EDITORIAL
1043   Improving ERC Ethical Standards
       Helga Nowotny and Pavel Exner

NEWS OF THE WEEK
1048   A roundup of the week’s top stories

NEWS & ANALYSIS
1050   U.N. Taps Special Labs to Investigate Syrian Attack
       As Syria Crisis Mounts, Scientist Looks Back at Last Major Chemical Attack
1052   Fluorine-Adding Bacteria May Transform Natural Product Medicines
       Protein Designers Go Small
       >> Report p. 1089
1053   Japan Gets Serious About Creating Its Own NIH
1055   Evolution Heresy? Epigenetics Underlies Heritable Plant Traits

NEWS FOCUS
1056   Boxed In
       The Unruly Neutrino
1060   Sizing Up a Slumbering Giant
       >> Science Podcast

LETTERS
1062   The Risky Road to Mars
       V. E. Viola
       Response
       C. Zeitlin
       Controversial Salt Report Peppered with Uncertainty
       D. M. Johns et al.
1064   CORRECTIONS AND CLARIFICATIONS

BOOKS ET AL.
1065   The Avian Migrant
       J. H. Rappole, reviewed by F. Bairlein
1066   An Uncertain Glory
       J. Drèze and A. Sen, reviewed by A. Robinson

POLICY FORUM
1067   Certify Sustainable Aquaculture?
       S. R. Bush et al.

PERSPECTIVES
1069   Fighting Obesity with Bacteria
       A. W. Walker and J. Parkhill
       >> Research Article p. 1079
1070   Reducing Earthquake Risk
       B. E. Tucker
1072   Unraveling Charge Transport in Conjugated Polymers
       R. A. Street
1073   Feedback on Galaxy Formation
       B. R. McNamara
       >> Report p. 1082
1075   A Hyperventilating Biosphere
       I. Fung
       >> Report p. 1085
1076   Unboxing the Quantum Nature of Inelastic Molecular Collisions
       P. Casavecchia and M. H. Alexander
       >> Report p. 1094
1077   Retrospective: Tony Pawson (1952–2013)
       T. Hunter

CONTENTS continued >>

ON THE WEB THIS WEEK
>> Science Podcast
Listen to stories on failed stars, numerosity in the brain, monitoring a North Korean volcano, and more.
>> Find More Online
Check out Science Express, our podcast, videos, daily news, our research journals, and Science Careers at www.sciencemag.org.

COVER
Enhanced-color confocal microscopy image of a cross section of an Arabidopsis stem (diameter of full section: 2 millimeters; excluding the protruding epidermal hair cell). The cell walls in blue contain lignin, which provides strength to the walls. The magenta color in the cortex cells reflects the presence of chlorophyll. Caffeoyl shikimate esterase is an enzyme central to the biosynthesis of lignin, a major factor limiting biomass processing for biofuels. See page 1103.

Image: Lisa Sundin, Matyas Fendrych, and Daniel Van Damme/VIB, Belgium

DEPARTMENTS
1041   This Week in Science
1044   Editors’ Choice
1046   Science Staff
1127   New Products
1128   Science Careers
RESEARCH ARTICLE

1079 Gut Microbiota from Twins Discordant for Obesity Modulate Metabolism in Mice
V. K. Ridaura et al.
Mice carrying gut bacteria from lean humans protect their cage mates from the effects of gut bacteria from fat humans.
Research Article Summary; for full text: http://dx.doi.org/10.1126/science.1241214
>> Perspective p. 1069

1100 Achieving the Convention on Biological Diversity’s Goals for Plant Conservation
L. N. Joppa et al.
Protecting 17% of the land surface and 60% of plant species is possible, but not at present.

1103 Caffeoyl Shikimate Esterase (CSE) Is an Enzyme in the Lignin Biosynthetic Pathway in Arabidopsis
R. Vanholme et al.
A key enzyme involved in lignin biosynthesis is identified and characterized in the model plant Arabidopsis.

REPORTS

1080 Decades-Long Changes of the Interstellar Wind Through Our Solar System
P. C. Frisch et al.
Analysis of data collected by 10 different spacecraft indicates that our solar system’s local environment may be changing.

1085 Enhanced Seasonal Exchange of CO₂ by Northern Ecosystems Since 1960
H. D. Graven et al.
The amplitude of the seasonal cycle of carbon dioxide in high northern latitudes has increased by 50% since 1960.
>> Perspective p. 1075

1089 Expanding the Fluorine Chemistry of Living Systems Using Engineered Polyketide Synthase Pathways
M. C. Walker et al.
Biochemical pathways can be engineered to incorporate fluoroacetate into tri- and tetraketides in place of acetate.
>> News story p. 1052

1094 Observation of Partial Wave Resonances in Low-Energy O₂–H, Inelastic Collisions
S. Chefdeville et al.
Purely quantum mechanical effects are manifested in an experiment probing crossed molecular beams.
>> Perspective p. 1076

1096 Direct Determination of Absolute Molecular Stereochmistry in Gas Phase by Coulomb Explosion Imaging
M. Pitzer et al.
A simple molecule’s three-dimensional structure can be ascertained from the fragment trajectories when it is blown apart.

1106 Epigenetic Regulation of Mouse Sex Determination by the Histone Demethylase Jmjd1a
S. Kuroki et al.
Histone modification controls mammalian sex determination.

1111 Single-Cell DNA-Methylation Analysis Reveals Epigenetic Chimerism in Preimplantation Embryos
C. Lorthongpanich et al.
Lethal epigenetic chimerism can be rescued by transfer of pronuclei.

1113 Neuroendocrine Control of Drosophila Larval Light Preference
N. Yamanaka et al.
The hormone that triggers the transition from larva to adult also induces the larvae to find a dark spot to do this safely.

1116 Conserved Regulation of Cardiac Calcium Uptake by Peptides Encoded in Small Open Reading Frames
E. G. Magny et al.
Small peptides regulate calcium transport and regular heart contraction in both flies and humans.

1120 A Causative Link Between Inner Ear Defects and Long-Term Striatal Dysfunction
M. W. Antoine et al.
In mutant mice, severe ear dysfunction is associated with motor hyperactivity.

1123 Topographic Representation of Numerosity in the Human Parietal Cortex
B. M. Harvey et al.
There is a map of numerical magnitude in the human brain.
>> Science Podcast

References to pages 1073 & 1082

Change of address: Allow 4 weeks, giving 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: $15.00 current issue, $25.00 back issue prepaid includes surface postage; both 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, 22 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.

www.sciencemag.org SCIENCE VOL 341 6 SEPTEMBER 2013
Published by AAAS