EDITORIAL
373 They Never Saw It Coming
Norman R. Augustine

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

NEWS & ANALYSIS
381 Gun Control Agenda Is a Call to Duty for Scientists
382 Soot Is Warming the World Even More Than Thought
383 ‘Brussels Ranking’ of Universities Off to a Rocky Start
384 Foreigners Run Afoul of China’s Tightening Secrecy Rules

NEWS FOCUS
386 Shaking Up Science
>> Science Podcast
390 2013 Society for Integrative and Comparative Biology Annual Meeting
Eating Was Tough for Early Tetrapods
Nervous System May Have Evolved Twice
Snapshots From the Meeting

LETTERS
392 Accidental Island Voyagers
G. D. Ruxton and D. M. Wilkinson
Response
A. Simmons
Extend Data Exclusivity to Save Drug Development
J. R. Colca
392 The BUZZ: Skin-Deep Learning
393 TECHNICAL COMMENT ABSTRACTS

BOOKS ET AL.
394 Are We Getting Smarter?
J. R. Flynn, reviewed by A. Schleicher
395 The Afterlives of Animals
S. J. M. M. Alberti, Ed., reviewed by K. A. Rader

EDUCATION FORUM
396 Science Learning Progressions
R. G. Duncan and A. E. Rivet

PERSPECTIVES
398 Membrane Protein Twists andTurns
J. U. Bowie
399 (Pseudo-)Symmetrical Transport
L. R. Forrest
>> Report p. 425
401 Ferroelectric Organic Materials Catch Up with Oxides
D. A. Bonnell
>> Report p. 429
402 Deconstructing Dimensionality
M. A. Schwartz and C. S. Chen
404 Corolling Positively Charged Molecular Radicals
A. Benniston
>> Report p. 429
405 How Big Is the Proton?
H. S. Margolis
>> Research Article p. 417
406 Chaperones That SNARE Neurotransmitter Release
F. M. Hughson
>> Research Article p. 421

SCIENCE PRIZE ESSAY
408 Keeping an Eye on Biology
S. R. Singer et al.

CONTENTS continued >>

COVER
A juvenile male Pteropus alecto (black flying fox) spreading its wings (for adults, average wing span ~1 meter; average weight range: 500 to 1000 grams). Bats, the only mammals capable of sustained flight, are among the world’s most diverse mammals and are host to numerous deadly viruses. Comparative genome analyses have shed new light on the evolution of bat-specific traits, including flight and immunity. See page 456.

Photo: Martin Asser Hansen/www.maasha.dk

DEPARTMENTS
371 This Week in Science
374 Editors’ Choice
376 Science Staff
410 AAAS News & Notes
468 New Products
469 Science Careers
CONTENTS

REVIEW
413  Can We Name Earth’s Species Before They Go Extinct?  
M. J. Costello et al.  
>> Science Podcast

RESEARCH ARTICLES
417  Proton Structure from the Measurement of 2S-2P Transition Frequencies of Muonic Hydrogen  
A. Antognini et al.  
A precision spectroscopic measurement of the proton radius indicates a growing discrepancy with respect to scattering results.  
>> Perspective p. 405; Science Podcast

421  Reconstitution of the Vital Functions of Munc18 and Munc13 in Neurotransmitter Release  
C. Mu et al.  
A model of neurotransmitter release explains why two proteins not needed for membrane fusion in vitro are needed in vivo.  
>> Perspective p. 406

REPORTS
425  Diisopropylammonium Bromide Is a High-Temperature Molecular Ferroelectric Crystal  
D.-W. Fu et al.  
An organic molecular crystal is found to have ferroelectric properties comparable to those of barium titanate.  
>> Perspective p. 401

429  A Radically Configurable Six-State Compound  
J. C. Barnes et al.  
An interlocked-rings topology stabilizes a wide range of collective oxidation states in a metal-free organic compound.  
>> Perspective p. 404

433  Identification of the Long-Sought Common-Envelope Events  
N. Ivanova et al.  
A model suggests that an intermediate class of stellar outbursts results from interaction between two stars in a close binary.

436  Synchronous X-ray and Radio Mode Switches: A Rapid Global Transformation of the Pulsar Magnetosphere  
W. Hermansen et al.  
The detection of synchronized switches in the radio and x-ray pulse properties of a pulsar challenges pulsar emission theories.

440  To Favor Survival Under Food Shortage, the Brain Disables Costly Memory  
P.-Y. Plaçais and T. Preat

443  Fasting Launches CRTC to Facilitate Long-Term Memory Formation in Drosophila  
Y. Hirano et al.  
Different types of memory interact in fed versus starved states to promote survival-oriented behavior.

446  The Human THAP9 Gene Encodes an Active P-Element DNA Transposase  
S. Majumdar et al.  
The human THAP9 protein can mediate transposon jumping in both human and fruit fly genomes.

448  Germline DNA Demethylation Dynamics and Imprint Erasure Through 5-Hydroxymethylcytosine  
J. A. Hackett et al.  
Rare loci that escape epigenetic reprogramming in mammalian germ cells may underlie translational epigenetic inheritance.

452  Actin, Spectrin, and Associated Proteins Form a Periodic Cytoskeletal Structure in Axons  
K. Xu et al.  
Superresolution microscopy reveals a membrane cytoskeleton in neurons comprising rings of actin separated by spectrin.

456  Comparative Analysis of Bat Genomes Provides Insight into the Evolution of Flight and Immunity  
G. Zhang et al.  
The analysis of two bat genomes suggests that adaptations to flight involved changes in DNA repair and innate immunity.

460  Tunable Signal Processing Through Modular Control of Transcription Factor Translocation  
N. Hao et al.  
A yeast protein transforms stress signals into distinct dynamic responses according to the timing and strength of inputs.

464  An Actin-Dependent Step in Mitochondrial Fission Mediated by the ER-Associated Formin INF2  
F. Korobova et al.  
Actin filaments between the endoplasmic reticulum and mitochondria promote mitochondrial fission.