FRANCE

French Government Tries Decentralizing Excellence

PARIS AND LYONS—Until 5 years ago, soft matter physicist Patrick Oswald had made all the right career moves. He attended the ultra-elite Ecole Polytechnique in Paris, then got his doctorate at the high-powered physics labs of the University of Paris, in the suburb of Orsay. And after he landed a coveted position with the Centre National de la Recherche Scientifique (CNRS)—the huge French research organization that is Europe's largest agency for basic research—he could have stayed comfortably in Paris for the rest of his career. Yet in 1988, Oswald left the capital for Lyons, a city that even he admits is "a bit of a scientific desert in physics."

In science as in most walks of life, France is dominated by its glamorous capital city—and many would have classed Oswald's defection to Lyons as professional suicide. But in fact, Oswald was at the forefront of a drive toward decentralization that has emerged as one of the main planks of French government science policy. Paris is one of the most concentrated enclaves of scientific firepower in the world, with a glittering array of world-class research labs. But senior research administrators are worried that Parisian science is showing signs of stagnation. Already, says immunologist François Kourilsky, director-general of CNRS, the publication rate of Parisian scientists has fallen below the national average. To combat that trend, researchers are being urged to forsake the capital for a rash of new regional centers opening up all over the country. And while all French science agencies and the university system have been encouraged by the government to decentralize, it's CNRS that has taken up the torch most enthusiastically.

If Kourilsky and his allies really are to loosen the capital's hold over French science, however, they face a lot of hard work. The Ile de France region—as Paris and its surrounding suburbs are called—is home to only 19% of the French population, but it currently hosts more than half of the 11,000 scientists employed by CNRS. And it's a similar story in the universities: The downtown Jussieu campus of the University of Paris, for instance, harbors about as many researchers as the entire region of Alsace, near the German border. Says Kourilsky: "The link between research and teaching is very important, but the research concentration in Paris makes it difficult for universities in other regions to provide a full offering of courses in every field."

But while Kourilsky makes a convincing case for decentralization, persuading researchers to forgo the joys of life in the capital hasn't been easy. "Scientists in France are basically very conservative. They don't like to move," says developmental biologist Christo Goridis of the Marseilles-Luminy Center for Immunology, an institute that's often cited as a successful early example of decentralization (see box). In January, Goridis will become director of a new developmental biology institute in Marseilles. Yet only three of the 57 scientists joining the center are coming from the Paris region—the rest are moving from other parts of France or elsewhere in Europe.

SERGE DETALLE/CNRS-PHOTOTHÈQUE

Outgoing revolution. François Kourilsky leads the march from Paris.

And a brief survey of scientists who have abandoned Paris for the provinces reveals a mixed set of views. When Oswald joined the then newly opened Ecole Normale Supérieure (ENS) in Lyons—one of the so-called Grandes Ecoles responsible for educating France's intellectual elite—he found his new environment refreshingly free from the usual rigid French hierarchy. It's common for a nominally independent researcher to remain "more or less the student of his old boss," Oswald explains. But in Lyons, he was free to carve out his own niche. The downside, however, is that he's no longer in daily contact with a crowd of physicists who share his interest in liquid crystals. "I find myself very isolated," Oswald admits.

Theoretician Jean-Pierre Hansen, who heads the physics lab at the Lyons ENS, also misses the benefits of being in the French physics mainstream. "If a physicist from the United States has a sabbatical and wants to come to Europe," says Hansen, "his natural choice would be to go to Paris before Lyons." Nevertheless, in the European context, magnetic field physicist Guy Aubert, director of the Lyons ENS, believes that decentralization will foster international collaboration. "A key element of life in the future Europe will be big cities, big concentrations—Frankfurt, Barcelona, the Lyons-Grenoble area," he explains. "These areas can connect with each other directly, without going through Paris."

For most researchers who've come to the provinces, however, the prospect of an emerging "Europe of the regions" had little influence on their decision to leave the capital. "When I moved from Paris, I doubled the size of my apartment," says Hansen. Neurobiologist Michel Imbert, meanwhile, jumped at the opportunity to return to his hometown of Toulouse when he was asked to create a new center for brain and cognition research, slated to open in the fall at the Paul Sabatier University in that city. And for 59-year-old Francis Galibert, a molecular biologist at the St. Louis Hospital in Paris who's only 6 years away from the mandatory CNRS retirement age, decentralization provided a chance to finish his scientific career with a fresh challenge: organizing a new molecular biology center in Rennes, the capital of Britanny.

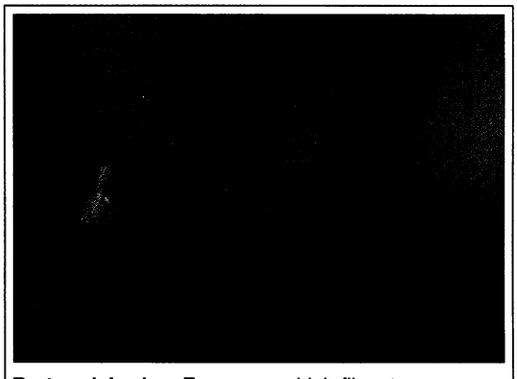
The problem for government science officials is how to convert the trickle of researchers leaving Paris for a variety of personal reasons into a steady flow. So far, they've relied on a mixture of sweet talk and financial inducements. CNRS, for example, will give any scientist who leaves Paris a generous package of bonuses and moving allowances and will even help find work for his or her spouse. But most science administrators accept that it's hard to force the pace of decentralization without introducing an element of compulsion to budge scientists from their Parisian nests. Indeed, former prime minister Edith Cresson tried to do just that a couple of years ago, but fearing a backlash from the scientific community, her research minister, Hubert Curien, soon neutralized the effort.

