

RESEARCH HIGHLIGHTS

Selections from the scientific literature

ANTHROPOLOGY

Earliest signs of chicken husbandry

Humans first used chickens for economic gain roughly 2,300 years ago in the Middle East, before Europeans began exploiting the bird.

The chicken (*Gallus gallus domesticus*) was first domesticated in southeast Asia, but its dispersal from that region has been unclear. Lee Perry-Gal and her colleagues at the University of Haifa in Israel analysed animal bones at a site in southern Israel and found a large number of chicken bones, some of which bore butchery marks. Bones from female birds outnumbered those from males two to one, and some showed signs of being from egg-laying hens. The team also saw a large increase in the frequency of chicken bones from the same time period at more than 200 other sites across the region.

Chickens were exploited in this region at least 100 years before they were used by Europeans, the authors say.

Proc. Natl Acad. Sci. USA
<http://dx.doi.org/10.1073/pnas.1504236112> (2015)

STEM CELLS

Heart cells come of age

Human stem cells have been coaxed into forming heart progenitor cells that then develop into more-specialized heart cells.

Researchers have struggled to turn stem cells into large pools of cardiac cells that would further divide. Christine Mummery at Leiden University Medical Center in the Netherlands and her colleagues introduced into human stem cells a version

of the *MYC* gene that they could control. By turning the gene on at key points during the cells' development, the researchers could keep the cells at a certain stage, and expand their number. With further regulation of certain biochemical signalling pathways, the team converted those cells into pacemaker or ventricular cells.

This approach could be used to create new models of human cardiac disease, the authors say.

Nature Biotechnol. <http://dx.doi.org/10.1038/nbt.3271> (2015)

ASTRONOMY

Total eclipse of rare twin stars

Amateur and professional astronomers have spotted a rare pair of stars in which one completely eclipses the other as they orbit each other.

A team led by Heather Campbell at the University of Cambridge, UK, analysed data from the European Space Agency's Gaia satellite and the William Herschel Telescope in the Canary Islands, Spain. They

discovered that the system, named Gaia 14aae, is part of a class of binary stars that have short orbital periods and no longer have much hydrogen to burn. A group of amateur astronomers found that the stars were eclipsing. Moreover, one of the stars is siphoning helium away from its lighter but much larger companion. The team also found that the twin stars, both of which are lighter than the Sun, complete an orbit in just under 50 minutes.
Mon. Not. R. Astron. Soc. 452, 1060–1067 (2015)



ENERGY

Sun's heat could cut fossil-fuel use

Integrating solar technologies into coal-fired power plants could ease the transition from fossil fuels to renewable energy sources.

Vishwanath Haily Dalvi of the Institute of Chemical Technology in Mumbai, India, and his colleagues looked at solar thermal technology, which collects the Sun's energy as heat. The team reports that injecting this heat into the conventional power-generation process reduces the amount of fossil fuel that needs to be burned in power plants by up to 50%. Solar-aided plants

such as ones in Egypt (pictured) and Algeria are therefore a more economical way of reducing fossil-fuel use than retrofitting existing plants with carbon-capture technology, the authors say.

Widespread deployment of such power plants will require economic incentives similar to those offered by some countries for generating electricity completely from solar thermal plants, they say.

Nature Clim. Change <http://dx.doi.org/10.1038/nclimate2717> (2015)