

Eyeing Balls

Useful news for tennis pros: Umpires are much more likely to make mistakes when calling balls out rather than in.

Scientists at the University of California, Davis, analyzed 4457 points from tennis matches played during the 2007 Wimbledon tournament in the U.K., including all challenges submitted by players. Of 83 recorded blunders, 70 were wrongly called out and only 13 wrongly called in. The skew is due to a perceptual bias toward the direction of movement of a bouncing ball, the authors reported in the 28 October issue of *Current Biology*. On top of that, says lead author David Whitney, umpires are more likely to “mislocalize” balls that are traveling toward them.

Tennis players can take advantage of this bias, he says, by concentrating their challenges on rulings that their own balls are “out”—rather than on rulings of “in” for an opponent.

Psychologist Alan Johnston of University College London says this perception bias “might have implications for other sports, such as soccer or rugby,” for which player positions are at issue.

Gender and the Brain

The largest ever genetic study of male-to-female transsexuals has provided a hint—albeit a faint one—as to how gender is embedded in the brain. A team led by molecular geneticist Vincent Harley of the Monash Medical Centre in Melbourne, Australia, analyzed versions of



Former male
Renée Richards.

three hormone-related genes in 112 white male-to-female transsexuals recruited in Melbourne and Los Angeles, California. The findings were compared with DNA samples from 258 nontranssexual males. Categorizing the alleles as either “short” or “long,” they found that the transsexuals had more long alleles for the androgen receptor gene, they reported online last week in *Biological Psychiatry*. Longer alleles, they explain, inhibit receptor activity, leading to less effective prenatal testosterone signaling. Although the effect is weak—55% of the transsexuals had the long allele, compared with 47% of the controls—



Codex Redux

The 500-year-old Codex Atlanticus, a compilation of notes and drawings by Leonardo da Vinci, may be disassembled for better conservation, officials at Ambrosiana library in Milan, Italy, announced last week.

The Codex dates from the late 16th century, when an Italian sculptor gathered some 1120 pages of notes and drawings into a 402-page volume. In the early 1970s, restorers glued the notes onto blank sheets and split them into 12 books—a move that experts now say weakened the paper, altered edges, and made the pages awkward to display.

The Codex drew renewed attention last year when scholars noticed black stains on the support pages that they feared were from mold. After a year of research conducted at the Istituto Centrale di Patologia del Libro (ICPL), epidemiologist Gianfranco Tarsitani of the University of Rome “La Sapienza” announced last month that the stains were due not to mold but to mercury salts added as a preservative.

Leading da Vinci expert Carlo Pedretti, a professor emeritus at the University of California, Los Angeles, has given his blessing to the plan, which he says will help tailor conservation to the needs of individual pages. “Each time we have to study or display one drawing, we have to manipulate the whole volume,” notes ICPL conservator Armida Batori.

the researchers suggest it could play a role in incomplete masculinization of the brain during early development.

Psychologist Kenneth Zucker, head of the Gender Identity Service at the Centre for Addiction and Mental Health in Toronto, Canada, says it’s hard to see how prenatal hormones could affect brain development in that way without altering the sex organs as well. That’s why “everybody is looking for some [other] type of marker,” he says. Nonetheless, behavioral neuroendocrinologist Marc Breedlove of Michigan State University in East Lansing says “it will be exciting” if the finding is replicated.

Running Out of Glacier Time

An iconic feature of the Swiss landscape may vanish within the century. Swiss researchers have developed a model simulating the retreat of the Rhône Glacier in southern Switzerland since 1874 that predicts the glacier’s possible disappearance by 2100.

Mathematician Guillaume Jovet of the Federal Polytechnic Institute in Lausanne, Switzerland, and colleagues tweaked a classic fluid-dynamics model to account for the viscosity of ice and accumulation of snow on the glacier, they report in an upcoming issue of the *Journal of Glaciology*. They also fed in more than a century of detailed temperature and precipitation data obtained from the Swiss Federal Institute of Technology Zurich (ETH).

If average global temperature goes up by 1°C by 2100, the glacier will lose about 35% of its volume, says ETH glaciologist Matthias Huss. Under the worst-case scenario, a nearly 4°C increase, the glacier will disappear completely by then. “In all possibilities, we have retreat,” Huss says, with enormous consequences for water supplies and power generation as well as for ecology.

