Scientists' Lobbying Wins a Review of Research Funding

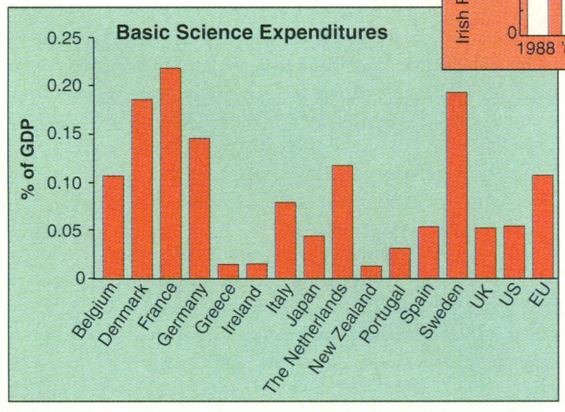
DUBLIN, IRELAND—Clinical scientist Garret FitzGerald thought he had found the ideal ticket back to his native Ireland in 1991, when University College Dublin and the city's Mater Hospital recruited him as chief of medicine to set up his own cardiac science center, amply funded by the Wellcome Trust. FitzGerald resigned from Vanderbilt University Medical Center and headed home, hoping "to give [something] back" to Ireland. But less than 3 years later, he was packing up again, this time to join the faculty at the University of Pennsylvania. Despite being well funded, he says he was frustrated by aspects of the climate for science in Ireland—especially the negative attitude toward research among some in medicine. "It was too difficult and unpleasant to get work done," he says."It would be the rare, courageous, and perhaps misguided investigator that would return at the peak of his or her career to an environment where there is no commitment to their career development."

FitzGerald is far from alone in his complaints. Despite an educational system that churns out hundreds of world-class science graduates every year, Ireland spends proportionately less on research than any other country in the European Union (EU). The result: A high-tech echo of the Irish tradition of mass emigration in search of greener employment pastures, with most Irish graduates who wish to pursue a scientific career doing so abroad. "For our best and brightest students, doing science means leaving the country," says physicist Mike Hopkins of Dublin City University. And of those who leave, "only 17% will ever return," he says.

Irish scientists have done more than complain, however. Over the past year, the newly formed Irish Research Scientists Association (IRSA), a lobbying group composed of more than 300 of the nation's 2000 research scientists, has conducted an unremitting public campaign that has made the paucity of research cash a subject for popular debate in the nation's newspapers. "For the time being, doing science in Ireland means that I have to lobby. So lobby I will," says Hopkins, IRSA's chairman. And the government is finally taking notice: Last winter it appointed an independent panel of industrial and research scientists to make recommendations for a new science strategy. As a result, Hopkins and his colleagues are now hoping that years of declining funding and government neglect will be reversed.

The panel, known as the Science, Technology and Innovation Advisory Council (STIAC), is due to submit its conclusions in the next few months. *Science* has obtained a preliminary draft of the report, and it will not be easy reading for the government. The draft notes that erratic and inadequate research funding, an ever-changing science funding organization, and a shift of resources from basic science to industrial research are driving talented young scientists abroad. In Ireland, the report states, "science is often, and incorrectly, considered as being obscure and set apart from mainstream economic activity." Based upon international comparisons, it adds, there's a strong case for increased government support.

One of STIAC's main criticisms concerns the government's constantly shifting management of science: Since the 1960s when Irish science was under the aegis of its own agency, the National Science Council, responsibility for research has been shuffled from one government body to another. The latest reincarnation came as recently as January, when the government merged research and industrial policy into a new agency called Forbairt, which absorbed the former science and technology agency, Eolas. Each agency shift placed greater emphasis on applied research, says IRSA's Hopkins, adding that, in Gaelic, "Eolas means knowledge. Forbairt rather tellingly means development."



