AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Science serves its readers as a forum for the pre-sentation 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 1976

Frank Press Frank W. Putnam Maxine Singer

ARTHUR M. SQUIRES

Donald Kennedy Neal E. Miller Raymond H. Thompson

Alfred E. Brown James F. Crow HANS LANDSBERG EDWARD NEY

WARD GOODENOUGH CLIFFORD GROBSTEIN H. S. GUTOWSKY N. BRUCE HANNAY

Publisher

Editorial Staff

1073

Editor Philip H. Abelson

Business Manager Hans Nussbaum WILLIAM D. CAREY

Managing Editor: ROBERT V. ORMES

Assistant Editors: ELLEN E. MURPHY, JOHN E. RINGLE

Assistant to the Editors: RICHARD SEMIKLOSE

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

Research News: Allen L. Hammond, William D. Metz, Thomas H. Maugh II, Jean L. Marx, Arthur L. Robinson, Gina Bari Kolata, Fannie Groom

Book Reviews: KATHERINE LIVINGSTONE, LYNN MANFIELD, JANET KEGG

Cover Editor: GRAYCE FINGER

Editorial Assistants: JOHN BAKER, ISABELLA BOUL-DIN, MARGARET BURESCH, ELEANORE BUTZ, MARY DIR, MARGAREI DURESCH, ELEANORE DUIZ, MARY Dorfman, Sylvia Eberhart, Judith Givelber, Caitilin Gordon, Corrine Harris, Nancy Hart-nagel, Oliver Heatwole, Christine Karlik, Mar-Garet Lloyd, Jean Rockwood, Leah Ryan, Lois Schmitt, Ya Li Swigart, Eleanor Warner

Guide to Scientific Instruments: RICHARD SOMMER

Membership Recruitment: GWENDOLYN HUDDLE; Subscription Records and Member Records: ANN RAG-LAND

Advertising Staff

Director	P roduction Manager
Earl J. Scherago	MARGARET STERLING

Advertising Sales Manager: RICHARD L. CHARLES Sales: New YORK, N.Y. 10036: Herbert L. Burklund, 11 W. 42 St. (212-PE-6-1858); SCOTCH PLAINS, N.J. 07076: C. Richard Callis, 12 Unami Lane (201-889-4873); CHI-CAGO, ILL. 60611: Jack Ryan, Room 2107, 919 N. Mich-igan Ave. (312-DE-7-4973); BEVERLY HILLS, CALIF. 90211: Winn Nance, 11 N. La Cienega Blvd, (213-657-2772); DORSET VT. 05251: Fred W. Dieffenbach, Kent Hill Rd. (802-867-5581) EDITORIAL CORRESPONDENCE. 1515 Magnetic

EDITORIAL (802-867-5581) EDITORIAL CORRESPONDENCE: 1515 Massachu-setts Ave., NW, Washington, D.C. 20005. Phones: (Area Code 202) Central Office: 467-4350; Book Re-views: 467-4367; Business Office: 467-4411; Circulation: views: 467-4367; Business Office: 467-4411; Circulation: 467-4417; Guide to Scientific Instruments: 467-4480; News and Comment: 467-4430; Reprints and Permissions: 467-4483; Research News: 467-4321; Reviewing: 467-4443. Cable: Advancesci, Washington. Copies of "Instructions for Contributors" can be obtained from the editorial office. See also page xi, *Science*, 26 March 1976. ADVERTISING CORRESPONDENCE: Room 1740, 11 W. 42 St., New York, N.Y. 10036. Phone: 212-PE-6-1858.

R&D in the New Budget System

Innovations in federal public management are usually triggered by trouble of one sort or other. It is a classic and immutable sequence and worth thinking about amidst the congratulatory ceremonies of a bicentennial year.

SCIENCE

Reform of government's budgeting methods, 55 long years after the executive budget was first introduced, is coming about not because of the tedious parade of annual deficits, but because of bitter quarrels between Presidents and the Congress over fiscal responsibility. Congress came to realize that it had yielded too much budgetary power to the executive, and is bent on putting matters to rights. What is emerging is a complicated budget control system. Strict limits on spending are to be self-imposed each year by the Congress in order to enforce fiscal discipline based on appraisals of the national economy and the relationships between ends and means. When the means are insufficient to the ends, the Congress will have to cut the cloth or face the necessity for higher taxes rather than the easy road of deficit budgeting

All this is of more than academic interest to the scientific and technical communities. Disciplined budgeting has its price, and part of the price is a more competitive and risky context for the claims of research and development. The good old days of incremental bargaining and friends at court are on their way out. Henceforth it will be futile to try to shoehorn a little more of this or that into the annual budget as it makes its tormented journey through the two houses of Congress. The scientific community, along with other unwary clienteles, will have to awaken to the news that the government's budgets are being made up with different rules. Hereafter the dimensions and the mix will be locked into place well in advance of the budget year. We are now in the transitional quarter between fiscal '76 and'77, but the budget for 1978 is already on the drawing boards, and if the 1979 budget amounts are to be affected on behalf of R & D priorities, the time is already at hand.

It is now clear that there is no such thing as "the R & D budget." Except for the National Aeronautics and Space Administration, the Energy Research and Development Administration, and the National Science Foundation, government agencies treat research and development as subordinate elements in their program budgets. This means that the final amounts announced for research and development are an after-the-fact compilation derived painfully from a multitude of program and functional decisions. This is scarcely calculated to raise much consciousness on behalf of research and development in the Congress as the Battle of the Budget wears on.

These and other facts of life came out on 15 and 16 June at the first AAAS Colloquium on Research and Development in the Federal Budget. Some 200 persons assembled in Washington on short notice to examine the public policy problems in budgeting for research and development. They came from the White House, the Congress, government agencies, universities, industry, the media, and state and local government. A landmark AAAS report by Willis Shapley for the Committee on Science and Public Policy (to be published in August 1976) served both to demolish lingering myths and pose issues for the future. For once, all of the concerned parties were brought together in a lively exchange. If there were more questions than answers, most participants went home having learned something worth knowing.

Henceforth the merits of R & D as claimants on an embattled budget will have to be articulated more convincingly than in the past. Choices at the margins will be made on pragmatic rather than altruistic grounds, whether we like it or not. Congress and the Office of Management and Budget need help in making a strong case for the advancement of science. The AAAS Colloquium broke new ground, but it was only a beginning. To imagine that the future of scientific research can be left to faith, hope, and charity is to miscalculate the public policy climate.-WILLIAM D. CAREY