

EDITORIAL

- 1011 Why National Science Academies?
Bruce Alberts
>> *Science Podcast*

NEWS OF THE WEEK

- 1018 A roundup of the week's top stories

NEWS & ANALYSIS

- 1020 What It Means for Agencies to Be Under the Sequester
- 1021 U.S. Agencies Directed to Make Research Papers Available
- 1022 Brain Project Draws Presidential Interest, but Mixed Reactions
- 1024 Europe Debates Ethics Reviews, Data Release
- 1025 New U.S. Rules Increase Oversight of H5N1 Studies, Other Risky Science
>> *Policy Forum p. 1036; See all H5N1 coverage online at http://scim.ag/_h5n1*

NEWS FOCUS

- 1026 A Call to Cyber Arms
>> *Science Podcast*
- 1028 Cooling a Hot Zone
Astronomers Lend Know-How to Cleanup
- 1030 Pollutants Capture the High Ground in the Himalayas

LETTERS

- 1032 A Call for Integrative Thinking
D. J. Rapport and L. Maffi

Data Re-Identification: Prioritize Privacy
A. Gutmann

Data Re-Identification: Societal Safeguards
R. B. Altman et al.

Data Re-Identification: Protect the Children
D. Gurwitz

- 1033 CORRECTIONS AND CLARIFICATIONS

- 1033 TECHNICAL COMMENT ABSTRACTS

BOOKS ET AL.

- 1034 On a Farther Shore
W. Souder, reviewed by F. R. Davis
- 1035 The Ethics of Species
R. L. Sandler, reviewed by P. W. Hughes

POLICY FORUMS

- 1036 A Framework for Decisions About Research with HPAI H5N1 Viruses
A. P. Patterson et al.
>> *News story p. 1025; See all H5N1 coverage online at http://scim.ag/_h5n1*
- 1038 Legal Trade of Africa's Rhino Horns
D. Biggs et al.

PERSPECTIVES

- 1040 Machinery to Reverse Irreversible Aggregates
H. R. Saibil
>> *Report p. 1080*
- 1041 Two Indistinguishable Electrons Interfere in an Electronic Device
C. Schönberger
>> *Report p. 1054*
- 1042 Leads and Lags at the End of the Last Ice Age
E. J. Brook
>> *Report p. 1060*
- 1044 Welcome to the Microgenderome
M. B. Flak et al.
>> *Report p. 1084*
- 1045 One Genome, Two Ontogenies
W. E. Friedman
>> *Report p. 1067*

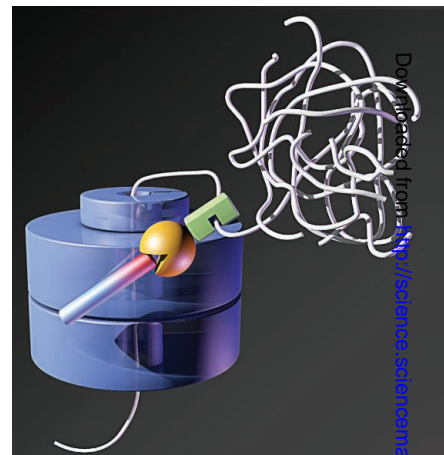
REVIEW

- 1047 The Continuing Challenge of Understanding, Preventing, and Treating Neural Tube Defects
J. B. Wallingford et al.
Review Summary; for full text: <http://dx.doi.org/10.1126/science.1222002>

CONTENTS continued >>



page 1026



pages 1040 & 1080

Downloaded from <http://www.sciencemag.org> on September 22, 2010

Explore our rich online offerings, including multimedia, news, *Science Careers*, and our two research journals—*Science Signaling* and *Science Translational Medicine*—at www.sciencemag.org



COVER

The rock pigeon (*Columba livia*) exhibits spectacular variation among more than 350 different domestic breeds. The adult male Old Dutch capuchine shown here is one of many breeds with a crest of reversed feathers on its head and neck. See page 1063 for a description of the genetic origins of the head crest and the relationships among breeds. For the story behind the cover, go to <http://scim.ag/cov6123>.

Photo: Sydney Stringham

DEPARTMENTS

- 1009 This Week in *Science*
- 1012 Editors' Choice
- 1016 *Science* Staff
- 1103 New Products
- 1104 *Science Careers*

