through this issue," Miers of NIH says.

Special difficulties might be created when a department or university appoints an internal panel—rather than an outside group—to examine a suspected incident of misconduct. If the accused is exonerated, should the investigation stop there, with NIH left permanently out of the picture? Rasmussen says, "I regret that we didn't expand the [investigating] committee to have included more scientists, including several outside the department." But even now he is unsure whether scientists from outside UCLA should have been asked to investigate.

Rasmussen says that UCLA officials have begun to discuss the issue of notification and may soon form a policy providing guidance for the faculty on the issue. The problem does not lie at a single campus, however, and the results of the work by the NIH ad hoc committee will be eagerly awaited at many universities.—MARJORIE SUN

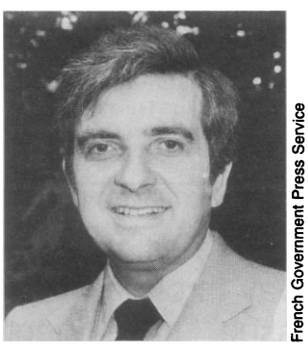
# France Readies New Research Law

## *Plan is to increase government funds, involvement in R & D; Japan is model, immediate problem is assuring resources*

*Paris.* President François Mitterrand is counting on an impressive commitment of resources to science and technology to help propel France out of the economic doldrums and to give his country's high technology industry a competitive future in world markets. Politically, the strategy is vital to his socialist party's bid to establish itself as a solid alternative to the parties of the Center and Right that have dominated French politics.

The most obvious threat to the strategy is the growing budget deficit that is raising doubts that the government will be able to muster the resources to carry through its R & D program. Some French scientists are also concerned that expectations raised by the government program may be unrealistically high and that projected reforms may prove to be a source of serious conflict.

The major aims of the government's plan for science and technology are embodied in a new research law which was given the crucial go-ahead by the council of ministers at the end of March and is expected to be passed by parliament by this summer. The law commits the government to a 5-year program of increases in the science budget including a pledge to raise R & D expenditures from less than 2 percent of the gross national product last year to 2.5 percent of the GNP by 1985. In the same period, spending on civil research is to expand at the rate of 17.8 percent a year in constant francs (the rate of increase for basic research would be 13 percent). The number of government science and technology posts would be augmented at the rate of 4.5 percent a year. The government has much less direct control of industry R & D, but a goal of increasing investment in such R & D would be set at 10 percent a year.



French Government Press Service

***M. Chevènement***

In addition to these specific targets the law sets out a number of more general objectives aimed at creating a new national framework for research by promoting improved interactions among industry, government laboratories, and universities. Strong efforts will also be made to make the French more conscious of the importance of science and technology in their lives and to involve them in decisions on science and technology.

Prospects for full funding of the R & D program hinge on difficult budget decisions. Because of lagging revenues and high social service costs caused by the recession, the government has imposed an across-the-board "freeze" of 20 to 25 percent on departmental spending for the current year. The freeze will be reviewed this summer, but if the cutback is allowed to stand for the science budget, the R & D initiative will obviously suffer.

The odds for favorable treatment of science and technology appear good, however. Mitterrand himself has given the R & D plan a high priority and the post of minister of research and technology is occupied by perhaps the most influential younger politician in the socialist ranks, Jean Pierre Chevènement. The leader of the left wing of the socialist party, he is close to Mitterrand and is viewed as a possible future prime minister or president. Chevènement's credentials for the science post are strengthened by his experience in parliament as rapporteur for the research committee.

Chevènement has the advantage over recent predecessors in the science post of enjoying full ministerial rank. Probably more important, he gained budget authority over research agencies previously administered by other departments. He has direct control over CNRS (Centre Nationale de la Recherche Scientifique), which resembles the U.S. National Science Foundation in being the chief sponsor of basic research but also operates a network of major laboratories of its own. The research minister now also has authority over the research budget of the atomic energy commission (CEA) and oversees the medical, space, and oceans research budgets.

If Chevènement's position is stronger, the policies he oversees are not entirely novel. The Mitterrand government's measures for galvanizing French science and technology bear marked resemblances to those of the de Gaulle government of the middle 1960's which reorganized French science with the aim, in part, of narrowing the so-called technology gap with the United States. Chevènement, in fact, stresses the theme of "independence" familiar in the Gaullist era, although the overtones of de Gaullian *gloire* have been replaced by a socialist stress on modernization of French industry and society. Another seeming echo of de Gaulle is Chevènement's directive that scientists publish their results in French and show greater fidelity to French as a scientific language at technical meetings in France and elsewhere. The minister's argument is that the use of French is essential to diffuse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understanding of science and technology among the French people at large. The current government has also moved back toward a reliance on planning which had been popular in France in the *dirigiste* days of the 1950's and 1960's. Conservative governments of the 1970's had sought to lean less on *Le Plan* and more on the working of market forces.

