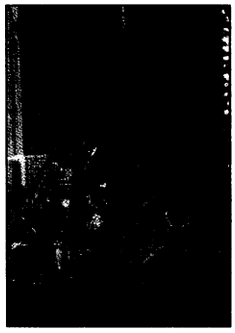
FRENCH SCIENCE

CNRS Unveils New Blueprint

PARIS—Physicist Catherine Bréchignac has kept a low profile since July, when she became director-general of France's largest research organization, the Centre National de la Recherche Scientifique (CNRS). But last week she finally went public, unveiling a blueprint for CNRS's rejuvenation that she had prepared quietly over the past 3 months. At a packed press conference—followed by champagne and eclairs—Bréchignac introduced her new team of scientific directors and her plans to reorganize spending priorities at the agency. Bréchignac said she aims to reverse the recent decline in support for basic research and restore the morale of CNRS researchers: "We are going to give priority to the laboratories and to scientific employment."



ERIC LEGOUHY/CNRS

Going public. CNRS chief Bréchignac.

Bréchignac's plans may not be revolutionary. But they do promise some quick benefits, particularly for junior scientists. The CNRS plans to hire 297 young researchers in 1998 and an additional 250 each year thereafter, ending a hiring freeze enacted by the previous conservative government. And CNRS laboratories will see an overall increase of 2% to 3% in their basic operating subsidies. This might not seem much, but it will be welcome to scientists who have endured a series of brutal budget cuts over the past several years. "We haven't had enough money to run our laboratories," says Nicole Le Douarin, director of the Institute of Cellular and Molecular Embryology in Nogent-sur-Marne, outside Paris. Moreover, Bréchignac said, the most productive labs will do better if they pass muster in a rigorous scientific evaluation she intends to put into place: "Some laboratories will get a sharp increase in funds, while others will remain the same or be diminished."

Bréchignac will have to perform delicate surgery, for CNRS's current budget of $2.45 billion will not grow in 1998 if inflation is taken into account. Major sacrifices may be required among the largest installations, which now absorb about 22% of the agency's research budget. For example, the aging Saturne proton accelerator at Saclay, outside Paris, is already slated to be shut down at the end of this year, and other installations will come under scrutiny. As young scientists are recruited, CNRS will need to guard against further bloating its huge payroll, which soaks up about 80% of the budget. To slim it down, Bréchignac is examining ways of speeding senior scientists into retirement.

Turnover is occurring at the highest levels of CNRS as well. Of the seven scientific department directors Bréchignac introduced at the press conference, three are newly appointed. One of the new faces is cancer researcher Jacques Samarut, who on 31 October will leave his position as director of the Laboratory of Molecular and Cellular Biology in Lyons to replace Pierre Tambourin as head of the CNRS's life sciences department. Bréchignac and Tambourin reportedly have not always seen eye to eye (*Science*, 1 August, p. 627), and researchers are eager to see what changes Samarut might make in the department, which encompasses 25% of CNRS's 11,600 researchers.

In an interview, Samarut said one of his priorities is to boost research at several newly constructed research institutes outside Paris, which he says have been underfinanced during the recent budget crisis. He also intends to lobby the agency to allocate more money to laboratory science, which has become increasingly dependent on outside contracts. "The researchers spend way too much time looking for money," Samarut says. "In my unit [in Lyons], 65% of the budget comes from outside contracts" from 17 sources, he says. "We must increase the percentage of CNRS's contribution to the labs."

But while the new CNRS chief clearly shares this ambition, she seems resigned to working within budget constraints that are unlikely to loosen anytime soon. Says Bréchignac: "We cannot do all the research we would like to do."

