

1200 New York Avenue, NW
Washington, DC 20005

Editorial: 202-326-6550, FAX 202-289-7522

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 (2227) 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.office depot.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 positions 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

MONICA M. BRADFORD

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. Szuroimi (Tennessee), Valda Vinson, Jake S. Yeston; **ASSOCIATE EDITORS** Kristi L. Mueller, Jelena Stajic, Sacha Vignieri, Nicholas S. Wigginton, Laura M. Zahn (San Diego); **BOOK REVIEW EDITOR** Sherman J. Suter; **ASSOCIATE LETTERS EDITOR** Jennifer Sills; **EDITORIAL MANAGER** Cara Tate; **SENIOR COPY EDITORS** Jeffrey E. Cook, Cynthia Howe, Harry Jach, Lauren Kmeic, Barbara P. Ordway, Trista Wagoner; **COPY EDITOR** Chris Filiatreau; **EDITORIAL COORDINATORS** Carolyn Kyle, Beverly Shields; **PUBLICATIONS ASSISTANTS** Ramatoulaye Diop, Joi S. Granger, Emily Guise, Jeffrey Hearn, Michael Hicks, Lisa Johnson, Scott Miller, Jerry Richardson, Brian White, Anita Wynior; **EDITORIAL ASSISTANTS** Emily C. Horton, Patricia M. Moore; **EXECUTIVE ASSISTANT** Alison Crawford; **ADMINISTRATIVE SUPPORT** Maryrose Madrid; **EDITORIAL FELLOW** Melissa R. McCartney

EDITORIAL DIRECTOR, WEB AND NEW MEDIA Stewart Wills; **SENIOR WEB EDITOR** Tara S. Marathe; **WEB EDITOR** Robert Frederick; **RESEARCH ASSOCIATE** Corinna Cohn; **WEB DEVELOPMENT MANAGER** Martyn Green; **WEB DEVELOPER** Andrew Whitesell

NEWS DEPUTY NEWS EDITORS Robert Coontz, David Grimm (Online), Eliot Marshall, Jeffrey Mervis, Leslie Roberts; **CONTRIBUTING EDITORS** Elizabeth Culotta, Polly Shulman; **NEWS WRITERS** Yudhijit Bhattacharjee, Adrian Cho, Jennifer Couzin, Jocelyn Kaiser, Richard A. Kerr, Eli Kintisch, Greg Miller, Elizabeth Pennisi, Lauren Schenkman, Robert F. Service (Pacific NW), Eric Stokstad; **WEB DEVELOPER** Daniel Berger; **INTERN** Sara Reardon; **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 Raimondi; **ADMINISTRATIVE SUPPORT** Scherraine Mack; **BUREAU** San Diego, CA: 760-942-3252, FAX 760-942-4979; Pacific Northwest: 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; **SPECIALIST** Jason Hillman

ART DIRECTOR Yael Fitzpatrick; **ASSOCIATE ART DIRECTOR** Laura Creveling; **SENIOR ILLUSTRATORS** Chris Bickel, Katharine Sutfitt; **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-int.co.uk) **EDITORIAL: INTERNATIONAL MANAGING EDITOR** Andrew M. Sugden; **SENIOR EDITOR/COMMENTARY** Julia Fahrenkamp-Upperink; **SENIOR EDITORS** Caroline Ash, Stella M. Hurtle, 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: EUROPE NEWS EDITOR** John Travis; **DEPUTY NEWS EDITOR** Daniel Clerj; **CONTRIBUTING CORRESPONDENTS** Michael Balter (Paris), John Bohannon (Vienna), Martin Enserink (Amsterdam and Paris), Gretchen Vogel (Berlin); **INTERN** Jennifer Carpenter

LATIN AMERICA CONTRIBUTING CORRESPONDENT Antonio Regalado

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; dnornile@got.com]; Hao Xin [China: cindyhao@gmail.com]; Pallava Bagla [South Asia: +91 (0) 11 2271 2896; pbagla@vsnl.com]

