

billion-year-old bilaterian is a woeful misunderstanding of the fossil record," he says.

DNA clocks have their own problems, which can cause overestimates of the age of evolutionary splits. Different genes can evolve at different rates, and the calibration of DNA clocks must be handled carefully. A calibration that involves a slowly evolving lineage can throw a whole tree off.

Benton sees hope in new statistical methods that can better account for uncertainty in both the timing of calibration points and measurements of evolutionary rates. In such treatments, both fossil and molecular dates go from being fixed points with error bars to being a range of probabilities. "The flexibility is hugely liberating," says Benton. "I see a glowing future for this."

Using such an approach, Peterson has obtained molecular dates for the origin of the animals that match their first appearance in the fossil record (K. J. Peterson & N. J. Butterfield, *Proc. Natl. Acad. Sci. USA* **102**, 9547–9552; 2005). He presented his latest analyses this

week at a meeting at the Royal Society in London. "All of the latest estimates are putting the division of the bilateria right in the Ediacaran," he says, referring to the geological period predating the Cambrian explosion of about 540 million years ago. A group led by Emmanuel Douzery at the University of Montpellier in

France has got similar results in the past few years. Hedges argues, however, that these more recent dates are the result of calibration errors.

The mammals look to be a tougher nut to crack. "I don't have a good answer as to why there's this discrepancy," says Wible, "but I doubt our work is the final answer." He is part of a project funded by the US National Science Foundation to combine molecular and morphological data to build the most complete mammal tree so far. "We need to marry the data sets together," he says. "Only this type of analysis can address these major problems." ■

John Whitfield
See News & Views, page 918.

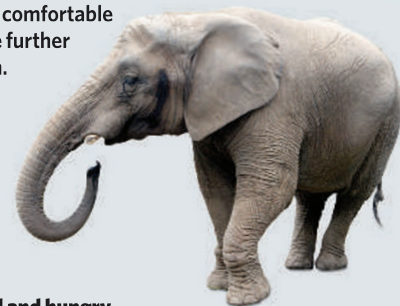
"The flexibility is hugely liberating — I see a glowing future for this."

ZOO NEWS

Big and cold

Directors of the Alaska Zoo in Anchorage have finally agreed to move Maggie, the world's most northerly elephant, to a new, more comfortable home further south.

A. GRILLO/AP



Small and hungry

Researchers at Japan's Tohoku University in Sendai have proved that it's not just dogs that can perform pavlovian tricks. They have trained their 'Pavlov's cockroaches' to salivate when presented with a specific non-food odour.

SCORECARD



Baby monitors

Chicago science teacher and mum-of-two Natalie Meilinger has been keeping one eye on developments aboard the shuttle Atlantis...after her baby monitor started picking up the latest images from NASA.



Kids with hay fever

A UK study suggests that school kids suffering the summer affliction are twice as likely to drop a grade in their exams, relative to their performance in the winter 'mock' tests.

ON THE RECORD

"Biking is one of the manliest pastimes on the planet, so it's bloody reassuring to know someone's taking care of our virility while we're on the road."

Round-the-world motorcyclist Nick Sanders welcomes Swiss scientists' invention of a coating for black leather trousers that helps them to reflect heat and avoid causing fertility problems for male bikers.

Sources: Reuters, PLoS One, Associated Press, The Scotsman, Revolver Communications

SIDELINES

