al Society just created a panel to advise on the development of such a plan.

With three new cases last week, Britain is still awaiting the end of the smoldering epidemic. Both research teams caution against relaxing controls. If the current rules are strictly enforced, the team from Edinburgh and Cambridge predicts, the disease will almost certainly be stamped out by next spring. **–MARTIN ENSERINK**

BIOINFORMATICS

Petition Seeks Public Sharing of Code

Going to the source. Jennifer Weller is planning a summit on open-source software.

When computer scientist Jennifer Weller took a job at the Virginia Bioinformatics Institute in Blacksburg last year, she was eager to start work on new "open source" genome-sifting software that scientists could share. But officials at the parent Virginia Polytechnic Institute and State University delayed her project for a year while they pondered how such collaborative work fit into the school's technology transfer program, which aims to patent and control the distribution of potentially valuable faculty member discoveries. "There was a lot of confusion," she says.

Weller's project recently got the go-ahead, but the experience made her an open-source activist. She's eagerly signed a new petition demanding that the government require scientists to deposit the guts of their taxpayer-funded software into public collections. Although the 3-week-old petition (www.openinformatics.org) has so far garnered just a few dozen signatures, it has sparked widespread debate.

Open-source advocates say that sharing is essential for eliminating duplicative research and perfecting programs that tame biological data. But critics and some government officials warn that mandatory sharing could hinder research by reducing financial incentives—and would probably violate federal law. "I appreciate the spirit that generated this petition, [but] there are some major problems," says Phil Green, a prominent bioinformatics researcher at Washington University in St. Louis.

The petition was drawn up last month by three software developers—Jason Stewart of Open Informatics in Albuquerque, New Mexico; Harry Mangalam of tacg Informatics in Irvine, California; and Jiaye Zhou of Inztro, another Albuquerque firm—who believe that publicly funded research should be made available to all. In addition, they say, public disclosure would allow closer scrutiny of existing software. "You often can't evaluate results without carefully looking at the source code used to obtain them," says Stewart.

The solution, they argue, is for U.S. granting agencies such as the National Institutes of Health (NIH) and the National Science Foundation (NSF) to require grantees to publish their codes under open-source or "free software" licenses. That would give users broad freedom to alter and share programs. Such wide-open collaboration has already sparked the rapid evolution of several popular programs, they note, including common Web-hosting software called Apache. In science, they argue, mandated sharing could free up time and money for research. Scientists would be free to assemble new tools from existing building blocks, Stewart says, while funding agencies "could reject proposals to reinvent the wheel."

NIH and NSF officials appear receptive, noting that both agencies already have policies that encourage grantees to make their discoveries publicly available. But they say that the 1980 Bayh-Dole Act, which allows universities and researchers to patent the results of publicly financed research, probably rules out any mandatory sharing. "I don't think Congress would allow us to overrule a university's privilege to grant exclusive licenses," says one NIH official.

But there are other options. For instance, agencies could require researchers to be more explicit about how they will share the fruits of their research, he says, and create specific financial incentives for sharing. NIH has already launched one initiative to create a "public library" of informatics tools, while NSF review panels are encouraged to favor open-source projects.

Petition critics say that such voluntary commitments are preferable to any system that treats software differently than other scientific tools, such as cell lines or genetically modified mice. Green, who would like to scrap Bayh-Dole, says that mandated sharing "would perpetuate the myth—widespread among scientists who don't actually develop software—that it is inherently of less value than other inventions. This, in turn, tends to inhibit talented scientists from going into computationally oriented academic research."

