

Science

1200 New York Avenue, NW
Washington, DC 20005

Editorial: 202-326-6550, FAX 202-289-7562

News: 202-326-6581, FAX 202-371-9227

Bateman House, 82-88 Hills Road

Cambridge, UK CB2 1LQ

+44 (0) 1223 326500, FAX +44 (0) 1223 326501

SUBSCRIPTION SERVICES For change of address, missing issues, new orders and renewals, and payment questions: 866-434-AAAS (2277) or 202-326-6417, FAX 202-842-1065. Mailing addresses: AAAS, P.O. Box 96178, Washington, DC 20090-6178 or AAAS Member Services, 1200 New York Avenue, NW, Washington, DC 20005

INSTITUTIONAL SITE LICENSES please call 202-326-6755 for any questions or information

REPRINTS: Author Inquiries 800-635-7181

Commercial Inquiries 803-359-4578

PERMISSIONS 202-326-7074, FAX 202-682-0816

MEMBER BENEFITS AAAS/Barnes&Noble.com bookstore www.aaas.org/bn; AAAS Online Store www.apisource.com/aaas/ code MKB6; AAAS Travels: Betchart Expeditions 800-252-4910; Apple Store www.apple.com/epstore/aaas; Bank of America MasterCard 1-800-833-6262 priority code FAA3YU; Cold Spring Harbor Laboratory Press Publications www.cshlpress.com/affiliates/aaas.htm; GEICO Auto Insurance www.geico.com/landingpage/go51.htm?logo=17624; Hertz 800-654-2200 CDP#343457; Office Depot <https://bsd.officedepot.com/portalLogin.do>; Seabury & Smith Life Insurance 800-424-9883; Subaru VIP Program 202-326-6417; VIP Moving Services www.vipmayflower.com/domestic/index.html; Other Benefits: AAAS Member Services 202-326-6417 or www.aaasmember.org

science_editors@aaas.org (for general editorial queries)

science_letters@aaas.org (for queries about letters)

science_reviews@aaas.org (for returning manuscript reviews)

science_bookrevs@aaas.org (for book review queries)

Published by the American Association for the Advancement of Science (AAAS), *Science* serves its readers as a forum for the presentation and discussion of important issues related to the advancement of science, including the presentation of minority or conflicting points of view, rather than by publishing only material on which a consensus has been reached. Accordingly, all articles published in *Science*—including editorials, news and comment, and book reviews—are signed and reflect the individual views of the authors and not official points of view adopted by AAAS or the institutions with which the authors are affiliated.

AAAS was founded in 1848 and incorporated in 1874. Its mission is to advance science, engineering, and innovation throughout the world for the benefit of all people. The goals of the association are to: enhance communication among scientists, engineers, and the public; promote and defend the integrity of science and its use; strengthen support for the science and technology enterprise; provide a voice for science on societal issues; promote the responsible use of science in public policy; strengthen and diversify the science and technology workforce; foster education in science and technology for everyone; increase public engagement with science and technology; and advance international cooperation in science.

INFORMATION FOR AUTHORS

See pages 784 and 785 of the 11 February 2011 issue or access www.sciencemag.org/about/authors

EXECUTIVE EDITOR

Monica M. Bradford

NEWS EDITOR

Colin Norman

MANAGING EDITOR, RESEARCH JOURNALS Katrina L. Kelner

DEPUTY EDITORS R. Brooks Hanson, Barbara R. Jasny, Andrew M. Sugden

EDITORIAL SENIOR EDITORS/COMMENTARY Lisa D. Chong, Brad Wible; **SENIOR EDITORS** Gilbert J. Chin, Pamela J. Hines, Paula A. Kiberstis (Boston), Marc S. Lavine (Toronto), Beverly A. Purnell, L. Bryan Ray, Guy Riddihough, H. Jesse Smith, Phillip D. Szuroni (Tennessee), Valda Vinson, Jake S. Yeston, Laura M. Zahn (San Diego); **ASSOCIATE EDITORS** Kristen L. Mueller, Jelena Stajic, Sacha Vignieri, Nicholas S. Wigginton; **BOOK REVIEW EDITOR** Sherman J. Suter; **ASSOCIATE LETTERS EDITOR** Jennifer Sills; **EDITORIAL MANAGER** Cara Tate; **SENIOR COPY EDITORS** Jeffrey E. Cook, Cynthia Howe, Harry Jack, Lauren Kmec, Barbara P. Ordway, Trista Wagoner; **COPY EDITOR** Chris Filiatreau; **SENIOR EDITORIAL COORDINATORS** Carolyn Kyle, Beverly Shields; **EDITORIAL COORDINATORS** Joi S. Granger, Anita Wynn; **PUBLICATIONS ASSISTANTS** Ramatoulaye Diop, Aneera Dobbins, Emily Guise, Jeffrey Hearn, Michael Hicks, Lisa Johnson, Scott Miller, Jerry Richardson, Teresa R. Sakon, Brian White; **EDITORIAL ASSISTANT** Patricia M. Moore; **EXECUTIVE EDITORIAL ASSISTANT** Yolanda O'Bannon (San Francisco); **EXECUTIVE ASSISTANT** Alison Crawford; **ADMINISTRATIVE SUPPORT** Maryrose Madrid; **EDITORIAL FELLOW** Melissa R. McCartney

