color and slavery of God

inflicted upon his descendants. ... To attribute the blackness of Negroes to Ham, reveals disregard of the true nature of heat and cold and of the influence they exercise upon the climate and upon the creatures that come into being in it. People [in the tropics] go through a very severe summer, and their skins turn black because of excessive heat. ... Something similar happens in the two corresponding zones to the north. ... The heat ... is weak in the region, and cold severe in all seasons. In consequence, the color of the inhabitants is white. ... But to generalize and say that the inhabitants of a specific geographical location in the south or in the north are descendants of such-and-such a well known person because they have common color, trait or (physical) marks which that (alleged) forefathers have, is one of those errors which are caused by disregard, (both) of the true nature of created beings and of geographical facts. ... This is how God proceeds with His servants. And verily, you will not be able to change God's ways (Ibn Khaldūn 1967).

The last sentence above — "And verily, you will not be able to change God's ways" — is a Qur'anic verse. It reinforces the Muslim concept of Nature as an agent of God with delegated duties and tasks, which makes changes even in humans.

THE AGE OF THE UNIVERSE

The West also assumes that Muslims accept the Judaeo-Christian 6000-year-old earth. For example, Stephen W Hawking writes in his *A Brief History of Time*, "according to a number of early cosmologies and the Jewish/Christian/Muslim tradition, the Universe started at a finite time and not very distant time in the past." In contrast, al-Birūnī rejected the young-earth doctrine. He wrote:

[T]hose with a book of divine revelation, like the Jews, the Christians, and others like the Sabians and Magians, ... consider ... [the first chapter of Genesis] to be the first day of the week in which the world was created. ... How is it possible to imagine that these days are like the days of our reckoning! The Qur'an says: "A day in the sight of thy Lord is like a thousand years of your reckoning" (Qur'an 22: 47). In another verse God says: "In a day the measure of whereof is as fifty thousand years" (Qur'an 70: 4). Thus it is obvious that we cannot estimate that period with our method of reckoning, and that it is unverifiable since the beginning of creation (al-Birūnī 1967: 14-16).

continued on page 45



What Makes Islamic Science Islamic?

Muzaffar Iqbal

I know that I have wandered into difficult terrain. What makes science Islamic, or in other words, what adds a religious dimension to science, is a problematic question because the answer depends on certain definitions that are not universally recognized. But let us try to look at the question from the perspective of Islamic tradition, which has at its very heart the concept of *Tawhid*, the Unicity of God.

This concept is embodied in the first part of *Shabadah*, the testimony of faith: "There is no god but God." Everything in Islamic civilization, including the sciences, has sprung forth from this fundamental statement, which is an expression of the transcendence of divine unity. This consciousness of the Oneness of God is placed at the center of the Islamic worldview so as to act as a directing force that draws to itself all levels of manifest reality in the cosmic plane. To proclaim that there is no god but God is to testify that there is an essential unifying principle behind the apparent multiplicity of the universe which, in Islam, is not restricted merely to observable and perceptible reality but goes beyond to the realm of the Unseen.

For over 1400 years, Muslims, as well as some non-Muslims, have drawn inspiration from the Qur'an, which they consider to be the actual Word of God, revealed to the Prophet Mohammed by the archangel Gabriel. For Muslims, the Qur'an not only establishes what is lawful and what is not, but also defines the scope of human activity — from conception to death, and beyond physical death to resurrection and life after death.

Because developments in the sciences, as in any discipline, largely depend on the particular worldview of their practitioners, the growth of various branches of science in the Islamic civilization can be related to the Islamic worldview, and this relationship can be studied in a variety of ways. Since science is a discipline with a well-defined subject matter, methodology, theories, and accumulated body of knowledge, the scientific process is both a social and

an epistemological phenomenon dependent on the worldview of its practitioners.

The Islamic worldview is based on the Revealed Book, the Qur'an, which accepts as solved the basic enigmas of life — birth, death, resurrection and life after death. Its basic goal is to guide human activity within legal limits. It grants humans the basic right to make moral choices between right and wrong and calls upon us to reflect on the consequences of our choices. In addition to a large number of historical examples, the Qur'an presents the whole of the manifest universe to humans as our field of reflection. In sum, the Islamic worldview — centered on the single concept of *Tawhid* — clearly elucidates the hierarchy of the created beings, establishes their legal limits, and puts humans in the center of the created universe and the human heart at the center of human existence. It is the heart from which flow all actions and thoughts, all discoveries and all sciences.

