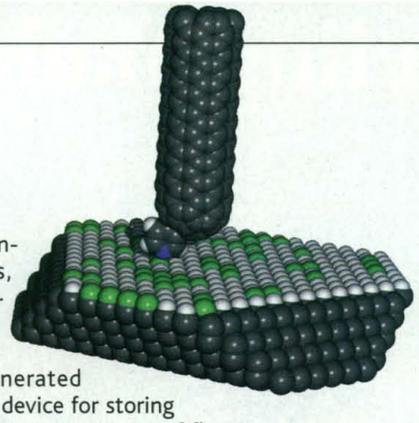
NETWATCH

edited by JOCELYN KAISER

COOL IMAGES

Atomic Legos



They're still mostly twinkles in scientists' eyes, but atomic-scale machines are inching closer to the real world. Take this computer-generated mock-up of a molecular device for storing data (above). The idea is to use patterns of fluorine and hydrogen atoms on a diamond surface to store bits of data—sort of like magnetic computer tape. To read the data, you'd sweep the diamond with a carbon buckytube attached to the arm of a scanning probe microscope. The device could hold 10 million times more data by area than write-once Digital Video Disks, the latest in optical disks. The model builds on baby steps researchers have already taken, such as sticking the buckytube to a microscope tip, says Al Globus, a contractor at the NASA Ames Research Center in Moffett Field, California. Check out these Ames pages*† for more molecular machine images and movies.

* science.nas.nasa.gov/Groups/Nanotechnology/gallery

† www.ipt.arc.nasa.gov/gallery.html

HOT PICKS

Starcatcher. Galaxies, nebulae, and zillions of stars captured by near-infrared telescopes in Arizona and Chile can be seen in the first major data release of 230,000 images from 2MASS, a three-and-a-half-year, all-sky survey. www.ipac.caltech.edu/2mass/releases/spr99/index.html

Tiny life history. From an 1870 speech by Thomas Huxley debunking spontaneous generation, to the sequencing of the *Haemophilus influenzae* genome 4 years ago, this timeline from the American Society for Microbiology lists the field's milestones over 125 years. Includes many full-text papers. www.asmusa.org/mbrsrc/archive/SIGNIFICANT.htm

Dissecting E-Biomed. National Institutes of Health chief Harold Varmus invites you to e-mail him your thoughts about E-Biomed, his plan for an online archive of biomedical papers. The site says it will post "selected comments, pro and con." www.nih.gov/welcome/director/ebiomed/ebiomed.htm

NET NEWS

Court Upholds Freedom of Crypto Speech

In a decision hailed as a victory for scientific freedom, a federal appeals court has upheld a math professor's argument that U.S. laws restricting the export of encryption codes are unconstitutional.

Citing national security concerns, the Clinton Administration currently bans software companies from selling, beyond U.S. borders, strong encryption software—codes for scrambling messages (such as e-mail) that can be read only by a recipient with a key. Daniel Bernstein, a math professor at the University of Illinois, Chicago, ran into these rules as a grad student at Berkeley in 1992 when he wanted to share his Snuffle cryptography program with colleagues. The State Department told Bernstein that because it considered his code to be in the same category as weapons, he could not post it on the Internet or discuss it at conferences.

The AAAS (*Science*'s publisher) as well as software firms and Internet civil rights groups such as the Electronic Frontier Foundation have championed Bernstein's case, arguing that the export rules restricted his First Amendment right to free speech. On 6 May, the 9th U.S. Circuit Court of Appeals in San Francisco agreed, upholding a lower court decision in Bernstein's favor. The court found that "cryptographers use source code to express their scientific ideas in much the same way that mathematicians use equations or economists use graphs" and that the export rule "directly jeopardizes scientific expression" as well as the public's right to privacy.

The ruling doesn't mean Bernstein can now share his code, as the government may ask the court to stay the decision pending appeal. Observers expect the case to wind up before the Supreme Court.

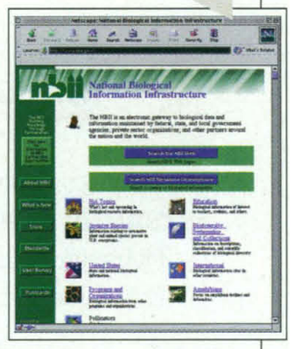
SITE VISIT

Field Data of Dreams

The brown tree snake has nearly wiped out Guam's native birds, you may have heard, but did you know that this voracious invader has even tried to eat human babies? That gruesome fact comes from the National Biological Information Infrastructure (NBII), a U.S. Geological Survey project that calls itself "an electronic gateway to biological data and information" on species and ecosystems.

Intended for scientists and resource managers is the site's Metadata Clearinghouse, a catalog of data set descriptions that can be searched by subject or location. Typing in "bald eagle," for example, brings up reports of bird disease outbreaks and data on eagle distributions. Roping in 500 reports from government agencies and a few other sources, such as the Nature Conservancy, the store of data so far seems thin. But NBII hopes to add many more partners, as well as mapping and statistics tools for analyzing the data online, says program manager Anne Frondorf. Another NBII project that it's hoped will be a big hit is a taxonomy database called ITIS, which serves up nomenclature agreed upon by experts.

www.nbii.gov



The site points to lots of other Web resources, from vegetation-mapping software to educational sites sorted by grade level. NBII also has created two specialized sites of its own: FrogWeb, which tracks amphibian declines and deformities, and a site on the notorious brown tree snake, which has ecologists on many as-yet-untouched Pacific Islands shaking in their boots.

Science ONLINE

What drives a young scientist to venture beyond the lab and become an activist? This week Next Wave columnist Peter Fiske and others explore reasons for getting involved in student issues. Besides championing the cause of your peers, activism may help you develop professional skills and even learn about new job opportunities. www.nextwave.org

Send Internet news and great Web site suggestions to netwatch@aaas.org

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