RESEARCH HIGHLIGHTS

Selections from the scientific literature

MEDICAL MICROBIOLOGY

HIV disrupts gut bacteria

The guts of people with HIV are enriched with microbes associated with inflammation — even if patients are on antiviral therapy.

Mike McCune and Susan Lynch of the University of California, San Francisco, and their colleagues characterized microbial communities associated with chronic inflammation in patients with HIV. Communities with a higher abundance of Proteobacteria (including *Escherichia*, *Pseudomonas* and *Salmonella* species) and a lower abundance of Bacteroidetes were linked with higher levels of inflammation and with increased activity in a metabolic pathway whose products regulate T cells. These results indicate that microbes in the gut mucosa may influence progression of HIV disease.

Sci. Transl. Med. 5, **193ra91 (2013)**

ALBERT G. BUTZER, III/ FLICKR/GETTY

CONSERVATION SCIENCE

Conserved coasts curb storm damage

Conserving the reefs and vegetation that buffer the US coast from waves might reduce by half the number of residents most at risk from storm surges and sea-level rise.

To work out where natural habitat provides the best defence, a team led by Katie Arkema at Stanford University in California used projections of future sea levels to estimate how vulnerable people and property would be to coastal hazards with and without intact natural habitats. Hazard indices calculated for every square kilometre of the US coastline showed that ecosystems had the greatest protective impact in Florida, New York and California.

In places where natural habitats most reduce risks, conservation or restoration should be considered alongside expensive engineering projects for coastal defence, the authors suggest.

Nature Clim. Change **http://dx.doi.org/10.1038/nclimate1944 (2013)**

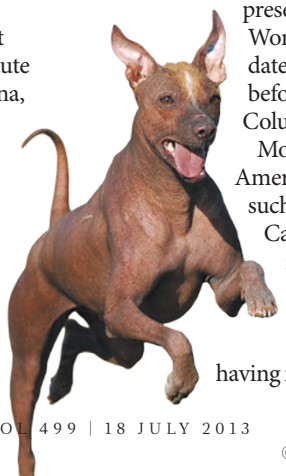
For a longer story on this research, see go.nature.com/i8owbq

GENETICS

Old origins for New World dogs

Ancestors of American dog breeds may have walked across the Bering Strait rather than being brought across the ocean.

Peter Savolainen at the KTH Royal Institute of Technology in Solna, Sweden, and his colleagues collected mitochondrial DNA from blood or cheek cells of 347 individuals of indigenous American breeds, such as Chihuahuas, Peruvian hairless dogs (**pictured**) and Canadian Eskimo dogs. The authors compared this DNA to that of modern European and East Asian dogs, as well as to 24 preserved New World specimens dated to long before Christopher Columbus set sail.



JUNIORS/SUPERSTOCK

Modern native American canines, such as the feral Carolina dog, still resemble their pre-Columbian American counterparts, having no more than 30% European heritage. These modern breeds descended from Asian breeds brought by human migrants as long as 15,000 years ago, the authors suggest.

Proc. R. Soc. B 280, **20131142 (2013)**

MATERIALS SCIENCE

Liquid metal printed in 3D

Wires, fibres and elaborate stacks of droplets can be printed in liquid metal.

Most three-dimensional (3D) printing uses molten plastics that cool and harden. This cooling period changes the plastics' mechanical properties, which limits the shapes that can be created. A team led by Michael Dickey at North Carolina State University in Raleigh produced patterns in liquid metal by extruding a gallium–indium alloy through a 3D printer's nozzle at room temperature. On exposure to air, the material instantly formed a roughly nanometre-thick oxide skin, which held the liquid in shape. This layer was sticky and so allowed the team to stack droplets into complex constructions (**pictured**).

Although the structures were quite weak, the wires