By accepting this covenant offered to us, humans have entered into a special and unique relationship with God, which distinguishes us from other creatures. At the very foundation of this relationship is the communicated word — intelligible speech — which issues forth from the tongue as an instrument of the spirit's inner state. An attentive reader of the Qur'an discovers, over and over, that the inner dimensions of certain acts of worship — like fasting, prayers, and *hajj* — prepare the body to receive the divine grace by being watchful, receptive, and in a state of peace with the Divine writ (*amr-e Rabbi*). In Islam, this purification of the heart through vigorous application to a discipline is considered to be an integral part of the methodology of acquiring knowledge. Thus, it is not unusual to find examples of scientists of great stature (for example, Ibn Sina and al-Birūnī) who prayed fervently to God and sought divine help to solve their scientific and philosophical problems.

From the very beginning, Islam provided Muslims with a rich repository of technical terminology that soon paved the way for the development of a conceptual framework from which various branches of science emerged in due course. This terminology is essentially based on the Qur'anic concepts of life, death, resurrection, prophethood, and our moral response to the whole scheme of a purposeful creation of the universe.

ISLAMIC CONCEPTS OF KNOWLEDGE AND NATURE

It is noteworthy that the testimony of faith itself is a statement of knowledge. "When a man dies", the Prophet of Islam is reported to have said, "his work also stops, except for 3 [things]: acts of charity, which are continued, knowledge by which [all] profit, and a righteous child who prays for him." He also said:

Muzaffar Iqbal is Regional Director for the Muslim World, Science-Religion Program of the Center for Theology and the Natural Sciences (CTNS), Berkeley. He is the former Director for Scientific and Technological Cooperation, Pakistan Academy of Sciences, and also former Director of Scientific Information for the Standing Committee on Scientific and Technological Cooperation (COMSTECH) in the Organization of Islamic Conferences (OIC). From 1991 to 1996, he was the editor of Islamic Thought and Scientific Creativity, an international quarterly journal of Islamic thought. Iqbal is the author of Science in Islamic Polity in the Twenty-First Century. Many of his published research papers have focused on the history of the philosophy of science, the history of Islamic science, and the relationship between Islam and science.

Whoso walks in the path seeking knowledge thereby, God will make him walk in the paths of paradise; and verily, the angels spread out their wings out of pleasure for the seeker after knowledge; and verily those who are in the heavens and the earth and fish also in the midst of water, all ask pardon for him; and, verily, the excellence of a learned man over a mere worshipper is as the excellence of full moon over the stars. And, verily, the learned men are the inheritors of the prophets; for verily, the prophets' heritage is not [riches], but the heritage of knowledge; whoso then receives this, he has received ample good fortune.

The Qur'anic verse "my Lord, increase my knowledge" was one of the constant prayers of the Prophet of Islam, who also asked God to show him "things as they really are". This prayer of the Prophet has echoed throughout the history of Islam in many forms, but perhaps its most eloquent expression is by the 16th-century Persian Sufi poet and scholar, 'Abd al-Rahman Jami (d 1492), who prayed to God thus:

O God, deliver us from the preoccupation with worldly vanities, and show us the nature of things as they really are. Remove from our eyes the veil of ignorance, and show us things as they really are. Show us not non-existence as existent, nor cast the veil of non-existence over the beauty of existence. Make this phenomenal world the mirror to reflect the manifestation of Thy beauty, not a veil to separate and repel us from Thee. Cause these unreal phenomena of the Universe to be for us the source of knowledge and insight, not the causes of ignorance and blindness. Our alienation and severance from Thy beauty all proceed from ourselves. Deliver us from ourselves, and accord to us intimate knowledge of Thee.

Thus from the very moment of birth to the last breath, a Muslim is required to seek knowledge. This extraordinary emphasis on acquisition of knowledge is not surprising for a religion that is based on a book.

The emergence of sciences in Islamic civilization was also viewed in the same religious perspective because Nature as a whole is considered to be a work of God — as one of His Signs — and knowledge concerning nature is sought in order to know God. Likewise, the planetary system is considered in Islam to be a sign of God. Over and over our attention is drawn to the fact that there is an order in the cosmos, and that the sun and the moon move according to a fixed reckoning.

In Islam, the highest source of knowledge is revelation. According to revealed knowledge, the whole of the cosmos is open to our reflection. Nature, in Islam, consists of 2 levels of reality: the material or corporeal (*nasut*) and psychic or animistic (*malakut*). The third and the highest state in the manifest world is the spiritual or the angelic level (*jabrut*), which governs the other two.

The Islamic cosmos, therefore, can be envisaged in this tripartite structure. True science, according to Ibn Sina (980-1037) is science that seeks knowledge of the essence of things in relation to their divine origin.

The traditional human microcosm, represented by body, soul, and spirit, corresponds to the tripartite structure (the corporeal, the psychic, and the spiritual worlds) of the cosmos.

