Journal of Clinical Microbiology by Thomas Smith, director of the Virology Laboratory at the Mayo Clinic in Rochester, Minnesota, and colleagues at the Centers for Disease Control and Prevention in Atlanta, Georgia.

The Mayo-funded report described a way to rapidly identify smallpox by a small segment of its genetic sequence. After the paper was accepted, Smith says, federal employees he declines to identify raised concerns. They worried that a terrorist could alter this bit of sequence to slow identification of the virus during an attack. Smith's group agreed to remove critical details, and the journal published the shorter version in June. Experiences like this, according to Atlas, drove the society to call for the NAS publishers' meeting.

Even though scientists agree that some research results might be risky to release—and that they might not know what constitutes a security threat—they are wary of suppressing data. Furthermore, some say, biodefense research is needed now more than ever, and keeping it secret will only make fighting terrorism tougher. "You can dream up all sorts of extreme scenarios on how bioterrorists can benefit from information," says Paul Keim, an anthrax researcher at Northern Arizona University in Flagstaff. But suppressing information "will hurt our effort to combat bioterrorism."

Scientists might have to live with some censorship, however, says Claire Fraser, director of The Institute for Genomic Research in Rockville, Maryland: "There could be more harm than good done by publishing a paper," she thinks. "That's going to be very hard for scientists to deal with."

–JENNIFER COUZIN

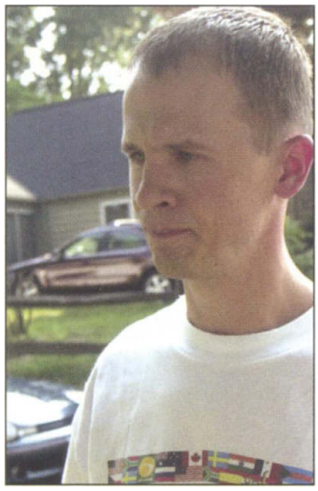
BIOTERRORISM

Student Charged With Possessing Anthrax

A University of Connecticut graduate student has become the first researcher charged under new antiterrorism laws with mishandling a potential bioterror agent. Federal prosecutors last week charged Tomas Foral, 26, with unlawfully possessing anthrax-tainted cow tissue.

Foral can avoid a trial—and up to 10 years in prison if convicted—by completing a community service program. But the young scientist is upset by the charge, which he says he can't afford to fight and believes is the result of "a misunderstanding" with a laboratory superior.

The case highlights the increasingly treacherous legal landscape surrounding pathogen research, some researchers say. "I fear this young man has gotten caught up in an overreaction to [last year's] anthrax attacks," says Ronald Atlas, a bioterrorism expert at the University of Louisville, Kentucky, and president of the American Society for Microbiology.



Charged. Tomas Foral says the case resulted from a misunderstanding.

Foral's troubles began late last October at the university's pathobiology laboratory in Storrs, Connecticut, where he is a master's degree student working to develop a detection test for West Nile virus. After a professor asked him to help clean out a malfunctioning basement freezer, Foral found a rusty container labeled "anthrax" holding about a half-dozen vials of cow tissue collected in the 1960s. Foral says that after a brief conversation with the instructor, he saved two of the vials in another locked laboratory freezer for future research. According to Foral, the instructor was unclear about what to do with the vials, so Foral froze them. (*Science* could not reach the instructor for comment.)

One month later, following an anonymous tip, police investigating an anthrax death in a town about 100 kilometers away came searching for the vials. After Foral turned them over on 27 November, the lab building was closed for more than a week. FBI agents began an investigation, including searches of Foral's home and university room, where they photographed textbooks and journal reprints, he says.

On 22 July, U.S. Attorney John Danaher announced that the government was charging Foral with possessing a controlled biological agent in violation of the USA Patriot Act, an antiterrorism law rushed through Congress last October (*Science*, 2 November 2001, p. 971). Foral was not covered by any of the law's exemptions, such as possessing anthrax for "bona fide research" purposes, prosecutors said in a statement.

