NEWS OF THE WEEK

Uncle Sam’s Biomedical Archive Wants Your Papers 266
Satellite Company Offers Earth-Observing Researchers a Ride 267
Mirror Neurons May Help Songbirds Stay in Tune 269

SCIENCESCOPE

New Dark-Matter Map Reveals Where Galaxies Gambol 270
Polynesians Took the Express Train Through Melanesia to the Pacific 270
Most-Massive Black Hole Confirms Relativity Rules the Universe 271
Isolated Tribe Gives Clues to the Origins of Syphilis 272
Calculating Iraq’s Death Toll: WHO Study Backs Lower Estimate 273

NEWS FOCUS

Gene Tests for Psychiatric Risk Polarize Researchers 274
Hoping for a Glimpse of What’s Ahead 274
Seeking the Roots of Ritual 278
Just Don’t Call It the Garden of Eden 278

LETTERS

Conservation with Sense M. L. M. Lim et al. 281
Scientific Meetings: Worth Attending M. McNutt
Scientific Meetings: Call In Instead R. Roy
Putting a Human Face on Energy Usage R. Burruss

BOOKS ET AL.


POLICY FORUM

Aging Infrastructure and Ecosystem Restoration M. W. Doyle et al. 286

PERSPECTIVES

Organizing the Source of Memory E. A. Grove 288
Orion Continues to Surprise C. R. O’Dell and L. K. Townsley 289
Managing Coastal Wetlands I. Valiela and S. E. Fox 290
Dreams of Natural Streams D. R. Montgomery 291
Probing Quantum Magnetism with Cold Atoms M. Lewenstein and A. Sanpera 292

Editorial 258

Engaging Iran by Glenn Schweitzer and Norman Neureiter 258

Visit the Science web site at www.sciencemag.org
MOLECULAR BIOLOGY
A Shared Docking Motif in TRF1 and TRF2 Used for Differential Recruitment of Telomeric Proteins
Y. Chen et al.
Two similar members of the protein complex that protects the free ends of chromosomes have distinct binding sites for other complex members and accessory proteins.
10.1126/science.1151804

CELL BIOLOGY
Differential Regulation of Dynein and Kinesin Motor Proteins by Tau
R. Dixit, J. L. Ross, Y. E. Goldman, E. L. F. Holzbaur
The motor proteins dynein and kinesin both encounter the protein tau as they move along the microtubules; the former reverses direction, whereas the latter detaches.
10.1126/science.1152993

MEDICINE
Clonal Integration of a Polyomavirus in Human Merkel Cell Carcinoma
H. Feng, M. Shuda, Y. Chang, P. S. Moore
A rare, but highly aggressive, form of human skin cancer may be caused by a previously uncharacterized human polyomavirus.
10.1126/science.1152586

GEOPHYSICS
Rogue Mantle Helium and Neon
F. Albarède
Anomalously high ratios of $^3$He to $^4$He in the recycled basalts under ocean islands may result from helium diffusing in from more pristine, primitive mantle.
10.1126/science.1150060

BREVIA
PLANT SCIENCE
Arabidopsis CLV3 Peptide Directly Binds CLV1 Ectodomain
M. Ogawa, H. Shinohara, Y. Sakagami, Y. Matsubayashi
Peptides that maintain the stem cells in the shoot apical meristem of Arabidopsis act by binding to the extracellular portion of a receptor-like kinase.

RESEARCH ARTICLES
PHYSICS
Time-Resolved Observation and Control of Superexchange Interactions with Ultracold Atoms in Optical Lattices
S. Trotzky et al.
Ultracold atoms trapped at sites of optical lattices are used to investigate the superexchange interaction between neighboring spins. >> Perspective p. 292

GEOMORPHOLOGY
Natural Streams and the Legacy of Water-Powered Mills
R. C. Walter and D. J. Merritts
Floodplains and streams in the eastern United States were altered extensively by milldams in the 1700s and 1800s, challenging recent hydrologic interpretations and restoration approaches. >> Perspective p. 291

NEUROSCIENCE
Lhx2 Selector Activity Specifies Cortical Identity and Suppresses Hippocampal Organizer Fate
V. S. Mangale et al.
The brain’s cortex begins as a one-cell-thick sheet of stem cells, whose ultimate identity is specified by a gene that suppresses noncortical cell fates. >> Perspective p. 288

REPORTS
ASTRONOMY
Million-Degree Plasma Pervading the Extended Orion Nebula
M. Güdel et al.
Million-degree gas fills the Orion Nebula, implying that shock-heated gas from stellar outflows is common in our Galaxy. >> Perspective p. 289
Elementary Structural Motifs in a Random Network of Cytosine Adsorbed on a Gold(111) Surface
R. Otero et al.

Upon cooling, cytosine molecules on a gold surface form a disordered network based on the assembly of three elementary structural units, which may have analogies with glasses.

Identification of the fastest seismic-wave propagation speed in subduction zones reveals that trench migration induces flow in the mantle above and beneath the subducting slab.

Although the fitness of wild sheep increases with size, large, dark sheep are becoming rarer because color is genetically linked to genes that decrease fitness.

Taking into account the nonlinear relation between preserved habitat area and wave attenuation facilitates integrated management of coastal conservation and development.

An important developmental signaling molecule known to be a tumor suppressor can also activate growth, possibly explaining the responses of some cancers.

Identical twins each carry preleukemic cells containing the characteristic chromosomal translocation, but only one undergoes further genetic changes and develops leukemia.

A theory of stochastic gene expression suggests that noise can be modulated without feedback loops, complicating interpretation of single-cell experiments.
Perspective: The Endoplasmic Reticulum Takes Center Stage in Cell Cycle Regulation
P. Fearon and O. Cohen-Fix

The ER appears to play a key role in controlling the spatial localization of proteins involved in the cell cycle.

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