In Islamic terminology, body is called *jism*, soul *nafs* and spirit '*aql*'. Of these 3, the last one, '*aql*' — reason, active intellect — is the one that directly concerns us here, for it is through '*aql*' that human beings are capable of knowing, and the metaphysical aspects of '*aql*' have profound implications for the whole tradition of the scientific enterprise in Islam. It is also the concept that has received a great deal of attention from all schools of Islamic thought. Human intellect, according to the Islamic worldview, is merely a tool, which can be used only in the light of the revealed knowledge, the Qur'an. It remains dormant, unutilized, as long as it is not touched by the light of revelation. Reaching to its highest potential, the active intellect can grasp certain levels of manifest reality. It is the active intellect, illumined and brought to its full potential through submission to divine command, which is operative behind the whole scheme of scientific methodology in Islam. In order to know, the knower must be guided from beyond.

THE ISLAMIC ROOTS OF SCIENCE

This is how science in Islam is rooted in a transcendental realm. This spiritual element is what makes science Islamic. In addition, there is the Islamic ethical framework, which defines the nature of inquiry and imparts a characteristic Islamic element to the study of Nature and life. Science in Islam is merely a means to reach the higher truths. It is not an end in itself. It is one of the branches of knowledge, and the Qur'an clearly explains the purpose of gaining knowledge. When the purpose is absent, knowledge becomes sterile. Its pursuit then becomes a mere futile exercise without benefit: one who is engaged in such a pursuit is just like a donkey carrying a load of books. The spirit of this essential aspect of knowledge was beautifully captured by the celebrated mystic Mansur al-Hallaj in his elegant Qasida Li'l-'ilmi ahlan:

For knowledge, there are vocations; for faith, there is a progression. And for sciences as well as scientists, there are experiments. Knowledge is of two kinds: one sterile, the other that bears fruit. The ocean is two oceans: one that allows passage, the other dangerous. And time is two days: blamed and the praised. And the human race is two races: one endowed and the other deprived. So listen with your heart to what a sage says. And ponder in your understanding, for discernment is a gift.

[This item is an edited version of a longer article that originally ran on the listserver Meta as posting 112 on June 18, 1999. It was the first of several columns by Iqbal on different aspects of science from an Islamic perspective. Meta is an edited and moderated listserver and news service dedicated to promoting the constructive engagement of science and religion. Subscriptions are free. For more information, including subscriptions, archives and submission guidelines, go to <<http://www.meta-list.org>>.]

BOOKREVIEW

TOWER OF BABEL: THE EVIDENCE AGAINST THE NEW CREATIONISM

by Robert T Pennock.
Cambridge, MA: MIT Press.
1999. 429 pages.

Reviewed by Eugenie C Scott,
NCSE Executive Director.

Christian creationists have long opposed evolution, first attempting to ban it (as in the Scopes-era anti-evolution laws) and more recently inventing "creation-science", alleged scientific evidence for biblical literalism. In 1987 the Supreme Court in *Edwards v Aguillard* struck down equal-time-for-creation-science laws because creationism is an inherently religious idea and teaching it as the equivalent of science (evolution) unconstitutionally promotes religion. This led to selective pressure to avoid the religious term "creationism", and within a few years of *Edwards*, some creationists were calling not for "creation" science, but for "abrupt appearance theory", "evidence against evolution", or — most recently — "intelligent design theory". In *Tower of Babel: The Evidence Against the New Creationism*, philosopher Robert T Pennock neatly exposes the creationist roots of "intelligent-design theory"; from the beginning he refers to "intelligent-design creationism" and shows us how it has descended with modification from its creation science predecessor.

Intelligent-design creationists primarily are conservative Christians greatly concerned over the increasing secularization of US society. They wish to promote Christian theism over philosophical materialism — the view that there are no supernatural forces in

the universe, only matter, energy, and their interactions. Because science rules out supernatural explanations, intelligent-design creationists believe that it promotes philosophical materialism and thus devalues faith. They accuse scientists of clinging to their naturalistic explanations because of pre-existing materialist prejudice rather than the power of empirical evidence.

Because evolution deals with theologically sensitive issues, such as humanity's place in the universe, it becomes the special target of intelligent-design creationists. Movement leader Phillip E Johnson, a professor of criminal law at the University of California at Berkeley, argues that by showing the weaknesses in evolution, they will drive a wedge into the ideology of materialism, and theism will emerge triumphant. One of the goals is to replace modern science with a "theistic science" in which supernatural explanations will be allowed. It is therefore a religious movement that is both antiscience — at least as science is practiced today — and anti-evolutionary.

Pennock systematically reveals the philosophical problems inherent in intelligent-design creationism. He shows in several ways that science is not inherently antireligious. Intelligent-design creationists confuse materialist philosophy and the methodological materialism of science, which says that science cannot use supernatural cause to explain the natural world. To explain by natural cause does not make a field antireligious; as Pennock wryly notes, science is no more atheistic than plumbing. "To say nothing of God is not to say that God is nothing." Intelligent-design creationism also errs in assuming that if a natural phenomenon can be explained without reference to God, therefore God

had nothing to do with it. This brings us to the "design" in intelligent-design creationism.

