# RANDOM SAMPLES

edited by CONSTANCE HOLDEN

## More on Genes and Homosexuality

When Dean Hamer and his colleagues at the National Cancer Institute (NCI) published evidence 2 years ago that a gene linked to male homosexuality resides on a small region (q28) of the X chromosome (*Science*, 16 July 1993, pp. 291 and 321), the finding was greeted with a blast of publicity—and skepticism from some other researchers. Now the result has been replicated in another group of homosexuals. The results were reported earlier this month at the annual meeting of the Behavioral Genetics Association held in Richmond, Virginia.

Stacey Cherny of the Institute for Behavioral Genetics in Boulder, Colorado, which collaborated with the NCI researchers, related that the group has confirmed the finding in a new sample of 33 pairs of homosexual brothers, a significant majority of whom shared Xq28 markers. The new study provided other corroborating data: Some of the men had heterosexual brothers who failed to share the marker with their gay brothers. Cherny also reported that the marker was not shared to a significant extent within 36 pairs of lesbian sisters. Hamer says the researchers are now roaming the entire genome in search of other homosexuality markers.

Further evidence for the heritability of male homosexuality was presented at the meeting by psychologist Michael Bailey of Northwestern University and geneticist Nicholas Martin of Queensland Research Institute in Australia. They sent anonymous questionnaires to about 5000 same-sex twin pairs, male and female, asking them not only about their sexual behaviors, but also their feelings, fantasies, and whether they were tomboys or "sissies" as children (traits that correlate strongly with homosexuality). By comparing the correlations between the fraternal twins and the identical twins, the researchers concluded that for males, homosexuality is about 50% heritable. The figure is substantially lower in females, however, where the picture is more complicated, says Bailey. "Very few women are exclusively attracted to their own sex," he says. Another new study, of several thousand twin male veterans, has also confirmed heritability—at 0.53—for male homosexuality. The results were reported by psychologist Michael Lyons of Boston University at the 8th International Congress on Twin Studies, held just before the behavioral genetics meeting.

In addition to pinning down homosexuality genes, Bailey says, "we need to start looking for environmental mechanisms." He, for one, suspects that those influences will be found to be primarily biological, having to do, for example, with the timing of prenatal hormone surges.

## Paleo "Divorce" Final

In a case bearing all the hallmarks of a bad divorce, scientists at the Institute of Human Origins (IHO) in Berkeley, California, and their former colleagues at the newly formed Berkeley Geochronology Center (BGC) have finally ended a bitter lawsuit. A year after going to court as part of the acrimonious breakup of the IHO (*Science*, 12 August 1994, p. 864), the two groups announced on 31 May that they have agreed on the division of property that was once part of the IHO, the research center founded by Donald C. Johanson, discoverer of the famous 3.2-million-year-old "Lucy" skeleton.

The geochronologists have won custody of the former IHO labs and most of the state-of-the-art equipment they used to date soils and rocks from archaeological and geological sites. In exchange, they are dropping the charges of mismanagement of finances and personnel they filed against Johanson and the IHO. (The California Attorney General is expected to release a report on the charges later this month.)

While resentments still simmer between the two groups, scientists at both centers expressed relief that their legal troubles are over. "It's terrific to have this distraction out of the way," says the IHO's science director, paleoanthropologist William H. Kimbel. IHO scientists plan to return to Ethiopia this fall and Israel next year to continue their research on human origins. Across town, the BGC's president, geochronologist Paul Renne, says "we're expanding at almost a frightening pace," backed by more than $700,000 in National Science Foundation grants and donations from San Francisco billionaire Gordon Getty, the IHO's top donor until last year's breakup.

## Science Conduct Goes On-Line


"News From the Net" usually focuses on the world outside *Science* magazine. But this week *Science* is taking the opportunity to alert the world to an experiment of our own: "Science Conduct On-Line." The 23 June issue of *Science* will include a Special News Report on Conduct in Science, concentrating on the gray areas of credit, authorship, and materials sharing that pop up every week in the lab. Because we hope this report will stimulate you to respond with your own questions, experiences, and comments, we've set up an interactive project. Beginning on 23 June, the project can be found by calling up the new AAAS home page (http://www.aaas.org). Go to the *Science* home page and click on the "Beyond the Printed Page" section. The on-line version features ethical scenarios from a panel of experts who will respond to comments on-line. Join us for the first of many *Science* on-line projects.

