

Notes & Briefs

Spammer Justice, Cloned Food, Solar Flares, etc.

Citing the need to keep civil rights in step with scientific progress, the U.S. Senate recently passed a bill aimed at stopping genetic discrimination. The potential law would bar insurance companies from using genetic information to deny medical coverage or set premiums, and prohibit employers from using genetic knowledge in hiring and firing decisions. Advances in genetic testing have made it possible to detect a person's predispositions to heart attacks, glaucoma, cystic fibrosis, and some cancers, raising the specter of insurance companies denying coverage to those most

likely to need it. The measure sailed through the Senate by a 95-0 vote, though passage in the House is unlikely to be so easy. The health insurance industry opposes the bill, calling it, in a recent statement, "a solution in search of a problem."

~

In the last issue of *The New Atlantis*, we mentioned the creation of the world's first cloned mule, and suggested that the first cloned horse might soon follow. In fact, the first cloned horse had already been born back in May, although it wasn't announced until August (after we last

wrote). Unlike other mammal clones, which have been carried to term in the wombs of unrelated surrogate mothers, the horse was carried by her own twin mother, apparently with no problems. The horse, created by Italian researchers, was named “Prometea,” a nod to Prometheus, the Titan in Greek mythology who gave mankind the gift of fire.

Also, researchers from the French-based company genOway, working with the French government, announced the first successfully cloned rat, named “Ralph.” Cloned rats are likely to become crucial to disease research, especially if scientists can insert genes for human diseases into rat DNA. Cloners around the world are reportedly next setting their sights on such animals as the dog, elephant, dolphin, and whale.

In related news, food from cloned animals may soon be made available for human consumption, thanks to recent moves taken by the FDA. In a document released in late October, the agency states that there is no reason to believe that eating food from clones “poses a greater risk than consumption of those products of their non-clone counterparts.”

The FDA’s initial assessment will be followed by a decision, likely next spring, about what, if any, regulations might apply to cloned animal food. The agency’s assessment did not assuage critics of cloned food. “The FDA is not protecting the consumer,” said a press release by Organic Valley, one of the country’s largest organic food producers. “The FDA is furthering their support of the abhorrent attempt by corporate interests to control the genes of our citizenry.”

The move comes at a time when Americans claim to be less well informed

about the science that goes into their suppers. In a survey sponsored by the Pew Initiative on Food and Biotechnology, only 34 percent of the participants said they had heard “a great deal” or “some” about genetically modified foods—down about ten percent from two years ago. Most of the people surveyed favor FDA regulation to approve product safety.

The state of California won its first lawsuit against a spammer this fall, when a court ordered a company to pay \$2 million in fines for sending millions of unsolicited e-mail advertisements. The lawsuit was brought under California’s old e-mail laws, but the state recently passed radically tougher legislation, due to go into effect on New Year’s Day, completely banning spam in California—and allowing individuals to sue spammers for up to \$1,000 per e-mail. The U.S. Congress is also considering fighting spam, weighing the creation of a national no-spam list modeled after the Do Not Call Registry that has proved so popular. It remains unclear whether California’s total ban, or even the milder proposed federal no-spam list, would be realistically enforceable.

Congress is hard at work on bills to make DNA technology more readily available to law enforcement authorities. The legislation, known as the “Advancing Justice Through DNA Technology Act” and the “Rape Kits and DNA Evidence Backlog Elimination Act,” has been voted out of judiciary committees in the House and the Senate and is headed for a vote in both houses. Like many pieces of crime legislation, it is an amalgam of competing impulses: an effort to eliminate the backlog of DNA evidence from crime scenes; funding for better training and wider use of

forensic DNA technology; and a way to provide post-conviction DNA testing of felons for purposes of exoneration. Critics of the legislation have argued that it goes too far in lowering the standard for allowing new trials, and uses the pretense of saving innocent people from death row to allow greater federal meddling in state criminal justice systems.

~

The winners of the 2003 Nobel Prizes were announced in early October. This year's prize for physics goes to American and Russian researchers who made contributions to the theory of superconductors and superfluids. The Nobel for chemistry goes to two Americans who did important research relating to cellular membranes. The winners of the Nobel Prize in Physiology or Medicine are an American and an Englishman who helped develop magnetic resonance imaging (MRI) technology.

The Presidential Medals of Science and Technology for the year 2002 (announced by the White House this October and awarded in November) were granted to experts in DNA, wave theory, and string theory; a group of pioneers in LED technology; the "Dean of American Acoustics"; and several others. A special award went to the DuPont company, which celebrated its two-hundredth birthday in 2002.

