

# LETTERS

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**COVER:** Individual active nerve cells in a mollusk are labeled with a powerful new technique. Different versions of the method, which measures accumulation of a chemical called 2-deoxyglucose, are being used to compare the activity of different regions of animal and human brains. See story p. 76. (Cover photo: T.J. Sejnowski et al., courtesy of NATURE)

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**Creation-evolution**

Dr. Rolf Sinclair is to be commended for leaving his "ivory tower" (SN: 1/10/81, p. 19). The new wave of creationists, and others with literal interpretations of religious doctrines, do pose a serious threat to the quality of science education. But, moreover, the danger is not isolated. These groups would be very happy to remove public funding from any research whose findings might contradict their views of the world. While it is unlikely that scientists can match the funding of these single-interest groups, all of us who are interested in free inquiry and facts can write our public officials. These officials gauge total public opinion by their mail, and single-interest groups write a lot of letters.

We had better do something to counter this anti-scientific movement, or we may discover that attacking evolution is just the beginning. What would you think of an astronomy text giving equal validity to the theory that the earth is the center of the solar system? How about a math text giving the value of pi as 3.0? The Bible makes clear reference to a circle of diameter 10 cubits with a circumference of 30 cubits. We should not underestimate the power of these biblical literalists. While we are dismissing the Flat Earth Society it may be sobering in light of the above to recall that the Bible mentions the "four corners of the Earth."

Ridiculous? Who would have guessed that some half a century after the Scopes trial evolution would still have to be taught as a "theory" on an equal footing with special creation?

*Robert W. Culmer*

I was thoroughly amused by the paranoid fears of creationism damaging science education, expressed at the AAAS meeting. Porter M. Kier states, "there are over 100 million fossils that have been identified and age-dated" and despite this evidence evolution is still questioned. This is the equivalent of a creationist saying there have been billions of people believing the universe was created by God throughout the ages yet scientists will not believe. There are irrefutable facts in both statements, yet neither conclusion is justifiable scientifically. The human organism is almost infinitely complex as any person studying its mechanisms will testify; to merely say a mechanism of random mutations has resulted in mankind and to close discussions on the validity of that concept is madness.

I implore science to rise to the challenge of creationism. Let the issue be openly debated and resolved scientifically, especially in the schools. Let us not teach religion as science, or conversely, science as religion.

*Rosario Guarino II  
Piscataway, N.J.*

You gave a fine summary of a session ("Views of the Universe: Science versus Tradition") at the recent AAAS meeting in Toronto. But you perhaps missed one important point—the definition of the terms involved — that clarifies the reason for the argument.

1. There is the *record* around us — the earth, moon, planets, sun, stars, galaxies, made up of solids and gases, atoms, nuclei, elementary particles, and so forth.

2. There is the *understanding* of this record over the last five centuries by scientists, who

have discovered its nature and extent in space and time. Each discovery was unexpected and unplanned: The earth is a sphere and orbits the sun; the earth and the solar system came into being some few billion years ago; some stars and groups of stars are older than that; the entire universe originated in a "big bang" some tens of billions of years ago. Equally unexpected and unplanned, but no less certain, was the discovery that the record of life on earth goes back a billion years and more. This last is *not* the "theory of evolution," nor is the former the "theory of gravity." But all of this, as it unfolded, came into conflict with traditional systems of belief. Some systems absorbed the new knowledge, while others still dispute the discoveries.

This understanding is not a set of isolated conclusions that can be disputed singly. Rather, it rests upon a complex web of consistency woven of physics, chemistry, geology, biology, and astronomy, with quantitative mathematical rigor supplying the interweaving.

3. Then there are the *viewpoints*, or *unifying theories* ("crystallized experience") that emerge from this understanding of the record. The successful ones unify the known phenomena and predict new ones (for example, the theory of gravity, of atomic and nuclear structure, and of organic evolution). The unsuccessful alternatives (the flat earth, the geocentric universe, sudden recent appearance of then-unchanging life forms) were possible options in a time of more limited data, or a more limited understanding of the record, but are no longer useful or viable. Other unifying viewpoints can always be advanced, but they must pass the test of comparison with the way the universe *is* (not as it should be).

4. Then finally we search for the *mechanisms* behind the theories—the "why." Here is dispute and contradiction, because this is the forefront of science. We are far from an understanding of why matter has the properties we summarize in our theories. We are closer to an understanding of the mechanism that drives organic evolution, but still argue alternatives. This does not imply any less certainty in the overall record of organic evolution. But this debate within science is taken out of context as evidence that the very existence of the geologic records is open to radical re-interpretation.

