CONTENTS

16 OCTOBER 2015 • VOLUME 350 • ISSUE 6258

NEWS

IN BRIEF
258 Roundup of the week’s news

IN DEPTH
260 LATE HARVEST FROM PLUTO REVEALS A COMPLEX WORLD
Months after its famed flyby, New Horizons is still giving scientists plenty to ponder By E. Hand
   » RESEARCH ARTICLE P. 292

261 NIH DEBATES HUMAN-ANIMAL CHIMERAS
Grant to add human cells to animal embryos is delayed By G. Vogel

263 VIRTUAL RAT BRAIN FAILS TO IMPRESS ITS CRITICS
The Blue Brain Project publishes its simulation of 30,000 neurons By K. Kupferschmidt

264 FIRST MODERN HUMANS IN CHINA
Contemporary-looking teeth found in cave suggest that Homo sapiens left Africa much earlier than expected By A. Gibbons

265 NOBEL FOR ANTIMALARIAL DRUG HIGHLIGHTS EAST-WEST DIVIDE
Traditional Chinese medicine’s vast cornucopia has produced many claims, few bona fide drugs By D. Normile

266 DNA’S REPAIR TRICKS WIN CHEMISTRY’S TOP PRIZE
Experiments showed how enzymes keep mutations from wrecking the molecule of life By E. Stokstad

FEATURES

267 BUZZ FOOD
Feeding insect meal to livestock could help the planet, but will it be good for people? By K. Kupferschmidt

270 IN PURSUIT OF THE PERFECT POWER SUIT
A longstanding quest to augment human performance with robotic exoskeletons takes a softer approach By W. Cornwall

275 WHEN SUGAR IS NOT SO SWEET
Chemical synthesis of glucosepane promises insights into the role of this molecule in diseases of aging By D. L. Boger
   » REPORT P. 294

277 COMET SIDING SPRING, UP CLOSE AND PERSONAL
Observations during a close flyby of Mars shed light on a little-understood group of comets By C. Lisse

278 CHROMATIN COMPLEX, CRYSTAL CLEAR
The long-sought structure of an active polycomb repressive complex is solved By M. Schapira
   » RESEARCH ARTICLE P. 291

280 PUMPING UP THE QUANTUM
A superconducting amplifier is used to boost quantum signals By A. N. Cleland
   » REPORT P. 307

281 CHALLENGE FACULTY TO TRANSFORM STEM LEARNING
Focus on core ideas, crosscutting concepts, and scientific practices By M. M. Cooper et al.

282 PERSONALIZATION IN PRACTICE
Dynamic computational modeling integrated with experimentation can enable precision medicine By R. Iyengar et al.

BOOKS ET AL.

284 WHY TORTURE DOESN’T WORK
By S. O’Mara, reviewed by R. J. McNally

285 57 WAYS TO SCREW UP IN GRAD SCHOOL
By K. D. Haggerty and A. Doyle, reviewed by O. Parsons

285 SODA POLITICS
By M. Nestle

INSIGHTS

PERSPECTIVES

274 RESTORING THE SENSE OF TOUCH
Flexible circuitry mimics the way skin transduces pressure signals By P. Anikeeva and R. A. Koppes
   » REPORT P. 313

275 WHEN SUGAR IS NOT SO SWEET
Chemical synthesis of glucosepane promises insights into the role of this molecule in diseases of aging By D. L. Boger
   » REPORT P. 294

277 COMET SIDING SPRING, UP CLOSE AND PERSONAL
Observations during a close flyby of Mars shed light on a little-understood group of comets By C. Lisse

278 CHROMATIN COMPLEX, CRYSTAL CLEAR
The long-sought structure of an active polycomb repressive complex is solved By M. Schapira
   » RESEARCH ARTICLE P. 291

280 PUMPING UP THE QUANTUM
A superconducting amplifier is used to boost quantum signals By A. N. Cleland
   » REPORT P. 307

281 CHALLENGE FACULTY TO TRANSFORM STEM LEARNING
Focus on core ideas, crosscutting concepts, and scientific practices By M. M. Cooper et al.

282 PERSONALIZATION IN PRACTICE
Dynamic computational modeling integrated with experimentation can enable precision medicine By R. Iyengar et al.

