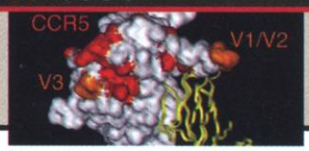

member nations before it is finalized early next year, the European Union's smaller states are expected to take aim at the large sums that could fund collaborations among bigger countries. But some scientists with a European vision hope that FP6 will become a milestone on the road to what virologist Paolo Lusso of Milan's San Raffaele Scientific Institute would like to see: what he calls "the research community of the 'European nation.'" –ROBERT KOENIG

FOOT-AND-MOUTH DISEASE

U.K. Outbreak Is Latest In Global Epidemic

CAMBRIDGE, U.K.—What began in late February as a single pig farm blighted by foot-and-mouth disease (FMD) could spiral into a full-blown epidemic in the United Kingdom, experts say. The reappearance of the dread disease here seems to be the latest twist in a yearlong rampage around the world of a virulent strain of foot-and-mouth virus.

As *Science* went to press, 16 farms across the U.K. had reported cases and been quarantined, and the government had prohibited the movement of susceptible animals: primarily cows, sheep, pigs, and goats. Thousands of animals have been slaughtered and burned atop huge pyres in a bid to halt the disease's spread. The U.K. may be on the brink of a reprise of the 1967 scourge that saw 500,000 animals destroyed. "There is every likelihood that the disease will reach epidemic proportions," says Liz Glass, a veterinary immunologist at the Roslin Institute in Edinburgh.

The outbreak apparently originated on a pig farm in Newcastle, England, probably from infected animal feed imported from Asia. The U.K. strain is identical to one that recently stormed previously disease-free countries such as Japan, North Korea, and South Africa. "It seems to be a very virulent and successful strain" in all susceptible species, says Paul Kitching of the Institute for Animal Health (IAH) in Pirbright, U.K., who heads the world's largest FMD research group.

The viruses that cause FMD (members of a diverse family of small RNA viruses called picornaviruses) are not all that deadly; they can cause fatal cardiac arrest in young animals, but most adult animals recover. But animals produce less meat and milk after an infection, so the only economically sensible option is to cull infected herds. And that has to happen fast, because FMD is extraordinarily infectious: Inhaling fewer than 10 viral particles can infect an animal, and the wind can carry virus from one blighted farm to another, even dozens of kilometers away.

A vaccine was first developed in the 1960s, and the IAH stocks enough to vaccinate 500,000 animals in an emergency. The vaccine, which consists of a virus that has been killed with chemicals or ultraviolet light, offers a good degree of protection, says Martin Hugh-Jones, a veterinary epidemiologist at Louisiana State University in Baton Rouge. For instance, it has enabled South America to all but eradicate the disease from the continent.

But the vaccine has been known to cause occasional outbreaks, presumably because the procedure used to kill the virus is imperfect. So although it's an important weapon in endemic areas, the vaccine is risky in countries that are currently disease free. Vaccinated animals can also be carriers of the virus—although they show no symptoms—and spread it to other, unvaccinated animals. And finally, once vaccinations are used, it is much harder for a country to show that it's disease free; the virus could be lurking in a small number of animals. "Better to keep them all susceptible," says Hugh-Jones, "and shoot your way out when an outbreak occurs"—as Britain is doing now.

Several research teams have tried to produce a vaccine that doesn't have these drawbacks. In the past, attempts to develop a vaccine based on foot-and-mouth virus peptides failed to offer adequate protection, as did a live, weakened virus. Researchers at the U.S. Department of Agriculture's (USDA's) lab in Plum Island, New York, have now set their hopes on a crippled adenovirus that has been equipped with two extra proteins from the foot-and-mouth virus. The vaccine is safe and protects pigs well, says USDA virologist Marvin Grubman; the first experiments in cattle are "encouraging," too, he says. But Grubman says it will be years before the vaccine hits the market. Until then, aggressive monitoring and slaughter is the control method of choice for disease-free countries.

–JOHN PICKRELL AND MARTIN ENSERINK

CREDIT: BRIDGET JONES/AP

Batten down the hatches. Like farms across the U.K., parks were closed to protect susceptible wildlife, including deer.

2002 BUDGET

NIH Gets Big Boost; Lobbyists Want More

Sometimes good just isn't good enough. President George W. Bush said last week that he will request a record $2.8 billion increase for the National Institutes of Health (NIH) in his 2002 budget proposal. But some biomedical science groups say that the figure—a 13.8% boost, to $23.1 billion—is only a starting point for their campaign to win a $3.4 billion boost.

"We will work in a bipartisan fashion with our congressional champions … to increase the agency's budget," vowed Mary J. C. Hendrix, president of the Federation of American Societies for Experimental Biology. The 60,000-member group has helped lead an effort, begun in 1998, to double NIH's budget to $27.3 billion by 2003.

Maintaining a long Washington tradition of previewing the good news—and keeping silent about the bad—in upcoming White House budget proposals, Bush briefly mentioned his plans for NIH during a photo opportunity on 23 February, 4 days before outlining to Congress and the nation his spending proposal for the 2002 fiscal year, which begins 1 October. (The budget was unveiled after this issue of *Science* went to press; the details will be reported in next week's is-

sue.) "We recognize the federal government plays a very important role in researching cures for disease," Bush said in recommending the largest increase in NIH's history.

