

RESEARCH HIGHLIGHTS

Selections from the scientific literature

ANTHROPOLOGY

Crops ingrained in Iranian past

Pre-pottery Neolithic remains from Iran show agriculture emerging in the Zagros Mountains around 12,000 years ago.

Simone Riehl and her colleagues at the University of Tübingen in Germany found more than 21,000 plant remains encompassing 116 species in an 8-metre-deep dig at the site. Among these were wild progenitors of modern crops, including barley (pictured), wheat and lentils.

At the beginning of the 2,200-year sequence studied, remains of wild wheat made up less than 10% of the plants. By the end of the sequence, about 9,800 years ago (around the time that domesticated emmer wheat first appeared), wheat made up more than 20% of the plants.

Taken together with evidence of emergent agriculture found at other sites, these findings add weight to the idea that wild plants were domesticated in multiple areas of the Middle Eastern Fertile Crescent at around the same time. *Science* 341, 65–67 (2013)

TISARP/SCIENCE AAAS



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CONSERVATION

Nuclear bombs mark tusks and teeth

Efforts to date elephant tusks and other illegally traded animal products could benefit from the nuclear testing carried out in the middle of the cold war.

Radioactive carbon blasted into the atmosphere from weapons testing in the 1950s and 60s eventually made its way into plants and then into animals, producing a radiation spike that can serve as a reference point in time. Kevin Uno at the University of Utah in Salt Lake City and his colleagues measured radioactive carbon-14 in animal samples. The researchers could accurately determine

the age of elephants' tusks and molars, and of hippopotamuses' canine teeth. Multiple samples from individual teeth showed how carbon isotopes were deposited as teeth grew, which correlates with the types of vegetation that animals consumed.

Carbon measurements could be used to help detect tusks and other products from animals killed since anti-poaching laws were introduced. They could also reveal fluctuations in an animal's diet.

Proc. Natl Acad. Sci. USA <http://dx.doi.org/10.1073/pnas.1302226110> (2013)

CLIMATE SCIENCE

Drought-busting cyclones

A combination of warm water and weak westerly winds encourages tropical cyclones to move over land — often ending droughts — in the southeastern United States.

Justin Maxwell at Indiana University in Bloomington and his colleagues analysed climate records dating from between 1895 and 2011 for drought severity and cyclone activity. Tropical cyclones ended about 13% of the droughts in states along the Gulf coast and south Atlantic coast.

The number of drought-ending cyclones rose in the Atlantic region; the numbers did not rise significantly in the Gulf states, but the area of land relieved of drought conditions by cyclones did increase. The team suggests that the boost in such storms could be because warming surface waters in the north Atlantic Ocean increased the number of tropical cyclones over the past 100 years or so, and that those storms were more likely to make landfall when westerly winds were weak.

J. Clim. <http://dx.doi.org/10.1175/JCLI-D-12-00824.1> (2013)

NEUROSCIENCE

Seeing threats in the brain

Whatever the type of danger, crows defend themselves in the same way: by mob attack. But the brain circuitry behind the behaviour seems to differ.

John Marzluff at the University of Washington in Seattle and his colleagues caught and caged American crows (*Corvus brachyrhynchos*, pictured) and showed them various types of threat. The researchers then imaged the crows' brains, looking for changes in activity in areas of the brain that process emotion,