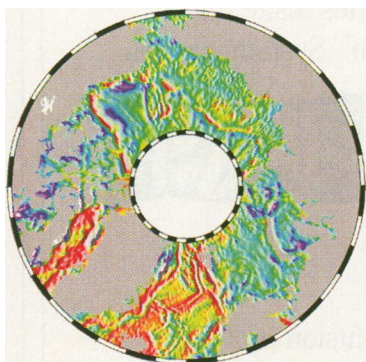


## 587, 601 & 625

All eyes on Jupiter



## 621

Plate tectonics  
beneath the Arctic ice

### NEWS & COMMENT

An Industry-Friendly Science Policy 596

Government-Industry Collaboration:  
NIH Panel Rejects Pricing Clause 598

Molecular Medicine: One Less Hoop for  
Gene Therapy 599

Environmental Protection Agency:  
Browner to Beef Up Outside Research 599

DOE and Texas Settle SSC Claims 600

### RESEARCH NEWS

Shoemaker-Levy Dazzles, Bewilders 601  
The Comet Explodes by E-Mail 602

Neuroscience: To Sleep, Perchance  603  
to...Learn? New Studies Say Yes

From Bacteria: A New Weapon Against  
Fungal Infection 605

People of the Amazon Fight to Save the  
Flooded Forest 606

Cosmology: On the Track of Dark  
Matter in Mica 607

### PERSPECTIVES

Totally Tubular  611  
J. H. Weaver

Phage Assembly: A Paradigm for  
Bacterial Virulence Factor Export? 612  
M. Russel

### ARTICLES

Conserved Structures and Diversity  
of Functions of RNA-Binding Proteins 615  
C. G. Burd and G. Dreyfuss

Arctic Ocean Gravity Field Derived  
From ERS-1 Satellite Altimetry 621  
S. Laxon and D. McAdoo

### RESEARCH ARTICLE

Spatial Organization and Time 625  
Dependence of Jupiter's Tropospheric  
Temperatures, 1980-1993  
G. S. Orton, A. J. Friedson, P. A. Yanamandra-  
Fisher, J. Caldwell, H. B. Hammel, K. H. Baines,  
J. T. Bergstralh, T. Z. Martin, R. A. West, G. J.  
Veeder Jr., D. K. Lynch, R. Russell, M. E.  
Malcom, W. F. Golisch, D. M. Griep, C. D.  
Kaminski, A. T. Tokunaga, T. Herbst, M. Shure

### DEPARTMENTS

THIS WEEK IN SCIENCE 585

EDITORIAL 587  
A Gift from the Heavens

LETTERS 589  
Gene Ownership: T. Harris and K. J. Kinsella •  
Antibiotic Resistance: M. G. P. Page; H. L. Coop-  
er; L. J. Gross • Statistical Medicine: L. Kish

SCIENCESCOPE 595

RANDOM SAMPLES 608  
Fetal Egg-Cell Research Scare • Another Gain in  
Self-Assembly • Currency Redesign, etc.

BOOK REVIEWS 685  
*The Gene Wars*, reviewed by J.-P. Gaudillière •  
*Science in the Subarctic and Science and the Canadian  
Arctic*, G. A. Good • *Profits of Science*, L. Galambos  
• Vignettes • Books Received

INSIDE AAAS 690

PRODUCTS & MATERIALS 692

### Board of Reviewing Editors

Frederick W. Alt  
Don L. Anderson  
Michael Ashburner  
Stephen J. Benkovic  
David E. Bloom  
Floyd E. Bloom  
Piet Borst  
Henry R. Bourne  
Michael S. Brown  
James J. Bull

Kathryn Calame  
C. Thomas Caskey  
Dennis W. Choi  
John M. Coffin  
Paul J. Crutzen  
James E. Dahlberg  
Robert Desimone  
Bruce F. Eldridge  
Paul T. Englund  
Richard G. Fairbanks

Douglas T. Fearon  
Harry A. Fozzard  
Klaus Friedrich  
Theodore H. Geballe  
John C. Gerhart  
Roger I. M. Glass  
Stephen P. Goff  
Peter N. Goodfellow  
Corey S. Goodman  
Ira Herskowitz

Eric F. Johnson  
Stephen M. Kosslyn  
Michael LaBarbera  
Nicole Le Douarin  
Charles S. Levings III  
Alexander Levitzki  
Harvey F. Lodish  
Richard Losick  
Diane Mathis  
Anthony R. Means

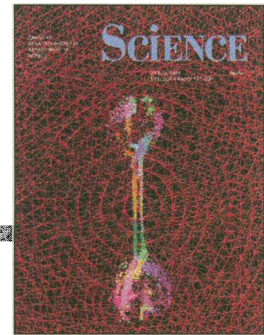
Shigetada Nakanishi  
Roger A. Nicoll  
Stuart L. Pimm  
Yeshayau Pocker  
Dennis A. Powers  
Ralph S. Quatranio  
V. Ramanathan  
Douglas C. Rees  
T. M. Rice  
David C. Rubie

Erkki Ruoslahti  
Gottfried Schatz  
Jozef Schell  
Ronald H. Schwartz  
Terrence J. Sejnowski  
Ellen Solomon  
Thomas A. Steitz  
Michael P. Stryker  
Robert T. N. Tjian  
Emil R. Unanue

Geerat J. Vermeij  
Bert Vogelstein  
Harold Weintraub  
Arthur Weiss  
Zena Werb  
George M. Whitesides  
Owen N. Witte  
William A. Wulf