Nevertheless, CNRS has recently mandated that two-thirds of all new appointments must be outside the Ile de France. The policy is making a lot of Parisian lab directors very nervous—as they fear that it's going to be difficult to recruit young researchers. But to CNRS officials, it's necessary to meet their target of having 60% of the agency's scientists based outside of the Paris region by the end of the decade.

Ultimately, however, the success of decentralization will probably rest on the quality of the new labs being established in most major French provincial cities. "Scientists want to go where there is good science," says

Immunology Powerhouse in the Marseilles Hills

MARSEILLES—This city is better known for its seafood and gang warfare than as a sanctuary for science. But 10 miles to the southeast, on a craggy limestone hill between the mountains and the sea, lies a science park called Luminy, where an impressive array of research centers and biotech companies has, over the past 15 years, quietly sprouted among the umbrella pines. Heading the pack is the Marseilles-Luminy Center for Immunology (CIML), one of Europe's leading institutes in its field, and certainly one of France's most successful examples of scientific decentralization.



Bertrand Jordan. Encourages high-fliers to move on.

Immunologist François Kourilsky—who founded the center in 1975 with biochemist Michel Fougereau—admits that Marseilles seemed like "the end of the world" in those days, viewed from his university lab in Paris. But when 2000 square meters of space became available at Luminy, he saw an ideal opportunity to bring many of the country's small immunology groups under one roof. And once he'd secured government funding for the project, he set about persuading a dozen scientists, mostly from Paris, to pack their bags and set up shop in the south.

They took some convincing. Back in the mid-1970s, there was scant enthusiasm among the Parisian scientific elite for the idea of establishing strong regional science centers. Yet today, few would doubt that Kourilsky's hope of giving France a "southern pole of immunological excellence" has been more than fulfilled. Indeed, CIML is one of the world's major sources of monoclonal antibodies and a world leader in T cell recognition mechanisms. It was also the first center to clone and sequence a human major histocompatibility complex gene, and one of the first in France to master gene knockout technology.

"CIML is without doubt a national and international success," says cellular immunologist Antonio Lanzavecchia of the Basel Institute for Immunology. And Kourilsky, who now heads the Centre National de la Recherche Scientifique, France's major agency for basic research, attributes this achievement in part to a decision to break with the "immobile, Napoleonic" traditions of most French institutes. CIML, he says, is run to a game plan designed to foster "a continuous pioneering spirit...scientific freedom... and, above all, mobility." The ingredients? Small research groups—10 members maximum; young team leaders; a directorship that passes on every 4 years; and a common pot of money for equipment. "You've got to have a socialist bent to get on here," says British immunologist Quentin Sattantau, who came to CIML in 1990 to work on HIV. "But the system does seem to work."

Perhaps most important, says molecular biologist and former CIML director Bertrand Jordan, is the center's high staff turnover. "To keep up with science," he says, "and keep new blood coming in...we've kept a policy of disbanding unproductive groups." Ambitious group leaders are also encouraged to go and do their own thing elsewhere after a few years at the center, which explains why only two of the current 15 groups were part of the original set-up. Indeed, 29 have been formed since 1975—a statistic that few French institutes can match.

But that's not all that separates CIML from "the typical, self-centered French institution," according to director-elect Bernard Malissen: Being in Marseilles, he says, has encouraged a much more international outlook than is usual in France. "Paris is such a hub of scientific activity that researchers there don't have to look elsewhere for scientific stimulation. Here, we have to be European—worldwide, in fact—or we die." Fully one-third of the center's team leaders have come from abroad, Malissen notes. The scientific isolation of Marseilles has its drawbacks, of course: Cellular immunologist Jean Davoust, for instance, complains about the paucity of skilled labor to maintain equipment like the confocal microscope that the IML acquired recently. But the government's official push toward decentralization should help, as new research facilities come to the area.

For many researchers, though, it was the quality of life in the south of France that weighed most heavily in their decision to come to CIML. Malissen counts himself lucky to live both in a pastoral setting and within a few minutes of his lab—an impossibility for most Parisian scientists, forced by high housing costs in the city center to live in the outer suburbs. He had feared, though, that Marseilles' unsavory reputation would make it hard to recruit postdocs and foreigners. But aside from the difficulty in finding jobs for spouses in an area with almost twice the national unemployment rate, "we've had no problem attracting young scientists here," says Malissen.

Indeed, developmental biologist Nadine Peyrieras, who moved down from Paris a year ago, says she "was pleasantly surprised to find Marseilles such a beautiful place and no more dangerous than Paris." She adds quickly: "Don't tell the Parisians that. They'd just flood down if they knew what the place is really like."

–John Maurice

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molecular biologist Pierre Chambon, director of the Laboratory of Eukaryotic Molecular Genetics in Strasbourg, who later this year will move to a new Institute of Biology and Molecular and Cellular Genetics in the Strasbourg suburb of Illkirch. That institute is just one of about 20 major new regional labs approved last year that are intended to become world-class centers. But if that is to happen, Chambon warns, it can't be done on a shoestring budget: "The question is whether [we] have the necessary funds at a time when the research budget is stagnating."

Indeed, all eyes are now on François Fillon, research minister in the new French conservative government that has promised to slash public spending. The 1994 research budget, announced last month, will be a mixed bag—although overall funding for science will remain roughly the same, money for new projects will be cut by almost 9%. If Fillon can somehow find enough money to ensure that the reduction of Parisian science is countered by the necessary investment in the new regional centers, then most French researchers are happy for the drive toward decentralization to continue. But if he can't, they would rather he apply the brakes on the policy, at least for now. "It would be silly to destroy what we have in Paris," says Chambon.

–Michael Balter

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