is sandwiched at the radical's core between two chemical groups that contain vanadium atoms. This stabilizes the structure, report Christopher Cummins at the Massachusetts Institute of Technology in Cambridge and his team, because the phosphorus shares its lone electron with the two metal atoms. They hope that the same strategy will stabilize radicals centred on other elements, and that varying the metal will tune the radical's reactivity.

MALARIA

Which mozzies win out?

Proc. Natl Acad. Sci. USA **104,** 5580–5583 (2007)

Genetic resistance to the malaria parasite gives mosquitoes feeding on infected blood a fitness advantage, researchers have found. Release of mosquitoes that are resistant to infection with malaria is one control strategy being considered to curb the disease.

Marcelo Jacobs-Lorena of the Johns Hopkins University in Baltimore, Maryland, and his colleagues put 250 transgenic and 250 wild-type mosquitoes of opposite sexes into a cage, where they fed on mice infected with the *Plasmodium berghei* parasite. The transgene, which blocks infection through the mosquitoes' gut, was found in around 70% of the mosquito population after 10 or so breeding cycles. Mosquitoes in the wild only occasionally become infected with the parasite, but this study gives hope that the transgene could persist in the population.

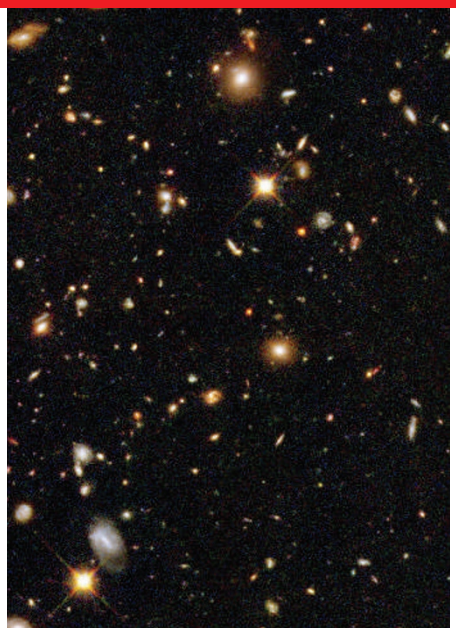
ASTRONOMY

Seeing things

Astrophys. J. **657,** 669–680 (2007)

Infrared light thought to have been emitted by the Universe's first stars isn't seen in a new survey of the skies.

Researchers had previously found a 'near-infrared background excess' in some



NASA/ESA/R. THOMPSON

satellite images that they couldn't account for with known sources. They argued that it was light from early galaxies, stretched by the expansion of the Universe to appear at infrared wavelengths.

Rodger Thompson of the University of Arizona, Tucson, and his colleagues analysed sharper and more sensitive images from the Hubble telescope (pictured above). They say the claimed excess was due to inaccurate estimates of emission from zodiacal dust. What's more, they could attribute spatial variations in the background to previously undetected nearby galaxies.

NANOTECHNOLOGY

Spheres inside cells

Environ. Sci. Technol. doi:10.1021/es062541f (2007)

Concerns about nanoparticle toxicity have prompted researchers to look closely at how C_{60} molecules interact with cells.

Alexandra Porter at the University of Cambridge, UK, and her colleagues imaged C_{60} that had infiltrated human macrophages — cells that have a role in clearing debris from the lungs. The researchers showed that a technique known as energy-filtered transmission electron microscopy can pick out the carbon spheres. They could see individual molecules and tell apart aggregates that were crystalline or disordered.

C_{60} appeared in the cells' cytoplasm and nuclei. The molecules were concentrated just inside the cell wall, suggesting that they had infiltrated the cell through its membrane.

GENETICS

Mutations linked to autism

Nature Genet. **39,** 319–328 (2007)
Science doi:10.1126/science.1138659 (2007)

Two studies point to genetic changes that may contribute to the spectrum of autism disorders.

The Autism Genome Project Consortium scanned the genomes of more than 1,000 affected families for single-nucleotide variations in DNA inherited alongside the disorder. They also searched for inherited versions of mutations known as copy-number variants — deletions or duplications of chunks of the genome. Their findings implicate two major regions of DNA, one of which is linked to neuronal proteins called neurexins.

Independently, Jonathan Sebat and Michael Wigler at Cold Spring Harbor Laboratory, New York, and their colleagues compared the role of copy-number variants in sporadic and inherited cases of autism. They found that such mutations appear spontaneously in 10% of patients with sporadic autism, but in only 2% of patients from families with more than one affected member. This suggests that the two classes of autism differ in the primary genetic mechanism involved.

Correction

The Research Highlight 'An added dimension' (*Nature* **446,** 234; 2007) incorrectly referred to *Schizosaccharomyces pombe* as budding yeast. It is fission yeast.

JOURNAL CLUB

James Bauer
College of William and Mary, Gloucester Point, Virginia, USA

A marine scientist marvels at connections between the cold war and slimy mudflat worms.

Having grown up on the coast of New England, my childhood involved a good deal of digging around in the intertidal mud, unearthing things that most people of good sense do their best to avoid — things such as slimy, slithering worms, which often bite or smell bad, or both.

Older but no wiser, I was delighted to come across a recent paper (E. Teuten *et al. Mar. Ecol. Prog. Ser.* **324,** 167–172; 2006) that has cleverly extracted a surprising scientific result from studies of such mudflat worms.

As well as reminding me of my dubious childhood pastime, the work recalls the period in which I grew up, during the cold war, when much of the world lived in fear of the nuclear weapons then being tested. This work takes advantage of one legacy of those tests.

The bomb tests sent into the atmosphere lots of the isotope carbon-14, normally present only at low levels. This bomb carbon-14 subsequently made its way into the oceans, where it became incorporated into plankton. The plankton in turn sank and became part of the coastal mud, providing a home and a food source for marine sedimentary animals.

Mudflat worms are generally believed to ingest wholesale the nondescript sediment in which they live, yet the worms examined in this study contained more bomb carbon-14 than the sediment surrounding them.

Thus, it seems that the worms assimilate from the amorphous goop, material that has been deposited since the cold war and so is younger than the average age of the sediment. Presumably, they do so because the newer material is more nutritious, but how they extract it is unknown.

Makes me want to get back out by the sea with my bucket.