A hippocampal neuron (different colors represent different neurons) was active when a rat was located at the position of each cross on the dumbbell-shaped track. During the subsequent sleep period the firing pattern of these neurons was re-expressed, and correlations be-

tween pairs of these neurons are represented by the red lines. The re-expression of firing patterns may contribute to the storage of memories. See Reports on pages 676 and 679 and News story on page 603. [Image: M. Wilson and B. McNaughton]



## REPORTS

### A Unified Description of Linear and Nonlinear Polarization in Organic Polymethine Dyes

632

S. R. Marder, C. B. Gorman, F. Meyers, J. W. Perry, G. Bourhill, J.-L. Brédas, B. M. Pierce

### A Formation Mechanism for Catalytically Grown Helix-Shaped Graphite Nanotubes

635

S. Amelinckx, X. B. Zhang, D. Bernaerts, X. F. Zhang, V. Ivanov, J. B. Nagy

### A Devonian Tetrapod from North America

639

E. B. Daeschler, N. H. Shubin, K. S. Thomson, W. W. Amaral

### Fullerenes in the 1.85-Billion-Year-Old Sudbury Impact Structure

642

L. Becker, J. L. Bada, R. E. Winans, J. E. Hunt, T. E. Bunch, B. M. French

### Fullerenes in the Cretaceous-Tertiary Boundary Layer

645

D. Heymann, L. P. F. Chibante, R. R. Brooks, W. S. Wolbach, R. E. Smalley

### Autoantibodies to Glutamate Receptor GluR3 in Rasmussen's Encephalitis

648

S. W. Rogers, P. I. Andrews, L. C. Gahring, T. Whisenand, K. Cauley, B. Crain, T. E. Hughes, S. F. Heinemann, J. O. McNamara

### Variable Gearing During Locomotion in the Human Musculoskeletal System

651

D. R. Carrier, N. C. Heglund, K. D. Earls

### Characterization of a Functional GroEL<sub>14</sub>(GroES<sub>7</sub>)<sub>2</sub> Chaperonin Hetero-Oligomer

653

A. Azem, M. Kessel, P. Goloubinoff

### Symmetric Complexes of GroE Chaperonins as Part of the Functional Cycle

656

M. Schmidt, K. Rutkat, R. Rachel, G. Pfeifer, R. Jaenicke, P. Viitanen, G. Lorimer, J. Buchner

### Dynamics of the Chaperonin ATPase Cycle: Implications for Facilitated Protein Folding

659

M. J. Todd, P. V. Viitanen, G. H. Lorimer

### Integration and Germ-Line Transmission of a Pseudotyped Retroviral Vector in Zebrafish

666

S. Lin, N. Gaiano, P. Culp, J. C. Burns, T. Friedmann, J.-K. Yee, N. Hopkins

### Preferential Nucleosome Assembly at DNA Triplet Repeats from the Myotonic Dystrophy Gene

669

Y.-H. Wang, S. Amirhaeri, S. Kang, R. D. Wells, J. D. Griffith

### Pf1 Virus Structure: Helical Coat Protein and DNA with Paraxial Phosphates

671

D. J. Liu and L. A. Day

### Specific Interaction of Type I Receptors of the TGF- $\beta$ Family with the Immunophilin FKBP-12

674

T. Wang, P. K. Donahoe, A. S. Zervos

### Reactivation of Hippocampal Ensemble Memories During Sleep

676

M. A. Wilson and B. L. McNaughton

### Dependence on REM Sleep of Overnight Improvement of a Perceptual Skill

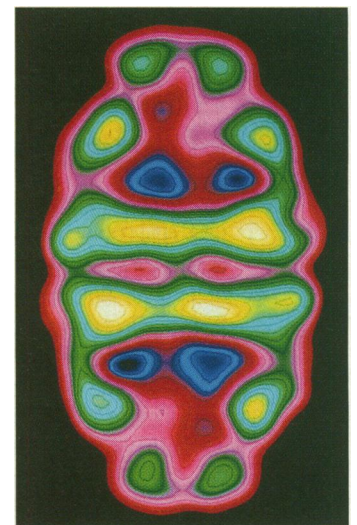
679

A. Karni, D. Tanne, B. S. Rubenstein, J. J. M. Askenasy, D. Sagi

### Neutrophil and B Cell Expansion in Mice that Lack the Murine IL-8 Receptor Homolog

682

G. Cacalano, J. Lee, K. Kikly, A. M. Ryan, S. Pitts-Meek, B. Hultgren, W. I. Wood, M. W. Moore



656

Football chaperones

## AAAS Board of Directors

Eloise E. Clark  
*Retiring President, Chairman*  
Francisco J. Ayala  
*President*  
Rita R. Colwell  
*President-elect*

William A. Lester Jr.  
Simon A. Levin  
Anna C. Roosevelt

Alan Schriesheim  
Jean'ne M. Shreeve  
Chang-Lin Tien  
Warren M. Washington  
Nancy S. Wexler

William T. Golden  
*Treasurer*  
Richard S. Nicholson  
*Executive Officer*

■ **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 © 1994 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): \$92 (\$50 allocated to subscription). Domestic institutional subscription (51 issues): \$215. Foreign postage extra: Mexico, Caribbean (surface mail) \$50; other countries (air assist delivery) \$95. First class, airmail, student and emeritus rates on request. Canadian rates with GST available upon request. GST #1254 88122. **Printed in the U.S.A.**

## ■ Indicates accompanying feature

**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 2033, Marion, OH 43305-2033. **Single copy sales:** \$6.00 per issue prepaid includes surface postage; Guide to Biotechnology Products and Instruments, \$20. 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, MA 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.

# Science

**265 (5172)**

*Science* **265** (5172), 585-692.

**ARTICLE TOOLS**

<http://science.sciencemag.org/content/265/5172>

**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.