

## American Association for the Advancement of Science

*Science* serves its readers as a forum for the presentation and discussion of important issues related to the advancement of science, including the presentation of minority or conflicting points of view, rather than by publishing only material on which a consensus has been reached. Accordingly, all articles published in *Science*—including editorials, news and comment, and book reviews—are signed and reflect the individual views of the authors and not official points of view adopted by the AAAS or the institutions with which the authors are affiliated.

**Publisher:** Alvin W. Trivelpiece

**Editor:** Daniel E. Koshland, Jr.

**Deputy Editors:** Philip H. Abelson (*Engineering and Applied Sciences*); John I. Brauman (*Physical Sciences*)

## EDITORIAL STAFF

**Managing Editor:** Patricia A. Morgan

**Assistant Managing Editors:** Nancy J. Hartnagel, John E. Ringle

**Senior Editors:** Eleanore Butz, Ruth Kulstad

**Associate Editors:** Martha Collins, Barbara Jasny, Katrina L.

Kelner, Edith Meyers, Phillip D. Szuroni, David F. Voss

**Letters Editor:** Christine Gilbert

**Book Reviews:** Katherine Livingston, *editor*; Deborah F. Washburn

**This Week in Science:** Ruth Levy Guyer

**Contributing Editor:** Lawrence I. Grossman

**Chief Production Editor:** Ellen E. Murphy

**Editing Department:** Lois Schmitt, *head*; Mary McDaniel, Barbara E. Patterson

**Copy Desk:** Lyle L. Green, Sharon Ryan, Beverly Shields, Anna Victorreen

**Production Manager:** Karen Schools

**Assistant Production Manager:** James Landry

**Graphics and Production:** Holly Bishop, Kathleen Cosimano, Eleanor Warner

**Covers Editor:** Grayce Finger

**Manuscript Systems Analyst:** William Carter

## NEWS STAFF

**News Editor:** Barbara J. Culliton

**News and Comment:** Colin Norman, *deputy editor*; Mark H. Crawford, Constance Holden, Eliot Marshall, Marjorie Sun, John Walsh

**Research News:** Roger Lewin, *deputy editor*; Deborah M. Barnes, Richard A. Kerr, Gina Kolata, Jean L. Marx, Arthur L. Robinson, M. Mitchell Waldrop

**European Correspondent:** David Dickson

## BUSINESS STAFF

**Associate Publisher:** William M. Miller, III

**Business Staff Manager:** Deborah Rivera-Wienhold

**Membership Recruitment:** Gwendolyn Huddle

**Member and Subscription Records:** Ann Ragland

**Guide to Biotechnology Products and Instruments:** Shauna S. Roberts

## ADVERTISING REPRESENTATIVES

**Director:** Earl J. Scherago

**Production Manager:** Donna Rivera

**Advertising Sales Manager:** Richard L. Charles

**Marketing Manager:** Herbert L. Burkland

**Sales:** New York, NY 10036: J. Kevin Henebry, 1515 Broadway (212-730-1050); Scotch Plains, NJ 07076: C. Richard Callis, 12 Unami Lane (201-889-4873); Chicago, IL 60611: Jack Ryan, Room 2107, 919 N. Michigan Ave. (312-337-4973); San Jose, CA 95112: Bob Brindley, 310 S. 16 St. (408-998-4690); Dorset, VT 05251: Fred W. Dieffenbach, Kent Hill Rd. (802-867-5581); Damascus, MD 20872: Rick Sommer, 24808 Shrubbery Hill Ct. (301-972-9270); U.K., Europe: Nick Jones, +44(0)647/52918; Telex 42513; FAX (0392) 31645.

**Information for contributors** appears on page xi of the 27 March 1987 issue. Editorial correspondence, including requests for permission to reprint and reprint orders, should be sent to 1333 H Street, NW, Washington, DC 20005. Telephone: 202-326-6500.

Advertising correspondence should be sent to Tenth Floor, 1515 Broadway, NY 10036. Telephone 212-730-1050 or WU Telex 968082 SCHERAGO.

## Ice Minus and Jobs Minus

The coincidence of an actual field test of a genetically engineered organism with the arrival in Washington of Prime Minister Yasuhiro Nakasone to discuss trade imbalances generated some cerebral turbulence. The field test occurred 4 years after a committee of experts of the National Institutes of Health had declared the experiment safe. The delay was caused by lawsuits, hearings, and court appeals in various localities. As Russell Baker commented, the country is "dying of terminal jurisprudence."

To be fair, scientists are not being discriminated against selectively. Litigious delays are inflicted with magnificent sameness upon baseball teams, malpractice cases, antitrust suits, and worker injuries, to name a few other examples. Moreover, any reader of newspapers is well aware that cases usually travel by multiple appeals through ever ascending courts until the Supreme Court settles the matter, at least temporarily. The testing of the "ice minus" organisms, however, is illustrative of the special problems of scientists. Of all organisms that scientists plan to release into the environment, this is probably one of the safest. It already exists in nature in a slightly different form, and the natural form has been shown not to take over in preference to existing species. The engineering involved the removal of a protein, not the addition of one. In the interminable legal delays, not one serious scientific fact was added to the initial body presented to the NIH committee. Judges can, and indeed do, throw cases out of court for lack of merit. But in these cases, presumably public outcry generated by mediawise groups convinced judges to consider seriously issues that had little scientific substance. The question arises whether that is a good way to proceed and whether in an increasingly competitive world, the United States can afford such leisurely undertakings.

Scientists have an obligation to inform the public, particularly when a new and mysterious technology is introduced. But the public also has some responsibility to make minimal efforts to learn. In some of the media accounts it was implied that local groups knew nothing about what was going to happen because the scientists had not come and personally explained the experiment. Yet, newspapers these days contain stories explaining the uses of recombinant DNA in a variety of medical, scientific, and agricultural advances. The need for the federal government to avoid multiple considerations of the same subject was discussed (Editorial, 2 May 1986, p. 561) and to a large extent Washington has done just that. The next question is whether the post-Washington period can be streamlined not just for recombinant DNA, but also for other complex scientific subjects.

The time may have arrived when specialized judges with scientific training are a necessity. We are living in an increasingly technological society, and increasing numbers of lawsuits involve matters in which a rudimentary knowledge of science is essential. Lawyers specialize in areas such as commercial law, family law, tax law, and patent law, and in certain cases judges with specialized knowledge can be requested by mutual consent of the litigants. The concept of a judiciary some of whom are trained in scientific methods and to whom cases are routinely assigned is even more appropriate to our times. The administration could have many forms, from a deliberate introduction of a certain fraction of scientifically oriented judges per state to a few central locations in which a scientifically trained judiciary was used as a referral service for scientific cases.

The argument that local conditions will require local hearings is reasonable if there are local specifics relevant to the case. The arguments made on television and in the newspapers by opponents of the "ice minus" tests were the usual ones of "this experiment represents the first step in biological warfare," "the chance of an Andromeda strain," and "danger of an uncontrolled spread in the environment." The particular environmental conditions of Monterey versus Napa Valley versus Contra Costa County were not factors and yet each locality required hearings. Public forums are desirable in all cases, but new legal actions are not a necessary concomitant of better education.

The introduction of new organisms into the environment is a serious matter, and some future ones will require much more serious deliberation than the "ice minus" debate. The NIH committee by law contains both experts and public representatives. But repetition of the same arguments at ever lower levels of sophistication cannot ensure additional safety. These litigious delays can only lead scientific industries to select more future-oriented countries. The hazards will go but so will the jobs.—DANIEL E. KOSHLAND, JR.