

Right Now

and Genetics in Novosibirsk, building on work of the late geneticist Dmitry K. Belyaev, has bred silver foxes for 45 years, selecting not for trainability but for tameness. "When the kits were four weeks old," says Hare, "a researcher would stand in front of their cage. The kits who came forward were saved and eventually allowed to breed, the ones who moved away were culled." The foxes have indeed become tame—enough to be house pets. (They changed in other ways, too, as dogs did in their domestication. Their fur changed color, their brains grew smaller, they became more gracile, and their ears got floppy. Darwin observed that "not a single domestic animal can be named which has not in some country drooping ears," a feature not found in any wild animal except the elephant, the institute's Lyudmila Trut has noted.)

Have the Belyaev silver foxes acquired a doglike ability to read human cues? If so, the byproduct hypothesis will be strengthened, because they were not selected for trainability. Hare wants

to try the baited-container game on these unique foxes, which have become calmer in domestication than their wild ancestors, he says, just as dogs did. Perhaps that will help them discern the meaning of his gazing and pointing and tapping. The foxes may be better at finding the

hidden food than chimps and wolves, but will they do as well as man's best friend? Hare has his money on the dogs.

~CHRISTOPHER REED

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BOYS' NIGHT IN

Testosterone Dips after Vows

BEEER-GUZZLING frat boys, catcalling construction workers, and muscle-bound professional wrestlers who prance like peacocks in the ring are often castigated for having too much testosterone. Fathers and husbands who spend hours with their families or spouses are rarely jeered for having too little. Now, research into testosterone's effect on behavior suggests that married men may experience a unique biological tradeoff that decreases their testosterone lev-

els—thus squelching some of their more flamboyant behaviors and allowing caring and nurturing traits to emerge.

In many animal species, males spend much time locked in testosterone-fueled activities such as fighting and mating. Human males do all this, but also invest in long-term relationships and provide decades of care for their young. This additional dimension puts humans in a special category. "In chimps you don't find that commitment," says Peter B. Gray, a graduate student in anthropology. "So the ques-

A HARD RAIN'S GONNA FALL

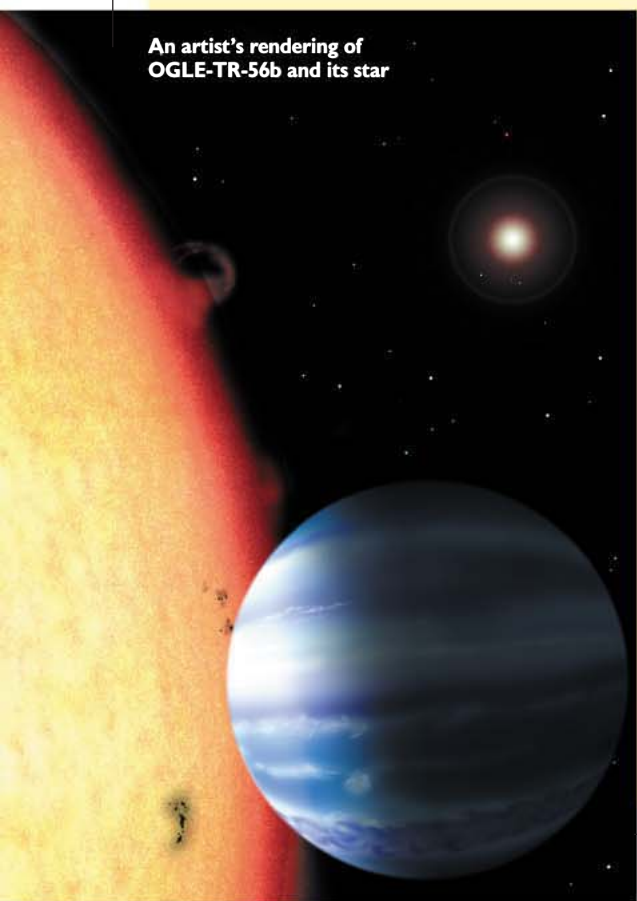
Far-out Sagittarian

Five thousand light years from Earth, in the constellation Sagittarius, astronomers have discovered a planet by observing its direct transit in front of its star. This is a first. All of the 100 or so known extrasolar planets orbiting normal stars have been discovered using indirect evidence, such as the "wobble" their gravity produces on nearby celestial bodies (see "Distant Planets," July-August 2000, page 22, and "Orbiting Other Suns," September-October 1998, page 16). At the Harvard-Smithsonian Center for Astrophysics, however, a group led by Cabot associate professor of astronomy Dimitar Sasselov identified planet OGLE-TR-56b by observing that light from its star dimmed minutely when the planet passed across the star's face (see <http://cfa-www.harvard.edu/press/pr0301.html>). Sasselov compares the effect to "a mosquito passing in front of a searchlight 200 miles away." The world's largest optical telescope, the 10-meter Keck I telescope in Hawaii, confirmed the finding.

