

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

1969

EMIL HAURY	KENNETH S. PITZER
WILLARD F. LIBBY	ALEXANDER RICH
EVERETT I. MENDELSON	CLARENCE M. ZENER
JOHN R. PIERCE	

1970

GUSTAF O. ARRHENIUS	RICHARD C. LEWONTIN
FRED R. EGGAN	ALFRED O. C. NIER
HARRY F. HARLOW	FRANK W. PUTNAM
MILTON HARRIS	

Editorial Staff

Editor

PHILIP H. ABELSON

Publisher

DAEL WOLFLE

Business Manager

HANS NUSSBAUM

Managing Editor: ROBERT V. ORMES

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

Assistant to the Editor: NANCY TEIMOURIAN

News Editor: JOHN WALSH

Foreign Editor: DANIEL S. GREENBERG*

News and Comment: LUTHER J. CARTER, PHILIP M. BOFFEY, JOEL R. KRAMER, ANDREW HAMILTON, NANCY GRUCHOW, SCHERRAINE MACK

Research Topics: ROBERT W. HOLCOMB

Book Reviews: SYLVIA EBERHART

Editorial Assistants: JOANNE BELK, ISABELLA BOULDIN, ELEANORE BUTZ, LINDA FARMER, GRAYCE FINGER, NANCY HAMILTON, OLIVER HEATWOLE, ANNE HOLDSWORTH, PAULA LECKY, KATHERINE LIVINGSTON, VIRGINIA NUESSELE, PATRICIA ROWE, LEAH RYAN, LOIS SCHMITT, BARBARA SHEFFER, RICHARD SOMMER, YA LI SWIGART, ALICE THEILE, MARLENE TUCKER

* *European Office:* 22 Mulberry Walk, London, S.W. 3, England (Telephone: 352-9749)

Advertising Staff

Director

EARL J. SCHERAGO

Production Manager

KAY GOLDSTEIN

Advertising Sales Manager: RICHARD L. CHARLES

Sales: NEW YORK, N.Y. 10036: Robert S. Bugbee, 11 W. 42 St. (212-PE-6-1858); SCOTCH PLAINS, N.J. 07076: C. Richard Callis, 12 Unami Lane (201-889-4873); MEDFIELD, MASS. 02052: Richard M. Ezequelle, 4 Rolling Lane (617-444-1439); CHICAGO, ILL. 60611: Herbert L. Burkland, Room 2107, 919 N. Michigan Ave. (312-DE-7-4973); BEVERLY HILLS, CALIF. 90211: Winn Nance, 111 N. La Cienega Blvd. (213-657-2772)

EDITORIAL CORRESPONDENCE: 1515 Massachusetts Ave., NW, Washington, D.C. 20005. Phone: 202-387-7171. Cable: Advancesci, Washington. Copies of "Instructions for Contributors" can be obtained from the editorial office. See also page 7, *Science*, 4 July 1969. ADVERTISING CORRESPONDENCE: Rm. 1740, 11 W. 42 St., New York, N.Y. 10036. Phone: 212-PE-6-1858.

Assessing Technology

The National Academy of Sciences (*Science*, 5 September 1969) and the National Academy of Engineering (*Science*, 14 November 1969) have independently responded to a congressional request for advice on the possibility of analyzing in advance the benefits and the risks of exploiting new technological capabilities. The reports differ considerably in content and style, but agree that technology assessment is feasible. Neither, however, makes the job sound easy; analyzing the probable consequences of a proposed development will require an extensive amount of scientific, technological, and social information, the explicit formulation of assumptions concerning the future, and a substantial amount of work by a group of experts from several disciplines. The two studies also agree that the proposal is highly desirable and relatively inexpensive.

A good deal of technology assessment is already conducted by industry, government regulatory bodies, such agencies as the AEC, and organizations that seek to protect environmental and human values. The NAE and NAS reports expect these efforts to continue. What they recommend is an additional level of assessment—one that would work for the nation as a whole rather than for any special interest; one that could take account of the economic, human, and environmental values involved as well as the values of an advocate or an opponent; and one that could then render a comprehensive and impartial judgment of the probable secondary and tertiary as well as primary consequences of a proposed technological development or of alternative means of solving a particular problem.

The assessing agency should stop at this point, leaving decisions to the politically responsible executive and legislative agencies. Nevertheless, because every problem it took up would be controversial, it is important that the assessment agency be well insulated from political pressures. Yet if its reports are to be influential, it should be as close to the centers of congressional and executive power as possible. This organizational dilemma will be considered by the House Committee on Science and Astronautics in hearings later this year.

There are several ways in which the organizational problem might be solved, but none may have a chance to be tried out. Any proposed program of technology assessment will threaten the freedom of action of those interests whose plans and proposals would be subject to review. If this opposition can be overcome, the country will have gained a better means of using scientific and technological advice than it now has. On such matters as drugs, pollution, defense, and environmental problems, scientists and technologists frequently disagree. Congress, the executive agencies, and an often bewildered public must then decide whose advice to follow. A technology assessment program would not stop disagreements. But the varied individual judgments would be appraised by a panel of experts from different disciplines who would consider the evidence, the competing arguments, and the values involved, and would then publish their best judgment as to what would happen if one or another course of action were to be followed.

Such objective assessments could raise the level of public debate about the desirability and risks of new technology. The NAE and NAS reports can raise the level of discussion of how to go about the business of developing this national competency.—DAEL WOLFLE

Science

Assessing Technology

Dael Wolfle

Science **166** (3908), 951.
DOI: 10.1126/science.166.3908.951

ARTICLE TOOLS <http://science.sciencemag.org/content/166/3908/951.citation>

PERMISSIONS <http://www.sciencemag.org/help/reprints-and-permissions>

Use of this article is subject to the [Terms of Service](#)

Science (print ISSN 0036-8075; online ISSN 1095-9203) is published by the American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005. The title *Science* is a registered trademark of AAAS.

Copyright © 1969 The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works.