events, when eruption noise was waning.

Scientists might be able to explore the dynamics of volcanic eruptions by monitoring thunder, the authors say. *Geophys. Res. Lett.* http://doi.org/cmp5 (2018)

ANTHROPOLOGY

Mayan city’s well-travelled dogs

Humans in Central America were rearing animals in captivity and trading them across long distances more than 2,300 years ago, centuries earlier than previously recognized.

Among the animal remains uncovered at the site of the ancient Mayan city of Ceibal, in present-day Guatemala, were the skeletons of two dogs dated to 400–300 BC. Analysis of the strontium and oxygen isotopes in the dogs’ tooth enamel showed that one came from the Guatemalan highlands, at least 100 kilometres away, whereas the other came from nearby foothills, say Ashley Sharpe at the Smithsonian Tropical Research Institute in Balboa, Panama, and her collaborators.

The team also tested the remains of a large wild cat, perhaps a jaguar, found at Ceibal. The results suggest that, as a cub and an adult, the feline ate prey that had fed on maize (corn). This implies that, as a cub and an adult, the cat was raised in captivity.

*Proc. Natl Acad. Sci. USA* http://doi.org/cmp4 (2018)

ANIMAL BEHAVIOUR

Little bats make long commute

A bat no bigger than a kiwi fruit logs distances of up to 100 kilometres on nightly round trips to its feeding grounds — the longest commute ever recorded for a nectar-feeding bat.

Radio-tracking devices can be burdensome to animals as small as bats. So Rodrigo Medellin at the National Autonomous University of Mexico in Mexico City and his colleagues tried a less-obtrusive method to follow the lesser long-nosed bat (*Leptonycteris yerbabuenae*; pictured), a nectar-feeding species found between the southwestern United States and Honduras.

The researchers sifted yellow powder over bats emerging from a roost in Mexico. Other team members waited at distant patches of flowering saguaro cactus to confirm the arrival of yellow-powdered bats, and to dust incoming bats with blue powder. At the roost the next evening, the authors found faeces dyed blue, indicating that some bats had made a 98.8-kilometre round trip.

*J. Mammal. gyy016 (2018)*

TECHNOLOGY

A robot that really swims like a fish

A bio-inspired robotic fish can swim among its living counterparts and observe them at close range without startling them.

Most underwater robots have rigid exteriors and are powered by either propellers or jets — features that often scare off real fish. A team led by Robert Katzschmann at the Massachusetts Institute of Technology in Cambridge built a robotic fish that propels itself with a soft, flexible, silicone-based tail that moves in a lifelike way. An operator communicates with the device, which has a fisheye camera, using a remote control that sends acoustic signals. In field tests, a diver was able to steer the robotic fish across coral reefs from as far away as 5 metres and at depths of up to 18 metres.

The robot could swim within a metre of fish without scaring them off, making it a potentially useful aid for researchers studying the interactions of marine life.

*Sci. Robot.* 3, eaar3449 (2018)

MEDICINE

Test for a deadly complication

A blood test in development may offer a fast and accurate way to diagnose sepsis, a life-threatening immune response to severe infection.

Sepsis can often be diagnosed by culturing microbes from blood samples, but this takes 2–3 days. Daniel Irinia and his colleagues at Massachusetts General Hospital in Boston relied instead on white blood cells called neutrophils, which behave abnormally in people with sepsis. The team developed a device (pictured) for viewing neutrophils in a blood droplet and trained a computer algorithm to distinguish between the movement patterns of neutrophils from patients with and without sepsis. When the team tried the test on a separate group of 19 patients, including 10 with sepsis, it correctly classified 49 out of 50 samples.

The test, which takes only a few hours, now needs to be validated in more patients, the authors say. *Nature Biomed. Eng.* http://dx.doi.org/10.1038/s41551-018-0208-z (2018)

ORGANIC CHEMISTRY

Sludge microbes make fuel booster

Researchers sifting through microbes from sewage sludge and lake sediments have identified the first enzyme that produces toluene — a hydrocarbon that is added to petrol to improve engine power.

Scientists reported in the 1980s that bacteria could synthesize toluene, but did not pinpoint the enzyme that does the work. To fill that gap, Harry Beller at the Lawrence Berkeley National Laboratory in Berkeley, California, and his colleagues grew toluene-producing microbes from sewage, then screened thousands of proteins from these microbes to identify the enzymes most likely to synthesize toluene.

Next, the authors identified genes common to toluene-producing bacteria from both the lake and sewage cultures. Finally, they manufactured the proteins encoded by those genes and tested the proteins to single out those that synthesized toluene.

The enzymes might one day be used to convert plant-based sugars into toluene to replace some of the 26 million tonnes produced from petroleum each year.

*Nature Chem. Biol.* http://dx.doi.org/10.1038/s41589-018-0017-4 (2018)

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