

# SCIENCE

**Publisher:** Richard S. Nicholson  
**Editor-in-Chief:** Daniel E. Koshland Jr.  
**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 Bennett  
**Senior Editors:** Eleanore Butz, R. Brooks Hanson, Barbara Jasny, Katrina L. Kelnner, David Lindley, Linda J. Miller, Phillip D. Szurumi, David F. Voss  
**Associate Editors:** Gilbert J. Chin, Pamela J. Hines, Paula A. Kiberstis, Suki Parks, L. Bryan Ray  
**Letters:** Christine Gilbert, *Editor*; Steven S. Lapham  
**Book Reviews:** Katherine Livingston, *Editor*; Annette Theuring, *Assistant Editor*; Susan Randolph, *Editorial Assistant*  
**Contributing Editor:** Lawrence I. Grossman  
**Editing:** Valerie Jablow, Cara Tate, *Senior Copy Editors*; Douglas B. Casey, Harry Jach, Erik G. Morris, Christine M. Pearce  
**Copy Desk:** Ellen E. Murphy, *Supervisor*; Linda B. Felaco, Joi S. Granger, Beverly Shields, Melissa Q. Rosen, Kameaka Williams, *Assistant*  
**Editorial Support:** Sherryf Farmer, *Supervisor*; Linda Dienavs, Carolyn Kyle, Michele Listisard, Diane Long, Patricia M. Moore  
**Administrative Support:** Sylvia Kihara, Charlene King, Jeanette Prastein  
**Telephone:** 202-326-6501; **FAX:** 202-289-7562; **TDD:** 202-408-7770

## News Staff

**News Editor:** Colin Norman  
**Features Editor:** John M. Benditt  
**Deputy News Editors:** Tim Appenzeller, Joshua Fischman, Jean Marx, Jeffrey Mervis  
**News & Comment/Research News Writers:** Christopher Anderson, Faye Flam, Troy Gately, *copy*, Constance Holden, Richard A. Kerr, Eliot Marshall, Rachel Nowak, Richard Stone, Lisa Seachrist (*intern*)  
**U.S. Bureaus:** Marcia Barinaga (Berkeley), Jon Cohen (San Diego), Anne Simon Moffat (Chicago), John Travis (Boston)  
**Contributing Correspondents:** Joseph Alper, Barry A. Cipra, Robert Crease, Elizabeth Culotta, Ann Gibbons, Virginia Morell, Robert Pool, Leslie Roberts, Gary Taubes, M. Mitchell Waldrop  
**Administrative Support:** Fannie Groom, Jennifer Hodgkin  
**Telephone:** 202-326-6500; **FAX:** 202-371-9227

## Art & Production Staff

**Production:** James Landry, *Director*; Wendy K. Shank, *Manager*; Elizabeth A. Harman, *Assistant Manager*; Laura A. Creveling, Scherraine B. Mack, Linda C. Owens, *Associates*  
**Art:** Amy Decker Henry, *Director*; C. Faber Smith, *Associate Director*; Katharine Sutfitt, *Scientific Illustrator*; Holly Bishop, *Graphics Associate*; Elizabeth Carroll, *Graphics Assistant*; Leslie Blizard, *Assistant*

## Europe Office

**Senior Editor:** Richard B. Gallagher  
**Associate Editor:** Jeffrey Williams  
**News Editor:** Daniel Clery  
**Correspondent:** Peter Aldous  
**Editorial Associate:** Belinda Holden  
**Business Manager:** Julie Eastland  
**Marketing Manager:** Jane Pennington  
**Address:** Thomas House, George IV Street, Cambridge, UK CB2 1HH  
**Telephone:** (44) 0223 302067; **FAX:** (44) 0223 302068