EDITORIAL DIRECTOR, WEB AND NEW MEDIA Stewart Wells; **SENIOR WEB EDITOR** Tara S. Marathe; **RESEARCH ASSOCIATE** Corinna Cohn; **WEB DEVELOPMENT MANAGER** Martyn Green; **WEB DEVELOPER** Andrew Whitesell; **INTERNS** Andrew Green, Kerry Klein

NEWS DEPUTY NEWS EDITORS Robert Coontz, David Grimm (Online), Eliot Marshall, Jeffrey Meslin, Leslie Roberts, John Travis; **CONTRIBUTING EDITORS** Elizabeth Colutto, Polly Shulman; **NEWS WRITERS** Yudhijit Bhattacharjee, Adrian Cho, Jennifer Couzin-Frankel, Carolyn Gramling, Jocelyn Kaiser, Richard A. Kerr, David Malakoff, Greg Miller, Elizabeth Pennisi, Robert F. Service (Pacific NW), Erik Stokstad; **WEB DEVELOPER** Daniel Berger; **INTERN** Daniel Strain; **CONTRIBUTING CORRESPONDENTS** Jon Cohen (San Diego, CA), Daniel Ferber, Ann Gibbons, Sam Kean, Andrew Lawler, Mitch Leslie, Charles C. Mann, Virginia Morell, Gary Taubes; **COPY EDITORS** Linda B. Felaco, Melvin Gatling, Melissa Raimondo; **ADMINISTRATIVE SUPPORT** Scherraine Mack; **BUREAUS** San Diego, CA: 760-942-3252, FAX 760-942-4979; Pacific North West: 503-963-1940

PRODUCTION DIRECTOR Wendy K. Shank; **ASSISTANT MANAGER** Rebecca Doshi; **SENIOR SPECIALISTS** Steve Forrester, Chris Redwood, Anthony Rosen; **PREFLIGHT DIRECTOR** David M. Tompkins; **MANAGER** Marcus Spiegler; **SPECIALISTS** Jason Hillman, Tara Kelly

ART DIRECTOR Yael Fitzpatrick; **ASSOCIATE ART DIRECTOR** Laura Creveling; **SENIOR ILLUSTRATORS** Chris Bickel, Katharine Sutliff; **ILLUSTRATOR** Yana Hammond; **SENIOR ART ASSOCIATES** Holly Bishop, Preston Huey, Nayomi Kevitiyagala, Matthew Twombly; **ART ASSOCIATE** Kay Engman; **PHOTO EDITOR** Leslie Blizard

SCIENCE INTERNATIONAL

EUROPE (science@science-int.co.uk) **EDITORIAL: INTERNATIONAL MANAGING EDITOR** Andrew M. Sugden; **SENIOR EDITOR/COMMENTARY** Julia Fahrenkamp-Uppenbrink; **SENIOR EDITORS** Caroline Ash, Stella M. Hurlley, Ian S. Osborne, Peter Stern; **ASSOCIATE EDITOR** Maria Cruz; **LOCUM EDITOR** Helen Pickersgill; **EDITORIAL SUPPORT** Samantha Hogg, Alice Whaley; **ADMINISTRATIVE SUPPORT** John Cannell, Janet Clements, Louise Hartwell; **NEWS: DEPUTY NEWS EDITOR, U.K.** Daniel Clery; **NEWSWRITER** Sara Reardon; **CONTRIBUTING EDITOR**, Europe Martin Enserink; **CONTRIBUTING CORRESPONDENTS** Michael Balter (Paris), John Bohannon (Vienna), Gretchen Vogel (Berlin)

