In both models, most of the parameters are represented by probability distributions instead of point estimates. The models predict medians of 3.7 million and 2.5 million tropical arthropods, with 90% confidence intervals of 2.0 million and 7.4 million, and 1.1 million and 5.4 million, respectively. These figures suggest that even after 250 years of taxonomy, only about 30% of the world's arthropod species have been described. **L.O.-S.**

GENOMICS

Not-so-dark genome

PLoS Biol. **8,** e1000371 (2010)

Previous work has suggested that much more of the mammalian genome is transcribed into RNA than can be accounted for by known genes. Researchers in Canada now challenge this idea, showing that most of the unaccounted for 'dark matter' RNA transcripts are from within or near genes.

Timothy Hughes and his colleagues at the University of Toronto analysed RNA sequence data from humans and mice. The data were obtained by direct sequencing, a more accurate way of revealing RNA sequences than previous microarray-based methods.

The authors conclude that less of the genome is transcribed than earlier work had suggested. **M.L.P.**

For a longer story on this research, see go.nature.com/Kful3y

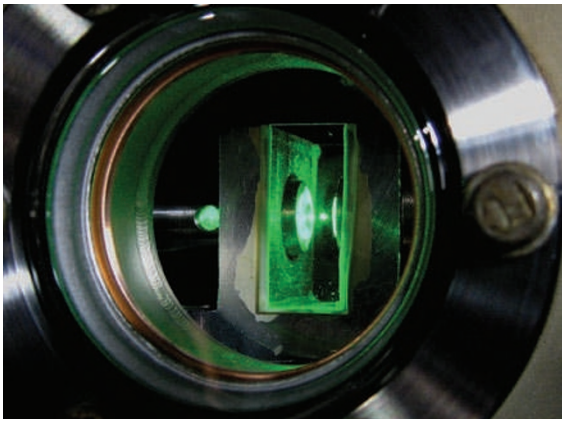
PHYSICS

Double-checking Einstein

Science doi:10.1126/science.1189403 (2010)

In 1907, Albert Einstein predicted that the kinetic energy of a particle in a gas would depend solely on its temperature, not its size or environment. The 'equipartition theorem' has been a mainstay of statistical physics ever since, but physicists have been unable to check it for an individual particle, because doing so would require a measurement of that particle's instantaneous velocity.

Now Mark Raizen and his colleagues at the University of Texas at Austin have succeeded in measuring the speed of a micrometre-sized glass bead suspended in air. Raizen and his colleagues used two lasers to hold the bead aloft (pictured). Feedback from the beam allowed them to make snap measurements of its velocity. The findings agree with the theorem and could help future studies in statistical mechanics. **G.B.**



SCIENCE/AAAS

ANIMAL BEHAVIOUR

Vibrations on a stick

Curr. Biol. doi:10.1016/j.cub.2010.03.069 (2010)

Vertebrates living on plants can communicate through not only sound and visual displays, but also by vibrating the plants on which they perch.

Michael Caldwell at Boston University in Massachusetts and his colleagues studied such behaviour in wild male red-eyed tree frogs (*Agalychnis callidryas*). These creatures defend their territories and compete for females by rapidly shaking their hind ends.

The researchers also staged contests between pairs of males. They found that shaking was the most frequently displayed signalling behaviour, with victorious males tending to shake more than their opponents. Experiments using a robotic frog, an electronic shaker and sound recordings showed that the frogs shake in response only to plant vibrations, and not to the shaking model frog or vibrational sounds. **J.F.**

BIOGEOCHEMISTRY

Trouble down the river

Glob. Biogeochem. Cycles doi:10.1029/2009GB003587 (2010)

Worldwide, the coming decades are likely to see a continued increase in the threat of coastal 'dead zones' resulting from nutrient pollution in rivers, researchers say.

Sybil Seitzinger of the International Geosphere-Biosphere Programme in Stockholm and her colleagues used a global nutrient-export model to examine the effect of human activities on the export of four nutrients, including nitrogen and phosphorus, in watersheds from 1970–2000. They also make predictions into 2030 and beyond.

Their analysis predicts that agriculture will be the primary factor driving changes in nitrogen export, whereas sewage treatment and detergent use will have a major effect on phosphorus levels. South Asia dominated global trends in both past and future scenarios, thanks to booming populations and economies. **J.T.**

JOURNAL CLUB

Oscar Marín
Institute of Neuroscience, Sant Joan d'Alacant, Spain

A developmental neurobiologist looks at how damage induces cell birth in the adult brain.

The Spanish neuroscientist and 1906 Nobel Laureate Santiago Ramón y Cajal made hundreds of predictions about the organization and function of the nervous system. He was mostly correct, although not where the generation of new neurons in adults was concerned: this he persistently denied. The process is now widely accepted, but I find it fascinating that we have not yet reached consensus on where and when this phenomenon occurs.

Adult neurogenesis has been identified in two brain regions: the olfactory bulb and the hippocampus. Whether it also occurs in the adult neocortex, the region responsible for functions including language and thought, remains highly controversial. So I was intrigued by work by Koji Ohira of Fujita Health University in Toyoake and Takeshi Kaneko of Kyoto University, both in Japan, and their colleagues.

They found a small population of neuronal progenitor or precursor cells in the marginal zone of the adult neocortex (K. Ohira *et al. Nature Neurosci.* **13,** 173–180; 2010). These generate interneurons — cells that modulate and synchronize the activity of principal neurons — that then disperse throughout the neocortex. Although this process is rare in normal circumstances, it is greatly enhanced by ischaemia (restricted blood supply due to damage), the authors show.

The message from Ohira *et al.* is intriguing and has profound implications. For example, the fact that many of the newborn interneurons express neuropeptide Y, a well-known anti-convulsant and anti-epileptogenic agent, suggests that newly generated neurons might protect the brain from damage. More sophisticated electrophysiological experiments are needed to explain how these interneurons are wired into specific neocortical circuitries and how they modulate neuronal activity.

Discuss this paper at **go.nature.com/ABIzXc**