–Michael Balter

FUNDING

Canada's Cuts Anger Neuroscientists

OTTAWA—When the Canadian government announced earlier this month that it will ax three multicampus research collaborations it has been funding for the past 8 years, it touched off an angry reaction from neuroscientists around the world. They are upset that the highly respected NeuroSciences Network—a $3.3-million-a-year collaboration based at McGill University—was among the victims, in spite of the fact that an international peer-review panel gave it a strong endorsement earlier this year. Members of the panel say they are "insulted" and "appalled" by the decision, and add that they just can't fathom how the committee that recommended NeuroSciences' demise reached the conclusion that its scientific program was somehow "compromised" and "uneven."

The NeuroSciences Network is one of 10 collaborations currently funded by Canada's Networks of Centres of Excellence (NCE) program, which links research groups at several different universities in joint projects with industry. The NCE program, launched in 1989, won an endorsement from the Canadian government earlier this year when it was given a permanent spot in the budget (*Science*, 14 February, p. 922). With $70 million assured for the next 4 years, Canada's research councils, which provide the bulk of the funding, launched a competition for continued support. NeuroSciences and two others failed to pass muster.

The cuts were recommended by a 14-member selection committee—composed of communications consultants, financial advisers, business leaders, academic administrators, and scientists—chaired by Acadia University President Kelvin Ogilvie. The committee concluded that NeuroSciences' scientific program was "uneven in quality—ranging from outstanding research projects that are clearly internationally competitive to others of lesser quality." The final report also raised concerns about NeuroSciences' management, noting that several projects were "abandoned in midstream without clear explanations," leading to "instability" that could be detrimental to graduate training.

Those conclusions came as a big surprise to members of a distinguished panel that reviewed NeuroSciences for the Ogilvie committee during a 2-day site visit last June. University College of London neuroscientist and Royal Society fellow Raymond Lund, who headed the eight-member panel, said he and his colleagues called it a "model" network and believe it has given Canada a "world profile in this area" while aiding biotechnology and conducting first-rate research. The Lund report urged that NeuroSciences be continued.

Lund considers it "bizarre" that the selection committee ignored a positive, comprehensive report by "hard-nosed" peers. The network's accomplishments, he says, include pioneering work by scientific leader Albert Aguayo on getting "networks of cells in the brain to regenerate their connections using peripheral nerve grafts in the central nervous system." And he says the panel viewed the network's ability to shift gears and discontinue scientific dead ends as a sign of strength and

fiscal prudence, not mismanagement.

Fellow panel member and Stanford neurobiologist Eric Shooter says NeuroSciences' ability to overcome geographical obstacles and integrate competitive scientists into a single unit is a monumental achievement: "We can't do it [in the United States]. There are too many egos involved." Shooter and Lund both questioned whether the selection committee had sufficient expertise to judge neuroscience research. Says Shooter: "My thesis is that something has gone terribly wrong," for the outcome is "beyond my comprehension."

Although unwilling to discuss the NeuroSciences application in detail, Ogilvie says the selection committee based its recommendation on the quality of the science and stands squarely behind "the clarity of its decisions." He adds that his committee was "entirely competent" to assess projects across a wide range of disciplines. Natural Sciences and Engineering Research Council President Thomas Brzustowski, who heads the body that oversees the NCE program, says the two panels looked at the network from different perspectives. "The experts embedded themselves in the science," while the selection committee measured its performance against five criteria: scientific excellence; training; networking and partnerships; knowledge exchange and technology exploitation; and management.

Aguayo and NeuroSciences Chair David Johnston, former principal of McGill University, say the network will attempt to survive by finding alternative sources of funding, primarily in industry. Asked whether the harsh selection committee report will prove a barrier to generating external revenues, NeuroSciences manager Lewis Slotin notes: "We have to test it. We think there's a cloud. We're not sure how thick it is."

–Wayne Kondro

Wayne Kondro is a science writer in Ottawa.