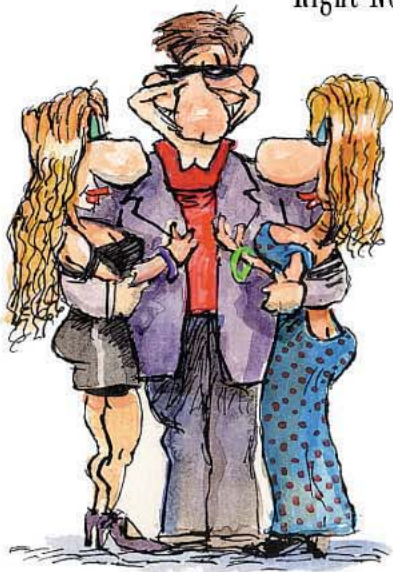
The complex new technique that found OGLE-TR-56b—at a distance 20 times greater than that of any previous comparable body—vastly extends the field of search for extrasolar planets, enlarging it from 40,000 candidate stars to 100 million or more. OGLE-TR-56b, a gaseous body, is larger than Jupiter, yet orbits only 2 million miles away from its star. (Earth is 93 million miles from the Sun.) Hence its years last only 29 hours, while the surface temperature rises to 3000 degrees Fahrenheit, which may cause unusual weather: rain droplets not of water, but iron.

~Craig Lambert

An artist's rendering of
OGLE-TR-56b and its star



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tion becomes, what causes men to do this?" Searching for answers, Gray and colleagues compared testosterone levels in married men to levels in their single peers. Their results, published last year in the journal *Evolution and Human Behavior*, showed married men had significantly lower amounts of the potent hormone.

Gray studied testosterone in saliva collected from 58 men (48 of them Harvard students) between the ages of 20 and 41. Half were married, and of those, 15 were married with children. He took four saliva samples from each man: two in the morning and two in the evening. The subjects also completed questionnaires about their demographic, marital, and parenting backgrounds. Among other things, the questionnaires asked how much time the men spent with their spouses (instead of hanging out with the guys) on their last day off from work, and measured the effort they expended caring for their children. Analysis showed that marriage, fatherhood, and longer periods spent with wives and children were all linked to lower testosterone levels. Fathers in particular had levels significantly lower than those of unmarried men. Researchers also observed that hormone levels in the morning samples were high and relatively even among the men; the differences appeared at night.

"What we have is a correlation that we didn't know before," says professor of anthropology Peter T. Ellison, Gray's adviser and a coauthor of the study. "It allows us to look at variation in male hormones in a



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whole new way." Ellison and Gray posit that major chemical changes occur when men enter relationships or become fathers. Gray explains that the variations between morning and evening saliva samples suggest that something—emotions, experiences, or relationships, perhaps—is driving testosterone down during the day. Both researchers caution that their study is limited in scope, and can't offer an explanation for what causes testosterone variation. Gray also stresses that his work does not show that fatherhood or marriage causes a hormonal plunge. "I wish I could say that married men experience a drop because of their relationship," he explains. "Our data don't say either way. Perhaps men with lower testosterone are just more likely to marry."

Still, the study reaches into the dim corners of human evolution and drags out intriguing questions. Have humans engaged in long-term pair bonds for eons, or is this a more recent addition to our behavioral collage? What caused humans to adopt these relationships? What evolutionary advantage stems from nurturing behavior? One theory suggests human males engage in "selfish" reproductive strategies. In other species, males mate as often as possible with a number of females, fighting off rivals and endangering themselves in order to pass on genetic material. Perhaps evolution has imbued human males with another method of securing genetic legacies: instead of pouring their resources into endless rounds of fighting and competing in other ways, men may invest in nurturing relationships and parenting, both reducing their



own risk and increasing the likelihood that their offspring will survive.