Foral can avoid prosecution by doing community service, continuing to cooperate with investigators, and staying on the right side of the law. Prosecutors emphasize that his participation would not be "evidence of guilt." But Foral says he is deeply disheartened by the ordeal and worried that it might harm his efforts to get into medical school. The Czech-born American citizen, who

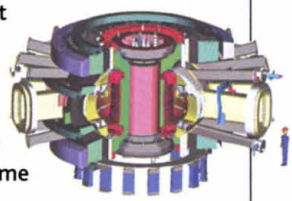
ScienceScope

Good Reviews U.K. learned societies breathed easier this week after a House of Commons select committee gave them mostly positive reviews. The report, requested earlier this year (*Science*, 15 February, p. 1212), was sparked by concerns about how the prominent Royal Society spent its government grant, which provides about 70% of its $56 million annual budget. The society gets most of the public funds given to U.K. science groups.

In its report, the 11-member panel led by Ian Gibson, a former biology dean at the University of East Anglia in Norwich, concluded that two-thirds of the $41 million grant goes to "very valuable" research, with the rest spent on other activities. The panel rejected concerns that the male-dominated society—fewer than 4% of its 1248 members are women—discriminates. Instead, it worried that the body might be biased against relatively new disciplines, such as computing. It also urged the government to consult the nation's learned bodies more often and do more to compensate them for advice. But it concluded that the Royal Society has too much sway over public education efforts and suggested that the government create a new independent body.

The societies were studying the report as *Science* went to press. The government is expected to respond later this year.

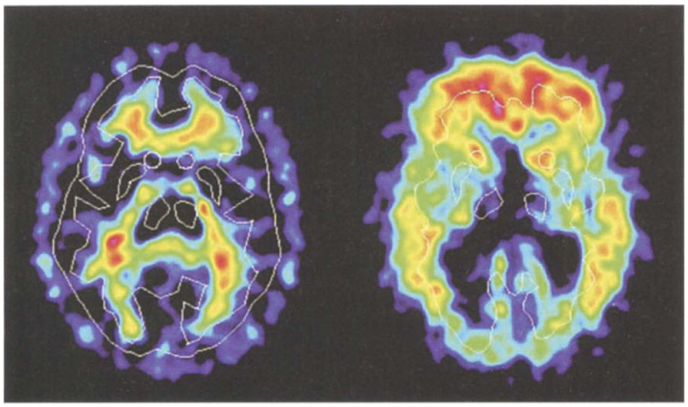
Hot Decision Fusion scientists are heating up their case for a major new experiment. At a summit last month in Snowmass, Colorado, fusion experts from around the world concluded that they could use a new facility for studying burning plasma, a state of matter that gets most of its heat from fusing hydrogen. Now they have to decide which of several designs is best—and persuade policy-makers to come up with the money.



The summiteers didn't make recommendations, but many predicted that two proposals will dominate discussions within the Department of Energy's (DOE's) Fusion Energy Sciences Advisory Committee (FESAC), a U.S. advisory body: ITER, a multibillion-dollar magnetic-fusion facility planned by an international consortium; and FIRE, a less ambitious version proposed by U.S. scientists. Summit organizer and FESAC member Gerald Navratil of Columbia University expects the panel to come up with a recommendation to DOE after it meets next month in Washington, D.C.

CREDITS: (TOP TO BOTTOM) BOB CHILD/AP; PPPL

Alzheimer's disease through a process of elimination. Pencil-and-paper tests of memory and problem solving, reports from family members, and standard brain scans suggest that Alzheimer's disease is the culprit, but researchers can't be entirely sure until an autopsy reveals brain tissue riddled with senile plaques and neurofibrillary tangles. The main ingredient in plaques is a protein called β amyloid, which congregates in the brain well before symptoms of dementia appear and is thought to initiate most of the damage.



Aglow with Alzheimer's. The first images of a β-amyloid tracer in humans show an ominous signal in the brains of patients with early symptoms of Alzheimer's disease (right).

CREDIT: W. KLUNK/UNIVERSITY OF PITTSBURGH

Several teams have been racing to find a nonintrusive way to visualize β amyloid in a living brain. William Klunk, Chester Mathis, and colleagues at the University of Pittsburgh spent about 10 years searching for a molecule that fits the bill. Their best candidate, dubbed PIB, crosses the blood-brain barrier, isn't toxic, and can be clipped to a radioactive tag to light up plaques, animal studies have shown.

Starting in February, a group led by Henry Engler of Uppsala University in Sweden injected the molecule into nine people with symptoms of "mild" Alzheimer's disease and five healthy controls and then used a PET scan to see where it went. At the conference, images of the results audibly took the audience's breath away: In healthy people, the marker sailed right through the brain and was well on its way to exiting via the central fluid-filled ventricles. But in people with early Alzheimer's disease, the marker stuck in the cortex, particularly in the frontal lobes and temporal-parietal areas, two of the brain regions most damaged in the disease.

