

1415 This Week in *Science*

## Editorial

1417 Punitive Taxation of Science and Engineering

## Letters

1419 Tritium Production: H. M. AGNEW ■ Cardiac Chaos: A. L. GOLDBERGER;  
R. POOL ■ PNAS Reviewing Procedures: I. B. DAWID, M. F. SINGER,  
F. R. ZWANZIG ■ Animal Activism: J. A. HOYT

## News & Comment

1425 Will Magnet Problems Delay the SSC?  
1427 German Universities Bursting at the Seams  
1428 Monitoring the Fate of the Forests from Space ■ Landsat Wins a Reprieve  
1430 Alar: The Numbers Game  
1431 MCAT to Stress Thinking, Writing  
Unesco Seeks Role in Genome Projects  
1432 NAE Elects New Members

## Research News

1433 Making the Moon, Remaking Earth  
1435 Ice Age Art Idea Topped  
1436 Update on Electron Superconductors  
Diary of a Solar Flare  
1437 Will the Hubble Space Telescope Compute?  
1439 Scheduling the Stars

## Articles

1441 Growing Up in Poor Neighborhoods: How Much Does It Matter?: S. E. MAYER  
AND C. JENCKS  
1445 The First High-Energy Neutrino Experiment: M. SCHWARTZ  
1450 Glial Cell Diversification in the Rat Optic Nerve: M. C. RAFF

## Reports

1456 Generalized Tube Model of Biased Reptation for Gel Electrophoresis of DNA:  
J. NOOLANDI, G. W. SLATER, H. A. LIM, J. L. VIOVY  
1458 Heat Flow and Hydrothermal Circulation in the Cascade Range, North-Central  
Oregon: S. E. INGEBRITSEN, D. R. SHERROD, R. H. MARINER  
1462 Reduction of Intestinal Carcinogen Absorption by Carcinogen-Specific Secretory  
Immunity: L. K. SILBART AND D. F. KEREN  
1464 The Neutrophil-Activating Protein (NAP-1) Is Also Chemotactic for T  
Lymphocytes: C. G. LARSEN, A. O. ANDERSON, E. APPELLA, J. J. OPPENHEIM,  
K. MATSUSHIMA

- **SCIENCE is published weekly on Friday, except the last week in December, and with an extra issue in February by the American Association for the Advancement of Science, 1333 H Street, NW, Washington, DC 20005.** Second-class postage (publication No. 484460) paid at Washington, DC, and at an additional entry. Now combined with **The Scientific Monthly** © Copyright © 1989 by the American Association for the Advancement of Science. The title **SCIENCE** is a registered trademark of the AAAS. Domestic individual membership and subscription (51 issues): \$70. Domestic institutional subscription (51 issues): \$110. Foreign postage extra: Canada \$32, other (surface mail) \$32, air-surface via Amsterdam \$85. First class, airmail, school-year, and student rates on request. **Single copy sales:** Current issue, \$3.50; back issues, \$5.00; Biotechnology issue, \$6.00 (for postage and handling, add per copy \$0.50 U.S., \$1.00 all foreign); Guide to Biotechnology Products and Instruments, \$18 (for postage and handling add per copy \$1.00 U.S., \$1.50 Canada, \$2.00 other foreign). Bulk rates on request. **Change of address:** allow 6 weeks, giving old and new addresses and 11-digit account number. Authorization to photocopy material for internal or personal use under circumstances not falling within the fair use provisions of the Copyright Act is granted by AAAS to libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that the base fee of \$1 per copy plus \$0.10 per page is paid directly to CCC, 21 Congress Street, Salem, Massachusetts 01970. The identification code for *Science* is 0036-8075/83 \$1 + .10. **Postmaster:** Send Form 3579 to *Science*, P.O. Box 1722, Riverton, NJ 08077. *Science* is indexed in the *Reader's Guide to Periodical Literature* and in several specialized indexes.
- The American Association for the Advancement of Science was founded in 1848 and incorporated in 1874. Its objects are to further the work of scientists, to facilitate cooperation among them, to foster scientific freedom and responsibility, to improve the effectiveness of science in the promotion of human welfare, and to increase public understanding and appreciation of the importance and promise of the methods of science in human progress.