FULFILLMENT SYSTEMS AND OPERATIONS (membership@aaas.org); **DIRECTOR** Waylon Butler; **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, BUSINESS ANALYSIS** Eric Knott; **MANAGER, BUSINESS OPERATIONS** Jessica Tierney; **FINANCIAL ANALYSTS** Priti Pannani, Celeste Troxler; **RIGHTS AND PERMISSIONS: ADMINISTRATOR** Emilie David; **ASSOCIATE** Elizabeth Sandler; **MARKETING DIRECTOR** Ian King; **MARKETING MANAGERS** Allison Pritchard, Alison Chandler, Julianne Wielga; **MARKETING ASSOCIATES** Aimee Aponte, Mary Ellen Crowley, Wendy Wise; **SENIOR MARKETING EXECUTIVE** Jennifer Reeves; **DIRECTOR, SITE LICENSING** Tom Ryan; **DIRECTOR, CORPORATE RELATIONS** Eileen Bernadette Moran; **PUBLISHER RELATIONS, RESOURCES SPECIALIST** Kiki Forsythe; **SENIOR PUBLISHER RELATIONS SPECIALIST** Catherine Holland; **PUBLISHER RELATIONS, EAST COAST** Phillip Smith; **PUBLISHER RELATIONS, WEST COAST** Philip Tsolakidis; **FULFILLMENT SUPERVISOR** Iquo Edim; **FULFILLMENT COORDINATOR** Carrie MacDonald; **MARKETING MANAGER** Christina Schlecht; **MARKETING ASSOCIATE** Laura Tutino; **ELECTRONIC MEDIA: DIRECTOR** Elizabeth Harman; **PROJECT MANAGER** Trista Snyder; **ASSISTANT MANAGER** Lisa Stanford; **SENIOR PRODUCTION SPECIALISTS** Ryan Atkins, Christopher Coleman, **COMPUTER SPECIALIST** Walter Jones, Kai Zhang; **PRODUCTION SPECIALISTS** Antoinette Hodal, Nichele Johnston, Kimberly Oster; **DIRECTOR, WEB AND NEW MEDIA** Will Collins

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 Bongiovanni: 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 Sticker: 415-931-9782, FAX 415-520-6940; **UK/EUROPE/ASIA** Roger Gonçalves: TEL/FAX +41 43 243 1358; **JAPAN** ASCA Corporation, Nanako Ide +81 (0) 3 6802 4616, FAX +81 (0) 3 6802 4615; ads@sciencemag.jp;

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

CLASSIFIED (advertise@sciencecareers.org); **U.S.: MIDWEST/WEST COAST/ SOUTH CENTRAL/CANADA** Tina Burks: 202-326-6577; **EAST COAST/INDUSTRY** Elizabeth Early: 202-326-6578; **SALES ADMINISTRATOR:** Marci Gallun **SALES COORDINATORS** Shirley Young; **EUROPE/ROW SALES:** Susanne Kharraz, Dan Pennington, Alex Palmer; **SALES ASSISTANT** Lisa Patterson; **JAPAN** ASCA Corporation, Jie Chin +81 (0) 3 6802 4616, FAX +81 (0) 3 6802 4615; careerads@sciencemag.jp; **ADVERTISING SUPPORT MANAGER** Karen Foote: 202-326-6740; **ADVERTISING PRODUCTION OPERATIONS MANAGER** Deborah Tompkins; **SENIOR PRODUCTION SPECIALIST/GRAPHIC DESIGNER** Amy Hardcastle; **PRODUCTION SPECIALIST** Yuse Lajiminmuhj; **SENIOR TRAFFIC ASSOCIATE** Christine Hall

AAAS BOARD OF DIRECTORS RETIRING PRESIDENT, CHAIR Peter C. Agre; **PRESIDENT** Alice Huang; **PRESIDENT-ELECT** Nina Fedoroff; **TREASURER** David E. Shaw; **CHIEF EXECUTIVE OFFICER** Alan I. Leshner; **BOARD** Linda P. B. Katehi, Nancy Knowlton, Stephen Mayo, Cherry A. Murray, Julia M. Phillips, Sue V. Rosser, David D. Sabatini, Thomas A. Woolsey



ADVANCING SCIENCE. SERVING SOCIETY

SENIOR EDITORIAL BOARD

Cori Bargmann, *The Rockefeller Univ.*
John I. Brauman, *Chair, Stanford Univ.*
Richard Losick, *Harvard Univ.*
Michael S. Turner, *University of Chicago*

