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Read about medieval versus modern leprosy, fossilized muscles for primitive jaws, ice shelf melting around Antarctica, and more.

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#### COVER

Polished thin section (70 micrometers) of volcanic glass, sample catalog number NMNH115296-3, in transmitted light (14 by 18 millimeters). Molten lava erupted onto the sea floor freezes to glass and minerals that contain clues to the lava's ancient past and origin in Earth's deep interior. Volcanic glasses such as this one may reveal a link between Earth's oxidation state and the deep carbon cycle. See page 1314.

Image: G. Macpherson, T. Gooding, and E. Cottrell

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1307 Short-Range Quantum Magnetism of Ultracold Fermions in an Optical Lattice D. Greif et al.

A redistribution of entropy in an optical lattice loaded with atoms leads to magnetic correlations.

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- 1324 Epistasis Among Adaptive Mutations in Deer Mouse Hemoglobin *C. Natarajan* et al. Deer mice have discovered that mutations distant from the oxygen-binding site help them live at high altitude.
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### 1334 The Molecular Basis for Attractive Salt-Taste Coding in *Drosophila Y. V. Zhang* et al. Low or high concentrations of sodium chloride

activate distinct receptor pathways and, hence, elicit attractive or aversive responses.

# 1338 Parallel Neural Pathways Mediate CO<sub>2</sub> Avoidance Responses in *Drosophila H.-H. Lin* et al.

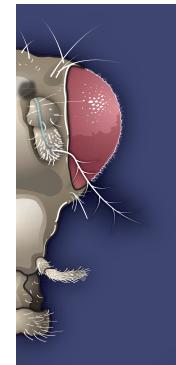
Different concentrations of carbon dioxide activate distinct projection neurons and, hence, elicit different responses. >> Perspective p. 1295

### 1342 Multisensory Control of Hippocampal Spatiotemporal Selectivity *P. Ravassard* et al. Virtual reality reveals how sensory cues differentially influence brain activity involved in sensing place in rats.

## 1346 Subangstrom Resolution X-Ray Structure Details Aquaporin-Water Interactions U. Kosinska Eriksson et al.

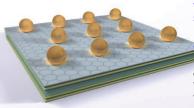
A really, really close-up view of an aquaporin hints at how water passes through but protons do not.

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the American Association for the Advancement of Science, 1200

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**340 (6138)** (June 14, 2013) *Science* **340** (6138), 1264-1353.

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