**COVER** A pseudocolor photographically derived image of an *Anopheles stephensi* mosquito. This mosquito transmits *Plasmodium falciparum*, the deadliest of the human malaria parasites. Malaria-infected red blood cells evade destruction by binding to a receptor on endothelial cells. See page 1469. [Original photograph provided by Edgar Rowton, Walter Reed Army Institute of Research, Washington, DC 20307]

- 1467 Endothelial Cell Gene Expression of a Neutrophil Chemotactic Factor by TNF- $\alpha$ , LPS, and IL-1 $\beta$ : R. M. STRIETER, S. L. KUNKEL, H. J. SHOWELL, D. G. REMICK, S. H. PHAN, P. A. WARD, R. M. MARKS
- 1469 Identification of a Platelet Membrane Glycoprotein as a Falciparum Malaria Sequestration Receptor: C. F. OCKENHOUSE, N. N. TANDON, C. MAGOWAN, G. A. JAMIESON, J. D. CHULAY
- 1471 The Mutations in Ashkenazi Jews with Adult GM<sub>2</sub> Gangliosidosis, the Adult Form of Tay-Sachs Disease: R. NAVON AND R. L. PROIA
- 1474 Quisqualate Activates a Rapidly Inactivating High Conductance Ionic Channel in Hippocampal Neurons: C.-M. TANG, M. DICHTER, M. MORAD
- 1477 The EGF Receptor Kinase Substrate p35 in the Floor Plate of the Embryonic Rat CNS: J. A. MCKANNA AND S. COHEN
- 1479 Binocular Unmasking: An Analog to Binaural Unmasking?: B. SCHNEIDER, G. MORAGLIA, A. JEPSON
- 1481 Identification of an Allatotropin from Adult *Manduca sexta*: H. KATAOKA, A. TOSCHI, J. P. LI, R. L. CARNEY, D. A. SCHOOLEY, S. J. KRAMER
- 1483 Fluid Flow Stimulates Tissue Plasminogen Activator Secretion by Cultured Human Endothelial Cells: S. L. DIAMOND, S. G. ESKIN, L. V. MCINTIRE
- 1485 Direct Brønsted Analysis of the Restoration of Activity to a Mutant Enzyme by Exogenous Amines: M. D. TONEY AND J. F. KIRSCH
- 1488 Amyloid  $\beta$  Protein Enhances the Survival of Hippocampal Neurons in Vitro: J. S. WHITSON, D. J. SELKOE, C. W. COTMAN
- 1490 Control of Angiogenesis with Synthetic Heparin Substitutes: J. FOLKMAN, P. B. WEISZ, M. M. JOULLIÉ, W. W. LI, W. R. EWING
- 1493 Prevention of Rapid Intracellular Degradation of ODC by a Carboxyl-Terminal Truncation: L. GHODA, T. VAN DAALLEN WETTERS, M. MACRAE, D. ASCHERMAN, P. COFFINO

## Book Reviews

- 1496 Reproductive Success, reviewed by R. E. RICKLEFS ■ The Sources of Innovation, F. M. SCHERER ■ Lost in Space, A. CHAYES ■ Some Other Books of Interest ■ Books Received

## Products & Materials

- 1500 Microscope Imaging Workstation ■ Biocompatible HPLC Columns ■ Mathematics Software ■ Software for Finite Element Analysis ■ DAB in Liquid Concentrate Form ■ Peptide Analysis by HPLC ■ Heating Mantles for Flasks ■ Literature

### Board of Directors

Walter E. Massey  
*Retiring President,  
Chairman*

Richard C. Atkinson  
*President*

Donald N. Langenberg  
*President-elect*

Mary Ellen Avery  
Francisco J. Ayala  
Floyd E. Bloom  
Mary E. Clutter  
Eugene H. Cota-Robles  
Joseph G. Gavin, Jr.  
John H. Gibbons  
Beatrix A. Hamburg  
William T. Golden  
*Treasurer*  
Philip H. Abelson  
*Executive Officer, Acting*

