EDITORIAL

12 Promoting Scientific Standards
Bruce Alberts

NEWS OF THE WEEK

18 Obama Backs New Launcher and Bigger NASA Budget
19 Senate Looms as Bigger Hurdle After Copenhagen
20 Protests by Staff, Advisers Rattle Australian Synchrotron
21 From Science’s Online Daily News Site
22 U.K. Physicists Cry Foul at Major Budget Cuts
22 Errors in Chemistry Claims Cast Doubt on Reactome Paper
23 From the Science Policy Blog
24 Recession Hits Some Sciences Hard at Florida State University
25 Embryo Ruling Keeps Stem Cell Research Legal

NEWS FOCUS

26 In the Afterglow of the Big Bang
>> Science Podcast

LETTERS

30 Bushmeat Hunting and Climate: An Indirect Link
P. A. Jansen et al.
Gray Wolves Not Out of the Woods Yet
J. T. Bruskotter et al.
Patents: A Threat to Innovation?
M. Manocaran
Response
S. J. H. Graham and M. J. Higgins
Let Top Students Go Forth and Prosper
G. Madhavan and B. A. Oakley

BOOKS ET AL.

33 Lizards in an Evolutionary Tree
J. B. Losos, reviewed by R. G. Gillespie
34 Don’t Be Such a Scientist R. Olson;
Am I Making Myself Clear? C. Dean,
reviewed by P. Kareiva
34 Browsings

POLICY FORUM

36 Opportunities for Research and NIH
F. S. Collins

PERSPECTIVES

38 Molecular Donuts and Donut Holes
K. H. Whitmire
>> Report p. 72
39 Serendipitous Astronomy
K. R. Lang
41 Janus Catalysts Direct Nanoparticle Reactivity
D. J. Cole-Hamilton
>> Report p. 68
42 Some Enzymes Just Need a Space of Their Own
S. Kang and T. Douglas
>> Report p. 81
43 Brain Activity to Rely On?
D. S. Schwarzkopf and G. Rees
>> Report p. 97
45 Retrospective:
Rossiter H. Crozier (1943–2009)
J. J. Boomsma and P. Pamilo

REVIEW

46 Lipid Rifts As a Membrane-Organizing Principle
D. Lingwood and K. Simons

COVER

Crystal structure of a molybdenum oxide nanowheel, 2.6 nanometers in diameter, around a smaller molybdenum oxide cluster. Miras et al. (page 72; related Perspective page 38) used a controlled-flow reactor to show that the central core serves as a transient template for the self-assembly of the nanowheel and is ultimately ejected to yield a hollow finished product.

Image: Leroy Cronin, Ryo Tsunashima, Haralampos Miras/University of Glasgow

CONTENTS continued >>
BREVIA

Masquerade: Camouflage Without Crypsis
J. Skelhorn et al.
Caterpillars masquerading as twigs are misidentified by chick predators as inanimate objects, rather than remaining undetected. >> Science Podcast

RESEARCH ARTICLE

Dendritic Mechanisms Underlying Rapid Synaptic Activation of Fast-Spiking Hippocampal Interneurons
H. Hu et al.
Potassium channel enrichment in the dendrites of hippocampal basket cells defines a mechanism of neural network function.

REPORTS

An Unusually Fast-Evolving Supernova
D. Poznanski et al.
The distinctive properties of this supernova suggest that it is of a kind predicted by theory but not previously observed.

Polarization-Induced Hole Doping in Wide-Band-Gap Uniaxial Semiconductor Heterostructures
J. Simon et al.
A compositional gradient of two semiconductors creates an electronic polarization that ionizes and activates dopant atoms.

Translocation of Single-Stranded DNA Through Single-Walled Carbon Nanotubes
H. Liu et al.
Transfer of DNA by electrophoresis through some carbon nanotubes is accompanied by giant current pulses.