**Keeping it short.** Gibberellin-treated grass *(upper right)* grows less but doesn't get straggly.

## A Chemical Lawnmower

Scientists may have found a cure for that bane of suburban gardeners: rampaging lawn growth. A team of Australian and Canadian researchers have stumbled upon a compound that seems to stunt growth without interfering with lushness.

The stuff in question is one of a class of plant bioregulators called gibberellins, which control plant growth, seed germination, flowering, and fruiting. Chemist Lewis Mander of the Australian National University in Canberra and colleagues have been investigating gibberellins for their role in causing plants to "bolt" and produce seedless, late-ripening fruit when frost has thwarted fertilization.

The scientists were seeking a compound that would make crop plants flower without needing a lot of sunshine. But they found something else: an agent that stunts growth. While testing gibberellins they noticed that a sample that had been lying around for a while was more active, both at promoting flowering and curbing growth, than the fresh stuff. Degradation of the compound had led to creation of a byproduct, 16,17-dihydrogibberellin-$A_5$, that they suspected was the active ingredient in stunting growth. The team went on to synthesize a more potent derivative, 16,17-dichloromethano-$GA_5$, which they tested on grass.

"The effect was immediately obvious," says Mander. Untreated grass grew three times as quickly as the treated areas, the researchers report in a paper in press at the journal *Acta Horticulturae*. The

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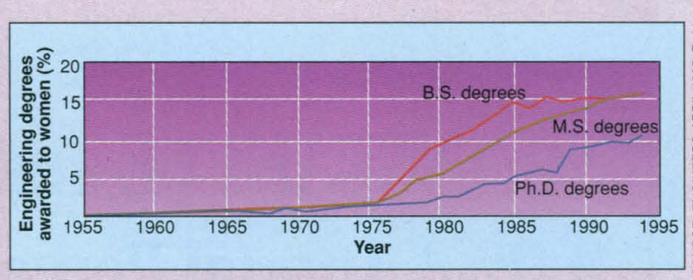
**Engineering women.** The number of women getting engineering degrees continues to climb—although rates have slowed down over the past half-dozen years, according to the American Association of Engineering Societies (AAES). B.S.'s earned by women shot up from 744 in 1974 to 10,800 in 1994. Comparable figures for M.S.'s are 393 and 5131; for Ph.D.s, 36 and 711. "I think we're going to see further growth," says Richard Ellis of AAES, who says "Women engineers under 40 are more likely than males to have advanced degrees." Participation by "underrepresented minorities" in engineering, however, is more problematical. The number getting B.S. degrees has grown slowly—from 1411 in 1974 to 5483 in 1994. And only 115 got Ph.D.s last year.




SOURCE: *ENGINEERS*, APRIL 1995, P. 11.

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team, including Rod King and Lloyd Evans of the Commonwealth Scientific and Industrial Research Organisation in Canberra and biologist Richard Pharis of the University of Calgary, has patented the compound, and Mander says several companies are now doing field trials.

James Hanson, a gibberellin expert at the University of Sussex, says he is impressed with how Mander has harnessed a "serendipitous observation." He adds that there could be a big market for the compounds, for weed as well as lawn control, as, unlike synthetic plant growth inhibitors, they are biodegradable.

## Patent Change Riles Inventors

The National Institutes of Health (NIH) filed about 150 patent applications last week—almost as many as it usually files in a year. No, there hasn't been a sudden spate of discoveries. NIH was scrambling to get applications in to the U.S. Patent and Trademark Office (PTO) before new rules took effect on 8 June.

Like others who have rushed in with last-minute filings, NIH was reacting to a new patent term that some believe will provide less protection for some types of inventions. The new rule, part of the General Agreement on Tariffs and Trade (GATT), provides patent protection for 20 years from the date of application, rather than 17 years from the date of issuance. The PTO claims that because the average time from application to patent is around 19 months, the new term, designed to harmonize the United States with Europe and Japan, will usually afford longer protection.