ASIA Japan Office: Asca Corporation, Tomoko Furusawa, Rustic Bldg. 7F, 77 Tenjin-cho, Shinjuku-ku, Tokyo 162-0808, Japan; +81 3 6802 4616, FAX +81 3 6802 4615, inquiry@sciencemag.jp; **ASIA NEWS EDITOR** Richard Stone (Beijing: rstone@aaas.org); **CONTRIBUTING CORRESPONDENTS** Dennis Normile (Japan: +81 (0) 3 3391 0630, FAX +81 (0) 3 5936 3531; dnormile@gol.com); Hao Xin [China: cindyhao@gmail.com]; Mara Hvistendahl [China: mara@marahvistendahl.com]; Pallava Bagla [South Asia: +91 (0) 11 2271 2896; pbagla@vsnl.com]

FULFILLMENT SYSTEMS AND OPERATIONS (membership@aaas.org): **CUSTOMER SERVICE SUPERVISOR** Pat Butler; **SPECIALISTS** Latoya Casteel, Lavonda Crawford, Vicki Linton, April Marshall; **DATA ENTRY SUPERVISOR** Cynthia Johnson; **SPECIALISTS** Shirlene Hall, Tarrika Hill, William Jones

BUSINESS OPERATIONS AND ADMINISTRATION DIRECTOR Deborah Rivera-Wienhold; **BUSINESS SYSTEMS AND FINANCIAL ANALYSIS DIRECTOR** Randy Yi; **MANAGER, FULFILLMENT SYSTEMS** Frits Buningh; **MANAGER, BUSINESS ANALYSIS** Eric Knott; **MANAGER, BUSINESS OPERATIONS** Jessica Tierney; **BUSINESS ANALYSIS** Priti Pamnani, Celeste Troxler; **Christine Wehrli**; **RIGHTS AND PERMISSIONS: ADMINISTRATOR** Emilie David; **ASSOCIATE** Elizabeth Sandler; **MARKETING DIRECTOR** Ian King; **MARKETING MANAGERS** Allison Pritchard, Alison Chandler, Julianne Wielga, Samantha Smith; **MARKETING ASSOCIATES** Aimee Aponte, Mary Ellen Crowley; **SENIOR MARKETING EXECUTIVE** Jennifer Reeves; **DIRECTOR, SITE LICENSING** Tom Ryan; **DIRECTOR, CORPORATE RELATIONS** Eileen Bernadette Moran; **SENIOR PUBLISHER RELATIONS SPECIALIST** Kiki Forsythe; **PUBLISHER RELATIONS MANAGER** Catherine Holland; **PUBLISHER RELATIONS, EASTERN REGION** Phillip Smith; **PUBLISHER RELATIONS, WESTERN REGION** Ryan Rexroth; **CUSTOMER RELATIONS MANAGER** Iqou Edim; **CUSTOMER RELATIONS COORDINATOR** David Lee; **MARKETING MANAGER** Christina Schlecht; **MARKETING ASSOCIATES** Laura Tutino, Chad Johnson; **ELECTRONIC MEDIA DIRECTOR** Lizbeth Harman; **ASSISTANT MANAGER** Lisa Stanford; **SENIOR PRODUCTION SPECIALIST** Ryan Atkins; **PRODUCTION SPECIALISTS** Antoinette Hodal, Nichele Johnston, Kimberly Oster; **DIRECTOR, WEB AND NEW MEDIA** Will Collins; **PROJECT MANAGER** Trista Snyder; **SENIOR PRODUCTION SPECIALIST** Christopher Coleman; **COMPUTER SPECIALISTS** Walter Jones, Kai Zhang

ADVERTISING DIRECTOR, WORLDWIDE AD SALES Bill Moran

COMMERCIAL EDITOR Sean Sanders: 202-326-6430

ASSISTANT COMMERCIAL EDITOR Tianna Hicklin 202-326-6463

Product (science_advertising@aaas.org); **MIDWEST** Rick Bolognanni: 330-405-7080, FAX 330-405-7081; **EAST COAST/E. CANADA** Laurie Faraday: 508-747-9395, FAX 617-507-8189; **WEST COAST/W. CANADA** Lynne Stickrod: 415-931-9782, FAX 415-520-6940; **UK/EUROPE/ASIA** Roger Goncalves: TEL/FAX +41 43 243 1358; **JAPAN ASCA CORPORATION**, Makiko Hara: +81 (0) 3 6802 4616, FAX +81 (0) 3 6802 4615; ads@sciencemag.jp; **CHINA/TAIWAN** Ruolei Wu: +86 1367 1015 294 rwu@aaas.org

