Eureka

France takes 'British' tack

PRESIDENT François Mitterrand of France has travelled a long way since the heady days of his election in 1981, when he was prepared to see his government sink large sums of money into what now seem to have been ill-judged technological projects, particularly in the electronics industry. For despite putting FF1,000 million (£82 million) of government money towards the 1986 budget of Eureka — the French-inspired project to get European industry behind a series of joint high-tech products — M. Mitterrand has put government support in second place to private funding, thus moving surprisingly close to the British position on Eureka.

This much emerges from a close reading of the text of his speech at the recent 17-delegation European meeting on Eureka in Paris (see *Nature* 25 July, p.288), a text just released along with a speech of his research and technology minister, M. Hubert Curien. M. Mitterrand said that "no-one would be surprised" if he claimed that "finance is one of the keys to the success" of Eureka. But, he said, the key was not only a question of the volume of finance, "but also of its origin".

In choosing Eureka projects, "We must create throughout Europe the opportunity for attractive investments", said Mitterrand. He made his appeal "to the market", adding almost as an afterthought, "but also to the support of governments". Only then did he offer his FF1,000 million, quite a paltry sum by the scale of the enterprises envisaged, and by comparison to the \$26 million proposed in the United States for the first five years of the Strategic Defense Initiative, which first crystallized French thinking on Eureka.

By contrast, M. Curien adopted a slightly more "from the top down" approach, speaking of the need "to propose certain concrete technological challenges to our industrialists". For Curien "there must be no delay, the international context makes action imperative", but he felt that already there was sufficient support behind "a certain number" of French proposals (for a list see *Nature* 11 July, p.97) for it to be "scarcely in doubt" that Eureka would soon be moving.

Curien saw the criteria for selecting projects for Eureka to be:

- That they should lead to the development of high technologies having economic or "strategic" importance.
- That they should lead to a product of "original performance" which could find a place on the market.
- That they should involve many partners — private or public — "which should provide a substantial part of the finance".
- And that they should unite many European countries.

In relation to the European Commission, these projects should be considered

as forerunners of Commission efforts to create afresh a real common market for products, and complementary to the Commission's precompetitive research exercises ESPRIT (information technology), BRITE (technology for old industries) and RACE (telecommunications), Curien said. Eureka completed and amplified the decision of the Council of Europe last September, also prompted by France, to create a variety of networks of European researchers (*Nature* 311, 197; 1984) where "much has already been done but much remains to do". Eureka is an "indispensable complement" to such "more general" research actions.

As for government finance, said Curien, "It is scarcely in doubt that we must draw on the public purse in proportion to the degree of technological risk of each project". But France already devotes "a substantial part" of its research and development budget to the technologies covered by Eureka. And hence "we are waiting for a parallel response from industry", he said.

Robert Walgate

Balancing the books

PERHAPS one reason why the French President M. François Mitterrand is being a little cautious about committing huge sums of government money to his pet project Eureka (see above) is that the cupboard is bare. For now is the time that the French cabinet prepares the budget for 1986 — election year — and it seems the purse strings are about to be drawn very tight.

In current francs the government budget is expected to exceed the figure of 1 million million (£82,000 million) for the first time; but in real terms, this amounts to zero growth. Nevertheless, there will be growth in some areas and among the lucky ministers is likely to be the minister of research. The present incumbent, M. Hubert Curien, might expect to receive the modest budget increase of 4 per cent in real terms for which he asked. Education is also likely to be protected, but aid to industry, agriculture and other sectors may fall 4 per cent, and defence 2 per cent.

Curien's 4 per cent increase should be compared to nearly 6 per cent last year, and would put around another FF 1,500 million on the French civil research and development budget. President Mitterrand has offered FF 1,000 million to Eureka. But whether this sum would come from Curien's increase, from a redistribution of existing sums, or as extra real money is not yet clear. Final details of the budget will not be decided until a cabinet meeting in September; it will then go to parliament in mid-October.

Robert Walgate

SDI

Physicists jib at inducements

Washington

AN attempt at a boycott is being organized by several hundred academics opposed to President Reagan's Strategic Defense Initiative (SDI). They have signed a statement pledging themselves not to apply for or accept support from the SDI organization. A statement circulated by John Kogut, a theoretical physicist from the University of Illinois, condemns SDI (commonly known as star wars) as "technically dubious and politically unwise", saying it is "a step towards the type of weapons and strategy most likely to trigger a nuclear holocaust". A similar statement has been circulated by David Wright of Cornell University, and work is in progress on a joint version to be circulated to science departments all over the United States.

Kogut says he drafted his statement in response to "partisan" claims for SDI made in a brochure sent out from the SDI organization's Innovative Science and Technology Office. The brochure, which reads more like the work of a Madison Avenue advertising agency than a military department, speaks in ecstatic terms of "new and exciting" times for scientists who participate in "fascinating and challenging" SDI research.

Kogut objects to the implication that universities are "falling over themselves" to get star wars funds, and has persuaded 52 of the 72 members of his physics department to sign his protest. Physicists from

Ya mean we're makin' ya an offer ya CAN refuse?

the Institute of Theoretical Physics at Santa Barbara, from Fermilab and from the IBM Watson research laboratories at Yorktown have also signed and, according to Kogut, the number "is growing all the time". A similar petition organized earlier this year by the Union of Concerned Scientists attracted the signatures of 700 members of the National Academy of Sciences, including 54 Nobel laureates.

