period. From the second cold spell, the site yielded animal bones that had been deliberately mixed with larger quantities of woodworking debris. Separate research suggests that other European hunter-gatherers possibly succumbed to abrupt climate change, but the Star Carr people were resilient enough to survive, the authors say. Nature Ecol. Evol. http://dx.doi.org/10.1038/s41559-018-0508-4 (2018)

**TOXICOLOGY**

**Long worm has strong poison**

A slimy worm that can stretch to 50 metres long may seem nightmarish enough, but experiments reveal that the bootlace worm has another formidable feature: a potent nerve toxin.

The invertebrate (*Lineus longissimus*), which lives on the sea floor and is thought to be the longest animal on Earth, squirts mucus when disturbed. Ulf Göransson at Uppsala University in Sweden and his colleagues analysed the mucus and isolated a peptide that they named nemertide α-1. When the researchers injected low doses of the peptide into green crabs (*Carcinus maenas*) and juvenile Dubia cockroaches (*Blaptica dubia*), the animals became paralysed and died.

The team found that the peptide disrupts nerve-cell activity in roaches and other invertebrate pests but is much less potent when applied to mammalian nerve cells. Along with related peptides from the bootlace worm, nemertide α-1 may prove to be a valuable insecticide, the authors say. Sci. Rep. 8, 4596 (2018)

**EVOLUTION**

**Why sea mammals loom large**

Scientists have long puzzled over why marine mammals tend to be much larger than land animals. An analysis of nearly 7,000 living and extinct species suggests that sea-going mammals grew big to keep warm.

William Gearty at Stanford University in California and his colleagues found that of the four groups of marine mammals in the oceans today, three have evolved an average mass of about 500 kilograms: sea cows; seals and their relatives; and toothed whales such as dolphins. By contrast, the average mass of their ancestral land-dwelling groups varied over 1–100 kilograms. Marine mammals also show less variation from the average mass than land mammals do, suggesting that aquatic life is a greater constraint on body size.

Small mammals lose heat quickly in water, and very large ocean-going animals find food less efficiently than smaller ones, leaving aquatic mammals a relatively narrow window of suitable body size. The largest whales might have escaped the latter of these constraints by turning to filter-feeding, the authors say. Proc. Natl Acad. Sci. USA http://doi.org/cm4v (2018)

**CANCER**

**Hushed tumours become treatable**

An aggressive form of breast cancer can be transformed into a more easily treated one by disrupting tumours’ contact with their environment. Some 10–15% of breast-cancer tumours lack receptors for the hormones oestrogen and progesterone. These tumours do not respond to hormone-blocking drugs such as tamoxifen, and patients tend to have a poor prognosis.

Kristian Pietras at Lund University in Sweden and his colleagues used either drugs or gene editing to block the chemical signals that these tumours send to cells in surrounding connective tissue. After this communication was obstructed, the tumours made oestrogen receptors.

When mice with the altered tumours received hormone-blocking therapy, tumour growth slowed drastically, whereas unaltered tumours maintained rapid growth. The researchers say that the results show it might be possible to treat cancer by targeting the environment surrounding tumours, as well as the tumours themselves. Nature Med. http://doi.org/cmfb (2018)

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