If testosterone does dip as the result of relationship, Ellison wants to know why. "One of the big remaining questions," he says, "is how does the state of being in a relationship get picked up by your physiology?" Together with a group of colleagues, Ellison and Gray are studying testosterone's role in mating and parent-

ing behavior in a variety of cultural and physical environments. In a series of forthcoming studies, the researchers have examined salivary testosterone in Harvard undergraduates and professional-school students—and in Kenyan men, some of whom have two wives. While the suggestion that relationships may douse certain male behaviors is intriguing, Ellison says researchers are ultimately interested in

larger questions. "What we're trying to understand as fully as we can is what our evolutionary pathway has been," he says. "We've got a long way to go." ~NEIL SHEA

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DIALECTAL MATERIALISM

Jabber and Babel

IN SIMPLER TIMES, Southerners ate Krispy Kremes and New Englanders ate Dunkin' Donuts. Texans wore cowboy hats and New Yorkers wore black. Today, Christina Aguilera wears Stetsons, Southerners wear Prada, and Krispy Kremes are a nationwide cult. Thanks to mass media and globalization, it seems regional differences are vanishing. So—can we still determine if the sunny blonde in the convertible is a true Californian? Absolutely. Ask her what shoes she wears to the gym. If she says "sneakers," forget it—this gal's from the East. A Californian would say "tennis shoes."

It's not surprising that vocabulary, grammar, and pronunciation—the elements of dialect—can reveal someone's regional background. What is remarkable is

What word(s) do you use to address a group of two or more people?

- a. you all (13.00%)
- b. yous, youse (0.66%)
- c. you lot (0.17%)
- d. you guys (41.78%)
- e. you 'uns (0.17%)
- f. yins (0.36%)
- g. you (26.01%)
- h. other (5.38%)
- i. y'all (12.47%)

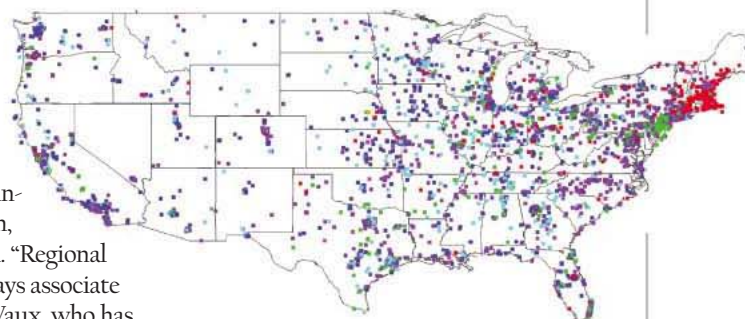
dialects' persistence despite increasing migration, education, and cultural homogenization. "Regional dialects are alive and well," says associate professor of linguistics Bert Vaux, who has created an on-line survey of English speech to determine the geographic boundaries of word usage and pronunciations.

Since respondents are self-selected, it's not a random sample. Yet his mapped results, collected from more than 16,000 people around the country, suggest that frequently speech is still characteristic of a particular region, and sometimes markedly so. (Another on-line survey, open only to those holding a current Harvard ID, is compiling data on terms peculiar to Harvard.)

"No one speaks a standard English," Vaux (rhymes with "fox") explains. "Even among classes, there are definite regional variations." He intends to publish an atlas of North American English dialects, a book he says is long overdue in the discipline: "Existing dialect atlases focus on archaic and obscure features that are of interest only to linguists."

Vaux believes people make conscious decisions about speech based on their current situations or peer groups. "You make a choice about what works best for you," he explains. An inner-city teenager,

for example, might say "ain't" to his hometown friends, but intentionally use "isn't" with fellow Harvard students. At home, this



What do you call a traffic situation in which several roads meet in a circle and you have to get off at a certain point?

- a. rotary (13.94%)
- b. roundabout (22.98%)
- c. circle (9.61%)
- d. traffic circle (39.83%)
- e. traffic circus (0.19%)
- f. I have no word for this (11.24%)
- g. other (2.21%)

teenager "would likely be pummeled, or at least mocked, if he used an academic register rather than the sort of casual register peppered with hip-hop pronunciations and expressions favored by his [high-school] classmates," Vaux contends. Similarly, "a grad student typically strives to speak and write in a certain sort of academic register that is used by professors. And most academics would treat with scorn a scholarly paper written in Ebonics. Humans," he says "are frighteningly hierarchical and emphatically not egalitarian. It is very important for them to clearly establish that they are like certain individuals and not like others."

If deemed inappropriate to the circumstances at the time, nonstandard constructions such as "ain't" and double negatives can disappear from a person's vocabulary. Alternately, people purposely retain certain words as a means of demonstrating re-