Kogut admits that many of those who signed his declaration are motivated by political considerations, but says that some also thought that the brochure specified unrealistic goals. The University of Illinois is a designated supercomputer

centre, and some computer scientists looked askance at the SDI office's demand for 10 million lines of error-free computer code and hardware capable of 10^{12} operations per second — one thousand times faster than anything currently available. Kogut says that many objected to large amounts of public money being spent on a proposal that would not, in their view, survive a normal scientific peer review.

So far, the protest has spread mainly within physics departments, though there are plans to coordinate it so that it reaches as many scientific departments as possible. The SDI office is maintaining an air of sublime indifference, saying that there will always be differences of opinion among experts on a complicated topic. A spokesman said the petition appeared to have had almost no effect on the response to SDI's invitation; more than 3,000 research proposals have already been received.

More than 70 per cent of the \$28 million budget for the Innovative Science and Technology Office in 1985 has been spent in US universities, and the amount is likely to rise sharply in coming years. The administration's proposed budget for star wars in 1986 is \$3,700 million, although Congress appears unlikely to grant the full request. The figures currently being discussed range from \$2,700 million to \$3,000 million.

Tim Beardsley

SDI story so far

THE SDI Innovative Science and Technology Office has so far announced seven "consortia" undertaking SDI research, involving 33 academic institutions (mostly universities), 12 private companies and sundry government laboratories. Following protests from some institutions that their names were being used without permission to lend credibility to the star wars programme, the SDI organization is now careful to say that the consortia are composed of individual scientists rather than institutions.

According to James Ionson, who heads the innovative science office, all basic research conducted on university campuses will remain unclassified. SDI research that does have to be classified is carried out in government laboratories or by private companies. The seven consortia will tackle the following subjects:

Subject	Amount (\$ million, over 3 years)
Non-nuclear space power (over 4 years)	19
Composite materials	15
Optical signal processing	9
Novel electronic and optical materials	2.5
Advanced electronics	4
Nuclear space power	6.8

Soviet research

Over-emphasis on production

DURING the past decade, Soviet science planners have put increasing emphasis on direct research contracts between the production sector and the universities and research institutes of the Academy of Sciences. Such contracts have been viewed not only as a useful source of additional income for the institutes undertaking the research, but also as an important means of mobilizing the university and academy sectors in implementing the gains of the "scientific and technical revolution" in the economy. Indeed, when addressing the special Central Committee meeting on accelerating scientific and technical progress in June, Mr Gorbachev gave strong hints that such contracts would be even more important in the future, while there would be considerable cutbacks in the (often unproductive) network of specialized research institutes belonging to the individual production ministries.

Recently, however, a leading Soviet scholar has suggested that industrial contracts are not, after all, the best way of financing university science. Dr Sergei Ambartsumyan, the rector of Erevan State University, a member of the

Armenian Academy of Science and a Deputy of the Supreme Soviet of the USSR, last month pointed out in *Izvestiya* that the contract system leads to a shortage of funds for pure research. According to Ambartsumyan, 40 per cent of Soviet scientists work in the university sector, but their research budget amounts to only five to seven per cent of the Soviet total. In order to finance fundamental research, the leading Soviet universities need at least to double their research budget by income from contracts. The production sector, however, is interested only in practical results.

Not only to the universities lack research funds; according to Ambartsumyan they are increasingly unable to attract the talented young scientists needed to carry out the planned research commitments.

Shortly before Ambartsumyan's article appeared, new pay-scales for Soviet scientists were, indeed, announced; but these seem designed to reward outstanding achievers, not to help young scientists with as yet no major achievements to their credit.

Vera Rich

Spanish research

New law to change attitudes?

Barcelona

WITH an eye to the future application of the Law of Science, already presented to the Spanish parliament (*Nature* 314, 661; 1985), a variety of scientific and institutional initiatives recently announced by the Consejo Superior de Investigaciones Científicas (CSIC) are beginning to be put into practice. According to authorities in the CSIC, which the law says is to undergo "re-foundation", the initiatives are aimed at achieving better coordination between the groups and a more dynamic administration in this institution, which accounts for much of the research done in Spain and 30 per cent of Spanish publications in international journals.

At present, the entire scientific activity of CSIC groups is organized into approximately 250 projects. These projects have been presented for evaluation to the main Spanish granting agency (CAICYT, part of the Ministry of Education and Science) and have been sent to independent referees. Several specific programmes (Programas Movilizadores) have been defined for the encouragement and coordination of research in priority topics of special scientific interest, especially those having social and economic scope. These include programmes on lasers, new materials, toxicology, food technology and natural resources.

In addition there are the thematic programmes. These are intended to establish

contacts between groups working in related subjects either in CSIC, universities or other research centres. Several of these programmes have been approved so far, including those in neurosciences, genetic engineering, space sciences, information technology and marine biology.

This may be a new way to improve contacts between CSIC institutes and the universities, traditionally strained because of distrust between Spanish state institutions. In the past two years CSIC has signed agreements with almost all Spanish universities with the intention of creating a framework that might stimulate the collaboration of research groups working in the two environments. CSIC has also revised its own institutes. In the past two years more than 80 institutes, some consisting only of one person, have disappeared, but new centres for biotechnology, for microelectronics and a Centre for Advanced Studies in Blanes, Costa Brava, have been created.

There is a general awareness that these reforms should go hand in hand with an increase in the funds for research and in staff. In fact, the budget of CSIC has been doubled in the past three years, reaching, in 1985, 21,000 million pesetas (US\$120 million). Moreover, 200 new research positions have been announced recently, in an institution employing 1,250 scientists, and a similar number will be added next year.

Pedro Puigdoménech