

# RESEARCH HIGHLIGHTS

Selections from the scientific literature

## ENERGY

### Benefits outweigh clean-energy costs

Large-scale investments in wind, solar and hydropower could double the electricity generated globally from these sources by 2050 — with only modest environmental costs.

Thomas Gibon of the Norwegian University of Science and Technology in Trondheim and his colleagues compared the environmental impacts of low-carbon and fossil-fuel-based power generation over the entire life cycle of these installations.

They found pollution from the construction of renewable-energy infrastructure is ultimately small compared with direct emissions from gas- and coal-fired power plants, even if a large amount of carbon from these plants is later captured and stored.

*Proc. Natl Acad. Sci. USA*  
<http://doi.org/v8d> (2014)

## ZOOLOGY

### Birds colour-match their nests

Zebra finches seem to actively camouflage their nests when building them.

Many birds' nests appear camouflaged, but this could be a serendipitous result of their use of local materials. Ida Bailey at the University of St Andrews, UK, and her team let 20 male zebra finches (*Taeniopygia guttata*; pictured) choose between two types of paper



COLIN MONTEATH/HEDGEHOG HOUSE/MINDEN PICTURES/CORBIS

## METEOROLOGY

### Weather explains Asian glacier survival

Some glaciers in central Asia could be weathering climate change better than those in neighbouring mountain ranges because of different seasonal weather patterns.

Geoscientists have puzzled over why the glaciers of the Karakoram region (pictured) have not receded as much as others nearby. A team led by Sarah Kapnick of Princeton University, New Jersey, compared about 30 years of temperature and precipitation data up to 2007

with climate simulations covering 1861 to 2100. The team found that Karakoram gets most of its precipitation during winter. By contrast, nearby ranges such as the central Himalayas experience mainly summertime rains driven by monsoons.

This seasonal difference could be preventing the Karakoram glaciers from shrinking, and could even be causing some of the glacier expansion seen there in the past several years. *Nature Geosci.* <http://doi.org/v9g> (2014)

strip when building their nests: one matching the cage colour and the other contrasting. Of the birds, 14 predominantly chose the colour that matched the cage decor.

This is the first experimental evidence that birds choose to camouflage their nests, say the authors.

*The Auk* 132, 11–15 (2015)

## MATERIALS

### Plants inspire medical coating

A coating for medical implants such as artificial heart valves could prevent blood-clot

formation — a common problem in which blood cells and proteins stick to the surfaces of such devices.

To make the surfaces less sticky, Donald Ingber of Harvard University in Boston, Massachusetts, and his team adapted technology inspired by the carnivorous pitcher plant, which has a slick layer of water that causes insects to slide into the plant's 'mouth'.

The authors designed a two-layer coating: the first layer uses a perfluorocarbon to bind to smooth surfaces, and the second is a slippery film of medical-grade liquid perfluorocarbon. Tubing

coated with this material had a lower build-up of clots and microorganisms than uncoated tubing when implanted in pigs. The material could reduce the need for anti-clotting drugs, which can cause bleeding.

*Nature Biotechnol.* <http://doi.org/v9j> (2014)

## NEURODEGENERATION

### A monkey model of Alzheimer's

The molecule that has been implicated in Alzheimer's disease causes many hallmarks of the disorder in monkey brains, suggesting the

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