

French applied science

Researchers help but stay put

FRENCH scientists are making an effort to link up with industry — but are not prepared to quit their laboratories for a year or two to work with an industrial partner. That is the picture painted by Jean-Jacques Duby, the director for applications at the Centre National de la Recherche Scientifique (CNRS), the principal French research council for basic science, at the end of his first two years in the job.

According to Duby, his new Directorate (the Direction de la Valorisation et des Applications de la Recherche, DVAR) has helped CNRS nearly double the number of new patent applications each year by CNRS groups from 71 in 1982 to 134 in 1984, while contracts with industry have tripled in value from FF 10 million (£1 million) in 1982 to FF 31 million (£3 million) last year.

Other indicators of the application of CNRS science also show improvements, such as a doubling in consultancies (to 157). But Duby's *bête noire* is lack of mobility — with only 41 CNRS staff out of a total of over 6,000 making even a temporary move to industry in 1984, a negligible improvement on the 37 in 1982. A new contract of employment for CNRS researchers, which came into effect last year, was intended to increase mobility, by giving staff civil servant status (thus guaranteeing employment and pension rights whatever moves a person might make), but clearly it has had little effect so far.

Moves in the other direction, out of industry and into research, are also rare. Duby launched a new scheme last year to grant "associate directorships of research" to industrialists wishing to spend time in CNRS laboratories. Just six such positions are about to be announced. The French, whose economy is still more agricultural and land-based than most in Europe, like to stick to their territory.

Nevertheless, there has been at least a psychological change in the relationship between French scientists and industry. The year before Duby came to CNRS, a survey of decision-makers showed that the CNRS profile had fallen "very low". But "now we even get phone calls from the big companies", says Duby. This is a "drastic improvement" on the past. But the smaller companies are still largely unaware of CNRS, and even the big companies are very wary "at risk point", when they must decide whether to invest money with CNRS in a project. "We lack venture or any other capital in France", says Duby. Another problem is that French law centres on institutions rather than contracts, so new ventures tend to require new institutions.

Despite these obstacles, Duby's DVAR has been trying every possible method of making a profit out of CNRS science, often with success. Some FF 2.8 million (£280,000) was redistributed to 54 CNRS laboratories last year from profits from

patents alone. And the organization has created companies — under its new constitution, it is free to invest and make profits — such as MIDIROBOTS, a robotics company in the south of France.

Interest from industry is as great in fundamental physics as in the engineering sciences, Duby says. Organic chemistry and pharmaceuticals (where the companies have money to spend) lead the field, followed by materials science. Interest in electronics, data processing and mathematics has been "disappointing", although Duby had expected demand for work on systems and modelling.

CNRS is also putting a lot of effort into biotechnology, although this faces two major problems: on the research side, groups are often controlled by an old guard of fundamentalists, little interested in application; while on the industrial side, the big companies such as Rhône-Poulenc have rigid, seven-year research programmes into which, paradoxically, it is difficult to fit new ideas.

Duby and his DVAR are also working hard with:

- LABINFO, a database on French research and researchers, now covering 5,500 laboratories in CNRS, universities and other research councils, through which industry can trace who is working on what.

- The CNRS industrial relations committee (CRIN), whose twenty working

groups discuss industrial problems and research solutions, and make proposals for research to CNRS.

- Framework contracts with companies, which cover matters such as potential patents rights, exchange of staff and payments, forming an "umbrella" under which CNRS laboratories can more rapidly reach agreement with the company on a detailed project. These contracts are being increasingly "regionalized", being signed and managed by local branches of CNRS management.

- Publicity: CNRS has been holding "industrial days" in the regions, such as one on lasers in Grenoble and one on biotechnology in Paris, and has even established an information centre at Orly airport south of Paris.

- Co-financing of applied research with the national association for the application of research, ANVAR, which works mostly with small and medium industry: this brought CNRS laboratories an extra FF 25 million (£2.5 million) in 1984.

But Duby, ever energetic, says CNRS has much more to do. The figures for CNRS/industry cooperation are simultaneously "optimistic and derisory". They are optimistic in that they are growing; derisory in that they remain too small.

Two thirds of CNRS laboratories still have no link at all with industry, and those links are with only 1,000 out of 50,000 French businesses. ANVAR, by contrast, has 5,000 such links. It is a target Duby will be aiming for.

Robert Walgate

UK higher education

Modest extra for high-tech

AN injection of £43 million into selected British universities over the next three years was announced last week by Sir Keith Joseph, Secretary of State for Education and Science (see *Nature* 7 March, p.3). The intention is that the extra money will help to bridge the expected shortfall of graduates available to the high-technology and engineering industries, particularly those involved in information technology, electronics and software. The sum to be disposed by the University Grants Committee (UGC) will be £11 million in 1985-86 and £16 million in each of the next two years.

This injection may be described as a "third time lucky" attempt by Sir Keith to fulfil an election promise to increase spending on such training. Originally, it was intended that funds would be switched within the budget of the Department of Education and Science (DES) from the arts and humanities to science and engineering. It was realized, however, that this would penalize the arts disproportionately, given the difference in unit costs between a science and an arts graduate. A second attempt to find the money was partially successful but ended in the debacle last autumn when Sir Keith was forced by a

backbench revolt embarrassedly to retract a proposal that better-off parents should pay towards the tuition fees of their offspring. This diminished the extra funds for universities from £48 million to £38 million over three years.

The third attempt was supported by the Prime Minister, Mrs Margaret Thatcher, whose involvement was made necessary because the scheme requires contributions from various government departments. Those who forked out were the Welsh and Scottish Offices, and the Departments of Energy and of Trade and Industry.

UGC is already considering bids from universities for 1985-86 funds. In subsequent years, polytechnics will also be able to compete, which would represent further encouragement after the announcement earlier this year of an allocation of £2.5 million for 1985-86 for science and technology research. Mrs Thatcher has now written to some of the industrialists whose concern over future skilled manpower shortages helped to stimulate the new funds to ask for their views on the allocation of the money available and on the prospects for more direct support for university research.

Philip Campbell