~

The music industry is continuing its crackdown on digital copyright infringement. The Recording Industry Association of America has sued 261 music downloaders, but a few of the suits have backfired and brought the industry some very negative publicity. One of the purported pirates was a 66-year-old woman described by her lawyer as a "computer neophyte"; her computer wasn't even capa-

ble of running the file-sharing program she supposedly used: it was apparently a case of mistaken identity. The industry agreed to settle another of its lawsuits for just \$2,000 after the press found out that the perp was a New York City girl, just twelve years old.

The movie industry, too, is stepping up its copyright-related lawsuits. In the most noteworthy case to date, a New Jersey man pleaded guilty to one count of copyright infringement for posting online a digital copy of the movie *Hulk* over the summer, two weeks before it was released. (The man's lawyer joked to reporters: "Don't make him angry—you won't like him when he's angry.") The man's sentence consisted of three years of probation, including six months of house arrest, a \$2,000 fine, and another \$5,000 in restitution to Universal, the company that produced and distributed the film. The movie managed a \$62 million opening weekend despite the infringement.

So worried about movie piracy was the Motion Picture Association of America (MPAA) that it banned the practice of distributing "screeners"—copies of movies sent from studios to the judges for prizes like the Academy Awards and the Golden Globes. These free copies make it much easier for judges to watch movies that don't stay long in theaters, but the movie industry believes they lead to piracy. Eventually, the MPAA relented to pressure from directors and lifted the ban, but only for judges of the Oscars, who can only be sent screeners on VHS, and only if they sign a promise not to give away their copies.

~

Researchers at the University of California, Davis, are working on a new method of gene therapy which uses

pills—instead of modified viruses—to bring DNA to target cells. According to a press release from the university, the effects of the gene therapy will diminish over time if it is delivered in pill form, meaning that “the treatments can act more like a conventional medicine than a permanent genetic fix.”

~

The biggest solar flares in decades sent huge waves of charged particles gushing and rushing toward Earth in October, making the northern lights shimmer and shift for days, often at latitudes that haven’t seen an aurora in recent memory. The giant flares arrived in an unprecedented back-to-back series, and they ejected matter straight toward Earth with unusual speed.

Astronomers classify solar flares on several different scales. First, flares are ranked on their x-ray intensity; the powerful flare on October 28 was an X-17.2, making it “among the four most powerful to hit Earth in recorded history,” according to Space.com. Second, flares are ranked according to the effects they have here on Earth, on the R-scale (the potential for radio blackouts), the S-scale (the likely level of solar radiation), and the G-scale (the expected intensity of geomagnetic storms). The recent flares scored high on those scales, although the damage they inflicted was apparently confined to one or two hobbled Japanese satellites; a small power outage in Sweden; and brief, scattered interruptions of airplane radio communication.

Other news from the realm of space dangers: Astronomers who study asteroids have recently voiced concerns that the public reports of potential asteroid strikes are badly sensationalized by the press. Some experts worry that the public “will stop taking the asteroid threat seriously if

false alarms continue,” according to the *New Scientist*, and a few have called for revisions to the Torino Scale, the rating system established four years ago to rate the threat posed by space objects.

~

If you find yourself logging on a little too often, you might want to check out a recent joint study from the University of Florida and the University of Cincinnati on Internet addiction. The researchers proposed five criteria by which to judge whether someone’s a Net addict, represented by the acronym MOUSE: More time than intended spent online, Other responsibilities neglected, Unsuccessful attempts to cut down, Significant relationship discord because of use, and Excessive thoughts or anxiety when not online.

The researchers also analyzed data on twenty volunteers who said they were problematic users, finding that those individuals spent over 30 hours a week online, used the Internet ten times more than was necessary—and had, on average, five pre-existing psychiatric problems.

~

Look, up in the sky! It’s a bird! It’s a plane! It’s a UAV!

Thanks to recent government decisions, a few unmanned aerial vehicles (UAVs) have started flying over U.S. territory, and many more are likely to follow. First, the FAA decided to let the Global Hawk—famous for its exploits in Afghanistan—fly around the country, as long as a flight plan is filed five days in advance and the drone stays above 40,000 feet, higher than commercial air traffic. Then, NASA initiated a program that would phase UAVs into regular air traffic, allowing them to fly as low as 18,000 feet in a few years. While the government hopes to use UAVs to monitor the weather, check border crossings, assist

in surveying work, and help in emergencies like forest fires, private companies hope drones might someday be used to transport cargo.

~

The controversial abortion pill RU-486 is back in the spotlight after Holly Patterson, an 18-year-old California woman, died soon after she took the pill. Patterson, who got a prescription for the drug from Planned Parenthood, suffered severe bleeding, nausea, and acute cramps before going into fatal septic shock. Patterson's case is at least the third death linked to RU-486 since its approval in September 2000. According to press reports, in the past three years, 130,000 U.S. women and 200,000 European women have used RU-486 for non-surgical abortions.

