Whiff of Good Cheer, Just for Women

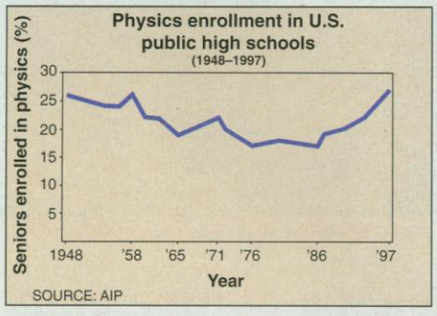
Perfumes and colognes containing human steroids or animal compounds such as musk often are touted as having pheromone-like effects, but science has yet to confirm the perfume industry's ad copy. Now biopsychologists Martha K. McClintock and Suma Jacob of the University of Chicago report the closest thing yet to a human pheromone: steroids that subliminally alter mood.

The researchers tested two human steroids used in fragrances: the male steroid androstadienone, claimed by perfumers to attract women, and the female steroid estratetraene, likewise purported to lure men. They administered standard mood tests to 20 young adults, then swabbed them under the nose with cotton containing one of the steroids in a clove oil solution, or the clove scent alone. Although the three preparations reportedly smelled identical, the 10 women felt significantly more "happy and energized" after inhaling either steroid, says McClintock. The steroids had the opposite effect on the 10 men, who said they felt tired and less elated after sniffing the steroids. The researchers presented their study last month at the 26th International Ethological Conference in Bangalore, India.

The findings suggest that some human steroids may act as subtle, complex "chemosignals" that—unlike pheromones in animals—"modulate rather than spell out our reaction," says McClintock. Robert E. Johnston, a Cornell University psychologist, agrees. The research, he says, is "the first study to demonstrate such an effect."

The Great Physics Divide

High school physics reinforces an unfortunate system of "haves" and "have nots" in U.S. education, according to a new report by the American Institute of Physics (AIP). Results from the institute's fourth national survey of some 3500 high school physics teachers depict a "two-tiered system" in which well-trained teachers with adequate resources spend most of their time teaching physics to well-prepared students, while less capable students are taught by teachers with less time and resources to devote to the subject.



Rising physics enrollments parallel a move toward tougher standards and greater emphasis on science and math.

The survey asked teachers for the first time to describe the socioeconomic status of their students in relation to those at neighboring schools. It found that 74% of physics teachers in schools where students are "much better off than average" teach mostly or exclusively physics, compared with only 21% from schools where students are "much worse off than average." At the same time, more affluent schools are 2.5 times more likely than poorer schools to offer advanced placement physics classes and twice as likely to have specialized equipment on hand. The physics teachers also reported that students from poorer neighborhoods were five times more likely to have poor math skills.

Such results point to the need for programs like the new graduate teaching fellowships at the National Science Foundation, says NSF director Rita Colwell. The program, which will put grad students into elementary and secondary school classrooms, is aimed at raising both the quality of the coursework and overall student interest in science. The first awards will be announced later this month.

Eating Like a Bird After Bad Grub

Eating one bad crabcake can put you off crabs for years. When it comes to miserable gut reactions, red-winged blackbirds are no different, a new study shows. After swallowing a single pesticide-tainted mealworm, these birds will avoid such prey altogether for an entire breeding season. This may mean that birds living near heavily sprayed fields could go hungry.

Lowell Nicolaus and Hansoo Lee of Northern Illinois University in DeKalb treated about 120 birds to breakfasts of mealworms. For 4 days, the scientists spiked the platters with single mealworms injected with parathion, a common insecticide. After just one or two tastes of dodgy food, the birds never touched mealworms during the remainder of the 2-month experiment, the researchers report in this week's *Ecological Applications*.

Blackbirds are smart to snub subpar handouts, says Robert MacLean, a wildlife biologist with the U.S. Geological Survey in Madison, Wisconsin. But they could miss out on important sources of nutrition if they learn to turn their beaks up at too many insects, says Nicolaus, particularly during the demanding breeding season when the birds and their young need all the bugs they can get.

No LSD Required

"A silver tide of phosphenes boiled across my field of vision as the matrix began to unfold in my head," William Gibson wrote in his 1986 novel *Burning Chrome*. Close your eyes and press gently against your eyeballs; the colorful patterns that appear, called phosphenes, are the result of direct stimulation of the visual cortex. Artist Andrew Harry of Melbourne, Australia, has his own take on phosphenes and other visual phenomena. The painting above, part of a series called "23 Stages of Flash-Spot Disintegration," depicts the "swirly bits" he saw while looking at the sky. It is in a show of works based on biological images opening on 1 October at the Duncan & Miller Gallery in Washington, D.C.

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