These creationists have taken William Paley's 18th-century Argument from Design and established an entire subspecies of anti-evolutionism around it. Paley found proof of God's existence in the intricacies of nature. Complex structures as the vertebrate eye "could not have occurred by chance", so they must have been designed by an omniscient God, much as the existence of watches implies a watchmaker. Charles Darwin's major contribution to science was showing that structural complexity could be explained through natural processes and did not need the guiding hand of God.

THE "GOD OF THE GAPS" PROBLEM

Most Christian theologians today believe that God can be Creator and be in charge of the universe without having to line up the chromosomes during each cell division or having to adjust planetary orbits directly. In fact, mainstream Christian theology long ago ceased making design explanations of the natural world, partly to avoid the "God of the Gaps" problem: if the direct hand of God explained unknown natural phenomena, once a natural explanation was discovered for it, God was left with one less gap to fill, reducing His majesty.

Although it finds structural perfection in molecular biology and information theory rather than in the vertebrate eye, intelligent-design creationism nonetheless repeats Paley's errors. Pennock details how intelligent-design creationists zero in on currently unsolved problems, such as the origin of life and the Cambrian explosion of invertebrate phyla, and declare them to be "too complex" to be explained by a natural cause, requiring explication by an unnamed "intelligent agent". Theologically, intelligent-design creationism is still stuck with the God of the Gaps, and scientifically, it confuses the unexplained with the unexplainable.

But the Argument from Design and science as materialism are easy to sell to the public, which is more concerned (as Pennock wisely points out) with existential issues of meaninglessness and purpose than with empirical scientific evidence. One of the strengths of *Tower of Babel* is that it specifically addresses these existential issues. A theist himself, Pennock presents a particularly thoughtful discussion of why neither science nor evolution renders life meaningless. He recognizes that some atheist scientists agree with intelligent-design creationists that evolution and religion are incompatible, and he demonstrates the error of "naturalizing God" into a testable hypothesis: it redefines science in harmful ways and, for theists, devalues God.

Polls show that close to half of Americans prefer Genesis-type special creation of humans over human evolution. In an excellent analogy for such Americans, Pennock invokes the biblical Tower of Babel, where God specially created the many different languages of humankind. Linguists have learned that languages have descended with modification: they have evolved by some (though not all) of the same mechanisms as biological species.

Most religious people can accept language evolution. So if it is acceptable that languages evolved rather than having been specially created, why not species? Although languages are used by intelligent humans, languages change not by design or human planning but according to rules that only recently are becoming understood. Citing Bibles through the ages, Pennock illustrates English language evolution with the first line of the Lord's Prayer — which is virtually unreadable in its Anglo-Saxon form and even in medieval versions. Pennock makes an especially interesting comparison of differences between "designed" languages like Esperanto and "natural" languages: the former are much more regular, orderly, and precise; natural languages grow by accretion and look like it. This is directly relevant to the design argument: neither lan-

guages nor living things have the orderliness of specially designed phenomena but look far more like "jerry-built jumbles" such as would be produced by evolution.

HE THAT TROUBLETH HIS OWN HOME

Pennock also uses the Tower of Babel as a metaphor to describe the confusion and squabbling among anti-evolutionists themselves, detailing the nuances of intelligent-design creationists, young earthers, old earthers, progressive creationists, and others. Perhaps being mindful of the proverb "He that troubleth his own home shall inherit the wind", Johnson and other leaders try hard to hide theological differences in and outside their camp, claiming that such "details" as the age of the earth, Noah's Flood, and the like should be set aside until theism triumphs over the evils of materialist science. Intelligent-design creationists try to keep the peace by avoiding any specific empirical claim about what the designer might have done, relying instead on bashing evolution. In this way, the movement shows its inheritance from its creation science ancestor, which specialized in the negative argument of "if evolution is wrong, then creationism is right".

But Pennock cleverly shows that merely disproving evolution fails to win the day, because (among other reasons) there are more than 2 alternatives. The Raëlian movement, for example, proposes a purely secular, naturalistic alternative to both evolution and Christian creationism: life on earth is the result of a long-term experiment by technologically and intellectually superior (but fully material) extraterrestrials. Pennock shows that Raëlians marshal the same arguments to support the extraterrestrial intelligent designer that intelligent-design creationists use to promote their Godly intelligent designer — and both arguments share the same weaknesses, of course. Extraterrestrial intelligent design and Godly intelligent design ultimately fail as science (Pennock discusses why at length); either must be taken on faith.

