

EDITORIAL

- 407 Young Researchers in Japan
Naoki Nagata and Shinya Yamanaka

NEWS OF THE WEEK

- 412 A roundup of the week's top stories

NEWS & ANALYSIS

- 414 Despite Large Research Effort, H7N9 Continues to Baffle
- 415 More High-Tech Visas, More STEM Education Funds
- 417 Deep Dig Shows Maya Architecture Arose Independently of Olmec's
>> Report p. 467
- 418 Dark-Matter Mystery Nears Its Moment of Truth
- 419 In Quest for Synchrotron, Brazil Tests Homespun Ingenuity a Second Time
- 421 In a Flurry of Metaphors, Justices Debate a Limit on Gene Patents

NEWS FOCUS

- 422 Public Enemy Number One
>> Science Podcast
- 426 American Association of Physical Anthropologists Meeting
When Early Hominins Got a Grip
Ardi's a Hominin—But How Did She Move?
- 426 Paleanthropology Society Meeting
Following the Males' Trail, 1.5 Million Years Later

LETTERS

- 428 The Brazilian Adirondacks?
C. G. Becker et al.
- Japan's Lagging Gender Equality
M. K. Homma et al.
- Readers' Poll Results: Funding Environment
Strategy Behind Science Policy Decisions
R. Juliano

- 430 TECHNICAL COMMENT ABSTRACTS

BOOKS ET AL.

- 432 Evidence-Based Policy
N. Cartwright and J. Hardie;
Public Policy in an Uncertain World
C. F. Manski, reviewed by B. Baird
- 433 SUPRA100
Muséum d'Histoire Naturelle Neuchâtel,
reviewed by T. Junier and P. Junier

POLICY FORUM

- 434 Human Subjects Protection and Research on Terrorism and Conflict
B. A. Jackson et al.

PERSPECTIVES

- 436 Plasticity in the Neurotransmitter Repertoire
S. J. Birren and E. Marder
>> Research Article p. 449
- 437 Animal Conformists
F. B. M. de Waal
>> Reports pp. 483 and 485
- 438 Irreversible Does Not Mean Unavoidable
H. D. Matthews and S. Solomon
- 440 A Circuitous Route to Noncoding RNA
J. E. Wilusz and P. A. Sharp
- 441 Are Gold Clusters in RF Fields Hot or Not?
H. K. Kim et al.
- 442 Melting Earth's Core
Y. Fei
>> Report p. 464

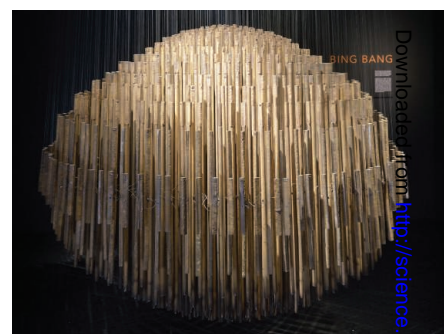
SCIENCE PRIZE ESSAY

- 444 Root Cause Analysis for Young Engineers
J. Immel

CONTENTS continued >>



page 422



page 433

ON THE WEB THIS WEEK

>> Science Podcast

Listen to stories on social networking in whales, a pulsar's affirmation of general relativity, monitoring TB in North Korea, and more.

>> Find More Online

Check out *Science Express*, daily news, our research journals, and *Science Careers* at www.sciencemag.org.



COVER

A carved stone head (height: 6.8 centimeters) excavated from the lowland Maya site of Ceibal, Guatemala (around 400 BCE). This piece was probably part of a full-figure statuette. Its carving in the typical Olmec style attests to the importance of interaction with other groups for the early development of lowland Maya civilization. See pages 417 and 467.

