

EDITORIAL

- 1801 Turkey and Science Academies
Bruce Alberts

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- 1806 A roundup of the week's top stories

NEWS & ANALYSIS

- 1809 From Geneva to Italy Faster Than a Speeding Photon
- 1810 The Waning Conflict Over XMRV and Chronic Fatigue Syndrome
- 1811 NSF Touts Family-Friendly Policies as Boon to Women
>> Reports pp. 1847, 1850, 1853, 1856, 1859, 1862, and 1865
- 1812 Mercury Looking Less Exotic, More a Member of the Family
>> Reports pp. 1847, 1850, 1853, 1856, 1859, 1862, and 1865
- 1813 Experts Debate Polypill: A Single Pill for Global Health
- 1814 Social Scientists Waded Into the Tweet Stream
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- 1816 Playing by Ear
>> Science Podcast
- 1818 Outbreak Detectives Embrace the Genome Era
- 1820 First Global Telescope Opens an Eye on the Cold Universe

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Z. Liu et al.
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M. Bradford
Tiger Conservation: Trust Tradition
A. Rabinowitz et al.
The Ant Who Learned to Be an Elephant
F. Ntoumi

- 1825 CORRECTIONS AND CLARIFICATIONS

- 1825 TECHNICAL COMMENT ABSTRACTS

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- 1826 The Information
J. Gleick, reviewed by A. Robinson
- 1827 The Book of Ice
P. D. Miller, reviewed by C. Bohannon

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- 1828 Rescuing Wolves from Politics: Wildlife as a Public Trust Resource
J. T. Bruskotter et al.

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- 1830 Sensing ER Stress
S. Kawaguchi and D. T. W. Ng
>> Report p. 1891
- 1831 Striking a Balance to Control Stereochemistry
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- 1832 Sunshine on a Cloudy Forecast
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>> Report p. 1868
- 1833 A New Histone Code for Clocks?
S. A. Brown
>> Report p. 1881
- 1834 Predicting the Flow of Real Polymers
R. G. Larson
>> Report p. 1871
- 1836 Retrospective: Bernadine Healy (1944–2011)
D. E. Shalala

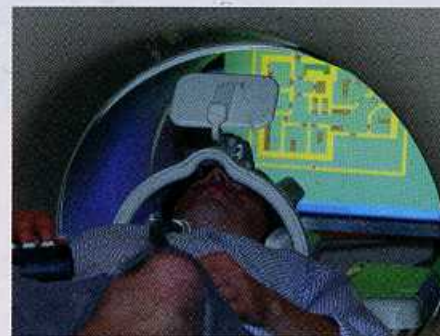
SCIENCE PRIZE ESSAY

- 1838 Making Earth Science Data Accessible and Usable in Education
T. S. Ledley et al.

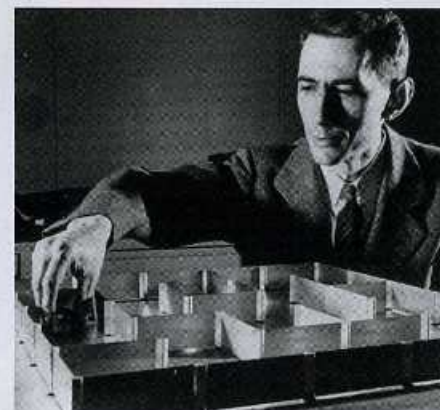
REVIEW

- 1843 TAL Effectors: Customizable Proteins for DNA Targeting
A. J. Bogdanove and D. F. Voytas

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COVER

Enhanced-color image of Mercury's surface showing a close-up of shallow, rimless depressions, or hollows (blue), inside the Raditladi impact basin (foreground ~12 kilometers across). These landforms were likely formed by the loss of volatile-containing material exposed by impacts and support the inference that Mercury's interior contains more volatile materials than predicted. Results from MESSENGER's orbital observations appear in a series of Reports beginning on page 1847.

Image: NASA/The Johns Hopkins University Applied Physics Laboratory/Carnegie Institution of Washington

DEPARTMENTS

- 1797 This Week in *Science*
- 1802 Editors' Choice
- 1804 *Science* Staff
- 1840 AAAS News & Notes
- 1908 New Products
- 1909 *Science* Careers

