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Random Samples

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Good News for Guinea Pigs

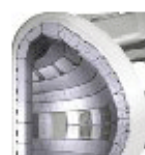
▲ Turning a good idea for, say, a new deodorant into a product is often a painful journey--particularly for the lab animals that are sacrificed to show that a substance or chemical mixture is safe. Now a government panel has given its blessing to a new skin test that uses fewer animals, is more humane, and has even received high marks from animal rights groups.

The test, used to evaluate whether products will cause dermatitis, is the first to pass muster under a new federal program to help evaluate alternatives to current animal tests, called the Interagency Coordinating Committee on the Validation of Alternative Methods (*Science*, 4 April 1997, p. 41). The committee oversees peer review of proposed tests and forwards recommendations to more than a dozen federal agencies, which then decide whether to adopt a test.

In the standard skin test, a substance is painted on a guinea

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pig, which is then injected with a chemical that aggravates any skin reaction. In the new test, developed by scientists from three companies, a substance is applied to a mouse's ear. The animal is euthanized a few days later, and its lymph node tissue is examined for signs of an immune reaction. This test "spares the animal any pain and suffering associated with allergic contact dermatitis," says Martin Stephens of the Humane Society of the United States.

The new test can't replace the old one in all cases, such as testing metal salts, says committee co-chair William Stokes. However, he says, it may yield better data, because scientists know more about the mouse immune system than about that of guinea pigs.

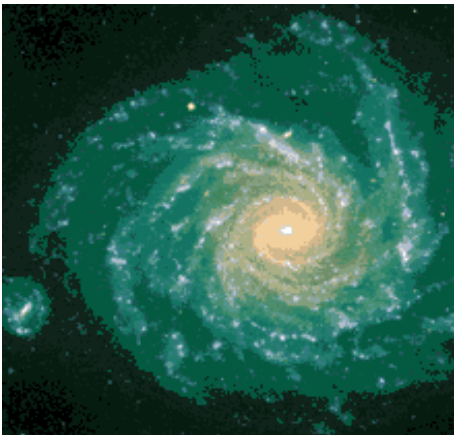


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New Views of Southern Skies

▲



Hovering at the outermost spiral arms of NGC 1232--a colorful pinwheel galaxy 100 million light-years from Earth-- is a small, gravitationally distorted companion galaxy (lower left). In this image, captured by the European Southern Observatory's Very Large Telescope (VLT) in Chile, old stars in the galaxy's core appear red; young star-forming regions in the spiral arms are blue. The image was taken by FORS, the VLT's first scientific instrument, which glimpsed first light on 15 September. With its acute vision and power to study the composition, velocities, and distances of galaxies, the German-built FORS, the observatory claims, will be a "workhorse for the study of the distant universe."

Looser Lips at Spy Organization

▲ During the Cold War, if you asked anyone who worked at the supersecret NRO what they did for a living, you might have gotten the "I-could-tell-you-but-then-I'd-have-to-kill-you" line. But in 1992, the National Reconnaissance Office, which since 1962 has operated the nation's spy satellites, finally declassified the fact of its existence. Since then, the NRO has divulged some of its early operations, and it routinely announces upcoming launches of secret payloads.

Now the NRO has learned a new step in its pas de deux with *glasnost*. At a press conference on 22 September at the agency's heavily guarded compound in Chantilly, Virginia, NRO officials lifted the veil for a peek at their Space Technology Experiment, set to launch on 1 October. The spacecraft will test 29 technologies, including an electric propulsion system that could lighten a satellite's fuel burden, more efficient solar arrays, and new release mechanisms that jolt payloads much less than current explosive-based devices.

Talking up even these unclassified technologies marks a cultural shift for NRO. "It's different for folks inside of NRO because they do tremendous scientific and engineering work, but they can't tell anybody about it--in a lot of cases not even their own families," says NRO spokesperson Richard Oborn. How about detailed briefings on new spy satellites? "I don't expect we will [do that] in my lifetime," Oborn says.

Penetrating Insight Into the Brain

▲ A lobotomy might seem a strange thing to celebrate. But last month, scientists from as far away as Australia and Japan gathered in Cavendish, Vermont, to commemorate the 150th anniversary of the day that a young man named Phineas Gage lost a chunk of his brain when his head was pierced by an errant iron rod. The accident revealed that the frontal lobes regulate our personality and behavior.





Gage, with his skull.

At first, Gage's remarkable recovery provided ammunition for scientists who argued that the brain has no localized functions: One part could easily fill in for another. After all, Gage was able to walk and talk, so sacrificing a swath of gray matter seemed to have little consequence (*Science*, 20 May 1994, p. 1102). Months later, however, family members noted that the tamping iron had turned Gage from quiet and respectful to profane, suggesting that the frontal cortex normally inhibits inappropriate social displays.

Today, scientists are debating whether the frontal cortex itself functions as a unit or subdivides its duties. Art Shimamura of the University of California, Berkeley, told the conference that the truth probably lies somewhere in the middle. Although the frontal lobes coordinate overall behavior, he says, recent studies of modern patients suggest that regions within the cortex communicate independently with brain regions involved in memory, movement, and emotion.



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