

468

NEWS

IN BRIEF

456 Roundup of the week's news

IN DEPTH

459 **COMET LANDER'S SCIENTIFIC HARVEST MAY BE ITS LAST**

Philae has fallen silent after fragmentary messages *By E. Hand*

► PHILAE'S FIRST LOOK SECTION P. 493

460 **TINY BUILT-IN LASERS LIGHT UP LIVING CELLS**

Technique could revolutionize tracking of individual cells *By A. Cho*

461 **RISK OF 'LEAKY' VACCINES DEBATED**

Controversial finding suggests they can speed the spread of deadly pathogens *By K. Kupferschmidt*

462 **FORENSIC LABS EXPLORE BLIND TESTING TO PREVENT ERRORS**

Evidence examiners get practical about fighting cognitive bias *By K. Servick*

463 **FORMER HEAD OF CHINA'S LEADING GENOME INSTITUTE STARTS NEW CHAPTER**

Jun Wang will concentrate on a new artificial intelligence initiative

By D. Normile

464 **ALZHEIMER'S AMYLOID THEORY GETS MODEST BOOST**

Trials of antibody drugs spawn hopes, doubts—and plans for more tests

By E. Underwood

FEATURES

465 **COSMIC CONVERGENCE**

Neutrinos from beyond our galaxy could be close kin to other mysterious visitors from space *By A. Cho*

468 **SETTING THE BAR**

As the U.S. military opens ground combat roles to women, it's looking to scientists to help define the standards *By K. Servick*

INSIGHTS

PERSPECTIVES

472 **TWO LEAPS FORWARD FOR ROBOT LOCOMOTION**

Biomimetic robots can jump on land and on water *By D. Vella*

► REPORT P. 517

473 **A LEAP AHEAD FOR ACTIVATING C-H BONDS**

Boron-based catalysts add functional groups to normally unreactive carbon-hydrogen bonds

By S. K. Bose and T. B. Marder

► REPORT P. 513

475 **ANCIENT PLANETARY DYNAMOS, TAKE TWO**

Magnetic studies of Earth and Mercury constrain their ancient core dynamics

By J. Aubert

► REPORT P. 521

476 **A p53-REGULATED IMMUNE CHECKPOINT RELEVANT TO CANCER**

The tumor suppressor p53 may influence the ability of cancer cells to escape immune detection *By L. Zitvogel and G. Kroemer*

► RESEARCH ARTICLE P. 499

WATER

478 **Fresh water goes global**

By C. J. Vörösmarty et al.

479 **Local perspectives on water**

By J. G. Hering et al.

481 **AVERTING A NORTH AMERICAN BIODIVERSITY CRISIS**

A newly described pathogen poses a major threat to salamanders via trade

By T. A. Yap et al.

BOOKS ET AL.

483 **POSTGENOMICS**

S. S. Richardson and H. Stevens, Eds., reviewed by P. W. Hughes

484 **APPLIED MINDS**

By G. Madhavan, reviewed by S. Derrible

LETTERS

486 **SCIENCE IN CONGRESS: GOOD-FAITH DEBATE**

By J. W. Conrad Jr.

486 **SCIENCE IN CONGRESS: UNNECESSARY CONFLICT**

By R. O. McClellan

487 **SCIENCE IN CONGRESS: DECEPTIVE STATISTICS**

By G. K. Evans

487 **RESPONSE**

By A. A. Rosenberg et al.

487 **TECHNICAL COMMENT ABSTRACTS**

RESEARCH

IN BRIEF

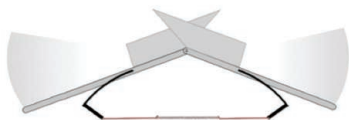
490 From *Science* and other journals

REVIEW

498 **CRYSTAL GROWTH**

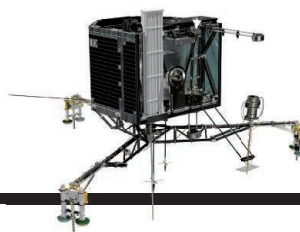
Crystallization by particle attachment in synthetic, biogenic, and geologic environments *J. J. De Yoreo et al.*

REVIEW SUMMARY; FOR FULL TEXT: dx.doi.org/10.1126/science.aaa6760



472 & 517

Walking on water



459 & 493

Feedback from Philae

SPECIAL SECTION

Philae's first look

INTRODUCTION

493 Philae's first days on the comet *J.-P. Bibring et al.*

RESEARCH ARTICLE ABSTRACTS

The landing(s) of Philae and inferences about comet surface mechanical properties *J. Biele et al.*

