



Understanding Evolution

Author(s): Michael J. Behe

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Pedestals and Glass Ceilings

In her editorial "Heroines and role models (19 July, p. 249)," Maxine Singer seems to be missing the point. Heroines are created to make us say: "Isn't she wonderful? I couldn't possibly be like that!" In other words, their function is to keep women out. By contrast, role models are supposed to make women and minorities think, "I could be like that," and so encourage us to try to come in. Of course, that doesn't do much for us either, because usually the problem is not that we don't try to enter, it's that we are kept out.

White males, who grow up surrounded by role models of every shape and size, may be able to afford heroes. I am not sure those of us who see very few people like us in places where we would like to be, can.

RUTH HUBBARD
Biological Laboratories,
Harvard University,
Cambridge, MA 02138

Maxine Singer is too pessimistic about the dearth of heroines and female role models. They abound, but not in the traditional places. Just take a look at my wife, Millie Hughes-Fulford, who has just come back from space in the Columbia shuttle. During her 7-year arduous training for SpaceLab Life Sciences-1 she kept her laboratory going, churned out papers, and gave pep talks at schools and the like.

Oh yes, she continued in her magnificent role as a mother and a wife, too.

Heroine? Role model? You bet. None better!

GEORGE A. FULFORD
218 Reed Circle,
Mill Valley, CA 94941

Understanding Evolution

The briefing about University of California, Berkeley, law professor Phillip E. Johnson's book *Darwin on Trial* (News & Comment, 26 July, p. 379) is a good illustration of the failure of the scientific community to follow its own advice about the perennial evolution controversy. Instead of simply addressing the skeptical arguments advanced in the book, the article relies on ad hominem remarks. It is pointed out that Johnson's religious views predispose him against naked materialism (although in his

book he states that he finds nothing a priori incredible in God's using Darwinistic evolution to produce life), and a science educator is trotted out to opine that Johnson misunderstands the scientific process. Johnson is also found guilty by association because Creationists like his book.

Well, now. It is also true that fascist governments have embraced Darwinism, that most scientists are not trained logicians, and that many commentators on evolution are predisposed in favor of naked materialism. But all of this is name calling and quite beside the point. In his book Johnson appears to be an interested, open-minded, and very intelligent layman who sees large conclusions drawn from little evidence, notices anomalies in current evolutionary explanations, and will draw his own conclusions, thank you, about the validity of Darwin's theory. A man like that deserves to be argued with, not condescended to.

The theory of evolution by natural selection is not a difficult concept to grasp, and Charles Darwin addressed *The Origin of Species* itself to a general audience. But neither is it self-evident to many people that natural selection can fully account for the world they observe. Thus when questions about the theory arise in public forums, the scientific community would do much better in the long run to patiently list supporting

facts and frankly admit where positive evidence is lacking, rather than paternalistically maintaining that an understanding of the theory of evolution is reserved for the priesthood of professional scientists.

MICHAEL J. BEHE
Department of Chemistry,
Lehigh University,
Mountaintop Campus III,
111 Research Drive, Building A,
Bethlehem, PA 18015

Immortal Sequence

Examination of nucleic acid and protein sequences compiled in computer databases has led to many significant findings of homology between sequences and shared sequence motifs among divergent organisms. We wish to report the discovery of a sequence motif of potentially great importance which is shared by proteins from a number of organisms. This motif consists of the amino acid sequence Glu-Lys-Val-Ile-Ser; or, in the one-letter amino acid code, "ELVIS."

We examined the Protein Identification Resource, National Biomedical Research Foundation (NBRF) protein database (release no. 26.0) using the FASTP algorithm

CALL FOR RESEARCH PROPOSALS

The **BIOTECHNOLOGY RISK ASSESSMENT PROGRAM** within the Office of Research and Development of the U.S. Environmental Protection Agency anticipates funding new **RESEARCH COOPERATIVE AGREEMENTS** in FY'92. Research must relate to the assessment of ecological risk associated with the environmental release of recombinant and non-recombinant bacteria, fungi, and viruses, including microbial and biochemical pest control agents. Three page preproposals identifying innovative research ideas and approaches in the research topics listed below are being sought. Preproposals should include research objectives, significance to risk assessment, and experimental approach. In addition, a time-frame for accomplishments, a budget (annual and total), and investigator(s) qualifications should accompany the preproposal. More than one preproposal may be submitted by an investigator or institution.

Research topics of interest are:

SURVIVAL AND COLONIZATION including (a) mechanisms of microbial survival and competition in the environment and (b) development of novel methods and mathematical models to assess the potential for survival, competition, and/or movement of microbes introduced into the environment.

GENE EXPRESSION AND TRANSFER including (a) novel methods to detect and characterize gene expression in the environment and processes involved in gene transfer, (b) development of new, sensitive methods using mRNA to detect gene exchange, (c) changes in genetic expression resulting from physical and/or environmental stress, (d) identification of reporter gene sequences that indicate gene expression or transfer from modified microorganisms including higher organisms and their natural waste materials, (e) establishment of the relative importance of various gene exchange mechanisms, especially transformation, as influenced by selected physical and ecological factors.

ECOLOGICAL EFFECTS studies to detect, measure, evaluate, or predict ecosystem-level effects of introduced microorganisms including changes to community composition, biodiversity, energy flow, nutrient cycling, and other physical/chemical properties. Studies are encouraged to investigate the effects of bioremediation agents.

RISK CONTROL strategies to biologically contain microorganisms once introduced into the environment and thereby reduce risk to the environment.

DETECTION including use of novel, stable markers for detecting/ enumerating microorganisms in the environment.

Preproposals will provide a competitive basis for requesting full proposals from selected sources. Limited resources may prevent funding research in all program areas. Questions of a technical nature should be directed to Dr. Richard Coffin at 904-934-9367. All preproposals must be sent (**postmarked no later than November 1, 1991**) to:

Biotechnology Risk Assessment Research Program
U.S. EPA Gulf Breeze Environmental Research Laboratory
Sabine Island
Gulf Breeze, FL 32561

A summary document describing current EPA biotechnology risk assessment research activities at the research laboratories at Gulf Breeze, Corvallis, Duluth, Las Vegas, Cincinnati and Research Triangle Park is also available from the above address.