Intelligent-design creationism versus evolution is not just a philosophical and theological intellectual exercise: it is also a fight over what will be taught in our public schools. At the National Center for Science Education, we see more school districts contemplating adding "intelligent-design theory" to the curriculum or being pressed to adopt the intelligent-design textbook *Of Pandas and People*. Pennock illustrates that if they do, they will find the familiar laundry list of long-refuted creation science "arguments against evolution" and the sterile creation science approach of attempting to prove creationism by disproving evolution. The Supreme Court held in *Edwards* that teachers may teach secular and scientific alternatives to evolution, but intelligent-design creationism fails on both accounts. At heart it is religious (Pennock relates how on creationist Web sites and among believers, "intelligent designer" is described as the "politically correct term for God") and to qualify as scientific, it has to argue for the redefinition of science to include "intervention" — miracles, by any other name. One district court already has used "intelligent design" as a synonym for "creation science", so teachers would be advised to use caution when considering advocating it in public schools.

Creation science was rejected by university scientists, but proponents tried by statute to force high school teachers to teach it, arguing that it was only "fair" to teach creation science if evolution were taught. Its descendent, intelligent-design, theory similarly argues "viewpoint discrimination" instead of earning its right to be taught by persuading the scientific community of its veracity.

Continental drift, punctuated equilibria, and quantum theory had to be accepted by the scholarly community before being included in high school curricula, and this is the task for intelligent design. Its proponents are not there yet: Pennock cites a computerized journal search for "intelligent design" that revealed no scientific research using intelligent



design as a biological theory. Intelligent design remains a virtually empty bandwagon. To understand why, instructors might consult Pennock's index for long lists of "problems with arguments" of intelligent-design creationism, of Johnson and other leaders, and of terms-of-art like "irreducible complexity", "information", and "explanatory filter".

Certainly there are legal and scientific problems with the teaching of intelligent-design creationism. But perhaps of most concern, it misrepresents science as an inherently antireligious enterprise, and evolution as the first step down this slippery slope. This is no way to improve science literacy in America.

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BOOKREVIEW

DID DARWIN GET IT RIGHT? CATHOLICS AND THE THEORY OF EVOLUTION

by **George Sim Johnston**. 1999. *Huntington (IN): Our Sunday Visitor*. 175 p.

Reviewed by **Tom Scharle**.

About a decade ago, *Our Sunday Visitor*, a publisher of periodicals and books and other items of interest for Roman Catholics in the US, published an encyclopedia (Stravinskis 1991). It had a quite balanced, brief article on evolution, describing it thus:

Evolution: The process by which existing organisms have developed from earlier forms through transformations of characteristics in successive generations. The most widely

accepted theory explaining this process is that originally advanced by Charles Darwin and Alfred Russell Wallace in 1858, and subsequently amplified by the work of other scientists.

It goes on to discuss natural selection, mutations, and recombination. This discussion is followed by a paragraph dismissing any conflicts between any theory of evolution and Catholic doctrine, as long as one accepts the creation by God of each individual human soul. The book under review, although from the same publisher, takes a far different stance on the question of whether Darwin "got it right".

George Sim Johnston is described on the jacket of this book as a 3-time winner of the Journalism Award from the Catholic Press Association. He is also the author of an entry on evolution in a recent revision of *Our Sunday Visitor's Catholic Encyclopedia* (Johnston 1997), and one may expect that his book will appear on many Catholic bookshelves — especially in Catholic secondary schools. That is unfortunate for the influence that it may have on Catholic young adults.

There are some positive things to be said about this book. It does have a more sophisticated approach to the meaning of "creation" than is common in most fundamentalist or creationist literature. He recognizes the difference between creation and design, for example, and puts down the simplistic "watchmaker" argument of Paley (p 152-3). The author asserts no problem with evolution, common descent (p 16), and a 4.5-billion-year-old earth (p 30). He adds: "[E]ven if some day the origin of life were proven to be a mechanistic phenomenon (which is not very likely), I would be unperturbed" (p 125). Johnston also makes a commendable call for a debate in the calm and conciliatory "irenical" tradition of Church discourse: "The Catholic side of the debate over evolution should be calm and charitable" (p 154). Unfortunately, major flaws in the book massively outweigh these virtues.

He quotes a number of well-known Catholics who have considered evolution: among others, Popes Pius XII and John Paul II, St George Jackson Mivart, GK Chesterton, and Jacques Maritain. This may serve as an introduction to Catholic thought on the issue in the first 100 years or so after Darwin. However, Johnston overlooks a literature that provides a better coverage, including later generations of Catholic thinkers — for example, McMullin (1985).

Furthermore, Johnston may accept "evolution", but he finds "Darwinism" sorely lacking: "Darwin's theory is due for retirement within the next generation ... because scientists themselves now have serious reservations. The word 'crisis' is not too strong" (p 11). Darwinism, he says, will "some day be retired. Whether this will happen rapidly (in the form of a Kuhnian paradigm shift) or gradually, one cannot say" (p 154). And the retirement will also call for a "New Theology of Creation" (p 147).

