FOCUS

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Slowly unraveling autism's roots	Hungarian science's man of the moment		A paleontological treasure trove

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 sci-

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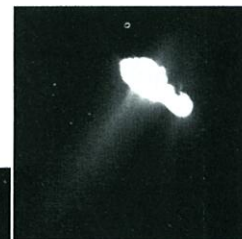
Blowing itself away. Comet Borrelly jets gas and dust (*top*), leaving an eroded nucleus.