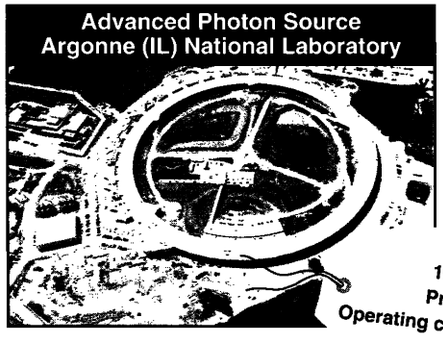
tember letter to lab directors from Krebs and two White House officials. It asked the directors to fill out a questionnaire on ways to boost efficiencies at a minimum cost. "Important DOE facilities, assets that represent an enormous investment for the taxpayer, often are not fully utilized," the letter noted. The directors recommended a total of $100 million to $200 million in additional operating funds for 1996 spread across dozens of facilities, Krebs said.

Adding a few million here and there to existing facilities may not seem like a big deal to a department with a $17.7-billion budget. But lab managers say that, in fact, small increases could result in big scientific payoffs. "A little bit of money can get you a lot," says Nicholas Samios, director of Brookhaven National Laboratory in Upton, New York. "For a few million dollars we can increase our [overall] efficiency by 50%." The reason for that staggering boost in efficiency is that it's very expensive to leave a big research facility unused. A highly trained staff must be paid even if the machine is idle, and the complex machinery requires expensive maintenance whether it's running or not.

The pinch isn't only being felt at older facilities. The new $146-million Advanced Light Source (ALS) at Lawrence Berkeley National Laboratory in California, which produces soft x-rays for research in electronics, materials, and pharmaceuticals, operates at only three-fifths capacity, says Brian Kincaid, who runs the facility. In addition, this year an $800,000 drop in the budget forced him to lay off 10 people. However, he says a $2-million boost in ALS's $22-million budget would let him run ALS for a full 5000 hours next year.

The blame game. When it comes to assigning responsibility for DOE's current fix, the fingers quickly start pointing. Krebs points hers at previous Administrations, which she says did not foresee the current funding squeeze. In response, Allan Bromley, dean of engineering at Yale University and former science adviser to President Bush, says no one could have anticipated the pressures on today's federal budget. "It wasn't at all clear when many of these projects started in the Reagan years that the funding would not be available," he says. "There was an unfortunate tendency to minimize operations costs," he adds, an attitude he says the Bush Administration tried to change. Another surprise was the end of the Cold War, which pulled the rug out from under DOE's justification for much of its research.

Laboratory managers point their fingers at DOE officials. "DOE should have taken this problem in hand and tried to fix the situation," complains Hermann Grunder, who directs CEBAF. "At the moment, all we have is pious words." Some of the lab managers think the White House interest is an implicit criticism of DOE management. "It's embarrassing to have the White House tell you to increase your budget request," says one lab manager, who requested anonymity.



Finger pointing is, of course, a political pastime in Washington, but regardless of whose fault it is, the problem of finding money for existing facilities while continuing to look for new scientific frontiers isn't going to disappear soon. And that inescapable reality is forcing lab officials to consider radical ways to tap nonfederal sources of funding.

For example, industrial users currently pay for time to conduct experiments on Berkeley's Advanced Photon Source. But David Moncton, who runs the facility, thinks his lab—for a fee—could instead provide industry with data. "Industry would rather have the data than the beam time anyway," he says.

But federal regulations make it difficult for labs to sell their services to industry. And Krebs says it is "unrealistic" to expect industry to fill the funding gap, in part because many DOE facilities are best suited for fundamental research with few short-term applications.

Of course, any White House or DOE initiative must win the support of Congress. And while there is sympathy for the plight of the labs on Capitol Hill, there is also doubt that DOE can distinguish between a mature program that is worth continuing and one that has outlived its scientific usefulness. "To these labs, there is no such thing as an obsolescent and inefficient facility," says one Senate aide. "We have got to shut some down to make room for new things." Krebs agrees the department must look carefully at its facilities—there are two panels reviewing the DOE labs—but points out that those results will not be ready in time to influence the 1996 budget request.