There is no reason to catalog Johnston's "scientific" arguments against "Darwinism" for readers of *RNCSE* or for those familiar with creationist literature. There is nothing novel. However, this book makes a real muddle out of some very important and intellectually challenging issues in the dialogue between religion and science.

For example, some of the ideas seem entirely contradictory. Johnston reminds us that we must recognize "two different orders of knowledge — theological and scientific — and allow each its due consequence. ... Putting God in the gaps unexplained by science has always been a mistake" (p 17). And yet elsewhere, "[A] Christian physicist or biologist who runs into an intractable problem ... waits patiently for a natural explanation. If such is not forthcoming, he admits a scientific mystery and humbly hands over his data to philosophers and theologians" (p 22-3). Perhaps someone can make this all consistent, but Johnston does not give us much guidance.



One recurring problem with this book is that his presentation has many such major incongruities, if not inconsistencies. Although he does accept portions of evolutionary biology, he does not seem to give any reasons for this acceptance. Indeed, on the contrary, we find the same old arguments of the creationists — the arguments against evolution — on matters of common descent, an “old earth”, and natural origin of life.

As an example, consider Paley’s “watchmaker” argument from design. Although Johnston rejects that argument in strong terms, he quotes favorably Michael Behe’s version of that argument, one which is a “challenge to evolution”, even though Behe welcomes the parallel with Paley at length (Behe 1996: 209–16).

Another striking case is that, although Johnston accepts the great age of the earth, he objects to the accepted dating of hominid fossils. “[R]adioactive dating depends on several unverifiable assumptions” (p 89), he tells us. Perhaps some “intense cosmic radiation” (p 89) throws it off. In this case, he simply transforms a “young earth” argument into a “young man” argument.

An incongruity occurs in his discussion of the difference between chimpanzees and “man” [*sic*] (p 93–6). It seems to me that one of Johnston’s major concerns is “in John Paul II’s words, an ‘ontological leap’ between the rest of the animal kingdom and man” (p 18). Johnston is undoubtedly being deliberately facetious when he says that one distinction between chimps and humans is that we can understand “what the Super Bowl is, or the difference between Democrats and Republicans” (p 94). Of course, he does go on to mention other distinctions such as free will, conscience, language, and art. But once his facetious comment has called to mind that there are plenty of men and women, Americans and non-Americans, who do not understand the Super Bowl or who cannot tell the difference(s) between Democrats and Republicans, could we then also

argue that there are humans who don’t have free will, conscience, language, or art? And conversely, characteristics once thought to be exclusively human have a history of failure, so drawing such specific lines of demarcation between humans and other animals may create a sort of “‘man’ of the gaps” scenario — we look for gaps between humans and other animals that natural science has not yet filled and then move the ontological barrier into those positions.

Despite Johnston’s irenic exhortation, and despite his realization that he needs to defend himself by saying “[t]his book is no diatribe against science” (p 12), there is one final incongruity. A great deal of the book is an excoriation of Darwinists as being downright malicious. He tells us both that the “tenacity of Darwin’s theory ... can only be explained by its crude materialism” (p 15) and that “the tenacity of Darwin’s theory ... can be explained by the fact that it is an effective club with which to beat religion” (p 106). Darwinism, according to Johnston, is a replacement for “political Marxism” among the “cultural elite” (p 10): “Darwin’s apologists have few inhibitions about displaying a flippant agnosticism” (p 14). So all you Darwinists are simultaneously crude materialists, religion-clubbers, political-Marxist also-rans, and displayers of flippant agnosticism (I wonder if a Marxist can be an agnostic). Take that! But of course, take it only in the spirit of calm and charitable debate.

Johnston lets off relatively mildly those scientists who are afraid of making their anti-Darwinism known (p 11–2), and scientists who let down their guard when writing for a technical audience (p 45–6). Johnston’s disdain also extends to various non-Catholic Christians, although not with the same bile. He thinks that Anglican theology is a “straw man” (p 59) — though it is unclear how something that is seriously advocated by millions can be a straw man. He also has disdain for fundamentalists and evangelicals (p 122). This is definitely not a book for “testifying” to non-Catholics.

Johnston spends some time in Darwin-bashing, telling us about how he was always either a weak Protestant or a stealth atheist, and how overall he was not much of a scientist. And Johnston does not think much of Darwin’s family or teachers, either (p 19–23). Relatively mild *ad hominem* is stretched to the limits when Johnston describes how both the Marxists and the robber barons were Darwinists (p 100 and following). Then, beyond the realm of civilized discourse, he reminds us how Hitler rationalized his regime on the basis of natural selection, and then, surpassing the limits of outrageousness, he concludes: “It is a short step from Darwin to gas ovens and abortion mills” (p 103).

