Wheeling and dealing in the corridors of Europe

As Europe's heads of state pack their bags for the summit meeting in Milan next weekend, the civil service of the European Community is trying to bring some order to Europe's science policy

Robert Walgate

PRESIDENT REAGAN'S plans to render nuclear war obsolete through the Strategic Defense Initiative (SDI) have already achieved something, despite the programme's first failure (the space shuttle was pointing in the wrong direction when a laser tried to hit it). "Star wars", as most of us know the SDI, has given research and technology a starring role at the meeting of Europe's heads of state in Milan this weekend and has put on to the agenda plans for a rival effort.

European countries are worried that their R&D efforts will fail to keep pace with standards of investment and coordination set by Japan and the US. In the R&D stakes, the old continent will have to come to terms with the US's Department of Defense pouring $28 billion into R&D in the US in the name of the SDI ("Star wars—an astronomical bribe for scientists", *New Scientist*, 20 June, p 14). President Reagan talks of developing new defence technology, but the Pentagon is not known for being especially precise about the exact nature of the research that is done under its name.

There could well be spin-offs—perhaps a leap forward in optical computing—that help American companies long before the SDI fulfils Reagan's dream of knocking incoming missiles out of the sky before they have a chance to explode over the US. So the star wars programme could "zap Europe" economically long before it poses any threat to the USSR.

Against this background, and after Caspar Weinberger's demand that Europe say, within 90 days, whether or not it will participate in the SDI programme, it is not surprising that European squabbles seem less important. The talk in Brussels, and perhaps in Milan, is of a concerted European reply to the challenge of the US and Japan.

As a first response to the spectre of star wars, research ministers meeting in Luxembourg at the beginning of June considered how they might work better together in planning expensive international facilities. This meeting showed at least a hint of progress on funding the European Synchrotron Radiation Facility (ESRF). This is an advanced synchrotron light source costing £100 million. France and West Germany had decided among themselves that this project should be built at Grenoble. There was also a hint of progress on building a laboratory at Ispra, an EEC Joint Research Laboratory north of Milan, to develop techniques for handling tritium for research on thermonuclear fusion.

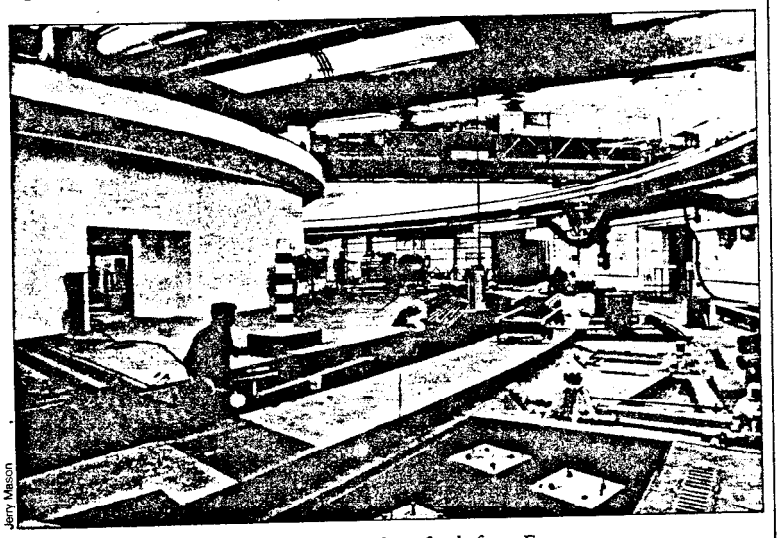
Britain and France did wave their vetoes over the tritium project—Britain over fears about costs, and France because it wanted to push Italy into joining the ESRF—but, in negotiations leading up to this weekend's summit, there were moves to settle this and other issues. There was even a suggestion that maybe there are ways of avoiding the hassles and delays that occur every time that the EEC wants to set up a large project.

For example, a perennial problem in Europe is in agreeing which nation should host a particular research project that is paid for by the European Communities. Such matters are often resolved in bilateral talks between countries, with one supporting another's claims for a project in return for some other favour.

This kind of trade-off seems to have happened when Luigi Granelli from Italy met Hubert Curien from France during a bilateral summit in Florence three weeks ago. Such trade-offs between nations will play a large part in determining the outcome of negotiations within the EEC. For example, Italy's national research council, in a rare burst of speed encouraged by its new president, Luigi Rossi-Bernardi, a biologist from Milan, has approved funding for a major new instrument that will be attached to the Spallation Neutron Source (SNS) built by the Science and Engineering Research Council (SERC).

However, while British scientists may gain support for their neutron source at home, they are likely to lose out elsewhere. Italy has agreed to support the high-flux neutron-beam reactor at the Institut Laue-Langevin (ILL) at Grenoble, at present a trilateral project paid for by Britain, France and West Germany. This could have been left high and dry had Britain followed through with the SERC's plan to reduce its commitment in ILL in order to concentrate its meagre funds on the SNS.

In another bilateral move, Italy has also told France that it is prepared to back the establishment of a new supercomputer centre in Toulouse. Dubbed CERFACS, this institute would develop the software and theoretical tools required to advance numerical analysis. The idea is to reach the stage that, say, aerospace companies could do without expensive wind tunnels and could "fly" their prototypes in the core of a computer. (Toulouse is, of course, where the European Airbus is assembled, where the French space agency does most of its design work and is a French centre for robotics.) In its turn, France offered to back Italy's huge underground laboratory for particle physics, now under construction at Gran Sasso east of Rome. Another outcome of these talks was France's agreement to lift its veto on the proposed tritium facility at Ispra. Britain has yet to approve this project.



Jerry Mason

SNS: built by Britain, seeking funds from Europe . . .

