RESEARCH HIGHLIGHTS

Active aphids
Airborne arthropods are often divided into active fliers, which travel under their own power, and passive drifters on air currents. Now Andy Reynolds of Rothamsted Research in Harpenden, UK, and colleague announce that aphids and other small-winged insects should not be labeled passive, because they can control their altitude. In simulations of air currents and aphid behavior, results were closest to the observed distribution of aphids when the insects flew so as to maximize the effect of air movements. In updrafts, the authors claim, they fly just enough to counterbalance gravity. In down drafts, they stop flapping and sink.

BIOCHEMISTRY
Protecting the heart
A protein that reduces heart damage in rats could hold the key to protecting humans against a potentially life-threatening condition: reduction of blood flow to the heart, or cardiac ischemia.
Daria Mochly-Rosen, of Stanford University in California, and her colleagues found that in rats, increased activity of a protein called aldehyde dehydrogenase 2 (ALDH2) is correlated with reduced damage following cardiac ischemia. The researchers then isolated a compound called Alda-1 that activates ALDH2, also reducing heart damage by ischemia.
Two-fifths of East Asians carry a mutation in the ALDH2 gene that leads to reduced ALDH2 activity. Alda-1 activated the mutant protein, and restored it to normal levels of activity.

ASTRONOMY
Fossils on Titan
Science 321, 1475-1478 (2008)
Before 13 June 2007, astronomers observed Saturn's moon Titan (pictured right) only when it was inside the planet's magnetic field. But on that day the probe Cassini observed Titan outside the controlling influence of Saturn's magnetosphere, in a region permeated by the Sun's magnetic field.
Cesar Bertucci, now at the Institute for Astronomy and Space Physics in Buenos Aires, and his colleagues report that Titan, which lacks a major magnetic field of its own, retains an imprint of Saturn's magnetic fields after leaving the planet's magnetosphere. This occurs in the form of 'fossil' fields frozen into the plasma surrounding the moon. The solar magnetic field then overlaid these fossil fields, which persisted for between 20 minutes and three hours, they report.

CONSERVATION
Homes on the range
When it comes to choosing where to live, the best environmental intentions can lead to the worst results.
M. Nils Peterson, now at North Carolina State University in Raleigh, and his colleagues surveyed more than 400 households in Idaho and Wyoming. They found that the least educated people who cared least about the environment chose to live in established residential areas, with low environmental impacts. But people with high levels of education and environmental concerns chose homes in environmentally sensitive natural areas. Income was not a factor. Strangely, the longer residents lived in a natural area, the less they cared about the environment.

EVOLUTION
Sexy and doomed
Why haven't oncogenes — genes that cause cancer — been eliminated by natural selection? Andre Fernandez and a colleague from Ohio University in Athens believe they have found a possible answer. In a species of swordtail fish, Xiphophorus cortezii, the oncogene Xmrk also causes a dark pattern on male fish's tail fin that females in two out of three populations studied found attractive. Indeed, fish that have developed cancer had the largest patterns and were able to mate for many months before the disease killed them.

NEUROLOGY
Dopamine link to fragile X
The lack of fragile X mental retardation protein (FMRP) causes a disorder with physical, cognitive and behavioural symptoms. FMRP has many roles, and Min Zhuo at the University of Toronto and his colleagues now add another: relaying messages in the dopamine pathway that shapes memory, planning and attention. Zhuo and his colleagues studied cultured neurons and mice lacking FMRP. The