

835 This Week in *Science*

## Editorial

837 Improved Efficiency of U.S. Copper Production

## Perspective

839 The Use of Animals in Research: J. KAPLAN

## Letters

845 Panda Conservation: C. T. ROBBINS, J. F. BAER, R. W. WRIGHT, R. J. NELSON ■  
Drug Testing: S. MARCELL; E. MARSHALL ■ Pork Barreling: C. E. HESS;  
M. G. MORGAN

## News & Comment

855 Worm Invades Computer Networks  
856 NIH Delays Gene Transfer Experiment ■ Journals and Data Disclosure  
858 No Longer Ignored, AIDS Funds Just Keep Growing  
860 Soviet Shuttle Readied for First Space Flight  
861 Technology Legislation Previewed  
862 Shakeup Continues at Soviet Academy  
France Boosts AIDS Funds

## Research News

863 What T Cells See and How They See It  
865 Huge Impact Is Favored K-T Boundary Killer  
868 Taking a Vacation from Predation  
869 *Random Samples*: Advising the President ■ The Top Ten Nuclear Power Plants . . .  
■ . . . Patent-Procurement in the U.S. . . . ■ . . . and Grant-Getters ■ Crossing the  
Border

## Articles

873 Poor Children in Rich Countries: T. M. SMEEDING AND B. B. TORREY  
878 Effects of Pulse Shaping in Laser Spectroscopy and Nuclear Magnetic Resonance:  
W. S. WARREN  
885 Biomaterials and Biomedical Devices: J. S. HANKER AND B. L. GIAMMARA

## Research Articles

893 Structure of the Lambda Complex at 2.5 Å Resolution: Details of the Repressor-  
Operator Interactions: S. R. JORDAN AND C. O. PABO  
899 Recognition of a DNA Operator by the Repressor of Phage 434: A View at High  
Resolution: A. K. AGGARWAL, D. W. RODGERS, M. DROTTAR, M. PTASHNE,  
S. C. HARRISON

## Reports

908 The Surface Temperature of the Sun and Changes in the Solar Constant:  
J. R. KUHN, K. G. LIBBRECHT, R. H. DICKE  
911 Enhancement of Surface Cooling Due to Forest Fire Smoke: A. ROBOCK

■ **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 © 1988 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 copies \$3.00; back issues \$5.00; Biotechnology issue, \$5.50 (\$6 by mail); classroom rates on request; Guide to Biotechnology Products and Instruments \$16 (\$17 by mail). **Change of address**: allow 6 weeks, giving old and new addresses and seven-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*, 1333 H Street, NW, Washington, DC 20005. *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** The effective surface temperature variation of the sun between 1983 and 1987 after removing the effect of bright solar faculae from the data. The temperature is calculated on the basis of solar limb data. The red regions are about 0.2% brighter, or 3°C hotter, than the blue areas. Starting in the upper left and moving down and then down in the right column, the images correspond to the sun in the summers of 1983, 1984, 1985, and 1987. See page 908. [J. R. Kuhn, Michigan State University, East Lansing, MI 48824; K. G. Libbrecht, Big Bear Solar Observatory, California Institute of Technology, Pasadena, CA 91125; and R. H. Dicke, Princeton University, Princeton, NJ 08544]