In designating fields to receive special emphasis (*programmes mobilizateurs*) the government also appears to be taking a page from the Gaullist book. Then the fields judged to be of national importance included computers and space. The first to be identified this time are biotechnology, electronics, energy conservation, and research on employment problems and working conditions.

It would be misleading to say simply that the more French science policy changes, the more it stays the same. The new research law (*loi de programmation et d'orientation*) not only sets budget and manpower targets for the next 5 years but it also includes a set of principles and instructions (orientations) under which the science establishment is to operate.

Some of these aims were enunciated by Mitterrand during last year's election campaign. An increased commitment to cooperation in science and technology with less developed countries was one. But the details of the law were drawn from the so-called "states general" of science and technology. This was the national colloquium held in January that was a culmination of months of committee efforts and regional conferences designed to elicit ideas and build a consensus for change in science and technology. Pierre Papon, a professor of physics at the University of Paris and an adviser to Chevènement, emphasizes that the orientations are regarded as just as important as the budget proposals (see box).

The new law also reflects the socialists' commitment to democratization of decision-making in science and technology as well as in other spheres. With CNRS, the focus is now on its unique national committee, a kind of parliament with 1000 members, two-thirds of them elected as representatives from sections of CNRS. CNRS unions, dominated by technicians and, to a degree, young researchers, are insisting that only those accredited by the unions be eligible for the elective slots. Chevènement, on principle, is disposed to see the power of the national committee increased, but so far he has trod carefully, urging increased union participation, but not a kind of electoral closed shop.

Among French intellectuals, including scientists, the center of political gravity is well to the left. Tensions have been chronic in France between science administrators and senior researchers on the one hand, and unionized technicians and junior researchers on the other. When conservative governments have been in office, ideological differences have sharpened the edge of labor-management issues. Now, the assumption that a government of the Left would have the advantage in working for common objectives with its union supporters is being tested. So far, despite some rumblings, comity has been maintained. But some observers think that differences over what democratization implies could be divisive and, under prevailing economic pressures, the dialogue could even degenerate into an old-style conflict over power and pay.

Another issue for the government is the demand of CNRS researchers for civil service status, which university staff now enjoy. French attitudes on the subject cannot be understood in Anglo-Saxon categories. As one French staff member of the intergovernmental Organization for Economic Cooperation and Development in Paris put it, "Every Frenchman's ideal is to be a civil servant." It is not only security that such status offers, but social recognition and professional prestige.

The French view of nationalization also differs from the standard American and British ones, namely in expecting that nationalized firms such as Renault, the automaker, should be profitable. The socialists recently nationalized a group of major financial institutions and manufacturing companies, including high

## Reorienting CNRS

What the government has in mind in the way of new orientations is illustrated by the changes planned for the Centre National de la Recherche Scientifique (CNRS). The big national research organization is responsible for perhaps 80 percent of the basic research performed in France and has a staff of some 23,000, about 9,000 of them researchers. CNRS and other government research agencies are to be given additional missions, says Professor Pierre Papon, who was centrally involved in collating the results of the national colloquium and translating them into the research law. Besides a continuing responsibility for advancing knowledge through fundamental research, CNRS will take greater responsibility for what the French call "valorization of research," which combines elements of applied research, technology transfer, and innovation in American usage. Papon suggests that "transfer of scientific knowledge to the economy at large" conveys the French meaning.

CNRS will be called on to do a better job in diffusing scientific information to the public, including the popularization of science. Chevènement is strongly concerned about the problem of "the reconciliation between science and culture in France" says Papon, and sees this function as highly important.

CNRS will also be expected to accept increased responsibility for the training of science and engineering manpower. CNRS, historically, has been detached from graduate education and research training.

If CNRS is to accomplish its new missions a major reorganization is obviously required; in fact, one is under way. To succeed in its new task of "valorization," the organization needs much more flexibility. The proposed research law enables CNRS to enter joint ventures with private industry to develop discoveries or to pursue new lines of applied research as in biotechnology. Until now, the rules have been so rigid that such ventures have been largely precluded, although some entrepreneurial professors have successfully ignored the letter of the law.

The statute will also allow CNRS to create new entities called establishments of a scientific and technical character (EPCST) that will allow researchers pursuing commercialization of research to make decisions on use of government funds with a freedom not before permitted. Papon concedes that, inevitably, the new category will give rise to a "big fight with the ministry of the budget" over accountability.