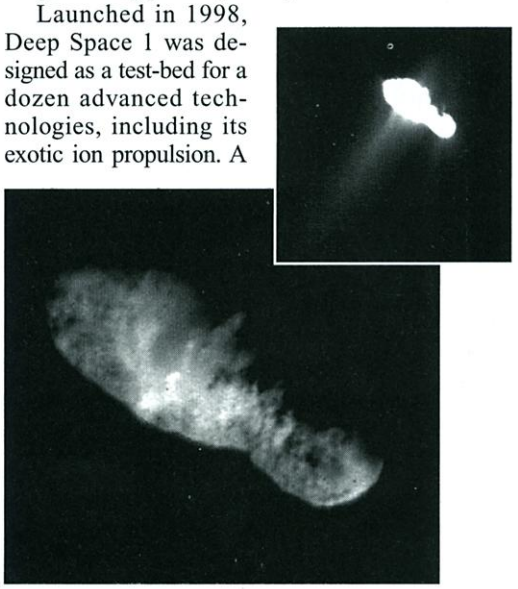
Such views are likely to get a full airing in January at the O'Reilly Bioinformatics Technology Conference in Tucson, Arizona, where Weller will lead a workshop on the licensing issues raised by the petition. "The [least] that can happen" as a result of the debate, says Stewart, "is that a lot of people get educated." **–DAVID MALAKOFF**

PLANETARY SCIENCE

Close Look at the Heart of Borrelly

Flying on a wing and a prayer, NASA's "aged and wounded" Deep Space 1 spacecraft has returned pictures of the dirty snowball buried within comet Borrelly, revealing recognizable geology on a comet nucleus for the first time. At a press conference at the Jet Propulsion Laboratory (JPL) last week in Pasadena, California, scientists described Borelly's rugged terrain and towering jets of dust and vaporized ice that hint at a potentially catastrophic demise for the 8-kilometer-long, bowling-pin-shaped object.

Launched in 1998, Deep Space 1 was designed as a test-bed for a dozen advanced technologies, including its exotic ion propulsion. A



Blowing itself away. Comet Borrelly jets gas and dust (*top*), leaving an eroded nucleus.

CREDIT: (LEFT TO RIGHT) JOHN MCCORMICK/VIRGINIA TECH; JPL/NASA

16.5-kilometer-per-second dash through the gas and dust continually blown off a comet nucleus was an afterthought. Complicating matters, its star tracker, the spacecraft's only means of orienting itself, failed in 1999. With its camera jury-rigged as a replacement, "the encounter did not go the way we expected," said project manager Marc Rayman of JPL: "It went perfectly." By sheer luck, the spacecraft dodged a massive dust jet to return analyses of ions in the comet's hazy coma of dust and gas, infrared spectra of the nucleus, and black-and-white pictures sharper than any of comet Halley returned by a flotilla of spacecraft in 1986.

These detailed images revealed a terrain of diverse features. Each end of the nucleus has plateaus. A smooth, brighter plain at the center is emitting at least three columnar jets where the sun's heat is excavating a saddle-shaped depression. In addition, fractures crisscross the comet, several of them right in the thin neck of the bowling pin, according to planetary geologist Laurence Soderblom of the U.S. Geological Survey in Flagstaff, Arizona. "It's quite possible" Borrelly could break in two, either at the center or at the neck, he says. The way Borrelly seems to rotate would keep the jetting saddle continually illuminated while the comet is near the sun, adds comet specialist Donald Yeomans of JPL, hastening erosion at that spot. Eventually, the nucleus might even break into many pieces and vanish, just as comet LINEAR did in July 2000.

Deep Space 1 will meet a less spectacular end: In November, after more strenuous testing of its ion engine, its controllers will simply stop talking to it. –RICHARD A. KERR

PSYCHOPHARMACOLOGY

Drug Critic Sues After School Pulls Job Offer

A British psychiatrist and critic of antidepressant drugs is suing the University of Toronto (UT) and an affiliated mental health center for breach of contract after the center rescinded a job offer to him.