There is room in each world-view for belief, whether in reason, origin, or mechanism. The point of our session was that belief should be in agreement with reality and extend our understanding of it, rather than contradict it.

We were subsequently criticized for not including "creationists" or "representatives in tradition's corner" as speakers. We did consider including a defender of a specific "creationist" point of view, and immediately ran up against the question of *which* point of view to include. Some people believe firmly the universe was created in the recent past, others in the remote past, and yet others that there was never a specific creation ("steady-state" or "cyclic" cosmologies); there is similarly a wide (and mutually exclusive) variety of accounts of the beginnings of mankind.<sup>1</sup> It was impractical to include representatives of each, and yet no defender of one would defend any other. Thus, one of the speakers (Professor Munitz) addressed the nature of a number of creation traditions.

Another speaker (Dr. Mayer) did discuss at length one particular "creationist movement" active in the United States and Canada. But the discoveries of science have conflicted with tradition along a number of lines, both today and in the past, in different cultures. The problem

*Continued on p. 75*

## ... Letters

we discussed in the session is only one example of a broad class. We did dwell upon this one example, but only because it threatens to compromise seriously science education in North America.

Rolf M. Sinclair  
Secretary of Section on Physics  
National Science Foundation  
Washington, D.C.

<sup>1</sup>See for example *Primal Myths: Creating the World*, by Barbara C. Sproul (Harper & Row, San Francisco, 1979).

I'm afraid I am at a loss to understand the hysteria, seemingly bordering on the near-paranoia, at the discovery by the AAAS that "there are many well-educated people still questioning evolution." It should be pointed out that some of these "well-educated" people have academic credentials in the sciences as impeccable as any member of the AAAS; I know, because I am acquainted with some of them. But what is the danger? Are these "creationists" undermining the fabric of society? Are they turning out a generation of criminals? Are they subverting the public weal? Are they not entitled to their beliefs and the propagation of these beliefs under the protection of our Constitution? Whose health or welfare is being threatened by "creationists"? Regardless of who may be right, the evolutionists or the creationists, I find the attempts of the AAAS and its associates to censor the creationists the real danger to our society. It was from such arrogance, such intolerance that such monstrosities as Nazism developed. Apparently the lessons of the last half century have not been well learned. If they really believed that evolution was true, they would be willing to let it be tested in the intellectual market place against all comers, confident that truth will win out. The fact that they wish to stifle all dissent to their "truth" makes their confidence appear to be a bit shaky. Some of us had hoped we were through with inquisitions. Apparently the new "religion" is just as dogmatic and intolerant, and is sure going to try to be as oppressive as some of the old ones were.

Rodney H. Mill  
Green Meadows, Md.

There is no scientist who will make a greater fool of himself than one who fails to investigate both sides of a point in dispute. If he continues with a blind faith in what he has been taught and refuses to objectively consider a new viewpoint or observation, and if he is not at all times ready and willing to reject that which is shown to be false, even if these be concepts he holds himself, such a person has no right to call himself a scientist in the traditional high sense of the term. Almost without exception, our formal education and our subsequent continuous informal education has presented the Theory of Evolution as fact. This theory is extended to presume that matter-energy itself formed everything by chance, eventually resulting in human personality. Yet, how many of us have objectively considered the observations purported to support the alternative view that a Personality existed first and created lower forms of existence, i.e., our universe and we simple beings who inhabit it? Immediately we emotionally reject this view, shouting, "Religion," but rejecting an entire alternative body of scientific logic because we do not wish to accept that we might be responsible to that Person who is the ultimate Cause, is this not also

the exercise of a religious conviction of its own kind? The possibility of a Personal Cause does not in itself require constructing a human-satisfying system of religion and rituals. A very adequate detached scientific structure can be built which incorporates observations that everyone can make and can agree upon. If the two theories of origin are in opposition, only the one that is wrong will have any incentive to misrepresent the facts. So, fellow scientists, take a closer and objective look at the fossil record (not at the artist's conceptions used in museums and texts) for transition forms between kinds of creatures, not mistaking changes in species as proof of transmutation; calculate the probability of forming DNA by chance and consider the requirements that must be met before the chance could be effective; list the auxiliary hypotheses required to prop up the Theory of Evolution and then see if the claim is justified that it is the less metaphysical theory; re-examine all the facts to see if they really do support the theory. If the AAAS proposes to advance science in the direction of a more correct description of the universe, its inhabitants, and their origins, I suggest that before next year's meeting on how to crush the teaching of Creation-By-A-Person, each member at least read the survey text, *Scientific Creationism*, by Henry Morris, as objectively as befits an honest scientist-in-search-of-the-truth-no-matter-how-much-it-hurts.

