SPECIAL SECTION

Curiosity at Gale Crater

INTRODUCTION
1475 Analysis of Surface Materials by the Curiosity Mars Rover
J. P. Grotzinger

RESEARCH ARTICLE ABSTRACTS
1476 The Petrochemistry of Jake_M: A Martian Mugearite
E. M. Stolper et al.
Soil Diversity and Hydration as Observed by ChemCam at Gale Crater, Mars
P.-Y. Meslin et al.

X-ray Diffraction Results from Mars Science Laboratory: Mineralogy of Rocknest at Gale Crater
D. L. Bish et al.

Curiosity at Gale Crater, Mars: Characterization and Analysis of the Rocknest Sand Shadow
D. F. Blake et al.

Volatile, Isotope, and Organic Analysis of Martian Fines with the Mars Curiosity Rover
L. A. Leshin et al.

>> Science Podcast

NEWS FOCUS
1442 Taming a Mercurial Element
1443 With Pact’s Completion, the Real Work Begins
>> Science Podcast

1446 In Minamata, Mercury Still Divides
1448 Gold’s Dark Side
>> Editorial p. 1430; Perspective p. 1457

LETTERS
1451 L’Aquila’s Aftershocks Shake Scientists
E. Boschi
Low Marks for Education Funding Priorities
J. D. McNerney
Bayes’ Confidence
D. A. S. Fraser
Research Funders Should Take the Field
E. Allen et al.

1452 CORRECTIONS AND CLARIFICATIONS

BOOKS ET AL.
1453 Experiencing Art
A. P. Shimamura, reviewed by N. Hutton and L. Kelly

1454 Behind the Shock Machine
G. Perry, reviewed by R. Abma

EDUCATION FORUM
1455 Increasing Persistence of College Students in STEM
M. J. Graham et al.

PERSPECTIVES
1457 Global Change and Mercury
D. P. Krabbenhoft and E. M. Sunderland
>> Editorial p. 1430; News package p. 1442

1458 A Coat of Many Functions
D. Shchukin and H. Möhwald

1460 Sources of Antimicrobial Resistance
M. E. J. Woolhouse and M. J. Ward
>> Report p. 1514

CONTENTS continued >>

ON THE WEB THIS WEEK

>> Science Podcast
Listen to stories on monitoring mercury in the environment, news from the Curiosity rover, codon bias in bacterial genes, 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
NASA’s Mars Science Laboratory rover, Curiosity, at its Rocknest sample-collection site, Gale crater, Mars, on 31 October 2012. This is a mosaic of 59 images acquired by the Mars Hand Lens Imager, a camera mounted at the end of Curiosity’s robotic arm (both partly not visible during imaging and cropped out during processing). Four scoop troughs are shown; a fifth was created after the mosaic was obtained. The width of each rover wheel is 40 cm. See page 1475.

Image: NASA/JPL-Caltech/Malin Space Science Systems

DEPARTMENTS
1429 This Week in Science
1431 Editors’ Choice
1432 Science Staff
1469 AAAS News & Notes
1526 Gordon Research Conferences
1537 New Products
1538 Science Careers
A New Route for Growing Large Grains in Metals
E. M. Taleff and N. A. Pedrazas
>> Report p. 1500

Some Monocytes Got Rhythm
D. Druzd and C. Scheiermann
>> Research Article p. 1483

Small Volumes Create Super(elastic) Effects
K. T. Faber
>> Report p. 1505

Stalemate in the Golgi Battle
B. Morriswood and G. Warren

SCIENCE PRIZE ESSAY
Students Propose Genetic Solutions to Societal Problems
S. Wick et al.

RESEARCH ARTICLES
Electromagnetic Energy Conversion at Reconnection Fronts
V. Angelopoulos et al.
Data from various satellites in Earth’s magnetotail clarify where and how electromagnetic energy conversion occurs.

Circadian Gene Bmal1 Regulates Diurnal Oscillations of Ly6C+ Inflammatory Monocytes
K. D. Nguyen et al.
The clock protein Bmal1 regulates daily changes in white blood cell trafficking and susceptibility to inflammation in mice.
>> Perspective p. 1462

REPORTS
In Situ Observations of Interstellar Plasma with Voyager 1
D. A. Gurnett et al.
Electron densities detected by Voyager 1 show that the spacecraft is in the interstellar plasma.

Distances, Luminosities, and Temperatures of the Coldest Known Substellar Objects
T. J. Dupuy and A. L. Kraus
Observations with the Spitzer Space Telescope strengthen the link between the coolest brown dwarfs and gas-giant exoplanets.

Observation of Dirac Node Formation
Y. Okada et al.
Scanning tunneling spectroscopy of Pb1−xSn3x2v in a magnetic field reveals two types of Dirac fermions.

Abnormal Grain Growth Induced by Cyclic Heat Treatment
T. Omori et al.
Thermal cycling of a copper-based shape-memory alloy leads to abnormal grain growth and very large grains.
>> Perspective p. 1461

Cation Intercalation and High Volumetric Capacitance of Two-Dimensional Titanium Carbide
M. R. Lukatskaya et al.
The layered material Ti3C2 can intercalate much larger cations than Li+, allowing for energy storage applications.

Shape Memory and Superalastic Ceramics at Small Scales
A. Lai et al.
Fine-scale shape memory ceramics are capable of many actuation cycles to strains up to 7%.
>> Perspective p. 1464

Near-Complete Extinction of Native Small Mammal Fauna 25 Years After Forest Fragmentation
L. Gibson et al.
The rapid loss of native mammals from isolated Thai forests suggests that forest fragments cannot maintain biodiversity.

Safeguards for Cell Cooperation in Mouse Embryogenesis Shown by Genome-Wide Cheater Screen
M. Depoiz et al.
During embryogenesis, a network of genes centered on p53, topoisomerase 1, and olfactory receptors helps to ensure cell cooperation.

Distinguishable Epidemics of Multidrug-Resistant Salmonella Typhimurium DT104 in Different Hosts
A. E. Mather et al.
Antibiotic resistance travels in independent epidemics in humans and their livestock.
>> Perspective p. 1460

The Inhibitory Circuit Architecture of the Lateral Hypothalamus Orchestrates Feeding
J. H. Jennings et al.
A specific brain circuit drives the consumption of highly palatable food, even when energy needs are satisfied.

Cocaine Disinhibits Dopamine Neurons by Potentiation of GABA Transmission in the Ventral Terminal Area
C. Bocklisch et al.
Changes in specific neuronal circuits suggest that drug-evoked synaptic plasticity facilitates drug-adaptive behavior.
Editor's Summary

This copy is for your personal, non-commercial use only.

**Article Tools**
Visit the online version of this article to access the personalization and article tools:
http://science.sciencemag.org/content/341/6153

**Permissions**
Obtain information about reproducing this article:
http://www.sciencemag.org/about/permissions.dtl