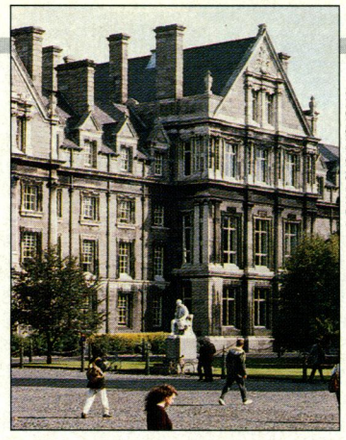
The case for more funds. Statistics presented to government commission by scientists' lobby show decline in new projects and Ireland's low international standing in the share of GDP spent on basic research.

While the government rearranged the bureaucracy, funding slumped. The Irish government claims to spend $1 billion annually on research, but Eugene Forde, secretary in the government's Office of Science and Technology in the Department of Enterprise and Employment, admits that "the number is controversial." The sum covers applied as well as fundamental research and also pays for the salaries and overhead of all Irish academics, much of whose time is spent teaching. In reality, notes the draft STIAC report, government funding for basic nonmedical research in Ireland is proportionally lower even than in the EU's poorest members, Portugal and Greece. Irish government spending on research and development dropped from 0.4% of the country's gross domestic product in 1982 to a low of 0.1% in 1993. And even these dismal figures, argue many Irish scientists, mask the worst problem: the government's failure to support its rising generation of young scientists, which is causing a hemorrhage of scientific talent to foreign labs.

In countries like Switzerland, Austria, and France, graduate students are paid as much as $15,000 a year to study for a Ph.D. But Ireland currently pays its Ph.D. students only $1600 a year—a sum that does not even cover tuition fees. "It is a real family sacrifice for a student to do a Ph.D. in Ireland," says physiologist Brian Harvey of University College Cork. And Forbairt recently announced that it intends to cut the number of doctoral studentships it funds from 180 to 120, forcing even more students overseas. "We must have a system that encourages people to stay," says John Kelly, chair of Trinity College Dublin's chemistry department.

The fact that many Irish scientists managed to continue working at all during the 1980s has a lot to do with the funding programs of the EU (*Science*, 6 November 1992, p. 884). The STIAC report shows that Brussels has increased its support to Irish researchers by more than a factor of seven since 1982 and now provides 64% of all direct science funding in Ireland—compared to an average of 4% over the union's 12 member nations. In addition, the Wellcome Trust, the United Kingdom's largest biomedical research foundation, provides about $10 million a year for science in Ireland. The survival of Irish science, claims geneticist David McConnell of Trinity College Dublin, "has little to do with the government. Basic research is here in spite of the government."

These trends have been a long time in the making. But what finally drove Irish scientists into action, and spurred the forma-



J. PAVLOVSKY/SYGMA

Center of excellence. Trinity College Dublin, one of Ireland's top research universities.

tion of IRSA, was a funding crisis that—even by recent Irish standards—can only be described as extreme. In May of last year, with its budget for basic science down to a mere $3 million, Eolas announced that it couldn't fund any new research projects. The government relented in August and gave Eolas $240,000 to launch some new projects, but by then IRSA's campaign against the government's "anti-science" attitude had gained momentum, forcing science onto the Irish political agenda.

A letter-writing campaign orchestrated by IRSA and targeting newspapers piqued the interest of the press, leading to news reports and editorials documenting the plight of Irish science. The government responded in September when Seamus Brennan, Minister for Commerce and Technology, announced that STIAC was to be formed to review science policy and make recommendations. Its report, due at the end of the year, will be the first comprehensive review of Irish science in more than 20 years. After it is submitted to Brennan, he is expected to produce a white paper, or policy document, outlining the government's future science strategy.

Although confident that the report will show the government that their complaints are justified, basic researchers are aware that there's no guarantee that any additional funding will end up in academic labs. Indeed, Ireland's main applied research lobby, the Industrial Research & Development Group (IR&DG), has begun its own media campaign to argue for continued emphasis on industrial research. "The chance of a huge breakthrough from a small economy like Ireland's is fairly slim," argues IR&DG's Dick Kavanagh. For that reason, he wants to see Ireland's spending on science focus on adapting current knowledge rather than hoping for homegrown innovation.