Reconstruction: Daniela Triadan; Photo: Takeshi Inomata

DEPARTMENTS

- 405 This Week in *Science*
- 408 Editors' Choice
- 410 *Science Staff*
- 446 AAAS News & Notes
- 499 New Products
- 500 *Science Careers*



pages 442 & 464



pages 437, 483, & 484

RESEARCH ARTICLES

- 448 **A Massive Pulsar in a Compact Relativistic Binary**
J. Antoniadis et al.
Observations of a pulsar confirm general relativity in the strong-field regime and reveal a perplexing stellar binary.
Research Article summary; for full text: <http://dx.doi.org/10.1126/science.1233232>
>> *Science Podcast*
- 449 **Neurotransmitter Switching in the Adult Brain Regulates Behavior**
D. Dulcis et al.
Switching rats from long days to short days causes neurons to change their neurotransmitters, and this changes behavior.
>> *Perspective p. 436*

REPORTS

- 454 **Vaterite Crystals Contain Two Interspersed Crystal Structures**
L. Kabalah-Amitai et al.
Electron microscopy reveals that vaterite, a calcium carbonate polymorph, comprises at least two distinct crystal structures.
- 457 **Direct Evidence of a Dinuclear Copper Intermediate in Cu(I)-Catalyzed Azide-Alkyne Cycloadditions**
B. T. Worrell et al.
The mechanism of a common and highly versatile molecular coupling reaction is elucidated.
- 460 **Observations of Ejecta Clouds Produced by Impacts onto Saturn's Rings**
M. S. Tiscareno et al.
Observations by the Cassini spacecraft provide evidence of meteoroid impacts onto Saturn's rings.
- 464 **Melting of Iron at Earth's Inner Core Boundary Based on Fast X-ray Diffraction**
S. Anzellini et al.
High-temperature and -pressure experiments simulate the melting behavior of metallic iron in Earth's core.
>> *Perspective p. 442*
- 467 **Early Ceremonial Constructions at Ceibal, Guatemala, and the Origins of Lowland Maya Civilization**
T. Inomata et al.
Excavations at the Mayan city of Ceibal, Guatemala, reveal early examples of plazas and pyramids.
>> *News story p. 417*

- 471 **PINK1-Phosphorylated Mitofusin 2 Is a Parkin Receptor for Culling Damaged Mitochondria**
Y. Chen and G. W. Dorn II
The Parkinson's disease factors PINK1 and Parkin interact with mitofusin 2 on damaged mitochondria.
- 475 **Direct Proteomic Quantification of the Secretome of Activated Immune Cells**
F. Meissner et al.
A mass spectrometry-based method detects picogram quantities of proteins secreted by macrophages.
- 479 **Deciphering the Glycosylome of Dystroglycanopathies Using Haploid Screens for Lassa Virus Entry**
L. T. Jae et al.
Deficiencies in the glycosylation of α -dystroglycan interfere with Lassa virus entry and link to Walker-Warburg syndrome.
- 483 **Potent Social Learning and Conformity Shape a Wild Primate's Foraging Decisions**
E. van de Waal et al.
A natural experiment reveals that wild vervet migrants adopt local norms when it comes to choosing foods.
- 485 **Network-Based Diffusion Analysis Reveals Cultural Transmission of Lobtail Feeding in Humpback Whales**
J. Allen et al.
Whales have learned from their peers how to use their tails to herd prey.
>> *Perspective p. 437; Science Podcast*
- 488 **Population Growth in a Wild Bird Is Buffered Against Phenological Mismatch**
T. E. Reed et al.
Warmer springtimes have induced great tits to lay their eggs earlier without affecting long-term fitness.
- 491 **Simultaneous Femtosecond X-ray Spectroscopy and Diffraction of Photosystem II at Room Temperature**
J. Kern et al.
A powerful x-ray laser source can extract the geometry and electronic structure of metalloenzymes prior to damaging them.
- 495 **Insect Morphological Diversification Through the Modification of Wing Serial Homologs**
T. Ohde et al.
Modification rather than loss of dorsal appendages has provided a diversifying mechanism for the insect body plan.

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.

Downloaded from <http://science.sciencemag.org/> on September 19, 2020

CREDIT: (BOTTOM) ERICA VAN DE WAAL

Science

340 (6131)

Science **340** (6131), 405-499.

ARTICLE TOOLS

<http://science.sciencemag.org/content/340/6131>

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.