

1355 This Week in *Science*

Editorial

1357 Testing for Carcinogens with Rodents

Letters

1358 Animal Rights and Violence: J. A. HOYT AND M. L. STEPHENS ■ *PNAS* Paper: Rules and Standard Practice: J. ABELSON, R. C. ATKINSON, R. L. DAVIDSON, R. DULBECCO, M. E. FRIEDKIN, G. E. PALADE, J. E. SEEGMILLER, M. I. SIMON, D. STEINBERG ■ "International" Meeting: Criteria for Invitation: E. EPSTEIN ■ Human Genome Initiative: R. L. SINSHEIMER ■ Females at Work: T. H. JUKES ■ Energy from Solar Cells: K. W. J. BARNHAM ■ U. K. Physics Proposal: R. G. CHAMBERS

News & Comment

1367 Magnet Lab Decision Repels MIT
1368 Genetic Privacy Makes Strange Bedfellows
1369 OTA Peers into Cancer Therapy Fog
1370 Zebra Mussel Invasion Threatens U.S. Waters ■ Why Do Some Invasions Succeed?
1372 Massey Named to Head NSF Gene Therapy Begins
1373 Stanford Under Investigation Anthropology Goes Back to Ethiopia
1374 *Briefings*: NIH Adjusts Attitudes Toward Women ■ Hubble Sees a Supernova ■ Hying Laser Angioplasty ■ Salahuddin Pleads Guilty ■ Social and Anti-Social Science ■ Richest U.S. Science Prize ■ Academy Tries No-Fault Defense

Research News

1376 Oncogenes Evoke New Cancer Therapies
1377 Bombesin Receptor Gene Cloned
1378 Electromagnetic Fields: The Biological Evidence
1379 Face to Face with EMFs
1381 Computer Viruses—Eternal Plague

Articles

1382 Atmospheric Carbon Dioxide Levels Over Phanerozoic Time: R. A. BERNER
1387 State- and Bond-Selected Unimolecular Reactions: F. F. CRIM

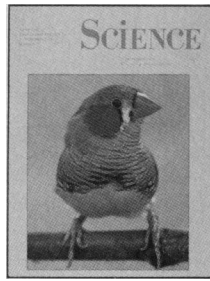
Research Articles

1393 Simple Dynamical Models of Neptune's Great Dark Spot: L. M. POLVANI, J. WISDOM, E. DEJONG, A. P. INGERSOLL
1398 Structure of Ribonuclease H Phased at 2 Å Resolution by MAD Analysis of the Selenomethionyl Protein: W. YANG, W. A. HENDRICKSON, R. J. CROUCH, Y. SATOW

Reports

1406 Time-Resolved X-ray Diffraction Study of Solid Combustion Reactions: J. WONG, E. M. LARSON, J. B. HOLT, P. A. WAIDE, B. RUPP, R. FRAHM

- **SCIENCE (ISSN 0036-8075)** is published weekly on Friday, except the last week in December, 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 additional mailing offices. Copyright © 1990 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): \$80. Domestic institutional subscription (51 issues): \$150. Foreign postage extra: Canada \$46, other (surface mail) \$46, air mail via Amsterdam \$85. First class, airmail, school-year, and student rates on request. **Change of address:** allow 6 weeks, giving old and new addresses and 11-digit account number. **Postmaster:** Send change of address to *Science*, P.O. Box 1723, Riverton, NJ 08077. **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, \$20 (for postage and handling add per copy \$1.00 U.S., \$1.50 Canada, \$2.00 other foreign). Bulk rates on request. **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, 27 Congress Street, Salem, Massachusetts 01970. The identification code for *Science* is 0036-8075/83 \$1 + .10. *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 objectives 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, to advance education in science, and to increase public understanding and appreciation of the importance and promise of the methods of science in human progress.



COVER In adult zebra finches (a male is shown here) and canaries, new projection neurons are formed in the high vocal center, a region of the brain. Species differences in the number of projection neurons added and the time when these additions occur suggest that these new neurons are involved in perceptual and motor song learning. See page 1444. [Photograph by A. Alvarez-Buylla]