~

Most intelligence estimates put the number of countries possessing nuclear weapons at about twelve. But Mohamed ElBaradei, director of the International Atomic Energy Agency, told the French press in late October that the number of countries *able* to produce nuclear weapons is much higher—between 35 and 40.

~

A company called Eliyon, based in Massachusetts, has compiled a database consisting of the professional information of more than 16 million Americans. The database was collected by automated webcrawlers that scour news articles, press releases, and other online sources for biographical and résumé information—and since all the information is culled from sources already publicly available, it was collected without first obtaining the permission of the individuals or the companies in the database. Although the database

is riddled with errors, as you would expect of anything collected by roving software, its scope is really quite impressive—and a sobering statement about privacy in the digital age. You can search for yourself by visiting eliyon.com.

A few other companies have recently developed similar—although more intrusive—products that companies can purchase to “mine” the relationships of their employees. According to the *Wall Street Journal*, this software “scans workers’ contacts from their computerized address books, instant-message buddy lists, electronic calendars, and e-mail correspondence.” This information is compared to other data collected from the Web, and mapped out in an attempt “to identify people within the company who have potentially useful contacts elsewhere and could make a personal introduction” to a future customer, client, or donor.

~

Scientists from Johns Hopkins University have had to retract a study that found that even occasional use of the drug ecstasy causes irreversible brain damage. The study, published in *Science* in September 2002, was used as evidence that ecstasy is a “neurological time bomb,” but it turns out the results were an embarrassing botch: the lab monkeys involved in the experiment were being given methamphetamines (also known as “speed”)—not the actual drug under investigation. The leading investigator blamed “simple human error”: a labeling problem.

~

Several Buddhist monks, including the Dalai Lama, submitted to scientific examination as part of a two-day meeting at M.I.T. in September. The scientists studied the monks’ memorization abilities, their attitudes, and their meditation, at a

gathering attended by more than 1,300 ticket-buying observers. This event was just the latest in more than a decade of cooperative research and meetings between Buddhist monks and Western scientists. The spirit of the event was best expressed by the Dalai Lama, who said, "Science and Buddhism are very similar, because they are exploring the nature of reality, and both have the goal to lessen the suffering of mankind," according to the *Washington Post*.

~

The 11-year U.S. ban on silicone breast implants might soon come to an end, following the recent recommendation of a FDA advisory board. The implants were removed from the market in 1992 because of reports that leaking implants caused depression, chronic fatigue, cancer, and lupus. While these claims were never put on solid scientific footing, they triggered enormous lawsuits, costing implant makers billions of dollars and sending Dow Corning into bankruptcy.

~

It seems like only yesterday that Viagra, the erectile dysfunction drug that launched a thousand bad jokes and a post-Senate pitchman career for Bob Dole, hit the market. According to *Business Week*, Viagra, which is manufactured and patented by Pfizer, "ranks with Coca-Cola among the most widely known consumer brands in the world." But the little blue pill now faces some competition. Eli Lilly is preparing to spend millions on marketing Cialis, which promises patients 36 hours of potency (compared to Viagra's four) and thus has already earned the moniker, "the weekender." If the drug receives FDA approval it should be available by the end of the year. GlaxoSmithKline is already

selling a similar drug called Levitra.

All three drugs are variations on the same theme—they are known as PDE5 inhibitors—but with different side effects. Cialis lasts longer, but so do some negative side-effects such as headaches and nausea; Levitra allows users to have food and drink when taking the drug, which Viagra does not. More interesting, however, is how the Viagra challengers are being marketed; they are being promoted for use not just by older men, but to all men, as "something approaching a lifestyle drug," reports *Business Week*.

~

Most people like to grumble about their jobs, but some of us have it worse than others. Here is a list of the worst jobs in modern science, from least to most noxious, as published recently in *Popular Science*: fusion researcher, planetary protection officer, U.S. stem cell researcher, fish counter, astronaut, endangered species ecologist, corpse-flower grower, metric system advocate, postdoctoral assistant, carcass cleaner, prison rape researcher, fistula feeder, isolation chamber tester, hot-zone superintendent, Brazil mosquito researcher, barnyard masturbator, dysentery stool-sample analyzer and, last but not least, flatus odor judge. And you thought you had it bad!

~

Researchers from Berkeley report that the amount of "information"—defined very broadly—generated by our society has been growing dramatically in recent years; just last year, in fact, the world produced enough information to fill *half a million* libraries the size of the Library of Congress print collection. No word on how much of that information is useful—let alone wise, beautiful, or good.