

Notes & Briefs

Cloned Mules, Forgetful Mice, Camera Phones, etc.

The world's first cloned mule was born on May 4, 2003. A team of researchers from the University of Idaho and Utah State University began their work in 1998, but only made significant progress after discovering in 2001 the importance of adjusting the calcium level in the fluid surrounding the eggs. The mule, named Idaho Gem, is the first equine to be successfully cloned—following other mammals such as sheep, pigs, goats, cows, mice, and a cat. Researchers are optimistic that this breakthrough will lead to the cloning of horses. Maybe Funny Cide's clone will get a shot at the Triple Crown.

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In July, Iran confirmed that it had successfully tested a midrange missile capable of hitting Israel, as well as American forces stationed in the Middle

East. The U.S. Department of State believes that the Shahab-3 missile was designed, financed, and constructed with help from China and North Korea.

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A surprisingly high number of parents medicate their children in order to get them to go to sleep. A survey of 671 doctors published in the journal *Pediatrics* in May 2003 showed that more than half prescribed sleep medications for children. About three quarters of the pediatricians surveyed suggested that parents medicate children with nonprescription drugs—often recommending antihistamines, like Benadryl, which induce drowsiness. There are presently no medications intended specifically to alleviate insomnia in children, nor are there clinical guidelines for prescribing medicine to kids with difficulty

falling asleep. It seems that until recently sleeplessness was seen as a normal part of childhood, not a disorder to be medicated.

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Ameren Corp, a St. Louis-based company, is developing an Internet-connection method using power lines. While Germany successfully brought the Internet to some electrical outlets two years ago, the technology has not caught on in America because of its high cost. Some experts believe that digital power lines can carry information at roughly the same speed as cable and DSL lines, so the technology will be especially helpful to people living in rural areas where high-speed Internet connections are not available.

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States can force anti-psychotic medications upon mentally incompetent death row prisoners in order to keep them sane enough to execute, under a February appeals court ruling that stemmed from a case in Arkansas. According to the ruling, the drugs can be administered as long as they are in “the best medical interests of the prisoner”—no matter that the drugs will make possible his execution.

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In the past few months, scientists have discovered genes connected to such devastating disorders as progeria (the rapid aging syndrome) and Lou Gehrig’s Disease. Researchers have also reported the discovery of other genes that might be connected with female infertility, obesity, heart attacks, and cancer (including cancers that affect the colon, the bowels, and the ovaries). One group of researchers announced the discovery of a whopping 291 genes associated with asthma. There have also been reports of genes connected to depression, bipolar disorder, some addictions, and the propensity for “risky

behavior”—including genes that supposedly predispose girls to rebelliousness. It is hard to know, in the rush of announcements, which of these discoveries may someday lead to useful therapies and which are just minor additions to our vast store of genetic knowledge, exaggerated in importance by credulous reporters and attention-hungry scientists. But our picture of human genetics is certainly growing more detailed.

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Researchers have grown artificial arteries for the first time. Previous attempts at forming arteries from smooth muscle cells had consistently failed because the muscle cells would wither before converting into full blood vessels. But Duke University researchers made use of a cancer-related gene to speed the growth of the smooth muscle cells, allowing them to form into a healthy artery. The scientists hope that these lab-grown arteries will someday prove helpful to surgeons performing coronary bypass operations—although in order to be useful, the process will have to be speeded up considerably; it now takes about three months to grow a single artery.

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Several major movies have recently been released in new and creative ways. The “Lord of the Rings” trilogy was filmed all at once and then released serially over three years, a release schedule apparently unprecedented in movie history. Quentin Tarantino’s upcoming film *Kill Bill* is slated to be chopped in half and released in two “volumes” which might run in theaters concurrently. Four weeks after its initial release, the horror flick *28 Days Later* was given an alternate ending—a “what-if” scenario tacked on to the end of the movie. (This differs from the novelty film

Clue, which had different endings in different theaters for its 1985 release.)

The most creative release strategy to date has been that of the second and third installments of the “Matrix” trilogy, which were filmed together, much as was done with the second and third “Back to the Future” movies a dozen years ago. But unlike the “Back to the Future” films, which were released two years apart, the final two Matrix films are being released just a few *months* apart, to capitalize on the buzz. Also, the second Matrix movie was accompanied by a collection of related animated short films (“The Animatrix”) released online and on DVD. And a new Matrix video game starring some of the trilogy’s actors was released to coincide with the second movie. The animated shorts and the video game have interwoven story lines directly connected to the movies.

This all suggests a real trend: Studios are experimenting in order to cut costs and bring more viewers into theaters. If these innovative releases are successful, we may see more serialization, alternate endings, and other creative ploys in years to come.