Properties of the 67P/Churyumov-Gerasimenko interior revealed by CONSERT radar *W. Kofman et al.*

REPORT ABSTRACTS

The nonmagnetic nucleus of comet 67P/Churyumov-Gerasimenko *H.-U. Auster et al.*

Thermal and mechanical properties of the near-surface layers of comet 67P/Churyumov-Gerasimenko *T. Spohn et al.*

The structure of the regolith on 67P/Churyumov-Gerasimenko from ROLIS descent imaging *S. Mottola et al.*

67P/Churyumov-Gerasimenko surface properties as derived from CIVA panoramic images *J.-P. Bibring et al.*

CHO-bearing organic compounds at the surface of 67P/Churyumov-Gerasimenko revealed by Ptolemy *I. P. Wright et al.*

Organic compounds on comet 67P/Churyumov-Gerasimenko revealed by COSAC mass spectrometry *F. Goesmann et al.*

SEE ALSO

- ▶ NEWS STORY P. 459
- ▶ PODCAST
- ▶ news.sciencemag.org/tags/rosetta

RESEARCH ARTICLES

499 CELL DEATH

Control of signaling-mediated clearance of apoptotic cells by the tumor suppressor p53 *K. W. Yoon et al.*

RESEARCH ARTICLE SUMMARY; FOR FULL TEXT: dx.doi.org/10.1126/science.1261669

▶ PERSPECTIVE P. 476

500 METABOLISM

S-Nitrosylation links obesity-associated inflammation to endoplasmic reticulum dysfunction *L. Yang et al.*

REPORTS

506 HEAVY FERMIONS

Strange metal without magnetic criticality *T. Tomita et al.*

510 REACTION DYNAMICS

Spectroscopic observation of resonances in the F + H₂ reaction *J. B. Kim et al.*

513 BORON CATALYSIS

Metal-free catalytic C-H bond activation and borylation of heteroarenes *M.-A. Légaré et al.*

▶ PERSPECTIVE P. 473

517 BIOMECHANICS

Jumping on water: Surface tension-dominated jumping of water striders and robotic insects *J.-S. Koh et al.*

▶ PERSPECTIVE P. 472

521 PALEOMAGNETISM

A Hadean to Paleoproterozoic geodynamo recorded by single zircon crystals *J. A. Tarduno et al.*

▶ PERSPECTIVE P. 475

524 NANOELECTRONICS

Epitaxial growth of a monolayer WSe₂-MoS₂ lateral p-n junction with an atomically sharp interface *M.-Y. Li et al.*

528 FOREST ECOLOGY

Pervasive drought legacies in forest ecosystems and their implications for carbon cycle models

W. R. L. Anderegg et al.

532 GLOBAL WARMING

Recent hiatus caused by decadal shift in Indo-Pacific heating *V. Nieves et al.*

535 ACTIN-DIRECTED TOXIN

ACD toxin-produced actin oligomers poison formin-controlled actin polymerization *D. B. Heisler et al.*

540 PLANT EVOLUTION

Convergent evolution of strigolactone perception enabled host detection in parasitic plants *C. E. Conn et al.*

DEPARTMENTS

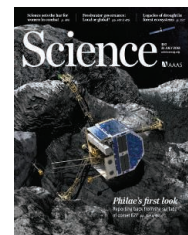
455 EDITORIAL

A tale of two states *By Mandë Holford and Rodney Nichols*

554 WORKING LIFE

Why not have a life? *By Gary McDowell*

ON THE COVER



Artistic rendering of the Philae lander on the surface of comet 67P/Churyumov-Gerasimenko. On 12 November 2014, after descending from the Rosetta orbiter (background),

Philae bounced upon touchdown, eventually coming to rest at the site known as Abydos. A set of eight papers describes the initial scientific results from Philae's approach and first days on the comet. See pages 459 and 493 and news.sciencemag.org/tags/rosetta. *Image: © A. Torres (CNES)/J.-P. Bibring (IAS)/Lander CAD: Philae-DLR/ILL. D. Ducros*

Science Staff	454
AAAS News & Notes	488
New Products	547
Science Careers	548

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 © 2015 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): \$153 (\$74 allocated to subscription). Domestic institutional subscription (51 issues): \$1282. 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 #R1254 88122. Publications Mail Agreement Number 1069624. Printed in the U.S.A. Change of address: Allow 4 weeks. Allow 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

349 (6247)

Science **349** (6247), 455-554.

ARTICLE TOOLS

<http://science.sciencemag.org/content/349/6247>

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.