

Publisher: Richard S. Nicholson
Editor-in-Chief: Floyd E. Bloom
Editor: Ellis Rubinstein
Managing Editor: Monica M. Bradford
Deputy Editors: Philip H. Abelson (*Engineering and Applied Sciences*); John I. Brauman (*Physical Sciences*); Thomas R. Cech (*Biological Sciences*)

Editorial Staff

Assistant Managing Editor: Dawn McCoy
Senior Editors: Eleanor Butz, R. Brooks Hanson, Pamela J. Hines, Barbara Jasny, Katrina L. Kelner, Paula A. Kiberstis, Linda J. Miller, L. Bryan Ray, Phillip D. Szurmi, David F. Voss
Associate Editors: Gilbert J. Chin, Suki Parks, Linda R. Rowan
Letters: Christine Gilbert, *Editor*; Steven S. Lapham, *Assistant Letters Editor*; Charlene King, *Assistant Book Reviews*; Katherine Livingston, *Editor*; Jeffrey Hearn, *Editorial Assistant*
Editing: Valerie Jablow, *Supervisor*; Cara Tate, *Senior Copy Editor*; Jeffrey E. Cook, Harry Jach, Erik G. Morris, Christine M. Pearce
Copy Desk: Ellen E. Murphy, *Supervisor*; Sherri Byrand, Joi S. Granger, Beverly Shields, Kameaka Williams, *Assistant*
Editorial Support: Carolyn Kyle, *Editorial Assistant*; Josh Lipicky, Diane Long, Patricia M. Moore, Ted Smith, *Manuscript Assistants*
Administrative Support: Sylvia Kihara, Brent Gendelman
Computer Specialist: Roman Frillarte

News Staff

News Editor: Colin Norman
Features Editor: Tim Appenzeller
Deputy News Editors: Elizabeth Culotta, Joshua Fischman, Jean Marx, Jeffrey Mervis
News & Comment/Research News Writers: Linda B. Felaco (copy), Constance Holden, Jocelyn Kaiser, Richard A. Kerr, Andrew Lawler, Eliot Marshall, Elizabeth Pennisi, Robert F. Service, Gretchen Vogel (intern)
Bureaus: Berkeley, CA: Marcia Barinaga; San Diego, CA: Jon Cohen; Chicago, IL: James Glanz; Boston, MA: Wade Roush
Contributing Correspondents: Barry A. Cipra, Ann Gibbons, Charles C. Mann, Anne Simon Moffat, Virginia Morell, Richard Stone, Gary Taubes
Administrative Support: Scherraine Mack, Fannie Groom

Production & Art Staff

Production: James Landry, *Director*; Wendy K. Shank, *Manager*; Lizabeth A. Harman, *Assistant Manager*; Daniel T. Helgerman, Cynthia M. Penny, *Associates*; Leslie Blizard, *Assistant*
Art: Amy Decker Henry, *Director*; C. Faber Smith, *Associate Director*; Katharine Sutliff, *Scientific Illustrator*; Holly Bishop, Elizabeth Carroll, *Graphics Associates*; Preston Morrighan, Patricia M. Riehn, *Graphics Assistants*
Technology Manager: Christopher J. Feldmeier

Science International: Europe Office

Editorial: Richard B. Gallagher, *Office Head and Senior Editor*; Stella M. Hurlley, Julia Uppenbrink, *Associate Editors*; Belinda Holden, *Editorial Associate*
News: Daniel Clery, *Editor*; Nigel Williams, *Correspondent*; Michael Balter (*Paris*), Patricia Kahn (*Heidelberg*), *Contributing Correspondents*
Administrative Support: Janet Mumford; Anna Sewell
Asia Office: Japan News Bureau; Dennis Normile; China Representative: Hao Xin

Science's Next Wave: <http://sci.aas.org/nextwave/>
Editor: John Benditt

EDITORIAL

Roads Not Taken, Yet

There has recently been an enormous increase in appeals—including a *Science* guest editorial*—to scientists to become activists in the political process. Unfortunately, this has been occasioned by the perceived threat to stable federal funding of science, not by a broader concern for the “polis.” Secretary of Health and Human Services Donna Shalala has said that activist scientists are rarer than the spotted owl. From the perspective of 30 years in the owlsh ranks, I wish to share with other scientists three conclusions.

First, don’t kid yourself. The public’s attitude toward science has enormous inertia; whatever you do will not have a measurable national impact for years. Second, contrary to all the emotional appeals, the United States is not in the grip of an antisience wave. By virtually every measure (for instance, the National Science Foundation’s Science Indicators) the U.S. public loves and respects science more than nearly every other profession, and to a greater degree than the public of any other Western nation. Third, really educating the public about what they are getting for their money is absolutely no guarantee that they will give us more. Funding for science will almost certainly decrease as decision-makers find out more about how it is really used.

At the 1995 State of the World Forum in San Francisco, my science section co-chair Arno Penzias, a Nobel Laureate in physics and former vice president of the now mutated Bell Labs, said that science cannot remain inwardly focused but must look outward to its national constituency. I agree, and am appalled at the political, social, and budgetary ignorance of the scientific community. It is at least the equal of the scientific illiteracy of the public. Moreover, I find it very disheartening that so few of us, the supposed fountainheads of invention, look out at the real world of deficits and cuts in social programs and then inward to improve our condition by our own actions and innovations.

Before scientists go before the public to persuade them to continue the lavish funding we have enjoyed for nearly five decades, they should prepare themselves for questions such as the following, which they will have to answer sooner or later: (i) The corporate world (not just U.S. companies) has decided that it gets little return from basic research that is unrelated to products and has cut it back drastically. Has academia faced up to a similar rebalancing? (ii) There is widespread agreement that the entire academic culture has emphasized research at the expense of teaching, but what attempts have been made to rectify this? (iii) How many of the research universities’ instrumental “Taj Mahals” would stand up to the scrutiny of the U.S. General Accounting Office in terms of cost-effectiveness or hours per week of use? The track record of the “sealing-wax-and-string” approach in really significant research being so good, can scientists not design systems that share capital equipment and use communications technologies—and thinking—more intensively? (iv) A great deal of the creative energy of faculty, young and old, is consumed by proposal management in the world’s most inefficient system for funding of research. Why not try modest experiments or radically redesign the system? (v) We can argue a plausible case before the public for mission-oriented science for defense, the environment, better transportation, more and cheaper energy, and so on. But what honest case can we make for funding totally undirected research at a level of several billion dollars per year? Why not privatize most support for research that is unconnected to useful products, through area-specific appeals such as the March of Dimes; or a check-off on an income tax form; or philanthropy from, for instance, the 100 or so billionaires who made their money from technology. I am certain that, freed from peer-group bureaucracy, such science would be much more creative.

When activist scientists have done their homework on questions such as these, they will be ready to enter the fray of public debate. I hope many will be moved by conviction and high moral purpose, not just by the desire for more research money, because the slings and arrows of peer jealousy and honest disagreement will not be long in coming.

Rustum Roy

The author is Evan Pugh Professor of the Solid State at The Pennsylvania State University, University Park, PA.
 *J. Daie, *Science* **272**, 1081 (1996).