CONTENTS

EDITORIAL
377 New Views on News and Research
Colin Norman and Stewart Wills

NEWS OF THE WEEK
382 A roundup of the week’s top stories

NEWS & ANALYSIS
386 Collins Sparks Furor With Supposed NIH Reshuffling
387 Did Modern Humans Travel Out of Africa Via Arabia?
>>> Report p. 453
388 Despite Sensitivities, Scientists Seek to Solve Haiti’s Cholera Riddle
389 Pressure Growing to Set a Date to Destroy Remaining Smallpox Stocks
390 Last-Ditch Effort to Save Embattled Ape
391 Telling Time Without Turning On Genes

NEWS FOCUS
392 A New View of the Birth of Homo sapiens
The Species Problem
395 Going the Distance
Treading Air
>>> Science Podcast

LETTERS
398 Recognizing Scientists and Technologists
R. M. White
Genetics-Based Field Studies Prioritize Safety
A. A. James
Origins of Biodiversity
V. Rull
Response
C. Hoorn et al.

400 CORRECTIONS AND CLARIFICATIONS

BOOKS ET AL.
401 Honeybee Democracy
T. D. Seeley, reviewed by L. Chittka and A. Mesoudi
402 A Rich Bioethics
A. Briggle, reviewed by T. Lewens
403 High Society
M. Jay et al., curators

EDUCATION FORUM
404 Defeating Creationism in the Courtroom, But Not in the Classroom
M. B. Berkman and E. Plutzer

PERSPECTIVES
406 Cloud Computing—What’s in It for Me as a Scientist?
A. Fox
407 The Genomic View of Bacterial Diversification
M. C. Enright and B. G. Spratt
>>> Research Article p. 430
409 A Tail of Division
A. P. Cowman and C. J. Tonkin
>>> Report p. 473
410 Why Starving Cells Eat Themselves
D. G. Hardie
>>> Report p. 456
411 Chemical Kinetics Under Test
M. H. Alexander
>>> Report p. 448

SCIENCE PRIZE ESSAY
413 Penguins and Polar Bears Integrates Science and Literacy
J. Fries-Gaither and K. Lightle

ASSOCIATION AFFAIRS
416 Presidential Address:
Life on the River of Science
P. Agre

www.sciencemag.org SCIENCE VOL 331 28 JANUARY 2011
Published by AAAS

COVER
False-colored scanning electron micrograph of the bacterial pathogen Streptococcus pneumoniae (typical length, ~1 micrometer), a major cause of pneumonia and meningitis. On page 430, Croucher et al. describe the use of whole-genome sequencing to track the global spread of a rapidly recombining S. pneumoniae lineage as it adapts to antibiotic use and vaccine introduction.

Image: Dennis Kunkel Microscopy, Inc./Visuals Unlimited, Inc.

DEPARTMENTS
375 This Week in Science
378 Editors’ Choice
380 Science Staff
422 AAAS News & Notes
481 New Products
482 Science Careers
REVIEW

426 The Newest Synthesis: Understanding the Interplay of Evolutionary and Ecological Dynamics
T. W. Schoener

RESEARCH ARTICLES

430 Rapid Pneumococcal Evolution in Response to Clinical Interventions
N. J. Croucher et al.
Streptococcus pneumoniae evades vaccines and drugs by high levels of recombination and rapid adaptation.
>> Perspective p. 407

435 The Genetic Landscape of the Childhood Cancer Medulloblastoma
D. W. Parsons et al.
Genomic analysis of a childhood cancer reveals markedly fewer mutations than what is typically seen in adult cancers.

REPORTS

439 Rotational Symmetry Breaking in the Hidden-Order Phase of URu$_2$Si$_2$
R. Okazaki et al.
The mysterious hidden-order phase of a heavy-fermion compound may be an electronic nematic state.

442 High-Gain Backward Lasing in Air
A. Dogariu et al.
Focused ultraviolet light creates a distant “lasing spark” in air that can then be used for remote detection.

445 Magnetic Bistability of Molecules in Homogeneous Solution at Room Temperature
S. Venkataramani et al.
A photosensitive ligand is used to reversibly modulate the magnetic properties of a nickel compound.

448 Kinetic Isotope Effects for the Reactions of Muonic Helium and Muonium with H$_2$
D. G. Fleming et al.
Calculated reaction rates for two hydrogen isotopes, one 36 times heavier than the other, agree with experiments at 500 kelvin.
>> Perspective p. 411

450 Enhanced Modern Heat Transfer to the Arctic by Warm Atlantic Water
R. F. Spielhagen et al.
Water flow from the Atlantic Ocean into the Arctic through the Fram Strait is warmer than at any time in the past 2000 years.

453 The Southern Route “Out of Africa”: Evidence for an Early Expansion of Modern Humans into Arabia
S. J. Armitage et al.
Artifacts in eastern Arabia dating to 100,000 years ago imply that modern humans left Africa early, as climate fluctuated.
>> News & Analysis p. 387

456 Phosphorylation of ULK1 (hATG1) by AMP-Activated Protein Kinase Connects Energy Sensing to Mitophagy
D. F. Egan et al.
A protein kinase links energy stores to control of autophagy.
>> Perspective p. 410

461 Effects of Experimental Seaweed Deposition on Lizard and Ant Predation in an Island Food Web
J. Piovia-Scott et al.
In a simple island ecosystem, a rare pulse of resource input alters the interaction between predator species.

463 Metagenomic Discovery of Biomass-Degrading Genes and Genomes from Cow Rumen
M. Hess et al.
Metagenomic sequencing of biomass-degrading microbes from cow rumen reveals new carbohydrate-active enzymes.

468 Cleavage of NIK by the API2-MALT1 Fusion Oncoprotein Leads to Noncanonical NF-κB Activation
S. Rosebeck et al.
An oncogenic fusion protein promotes lymphomagenesis by activating a noncanonical signaling pathway.

473 Intramembrane Cleavage of AMA1 Triggers Toxoplasma to Switch from an Invasive to a Replicative Mode
J. M. Santos et al.
Membrane proteins govern a change from invasion to replication of an intracellular parasite.
>> Perspective p. 409

477 Big and Mighty: Preverbal Infants Mentally Represent Social Dominance
L. Thomsen et al.
Infants use size as a predictor in judging which contestant will win.
>> Science Podcast

CONTENTS continued >>
Editor's Summary

This copy is for your personal, non-commercial use only.

**Article Tools**  Visit the online version of this article to access the personalization and article tools:  
http://science.sciencemag.org/content/331/6016

**Permissions**  Obtain information about reproducing this article:  
http://www.sciencemag.org/about/permissions.dtl