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Amidst a flurry of security concerns in late June, the Department of Energy launched a comprehensive security overhaul at the nation’s most important nuclear research laboratories. The initiative came after lapses such as the two-year disappearance of vials containing plutonium oxide, the unreported loss of keys granting access to secure areas at Lawrence Livermore National Laboratory, and a van stolen from Sandia National Laboratory.

A June General Accounting Office report added more sobering news to the nuclear security mix: every year, 250 supposedly sealed radioactive sources go

missing or are stolen in the United States. Congress is now considering new legislation to regulate the use and transfer of radioactive materials.

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Researchers from the University of Pennsylvania contended in a study published last April that the technique (somatic cell nuclear transfer) used to create Dolly the sheep and most other mammal clones won’t work on primates. After hundreds of trials with monkey eggs, the researchers found that two key proteins needed for the normal division of chromosomes are missing in embryos created through this technique. This brings about an improper ratio of chromosomes, which results in embryos too abnormal to be viable. The cloning technique works on non-primates because their eggs contain “back-up supplies” of the key proteins, according to the researchers.

In other cloning news, two recent studies have shown that cloned pigs do not exhibit the same physical or behavioral characteristics as the animals from which they were cloned. In fact, pig clones display the same degree of variability in physical appearance as normally bred pigs. According to the researchers from North Carolina State University who conducted the studies, the variability is a result of the cloning process during which certain DNA strands must be modified. As a result, particular genes affecting the cloned pigs’ size, weight, and hair will differ.

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There are indications that Europeans have been spreading a pernicious rumor in certain predominantly Muslim regions of Africa to the effect that American corn grown in Africa has been crossbred with pig genes. Andrew Nastios, the head of USAID, told a congressional

committee on June 12 that the U.S. produces no strain of corn with any animal gene. He advocated a public information effort in Africa to combat the smear campaign instigated by European parties he left unnamed.

At the same hearing, House Speaker Dennis Hastert told the committee about his recent trip to South Africa, where he saw corn genetically modified to resist worms growing alongside non-genetically modified corn; the modified corn grew eight feet tall, he said, while the worm-infested non-modified corn grew in three-foot shriveled stalks. According to other panelists, Africa is the only continent where agricultural productivity is actually falling. In fact, they said, the average yield of an African field today equals the average yield of a European field at the time of Julius Caesar.

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Researchers at Johns Hopkins University have created forgetful mice. By tinkering with neural proteins, the scientists made mentally disabled mice that are bad at forming new spatial memories. The experiments are thought to be the first to prove that changing the chemistry of a single protein affects the brain's "plasticity," or its ability to respond to external stimulation.

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Eight percent of medicines worldwide are fake, according to the World Health Organization. International counterfeiters are responsible for millions of fake—and sometimes dangerous—pills. Counterfeiting also cuts into the profits of other industries, including electronics, liquor, baby food, cigarettes, toys, and chemicals, according to *U.S. News & World Report*. The automotive industry, for example, predicted it could hire 210,000

more workers if illicit auto parts makers were shut down.

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The New York State Senate in June passed "Stephanie's Law," which makes it a felony to use digital or automatic cameras to take pictures or videotapes of people who are in a place where privacy should be guaranteed. The bill is named for Stephanie Fuller, whose landlord placed a video camera in the smoke detector above her bed; he only received a fine and probation, but under the new law he would be eligible for jail time and a spot on New York's sex offender registry.

Meanwhile, mini-cameras and mobile phones with camera capabilities are creating enormous privacy problems in school locker rooms, bathroom stalls, and public dressing rooms, as perverts pop surreptitious snapshots of unsuspecting victims. Several countries are considering laws to curb this high-tech invasion of privacy, but the small size of the cameras and the victims' typical obliviousness will make any restrictions difficult to enforce.

Yet despite the threat that camera phones pose to privacy, they may also give us new powers to fight crime. In August, a New Jersey teenager used his phone to snap photos of a man who was apparently attempting to abduct him. With pictures of the assailant's mug and license plate, police were able to make an arrest the next day. A spokeswoman for Sprint, the maker of the boy's phone, told CNN that to her knowledge, this was the first time a camera phone was used to apprehend a criminal.

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It is possible to convert vegetable oil into a fuel that works in diesel engines, and an increasing number of consumers—"from clean-air activists to school districts to the U.S. military," according to the

Wired News website—are turning to biodiesel. Supporters argue that the veggie-based fuel will reduce air toxins and pollution while producing no greenhouse gases. Best of all, the exhaust is said to smell like French fries.

