SCIENCE ●http://www.sciencemag.org

**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:** Eleanore Butz, R. Brooks Hanson, Pamela J. Hines, Barbara Jasny, Katrina L. Kelner, Paula A. Kiberstis, Linda J. Miller, L. Bryan Ray, Phillip D. Szuromi, David F. Voss
**Associate Editors:** Gilbert J. Chin, Suki Parks, Linda R. Rowan
**Letters:** Christine Gilbert, *Editor;* Steven S. Lapham, *Associate Letters Editor;* Charlene King, *Assistant*
**Book Reviews:** Katherine Livingston, *Editor;* Jeffrey Hearn, *Editorial Assistant*
**Editing:** Erik G. Morris, Cara Tate, *Senior Copy Editors;* Jeffrey E. Cook, Harry Jach, Joshua Marcy, 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;* Andrew Goldstein, Josh Lipicky, Diane Long, Patricia M. Moore, Ted Smith, Anita Wynn, *Manuscript Assistants*
**Administrative Support:** Sylvia Kihara, Brent Gendleman
**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. Hurtley, 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.aaas.org/nextwave/**
**Editor:** John Benditt

# EDITORIAL

## Mortgaging Science's Future

The prospect of cutbacks in federal funding of research has provoked a strong and largely successful defense by the scientific community. However, our advocacy has laid bare our priorities, and advancing the next generation of scientists is not among them. Unless we take deliberate steps to make sure money and mechanisms are available for training and supporting new investigators—even if that means less money for today's investigators—we are in danger of mortgaging research's future for our own current spending.

Maybe nobody sets out to overlook training, but it is almost invariably an afterthought. When federal agency officials and science advocates take to Capitol Hill, they describe the excitement of the Human Genome Project, they show pictures of the brain at work, they offer a peek through the Hubble Space Telescope. Of course these things should be promoted, but so must the research training that gave us the scientists who mapped those genes, traced those brain mechanisms, and discovered those stars.

The scientists who grew up under the first federal training programs are now the leaders of the science establishment. More than anyone, they should be attuned to the need for a strong federal commitment to training. In their hearts, they know it. Federal agency heads have told me that there may not be enough researchers in the future to continue their agency's mission in historically high-quality ways. However, that is not what they tell Congress. Research training, they tell me, is not what Congress wants to hear about.

By tailoring our message in this way, we put science on the same plane with every other special interest vying for a piece of the federal pie, and that's not good enough. We need to speak for the next generation, tell Congress what their needs are, and convince Congress of the importance of those priorities, even if they don't want to hear it.

It's true, Congress does not want to fund more research training. "Now let me get this straight, Doctor," they say. "Five NIH [National Institutes of Health] directors were just here begging for more money because only 15% of their approved grants are going to be funded this year. And you want me to do what? Add more people to that competition?"

Not exactly. This is not about more money for established competitors. We must invest in the next few generations of scientists. They are the ones who will build on current research to find the cure for AIDS or Alzheimer's, to prevent schizophrenia, or to create tomorrow's miracle metals. We should be as excited about bringing the best new minds to bear on these issues as we are about any current accomplishment.

Blindly pumping money into existing training mechanisms is not the answer; money for training should not be used to augment current science with research assistants cast in our own image. To encourage talented people to work in areas of national importance and to move in promising directions, we need to rethink the nuts-and-bolts mechanisms in ways that recognize the needs of young investigators at different stages of their careers. To give one example, in my field, psychology, a new mechanism is allowing young Ph.D.'s to collect pilot data while learning how things work at NIH. Known as B/START (Behavioral Science Track Awards for Rapid Transition), these grants are designed to reverse the "graying" of the field and support new investigators in their transition to independent research, a difficult juncture in a scientist's career.

We need to examine and reexamine such issues as mentoring; making training money portable so investigators can work in different settings; making multidisciplinary training deliberate; injecting new perspectives into training even where it is discipline specific; breaking down barriers between basic, clinical, and applied research; and many more.

On a broader scale, we need to initiate with policy-makers a new national training strategy, one that articulates a strong federal role in producing and supporting young researchers—*for their sakes, not ours. It will not be easy: Adopting a national training strategy* may require something on the order of a culture change within science. However, if training continues to be a marginal consideration, we are virtually guaranteeing a future work force less qualified than what we have now. Both science and the nation deserve better.

**Alan G. Kraut**

The author is the executive director of the American Psychological Society. E-mail: akraut@aps.washington.dc.us