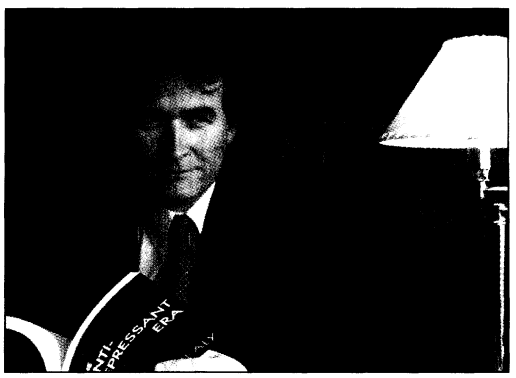
David Healy, a reader in psychological medicine at the University of Wales College of Medicine in Cardiff, claims that his academic freedom was violated after he gave a speech last fall criticizing drug companies and arguing that the popular antidepressant Prozac "can lead to suicide." His suit, filed in Toronto on 24 September, seeks reinstatement of the job offer at the Centre for Addiction and Mental Health (CAMH) or $9.4 million in lost salary and damages for libel. CAMH officials have told Healy—and explained in letters to their staff—that they felt his views are "extreme" and incompatible with the responsibilities he would assume.

Healy is a prominent historian of psychopharmacology who in recent years has testified as an expert witness for plaintiffs claiming injury from drugs like Prozac, known as SSRIs (selective serotonin reuptake inhibitors). In August 2000, CAMH formally offered him the post as clinical director of its mood and anxiety disorders program and professor of psychiatry at the University of Toronto, at an annual income of about $250,000. Healy accepted the written offer the following month.

On 30 November, Healy delivered a lecture in Toronto on "psychopharmacology and the government of self." In the talk, which he has given at numerous other locations and posted on his Web site (www.pharmapolitics.com), he discussed negative effects of antipsychotic and antidepressant drugs, including brain injury and suicides. The lecture caused quite a stir.

Less than a week later, CAMH chief physician David Goldbloom informed Healy that "While you are held in high regard as a scholar of the history of modern psychiatry ... we believe that it is not a good fit between you and the role as leader of an academic program. ... This view was solidified by your recent appearance." In a 17 May letter to his board of directors, CAMH head Paul Garfinkel wrote that Healy "has expressed extreme views that are inconsistent with published scientific evidence. These views go well beyond his peer-reviewed published work." Garfinkel said Healy's future colleagues were "shocked" by his presentation "to the point where the Centre felt that Dr. Healy would not have the necessary respect and support of staff."

Healy has sought support for his position, and last month 30 scientists—including Nobelists Arvid Carlsson and Julius Axelrod—signed a letter to the university saying that the case was an "affront" to academic freedom. Healy says that his views on psychotropic drugs should not have surprised



Costly words. David Healy's lecture led a Canadian mental health center to withdraw its job offer.

CREDITS: (TOP TO BOTTOM) CERN; COURTESY OF D. HEALY

ScienceScope

Budget Acceleration Europe's flagship particle accelerator, the Large Hadron Collider (LHC), is having budget troubles. The $1.6 billion project is facing a 20% budget overrun, officials revealed last month, with no easy solution in sight.

The increases are due to unexpectedly high excavation costs and rising prices for the LHC's 1236 superconducting magnets—which nudge charged particles along their 27-kilometer circular path—according to Luciano Maiani, director-general of CERN, the LHC's home lab near Geneva.

Next month, Maiani will have to present CERN's finance committee with a plan for paying the increased cost. It may involve obtaining extra loans and asking LHC partners, including the United States, to cough up more cash.

Physicist Gerardus 't Hooft of Utrecht University in the Netherlands worries that the money troubles could delay LHC operations, now set to start in 2006. But CERN officials aren't worried, saying there are "no technical reasons yet for a delay."

Retying the Knot Scientific collaborations between the United States and India and Pakistan have received a green light in the wake of the 11 September terrorist attacks.

The U.S. government cracked down after both nations tested nuclear weapons in May 1998, requiring U.S. organizations to obtain a license before shipping civilian materials deemed to have a dual military use to more than 300 institutions. The so-called "entities list" was trimmed somewhat in December 1999 and again in March 2000.

The latest easing, according to Indian officials, lifts the rules for most civilian R&D organizations, including many under the Defense Research and Development Organization. It follows a 22 September decision by President George W. Bush to waive prohibitions on trade in dual-use materials. Sri Krishna Joshi, a solid state physicist and president of the Indian National Academy of Sciences, welcomed the news, calling the restrictions "totally unnecessary." A small number of agencies involved in nuclear, missile, and space programs in the two countries remain under the restrictions.