WORLDWIDE ASSOCIATE DIRECTOR OF SCIENCE CAREERS Tracy Holmes: +44 (0) 1223 326525, FAX +44 (0) 1223 326532

CLASSIFIED (advertising@sciencecareers.org); **U.S.: MIDWEST/WEST COAST/SOUTH CENTRAL/CANADA** Tina Burck: 202-326-6577; **EAST COAST/INDUSTRY** Elizabeth Early: 202-326-6578; **SALES ADMINISTRATOR** Marci Gallun; **EUROPE/ROW SALES** Simone Jux, Alex Palmer; **SALES ASSISTANT** Lisa Patterson; **JAPAN** ASCA Corporation, Makiko Hara +81 (0) 3 6802 4616, FAX +81 (0) 3 6802 4615; careerads@sciencemag.jp; **CHINA/TAIWAN** Ruolei Wu: +86 1367 1015 294 rwu@aaas.org; **ADVERTISING SUPPORT MANAGER** Karen Foote: 202-326-6740; **ADVERTISING PRODUCTION OPERATIONS MANAGER** Deborah Tompkins; **SENIOR PRODUCTION SPECIALIST/GRAPHIC DESIGNER** Amy Harcastice; **PRODUCTION SPECIALIST** Yuse Lajjiminhuip; **SENIOR TRAFFIC ASSOCIATE** Christine Hall; **SALES COORDINATOR** Shirley Young

AAAS BOARD OF DIRECTORS RETIRING PRESIDENT, CHAIR Alice Huang; **PRESIDENT** Nina Fedoroff; **PRESIDENT-ELECT** William Press; **TREASURER** David E. Shaw; **CHIEF EXECUTIVE OFFICER** Alan I. Leshner; **BOARD** Nancy Knowlton, Stephen Mayo, Raymond Orbach, Julia M. Phillips, Sue V. Rosser, David D. Sabatini, Ined Verma, Thomas A. Woolsey



ADVANCING SCIENCE. SERVING SOCIETY

SENIOR EDITORIAL BOARD

A. Paul Alivisatos, Lawrence Berkeley Nat'l. Laboratory

Cort Bargmann, The Rockefeller Univ.

Ernst Fehr, Univ. of Zurich

Richard Losick, Harvard Univ.

Michael S. Turner, University of Chicago

BOARD OF REVIEWING EDITORS

Adriano Aguzzi, Univ. Hospital Zurich

Takuzo Aida, Univ. of Tokyo

Sonia Altizer, Univ. of Georgia

Sebastian Amigorena, Institut Curie

Angelika Amon, MIT

Kathryn Anderson, Memorial Sloan-Kettering Cancer Center

Siv G. E. Andersson, Upsala Univ.

Peter Andolfatto, Princeton Univ.

Meinrat O. Andreae, Max Planck Inst., Mainz

John A. Bargh, Yale Univ.

Ben Barnes, Stanford Medical School

Marisa Bartolomei, Univ. of Penn. School of Med.

Jordi Bascompte, Estación Biológica de Doñana, CSIC

Facundo Batista, London Research Inst.

Ray H. Baughman, Univ. of Texas, Dallas

David Baum, Univ. of Wisconsin

Yasmine Belkadi, INMID, NIH

Philip Benfey, Duke Univ.

Stephen J. Benkovic, Penn State Univ.

Gregory C. Berzoz, Stanford Univ.

Peer Bork, EMBL

Bernard Bourdieu, Ecole Normale Supérieure de Lyon

Ian Boyd, Univ. of St. Andrews

Paul M. Brakefield, Univ. of Cambridge

Christian Büchel, Universitätsklinikum Hamburg-Eppendorf

Joseph A. Burns, Cornell Univ.

William P. Butz, Population Reference Bureau

Gyorgy Buzsáki, Rutgers Univ.

Mats Carlsson, Univ. of Oslo

Mildred Cho, Stanford Univ.

David Clapham, Children's Hospital, Boston

David Clary, Univ. of Oxford

J. M. Claverie, CNRS, Marseille

Jonathan D. Cohen, Princeton Univ.

Alan Cowman, Walter & Eliza Hall Inst.

Robert H. Crabtree, Yale Univ.

Wolfgang Cramer, Inst. for Ecology & Paleoecology

F. Fleming Crim, Univ. of Wisconsin

Jeff L. Dangl, Univ. of North Carolina

Tom Daniell, Univ. of Washington

Stanislas Dehaene, Collège de France

Emmanouil T. Demertzis, Univ. of Geneva Medical School

Robert Desimone, MIT

Claude Despland, New York Univ.

