EDITORIAL
1359 Two Revolutions in Learning
Susan R. Singer and William B. Bonvillian

NEWS OF THE WEEK
1364 A roundup of the week’s top stories

NEWS & ANALYSIS
1367 NFL Kicks Off Brain Injury Research Effort
1368 Austrian Academy of Sciences Faces Its Nazi History
1369 Drug Watchdog Ponders How to Open Clinical Trial Data Vault
1371 A Rescue Mission for Amphibians at the Brink of Extinction
1372 A More Modest Climate Agenda for Obama’s Second Term
1373 Life Could Have Thrived on Mars, but Did It? Curiosity Still Has No Clue

NEWS FOCUS
1374 Battle for the Barrel
>> Science Podcast
1380 Suresh Leaves His Mark on NSF as He Heads to Carnegie Mellon

LETTERS
1382 Libraries’ Social Role in the Information Age
E. Herrera-Viedma and J. López-Gijón
China’s Food Security Soiled by Contamination
Y. Liu et al.
Fostering Public Support for Vulture Protection
M. S. Dama

1383 CORRECTIONS AND CLARIFICATIONS

BOOKS ET AL.
1384 Henri Poincaré: A Scientific Biography
J. Gray, reviewed by P. Pestic
1385 Taken for Grantedness
R. Ling, reviewed by J. B. Bayer

POLICY FORUM
1386 Drug Patents at the Supreme Court
C. S. Hemphill and B. Sampat
>> Science Podcast

PERSPECTIVES
1388 Making a Point with Wnt Signals
J. D. Berndt and R. T. Moon
>> Reports pp. 1436, 1441, and 1445
1389 Robotic Walking in the Real World
M. L. Hunt
>> Report p. 1408
1390 Spatial Turn in Health Research
D. B. Richardson et al.
>> Science Podcast
1392 Dynamin Flexibility Drives Fission
R. W. Holz
>> Report p. 1433
1393 Probing an Extrasolar Planet
M. S. Marley
>> Report p. 1398
1395 Characterizing Giant Landslides
D. N. Petley
>> Report p. 1416
1396 A Transition in the Middle Ear
D. M. Fekete and D. M. Noden
>> Report p. 1453

CONTENTS continued >>

COVER
Accumulation of algal biomass under thinning Arctic sea ice (image diameter ~25 meters). This photograph was taken on 17 September 2012 in the central Arctic basin at 85°30′47″N, 59°54′11″E, from the bridge of the research vessel Polarstern. Here, the central ice floe is surrounded by a green cloud of sub-ice diatoms. Current trends in sea-ice thinning may influence algal growth in this region. See page 1430.

Photo: Stefan Hendricks, Alfred Wegener Institute, Expedition IceArc (ARK27-3)
REPORTS

1398 Detection of Carbon Monoxide and Water Absorption Lines in an Exoplanet Atmosphere
Q. M. Konopacky et al.
A high-resolution spectrum of an exoplanet reveals molecular lines that provide clues about the planet’s formation.
>> Perspective p. 1393

1402 Suppression of Metal-Insulator Transition in VO$_2$ by Electric Field–Induced Oxygen Vacancy Formation
J. Jeong et al.
Electrochemistry plays a role in the ionic liquid gating of a strongly correlated oxide.

1405 Photonic Spin Hall Effect at Metasurfaces
X. Yin et al.
The polarization-dependent deflection of photons can be controlled with a designed metamaterial surface.

1408 A Terradynamics of Legged Locomotion on Granular Media
C. Li et al.
A model is developed to predict terrestrial animal locomotion on granular materials, where the terrain moves when stressed.
>> Perspective p. 1389; Science Podcast

1412 DNA Gridiron Nanostructures Based on Four-Arm Junctions
D. Han et al.
Flexible DNA wireframe nanostructures have double-helical domains as edges and modified Holliday junctions as vertices.

1416 Simple Scaling of Catastrophic Landslide Dynamics
G. Ekström and C. P. Stark
Inverse modeling of seismic data reveals forces associated with catastrophic landslides.
>> Perspective p. 1395

1419 Two Modes of Change in Southern Ocean Productivity Over the Past Million Years
S. L. Jaccard et al.
Subantarctic iron fertilization and Antarctic stratification explain the past 10 cycles’ glacial-interglacial carbon dioxide variation.

1423 Emergence and Diversification of Fly Pigmentation Through Evolution of a Gene Regulatory Module
L. Arnoult et al.
Pigmentation spots on the wings of flies originate from changes at different levels of the underlying genetic hierarchy.

1426 Structural Reorganization of the Toll-Like Receptor 8 Dimer Induced by Agonistic Ligands
H. Tanji et al.
The crystal structure of unbound and ligand-bound Toll-like receptor 8 reveals ligand-induced conformational changes.

1430 Export of Algal Biomass from the Melting Arctic Sea Ice
A. Boetius et al.
As polar ice retreated in 2012, it left evidence of large algal deposits in its wake.

1433 Geometric Catalysis of Membrane Fission Driven by Flexible Dynamin Rings
A. V. Shnyrova et al.
Guanosine triphosphate hydrolysis limits polymerization of the membrane protein dynamin on lipid nanotubes into short, metastable collars.
>> Perspective p. 1392

1436 RNA Helicase DDX3 Is a Regulatory Subunit of Casein Kinase 1 in Wnt–β-Catenin Signaling
C.-M. Cruciat et al.
A multifunctional protein is required for activation of casein kinase 1 in response to Wnt–β-catenin signaling.
>> Perspective p. 1388

1441 Phosphorylation of Dishevelled by Protein Kinase RIPK4 Regulates Wnt Signaling
X. Huang et al.
The protein kinase RIPK4 is identified as a component of the Wnt signaling pathway.
>> Perspective p. 1388

1445 A Localized Wnt Signal Orient Asymmetric Stem Cell Division in Vitro
S. J. Habib et al.
Stem cells orient their cell division apparatus to generate proximal and distal daughters relative to the Wnt source.
>> Perspective p. 1388

1448 Type I Interferon Suppresses Type II Interferon–Triggered Human Anti-Mycobacterial Responses
R. M. B. Teles et al.
Disseminated Mycobacterium leprae infection is associated with blockade of the antimicrobial response by type I interferons.

1453 Dual Origin of the Epithelium of the Mammalian Middle Ear
H. Thompson and A. S. Tucker
When the endoderm fails, the neural crest does its best to pick up the slack.
>> Perspective p. 1396