## Science Editorial Board

Charles J. Amstzen	John J. Hopfield
Elizabeth E. Bailey	F. Clark Howell
David Baltimore	Paul A. Marks
J. Michael Bishop	Yasutomi Nishizuka
William F. Brinkman	Helen M. Ranney
E. Margaret Burbidge	Bengt Samuelsson
Pierre-Gilles de Gennes	Robert M. Solow
Joseph L. Goldstein	Edward C. Stone
Mary L. Good	James D. Watson
Harry B. Gray	Richard N. Zare

# EDITORIAL

## Strategic Goals on an NIH Model

Senator Barbara Mikulski's (D-MD) definition of "strategic goals" for research using the National Institutes of Health (NIH) model offers an opportunity for legislators and scientists to join forces and make research a productive ally in creating a better world (see Editorial of 11 February). What the country needs is no longer "a good cigar" but a good research policy for solving the problems of a complex and ever more overlapping ecosystem.

The NIH, with its stellar record of achievement in health research, is an excellent model for research on other frontiers. Numerous examples for government action immediately come to mind: (i) a National Institute of Transportation to help relieve the problems of clogged roads, deficit-ridden public transportation, and bankrupt airlines; (ii) a National Institute for the Environment [an expansion of an existing National Institute of Environmental Health Sciences (NIEHS)] to prevent species extinction, handle toxic wastes, get clean air, and prevent job losses; (iii) a National Institute for Immigration to examine in an imaginative and objective way the true costs and implications of immigration, to ease the path of immigrants, and to alleviate fears of job competition; (iv) a National Institute for Public Safety to replace bureaucratic and political positions on the roles of crime prevention, education, legalisms, and incarceration with good data and investigator-initiated ideas; and (v) a National Institute for Defense to open up this area of research in a world in which terrorism and small wars may be more of a threat than superpower war. Much research is already under way in many of these areas, but many are not organized according to the successful formula of continuity and investigator-initiated emphasis of NIH.

The model of a long-term goal designed around largely investigator-initiated research is a tried and true formula that has worked in the past. The success of NIH, contrasted with the dismal failure of the Superfund (which had little research or scientific input), is a case history for all who need to learn the lesson of making policy without scientific input. If government officials want to solve some of these very difficult problems, they can do so with policy that uses scientific, not emotional, standards. Investigator-initiated ideas should be welcomed even if they fly in the face of conventional wisdom and should be discarded out of hand only if juries of peers consider them scientifically impossible. Needless to say, a superficially attractive idea may be given a lower priority after more in-depth review, but the unconventional view should be welcomed until careful analysis indicates its impracticality. Much of the emotion in the current immigration debate might be defused by a careful study of the fate of immigrants, their contributions as well as their costs to society, the problems of language, and so forth. Research has already ranged from a minor role in the Environmental Protection Agency (EPA) to a stronger role in defense research and is recognized as a major player in such complex areas as industrial competitiveness and immigration policy.

But can science and government work more effectively together? The recent National Academy of Sciences-sponsored meeting of officials from the EPA with university administrators, industrial leaders, and bench scientists, in which a constructive spirit of "what can we do" rather than "you're to blame" prevailed, is an indication that it can be done. Other agencies of government with great global problems still seem to think a busy person with preconceived ideas and no research support can solve a problem such as drugs or crime and then they are puzzled when the programs fail. Polio would still be a disease without a vaccine if that had been the approach.

If we developed a goal-oriented but investigator-implemented structure in areas of direct national needs following Senator Mikulski's concept, perhaps it is appropriate to select one institute that is designed for those ultimate national goals that no one can predict in advance—the x-rays, the penicillins, the genetic code, the wireless, and the  $E = mc^2$  that opened up new vistas. That institute should be called the National Science Foundation.

If the research is to flower, a strong investigator-initiated atmosphere on the NIH model must be generated by other government agencies and a willingness for flexibility and adventure must be the attitude of scientists. *Homo sapiens* has achieved unbelievable control over the world by innovation and flexibility. As a result we have a population explosion that creates new problems, but these can be solved if we proceed rationally. It is time to see if *Homo sapiens* can now devise social structures to match their mountainous problems.

Daniel E. Koshland Jr.