

## SCIENCE'S COMPASS

based on circumstantial evidence, the evidence supporting each is by nature scientific and should be made available to students in the tax-supported public schools of our pluralistic democratic society.

**William K. Hartmann, senior scientist**

The complaint against the fascinating evidence for a Big Bang event is particularly ironic and illuminating. If any piece of modern astronomy could be welcomed by creationists, it should be the Big Bang theory. The fact that it is under attack is evidence, in my opinion, that fundamentalists are not interested in content or ideas, but are simply against science and scientists.

**Michael J. Behe, biology professor**

[I]ntelligent design in biology is not invisible, it is empirically detectable. The biological literature is replete with statements like David DeRosier's in the journal *Cell*: "More so than other motors, the flagellum resembles a machine designed by a human."...Exactly why is it a thought-crime to make the case that such observations may be on to something objectively correct?

### Response

White is correct to say that evolution is not "in the hearts and minds of the public," but he errs in thinking that evolution is taught

from grade school up. A smattering of evolution is taught in high school biology, but by then, as McCoy illustrates, students have already acquired a lot of misinformation. The "big three" antievolution arguments students pick up (also illustrated in these dEbate excerpts) are that (i) evolution is scientifically weak—a "theory in crisis," (ii) evolution is incompatible with religion, and (iii) it is "only fair" to teach "both." These three arguments were also used by William Jennings Bryan during the Scopes trial of 1925, so we haven't gotten very far in 75 years. Scientists and teachers need to counter each of the "big three."

Ultimately, existential issues fuel antievolutionism: people are told that if evolution happened, they can't believe in God and their lives are meaningless. A high percentage of the public believes this, which suggests that the faith community has a major role to play in informing religious people of the many ways in which religion is compatible with evolution (see [www.natcensci.org/voiccont.htm](http://www.natcensci.org/voiccont.htm) and [www.natcensci.org/continuum.htm](http://www.natcensci.org/continuum.htm)). But scientists and science teachers need to teach more evolution and teach it better, and "better" includes keeping nonscientific ideas such as creation science, intelligent design, and philosophical materialism

out of the science class.

Behe claims that intelligent design is empirically detectable, but gives as an example only a statement asserting the similarity of a natural structure to a designed one. Indeed, a structure that functions to get something done can be said to be "designed" for that purpose, but this casual usage should not imply a designing agent, much less an intelligent one, and still less a supernatural one. Natural selection, a non-random but unintelligent mechanism, can also produce structures that function for a purpose, and as a natural mechanism, for scientific purposes, it is preferable over untestable supernatural ones.

I thank all those who took time to comment, and apologize for not responding personally to all.

**Eugenie C. Scott**

Executive Director, National Center for Science Education, Inc., 925 Kearney Street, El Cerrito, CA 94530-2810, USA. E-mail: [scott@natcensci.org](mailto:scott@natcensci.org)

### This Year's ...

The Random Samples item "Cosmic powerhouses" (7 Apr., p. 43) referred to Bohdani Paczyński and Li-Xin Li's explanation of how black holes use energy very efficiently as "a better model." This



**Discover**  
Application Solutions  
& Customer Support

[www.beckmancoulter.com/bio](http://www.beckmancoulter.com/bio)

products about us what's new contact us search home

**BECKMAN COULTER**

Innovate SIMPLIFY Automate

© 2000 Beckman Coulter, Inc.

Circle No. 24 on Readers' Service Card

is far from a unique instance of this use of the word "model." Although I haven't kept a written record, I know that within the past year alone I have seen "model" used as a substitute for any number of precise terms that would have clearly conveyed the writer's exact meaning.

In my more than 60 years as a scientist, I don't recall that my contemporaries or I ever used "model" except to refer to behavior, the annual influx of new automobiles, ladies and gentlemen who show off new clothes or pose for other purposes, or small replicas of sailboats, ships, airplanes, railroad trains, and the like.

Of course the vogue word/bandwagon phenomenon is nothing new, but it still amazes me. Hence this verse.

#### A MODEL Poem

What have you got, a theory?  
Hypothesis? A strategy?  
A peachy-keen analogy?  
Rest your brain  
With a quiet coddle,  
Join the crowd and call it a MODEL!

Do you itch to tell your latest scheme,  
Hunch, proposal, process, theme,  
Idea that boosts your self-esteem,  
And your brain can't sprint  
But only waddle?  
Join the crowd and call it a MODEL!

What's the word, a preparation?  
Notion? Plan? Sketch? Creation?  
Diagram? An explanation?

But if your brain can only  
Crawl or toddle,  
Join the crowd and just use MODEL!

Is "Design of an Experiment"  
The essence of your mind's intent?  
Words like those don't pay the rent!  
Why strain your brain  
For more than twaddle?  
Join the crowd and just use MODEL!

Protocol? System? Prototype?  
The word that's got the mostest hype  
To push a thought that's barely ripe?  
Don't sweat your  
Cliché-loaded noddle!  
Join the crowd and just use MODEL!

O, Muse of Science! Muse of each  
Kind of lucid, sparkling speech!  
How far do you think  
This prayer will reach?  
Bless'd be the day  
When even a clod'll  
Use his brain instead of MODEL!

Irving Rothchild\*

2441 Kenilworth Road, Cleveland Heights, OH  
44106, USA

\*Emeritus Professor of Reproductive Biology,  
Case Western Reserve University, Cleveland, OH,  
USA

CREDIT: TERRY SMITH

## FAST<sup>TM</sup> Slides

### MicroHybridization Kit

The NEW FAST Slides MicroHybridization Kit from S&S contains all of the components needed to detect microarrays quickly and simply.

- Kit contains enough material to perform 20 microarrays
- Buffers specifically designed for the FAST Slides and optimized for fluorescent detection
- Convenient, single-use hybridization chambers for best hybridization results
- The most consistent gridding surface
- More bound target produces the highest signal intensity



Item# 10 484 848

For more information visit our website at  
**www.arraying.com**, or contact an Arraying  
Specialists at **1-800-245-4024**.

## Schleicher & Schuell

Headquarters: Schleicher & Schuell GmbH • P.O. Box 4, D-37582 Dassel • Germany • Tel +49-5561-791-575 • Fax +49-5561-791-533 • [lifescience@s-und-s.de](mailto:lifescience@s-und-s.de)  
USA Headquarters: Schleicher & Schuell Inc. • 10 Optical Avenue • Keene, N.H. 03431 USA • Tel (603) 352-3810 • Fax (603) 357-7700 • [techserv@s-and-s.com](mailto:techserv@s-and-s.com)

Circle No. 54 on Readers' Service Card