Early vegetable cooking

Humans started using thermally resistant cooking vessels some 15,000 years ago, opening new food groups and leading to major changes in diet and nutrition. Research shows that such vessels were routinely used to process animal products, but until now there has been no evidence of early plant cooking. A new study by Richard Evershed of the University of Bristol in the UK and colleagues reports the earliest direct evidence for plant processing at two archaeological sites in the Libyan Desert, dating to 8200–6400 BC. A total of 110 broken ceramic pieces from the early to middle Holocene periods were analysed using gas chromatography and mass spectrometry, revealing distributions typical of both animal fat and plant origins. Some samples contained both, indicating that plants and animal products were processed together or that the vessels were used for multiple purposes. The distinctive lipid profile from the vessels demonstrated the processing of a broad variety of plants, including seeds, leafy terrestrial and aquatic plants. The advent of plant cooking would have had a significant impact on human nutrition, health and energy, and the preparation of cooked foods soft enough for infants to ingest could have led to earlier weaning and thus enhanced fertility.

Molecules form tightest knot

David Leigh and colleagues of the University of Manchester in the UK have tied the world’s tightest knot, in the form of an organic molecule. The knot has eight non-alternating crossings in a 192 atom closed loop measuring about 20 nm long, and is made from many benzene rings strung together with octahedral iron(II) ions controlling the relative positions of the three strands at each crossing point. Knots may ultimately prove just as versatile and useful at the nanoscale as at the macroscale, says the team, but a lack of synthetic routes to the three strands at each crossing point raises questions about systematic investigations of the influence of knotting at the molecular level.

How the penis bone got lost

The penis bone, or baculum, rests at the end of the penis and provides structural support during copulation in many mammals, although not in humans. Matilde Brindle and Christopher Opie of University College London in the UK have analysed the baculums of nearly 2000 mammal species including primates and carnivores, finding that species that copulate for longer periods have longer bacula, as do those with more than one mate or with seasonal breeding patterns. The baculum first evolved 145–195 million years ago in the common ancestor of carnivores and primates, and disappeared in humans when we split from chimpanzees. This may have coincided with the change towards a more monogamous lifestyle, concludes the team.

Further reading


Further reading


Superconducting bismuth raises questions

Bulk superconductivity has been observed in bismuth when it is cooled to a temperature below 0.53 mK at ambient pressure. The discovery, reported by S Ramakrishnan and colleagues of the Tata Institute of Fundamental Research in Mumbai, India, is a surprise because conventional Bardeen–Cooper–Schrieffer theory cannot explain it. Since the Debye temperature and the Fermi level are comparable in this system, something other than phonon-mediated pairing seems to be required.