BIOETHICS

First Dolly, Now Headless Tadpoles

The hammer blow delivered to the popular imagination in February when scientists at the Roslin Institute in Edinburgh revealed that they had "cloned" an adult sheep by transferring one of its cell nuclei to an egg continues to reverberate, its echoes tracing public feelings about biological novelties. The latest aftershock came on Sunday, 19 October, when the *Sunday Times*, Britain's best-selling broadsheet Sunday paper, ran a front-page headline about headless frogs. The scientist who created these hapless creatures (actually, tadpoles) while studying developmental genes had speculated about their practical use. Sometime in the future, he said, organs grown through nuclear transfer, followed by strict control of developmental pathways, might provide compatible transplant material for people who otherwise could not get organs.


THE SUNDAY TIMES

REVEALING GALLIANO

ALLERGY ALERT

Headless frog opens way for human organ factory


UNIVERSITY OF BATH

No brainer. A *Sunday Times* story on headless tadpoles *(right)* kicked off a furor over organ factories.

This set off a spirited discussion of the ethics of creating brainless humans for medical purposes. In the brief but intense media splash, ethicists were quoted saying that the whole idea was deplorable. It treated lives as means and not ends, they said—a view shared by some embryologists. On the other side, Lewis Wolpert, a developmental biologist who chairs the Royal Society's Committee on the Public Understanding of Science (COPUS), reiterated his view that there are no interesting moral problems at all raised by cloning organs. If the donor is never sentient to begin with, he asked, what could be the harm?

To some, the furor reeked of hype and sensationalism. Perhaps. But it was also an instance of exactly what august bodies like COPUS are always calling for: public debate. The scientist in question was the widely respected developmental biologist Jonathan Slack, a professor at the University of Bath. His current research, in the frog *Xenopus laevis*, builds on what has been learned in other animals about the ability of homeobox genes to control development along the long axis of the animal. As he says, "There's absolutely nothing special about our work compared with work in many other laboratories."

Slack mentioned it and its possible long-term applications to a BBC documentary crew preparing a film about Dolly and the age of cloning. Clones as sources of spare parts are one of the constant motifs of post-Dolly debate; anencephalic clones have been a staple of science fiction since Robert Heinlein's *Time Enough for Love* almost a quarter-century ago.

Writers on the *Sunday Times* saw a preview video of the BBC documentary, which aired the following Thursday, and recognized the idea's interest. "A reporter ... called me up, and then on Sunday I was surprised to see the story at the top of the front page under a sensational headline about headless frogs, although it was mostly a long story about Dolly," Slack says. "Since Sunday afternoon I've been overwhelmed with calls from the media around the world." Slack's university quickly put out an informative press release (www.bath.ac.uk/Slack/).

Did the *Sunday Times* blow the story out of proportion? No, says Tom Wilkie, a veteran science journalist who now heads the biomedical ethics section at the Wellcome Trust in London, and who has been quite willing to criticize his former colleagues when he thinks they deserve it: "Rightly or wrongly, the wider public has been sensitized to these issues in the aftermath of Dolly; in highlighting the research, the press is responding to a sensitivity that its readers already have." The unease many scientists feel over such reporting, he says, reflects a lack of comprehension of how the media work to serve the readers' interests: "The responsibility of newspaper editors is not to the producers [of knowledge] but to the consumers."

Whether the technologies that have stirred public fears will ever become a reality is hard to say. PPL Therapeutics, the company that has licensed the technique from Roslin to produce transgenic animals, plans to engineer and clone pigs as donors for xenotransplants. Cloning to produce human organs alone—but not people—might, as Slack suggests, be an alternative, but there is as yet no real understanding of how it might be done. At the same time, noncloning technologies might do just as well. Marilyn Monk of the Institute of Child Health in London points out that if embryos were grown for a short while in vitro so that these cells might be removed and frozen, they could be turned into organs at a later date using developmental controls like those Slack envisages. But again, no one knows how to do it.

As for Slack's tadpoles, British animal welfare rules required that they be destroyed within a week of their creation. Their moment in the media was equally ephemeral, as was the din over the prospect of headless organ donors.

–Oliver Morton,
with reporting by Nigel Williams

Oliver Morton is a writer in Greenwich, U.K.