The Ginza area of Tokyo in 2006. By 2030 the number of urban dwellers will have exploded to 4.8 billion people, roughly 60 percent of the projected world population, whereas only 13 percent lived in cities in 1900. The special section beginning on page 739 includes News stories, Reviews, and Perspectives that explore the ramifications of urban transformation.

Photo: Getty Images
PLANT SCIENCE

TOPLESS Mediates Auxin-Dependent Transcriptional Repression During Arabidopsis Embryogenesis

H. Szemenyei, M. Hannon, J. A. Long

A transcriptional co-repressor is part of the protein complex that inhibits developmental gene activation in Arabidopsis until the growth hormone auxin triggers its degradation.

10.1126/science.1151861

NEUROSCIENCE

Synaptic Protein Degradation Underlies Destabilization of Retrieved Fear Memory

S.-H. Lee et al.

Upon recollection, mouse memories of fearful situations become labile, as postsynaptic proteins are degraded by proteosomes and are then reconsolidated via protein synthesis.

10.1126/science.1150541

TECHNICAL COMMENT ABSTRACTS

MATHEMATICS

Comment on “Clustering by Passing Messages Between Data Points”

M. J. Brusco and H.-F. Köhn

Full text at www.sciencemag.org/cgi/content/full/319/5864/726c

Response to Comment on “Clustering by Passing Messages Between Data Points”

B. J. Frey and D. Dueck

Full text at www.sciencemag.org/cgi/content/full/319/5864/726d

BREVIA

PHYSIOLOGY

Experienced Saxophonists Learn to Tune Their Vocal Tracts

J. M. Chen, J. Smith, J. Wolfe

To play the high range of the saxophone, players learn to tune the second resonance of their vocal tract to the desired note.
Reports Continued...

Physics
Observation of the Spin Hall Effect of Light via Weak Measurements
O. Hosten and P. Kwiat
Displacement of light at an air-glass interface depends on its polarization, showing that photons have a spin Hall effect comparable to that seen for electrons. >> Perspective p. 733

Chemistry
Bond-Selective Control of a Heterogeneously Catalyzed Reaction
D. R. Killelea, V. L. Campbell, N. S. Shuman, A. L. Utz
Exciting the CH bond in CHD₂ just before it collides with a nickel surface minimizes dissipation of the collision energy throughout the molecule, allowing selective bond scission. >> Perspective p. 736

Materials Science
Colossal Positive and Negative Thermal Expansion in the Framework Material Ag₃[Co(CN)₆]₃
A. L. Goodwin et al.
Like a lattice fence, a silver-based framework material expands greatly in one direction upon heating, while contracting even more in the orthogonal direction.

Geophysics
Elastic Anisotropy of Earth’s Inner Core
A. B. Belonoshko et al.
Simulations show that at high pressures sound waves travel through the body-centered cubic structure of iron faster in one direction, explaining seismic data on the inner core.

Climate Change
The Spatial Pattern and Mechanisms of Heat-Content Change in the North Atlantic
M. S. Lozier et al.
Warming and cooling in different parts of the North Atlantic since 1950 reflect variable atmospheric circulation, complicating understanding of anthropogenic changes.

Ecology
Direct and Indirect Effects of Resource Quality on Food Web Structure
T. Bukovinszky, F. J. F. van Veen, Y. Jongema, M. Dicke
Food webs that contain either Brussels sprouts or a wild Brassica relative have surprisingly large differences in structure and complexity, extending to three trophic levels.

Biophysics
Biomechanical Energy Harvesting: Generating Electricity During Walking with Minimal User Effort
J. M. Donelan et al.
A knee-mounted device can generate several watts of power at the end of each leg swing in a process similar to regenerative braking in hybrid cars.

Biomedical Science
A Heme Export Protein Is Required for Red Blood Cell Differentiation and Iron Homeostasis
S. B. Keel
A mouse cell-surface protein exports excess heme, which is toxic when free in the cytoplasm, ensuring normal red blood cell maturation and systemic iron balance.

Immunology
Runx Complexes in Cytotoxic T Cell Development
R. Setoguchi et al.
A key cell-fate decision—to become a cytotoxic rather than a helper T cell—is controlled by repression of the helper T cell transcription factor by a second transcription factor.

Genetics
An Association Between the Kinship and Fertility of Human Couples
A. Helgason et al.
The extensive genealogies of the Icelandic people show that couples who are 3rd or 4th cousins have more children and grandchildren than couples whose relationships are more or less distant.

Genetics
Primordial Dwarfism
A. Rauch et al.
In humans, an inherited condition with small brain size and near-normal intelligence is caused by mutations that disrupt chromosome separation during cell division. >> Perspective p. 732

Molecular Biology
Reciprocal Binding of PARP-1 and Histone H1 at Promoters Specifies Transcriptional Outcomes
R. Krishnakumar et al.
At certain genes regulated by the nucleosome-binding protein PARP-1, the presence of a linker histone at the promoter prevents PARP-1 binding, inhibiting gene activation.

Biophysics
Stochastic Optical Reconstruction Microscopy
B. Huang, W. Wang, M. Bates, X. Zhuang
Three-dimensional fluorescence images of cellular structures in fixed cells are realized at 20- to 30-nanometer lateral and 50-nanometer axial resolution, without scanning.

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**Perspective: Novel Roles for the NF-κB Signaling Pathway in Regulating Neuronal Function**

M. C. Boersma and M. K. Meffert

Components of the NF-κB pathway may use multiple mechanisms to influence synaptic plasticity, learning, and memory.

**Perspective: Exosomes Secreted by Bacterially Infected Macrophages Are Proinflammatory**

H. C. O’Neill and B. J. C. Quah

The release of bacterial components in vesicles secreted by infected macrophages helps promote inflammation.

**SCIENCE NOW**
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Adaptation to disparate environments resulted in mutations related to obesity and diabetes.

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E. Pain

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S. Webb

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C. Wald

A mentor and student turned their differences into strengths as they became scientific collaborators.

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P. Fiske

A good cover letter highlights your qualifications and guides readers through the most important parts of your work history.

**SCIENCE ONLINE FEATURE**

VIDEO: Cities

An accompaniment to this week’s special section exploring the benefits and challenges of urbanization.

www.sciencemag.org/cities

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