BOARD OF REVIEWING EDITORS

Adriano Aguzzi, *Univ. Hospital Zürich*
Tokuo Aida, *Univ. of Tokyo*
Sonia Altizer, *Univ. of Georgia*
Richard Amasino, *Univ. of Wisconsin, Madison*
Sebastian Amigorena, *Institut Curie*
Angelika Amon, *MIT*
Kathryn Anderson, *Memorial Sloan-Kettering Cancer Center*
Siv G. E. Andersson, *Uppsala Univ.*
Peter Andolfato, *Princeton Univ.*
Meinrat O. Andreae, *Max Planck Inst., Mainz*
John A. Bargh, *Yale Univ.*
Ben Barres, *Stanford Medical School*
Maria Bartolomei, *Univ. of Penn. School of Med.*
Jordi Bascompte, *Estación Biológica de Doñana, CSIC*
Facundo Batista, *London Research Inst.*
Ray B. Baughman, *Univ. of Texas, Dallas*
David Baum, *Univ. of Wisconsin*
Yasmine Belkaid, *NIAID, NIH*
Stephen J. Benkovic, *Penn State Univ.*
Gregory C. Berzosa, *Stanford Univ.*
Tom Bischoff, *Wageningen Univ.*
Mina Bissell, *Lawrence Berkeley National Lab*
Peer Bork, *EMBL*
Bernard Bourdon, *Ecole Normale Supérieure de Lyon*
Paul M. Brakefield, *Univ. of Cambridge*
Christian Büchel, *Universitätsklinikum Hamburg-Eppendorf*
Joseph A. Burns, *Cornell Univ.*
William P. Butz, *Population Reference Bureau*
György 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.*
Andrew Crossin, *Univ. of Liverpool*
Alan Cowman, *Walter & Eliza Hall Inst.*
Robert H. Crabtree, *Yale Univ.*

Wolfgang Cramer, *Potsdam Inst. for Climate Impact Research*
F. Fleming Crim, *Univ. of Harvard*
Jeff L. Dangl, *Univ. of North Carolina*
Tom Daniel, *Univ. of Washington*
Stanislav Dehaene, *Collège de France*
Emmanouil T. Dermitzakis, *Univ. of Geneva Medical School*
Robert Desimone, *MIT*
Claude Desplan, *New York Univ.*
Ap Dijksterhuis, *Radboud Univ. of Nijmegen*
Dennis Discher, *Univ. of Pennsylvania*
Scott C. Doney, *Woods Hole Oceanographic Inst.*
Jennifer A. Dunne, *Univ. of California, Berkeley*
Julian Downward, *Cancer Research UK*
Bruce Dunn, *Univ. of California, Los Angeles*
Christopher Dye, *WHO*
Michael B. Elowitz, *Calif. Inst. of Technology*
Tim Elston, *Univ. of New Carolina at Chapel Hill*
Gerrard Ertl, *Fritz-Haber-Institut, Berlin*
Barry Everitt, *Univ. of Cambridge*
Paul G. Falkowski, *Rutgers Univ.*
Ernst Fehr, *Univ. of Zurich*
Tom Fenichel, *Univ. of Copenhagen*
Alain Fischer, *INSERM*
Wulfram Gerstner, *EPFL Lausanne*
Karl-Heinz Glassmeier, *Inst. for Geophysics & Extraterrestrial Physics*
Diane Griffin, *Johns Hopkins Bloomberg School of Public Health*
Taejip 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.*
Dennis L. Hartmann, *Univ. of Washington*
Christin Hawkesworth, *Univ. of St Andrews*
Marin Heimann, *Max Planck Inst., Jena*
James A. Hendler, *Rensselaer Polytechnic Inst.*
Janet G. Hering, *Swiss Fed. Inst. of Aquatic Science & Technology*
Ray Hilborn, *Univ. of Washington*
Michael E. Himmel, *National Renewable Energy Lab.*
Ken Hirose, *Tokyo Inst. of Technology*
Ove Hoegh-Guldberg, *Univ. of Queensland*
Linda Holden, *Imperial College*
Dora Hooper, *UT Southwestern Medical Ctr at Dallas*
Jeffrey A. Hubbell, *EPFL Lausanne*
Steven Jacobson, *Univ. of California, Los Angeles*
Kai Johnsson, *Ecole Polytechnique Fédérale de Lausanne*

