

RESEARCH HIGHLIGHTS

Selections from the scientific literature

CHEMISTRY

Greenhouse gas finds a use

A potent greenhouse gas that is a by-product of refrigerant production can be used to add a fluorine-based group to molecules — a desirable reaction in the manufacture of drugs and agrochemicals.

G. K. Surya Prakash and his colleagues at the University of Southern California in Los Angeles report that the gas — which has the formula CF_3H and is known as fluoroform or HFC-23 — can be reacted with other molecules, resulting in the addition of CF_3 to carbon, silicon, boron or sulphur atoms. The reaction occurs under simple conditions and provides a rare use for a chemical with a global-warming potential 11,700 times greater than that of carbon dioxide.

Science 338, 1324–1327 (2012)

ANTHROPOLOGY

Romani have Indian ancestry

The 11 million members of Europe's largest minority group, the Romani (pictured), are descended from a single population that left India some 1,500 years ago and dispersed across Europe through the Balkans.



David Comas at Pompeu Fabra University in Barcelona, Spain, Manfred Kayser at Erasmus University in Rotterdam, the Netherlands, and their colleagues analysed

the genomes of 152 Romani individuals from across Europe and compared them with those of populations worldwide. European Romani probably originated from northern and northwestern India.

Genetic analysis suggests that, after leaving India, Romani ancestors interbred with local populations on the way to the Balkans before beginning to spread throughout Europe around 900 years ago. Since then, Romani have interbred with local populations in Europe. *Curr. Biol.* <http://dx.doi.org/10.1016/j.cub.2012.10.039> (2012)



URBAN ECOLOGY

Cigarette butts repel nest pests

City-dwelling sparrows and finches incorporate the butts of smoked cigarettes into their nests, seemingly to ward off parasitic mites.

Isabel López-Rull and her colleagues at the National Autonomous University of Mexico in Mexico City found that nests of house sparrows (*Passer domesticus*) and house finches (*Carpodacus mexicanus*; pictured) with higher levels of cellulose acetate, a component of cigarette butts, had fewer mites. The researchers attached fibres from either smoked or unsmoked cigarette filters to parasite-attracting heat traps and placed them in 27 sparrow and 28 finch

nests. Traps bearing fibres from smoked filters, which contain more nicotine than those of unsmoked ones, captured fewer mites, suggesting that nicotine — and perhaps other compounds in cigarettes — repel the parasites.

Birds have long been known to line their nests with vegetation that deters parasites, and the authors suggest that the use of cigarette butts is an urbanized form of this earlier adaptation.

Biol. Lett. <http://dx.doi.org/10.1098/rsbl.2012.0931> (2012)

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

DEVELOPMENT

Early signs of embryo trouble

Human embryos with genetic defects may exhibit unusual cellular behaviour by the time they reach the four-cell stage, about 48 hours after fertilization.

Renee Reijo Pera at Stanford University in California and her colleagues analysed the genetics of 45 single-celled embryos left over from *in vitro* fertilization procedures. About 75% of the embryos contained an abnormal number of chromosomes, with two carrying three copies of

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