BOOKS ET AL.

284 WHY TORTURE DOESN’T WORK
By S. O’Mara, reviewed by R. J. McNally

285 57 WAYS TO SCREW UP IN GRAD SCHOOL
By K. D. Haggerty and A. Doyle, reviewed by O. Parsons

285 SODA POLITICS
By M. Nestle

Science Staff ..............................................256
New Products...........................................343
Science Careers ........................................ 344
LETTERS
286 MANY PATHS TO PARITY FOR WOMEN IN SCIENCE
By D. Burstein et al.

286 RELOCATION RISKY FOR BUMBLEBEE COLONIES
By J. D. Lozier et al.

287 RESPONSE
By J. T. Kerr et al.

RESEARCH

IN BRIEF
288 From Science and other journals

RESEARCH ARTICLES
291 TRANSCRIPTION
Structural basis of histone H3K27 trimethylation by an active polycomb repressive complex 2 L. Jiao and X. Liu

RESEARCH ARTICLE SUMMARY: FOR FULL TEXT:
dx.doi.org/10.1126/science.aac4383

292 PLANETARY SCIENCE
The Pluto system: Initial results from its exploration by New Horizons S. A. Stern et al.

RESEARCH ARTICLE SUMMARY: FOR FULL TEXT:
dx.doi.org/10.1126/science.aad1815

293 SYNTHETIC BIOLOGY
Remote control of therapeutic T cells through a small molecule–gated chimeric receptor C.-Y. Wu et al.

RESEARCH ARTICLE SUMMARY: FOR FULL TEXT:
dx.doi.org/10.1126/science.aab4077

REPORTS
294 ORGANIC SYNTHESIS
Concise total synthesis of glucoepane C. Draghici et al.

298 CATALYSIS
Hydrogenation of carboxylic acids with a homogeneous cobalt catalyst T. J. Korstanje et al.

302 SEPARATION MEMBRANES
CO₂ capture from humid flue gases and humid atmosphere using a microporous coppersilicate S. J. Datta et al.

307 QUANTUM INFORMATION
A near–quantum-limited Josephson traveling-wave parametric amplifier C. Macklin et al.

310 OCEANOGRAPHY
Sensitivity of seawall bathymetry to climate-driven fluctuations in mid-ocean ridge magma supply J.-A. Olive et al.

313 BIOMATERIALS
A skin-inspired organic digital mechanoreceptor B. C.-K. Tee et al.

317 NEURAL PROGENITORS
Opposing intrinsic temporal gradients guide neural stem cell production of varied neuronal fates Z. Liu et al.

320 OCEAN VARIABILITY
The Atlantic Multidecadal Oscillation without a role for ocean circulation A. Clement et al.

325 GENE EXPRESSION
Suboptimization of developmental enhancers E. K. Farley et al.

328 T CELL IMMUNITY
RIPK1 and NF-κB signaling in dying cells determines cross-priming of CD8⁺ T cells N. Yatim et al.

334 T CELL IMMUNITY
Stable inhibitory activity of regulatory T cells requires the transcription factor Helios H.-J. Kim et al.

339 SMALL NONCODING RNA
Panoramix enforces piRNA-dependent cotranscriptional silencing Y. Ye et al.

DEPARTMENTS
257 EDITORIAL
Violence and women’s health
By Nancy E. Adler and Paula A. Johnson

350 WORKING LIFE
The rewards of roughing it
By Xin Lu

ON THE COVER
The New Horizons probe captured this backlight image of Pluto as it flew past the dwarf planet on 14 July 2015. Scattered sunlight reveals numerous haze layers within Pluto’s thin atmosphere, while the surprisingly diverse surface landscape indicates ongoing geological activity. Studying Pluto and its moon Charon will help us understand how the solar system formed and our place within it. See pages 260 and 292 and dx.doi.org/10.1126/science.aad1815. Photo: NASA/Johns Hopkins University Applied Physics Laboratory/ Southwest Research Institute

Origins of Earth’s seafloor hills

Published by AAAS
16 OCTOBER 2015 • VOL 350 ISSUE 6258
Science 350 (6258), 257-350.

http://science.sciencemag.org/content/350/6258

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.