

Sciencewatch

COMPILED BY JOHN SWAIN, NORTHEASTERN UNIVERSITY

Drunken-monkey hypothesis confirmed

The “drunken-monkey hypothesis”, which says that natural selection favoured primates with an attraction to ethanol, has had largely anecdotal support, and often in relatively distant species, such as the slow loris. Now, Kimberley Hockings of Oxford Brooks University and the Centre for Research in Anthropology in Lisbon and colleagues have found evidence of “long-term and recurrent ingestion of ethanol from the raffia palm” at Bossou in Guinea, by wild chimpanzees.

Villagers on the region tap the raffia palms and collect the sap in plastic containers, where it can rapidly ferment, averaging 3.1% alcohol by volume, but going as high as 6.9%. The research, headed by Tetsuro Matsuzawa



of the Primate Research Institute at Kyoto University, covers a long period, from 1995 to 2015. The chimps use leaf sponges as tools to get at the fermented sap, so some “brain power” is involved. The ability to metabolize alcohol as well as chimps and humans do is

The chimps use leafy sponges to drink the alcohol. (Image credit: G Ohashi/Chubu University/Wildlife Research Center, Kyoto University.)

recent, with the relevant mutation occurring in a common ancestor around 10 million years ago, increasing our rate of ethanol metabolism by a factor of 40 (*CERN Courier* January/February 2015 p13). This latest research certainly supports the idea that this last common ancestor was not averse to ingesting foods containing ethanol.

● Further reading

KJ Hockings *et al.* 2015 *R. Soc. Open Sci.* **2** 150150.

Werewolf plant



Ephedra foeminea cones, with pollination drops. (Image credit: Kristina Bolinder.)

The first plant ever discovered to synchronize its activity to the lunar cycle is a relative of conifers and cycads. Catarina Rydin and Kristina Bolinder of Stockholm University found that *Ephedra foeminea*, a shrub that grows in the Eastern Mediterranean, excretes a sugary liquid to attract nocturnal pollinators, but only during the full Moon in July. Rather ordinary by daylight, the plant is apparently spectacular when covered in glittering droplets in the light of the full Moon.

● Further reading

C Rydin and K Bolinder 2015 *Biology Letters* **11** 20140993; DOI: 10.1098/rsbl.2014.0993.

Near-perfect mirrors made easy

Common household mirrors reflect about 90% of the light that hits them. Such mirrors are easy to fabricate, but while the reflectivity is good enough for everyday use, it falls far short of what is needed for high-performance applications. Now, Jason Valentine of Vanderbilt University

in Nashville and colleagues have found a way to get plastic nanoparticles to assemble themselves into masks that can subsequently allow the formation of a silicon structure with an amazing 99.7% reflectivity for infrared light.

The technique is to drop polystyrene beads of 820-nm diameter into a film of water where, driven by electrostatic forces, the beads self-assemble to form a monolayer with a repeated hexagonal pattern on the water's surface. Lowering the layer of beads onto a submerged silicon wafer, and using a plasma-etching process to shrink the beads to 560 nm, allows the bead layer to serve as a lithographic mask. Subsequent etching creates a similar array on the underlying wafer, this time composed of silicon cylinders, each 335 nm tall and 480 nm across the top. These tiny resonators then act as an almost perfect mirror for a wavelength of 1530 nm.

● Further reading

P Moitra *et al.* 2015 *ACS Photonics* **2** 692.

Positron clouds in storms

Six years after making the observation during an accidental flight into a thundercloud, Joseph Dwyer of the University of New Hampshire and colleagues have reported detecting two isolated clouds of positrons inside an active thunderstorm. The Airborne Detector for Energetic Lightning Emissions (ADELE) consists of six gamma-ray detectors, which flew on a Gulfstream V jet aircraft

through the top of an active thunderstorm in August 2009. The detector recorded two enhancements in the 511-keV gamma-ray count rate, 35 s apart, each about a factor of 12 over background and lasting approximately 0.2 s. These appear to suggest that the aircraft was briefly immersed in clouds of positrons more than a kilometre across. The origins of the clouds are still unknown, but they may have been caused by the presence of the aircraft itself in the highly electrified environment.

● Further reading

JR Dwyer *et al.* 2015 *J. Plasma Physics* **81** 475810405.

Closer to Jurassic Park?

What appears to be dinosaur blood has been found serendipitously in Cretaceous dinosaur bones that were not particularly well-preserved and showed no external signs of soft tissue. Sergio Bertazzo of Imperial College London and colleagues were cutting into the fossils to study bone fossilization, when they found blood-like cells and collagen from 75 million years ago – or 10 million years before *Tyrannosaurus rex* (hence the heightened although slim hopes for a real “Jurassic Park”). While it is unlikely that DNA can be extracted from these samples, it might be possible with better-preserved fossils.

● Further reading

S Bertazzo *et al.* 2015 *Nature Communications* **6** 7352.

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