Solid Nanoparticles That Catalyze Biofuel Upgrade Reactions at the Water/Oil Interface
S. Crossley et al.
Oxide nanoparticles bearing carbon nanotubes and functionalized with palladium act as both emulsifiers and catalysts. >> Perspective p. 41

Unveiling the Transient Template in the Self-Assembly of a Molecular Oxide Nanowheel
H. N. Miras et al.
Use of a flow reactor reveals a key intermediate in the formation of a molybdenum oxide nanostructure. >> Perspective p. 38

Synchronous Deglacial Overturning and Water Mass Source Changes
N. L. Roberts et al.
Large-scale ocean circulation changed in different ways during a millennial-scale climate event.

Human Genome Sequencing Using Unchained Base Reads on Self-Assembling DNA Nanoarrays
R. Drmanac et al.
A low-cost sequencing technique advances us closer to the goal of the $1000 human genome.

Structure and Mechanisms of a Protein-Based Organelle in Escherichia coli
S. Tanaka et al.
Structures of the shell proteins from a bacterial organelle help to explain how it functions in metabolizing ethanolamine. >> Perspective p. 42

The Tasmanian Devil Transcriptome Reveals Schwann Cell Origins of a Clonally Transmissible Cancer
E. P. Murchison et al.
Sequencing the Tasmanian devil facial tumor disease provides a potential diagnostic marker. >> Science Podcast

O-Manosyl Phosphorylation of Alpha-Dystroglycan Is Required for Laminin Binding
T. Yoshida-Moriguchi et al.
A posttranslational sugar modification required to prevent certain dystrophies is identified and characterized.

The Rate and Molecular Spectrum of Spontaneous Mutations in Arabidopsis thaliana
S. Ossowski et al.
Rapid sequencing technologies allow a more accurate calculation of the mutation rate for plants.

Targeted 3' Processing of Antisense Transcripts Triggers Arabidopsis FLC Chromatin Silencing
F. Liu et al.
A backward transcript of the FLOWERING LOCUS C gene of Arabidopsis is involved in regulation of the sense-strand transcription.

Reproducibility Distinguishes Conscious from Nonconscious Neural Representations
A. Schurger et al.
Analysis of functional magnetic resonance imaging data reveals that neural activation patterns are more reproducible for seen versus unseen objects. >> Perspective p. 43
Controls Activation of Mammalian Gene in Meiotic Recombination

VOL 327 1 JANUARY 2010

CREDIT: YANA GREENMAN/SCIENCE

because they are smaller than men’s are. Women’s fingers are more sensitive, but that’s just

Hand Size—Not Sex—Determines Sense of Touch

Primates clear an important hurdle in humanlike mastery of fire.

When Fire Approaches, Chimps Keep Their Cool

Highlights From Our Daily News Coverage

www.sciencenow.org

SCIENCENOW

www.sciencenow.org

When Fire Approaches, Chimps Keep Their Cool

Primates clear an important hurdle in humanlike mastery of fire.

Science Policy News and Analysis

blogs.sciencemag.org/scienceinsider

Science Policy News and Analysis

www.sciencemag.org/multimedia/podcast

Free Weekly Show

Download the 1 January Science Podcast to hear about caterpillars masquerading as twigs, the chief scientist of Russia’s Space Research Institute, and clues to cancer in Tasmanian devils.

TRANSLATIONAL MEDICINE

www.sciencetranslationalmedicine.org

Integrating Medicine and Science

Perspective: PPARγ Activation—A Potential Treatment for Pulmonary Hypertension

G. Hansmann and R. T. Zamanian

A new target is identified to thwart heart failure.

Perspective: α2a Adrenergic Receptors in the Genetics, Pathogenesis, and Treatment of Type 2 Diabetes

S. B. Liggett

Results originating from rat genetics make a compelling case for the ADRA2A locus and type 2 diabetes in humans.

www.sciencemag.org

SCIENCE

VOL 327 1 JANUARY 2010

9

Downloaded from http://science.sciencemag.org/ on April 20, 2017