In the meantime, lab managers and Administration officials say the White House initiative puts Krebs in the difficult position of arguing for more funding for basic research at the same time DOE must tackle a multibillion-dollar environmental cleanup problem and increase its applied research activities, all within a shrinking budget. Some doubt she can succeed. "She is not strong enough to win the battle," predicts one administrator, while another says that "the real problem is that [Energy Secretary Hazel] O'Leary doesn't care." Still, DOE lab directors are hoping Krebs and the White House will prevail, and that a little more money will enable them to throw a lot more light on some important research questions.

–Andrew Lawler

PLANT BIOTECHNOLOGY

Lay U.K. Panel Savors Debate

LONDON—Scientists and academic institutions talk a lot about involving the public in science. But the results often amount to little more than talk. Recently, however, one funding body here—Britain's Biotechnology and Biological Sciences Research Council (BBSRC)—offered 16 members of the lay public a crash course in a controversial subject involving science—plant genetic engineering—in which they got to question the experts and then write their own report.

The 16-member panel, chosen from 350 applicants, came away with generally positive feelings about plant biotechnology. Fourteen of them, for example, said they would be willing to eat a genetically engineered tomato, which is not on sale in Britain. But they also had some sharp criticisms of the way genetically engineered products are developed and labeled. The results of this exercise suggest that the public, at least in Britain, is willing and able to grapple with the complex legal, economic, environmental, and social aspects of biotechnology research that most observers expect to change the face of agriculture in the 21st century.

"Before this conference, I didn't believe I had a right to an opinion," said Sheila Martin, a retired teacher from Paisley, Scotland, who was a member of the panel comprising the first U.K. National Consensus Conference on Plant Biotechnology, which issued a preliminary report* last week to close a 3-day conference at Regent's College. "Now I have one or two." That knowledge wasn't obtained overnight, however. "We've lived, slept, and breathed biotechnology for a few months," said panelist Berry Baker, a marketing consultant from Caterham, Surrey.

What Martin, Baker, and others were asked to do is immerse themselves in an im-

* Lay Panel Final Report on the UK National Consensus Conference available (end of November) from Imelda Topping, Science Museum, Exhibition Road, London, UK SW7 2DD.

portant and controversial issue and then provide the BBSRC—and the rest of Britain—with a summary of their thoughts. The volunteers, chosen to represent a cross section of society, spent two weekends this fall attending briefings on a range of issues, then conducted 2 days of public hearings with their own list of "experts." The final step, which took 12 hours overnight, was to write a report reflecting consensus on a handful of important issues.

"I wanted to assure [the public] that practicing scientists are not people who believe that knowledge is fixed," says Tom Blundell, the council's chief executive. "We welcome debate. ... As with any new technology, it's up to the public to decide [its value]."

In their report, the panelists discussed seven key issues relating to the worldwide impact of genetically modified organisms. In general, their comments reflect a positive view of the technology's potential to bring global benefits. But panelists weren't passive enthusiasts; they also pointed out areas that they think need work in the agricultural biotech industry.

The report highlights the need for "clear, meaningful labeling" of all genetically modified products. Many biotech companies are resisting compulsory labeling because they believe it only spreads fear about the products and would be interpreted the same way health warnings on cigarette packets are. The report also identifies several ways to improve the process through which the new organisms are developed, tested, and approved for use. It calls for new, international regulations, closer monitoring of field tests, and "regular and widespread monitoring of genetically engineered crops after licenses for general use have been issued." And it criticizes the current patenting procedures as "a risky and inadequate method of dealing with the issues ... [with] the goalposts being moved to the advantage of multinational companies and organizations in the private sector."

In considering the prospects for effective regulation, some panelists doubted whether legislators were up to the challenge of addressing their concerns. Panel member Florence Anderson, a nurse tutor from a London suburb, said the reaction from one politician confirmed her worst fears of what might take place in Parliament. "They'll listen, twist what you've said, and then bloody well ignore it," she huffed. Lakhbir Singh, a computer programmer from Birmingham, was more optimistic: "I'm hopeful we'll build up momentum that'll lead to things happening." In its report, the panel notes that its words "should not be the end of the exercise, but merely the beginning of a process which should lead to a better public understanding of science."