But Bush was mum on the subject that has much of the science community talking: the pain his proposal is expected to inflict on nonbiomedical science budgets (*Science*, 23 February, p. 1463). He was expected to request only a 1.3% increase for the National Science Foundation (NSF), whose budget now stands at $4.4 billion. Scientists are also bracing for grim news for science programs at NASA, the Department of Energy (DOE), the U.S. Geological Survey, and the Environmental Protection Agency.

Whether Congress will follow Bush's blueprint, however, is unclear. Congress traditionally increases the president's request for NIH, and already, Senators Arlen Specter (R–PA) and Tom Harkin (D–IA) have introduced legislation calling on the Senate to back a $3.4 billion increase. Dozens of House and Senate lawmakers have also signed an array of letters to Bush and congressional leaders asking for major science budget increases at NSF, DOE, and NASA.

The first real test, however, will come this spring, when congressional budget committees issue road maps to spending panels overseeing specific agencies. Researchers, says one House aide, "are going to know pretty early just how far they'll have to push the rock up the hill." **–DAVID MALAKOFF**

RESEARCH ETHICS

Query by Congress Halts New Policy

A complaint from a powerful member of Congress has at least temporarily scuppered a new federal requirement that institutions teach their biomedical researchers how to act responsibly. The Public Health Service, which issued the ethics education policy on 1 December, has put the requirement on hold while the Office of Research Integrity (ORI) reviews concerns voiced by the House Commerce Committee, which oversees the National Institutes of Health. The delay, part of a broader examination of actions taken by the outgoing Clinton Administration, marks the debut on research issues of the panel's new chair, Representative Billy Tauzin (R–LA), who is expected to be much more active than his predecessor.

The rules were the government's response to a growing consensus in the biomedical research community that prevention, through education, is the best way to reduce scientific misconduct. Accordingly, the new policy required institutions to develop a "basic program of instruction" on responsible research conduct covering topics such as data sharing, record keeping, and animal care. All staff members were supposed to have completed their training by 1 October 2003 or their institutions could lose federal funding. The training shouldn't take more than a few hours, estimates ORI, which is developing a 3-hour Web-based course as one option for schools.

Although biomedical and university advocacy groups support the idea, they have complained that the rules would be expensive to implement and cover too many people. The 1 December version contained a few changes from an earlier draft, giving institutions more time and allowing them to decide who should take the course. But "the most objectionable" sections were still there, says Howard Garrison, a spokesperson for the Federation of American Societies for Experimental Biology (FASEB).

Those complaints led the Commerce Committee to include the rules in a review of the Clinton Administration's last-minute regulations. A 5 February letter from Tauzin and James Greenwood (R–PA), chair designate of the oversight subcommittee, says that, although the committee "strongly support[s]" the ORI policy's intention, "we are troubled by ORI's process in implementing such efforts." The policy should have been issued as a formal rule, the letter explains, after steps such as a review by the White House, cost analysis, and publication of the entire text rather than simply a notice in the *Federal Register*. "There are procedures that have to be followed," says a committee staffer.

ORI doesn't believe the policy is equivalent to a formal rule, ORI Director Chris Pascal explained in a 14 February reply to Tauzin, because it gives institutes "considerable leeway" in how to implement it. ORI also notes that it reviewed more than 100

CREDIT: KENNETH LAMBERT/AP

Enforcer. House Commerce chair Billy Tauzin says NIH research ethics office broke the rules.

ScienceScope

SAGE Decision Russian researchers have lost a key court fight over the ownership of a hoard of precious metal, endangering a major international experiment. A Moscow court last week rejected the Baksan Neutrino Observatory's appeal of an earlier order to hand over 7 tons of gallium to the Russian Ministry of Fuel and Power Production. Scientists say the transfer would end the $60 million Soviet-American Gallium Experiment (SAGE), which uses an underground gallium-laced detector to study neutrinos streaming from the sun (*Science*, 23 February, p. 1470).

The ruling marks the latest twist in a 4-year struggle over the silvery-white metal. It began when the power ministry moved to acquire SAGE's gallium, presumably so the government could eventually sell the metal, which is used in semiconductors and brings up to $600 per kilogram.

The observatory, however, is in no hurry to comply with the latest court order. "There are many ways to delay," says Leonid Bezrukov, deputy director of the Institute for Nuclear Research. But he fears that opponents may use other tactics to seize the metal. Local police have already launched one investigation into alleged gallium "waste" by the researchers, and Bezrukov says "no one knows what could happen next."

Bad Break? Although some scientists complain that biomedical research is getting more than enough funding (see p. 1677), some lawmakers want the U.S. government to offer a new tax break to encourage greater giving to medical studies. The legislators introduced a bill this week that would give a deduction to science backers who donate stock options to universities and other nonprofits engaged in medical research.

"With stock options playing a larger role in employee compensation packages in the new economy, people should have the option of giving ... without having a portion siphoned off for Uncle Sam," says Representative Jennifer Dunn (D–WA), who is sponsoring the legislation with Representative Ben Cardin (D–MD) and Senators Bill Frist (R–TN) and Robert Torricelli (D–NJ). Dunn claims the change could bring $1 billion to medical charities over 5 years.

But a similar bill that Dunn introduced last year won only lukewarm support from many philanthropic and scientific groups. The problem, they say, is that singling biomedical science out for a tax benefit might lead to complaints from other disciplines. Says one lobbyist: "Why shouldn't ecology get the same treatment?"