But that's not how many inventors see it. While patent applications for incremental advances may move quickly to approval, critics claim that inventions in pioneering fields like biotechnology will be punished because they take much longer. In the case of NIH, Jack Spiegel, head of the division of technology development and transfer, notes that most of last week's filings were related to complex "therapeutic inventions" whose patents, under the new rule, might expire before licensees could recoup development costs.

Most industry groups support the patent change, arguing that the United States will benefit from harmonizing with its trading partners. But in Congress two Republicans, Senator Robert Dole (KS) and Representative Dana Rohrabacher (CA) have introduced bills to bring GATT in line with the old 17-year law. Says a Rohrabacher aide: "We don't want to harmonize with their substandard systems."

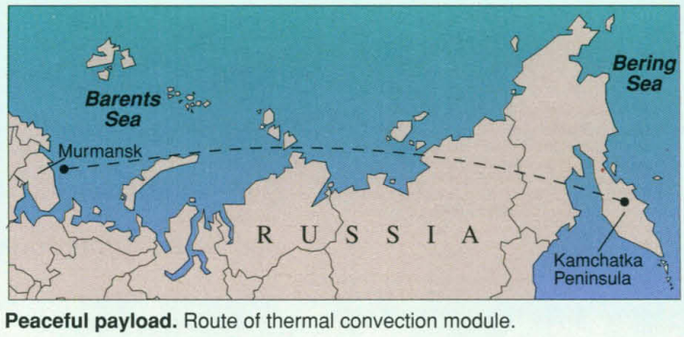
## Rent-a-Missile

When a Russian submarine launched an SS-18 missile from the Barents Sea last week (7 June), the payload was a startling departure from the familiar nuclear warheads: The newly adapted missile carried a German atmospheric research module.

After a 20-minute, 4800-kilometer parabolic flight over the former Soviet Union, the missile delivered a Thermal Convection Module to the remote volanic Kamchatka peninsula, where it made a parachute landing. The module was built by researchers at the University of Bremen's Center for Applied Space Technology and Micro-Gravitation (ZARM). Christoph Egbers, leader of the eight-person ZARM team, says the Russians' price for the military-style launch was "relatively inexpensive"—less than $750,000 according to another source.

The ZARM module is designed to perform simulations, in weightless conditions, of complex atmospheric and surface currents of planets and other spherical bodies—such as those creating the stripes on Jupiter's surface. It contains two spheres, one within the other, with fluid in the gap. Cameras monitored the behavior of the fluid with the aid of polystyrene tracer particles.

Malcolm Johnston, chief of the Strain and Magnetic Field Measurements project at the U.S. Geological Survey in Menlo Park, California, says the results of such experiments may be useful in assessing how convective currents stirred up by planetary rotation, gravity, and temperature variations affect Earth's magnetic field and atmosphere.




**Peaceful payload.** Route of thermal convection module.

## Keeping Yankee Ingenuity Alive

The Smithsonian Institution's Museum of American History has a new center for the study of invention and innovation, thanks a whopping $10.4 million pledge by inventor Jerome Lemelson.

During the check presentation on 31 May, Lemelson—holder of more than 500 patents and founder of a center for innovation at MIT as well as a big prize bearing his name—expressed concern that the United States is losing its technological pre-eminence, threatened by foreign competition and the perception at home "that fame and fortune are not found in the laboratory but only on the basketball court." The center will seek to foster ingenuity through education and preserve it through documentation, such as recording the oral histories of living inventors.

The center will be headed by a name familiar to some scientists: Art Molella, the head curator of the controversial exhibit, "Science in American Life," which has been criticized for casting scientific progress in a negative light (*Science*, 5 August 1994, p. 729). "I'm surprised at the choice, and concerned," says Robert Park of the American Physical Society, which has been irked by what it sees as Molella's slighting of basic science in that exhibit (changes are currently under consideration).

A Lemelson spokesperson says the inventor is unaware of that controversy. Still, he's playing it safe: The museum is getting $5.4 million now; next year, if Lemelson likes what he sees, he will release the remaining $5 million.