### Editorial Board

Elizabeth E. Bailey  
David Baltimore  
William F. Brinkman  
E. Margaret Burbidge  
Philip E. Converse  
Joseph L. Goldstein  
Mary L. Good  
F. Clark Howell  
James D. Idol, Jr.  
Leon Knopoff  
Oliver E. Nelson  
Helen M. Ranney  
David M. Raup  
Howard A. Schneiderman  
Larry L. Smarr  
Robert M. Solow  
James D. Watson

### Board of Reviewing Editors

John Abelson  
Qais Al-Awqati  
Don L. Anderson  
Stephen J. Benkovic  
Floyd E. Bloom  
Henry R. Bourne  
James J. Bull  
Kathryn Calame  
Charles R. Cantor  
Ralph J. Cicerone  
John M. Coffin  
Robert Dorfman  
Bruce F. Eldridge  
Paul T. Englund  
Fredric S. Fay  
Theodore H. Geballe

Roger I. M. Glass  
Stephen P. Goff  
Robert B. Goldberg  
Corey S. Goodman  
Jack Gorski  
Stephen J. Gould  
Richard M. Held  
Gloria Heppner  
Eric F. Johnson  
Konrad B. Krauskopf  
Charles S. Levings III  
Richard Losick  
Karl L. Magleby  
Philippa Marrack  
Joseph B. Martin  
John C. McGiff  
Mortimer Mishkin  
Carl O. Pabo

Yeshayau Pocker  
Michael I. Posner  
Dennis A. Powers  
Russell Ross  
James E. Rothman  
Erkki Ruoslahti  
Ronald H. Schwartz  
Vernon L. Smith  
Robert T. N. Tjian  
Virginia Trimble  
Emil R. Unanue  
Geerat J. Vermeij  
Bert Vogelstein  
Harold Weintraub  
Irving L. Weissman  
George M. Whitesides  
Owen N. Witte  
William B. Wood

**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:** Philip H. Abelson, *Acting*

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

**Deputy Editor:** John I. Brauman (*Physical Sciences*)

**EDITORIAL STAFF**

**Managing Editor:** Patricia A. Morgan

**Assistant Managing Editor:** Nancy J. Hartnagel

**Senior Editor:** Eleanore Butz

**Associate Editors:** Keith W. Brocklehurst, Martha Coleman, R. Brooks Hanson, Barbara Jasny, Katrina L. Kelner, Edith Meyers, Linda J. Miller, Phillip D. Szuroni, David F. Voss

**Letters Editor:** Christine Gilbert

**Book Reviews:** Katherine Livingston, *editor*

**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, Patricia L. Moe, Barbara E. Patterson

**Copy Desk:** Joi S. Granger, Jane Hurd, MaryBeth Shartle, Beverly Shields

**Production Manager:** Karen Schools Colson

**Assistant Production Manager:** James Landry

**Graphics and Production:** Holly Bishop, James J. Olivari, Yolanda M. Rook

**Covers Editor:** Grayce Finger

**Manuscript Systems Analyst:** William Carter

**NEWS STAFF**

**News Editor:** Barbara J. Culliton

**Deputy News Editors:** Roger Lewin, Colin Norman

**News and Comment/Research News:** William Booth, Gregory Byrne, Mark H. Crawford, Constance Holden, Richard A. Kerr, Eliot Marshall, Jean L. Marx, Robert Pool, Leslie Roberts, Marjorie Sun, M. Mitchell Waldrop

**European Correspondent:** David Dickson

**Contributing Writer:** John Walsh

**BUSINESS STAFF**

**Circulation Director:** John G. Colson

**Fulfillment Manager:** Ann Ragland

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

**Classified Advertising Supervisor:** Karen Morgenstern

**Guide to Biotechnology Products and Instruments:**

Shauna S. Roberts

**ADVERTISING REPRESENTATIVES**

**Director:** Earl J. Scherago

**Traffic Manager:** Donna Rivera

**Traffic Manager (Recruitment):** Gwen Canter

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

**Marketing Manager:** Herbert L. Burkland

**Employment Sales Manager:** Edward C. Keller

**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 60914:

Jack Ryan, 525 W. Higgins Rd. (312-885-8675); San Jose, CA

95112: Bob Brindley, 310 S. 16th St. (408-998-4690); Dorset,

VT 05251: Fred W. Dieffenbach, Kent Hill Rd. (802-867-5581);

Damascus, MD 20872: Rick Sommer, 11318 Kings Valley Dr.