The government, which has already promised $154 million for industrial research over the next 6 years, is likely to be receptive. Indeed, since Ireland is currently suffering from a crippling 15% unemployment rate, it is widely expected that it will continue to emphasize research as a way of creating new jobs and increasing industrial competitiveness.

Hopkins and his IRSA colleagues are planning to keep up the pressure for basic research when they meet with STIAC this week. "We have a strong export-led economy, a well-educated and well-trained workforce. The only weakness is high unemployment and the fact that most of our best and brightest young people emigrate annually," he says. Pharmacologist John Donovan of University College Dublin agrees: Doing research in Ireland, he says, is "a little like driving a Ferrari in first gear. The driver will never know what it can do." Irish scientists are waiting to see if Brennan's white paper will provide a long-overdue shift of gear.

–Lisa Seachrist

Lisa Seachrist is a science writer with United Press International in Washington, D.C.

FRENCH SCIENCE

CNRS Head Orders a Brief Freeze

PARIS—The heads of the 1350 laboratories that make up the Centre National de la Recherche Scientifique (CNRS)—France's largest public research agency—got a nasty shock when they returned from their August holidays last week. On their desks was a letter from CNRS's new director-general, Guy Aubert, directing them to suspend all orders of supplies and equipment during the month of September.

Aubert said the freeze, which applies to research funded by CNRS and to contracts from other agencies administered through the organization, was prompted by the fact that the agency appears to be in the red. Some estimates have put the deficit at about $50 million. The problem, he said, is CNRS's incoherent accounting system, which authorizes its scientists to spend a certain amount of money each year but then does not guarantee that the funds are actually in the bank. Aubert indicated that the freeze is a temporary measure until he completes a review of this system.

Aubert, a physicist who earned high marks in his previous post as director of the prestigious Lyons Ecole Normale Supérieure, was appointed in July to replace immunologist François Kourilsky, who had been an outspoken advocate of increased research spending. His appointment was widely regarded as a sign that the government wanted somebody more in tune with the need to limit public expenditures. However, he insisted in the letter, and in an interview with *Science*, that the directive should not be seen as a harbinger of future cuts. Nevertheless, the announcement has sent tremors of dread through the ranks of CNRS scientists. "Some people around here are panicking," says Richard D'Ari, head of the microbiology department at the Jacques Monod Institute in Paris.

The threat of budget cuts "hangs like a sword of Damocles over our heads."

—Guy Aubert

Already, 8% of the 1994 French research budget has been withheld, with no indication as yet of if and when the funds will be released. And many researchers fear that the 1995 budget will contain more bad news. Aubert is trying to obtain additional funds to help wipe out his agency's deficit. But he acknowledges that the current pressure to control public spending means that the threat of cuts "hangs like a sword of Damocles over our heads."

That's particularly worrisome for small CNRS labs, many of which have not found funding from industry or other research agencies to supplement their CNRS income. And even those with alternative funding sources are worried about the future. "If they block the credits for a while, we can live with that," says Anne-Marie Duprat, director of the Center for Developmental Biology in Toulouse, which is run jointly by the city's university and CNRS, receiving only 30% of its funds from the research agency. "But if this is followed by cuts, that would be dramatic," she says.

In taking steps to get a handle on CNRS's finances, Aubert is doing what the conservative government hired him to do—and the reward, he hopes, will be that CNRS escapes the harshest of the government's austerity measures. As for his future plans, leading French scientists speculate that Aubert will next turn his attention to what is widely seen as an imbalance in the organization's spending: 76% of its $2.2-billion budget is eaten up by salaries, squeezing funds for research. For now, Aubert declines to discuss his plans in detail, but CNRS scientists can expect changes ahead. He promises "a quite significant reorganization" of the way CNRS conducts its research. "I didn't come here to stand by the door and hold the keys."

–Michael Balter

Michael Balter is a science writer in Paris.