Duane E. Long  
Dugway Proving Ground, Utah

I spent six years in college having evolution shoved down my throat, and I swallowed it hook, line and sinker. I considered myself a great weapon against anti-evolutionary thought. Until...until I had the opportunity and the desire to look for myself. I've since spent much, much time in this natural world without the "benefits" of my professors and their textbooks and nature has slowly chipped away at the evolutionary theory I held so dearly. I wonder how many proponents of evolution have ever really looked for themselves?

Thank you, plants and animals... "I'm no longer beating a dead horse." I still consider evolution a theory, but a very poor one at that.

William H. Beatty  
Wheeling, W.Va.

The report of the planned "Witch Hunt" announced by AAAS is greatly disturbing.

Absolutism, wherever it raises its ugly head, threatens limitation of freedom of thought. To state "evolution" is without question and no longer "theory" is as dogmatic as the early church which attempted to silence Galileo's findings that the world was not the center of the universe. AAAS now plans a dogmatic attack to "combat creationism and the teaching of religion as a science." The pot would now deny the kettle by employing "Madison Avenue" tactics designed to force agreement that "evolution" is Q.E.D., that the re-examination door is shut, that creationists are, by AAAS fiat, beyond the pale of reason.

One of the "many educated persons," I submit that evolution remains a logical theory based on beautifully documented facts. I am equally certain that the origin of the species came about through amazing order. I am also certain it is possible the theory Charles Darwin propounded explaining the series of collected organized fact may be in error. Declarations by AAAS that man should no longer be permitted to doubt that *evolution is fact* appall! More than

fifty years of exciting observation establishes the more expert the individual, the more he becomes expert in one area of intellectual endeavor, the more he must sacrifice his expertise in another.

Scientists, above any group, have an obligation to encourage inquiry, be the last to set up holy cows that are beyond question, and certainly the last to "combat" freedom to disagree with expressed thought.

AAAS has a moral obligation to recognize the right of difference of opinion. There is no basis in a free society for "combating" the teaching *about* evolution, or the teaching *about* creation, or *about* any subject. Freedom of thought is lost if an intellectual but unwise society legislates that teaching "evolution" is permitted and promoted and teaching "creation" is barred and belittled.

Both science and religion thrive most in a free society. In a free society it is possible to be atheist, agnostic, evolutionist and creationist. Freedom of choice should not be denied.

A principle of creationism hard to deny is that all things originated from a Creator. Scientists are free to postulate that all things, living and dead, came from nothing. I do not "combat" that right.

Richard G. Smith  
Cleveland, Ohio

The recent revival of the anti-evolution movement has sparked concern in the scientific community, and rightly so. However, we ourselves must cautiously avoid the "monomania" label applied by W.G. Mayer to the anti-evolutionists. P.M. Kier's claim that "evolution is a fact and should be so labeled" is perhaps a trifle rigorous, and perhaps misleading. The "100 million fossils" represent the facts; the "theory of evolution" represents a solid and currently accepted explanation of those facts, but proof or disproof of evolution itself as a fact would be difficult. As practitioners of an unbiased scientific method, we would be obliged to reject the concept of evolution if a more acceptable explanation of the scientific facts could be offered.

In its attempts to "combat creationism," the scientific community will hopefully avoid acquiring the stifling attitude of the opposition.

Steven R. Shafer  
Raleigh, N.C.

As a member of the scientific community (and of the AAAS) I found your report very interesting. It would appear that the primary difference between the evolutionists and the creationists is that the creationists have stated their assumptions.

As one definition of religion, my Webster's states, "any specific system of belief." With the intolerant attitude taken by the evolutionists at that meeting, how long will it be until evolution (or even science itself) is recognized as a religion and banned from our schools?

David Dunthorn  
Oak Ridge, Tenn.

I for one plan to refer to the theory of evolution as the law of evolution from this day forward. Evolution is a fact and only the details are in question.

Emil C. Evancich  
Willowbrook, Ill.