

443 This Week in *Science*

Editorial

445 Cassette Principles

Letters

447 Robert Frost on Thinking: D. M. JOHNSON ■ Mathematics Education: J. D. STEIN JR.; N. W. RICKERT; L. A. STEEN ■ Peer Review at the Agricultural Research Service: T. B. KINNEY, JR.; C. NORMAN ■ International Science Foundation: A. HASEGAWA

Perspective

452 The Regulation of ACTH Secretion by IL-1: M. D. LUMPKIN

Policy Forum

455 A Low-Threshold Test Ban Is Feasible: H. A. FEIVESON, C. E. PAINE, F. VON HIPPEL ■ Facing Nuclear Reality: G. H. MILLER, P. S. BROWN, M. D. NORDYKE

News & Comment

471 Progress on a Chemical Arms Treaty
472 Slowdown for French Fast Breeders?
473 A Scientist Back at the Helm of Unesco?
474 Engineers Hear a Competitive Parable
475 Feathers Still Fly in Row over Fossil Bird
476 Koryagin Skeptical on *Glasnost*
477 Science Committee Okays Supercollider
Briefing: Alexander Bearn: New Hughes Trustee ■ AIDS 101 ■ Progress Report on NSF ■ Science Agencies Brace for 1988 Budget Cuts
478 NSF Official's Finances Probed by Justice

Research News

479 Sunspot-Weather Correlation Found
481 The 1987 Nobel Prize for Physics
482 Measuring Cholesterol Is as Tricky as Lowering It
484 Antibody Research Garners Nobel Prize

Articles

486 Computer-Aided Molecular Design: J. A. MCCAMMON
491 New Perspectives in Cell Adhesion: RGD and Integrins: E. RUOSLAHTI AND M. D. PIERSCHBACHER

Research Articles

498 Helix Geometry, Hydration, and G · A Mismatch in a B-DNA Decamer: G. G. PRIVÉ, Ü. HEINEMANN, S. CHANDRASEGARAN, L.-S. KAN, M. L. KOPKA, R. E. DICKERSON
504 Clathrin Requirement for Normal Growth of Yeast: S. K. LEMMON AND E. W. JONES

Reports

512 Detection of Uranium from Cosmos-1402 in the Stratosphere: R. LEIFER, Z. R. JUZDAN, W. R. KELLY, J. D. FASSETT, K. R. EBERHARDT

- 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 © 1987 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): \$65. Domestic institutional subscription (51 issues): \$98. Foreign postage extra: Canada \$32, other (surface mail) \$27, air-surface via Amsterdam \$65. First class, airmail, school-year, and student rates on request. Single copies \$2.50 (\$3 by mail); back issues \$4 (\$4.50 by mail); 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 Early morning launching of a 138,000-cubic-meter polyethylene balloon by the Air Force Geophysical Laboratory, 28 February 1984, at Alamogordo, New Mexico. Filter sampling equipment was flown on the balloon for the Environmental Measurements Laboratory, Department of Energy, to retrieve nuclear reactor ablation aerosol from the burnup of Cosmos-1402 at 36 kilometers. See page 512. [Official U.S. Air Force Photograph]