That is the kind of language that one would expect of those comic-book “Christian” publications, and I cannot understand the lapse of the publishers in allowing this obscenity. I do not know whether this comic-book treatment of scientists will succeed more in turning impressionable readers away from “Darwinism” or away from Catholicism. There is a place for calm and charitable — and enlightening and novel — discussion of the relationship between science and faith, but this book is not where to find it.

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AUTHOR’S ADDRESS

Thomas Scharle
2721 East Edison Road
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email: scharle.1@nd.edu

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The notorious television special "The Mysterious Origins of Man" has appeared in a heretofore unlikely place — the PBS video catalog. It first aired in February 1995 as a 1-hour special hosted by Charlton Heston that purported to show us facts and phenomena unexplained, ignored, or hidden by mainstream science (see *NCSE Reports* 1995; 15 [4]: 1). The PBS catalog lists a newer, expanded 3-hour version of the program, presumably containing many more claims of unexplained "anomalies" and "alternative" theories.

Readers may locate the offering in the PBS on-line catalog by connecting to <http://shop.pbs.org/ypCcET8OGc/products/A4031/>. Readers may also post a comment on the program by connecting to <http://www.pbs.org/aboutsite/emailform.html>.

[Contributed by Paul Heinrich.]

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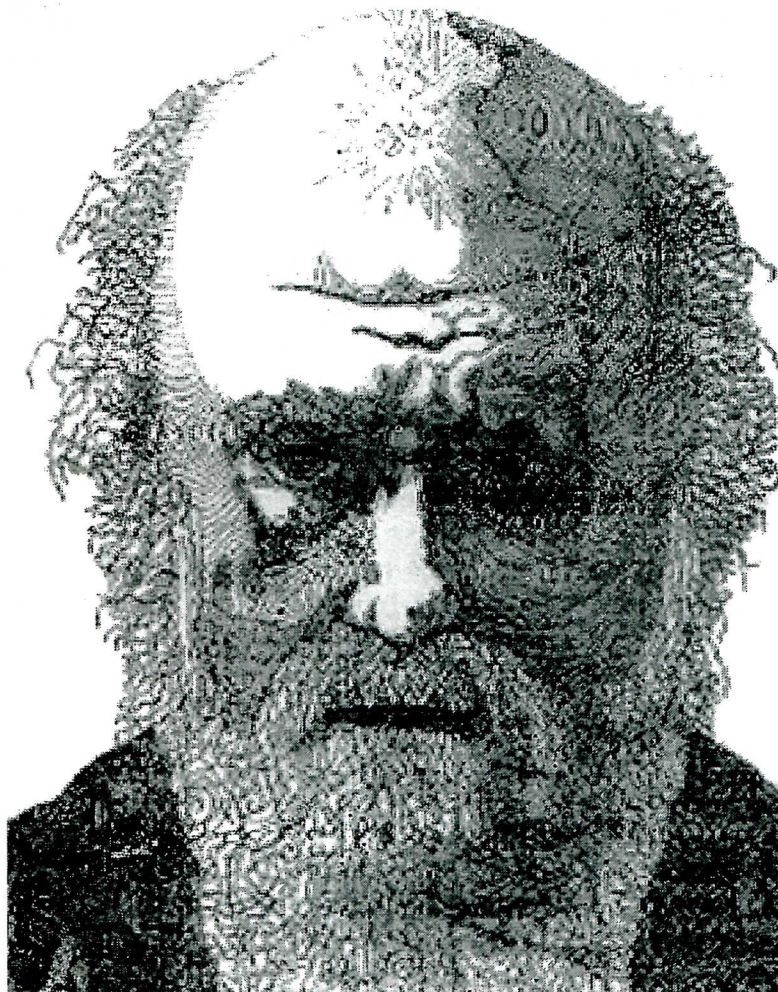
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MUSLIMS AND THE DELUGE

The universal Flood of Judaeo-Christian faith is not a Muslim doctrine. Muslims believe the flood was a localized event. For example, al-Birūnī wrote:

Persians, and great mass of the Magians, deny the Deluge altogether. ... In denying the Deluge, the Indians, Chinese, and various nations of the east, concur with them. Some, however, of the Persians admit the fact [of] the Deluge, but they describe it in a different way from what is described in the books of [the] Prophets. They say [a] partial Deluge occurred in Syria ... but did not extend over the whole of then civilized world, and only few nations were drowned in it (al-Birūnī 1879).

al-Birūnī also observed that the water level marks on the pyramids suggest that the flood did not reach enough to cover the whole pyramids.

In summary, Islam compels no major conflict between the results of science and the Qur'an. From the time of Prophet Muhammad, Muslims have believed: (a) Nature is an agent of God with delegated duties and tasks, including making changes; (b) the earth is not very young; and (c) the evolution of life proceeded from minerals to plants to animals, with humans finally emerging from monkeys.

