

# 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.

## Editorial Board

1977: WARD GOODENOUGH, CLIFFORD GROBSTEIN, H. S. GUTOWSKY, N. BRUCE HANNAY, DONALD KENNEDY, NEAL E. MILLER, RAYMOND H. THOMPSON  
1978: RICHARD E. BALZHISER, JAMES F. CROW, HANS LANDSBERG, EDWARD NEY, FRANK W. PUTNAM, MAXINE SINGER, PAUL E. WAGGONER, F. KARL WILLENBROCK

## Publisher

WILLIAM D. CAREY

## Editor

PHILIP H. ABELSON

## Editorial Staff

**Managing Editor** ROBERT V. ORMES  
**Business Manager** HANS NUSSBAUM  
**Assistant Managing Editor** JOHN E. RINGLE  
**Production Editor** ELLEN E. MURPHY

**News and Comment:** BARBARA J. CULLITON, *Editor*; PHILIP M. BOFFEY, LUTHER J. CARTER, CONSTANCE HOLDEN, DEBORAH SHAPLEY, NICHOLAS WADE, JOHN WALSH, *Editorial Assistant*, SCHERRAINE MACK

**Research News:** ALLEN L. HAMMOND, *Editor*; GINA BARI KOLATA, JEAN L. MARX, THOMAS H. MAUGH II, WILLIAM D. METZ, ARTHUR L. ROBINSON, *Editorial Assistant*, FANNIE GROOM

**Associate Editors:** ELEANORE BUTZ, MARY DORFMAN, SYLVIA EBERHART, JUDITH GOTTLIEB

**Assistant Editors:** CAITILIN GORDON, RUTH KULSTAD, LOIS SCHMITT

**Book Reviews:** KATHERINE LIVINGSTON, *Editor*; LINDA HEISERMAN, JANET KEGG

**Letters:** CHRISTINE KARLIK

**Copy Editors:** ISABELLA BOULDIN, OLIVER HEATWOLE

**Production:** NANCY HARTNAGEL, JOHN BAKER; YA LI SWIGART, ELEANOR WARNER; JEAN ROCKWOOD, LEAH RYAN, SHARON RYAN

**Covers, Reprints, and Permissions:** GRAYCE FINGER, *Editor*; CORRINE HARRIS, MARGARET LLOYD

**Guide to Scientific Instruments:** RICHARD SOMMER

**Assistant to the Editors:** RICHARD SEMIKLOSE

**Membership Recruitment:** GWENDOLYN HUDDLE

**Member and Subscription Records:** ANN RAGLAND

**EDITORIAL CORRESPONDENCE:** 1515 Massachusetts Ave., NW, Washington, D.C. 20005. Area code 202. General Editorial Office, 467-4350; Book Reviews, 467-4367; Guide to Scientific Instrument, 467-4480; News and Comment, 467-4430; Reprints and Permissions, 467-4483; Research News, 467-4321; Cable: *Advancesci*, Washington. For "Instructions for Contributors," write the editorial office or see page xi, *Science*, 26 March 1976.

**BUSINESS CORRESPONDENCE:** Area Code 202. Business Office, 467-4411; Circulation, 467-4417.

## Advertising Representatives

**Director:** EARL J. SCHERAGO

**Production Manager:** MARGARET STERLING

**Advertising Sales Manager:** RICHARD L. CHARLES

**Sales:** NEW YORK, N.Y. 10036: Herbert L. Burkland, 11 W. 42 St. (212-PE-6-1858); SCOTCH PLAINS, N.J. 07076: C. Richard Callis, 12 Unami Lane (201-889-4873); CHICAGO, ILL. 60611: Jack Ryan, Room 2107, 919 N. Michigan Ave. (312-DE-7-4973); BEVERLY HILLS, CALIF. 90211: Winn Nance, 111 N. La Cienega Blvd. (213-657-2772); DORSET, VT. 05251: Fred W. Dieffenbach, Kent Hill Rd. (802-867-5581)

**ADVERTISING CORRESPONDENCE:** Room 1740, 11 W. 42 St., New York, N.Y. 10036. Phone: 212-PE-6-1858.

# Federal Reorganization: Science and Technology

As plans for the reorganization of the government are drafted and redrafted, rumors about changes in the organization of science and technology programs abound. It seems timely, therefore, to consider some general principles of organization and management in relation to science and technology in government which should be kept in mind as new arrangements are sought.

*Mission agencies need strong R & D programs.* The vast majority of federally supported R & D activities is intended to enhance specific policy goals. There are few policy missions, if any, that will not benefit from a well-designed research program. This includes research and development proper as well as policy and evaluation research. It also includes development of institutional linkages for diffusion and extension and, where appropriate, social demonstrations. Both programmatic and regulatory agencies need R & D activities directly related to their policy missions.

*Mission agencies need their own science policies.* There is no single model for organizing and managing an agency's R & D program, for the appropriate mix of private and public involvement, for the use of internal or external R & D capabilities, for establishing linkages between policy planning, program implementation, and the R & D function. What makes sense in the case of Defense is unlikely to work in Agriculture, and vice versa. Agencies must learn from each other, but there is no substitute for developing agency-specific R & D strategies in response to agency-specific responsibilities and environments.

*Mission agencies need basic research.* R & D programs of individual mission agencies must not be restricted to applied work or to exclusive concern with short-term solutions. Mission agencies, instead, must be organized and funded in such ways that they can support basic research in their broad areas of responsibility. Without such a policy the research work of agencies will become stale.

*A central science policy capability is needed.* Science advice for presidential decision-making will take on different organizational forms under different Presidents and for different issues. However, it would be a grave mistake if the need for a strong science policy capability had to be rediscovered every few years. The range of issues to be decided by the President, many of them with important scientific and technological components, requires a stable White House capability with access to the best available scientific and technical information.

*Promotion and regulation should be separate.* We have learned, over time, that the two functions of promoting and regulating innovation should not be kept under the same organizational roof. The recent congressional decision providing for separate organizations responsible for promotion of new energy sources and for regulation of safety and impact indicates the direction to follow.

*Administrative controls must not become ends in themselves.* There should be more emphasis on quality control of work proposed or completed and less concern with administrative red tape. With regard to quality control, recent studies support the claim that peer review ensures high standards of performance in scientific research. Agencies should extend the areas of funding decisions subjected to peer review. Other forms of administrative control tend to become counterproductive. There is disturbing evidence that increased reporting requirements and tacked-on civil rights and equal opportunity rules, however well intended, result in formalistic arrangements which endanger creativity and the willingness to take risks. Unless this trend can be reversed and a bond of mutual trust is rebuilt between those funding R & D activities and those performing these tasks, we will pay the same high price in reduced originality and productivity that other nations have paid before.—JURGEN SCHMANDT, *Lyndon B. Johnson School of Public Affairs, University of Texas, Austin 78712*