RESEARCH HIGHLIGHTS

Selections from the scientific literature

OPTICS

A poor man's hologram

Three-dimensional films have been a hit at the box office, but making them requires pricey equipment. Baoqing Sun at the University of Glasgow, UK, and his colleagues propose a simpler alternative. Instead of using cameras or lasers to achieve a three-dimensional (3D) effect, they illuminate an object with a rapidly changing pattern of black and white squares. Single-pixel detectors placed around the object capture light reflected in various directions, and an algorithm reconstructs a 3D image from these simple inputs.

Although the scheme takes several minutes to image a stationary object, it is cheaper than current 3D systems. In addition, it should work for wavelengths such as the far infrared that are beyond the reach of current technology.
Science 340, **844–847 (2013)**

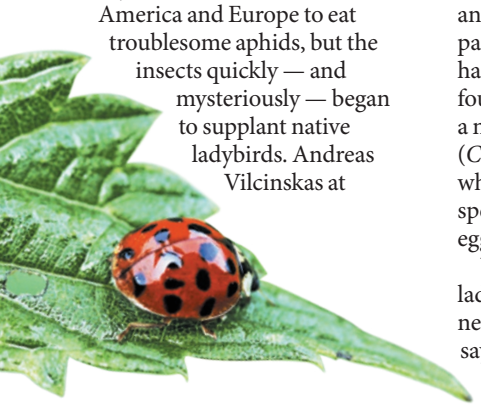
ECOLOGY

Invasive insect's inner weapon

Ladybirds from central Asia act as a Trojan horse for a microscopic killer.

Farmers brought harlequin ladybird beetles (*Harmonia axyridis*, **pictured**) to North America and Europe to eat troublesome aphids, but the insects quickly — and mysteriously — began to supplant native ladybirds. Andreas Vilcinskas at Justus Liebig University Giessen in Germany and his colleagues discovered that a parasite lurks within harlequin ladybirds' circulatory system and eggs. And although the parasite does not harm the harlequins, the researchers found that it is deadly to a native ladybird species (*Coccinella septempunctata*), which, like many beetle species, eats its competitors' eggs and larvae.

When the harlequin ladybird was introduced to new ecosystems, the authors say, its hidden parasites probably became biological weapons that helped it to take over new territory.
Science 340, **862–863 (2013)**
For a longer story on this research, see: http://go.nature.com/cajaty



MARY C. LEGG/AGE FOTOSTOCK/GETTY

BARRETT HEDGES/GETTY

ECOLOGY

Fish mismatch makes bears eat elk

In bringing lake trout to Yellowstone National Park humans may have inadvertently triggered a cascade of changes with consequences for migratory elk.

A team led by Arthur Middleton, then at the University of Wyoming in Laramie, looked at the long-distance effects of introducing lake trout to the park in the western United States. The lake trout have caused a marked decline in native trout and, unlike the natives, the interlopers spawn on lake bottoms — out of reach of grizzly bears.

Earlier research suggested that, when fish are in short supply, grizzlies prey on elk calves. The authors used a demographic model to calculate that this dietary shift has cut the growth of elk populations by as much as 11% — even in groups that overwinter well outside the park. The decline of these elk is often blamed, perhaps erroneously, on the reintroduction of wolves.
Proc. R. Soc. B **http://dx.doi.org/10.1098/rspb.2013.0870 (2013)**

HUMAN MIGRATIONS

Minoans came from Europe

Ancient DNA from remains found in caves on the Greek island of Crete suggests that the Minoan civilization emerged from farmers who settled on Crete thousands of years beforehand. This challenges an early theory, which held that the Minoans — recognized as being one of Europe's first 'high cultures' from their pottery and colourful frescoes — originated from Egyptian refugees.

A team led by George Stamatoyannopoulos at the University of Washington in Seattle analysed mitochondrial DNA (mtDNA) from teeth and bone samples of 37 individuals who lived on Crete between 4,400 and 3,700 years ago. The authors found 6 mtDNA haplotypes unique to Minoans and 15 that are common in modern and ancient European populations, but none characteristic of present-day