Peter Jonas, *Universität Freiburg*
Barbara Kahn, *Harvard Medical School*
Daniel Kahne, *Harvard Univ.*
Bernhard Keimer, *Max Planck Inst., Stuttgart*
Robert Kingston, *Harvard Medical School*
Hanna Kokko, *Univ. of Helsinki*
Alberto R. Kornblitt, *Univ. de Buenos Aires*
Leonid Kruglyak, *Princeton Univ.*
Nice Kump, *Penn State Univ.*
Mitchell A. Lazar, *Univ. of Pennsylvania*
David Lazer, *Harvard 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*
Gramha Medley, *Univ. of Warwick*
Yasushi Miyata, *Univ. of Tokyo*
Richard Morris, *Univ. of Edinburgh*
Edward Moser, *Norwegian Univ. of Science and Technology*
Sean Munro, *MRC Lab. of Molecular Biology*
Naoto Nagasawa, *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*
Stuart H. Orkin, *Dana-Farber Cancer Inst.*
Christine Ortiz, *MIT*
Elinor Ostrom, *Indiana Univ.*
Andrew Oswald, *Univ. of Warwick*
Jonathan T. Overpeck, *Univ. of Arizona*
P. David Pearson, *Univ. of California, Berkeley*
Reginald M. Penner, *Univ. of California, Irvine*
John H. J. Petrini, *Memorial Sloan-Kettering Cancer Center*
Simon Phillipot, *Univ. of Florida*
Philippe Poulin, *CNRS*
Clara R. Rensfrew, *Univ. of Cambridge*
Trevor Robbins, *Univ. of Cambridge*

Barbara A. Romanowicz, *Univ. of California, Berkeley*
Jens Røstrup-Nielsen, *Aarhus Univ.*
Edward M. Rubin, *Lawrence Berkeley National Lab*
Shimon Sakaguchi, *Kyoto Univ.*
Miguel Salmeron, *Lawrence Berkeley National Lab*
Jürgen Sanderkühler, *Medical Univ. of Vienna*
Randy Seeley, *Univ. of Cincinnati*
Christine Seidman, *Harvard Medical School*
Vladimir Shalaev, *Purdue Univ.*
Joseph Silk, *Univ. of Oxford*
Davor Solter, *Inst. of Medical Biology, Singapore*
Allan C. Spradling, *Carnegie Institution of Washington*
Jonathan Sprent, *Garvan Inst. of Medical Research*
Elisbeth Stern, *ETH Zürich*
Yoshiko Takahashi, *Nara Inst. of Science and Technology*
John Thomas, *Duke Univ.*
Jurg Tschopp, *Univ. of Lausanne*
Herbert Virgin, *Washington Univ.*
Bert Vogelstein, *Johns Hopkins Univ.*
Cynthia Volkert, *Univ. of Göttingen*
Bruce D. Walker, *Harvard Medical School*
Ian Walsley, *Univ. of Oxford*
Christopher A. Walsh, *Harvard Medical School*
David A. Wardle, *Swedish Inst. of Agric. Sciences*
Colin Watts, *Univ. of Dundee*
Detlef Weigel, *Max Planck Inst., Tübingen*
Jonathan Weissman, *Univ. of California, San Francisco*
Sue Wessler, *Univ. of Georgia*
Ian A. Wilson, *The Scripps Res. Inst.*
Timothy D. Wilson, *Univ. of Virginia*
Jan Zaenen, *Univ. of Leuven*
Wayana Zappella, *Univ. of Sao Paolo*
Jonathan Zehr, *Ocean Sciences*
Huda Zoghbi, *Baylor College of Medicine*
Maria Zuber, *MIT*

BOOK REVIEW BOARD

John Aldrich, *Duke Univ.*
David Bloom, *Harvard Univ.*
Angela Brackley, *Princeton Univ.*
Richard Swedler, *Univ. of Chicago*
Ed Wasserman, *Durham*
Wesley Wolpert, *Univ. College London*