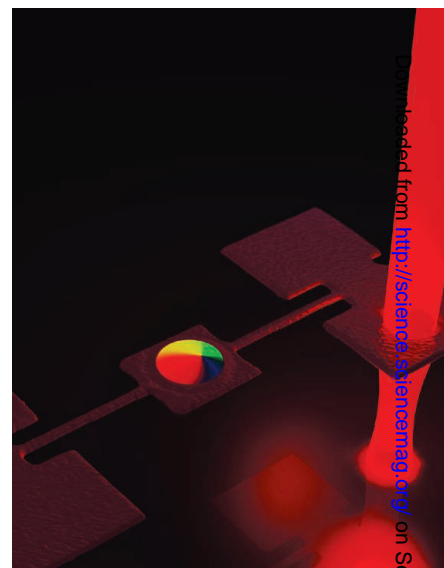
REPORTS

- 1048** A Black Hole Nova Obscured by an Inner Disk Torus
J. M. Corral-Santana et al.
Optical observations of a variable binary x-ray source reveal a black hole 3.6 times the Sun's mass in a short-period orbit.
- 1051** Quantitative Magneto-Mechanical Detection and Control of the Barkhausen Effect
J. A. J. Burgess et al.
A magnetic vortex core is used to probe nanoscale changes in magnetization.
- 1054** Coherence and Indistinguishability of Single Electrons Emitted by Independent Sources
E. Bocquillon et al.
The interference of single electrons emitted from independent sources is demonstrated.
>> *Perspective p. 1041*
- 1057** InP Nanowire Array Solar Cells Achieving 13.8% Efficiency by Exceeding the Ray Optics Limit
J. Wallentin et al.
Nanowire solar cells were fabricated that exhibit high photocurrents and low surface recombination.
- 1060** Synchronous Change of Atmospheric CO₂ and Antarctic Temperature During the Last Deglacial Warming
F. Parrenin et al.
Rising air temperature did not lead to the increase of atmospheric carbon dioxide concentration during the last deglaciation.
>> *Perspective p. 1042*
- 1063** Genomic Diversity and Evolution of the Head Crest in the Rock Pigeon
M. D. Shapiro et al.
From Piazza San Marco to Trafalgar Square, pigeons have captured the attention of tourists from around the world.
- 1067** KNOX2 Genes Regulate the Haploid-to-Diploid Morphological Transition in Land Plants
K. Sakakibara et al.
A transcription factor enables land plants to alternate between haploid and diploid status in successive generations.
>> *Perspective p. 1045*
- 1071** Mps1 and Ipl1/Aurora B Act Sequentially to Correctly Orient Chromosomes on the Meiotic Spindle of Budding Yeast
R. E. Meyer et al.
Two kinases mediate a partner-changing interlude that prevents chromosome segregation errors in yeast meiosis.

- 1074** Genome-Wide Quantitative Enhancer Activity Maps Identified by STARR-seq
C. D. Arnold et al.
A map of thousands of *Drosophila* cell type-specific enhancers is revealed using a new method.
- 1077** Genomic Analysis of Non-*NF2* Meningiomas Reveals Mutations in *TRAF7*, *KLF4*, *AKT1*, and *SMO*
V. E. Clark et al.
The mutational profiles of meningiomas, a common type of brain tumor, correlate with their anatomical location and clinical status.
- 1080** Unraveling the Mechanism of Protein Disaggregation Through a ClpB-DnaK Interaction
R. Rosenzweig et al.
Bacterial protein disaggregation elucidated via a combined biochemical methyl-transverse relaxation-optimized spectroscopy nuclear magnetic resonance approach.
>> *Perspective p. 1040*
- 1084** Sex Differences in the Gut Microbiome Drive Hormone-Dependent Regulation of Autoimmunity
J. G. M. Markle et al.
In mice, the gut microbiota influences levels of sex hormones and the development of autoimmune disease.
>> *Perspective p. 1044*
- 1088** Interferon- ϵ Protects the Female Reproductive Tract from Viral and Bacterial Infection
K. Y. Fung et al.
The cytokine interferon- ϵ is expressed in the female reproductive tract and protects against sexually transmitted diseases.
- 1092** Spreading Depression Triggers Headache by Activating Neuronal Panx1 Channels
H. Karatas et al.
Migraine results from a sequence of events starting from stressed cortical neurons and leading to the trigeminal nucleus.
- 1095** Stress in Puberty Unmasks Latent Neuropathological Consequences of Prenatal Immune Activation in Mice
S. Giovanoli et al.
Unfortunate synergies between stressors at vulnerable stages may underlie psychopathologies in mice.



pages 1045 & 1067



page 1051

SCIENCE (ISSN 0036-8075) is published weekly on Friday, except the last week in December, by the American Association for the Advancement of Science, 1200 New York Avenue, NW, Washington, DC 20005. Periodicals Mail postage (publication No. 484460) paid at Washington, DC, and additional mailing offices. Copyright © 2013 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): \$149 (\$74 allocated to subscription). Domestic institutional subscription (51 issues): \$990; Foreign postage extra: Mexico, Caribbean (surface mail) \$55; other countries (air assist delivery) \$85. First class, airmail, student, and emeritus rates on request. Canadian rates with GST available upon request, GST #1254 88122. Publications Mail Agreement Number 1069624. Printed in the U.S.A.

Change of address: Allow 4 weeks, giving old and new addresses and 8-digit account number. Postmaster: Send change of address to AAAS, P.O. Box 96178, Washington, DC 20090-6178. Single-copy sales: \$10.00 current issue, \$15.00 back issue prepaid includes surface postage; 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 \$30.00 per article is paid directly to CCC, 222 Rosewood Drive, Danvers, MA 01923. The identification code for Science is 0036-8075. Science is indexed in the Reader's Guide to Periodical Literature and in several specialized indexes.

Science

339 (6123)

Science **339** (6123), 1001-1103.

ARTICLE TOOLS

<http://science.sciencemag.org/content/339/6123>

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. The title *Science* is a registered trademark of AAAS.

Copyright © 2013 The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works.