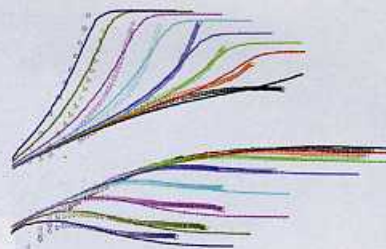
REPORTS

- 1847 **The Major-Element Composition of Mercury's Surface from MESSENGER X-ray Spectrometry**
L. R. Nittler et al.
 Geochemical data show that the major rock-forming components of Mercury are characterized by high sulfur content.
- 1850 **Radioactive Elements on Mercury's Surface from MESSENGER: Implications for the Planet's Formation and Evolution**
P. N. Peplowski et al.
 Gamma-ray emission from the surface of Mercury indicates that the planet accreted from relatively volatile-enriched material.
- 1853 **Flood Volcanism in the Northern High Latitudes of Mercury Revealed by MESSENGER**
J. W. Head et al.
 Mercury's high northern latitudes have a contiguous area of smooth plains created by lava flows.
- 1856 **Hollows on Mercury: MESSENGER Evidence for Geologically Recent Volatile-Related Activity**
D. T. Blewett et al.
 Rimless shallow depressions on Mercury may still be forming by outgassing, volcanism, sublimation, or space weathering.
- 1859 **The Global Magnetic Field of Mercury from MESSENGER Orbital Observations**
B. J. Anderson et al.
 Displacement of Mercury's magnetic dipole implies that the surface field has a north-south asymmetry.
- 1862 **MESSENGER Observations of the Spatial Distribution of Planetary Ions Near Mercury**
T. H. Zurbuchen et al.
 The polar regions of Mercury are important sources of material for its ionized exosphere.
- 1865 **MESSENGER Observations of Transient Bursts of Energetic Electrons in Mercury's Magnetosphere**
G. C. Ho et al.
 Despite having an internal magnetic field, Mercury does not have a Van Allen-type radiation belt.
 >> *News story p. 1812; Science Podcast*
- 1868 **Evidence of Water Vapor in Excess of Saturation in the Atmosphere of Mars**
L. Maltagliati et al.
 An upper layer of the martian atmosphere is supersaturated with water vapor, probably because of inefficient condensation.
 >> *Perspective p. 1832*
- 1871 **Linking Models of Polymerization and Dynamics to Predict Branched Polymer Structure and Flow**
D. J. Read et al.
 The complex flow behavior of a branched polymer can be predicted from its chemical structure.
 >> *Perspective p. 1834*

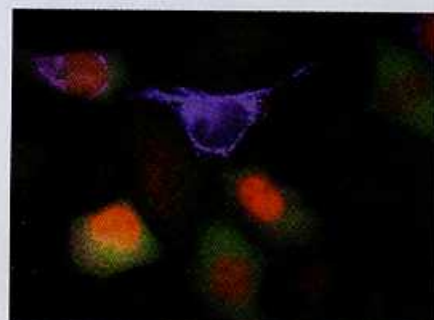
- 1875 **Three-Dimensional Correlation of Steric and Electronic Free Energy Relationships Guides Asymmetric Propargylation**
K. C. Harper and M. S. Sigman
 An unexpected synergy between a ligand's steric bulk and its electronic structure improves a stereoselective catalyst.
 >> *Perspective p. 1831*
- 1878 **Diurnal and Seasonal Mood Vary with Work, Sleep, and Daylength Across Diverse Cultures**
S. A. Golder and M. W. Macy
 Across the world the collective mood heightens at breakfast time and during the weekend.
 >> *News story p. 1814; Science Podcast*
- 1881 **Histone Lysine Demethylase JARID1a Activates CLOCK-BMAL1 and Influences the Circadian Clock**
L. DiTacchio et al.
 Rhythmic chromatin modifications are aided by two proteins belonging to the JumonjiC family of regulators.
 >> *Perspective p. 1833*
- 1885 **Superfast Muscles Set Maximum Call Rate in Echolocating Bats**
C. P. H. Elemans et al.
 How bats can produce calls quickly and accurately process the returning echoes.
- 1888 **An Expanded Palette of Genetically Encoded Ca²⁺ Indicators**
Y. Zhao et al.
 Directed protein evolution provides a series of fluorescent protein-based indicators for multicolor Ca²⁺ imaging.
- 1891 **Unfolded Proteins Are Ire1-Activating Ligands That Directly Induce the Unfolded Protein Response**
B. M. Gardner and P. Walter
 Misfolded secretory proteins activate a quality control pathway by binding a sensor in the endoplasmic reticulum.
 >> *Perspective p. 1830*
- 1895 **Chromosome Segregation Errors as a Cause of DNA Damage and Structural Chromosome Aberrations**
A. Janssen et al.
 Changes in whole-chromosome number in cancer cells increase structural damage to chromatin.
- 1898 **GRK2-Dependent S1PR1 Desensitization Is Required for Lymphocytes to Overcome Their Attraction to Blood**
T. I. Arnon et al.
 Desensitization to a chemoattractant is essential for lymphocyte migration from blood into lymph nodes.
- 1903 **Glutamatergic and Dopaminergic Neurons Mediate Anxiogenic and Anxiolytic Effects of CRHR1**
D. Refojo et al.
 Imbalance in the bidirectional role of corticotropin-releasing hormone receptor 1 in anxiety might lead to emotional disorders.



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