

RESEARCH HIGHLIGHTS

Selections from the
scientific literature

GLACIOLOGY

Cooling no aid to shrinking glacier

A temporary cooling of the ocean around Antarctica's fastest-melting glacier failed to stop its retreat into the sea.

The Pine Island Glacier in West Antarctica is currently the largest glacial contributor to global sea-level rise. Knut Christianson at the University of Washington in Seattle and his colleagues used Global Positioning System receivers, ocean moorings and satellite radar observations to monitor the glacier and the adjacent ocean from 2009 to 2014. They found that a 60% drop in ocean heat content between 2012 and 2013 did not slow the overall thinning of the ice sheet, which boosts glacier flow and ice discharge into the ocean.

Cold ocean and climate conditions would probably need to persist for several decades to reverse the glacier's retreat, the authors say. *Geophys. Res. Lett.* <http://doi.org/br3p> (2016)

NEUROPSYCHOLOGY

Pain passed on by smell

Mice housed in the same room as one another can pass certain types of pain to each other through smell.

Exposure to inflammatory molecules or withdrawal from drugs or alcohol can cause hyperalgesia, a painful hypersensitivity to touch, heat or chemical irritants. Andrey Ryabinin and his colleagues at Oregon Health and Science University in Portland found that when mice were subjected to these pain-inducing treatments, untreated mice in the same room also acquired hyperalgesia. Moreover, mice in a separate room began

displaying this pain sensitivity after exposure to bedding used by the hyperalgesic animals in the first room. The authors conclude that the pain is transmitted by an olfactory cue.

Social transfer of pain could play a part in chronic pain in humans, especially in cases without apparent physiological cause, the authors suggest. *Sci. Adv.* 2, e1600855 (2016)

MATERIALS

Film self-heals like insects do

The browning of fruit and healing in insects has inspired the development of a material

that regenerates and 'heals' itself after being damaged.

Surface injuries in fruit and insects expose phenolic compounds, which are then oxidized, forming a protective surface. Haeshin Lee and his colleagues at the Korea Advanced Institute of Science and Technology in Daejeon, South Korea, created a solution containing a phenol compound and a polyamine. When catalysed by oxygen, the chemicals reacted much as they do in fruit and insects, forming a film at the surface. When parts of the film were peeled away, it 'healed' itself, a process the authors repeated 40 times without seeing any

measurable loss of strength.

Unlike other self-healing materials, the film does not require external stimuli such as increased pressure or temperature to trigger healing. *Adv. Mater.* <http://doi.org/f3r9bw> (2016)

EVOLUTION

How snakes lost their legs

Two studies pinpoint a stretch of DNA that could explain how snakes evolved from four-limbed animals.

A team led by Len Pennacchio and Axel Visel at Lawrence Berkeley National



CAROLE FRITZ

GENOMICS

Bison's history in DNA and cave art

Europe's largest land mammal may be a hybrid of two extinct species.

Julien Soubrier and Alan Cooper at the University of Adelaide in Australia and their colleagues analysed mitochondrial DNA from 65 fossil specimens of bison, including the threatened European bison (*Bison bonasus*), ranging from 14,000 to more than 50,000 years old. They conclude that *B. bonasus* is a hybrid of two animals: the steppe bison (*Bison priscus*), the Eurasian ancestor of the American bison

that became extinct more than 11,000 years ago, and the aurochs (*Bos primigenius*), the ancestor of modern cattle. The team estimates that the hybridization occurred at least 120,000 years ago.

Cave art seems to support the replacement of one species by another. Drawings dating to roughly 30,000–36,000 years ago showed animals resembling steppe bison (pictured), whereas art about 17,000–12,000 years old depicts animals similar to the European bison. *Nature Commun.* 7, 13158 (2016)