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To the dismay of umpires and baseball purists, Major League Baseball has been employing digital cameras since 1997 to monitor home plate umpires' accuracy in calling balls and strikes. Questec's Umpire Information System (UIS) is not meant to replace umpires, but rather to improve their personal consistency in making calls and uniformity across the league. Within 30 minutes of a game's conclusion, the home plate umpire receives a CD-ROM illustrating each of his calls, allowing him and officials to analyze his performance. Questec's computerized cameras, which were originally designed for the U.S. military, can come within one half-inch accuracy of the ball's location when it crosses home plate by gauging each pitch's speed, mid-flight location, and curvature. But the system still has some kinks to work out. For instance, the UIS must take a digital photo of the batter before each pitch and compare his pre-pitch strike zone to the ball's location when it crosses the plate in order to determine whether the pitch is a ball or a strike. Since players adjust their stances even in the .4 seconds that it takes for the pitch to reach home plate—thereby altering their strike zone—the system cannot be perfectly accurate for baseball's more fidgety players. Additionally, since the exact camera angles—spanning from the field to the stands to the stadium roof—differ between ballparks, an element of the system's uniformity is lost.

Unlike sports such as tennis and volleyball (which are considering the use of

Questec in the future), tinkering with America's pastime is as risky a venture as sitting in Yankee Stadium with a Red Sox cap. Some players have sided with the umps in refusing to welcome the new technology—in fact, in May, likely future Hall of Fame pitcher Curt Schilling of the Arizona Diamondbacks hit a UIS camera with a bat, smashing it to bits.

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An increasingly popular wrinkle-removing technique called “thermage”—frequently used on patients' foreheads and near their eyes—involves the application of a cooling spray to protect the outer layer of the skin, while simultaneously using a device that sends out radio frequency energy to generate heat in a lower layer of skin. This causes the skin's natural collagen to contract, usually reducing wrinkles over the following months. The FDA-approved technique may not catch on quickly though, since patients complain of some pain during the procedure, and dermatologists caution that the technique is not nearly as effective as surgery—or avoiding the sun.

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Democracy, whiskey, and sexy!” So said an Iraqi of the riches the Americans would bring with them after the invasion of Iraq. And now Iraqis can see them all in action on once-forbidden satellite television. Despite continuing problems of electricity supply, Iraqis have been buying up satellite dishes—which can cost up to \$300—to watch such American favorites as “Who Wants to be a Millionaire?” and “Tom and Jerry.”

In Iran, however, media access remains limited. Satellite broadcasts to Iran from the outside world have been jammed, possibly by Hezbollah operatives in South America or Cuba. The Iranian government

has also been cracking down on Internet use, reportedly arresting at least 68 men and women for Internet dating, and at least one man for posting a personal blog.

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Two students at the Royal College of Art in London plan on replacing so-called “junk DNA” in trees with complete human genomes. Since trees have a great deal of apparently unused space in their genomes, an entire human genome can probably fit without adversely affecting the tree—leading the two students to hope that some people will choose to memorialize a loved one by placing the deceased person’s DNA inside the tree as a sort of living testament.

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An effort to harness the energy of the wind off the shores of Cape Cod has started an internecine political battle among environmentalists.

A Boston firm called Cape Wind Associates has plans to build a “wind farm” of 130 modern windmills in Nantucket Sound. If constructed as planned, it would be the largest offshore facility of its kind in the country—an inexhaustible source of clean energy that would supply the Cape with three-quarters of its present power needs, according to the company’s website. Each of the high-tech turbines would be about 400 feet tall, one-third taller than the Statue of Liberty.

But some Cape citizens vehemently object to the wind farm, claiming it would be an eyesore on the Nantucket horizon. According to the *Boston Herald*, a group called the Alliance to Protect the Nantucket Sound recently hired a high-powered Washington law firm to “spread the word among Representatives and Senators” about the wind farm and similar

projects across the country. Representative Bill Delahunt and Senator Ted Kennedy—both residents of Cape Cod, and both Democrats with records of supporting renewable energy—have worked to stymie the wind farm project. Kennedy’s nephew, environmental activist Robert Kennedy, Jr., also opposes the project for aesthetic reasons: “We wouldn’t build a wind farm in the middle of Yosemite,” he says. “People want to look out and see the same sight the Pilgrims saw.”

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Your body could be worth \$45 million if all its parts are harvested and sold in working order, according to a *Wired* magazine study. The prices—based on maximum dollar values in the U.S.—range from a mere \$57,000 for the heart to an astronomical \$23 million for the most valuable part of the body, bone marrow.

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Fans of televised science fiction have been dismayed in the past year by the cancellation of two of the most intelligently-written s.f. programs. *Farscape*, which was known for its intricate plots and critically acclaimed alien designs, was cancelled for budgetary reasons by the SCI FI Channel after four seasons. Soon thereafter, Fox cancelled *Firefly*, a new space Western from the creator of *Buffy the Vampire Slayer* that was praised for its witty dialogue. Supporters of both shows launched Internet campaigns to keep them going, and pirated copies of episodes can be found online. While it looks like *Farscape* is gone for good, *Firefly* may find new life: a DVD with every episode from the aborted first season (including some that never aired) will be available in December, and the creator of *Firefly* has been penning a movie script based on the show.