

# RESEARCH HIGHLIGHTS

Selections from the scientific literature

## PLANETARY SCIENCE

### Mercury's ice is a recent arrival

Ice at Mercury's poles is a relatively new arrival — a finding that could help to resolve a debate about whether ice may have survived for billions of years on the planet closest to the Sun.

Using data from NASA's MESSENGER spacecraft, Nancy Chabot of the Johns Hopkins University Applied Physics Laboratory in Laurel, Maryland, and her colleagues studied how light scattered inside dimly lit polar craters. They found that in a northern crater called Prokofiev, highly reflective ice drapes over the underlying topography. This suggests that the ice has appeared on the surface relatively recently.

This ice was either delivered to Mercury, perhaps by comets, or churned up from below by impacts battering its surface, the authors conclude. *Geology* <http://doi.org/wjf> (2014)

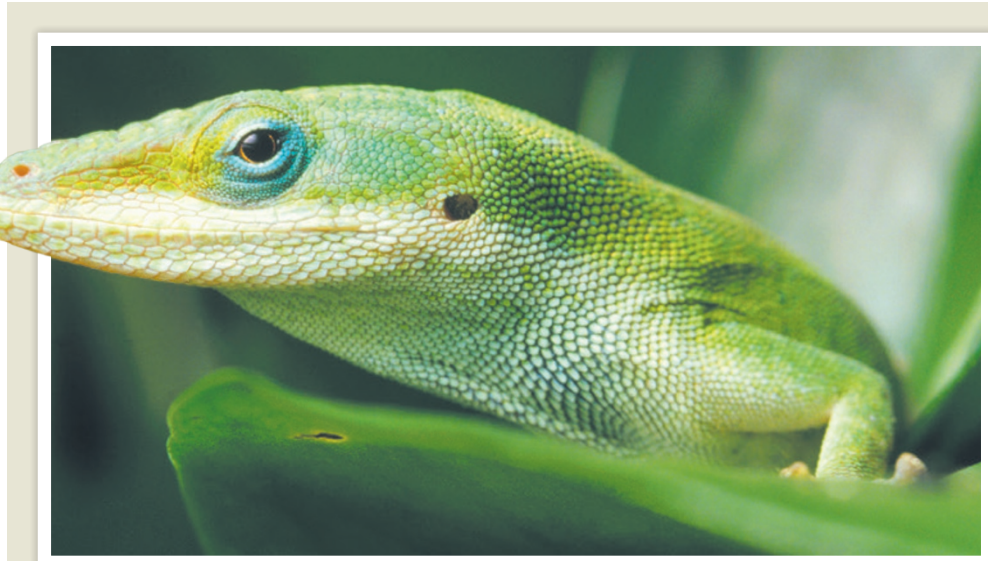
## MYCOLOGY

### Teamwork helps yeast to infect

Immune responses that should combat a disease caused by yeast instead make the fungus grow, potentially worsening the infection.

Robin May at the University of Birmingham, UK, and his co-workers studied strains of *Cryptococcus gattii*, which can cause meningitis and other problems.

They found that oxygen-containing molecules produced by the host as a defence mechanism cause some of the fungal cells to become quiescent and resist immune responses. The remaining cells proliferate quickly, resulting in an overall increase in cell



GERRY ELLIS/MINDEN PICTURES/FLPA

## EVOLUTION

### Lizards adapt quickly to invaders

Lizards in Florida have rapidly evolved traits that make them better tree-climbers, probably in response to an invasive competitor.

Cuban brown anole lizards (*Anolis sagrei*) have spread over the past few decades across the southeastern United States, where they compete for territory and food with the native green anole (*Anolis carolinensis*; pictured). Yoel Stuart at the University of Texas, Austin, and his colleagues introduced small populations of the invader to three islands in a central Florida

lagoon and found that the native green anoles perched higher in trees than native lizards on nearby islands that had not been invaded. After just 20 generations of anoles, the team found that native lizards on invaded islands had evolved larger toepads, probably to help them cling to less-secure branches farther up in trees.

Competition between closely related species can drive rapid, observable evolutionary change, the authors say.

*Science* 346, 463–466 (2014)

numbers. The resistant cells contained energy-producing organelles called mitochondria that were tubular in shape.

The findings suggest that the fungal cells act as a team during infection, with non-dividing cells helping neighbouring ones to grow rapidly.

*Nature Commun.* 5, 5194 (2014)

## ASTRONOMY

### Mysterious signals may be from Earth

Radio pulses that look like they came from deep space could actually have earthly origins.

A team led by Pascal

Saint-Hilaire at the University of California, Berkeley, detected five short but intense radio bursts at the Bleien Radio Observatory in Switzerland. This is only the second location at which such pulses have been detected, and their origins are still unclear. Characteristics of the radio waves suggest that they were stretched after passing through vast amounts of plasma — usually indicating an origin outside of the Milky Way, such as exploding stars in other galaxies.

However, the pulses were detected only when the antenna was in a mode susceptible to ground

interference, and all but one pulse occurred in the late morning. This suggests that the signals could actually be coming from sources on Earth. *Astrophys. J.* 795, 19 (2014)

## CANCER

### Tumours linked to cellular rubbish

Discarded rubbish from tumours could trigger nearby healthy cells to become malignant.

Many cells shed exosomes: membrane-bound packages of proteins, DNA and RNA that are thought to be a