Ad Dijkerhuis, Radboud Univ. of Nijmegen

Dennis Discher, Univ. of Pennsylvania

Scott C. Doney, Woods Hole Oceanographic Inst.

Jennifer A. Doudna, Univ. of California, Berkeley

Julian Downward, Cancer Research UK

Bruce Dunn, Univ. of California, Los Angeles

Christopher Dye, WHO

David Ehrhard, Carnegie Inst. of Washington

Michael B. Elowitz, Calif. Inst. of Technology

Tim Elston, Univ. of North Carolina at Chapel Hill

Gerhard Ertl, Fritz-Haber-Institut, Berlin

Brian Everitt, Univ. of Cambridge

Paul G. Falkowski, Rutgers Univ.

Ernst Fehr, Univ. of Zurich

Tom Fenchel, Univ. of Copenhagen

Alain Fischer, INRA, France

Wulffram Gerstner, EPFL Lausanne

Karl-Heinz Glassmeier, TU Braunschweig

Diene Griffin, Johns Hopkins Bloomberg School of Public Health

Eizabeth Grove, Univ. of Chicago

Keijikji Ha, Univ. of Illinois at Urbana-Champaign

Christian Haass, Ludwig Maximilians Univ.

Steven Hahn, Fred Hutchinson Cancer Research Center

Gregory J. Hannon, Cold Spring Harbor Lab.

John A. Hanson, Max Planck Inst., Jena

Isaac Held, NOAA

James A. Hendler, Rensselaer Polytechnic Inst.

Janet G. Hering, Swiss Fed. Inst. of Aquatic Science & Technology

Michael H. Hoffmann, Univ. of Washington

Ray E. Hoegh-Guldberg, National Renewable Energy Lab.

Kai-Uwe Hinrichs, Univ. of Bremen

Kei Hirose, Tokyo Inst. of Technology

David Holdell, Univ. of Cambridge

Owe Hoegh-Guldberg, Univ. of Queensland

David Holden, Imperial College

Loua Hooper, UT Southwestern Medical Ctr at Dallas

Jeffrey A. Hubbell, EPFL Lausanne

Steven Jacobsen, Univ. of California, Los Angeles

Kai Johnson, EPR, Luzerne

Peter Jonas, Universität Freiburg

William Kaelin, Dana-Farber Cancer Inst.

Barbara B. Kahn, Harvard Medical School

Daniel Kahne, Harvard Univ.

Bernhard Keimer, Max Planck Inst., Stuttgart

Joe Kingsolver, Univ. of North Carolina at Chapel Hill

Robert Kingston, Harvard Medical School

Alberto R. Kornblith, Univ. of Buenos Aires

Leonid Kruglyak, Princeton Univ.

Mitchell A. Lazar, Univ. of Pennsylvania

David Lazer, Harvard Univ.

Virginia Lee, Univ. of Pennsylvania

Ottoline Leyser, Cambridge Univ.

Ole Lindvall, Univ. Hospital, Lund

Marcia C. Linn, Univ. of California, Berkeley

John Lis, Cornell Univ.

Jianguo Liu, Michigan State Univ.

Richard Losick, Harvard Univ.

Jonathan Losos, Harvard Univ.

Ke Lu, Chinese Acad. of Sciences

Laura Machesky, CRUK Beatson Inst. for Cancer Research

Andrew P. MacKenzie, Univ. of St. Andrews

Anne Magurran, Univ. of St. Andrews

Oscar Marin, CSIC & Univ. Miguel Hernández

Charles Marshall, Univ. of California, Berkeley

Martin M. Matzuk, Baylor College of Medicine

Grady Medley, Univ. of Warwick

Yasushi Miyashita, Univ. of Tokyo

Richard Morris, Univ. of Edinburgh

Edward Moser, Norwegian Univ. of Science and Technology

Sean Munro, MRC Lab. of Molecular Biology

Naoto Nagaosa, Univ. of Tokyo

James Nelson, Stanford Univ. School of Med.

Timothy W. Nilsen, Case Western Reserve Univ.

Pär Nordlund, Karolinska Inst.

Helga Nowotny, European Research Advisory Board

Luke O'Neill, Trinity College, Dublin

Stuart Orkin, Dana-Farber Cancer Inst.

Christine Ortiz, MIT

Elinor Ostrom, Indiana Univ.