–Claire O'Brien

Claire O'Brien is a writer in Cambridge, U.K.

ITALIAN UNIVERSITIES

Corruption Scandal Reaches Academe

TRIESTE—The "clean hands" campaign orchestrated by Italy's anti-corruption magistrates continues to grip public imagination here—and it's now beginning to have an impact on science. Specifically under review are *concorsi*, the national competitions to appoint university professors in every discipline. Italian academics charge the competitions are not fairly run, and—backed by some recent legal decisions—they are demanding that the government clean up the system. And the government appears ready to act.

Some of these researchers made their complaints public last week during an open meeting at La Sapienza University in Rome. "This will be a war," says histologist Spiridione Garbisa of Padua University's medical faculty, who organized the meeting with Laura Calzà, a Modena physiologist. At the meeting, representatives from the Ministry for Universities and Scientific and Technological Research (MURST), the National University Council (CUN), which oversees the *concorsi*, and the academic community heard details of recent controversial decisions and debated ways to improve objectivity.

"We are now at the point where university chairs are inherited ... reward[ing] favorites and bootlickers."
—Mario Sanno

Under the *concorsi*, which are unique to Italy, vacancies for professorships are not advertised in journals. Instead, they are submitted to MURST, which every 4 or 5 years announces *concorsi* for several hundred disciplines, each with its own evaluation panel to judge applicants. The *concorsi* operate nationally, and winners are normally assigned to vacancies of their choice.

The panel's brief is to judge the "full scientific maturity" of applicants through examination of their scientific achievements, including publications. The lack of any other guidelines means that a candidate without practical experience could be appointed. According to pathologist Carlo Baroni of La Sapienza, the *concorso* system provides good results in many areas, such as the natural sciences and physics, in which Italian researchers frequently travel abroad and are familiar with other systems. "But in others, such as medicine, the situation is bad. And in the humanities it's even worse."

The irregularities in this system are now becoming public, as failed applicants become bolder at denouncing what they see as corrupt panels. In addition to charges of nepotism, critics say there is an unwritten rule to "save the local chair"—a bias in favor of local applicants over outside applicants. "While by law the *concorso* should be national, it is actually a local, family affair," says Garbisa. Mario Sanno of Chieti University's medical faculty agrees: "We are now at the point where university chairs are inherited ... a sort of exchange that rewards favorites and bootlickers."

These criticisms have been supported by some recent high-profile cases. Three *concorsi* from the 1992 round, in political economics, clinical oncology, and otorhinolaryngology, have recently been declared invalid by MURST, and their dozen or so appointments revoked. Many other *concorsi* in the same round are under investigation after irregularities were reported by the university council to the ministry. Some aggrieved candidates have begun their own legal actions, and the national press carries almost daily reports on the unfairness of the system. There is a bill now before the Parliament that would establish a commission to look into all appointments made by the *concorsi* since 1989. Its author, Senator Carla Mazzuca, predicts that the bill will become law this month.

The 70 or so delegates to the Rome meeting, from universities across the country, had no shortage of suggestions for improving the system. Their advice included mandatory consideration of the impact of an applicant's publications, requiring a specified minimum number of publications, and better vetting of panel members with inclusion of academics from abroad. There was also considerable support for a shift from centralized organization to recruitment by individual universities.

These proposals ended up this week on the desk of Stefano Podestà, Italy's minister for research and universities, until recently a university professor himself. Podestà's ministry has already expressed sympathy with the reform effort. "The system is far from straight," MURST spokesperson Roberto Alatri told *Science*.

Podestà has drawn up a bill that would reform the appointments system and academic ranks. But Podestà is reluctant to become known solely as a reformer. "I don't want to become the minister of the clean *concorso*," he has said publicly. However, as the nation continues to wash its dirty linen in public, he may soon be forced into that role.

–Susan Biggin

Susan Biggin is a writer in Trieste, Italy.