(301-972-9270); U.K., Europe: Nick Jones, +44(0647)52918;

Telex 42513; FAX (0647) 52053.

**Information for contributors** appears on page XI of the 23 December 1988 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, New York, NY 10036. Telephone 212-730-1050 or WU Telex 968082 SCHERAGO, or FAX 212-382-3725.

## Punitive Taxation of Science and Engineering

The Subcommittee on Oversight of the House Committee on Ways and Means has proposed legislation that would diminish the ability of science and engineering to serve this country. This appears to be an unintended consequence of a major effort to curb some abuses by tax-exempt organizations, which include churches, hospitals, universities, trade associations, and scientific and engineering societies.

Excluding 340,000 churches, there are in this country some 866,000 exempt organizations with total annual revenues exceeding \$300 billion. In order to provide financial resources to achieve their purposes, some of them have engaged in commercial activities unrelated to their tax exemption. By so doing they compete with tax-paying companies including small business. Although nonprofits do pay taxes, Congress has been subjected to highly organized lobbying by these companies that claim the taxes are too low. Congress is being called on to take drastic action to tax more of the profits derived from unrelated business income, or "UBIT." Obviously, when a million organizations are involved, each differing somewhat, a detailed judicious approach is difficult. A sweeping broad approach is tempting.

An example of the negative effect of such an approach is the proposed accounting treatment of advertising revenues of *Science* and other scholarly journals. In comparison with profit-making magazines, scientific and engineering journals containing advertising would be subjected to a punitive tax.

When commercial magazines are published, the total cost of editorial matter, printing and mailing, and other expenses is subtracted from net advertising revenues before levying a tax. In contrast, the proposed legislation calls for a 34% tax on net advertising revenue of scholarly journals published by tax-exempt scientific and engineering societies, with no offset allowed for costs of writing, editing, assembling, and printing the scholarly material, as is the case today.

The proposed tax would deleteriously affect the financial capacity of many scholarly societies to carry out their tax-exempt purpose to disseminate research results. For example, it would seriously injure the capabilities of the American Association for the Advancement of Science to the tune of about \$1 million a year. To meet such a blow, the Association would be forced to curtail its activities. The scholarly scientific content of *Science* would necessarily be reduced and its illustrious global reputation injured. In addition, public service activities of AAAS such as improvement of secondary education and efforts to help women, minorities, and the handicapped toward greater representation in science and engineering would be reduced. Other major scientific and engineering societies would to varying degrees be affected. In their scholarly journals, they are facing increasing and tremendous competition from large-scale foreign-owned profit-making publishing houses that have already captured a majority of the scientific scholarly market and are charging huge prices to libraries for their low-circulation journals.

Why is the subcommittee even considering such a harmful proviso of its legislation? It appears that some exempt organizations include automobile and other consumer advertisements in their magazines. To curtail such practices, the subcommittee has proposed the tax-accounting change mentioned above. What it should do now is give proper weight to the nature of the advertising appearing in the scholarly scientific and engineering journals. Those that contain no consumer advertising but rather advertisements highly related to scholarly endeavors should be treated differently from those that contain liquor, cigarette, or other consumer advertisements.

The Subcommittee on Oversight has labored for about 2 years to develop legislation to curb abuses by some tax-exempt organizations. It is now under pressure to submit legislation to the Committee on Ways and Means. The subcommittee has an opportunity to act constructively in this arcane and complex area of tax law. If it does not, more than the scientific and engineering societies will suffer. The whole nation will be the loser.

—PHILIP H. ABELSON