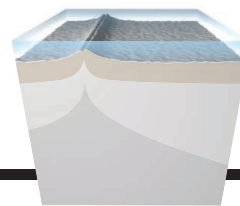


CONTENTS

3 MARCH 2017 • VOLUME 355 • ISSUE 6328



908 & 942

Taking the mantle's temperature



894

NEWS

IN BRIEF

890 News at a glance

IN DEPTH

893 GLOBAL TELESCOPE GEARS UP TO IMAGE BLACK HOLES

Radio dishes in Chile and Antarctica put event horizon of Milky Way's behemoth in reach
By D. Clery

894 SEQUENCING ALL LIFE CAPTIVATES BIOLOGISTS

Project would read genomes of more than a million eukaryotes—just for starters
By E. Pennisi

896 RAISING THE DRAWBRIDGE

Border clampdown could disrupt web of collaborations
By J. You, J. Bohannon, and R. Stone

897 TEST BLASTS SIMULATE A NUCLEAR ATTACK ON A PORT

Data could help point to perpetrators in aftermath
By R. Stone

898 CRITICS ASSAIL INDIA'S ATTEMPT TO 'VALIDATE' FOLK REMEDY

Some perceive an insidious effort to infuse Indian science with a Hindu worldview
By S. Kumar

899 CLOSE RELATIVE OF NEANDERTALS UNEARTHED IN CHINA

Partial skulls may belong to elusive Denisovans, who are known almost exclusively by their DNA
By A. Gibbons
▶ REPORT P. 969

FEATURES

900 INTO THE TWILIGHT ZONE

Naturalist Rich Pyle plumbs the undiscovered realm of deep, dimly lit reefs
By K. R. Weiss

903 Can deep reefs rescue shallow ones?
By K. R. Weiss

INSIGHTS

PERSPECTIVES

906 DURABLE RESISTANCE TO RICE BLAST

A resistance gene pair balances immunity against crop yield
By G.-L. Wang and B. Valent
▶ REPORT P. 962

907 MEMBRANE PROTEINS SCRAMBLING THROUGH A FOLDING LANDSCAPE

Improved force microscopy reveals unfolding steps with microsecond time resolution
By D. J. Müller and H. E. Gaub
▶ REPORT P. 945

908 A MEASURE OF MANTLE MELTING

Laboratory measurements suggest that the mantle is 60 K hotter than previously thought
By P. D. Asimow
▶ REPORT P. 942

910 WATCHING SPECIATION IN ACTION

An interplay between environmental and genetic change is responsible for the emergence of new species
By B. R. Grant and P. R. Grant

912 CLATHRATES GROW UP

Uniquely shaped nanocrystals customized with DNA shells assemble into highly complex clathrate structures
By D. Samanta and R. Klajn
▶ REPORT P. 931

913 PETER C. NOWELL (1928–2016)

Tumor biologist who set the stage for precision medicine
By M. I. Greene and J. S. Moore

POLICY FORUM

914 THE NEED FOR A TRANSLATIONAL SCIENCE OF DEMOCRACY

The political science community should focus on how to foster the health of democracy
By M. A. Neblo et al.



914

CONTENTS



912 & 931

Colloidal construction kit

3 MARCH 2017 • VOLUME 355 • ISSUE 6328

BOOKS ET AL.

916 DEEP EXPOSURES
Repurposing scientific materials into works of art, an artist confronts the Anthropocene *By D. Dixon*

917 TROUBLED WATERS
A sobering history calls for a concerted effort to save the world's largest freshwater lake system *By L. D. Jenkins*

LETTERS

918 AUSTRALIA NEEDS A WAKE-UP CALL
By N. Shumway et al.

918 PANAMA'S IMPOTENT MANGROVE LAWS
By G. A. Castellanos-Galindo et al.

919 PROTECT IRAN'S ANCIENT FOREST FROM LOGGING
By J. Müller et al.

RESEARCH

IN BRIEF

920 From *Science* and other journals

REVIEW

923 SYNTHETIC CHEMISTRY
The atom, the molecule, and the covalent organic framework
C. S. Diercks and O. M. Yaghi
REVIEW SUMMARY; FOR FULL TEXT:
dx.doi.org/10.1126/science.aal1585



RESEARCH ARTICLES

924 ION CHANNELS
Structure of a eukaryotic voltage-gated sodium channel at near-atomic resolution *H. Shen et al.*
RESEARCH ARTICLE SUMMARY; FOR FULL TEXT:
dx.doi.org/10.1126/science.aal4326

925 TROPICAL FOREST
Persistent effects of pre-Columbian plant domestication on Amazonian forest composition *C. Levis et al.*
► PODCAST

REPORTS

931 MATERIALS CHEMISTRY
Clathrate colloidal crystals
H. Lin et al.
► PERSPECTIVE P. 912

936 ORGANIC CHEMISTRY
Radical-polar crossover reactions of vinylboron ate complexes
M. Kischkewitz et al.

939 OPTOELECTRONICS
Demonstration of an ac Josephson junction laser *M. C. Cassidy et al.*

942 GEOCHEMISTRY
Experimental constraints on the damp peridotite solidus and oceanic mantle potential temperature *E. Sarafian et al.*
► PERSPECTIVE P. 908

945 PROTEIN FOLDING
Hidden dynamics in the unfolding of individual bacteriorhodopsin proteins
H. Yu et al.
► PERSPECTIVE P. 907

950 DNA STORAGE
DNA Fountain enables a robust and efficient storage architecture
Y. Erlich and D. Zielinski

954 BRAIN MICROCIRCUITS
Layer-specific modulation of neocortical dendritic inhibition during active wakefulness *W. Muñoz et al.*

959 ADAPTATION

Precipitation drives global variation in natural selection
A. M. Siepielski et al.

962 PLANT SCIENCE

Epigenetic regulation of antagonistic receptors confers rice blast resistance with yield balance *Y. Deng et al.*
► PERSPECTIVE P. 906

966 PAIN RESEARCH

A nontoxic pain killer designed by modeling of pathological receptor conformations *V. Spahn et al.*

969 PALEOANTHROPOLOGY

Late Pleistocene archaic human crania from Xuchang, China *Z.-Y. Li et al.*
► NEWS STORY P. 899

DEPARTMENTS

889 EDITORIAL
Evolving policy with science
By R. Alta Charo and Richard O. Hynes

986 WORKING LIFE
Sailing through uncertainty
By Kyle Frischkorn

ON THE COVER



A diver photographs fish as she looks up the water column off Hawaii. Advances in diving technology are helping researchers to explore little-known deep reef habitats, where sunlight fades but invertebrates and fishes thrive in a complex ecosystem. Ichthyologist Richard Pyle of Hawaii's Bishop Museum is a pioneering explorer of this twilight realm. See page 900. *Photo: © Richard L. Pyle*

Science Staff	888
New Products	973
Science Careers	974

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 © 2017 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): \$165 (\$74 allocated to subscription). Domestic institutional subscription (51 issues): \$1659. Foreign postage extra. Mexico, Caribbean (surface mail) \$55; other countries (air assist delivery) \$89. First class, airmail, student, and emeritus rates on request. Canadian rates with GST available upon request. GST #R1254 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: \$23.00 current issue, \$28.00 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 \$35.00 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.

PHOTO: (BOTTOM LEFT) ERIK SVENSSON

Downloaded from <http://science.sciencemag.org/> on December 12, 2018

Science

355 (6328)

Science **355** (6328), 889-986.

ARTICLE TOOLS

<http://science.sciencemag.org/content/355/6328>

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.