CONTENTS

EDITORIAL
672 Think Outside the Lab
Marcia McNutt

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

NEWS & ANALYSIS
678 Crippling Virus Set to Conquer Western Hemisphere
679 Needed: More Females in Animal and Cell Studies
680 Bones From a Watery ‘Black Hole’ Confirm First American Origins
   >> Report p. 750
681 Job Change Lands Egyptian Scientist in Legal Battle
683 No Stopping the Collapse of West Antarctic Ice Sheet
   >> Report p. 735

NEWS FOCUS
684 Beyond the Temples
687 The Hunt for Missing Genes

LETTERS
691 China’s Soil Pollution: Farms on the Frontline
   R. Chen et al.
China’s Soil Pollution: Urban Brownfields
   H. Yang et al.
Scientific Justification for Animal Capture
   J. Cooke et al.
Public Credibility Drives Vaccination Decisions
   B. Penders

BOOKS ET AL.
694 The Oldest Living Things in the World
   R. Sussman; reviewed by J. Farmer
695 The Gap
   T. Suddendorf; reviewed by B. Sim

POLICY FORUM
696 A Call for Deep-Ocean Stewardship
   K. J. Mengerink et al.

PERSPECTIVES
699 Making Hunger Yield
   C. R. McClung
700 Recognizing Foreshocks from the 1 April 2014 Chile Earthquake
   E. E. Brodsky and T. Lay
702 Electronic Control of Circularly Polarized Light Emission
   J. Zaumseil
   >> Report p. 725
703 New Tricks for an Old Dimer
   J. A. Wells and A. A. Kossiakoff
   >> Research Article p. 710
705 Imaging Crystallization
   P. Dandekar and M. F. Doherty
   >> Report p. 729
706 Toward Recyclable Thermosets
   T. E. Long
   >> Report p. 732
707 Cas9 Targeting and the CRISPR Revolution
   R. Barrangou

REVIEW
709 Lignin Valorization: Improving Lignin Processing in the Biorefinery
   A. J. Ragauskas et al.
   Review Summary; for full text:
   http://dx.doi.org/10.1126/science.1246843

CONTENTS continued >>

ON THE WEB THIS WEEK
>> Science Podcast
On this week’s show: avoiding quantum back-action effects and a roundup of stories from our daily news site.
>> Find More Online
Check out Science Express, the weekly podcast, videos, daily news, our research journals, and Science Careers at www.sciencemag.org.

COVER
A male stick insect (Timema knulli) sitting on its host redwood (Sequoia sempervirens) in the Landels-Hill Big Creek Reserve, Big Sur, California. The process of Timema populations adapting to different hosts has repeatedly initiated parallel genetic changes in this group of insects. In turn, these replicate instances of differentiation have resulted in predictable and repeatable patterns of genome divergence by natural selection. See page 738.

Photo: © Moritz Muschick

DEPARTMENTS
671 This Week in Science
673 Editors’ Choice
674 Science Staff
765 New Products
766 Science Careers
**RESEARCH ARTICLES**

710  Mechanism of Activation of Protein Kinase JAK2 by the Growth Hormone Receptor
A. J. Brooks et al.
A molecular mechanism for transmembrane signaling by the growth hormone receptor is elucidated. Research Article Summary; for full text: http://dx.doi.org/10.1126/science.1249783

>> Perspective p. 703

711  Border Control—A Membrane-Linked Interactome of Arabidopsis
A. M. Jones et al.
A membrane and signaling protein interaction network for gene discovery and hypothesis generation is identified in Arabidopsis.

717  Oxidation Products of Biogenic Emissions Contribute to Nucleation of Atmospheric Particles
F. Riccobono et al.
Experiments in the CLOUD chamber at CERN reproduce particle nucleation rates observed in the lower atmosphere.

**REPORTS**

722  Transverse Demagnetization Dynamics of a Unitary Fermi Gas
A. B. Bardon et al.
The diffusion of spin orientation is observed in a gas of potassium atoms in a magnetic field gradient.

725  Electrically Switchable Chiral Light-Emitting Transistor
Y. J. Zhang et al.
The valley degree of freedom in WSe$_2$ is used to realize an electrically switchable, circularly polarized light source.

>> Perspective p. 702

729  In Situ Imaging of Silicalite-1 Surface Growth Reveals the Mechanism of Crystallization
A. I. Lupulescu and J. D. Rimer
Silicalite-1 growth occurs via the addition of silica molecules and precursors, confirming both main theories.

>> Perspective p. 705

732  Recyclable, Strong Thermosets and Organogels via Paraformaldehyde Condensation with Diamines
J. M. García et al.
A strong polymer formed by heating can be digested with strong acid to recover and recycle its bisaniline monomers.

>> Perspective p. 706

735  Marine Ice Sheet Collapse Potentially Under Way for the Thwaites Glacier Basin, West Antarctica
J. Joughin et al.
The onset of rapid collapse of the Thwaites Glacier in West Antarctica is likely within the next 200 to 1000 years.

>> News story p. 683

738  Stick Insect Genomes Reveal Natural Selection’s Role in Parallel Speciation
V. Soria-Carreco et al.
Parallel speciation in insects shows both convergent and divergent selection after one generation.

742  NMR Spectroscopy of Native and in Vitro Tissues Implicates PolyADP Ribose in Biomineralization
W. Y. Chow et al.
An in vitro model of developing bone from a mouse model is amenable to nuclear magnetic resonance analysis.

747  Genomic Diversity and Admixture Differ for Stone-Age Scandinavian Foragers and Farmers
P. Skoglund et al.
Population dynamics of Scandinavian Mesolithic and Neolithic hunter-gatherers differ from those of early farmers.

750  Late Pleistocene Human Skeleton and mtDNA Link Paleoamericans and Modern Native Americans
J. C. Chatters et al.
The differences between Paleoamericans and Native Americans likely resulted from local evolution.

>> News story p. 680

754  Neurosensory Perception of Environmental Cues Modulates Sperm Motility Critical for Fertilization
K. McKnight et al.
Nematode pheromones modulate a neuroendocrine pathway that converts dietary fats into sperm-attracting prostaglandins.

757  Sulfur Oxidation Genes in Diverse Deep-Sea Viruses
K. Anantharaman et al.
Host-derived viral auxiliary metabolic genes for sulfur oxidation play a key biogeochemical role in the dark ocean.

760  Positive Feedback Within a Kinase Signaling Complex Functions as a Switch Mechanism for NF-κB Activation
H. Shimohara et al.
The molecular basis of an all-or-none response in B cells is revealed.
Science 344 (6185), 671-1255780.