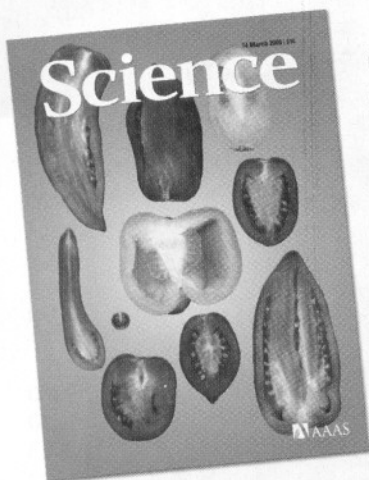




COVER

Tomato (*Solanum lycopersicum*) domestication and selection resulted in an explosion of different fruit shapes and sizes, as exemplified by heirloom varieties. Wild ancestors of tomatoes such as *S. pimpinellifolium*, the smallest fruit shown here, were round (middle row, second from left). See page 1527.

Image: Kelly Krause/Science;
photos: Esther van der Knaap

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www.sciencexpress.org

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Coherent Dynamics of a Single Spin Interacting with an Adjustable Spin Bath

R. Hanson, V. V. Dobrovitski, A. E. Feiguin, O. Gywat, D. D. Awschalom

Simulations successfully show how the spin of a nitrogen vacancy in diamond is coupled to those of surrounding nitrogen impurities and how coherence between them is lost.

10.1126/science.1155400

CHEMISTRY

Gate-Variable Optical Transitions in Graphene

F. Wang et al.

Application of electrical biases to single or double layers of graphene change its infrared reflectivity, mimicking aspects of transistors and opening up optoelectronic applications.

10.1126/science.1152793

CLIMATE CHANGE

Impact of Artificial Reservoir Water Impoundment on Global Sea Level

B. F. Chao, Y. H. Wu, Y. S. Li

Accounting for water impounded globally in artificial lakes that were filled during the past 80 years raises estimates of natural contributions to recent sea level.

10.1126/science.1154580



MOLECULAR BIOLOGY

Nutritional Control of Reproductive Status in Honeybees via DNA Methylation

R. Kucharski, J. Maleszka, S. Foret, R. Maleszka

Epigenetic modifications that involve methylation cause female honeybee larvae to become queens rather than workers when they are fed royal jelly.

10.1126/science.1153069

NEUROSCIENCE

Insect Odorant Receptors Are Molecular Targets of the Insect Repellent DEET

M. Ditzgen, M. Pellegrino, L. B. Vosshall

The widely used insect repellent DEET acts by inhibiting olfactory neurons that respond to odors such as those that attract insects to their hosts.

>> News story p. 1471

10.1126/science.1153121

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T. Goebel, M. R. Waters, D. H. O'Rourke

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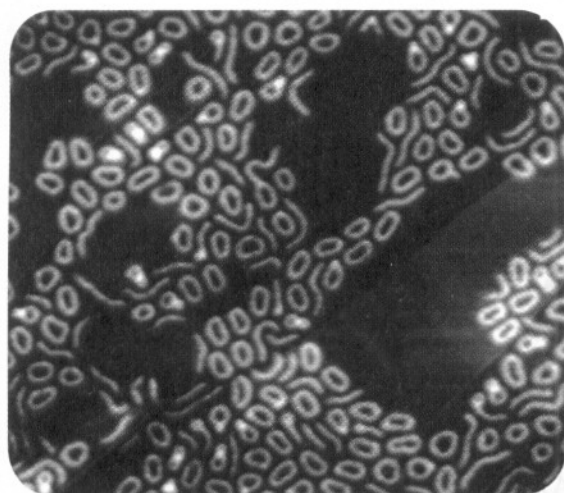
ECOLOGY

Predators Induce Cloning in Echinoderm Larvae

D. Vaughn and R. R. Strathmann

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Organic Molecules and Water in the Planet Formation Region of Young Circumstellar Disks

J. S. Carr and J. R. Najita

Simple organic molecules and water are abundant in the inner disk of a star like our early Sun, implying that organic synthesis is occurring there.

>> Perspective p. 1488

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Superconductivity in Hydrogen Dominant Materials: Silane

M. I. Erements, I. A. Trojan, S. A. Medvedev, J. S. Tse, Y. Yao

Under pressure, the insulator silane (SiH_4) transforms to a metallic phase and, at even higher pressures and low temperatures, becomes superconducting.

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P. Aynajian et al.

High-resolution neutron-scattering experiments reveal behavior in pure lead and niobium superconductors beyond that described by the standard theoretical framework.

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Synthesis of Macrocyclic Copolymer Brushes and Their Self-Assembly into Supramolecular Tubes

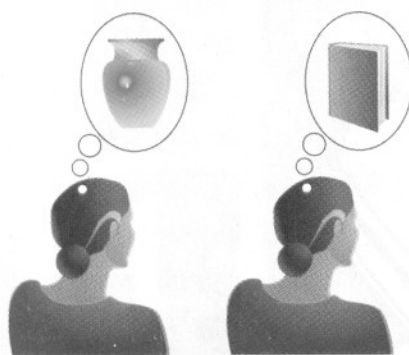
M. Schappacher and A. Deffieux

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>> *Perspective p. 1489*

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G. Mongillo, O. Barak, M. Tsodyks

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