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Average patterns of brain recruitment, as measured by functional
magnetic resonance imaging, in children with typical reading
development (left) or dyslexia (right) as they sound out printed
words. Left-hemisphere brain regions engaged by typical readers,
the parietal cortex (upper left) and fusiform gyrus (lower left),
are less engaged by dyslexic readers. See page 280.

Photo illustration: Yael Kats (brain scans, Susan Whitfield-Gabrieli
and John Gabrieli; background, iStockphoto.com)

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CELEBRATE THE
40TH ANNIVERSARY
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MOON LANDING
The scientific results of that
mission and samples returned
from the Moon, published in our
20 January 1970 issue, are now
freely available with registration
at www.sciencemag.org/apollo11.
BREVIA

289  Modern Riding Style Improves Horse Racing Times
T. Pfau et al.
Increased horse race speed over the past century can be attributed to the crouching posture and increased work done by jockeys.

RESEARCH ARTICLES

290  Demographic Variability, Vaccination, and the Spatiotemporal Dynamics of Rotavirus Epidemics
V. E. Pitzer et al.
Diarrhea-causing rotavirus epidemics can be predicted by shifts in birth rate rather than by seasonal variables.
>> Perspective p. 274; Science Podcast

294  Nonlocal Transport in the Quantum Spin Hall State
A. Roth et al.
A topological insulator exhibits current flow in edge states around the sample without the need for magnetic fields.
>> Perspective p. 278

REPORTS

297  Higher-Order Photon Bunching in a Semiconductor Microcavity
M. Aßmann et al.
The tendency for photons to bunch gets stronger as their number increases.

300  Band Formation from Coupled Quantum Dots Formed by a Nanoporous Network on a Copper Surface
J. Lobo-Checa et al.
Trapped electronic states induced by a nanoporous overlayer create an artificial electronic band structure.

303  CH Stretching Excitation in the Early Barrier F + CHD3 Reaction Inhibits CH Bond Cleavage
W. Zhang et al.

306  Deep-Sea Temperature and Ice Volume Changes Across the Pliocene-Pleistocene Climate Transitions
S. Sosdian and Y. Rosenthal
Increases in glacial ice volume and ice-sheet dynamics are implicated in two distinct climate cooling events.

310  Transient Simulation of Last Deglaciation with a New Mechanism for Bølling-Allerød Warming
Z. Liu et al.
A coupled atmosphere-ocean general circulation model simulates the warming of the last deglaciation.
>> Perspective p. 273

314  Undulatory Swimming in Sand: Subsurface Locomotion of the Sandfish Lizard
R. D. Maladen et al.
X-ray imaging reveals the undulatory motion of a sandfish lizard through a granular fluid.

318  Targeted Retrieval and Analysis of Five Neandertal mtDNA Genomes
A. W. Briggs et al.
Targeted sequencing improves Neandertal mitochondrial DNA retrieval and reveals low diversity among individuals.
>> News story p. 252

321  The Human SelSecS-tRNA\textsuperscript{Sec} Complex Reveals the Mechanism of Selenocysteine Formation
S. Palioura et al.
A crystal structure shows how a pyroxidal phosphate enzyme catalyzes formation of selenocysteine from phosphoserine on transfer RNA.

325  Tiger Moth Jams Bat Sonar
A. J. Corcoran et al.
_Bertholdia trigona_ thwarts the attacks of bats by generating bursts of ultrasound that interfere with the bats’ sonar systems.
>> Science Podcast

328  Functional Amyloids as Natural Storage of Peptide Hormones in Pituitary Secretory Granules
S. K. Maji et al.
Peptide and protein hormones are stored in secretory granules in a nonpathological amyloid conformation.

332  RIP3, an Energy Metabolism Regulator That Switches TNF-Induced Cell Death from Apoptosis to Necrosis
D.-W. Zhang et al.
The protein kinase RIP3 mediates necrotic cell death, likely through regulation of metabolic enzymes.

336  Reversal of RNA Dominance by Displacement of Protein Sequestered on Triplet Repeat RNA
T. M. Wheeler et al.
An antisense oligonucleotide ameliorates the symptoms of myotonic dystrophy in transgenic mice.
>> Perspective p. 272

340  Genome-Wide RNAi Screen Identifies Genes Involved in Intestinal Pathogenic Bacterial Infection
S. J. F. Cronin et al.
In vivo RNA interference screen reveals regulators of innate immunity in _Drosophila_.
>> Science Podcast

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Mindblind Eyes: An Absence of Spontaneous Theory of Mind in Asperger Syndrome A. Senju et al.

Asperger syndrome individuals do not pass a nonverbal false-belief test. 10.1126/science.1176088

An Expressed Fgf4 Retrogene Is Associated with Breed-Defining Chondrodysplasia in Domestic Dogs H. G. Parker et al.

The short legs that characterize certain dog breeds are associated with a gene that arose recently by RNA-based gene duplication. 10.1126/science.1173275

Exploring Dark Matter with Milky Way Substructure M. Kuhlen et al.

Simulations reveal that dark matter in our galaxy could be detected by the Fermi space telescope. 10.1126/science.1174881

Bcl6 and Blimp-1 Are Reciprocal and Antagonistic Regulators of T Follicular Helper Cell Differentiation R. J. Johnston et al.

The transcription factors that regulate follicular T helper cell differentiation are identified. 10.1126/science.1175870

Comment on "Neodymium-142 Evidence for Hadean Mafic Crust" R. Andreasen and M. Sharma full text at www.sciencemag.org/cgi/content/full/325/5938/267-b

Response to Comment on "Neodymium-142 Evidence for Hadean Mafic Crust" J. O’Neil et al. full text at www.sciencemag.org/cgi/content/full/325/5938/267-a

Na\(^{+}\)-Independent Amino Acid Transporter P. L. Shaffer et al.

The structure of the transporter AcpT reveals common architectural principles between proton- and sodium-coupled transporters. 10.1126/science.1176088

Lysine Acetylation Targets Protein Complexes and Co-Regulates Major Cellular Functions C. Choudhary et al.

A proteomic-scale analysis of protein acetylation suggests that it is an important biological regulatory mechanism. 10.1126/science.1175371

Measurements of its spatial profile reveal the crucial role of asymmetric IP\(_3\) signals in growth cone navigation.

PERSPECTIVE: Down-Regulating Destruction—Phosphorylation Regulates the E3 Ubiquitin Ligase Nedd4-2 P. M. Snyder

Phosphorylation of Nedd4-2 regulates epithelial Na\(^{+}\) transport.

GLOSSARY: Find out what ATM, GKAP, and MUP mean in the world of cell signaling.

Science in the News: Don’t Blame Birds for 1918 Flu

A new paper disputes the idea that an avian strain caused the global disaster. 10.1126/science.1175484

Business Sense: Starting an Academic Lab S. Webb

Starting your new laboratory requires planning, negotiating, and wise spending decisions.

Science Policy News and Analysis

Free Career Resources for Scientists

Biotech companies are hiring problem-solvers for their manufacturing facilities.

Business Sense: Starting an Academic Lab S. Webb

Starting your new laboratory requires planning, negotiating, and wise spending decisions.

A Career Revisiting Classical Biological Problems E. Pain

Nenad Ban earned recognition by cracking the crystal structures of complex macromolecules.

A History of Beginnings

Avian roots?