- 514 X-ray Holograms at Improved Resolution: A Study of Zymogen Granules: M. HOWELLS, C. JACOBSEN, J. KIRZ, R. FEDER, K. MCQUAID, S. ROTHMAN
- 517 Demonstration of X-ray Holography with an X-ray Laser: J. E. TREBES, S. B. BROWN, E. M. CAMPBELL, D. L. MATTHEWS, D. G. NILSON, G. F. STONE, D. A. WHELAN
- 519 Release of Multiple Hormones by a Direct Action of Interleukin-1 on Pituitary Cells: E. W. BERNTON, J. E. BEACH, J. W. HOLADAY, R. C. SMALLRIDGE, H. G. FEIN
- 522 Interleukin-1 Stimulates the Secretion of Hypothalamic Corticotropin-Releasing Factor: R. SAPOLSKY, C. RIVIER, G. YAMAMOTO, P. PLOTSKY, W. VALE
- 524 Corticotropin-Releasing Factor-Producing Neurons in the Rat Activated by Interleukin-1: F. BERKENBOSCH, J. VAN OERS, A. DEL REY, F. TILDERS, H. BESEDOVSKY
- 527 Model Substrates for an RNA Enzyme: W. H. MCCLAIN, C. GUERRIER-TAKADA, S. ALTMAN
- 530 Recombinant Fragment of Protein Kinase Inhibitor Blocks Cyclic AMP-Dependent Gene Transcription: J. R. GROVE, D. J. PRICE, H. M. GOODMAN, J. AVRUCH
- 533 Rapid Stimulation of Diacylglycerol Production in *Xenopus* Oocytes by Microinjection of H-ras p21: J. C. LACAL, P. DE LA PEÑA, J. MOSCAT, P. GARCIA-BARRENO, P. S. ANDERSON, S. A. AARONSON
- 536 Mutations in Diphtheria Toxin Separate Binding from Entry and Amplify Immunotoxin Selectivity: L. GREENFIELD, V. G. JOHNSON, R. J. YOULE
- 539 Family Study of Platelet Membrane Fluidity in Alzheimer's Disease: G. S. ZUBENKO, M. WUSYLKO, B. M. COHEN, F. BOLLER, I. TEPLY
- 542 A Cytoplasmic Protein Stimulates Normal N-ras p21 GTPase, but Does Not Affect Oncogenic Mutants: M. TRAHEY AND F. MCCORMICK
- 545 Germline Organization of the Murine T Cell Receptor β -Chain Genes: H. S. CHOU, C. A. NELSON, S. A. GODAMBE, D. D. CHAPLIN, D. Y. LOH
- 548 Nuclear Reassembly Excludes Large Macromolecules: J. A. SWANSON AND P. L. MCNEIL

Technical Comments

- 550 Quick-Freeze Lipid Techniques: Correction: D. L. MELCHIOR ■ Negative Poisson's Ratio Materials: S. BURNS; R. LAKES

Book Reviews

- 556 Brought to Bed, reviewed by S. REVERBY ■ Plant Ecology, R. B. PRIMACK ■ Pollen and Spores, J. A. DOYLE ■ The Quantum Universe: O. W. GREENBERG ■ Some Other Books of Interest ■ Books Received

Products & Materials

- 560 Preparative HPLC System ■ Benchtop Bioreactor Chromatography Gradient Systems ■ Radiation Shield for Computer Monitors ■ Multiple-User Gamma Counter ■ Nonradioactive Labeling of DNA Probes ■ Multitasking Open-Architecture Computer ■ Automated AA Spectrometer ■ Literature

Board of Directors

Lawrence Bogorad
*Retiring President,
Chairman*

Sheila E. Widnall
President

Walter E. Massey
President-elect

Robert McC. Adams
Floyd E. Bloom
Mary E. Clutter
Mildred S. Dresselhaus
Beatrix A. Hamburg
Donald N. Langenberg
Frank von Hippel
Linda S. Wilson
William T. Golden
Treasurer
Alvin W. Trivelpiece
Executive Officer

Editorial Board

Elizabeth E. Bailey
David Baltimore
William F. Brinkman
Philip E. Converse
Joseph L. Goldstein
James D. Idol, Jr.
Leon Knopoff
Seymour Lipset
Oliver E. Nelson
David V. Ragone
David M. Raup
Vera C. Rubin
Larry L. Smarr
Solomon H. Snyder
Robert M. Solow
James D. Watson

Board of Reviewing Editors

John Abelson
Qais Al-Awqati
James P. Allison
Don L. Anderson
Elizabeth H. Blackburn
Floyd E. Bloom
Charles R. Cantor
Ralph J. Cicerone
James H. Clark
Bruce F. Eldridge
Stanley Falkow
Theodore H. Geballe
Roger I. M. Glass
Stephen P. Goff
Robert B. Goldberg

Corey S. Goodman
Stephen J. Gould
Richard M. Held
Gloria Heppner
Eric F. Johnson
Konrad B. Krauskopf
I. Robert Lehman
Karl L. Magleby
Joseph B. Martin
John C. McGiff
Alton Meister
Mortimer Mishkin
Peter Olson
Gordon H. Orians
Carl O. Pabo
John S. Pearce

Yeshayau Pocker
Jean Paul Revel
James E. Rothman
Thomas C. Schelling
Ronald H. Schwartz
Stephen M. Schwartz
Otto T. Solbrig
Robert T. N. Tjian
Virginia Trimble
Geerat J. Vermeij
Martin G. Weigert
Harold Weintraub
Irving L. Weissman
George M. Whitesides
Owen N. Witte
William B. Wood

Science

238 (4826)

Science **238** (4826), 443-560.

ARTICLE TOOLS

<http://science.sciencemag.org/content/238/4826>

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. 2017 © The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works. The title *Science* is a registered trademark of AAAS.