"This is something we've all been waiting for," says Michael Pontecorvo of Mitsubishi Pharma America in Warren, New Jersey. Adds Randy Buckner of Washington University, "this opens a new window on what we think to be the primary marker associated with disease."

β amyloid can be detected in a far more unexpected place, another team reported. Lee Goldstein of Brigham and Women's Hospital in Boston and colleagues have found that the protein also collects in the lens of the eye. What's more, in a postmortem study of eyes from 16 elderly donors, half of whom suffered from Alzheimer's disease, all of the patients had a rare type of cataract on the edges of the lens—apparently caused by β-amyloid deposits. But this doesn't mean that an eye exam for Alzheimer's disease is around the corner, cautions Goldstein, in part because it's not yet clear how early in the disease's progression the protein might become visible in the lens.

Standard brain scans, if analyzed carefully, can also show signs of impending Alzheimer's disease, reported Nick Fox of the National Hospital for Neurology and Neurosurgery in London. By comparing magnetic resonance images taken 1 year apart, Fox and his colleagues found that healthy elderly people lose about 0.2% of their brain volume each year. People who start out with minor memory complaints and progress to Alzheimer's disease, on the other hand, lose about 2.8% a year. This dramatic shrinking is evident in the hippocampus, which helps store memories, and the frontal and temporal lobes.

The technique doesn't provide a quick diagnosis: It takes time to get a clear picture of Alzheimer-like decline. But it could help monitor patients' progress in clinical trials, says Fox. Their performance on tests of memory and problem solving varies a lot from day to day, making it tough to tease out any potential improvements. By providing a more accurate endpoint, he suggests, brain scans might enable researchers to make clinical trials "smaller and faster." –LAURA HELMUTH

ASTROPHYSICS

'Winged' Galaxies Point To Black Hole Mergers

X literally may mark the spot as astrophysicists hunt for colliding black holes. Results of a new mathematical model, published online this week by *Science* (www.sciencemag.org/cgi/content/abstract/1074688), maintain that cross-shaped radio galaxies harbor massive black holes that suddenly flipped their spins, probably by absorbing black holes from other galaxies. When combined with a census of these distinctive galaxies, the model suggests that such titanic encounters happen about once a year in the cosmos.

Observations of galactic cores, including

ScienceScope

Trickle-Down The global economic slump could delay construction of the world's most powerful particle accelerator now that a key parts supplier has gone bust. Babcock Noell Nuclear in Würzburg, Germany, is supposed to supply one-third of the 1236 superconducting magnets needed for the Large Hadron Collider (LHC), being built at the European particle physics laboratory CERN near Geneva. But on 4 July, Noell's parent company, the industrial giant Babcock Borsig AG, declared bankruptcy. Noell is now in the hands of receivers—and physicists are wondering if they'll get their magnets on time.

The bankruptcy "came as a real surprise," says LHC director Lyndon Evans, and it threatens to add to LHC's woes. The project is already $300 million over its original $1.6 billion budget and 2 years behind schedule, with completion now slated for 2007 (*Science*, 28 June, p. 2317).

Noell executives say the company remains profitable despite the parent company's troubles, and they plan on finishing CERN's magnets. If they can't, two other magnet suppliers—Italy's Ansaldo and France's Alstom-Jeumont—will scramble to meet LHC's needs.

Dependence Day Greater autonomy and a $3.5 million annual bank account might sound like a pretty good deal to most people—but not to the National Science Board, the presidentially appointed oversight body for the National Science Foundation (NSF).

Last week the Senate Appropriations Committee created a separate account for the 24-member board in its proposed 2003 budget for NSF (see p. 755). It argues that the board—which oversees the $5-billion-plus agency and advises the nation on scientific issues—should be financially and operationally independent of NSF. But board chair Warren Washington says he prefers the status quo, under which the board's staff members are NSF employees and the board gets its resources from the agency. Washington also says that borrowing NSF employees as needed gives the board greater flexibility than hiring a permanent staff.

The board is expected to discuss the idea at its meeting 14 to 15 August. Legislators will also get another crack at it as the spending bill moves through Congress.

Contributors: Adam Bostanci, Charles Seife, Adrian Cho, Jeffrey Mervis