# SCIENCE

## 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 ad-vancement of science, including the presentation of mi-nority or conflicting points of view, rather than by pub-lishing 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**

1980: RICHARD E. BALZHISER, WALLACE S. BROECK-ER, CLEMENT L. MARKERT, FRANK W. PUTNAM, BRY-ANT W. ROSSITER, VERA C. RUBIN, MAXINE F. SINGER, PAUL E. WAGGONER, F. KARL WILLENBROCK 1981: PETER BELL, BRYCE CRAWFORD, JR., E. PETER GEIDUSCHEK, EMIL W. HAURY, SALLY GREGORY KOHLSTEDT, MANCUR OLSON, PETER H. RAVEN, WIL-THAN D. SUCHTER FREDERIC G. WORDEN

LIAM P. SLICHTER, FREDERIC G. WORDEN

Publisher

## WILLIAM D. CAREY

### Editor

#### PHILIP H. ABELSON **Editorial Staff**

Managing Editor ROBERT V. ORMES Assistant Managing Editor JOHN E. RINGLE

Business Manager HANS NUSSBAUM Production Editor ELLEN E. MURPHY

News Editor: BARBARA J. CULLITON News and Comment: WILLIAM J. BROAD, LUTHER J. CARTER, CONSTANCE HOLDEN, ELIOT MARSHALL, R. JEFFREY SMITH, MARJORIE SUN, NICHOLAS WADE,

John WALSH Research News: RICHARD A. KERR, GINA BARI KO-LATA, ROGER LEWIN, JEAN L. MARX, THOMAS H. MAUGH II, ARTHUR L. ROBINSON Administrative Assistant, News: SCHERRAINE MACK.

Editorial Assistants, News: FANNIE GROOM, CAS-SANDRA WATTS

SANDRA WATTS Consulting Editor: Allen L. HAMMOND Associate Editors: Eleanore Butz, Mary Dorf-Man, Sylvia Eberhart, Ruth Kulstad Assistant Editors: Martha Collins, Caitilin Gor-

DON, STEPHEN KEPPLE, EDITH MEYERS, CANENT Book Reviews: KATHERINE LIVINGSTON, Editor; LINDA HEISERMAN, JANET KEGG Letters: CHRISTINE GILBERT Comp Editory INCOMP STATE

CODY Editor: ISABELLA BOULDIN

Production: NANCY HARTNAGEL, JOHN BAKER; ROSE Lowery; Holly Bishop, Eleanor Warner; Mary McDaniel, Jean Rockwood, Leah Ryan, Sharon RYAN

Covers, Reprints, and Permissions: GRAYCE FINGER, Editor; GERALDINE CRUMP, CORRINE HARRIS Guide to Scientific Instruments: RICHARD G. SOMMER

Guide to Scientific Instruments: RICHARD G. SOMMER Assistant to the Editors: JACK R. ALSIP Membership Recruitment: GWENDOLYN HUDDLE Member and Subscription Records: ANN RAGLAND EDITORIAL CORRESPONDENCE: 1515 Massachu-setts Ave., NW, Washington, D.C. 20005. Area code 202. General Editorial Office, 467-4350; Book Reviews, 467-4367; Guide to Scientific Instruments, 467-4480; News and Comment, 467-4430; Reprints and Per-missions, 467-4483; Research News, 467-4321. Cable: Advancesci, Washington. For "Instructions for Contrib-utors," write to the editorial office or see page xi, Sci*utors,*" write to the editorial office or see page xi, *Science*, 26 September 1980. BUSINESS CORRESPONDENCE: Area Code 202.

Membership and Subscriptions: 467-4417.

#### Advertising Representatives

Director: EARL J. SCHERAGO

Aretion: Data S. Schender Production Manager: GINA REILLY Advertising Sales Manager: RICHARD L. CHARLES Marketing Manager: HERBERT L. BURKLUND

Markeing Manager: HERBERT L. BURKLUND Sales: NEW YORK, N.Y. 10036: Steve Hamburger, 1515 Broadway (212-730-1050); 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. (312-337-4973); 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: Tenth floor, 1515 Broadway, New York, N.Y. 10036. Phone: 212-730-1050.

730-1050.

# A Way to Stimulate Technological Innovation

Of the many economic problems facing the United States today, one of the most frustrating has been the nation's growing inability to increase productivity through technological innovation. This failure has reduced our ability to compete with other nations in the world marketplace and has contributed significantly to inflation as productivity has lagged behind wages.

American scientists should be concerned for two reasons. First, declining productivity affects the nation as a whole through high inflation and an unfavorable balance of trade. Second, it directly affects the community of American scientists as research programs are cut back or moved abroad and scientific job opportunities disappear.

A major cause of the decline in productivity in the United States has been federal policies and regulations that discourage investment in research and development. According to the National Science Foundation, investment in R & D-in constant dollars-increased only 4 percent in the United States in the decade 1968 to 1978. This level was far surpassed in many other countries, notably Japan and West Germany, where governments provide incentives for private industry to invest in R & D. In addition, technological innovation at present is burdened by an unfavorable, if not hostile, regulatory climate.

In a message announcing his industrial innovation initiatives late last year, President Carter acknowledged that government has placed "stifling restraints" on innovation. He expressed the need for government to form a "close partnership" with the private sector to restore the innovative nature of the American free enterprise system as one of the "most precious resources of our country." One element in this restoration should be modification of existing tax regulations that discourage R & D.

An example of such a discouraging action was the decision of the Treasury Department in 1977 to substantially revise the regulations under section 861 of the Internal Revenue Code. Before that, the regulations under section 861 had been virtually unchanged for more than 50 years. As modified by Treasury, the regulations require companies with foreign sales to treat U.S. R & D expenditures in an artificial manner that exposes these companies to higher U.S. taxes. The regulations require U.S. corporations with foreign sales to allocate part of their U.S. R & D expenditures to foreign income. The effect is to decrease the company's taxable foreign-source income, as computed for U.S. tax purposes, and increase its taxable U.S.source income. Therefore the foreign tax credits available to U.S. firms to help offset U.S. taxes on foreign income are reduced. In effect, the U.S. corporations are exposed to double taxation, since the taxes of foreign governments on the companies' earnings from abroad cannot be adequately credited against U.S. taxes on the same earnings. This tax treatment not only discourages U.S. investment in R & D, but may provide U.S. companies with an incentive to locate their R & D activities abroad.

Section 861, as originally enacted in 1921, was designed to prevent foreign corporations and individuals from deducting unrelated foreign expenses in calculating their taxes on U.S. income. Ironically, more than a half-century later, the Treasury Department has interpreted this law in a manner that penalizes U.S. companies that conduct business abroad.

Administrative modification of the section 861 regulations as they relate to allocation of R & D expenses could remove this disincentive and stimulate R & D investment in the United States. It would help restore the United States to a preeminent position in technological innovation. Science and technology are our nation's fundamental resources. Government's role should be to nurture these resources, not to suppress them.-ROBERT F. DEE, Chairman of the Board and Chief Executive Officer, SmithKline Corporation, 1500 Spring Garden Street, Philadelphia, Pennsylvania 19101