



SHARON GUYNAP

1099
Preserving
biodiversity

NEWS

Clinton's Technology Agenda 1076
Congress: A Familiar Face Amid Turmoil
They Backed the Winning Team
Science Jobs: Who Will Get Lost in Transition?

**MicroGeneSys Vaccine Trial Gets
A Public Peer Review 1079**

**Closing In On Melanoma Susceptibility
Gene(s) 1080**

**Earth Scientists Assemble Atop an
Ancient Rift 1082**

A New Kind of Organic Gardening 1084

**Playing 'Telephone' With the Body's
Message of Pain 1085**

PERSPECTIVE

A Fifty-Year Plan for Biodiversity Surveys 1099
P. H. Raven and E. O. Wilson

ARTICLES

**Prevalence of AIDS-Related Risk Factors
and Condom Use in the United States 1101**
J. A. Catania, T. J. Coates, R. Stall, H. Turner,
J. Peterson, N. Hearst, M. M. Dolcini, E. Hudes,
J. Gagnon, J. Wiley, R. Groves

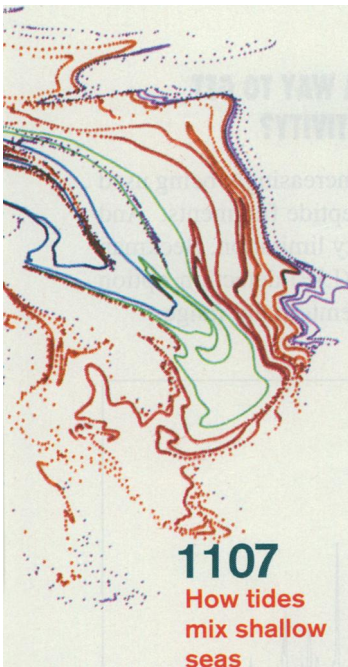
Chaotic Stirring in a Tidal System 1107
H. Ridderinkhof and J. T. F. Zimmerman

RESEARCH ARTICLE

**Mechanism of DNA Strand Transfer
Reactions Catalyzed by HIV-1 Reverse
Transcriptase 1112**
J. A. Peliska and S. J. Benkovic

REPORTS

**Observation of Metastable Structural
Excitations and Concerted Atomic Motions
on a Crystal Surface 1119**
I.-S. Hwang and J. Golovchenko



1107
How tides
mix shallow
seas

DEPARTMENTS

THIS WEEK IN SCIENCE 1065

EDITORIAL 1067
Minorities in Science

LETTERS 1069
European Research Institutes: H. Herberth and
B. Müller-Hill; D. A. Pendlebury and A. Anderson
• The Federal Budget and Special Interests:
J. M. Cornman • UV Light Exposure and HIV
Replication: M. Clerici and G. M. Shearer • Yucatan
Meteor: The Real Impact: D. H. Janzen • New
Observations: C. Hardin

SCIENCESCOPE 1075

RANDOM SAMPLES 1086
Scientists Defend Russian Whistleblower • Stamp
Honors Black Chemist • Aluminum Hypothesis
Shot Down • Minorities in Medicine • Getting
an Earful of Climate, etc.

BOOK REVIEWS 1168
The Rise of the Gumbelt, reviewed by S. W. Leslie •
Other Books of Interest • Minorities in Science:
Bibliographic Highlights • Vignettes: Real Powers •
Books Received

PRODUCTS & MATERIALS 1173

AAAS Board of Directors

Leon M. Lederman
*Retiring President,
Chairman*
F. Sherwood Rowland
President
Eloise E. Clark
President-elect
Mary Ellen Avery
Francisco J. Ayala
Robert A. Frosch

Florence P. Haseltine
Alan Schriesheim
Jean'ne M. Shreeve
Chang-Lin Tien
Warren M. Washington

William T. Golden
Treasurer
Richard S. Nicholson
Executive Officer

John Abelson
Frederick W. Alt
Don L. Anderson
Stephen J. Benkovic
David E. Bloom
Floyd E. Bloom
Henry R. Bourne
James J. Bull
Kathryn Calame
C. Thomas Caskey
Dennis W. Choi

John M. Coffin
Bruce F. Eldridge
Paul T. Englund
Richard G. Fairbanks
Douglas T. Fearon
Harry A. Fozzard
Victor R. Fuchs
Theodore H. Geballe
Margaret J. Geller
John C. Gerhart
Roger I. M. Glass

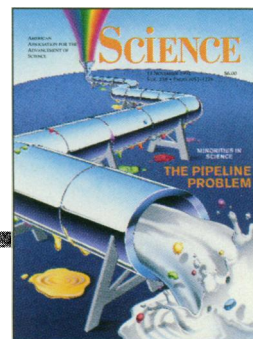
Stephen P. Goff
Corey S. Goodman
Stephen J. Gould
Ira Herskowitz
Eric F. Johnson
Stephen M. Kosslyn
Michael LaBarbera
Charles S. Levings III
Harvey F. Lodish
Richard Losick
Anthony R. Means

Mortimer Mishkin
Roger A. Nicoll
William H. Orme-Johnson III
Stuart L. Pimm
Yeshayau Pocker
Dennis A. Powers
Ralph S. Quatrano
V. Ramanathan
Douglas C. Rees
Erkki Ruoslahti
Ronald H. Schwartz