ISLAM AND THE ADVANCEMENT OF SCIENCE

If the assertion that the Qur'an inhibited science were correct, then science should have been dead soon after the advent of Islam and the Qur'an. On the contrary, we see that science flourished during the first centuries of Islam. Instead of drowning themselves in ignorance, Muslims became masters of science for centuries. The defining event that provided the foundation for this mastery was Islam and the revelation of the Qur'an. Therefore, I would argue that the Qur'an promoted science.

In contrast to the sentiment echoed by Scott in her review, both Durant and Bronowski (among others) found that the Qur'an promoted science and learning in Islamic societies. Durant wrote:

Muhammad, unlike most religious reformers, admired and urged the pursuit of knowledge: "He who leaves his home in search of knowledge walks in the path of God...and ink of a scholar is holier than the blood of a martyr" (Durant 1950).

Similarly, Bronowski wrote:

Muhammad had been firm that Islam was not to be a religion of miracles; it became in intellectual content a pattern of contemplation and analysis (Bronowski 1981).

So it is clear that historians, scholars, and the text of the Qur'an itself concur that there is nothing intrinsi-

cally inimical to science in its pages. On the contrary, much of Qur'anic scholarship and scripture seems to support the endeavor that we recognize today under the rubric of science.

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- AUTHOR'S ADDRESS:**
TO Shanavas MD
954 Woodfield Dr
Adrian MI 49221

Spell Checker Does Evolution

Andrew J Petto
NCSE Editor

We are often embarrassed by the random mutations that spell checkers slip into print in *RNCSE*. However, one example arrived in a student paper this spring in which the spell checker introduced a graceful (and poetic) mutation. Consider: "the minuet steps of evolutionary change". Randomness and contingency working together to produce something of grace, beauty, and adequate function.

WEB LOCATIONS VISITED IN THIS ISSUE

NEWS

- TOPIC:** Poll Reveals Most Americans Support Evolution
OWNER: People for the American Way
LOCATION: <<http://www.pfaw.org/issues/education/creationism-poll.pdf>>
LAST VISIT: May 3, 2000
- TOPIC:** Answers in Genesis Responds to PFAW Poll
OWNER: Answers in Genesis Ministries International
LOCATION: <<http://answersingenesis.org/docs2/4241news3-11-2000.asp>>.
LAST VISIT: May 5, 2000
- TOPIC:** Tangipahoa (LA) Parish School Board Appeals to Higher Court
OWNER: The Advocate, Baton Rouge, Louisiana
LOCATION: <<http://www.theadvocate.com/news/story.asp?storyID=11122>>
LAST VISIT: March 15, 2000
- TOPIC:** Creation Museum Moves Forward
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LOCATION: <http://enquirer.com/editions/2000/03/05/loc_opponents_of_genesis.html>
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- TOPIC:** Geologists Explain Evolution
OWNER: American Geophysical Union
LOCATION: <<http://www.agu.org>>
LAST VISIT: April 10, 2000

ARTICLES

- TOPIC:** Turkish Academy of Sciences Declaration
OWNER: The Evolution Group
LOCATION: <http://www.geocities.com/Athens/Cyprus/8732/tubabildiri.html>
LAST VISIT: May 3, 2000
- TOPIC:** Islamic Creationism in Turkey
OWNER: Science Research Foundation (BAV)
LOCATION: <<http://www.bilimarastirmavakfi.org>>
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- TOPIC:** Who is Harun Yahya?
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LOCATION: <<http://www.harunyahya.org/Eng/whois.html>>
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News, commentaries, and features describe events or experiences that we wish to relate to our readers and members. These may include reports of school-board elections or local organizing by parent and teacher groups, political or governmental decisions and policies, first-person accounts of experiences with anti-evolutionist speakers, curricula, or organizations, other reports of information related to our primary concerns of promoting good science in education and public life, and, of course, humor related to creation/evolution issues.

Articles include book reviews, scholarly articles, and formal essays. These may explore specific arguments raised by anti-evolutionists, relate new information that may be helpful in promoting evolution, or present original research related to the public understanding of evolution. We also welcome case reports and classroom action research that assess the outcome(s) of strategies for strengthening the understanding of evolution in educational practice.

All articles should be written for a general audience, and authors should provide definitions or descriptions of technical terms and concepts the meanings of which might not be evident to the nonspecialist. All article manuscripts are submitted to reviewers for comments on the technical content and suitability for a general audience. All items will be edited before publication. Acceptance for publication does not take into account the author's formal academic background or profession. We encourage query letters from any prospective author.

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Smith FZ. Geocentrism re-examined. *Journal of Nice Things* 1985; 21 (3): 19-35.

Waters IC, Rivers HI. Swept away in a flood of enthusiasm [editorial]. *Reports of the National Center for Science Education* 1995 Jan/Feb; 1015 [1]: 22-9.

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