- 1409 Rapid Determination of the Critical Temperature in Simulated Annealing Inversion: A. BASU AND L. N. FRAZER
- 1412 Forecasting Damaging Earthquakes in the Central and Eastern United States: S. P. NISHENKO AND G. A. BOLLINGER
- 1416 No Excess of Homozygosity at Loci Used for DNA Fingerprinting: B. DEVLIN, N. RISCH, K. ROEDER
- 1420 Detection of *Borrelia burgdorferi* DNA in Museum Specimens of *Ixodes dammini* Ticks: D. H. PERSING, S. R. TELFORD III, P. N. RYS, D. E. DODGE, T. J. WHITE, S. E. MALAWISTA, A. SPIELMAN
- 1423 An Insertion in the Human Thyrotropin Receptor Critical for High Affinity Hormone Binding: H. L. WADSWORTH, G. D. CHAZENBALK, Y. NAGAYAMA, D. RUSSO, B. RAPOPORT
- 1425 Anatomy of a Conformational Change: Hinged "Lid" Motion of the Triosephosphate Isomerase Loop: D. JOSEPH, G. A. PETSKO, M. KARPLUS
- 1429 Structure and Function of Lipopolysaccharide Binding Protein: R. R. SCHUMANN, S. R. LEONG, G. W. FLAGGS, P. W. GRAY, S. D. WRIGHT, J. C. MATHISON, P. S. TOBIAS, R. J. ULEVITCH
- 1431 CD14, a Receptor for Complexes of Lipopolysaccharide (LPS) and LPS Binding Protein: S. D. WRIGHT, R. A. RAMOS, P. S. TOBIAS, R. J. ULEVITCH, J. C. MATHISON
- 1433 Acceleration of Diabetes in Young NOD Mice with a CD4⁺ Islet-Specific T Cell Clone: K. HASKINS AND M. MCDUFFIE
- 1436 Reversal of Experimental Parkinsonism by Lesions of the Subthalamic Nucleus: H. BERGMAN, T. WICHMANN, M. R. DELONG
- 1438 *Xotch*, the *Xenopus* Homolog of *Drosophila Notch*: C. COFFMAN, W. HARRIS, C. KINTNER
- 1441 Calmodulin Activation of Calcium-Dependent Sodium Channels in Excised Membrane Patches of *Paramecium*: Y. SAIMI AND K.-Y. LING
- 1444 Birth of Projection Neurons in Adult Avian Brain May Be Related to Perceptual or Motor Learning: A. ALVAREZ-BUYLLA, J. R. KIRN, F. NOTTEBOHM

Book Reviews

- 1447 Reflections on Liquid Helium, reviewed by D. L. GOODSTEIN ■ The Mathematics of Projectiles in Sport, P. J. BRANCAZIO ■ Dynamics of Dense Stellar Systems, L. M. OZERNOY ■ The Ecology of Bird Communities, B. A. MAURER ■ Books Received

Products & Materials

- 1451 Vibration-Damping Mount ■ UNIX Version of Math Software ■ Fiber Optic Light Sources ■ Data Acquisition and Graphics Software ■ Clean-Room Telephone ■ Mass Spectrometers ■ Nonradioactive RNA Labeling Kit ■ Literature

Board of Directors

Richard C. Atkinson
Retiring President,
Chairman

Donald N. Langenberg
President

Leon M. Lederman
President-elect

Mary Ellen Avery
Francisco J. Ayala
Eugene H. Cota-Robles
Robert A. Frosch
Joseph G. Gavin, Jr.
John H. Gibbons
Beatrix A. Hamburg
Florence P. Haseltine
William T. Golden
Treasurer

Richard S. Nicholson
Executive Officer

Editorial Board

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

Board of Reviewing Editors

John Abelson
Don L. Anderson
Stephen J. Benkovic
Gunter K.-J. Blobel
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
Harry A. Fozzard

Theodore H. Geballe
Roger I. M. Glass
Stephen P. Goff
Corey S. Goodman
Stephen J. Gould
Eric F. Johnson
Stephen M. Kosslyn
Konrad B. Krauskopf
Charles S. Levings III
Richard Losick
Joseph B. Martin
John C. McGiff
Anthony R. Means
Mortimer Mishkin
Roger A. Nicoll
William H. Orme-Johnson III
Carl O. Pabo
Yeshayau Pocker

Dennis A. Powers
Erkki Ruoslahti
Thomas W. Schoener
Ronald H. Schwartz
Terrence J. Sejnowski
Robert T. N. Tjian
Virginia Trimble
Emil R. Unanue
Geerat J. Vermeij
Bert Vogelstein
Harold Weintraub
Irving L. Weissman
Zena Werb
George M. Whitesides
Owen N. Witte
William B. Wood
Keith Yamamoto

Science

249 (4975)

Science **249** (4975), 1355-1451.

ARTICLE TOOLS

<http://science.sciencemag.org/content/249/4975>

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 © 1990 The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works.