Terrence J. Sejnowski
Thomas A. Steitz
Richard A. Thompson
Robert T. N. Tjian
Emil R. Unanue
Geerat J. Vermeij
Bert Vogelstein
Harold Weintraub
Zena Werb
George M. Whitesides
Owen N. Witte
Keith Yamamoto

For two decades, U.S. scientists, educators, corporate executives, and government officials have struggled vainly to plug a pipeline: Minorities are leaking from our educational system at a rate that guarantees a predominantly white scientific workplace through the end of this

century. Beginning on page 1175 and including an essay by NSF director Walter Massey (page 1177), a special section in this issue probes the causes of our past failures on this front and identifies solutions on the horizon. [Illustration: Stephen Bauer]

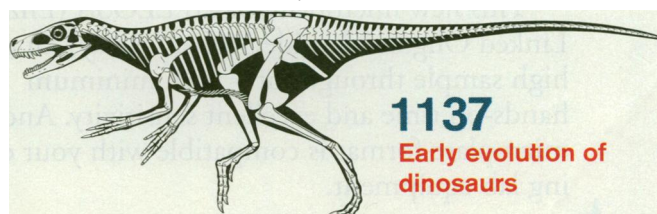


MINORITIES IN SCIENCE 1175

The Pipeline Problem as Seen by a Survivor—Walter Massey's Story • Investigative Report: Two Decades of Failed Programs • Probing Programs That Work • Math's Meager Numbers • Minority Success Stories • Tales from the Campus • Black College Pluses, Minuses • Asian-Americans' Glass Ceilings • Special Concerns of American Indians • Inner-City L.A. to Yale—A Personal Reflection • Data & Resources

Downloaded from <http://science.sciencemag.org/> on January 16, 2019

- | | | | |
|---|-------------|--|-------------|
| Direct Mechanical Measurements of the Elasticity of Single DNA Molecules by Using Magnetic Beads | 1122 | Bacteriophage λPaPa: Not the Mother of All λ Phages | 1145 |
| S. B. Smith, L. Finzi, C. Bustamante | | R. W. Hendrix and R. L. Duda | |
| Complete Wetting from Polymer Mixtures | 1126 | Assignment of a Locus for Familial Melanoma, MLM, to Chromosome 9p13-p22 | 1148 |
| U. Steiner, J. Klein, E. Eiser, A. Budkowski, L. J. Fetters | | L. A. Cannon-Albright, D. E. Goldgar, L. J. Meyer, C. M. Lewis, D. E. Anderson, J. W. Fountain, M. E. Hegi, R. W. Wiseman, E. M. Petty, A. E. Bale, O. I. Olopade, M. O. Diaz, D. J. Kwiatkowski, M. W. Piepkorn, J. J. Zone, M. H. Skolnick | |
| Electron Photodetachment Cross Sections of Small Carbon Clusters: Evidence for Nonlinear Isomers | 1129 | A Functional Connection Between the Pores of Distantly Related Ion Channels as Revealed by Mutant K⁺ Channels | 1152 |
| D. Zajfman, H. Feldman, O. Heber, D. Kella, D. Majer, Z. Vager, R. Naaman | | L. Heginbotham, T. Abramson, R. MacKinnon | |
| A Liquid-Solution-Phase Synthesis of Crystalline Silicon | 1131 | B Cells Turn Off Virgin But Not Memory T Cells | 1156 |
| J. R. Heath | | E. J. Fuchs and P. Matzinger | |
| Micropaleontological Evidence for Increased Meridional Heat Transport in the North Atlantic Ocean During the Pliocene | 1133 | TECHNICAL COMMENTS | |
| H. J. Dowsett, T. M. Cronin, R. Z. Poore, R. S. Thompson, R. C. Whatley, A. M. Wood | | Perceptual Correlates of Massive Cortical Reorganization | 1159 |
| The Evolutionary Convergence of Hearing in a Parasitoid Fly and Its Cricket Host | 1135 | V. S. Ramachandran, D. Rogers-Ramachandran, M. Stewart; T. P. Pons | |
| D. Robert, J. Amoroso, R. R. Hoy | | Structural Similarity Between Transforming Growth Factor-β2 and Nerve Growth Factor | 1160 |
| The Complete Skull and Skeleton of an Early Dinosaur | 1137 | M. B. Swindells; S. Daopin, G. H. Cohen, D. Davies | |
| P. C. Sereno and F. E. Novas | | Silica-Carbonate Isotopic Temperature Calibration | 1162 |
| Cooperativity Induced by a Single Mutation at the Subunit Interface of a Dimeric Enzyme: Glutathione Reductase | 1140 | R. N. Clayton; A. Shemesh | |
| N. S. Scrutton, M. P. Deonarain, A. Berry, R. N. Perham | | | |
| In Vitro Transcriptional Activation by a Metabolic Intermediate: Activation by Leu3 Depends on α-Isopropylmalate | 1143 | | |
| J.-Y. Sze, M. Woontner, J. A. Jaehning, G. B. Kohlhw | | | |



1137
Early evolution of dinosaurs

■ Indicates accompanying feature

■ **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 © 1992 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): \$87 (\$47 allocated to subscription). Domestic institutional subscription (51 issues): \$195. 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 #125488122. **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.

■ 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.

Science

258 (5085)

Science **258** (5085), 1065-1237.

ARTICLE TOOLS

<http://science.sciencemag.org/content/258/5085>

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.