- 913 Early Insect Diversification: Evidence from a Lower Devonian Bristletail from Québec: C. C. LABANDEIRA, B. S. BEALL, F. M. HUEBER
- 916 A Larger Spectrum of Severe HIV-1-Related Disease in Intravenous Drug Users in New York City: R. L. STONEBURNER, D. C. DES JARLAIS, D. BENEZRA, L. GORELKIN, J. L. SOTHERAN, S. R. FRIEDMAN, S. SCHULTZ *et al.*
- 919 Infection and Replication of HIV-1 in Purified Progenitor Cells of Normal Human Bone Marrow: T. M. FOLKS, S. W. KESSLER, J. M. ORENSTEIN, J. S. JUSTEMENT, E. S. JAFFE, A. S. FAUCI
- 922 Transcriptional Activation of a Cutinase Gene in Isolated Fungal Nuclei by Plant Cutin Monomers: G. K. PODILA, M. B. DICKMAN, P. E. KOLATTUKUDY
- 925 A Chemically Synthesized *Antennapedia* Homeo Domain Binds to a Specific DNA Sequence: H. MIHARA AND E. T. KAISER
- 927 VirD2 Protein of *Agrobacterium tumefaciens* Very Tightly Linked to the 5' End of T-Strand DNA: E. R. WARD AND W. M. BARNES
- 930 A Pituitary *N*-Acetylgalactosamine Transferase That Specifically Recognizes Glycoprotein Hormones: P. L. SMITH AND J. U. BAENZIGER
- 933 Blocking of EGF-Dependent Cell Proliferation by EGF Receptor Kinase Inhibitors: P. YAISH, A. GAZIT, C. GILON, A. LEVITZKI
- 936 Microtubule-Associated Protein MAP2 Shares a Microtubule Binding Motif with Tau Protein: S. A. LEWIS, D. WANG, N. J. COWAN
- 939 Ovothiol Replaces Glutathione Peroxidase as a Hydrogen Peroxide Scavenger in Sea Urchin Eggs: E. TURNER, L. J. HAGER, B. M. SHAPIRO
- 941 Induction of Manganous Superoxide Dismutase by Tumor Necrosis Factor: Possible Protective Mechanism: G. H. W. WONG AND D. V. GOEDDEL

## Technical Comments

- 944 Toward a Universal Law of Generalization: D. M. ENNIS; R. N. SHEPARD ■ Diabetic Mouse Incorrectly Typed: M. PROCHAZKA, E. H. LEITER, D. V. SERREZE, D. L. COLEMAN, R. A. JACKSON

## Book Reviews

- 946 The Roots of Modern Biochemistry, reviewed by D. E. ATKINSON ■ The Past Three Million Years, A. MIX ■ Environmental Biology of Agaves and Cacti, I. P. TING ■ Some Other Books of Interest ■ Books Received

## Products & Materials

- 957 Statistical Software ■ Electrophoresis System ■ Protein Kinase C ■ Infrared Hot Plate ■ Purification System for Phosphotyrosyl Proteins ■ Water-Jacketed Incubator ■ Scanning Electron Microscope ■ Literature

### Board of Directors

Sheila E. Widnall  
*Retiring President,*  
*Chairman*

Walter E. Massey  
*President*

Richard C. Atkinson  
*President-elect*

Floyd E. Bloom  
Mary E. Clutter  
Eugene H. Cota-Robles  
Mildred S. Dresselhaus  
Joseph G. Gavin, Jr.  
John H. Gibbons  
Beatrix A. Hamburg  
Donald N. Langenberg

William T. Golden  
*Treasurer*  
Alvin W. Trivelpiece  
*Executive Officer*

### 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  
Charles R. Cantor  
Ralph J. Cicerone  
John M. Coffin  
Robert Dorfman  
Bruce F. Eldridge  
Paul T. Englund  
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  
Jiri Novotny  
Gordon H. Orians  
Carl O. Pabo

Yeshayahu Pocker  
Michael I. Posner  
Dennis A. Powers  
Jean Paul Revel  
Russell Ross  
James E. Rothman  
Daniel V. Santi  
Ronald H. Schwartz  
Vernon L. Smith  
Otto T. Solbrig  
Robert T. N. Tjian  
Virginia Trimble  
Geerat J. Vermeij  
Bert Vogelstein  
Harold Weintraub  
Irving L. Weissman  
George M. Whitesides  
Owen N. Witte  
William R. Wood

# Science

**242 (4880)**

*Science* **242** (4880), 837-950.

ARTICLE TOOLS

<http://science.sciencemag.org/content/242/4880.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 © 1988 The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works.