A new mode of association will be open to scientific agencies that wish to cooperate with each other on projects in the public interest rather than for commercial ends. The law now thwarts such cooperation.—JW

technology firms. Among them are the French General Electric company; Thompson-CSF, the country's biggest electronics firm; Rhone-Poulenc (chemicals and textiles) and Saint Gobain (electronics and glass); and, in a particularly French seminationalization, the Matra group (military equipment and publishing) and Dassault-Breguet (arms and military aircraft). The new wave of nationalizations is ascribed to a socialist distaste for large corporations, particularly multinationals, but also to a conviction that French private enterprise has invested too little in R & D.

The newly nationalized Thompson-CSF, which now constitutes about half the French electronics industry, is expected to be the focus of government "mobilization" in behalf of electronics. In the computer field, a new agreement with American Honeywell opens the way to nationalization of the French CII-Honeywell Bull, a computer firm with a long and complicated history of French-American collaboration. Under the proposed deal, Honeywell of Minneapolis would reduce its share in the firm to 19.9 percent from 47 percent. CII-HB would gain operating independence, but would continue to cooperate with the U.S. firm in research and commercial matters.

The socialists are determined to develop their own style of directing government aid and influence to industry. They now seem to favor the Japanese over the American model. In a visit to Japan in mid-April the French president made it clear that his government sees Japan as a model of economic success for France to emulate and the two countries as potential close partners. Chevènement also expressed confidence that France and Japan were on the way to "exemplary cooperation" but added the qualification that "we need to study Japan and adapt their methods to our society and culture and to the model of development France has chosen." Despite their proverbial politeness, however, it was not clear that the Japanese are quite ready to accept the French as their technological equals.

Considering France's achievements in basic science, nuclear industry, aerospace, and telecommunications technology, French high technology aspirations can hardly be dismissed. Perhaps the most serious problem facing the French is the persisting gap between the universities where academic research is concentrated, and the elite *grandes écoles* that produce engineers and managers. This discontinuity will be discussed in another article. The immediate question, however, is whether the Mitterrand government will be able to provide the time and resources to give its ambitious agenda for science and technology a chance.—JOHN WALSH

# Slave Labor on Campus: The Unpaid Postdoc

## *Most academics are hard pressed these days, not least of all the second-class citizens known as postdocs*

*Dear (deleted):*

*I am pleased to be able to follow up our phone conversations of the past week and formally offer you a postdoctoral fellowship in the Department of (deleted) at the Children's Hospital Medical Center. This fellowship will additionally carry an appointment as a postdoctoral fellow with the Harvard Medical School. . . .*

*My associates and I are quite positive you would find this postdoctoral year a valuable experience. In addition to our own computerized laboratory, we have access to a number of clinical populations within the hospital. The position will require your participation in ongoing clinical and research activities of our program. . . .*

*Should you wish to accept our offer I will require a letter stating your intention to accept under the terms offered. . . .*

*I look forward to receiving your letter and hopefully to having you as a colleague in the upcoming academic year. I hope you will be able to accept as I feel next year will be one of exceptional opportunity for us here. . . .*

This missive was recently received by a postdoc at a major Midwestern university who was looking for a new appointment. What makes the letter unusual is that the fellowship, contrary to usual practice, would have been a post without pay.

Just how many individuals take up such an offer is impossible to estimate. Unpaid postdocs have not been the subject of systematic study by learned academies, and, if recent interviews are an indication, they prefer to remain anonymous. Reports of most cases are second-hand. Yet this invisible class of individuals perhaps has significance beyond its numbers, if only as indication of the shifting demographics of academic science and of the health of U.S. institutions of higher education. They are, perhaps, a straw in the wind.

"There seem to be quite a few of them in the biomedical area," says Lee Grodzins, a nuclear physicist from Massachusetts Institute of Technology (MIT) who chaired a recent National Academy of Sciences (NAS) panel on postdocs. Though its report *Postdoctoral Appointments and Disappointments*, issued last year, did not mention unpaid postdocs, Grodzins is familiar with the phenomenon. "These individuals are given space in a lab and told to find their own grant money. Some never do. I've also known several people who have been in a position where their grants ran out or their fellowships ran out and they kept on working for nothing. They just kept hoping that something would come along."

It is not uncommon in biomedicine to be offered a multiyear paid postdoctoral post and encouraged to find private funding, especially for the first year. Self-financing is another story. Says Porter E. Coggeshall, an NAS staffer who worked on the report: "We came across a few instances when we did our survey, especially of spouses, and it wasn't always the wife who was willing to take an unpaid position."

The foot soldiers of research, postdocs in general are excluded from the traditional faculty tenure track, and their plight of late has been exacerbated by a number of factors. The class itself is a creation of the postwar influx of federal funds for academic research. During the past decade, the number of postdocs has grown more than twice as fast as faculty positions, for the most part because tenured faculty are getting older but are not yet old enough to be retiring in droves. In the biosciences, for instance, the postdoctoral population between 1972 and


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