Cities

INTRODUCTION
Reimagining Cities

NEWS
China’s Living Laboratory in Urbanization
Calming Traffic on Bogotá’s Killing Streets
Durban’s Poor Get Water Services Long Denied
Pipe Dreams Come True
Rebuilt From Ruins, a Water Utility Turns Clean and Pure
Living in the Danger Zone
Choking on Fumes, Kolkata Faces a Noxious Future
From Gasoline Alleys to Electric Avenues
    Unclogging Urban Arteries
Upending the Traditional Farm
Imagining a City Where (Electrical) Resistance Is Futile
Money—With Strings—to Fight Poverty
    Building on a Firm Foundation

REVIEWS
ECOLOGY: Global Change and the Ecology of Cities
N. B. Grimm et al.
ECONOMICS: Urbanization and the Wealth of Nations
D. E. Bloom, D. Canning, G. Fink

PERSPECTIVES
The Urban Transformation of the Developing World
M. R. Montgomery
Reproducing in Cities
R. Mace
Health and Urban Living
C. Dye
The Size, Scale, and Shape of Cities
M. Batty

NEWS OF THE WEEK
Kenyan Scientists Endure Violent Unrest,
University Closings
Lifting the Veil on Traditional Chinese Medicine
Exotic Disease of Farm Animals Tests
Europe’s Responses

SCIENCESCOPE
Prizes Eyed to Spur Medical Innovation

NEWS FOCUS
A Science Budget of Choices and Chances
    A Broken Record?
    Near-Term Energy Research Prosper
    NIH Hopes for More Mileage From Roadmap
    Earth Gets a Closer Look
Can the Upstarts Top Silicon?
MESSENGER Flyby Reveals a More Active
and Stranger Mercury
Berkeley Hyenas Face an Uncertain Future
PLANT SCIENCE
TOPLESS Mediates Auxin-Dependent Transcriptional Repression During Arb...
at the end of each leg swing in a process similar to regenerative

A knee-mounted device can generate several watts of power

Electricity During Walking with Minimal User Effort

Biomechanical Energy Harvesting: Generating

BIOPHYSICS

complexity, extending to three trophic levels.

Food webs that contain either Brussels sprouts or a wild

Food Web Structure

Direct and Indirect Effects of Resource Quality on

ECOLOGY

understanding of anthropogenic changes.

Warming and cooling in different parts of the North Atlantic

since 1950 reflects variable atmospheric circulation, complicating

CLIMATE CHANGE

The Spatial Pattern and Mechanisms of Heat-Content

Change in the North Atlantic

A. S. Lozier 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.

GEOPHYSICS

Elastic Anisotropy of Earth’s Inner Core

A. B. Belonoshko et al.

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.

IMMUNOLOGY

Repression of the Transcription Factor Th-POK by

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.

MEDICINE

A Heme Export Protein Is Required for Red Blood Cell

Differentiation and Iron Homeostasis

S. B. Keel et al.

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.
SCIENCE NOW
www.sciencenow.org  DAILY NEWS COVERAGE

Team Uncovers New Evidence of Recent Human Evolution
Adaptation to disparate environments resulted in mutations related to obesity and diabetes.

Don’t It Make Your Brown Eyes Blue?
Researchers locate genetic change that leads to baby blues, and it’s not where they expected.

Move Over Beavers, Here Come Salmon
The big fish don’t just swim upstream—they shape the stream.

Exosomes spread inflammatory signals.

SCIENCE SIGNALING
www.stke.org  THE SIGNAL TRANSDUCTION KNOWLEDGE ENVIRONMENT

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 CAREERS
www.sciencemag.org  CAREER RESOURCES FOR SCIENTISTS

Special Feature: Mentoring
E. Pain
What makes mentoring relationships successful?

A Gift That Keeps On Giving
S. Webb
An industry mentor helped physicist Joan Hoffmann navigate graduate school and launch her career.

Mentoring Opposites
C. Wald
A mentor and student turned their differences into strengths as they became scientific collaborators.

From the Archives: The Commandments of Cover Letter Creation
P. Fiske
A good cover letter highlights your qualifications and guides readers through the most important parts of your work history.

SCIENCE PODCAST
Download the 8 February Science Podcast to hear about greenhouse emissions from biofuel-dedicated land, the 2009 U.S. science budget, good mentoring relationships, reproducing in cities, and more.

www.sciencemag.org/about/podcast.dtl

SCIENCE ONLINE FEATURE
VIDEO: Cities
An accompaniment to this week’s special section exploring the benefits and challenges of urbanization.

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