As for the ESRF, Granelli and Curien had nothing to say after their meeting in Florence. It is held up because West Germany and France offended Italy and Denmark—which also wanted to host the facility—by deciding precipitately that the ESRF should go to Grenoble. (In exchange for this deal, France agreed that West Germany should provide the home for a large wind tunnel—they aren't obsolete yet.) Unfortunately, the ESRF needs funds from Italy and Denmark. France and Germany can cover only two-thirds of the cost.

Britain is likely to favour its home-based X-ray source, the Synchrotron Radiation Source at Daresbury, over the international

project. So far it has made no proper commitment to the ESRF.

Granelli says that he "does not exclude" Italian support for ESRF—provided Italy gets a small synchrotron for Trieste. With Italy supporting CERFACS and the neutron-beam reactor at ILL, it might now expect France to support such a facility.

Physicists at Trieste say that the machine, with an energy of 1·5 giga-electronvolts, would cover a neglected long-wavelength range that is useful for the study of large molecular structures. Italian politicians say that it would cover a neglected region of Italy. If the summit in Milan agrees this project, the ESRF could start up in 1987, a year ahead of a rival project in the US.

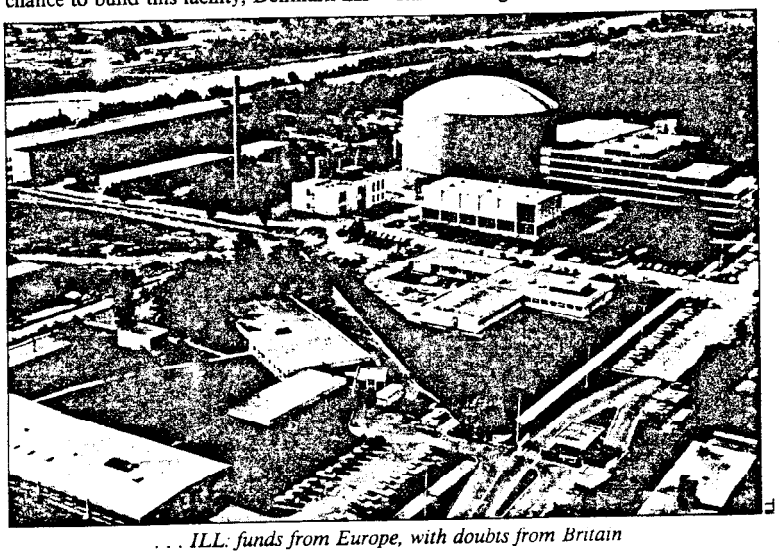
Had Denmark had its way, the ESRF would have given its Riso laboratory something to do. As a quid pro quo for losing the chance to build this facility, Denmark has put in a bid for a European Centre for Marine Science and Technology (ECMST), beating the Irish to the starting post. The EEC's research commissioner, Karl-Heinz Narjes, now has Denmark's plans for the ECMST on his desk in Brussels, and the European Commission (the EEC's civil service) has agreed to study them.

According to the originator of the proposal for the ECMST, Torben Sorensen, of the Danish Hydraulic Institute, the centre would make use of the marine science facilities in other member states—to avoid duplication—but would coordinate and focus national research on questions such as air-sea and land-sea interactions, pollution, Arctic studies, ecosystem processes, remote sensing and deep-sea mining.

How does West Germany figure in Granelli's package of 10? It has plenty of projects that could do with international participation or may do so in future—such as the electron-proton collider, HERA. This is now under construction in Hamburg, with Italy building the superconducting magnets. There is also a geophysical project to drill a hole 30 kilometres into the Earth's crust and a plan for a super spallation neutron source, the SNQ. West Germany has been saying for a long time that Britain must participate in this project if it wants West Germany to invest in the SERC's SNS.

Which of these issues of European science will be resolved over the coming weekend remains to be seen, but the enthusiastic Granelli is hopeful. More central to the summit, though, will be questions of opening up European markets (will France allow its state-owned telecommunications monopoly to buy British products, for example?); and, more to the point, what will the summit make of a paper from the commission in Brussels on "a new technological Europe"? Despite the enthusiastic noises from Brussels, the commission could be left out in the cold in Milan.

For the commission, the question is stark: has it got the nerve to look European leaders in the eye at the Milan summit this weekend and tell them what a mess they have made of the European Communities. This is what it must do if it wants to keep the initiative in this game of "a new technological Europe".



. . . ILL: funds from Europe, with doubts from Britain

It is ironic that Brussels should be put in this position. European leaders are tiring of the commission's slow and inflexible approach. Prompted by France, the governments are talking of setting up an independent agency, dubbed Eureka to promote advanced technology and strategic research. But it is the leaders themselves, and their conflicting "national interests", epitomised in the bilateral dealing that goes on, that cause most of the problems for the commission. The European Commission would be rejuvenated if it found the strength to tell the governments this.

Everyone is waiting to see how Jacques Delors, the new (and French) president of the commission and the man in charge of the Brussels machine, will move towards telling the 12 heads of state to get off his back. Delors seeks, and the commission needs, the freedom to get on with plans such as ESPRIT (on information technology, geared mainly towards the office and the factory), BRITE (new technology for old industry) and RACE (communications technology) without too many caveats about *juste retour*—sharing benefits on every project among countries.

Delors is also considering a proposal to parcel out the management of large research and technology projects to "prime contractors" in industry, already a common practice in the US. Such a move would be an attempt to avoid continuing national conflict after the Council of Ministers, the supreme decision-making body within the European Commission, has agreed a project. Such a structure would allow practical choices to be made more quickly and would put Brussels in a position from which it could host the nebulous Eureka high-technology agency.

The code words in Europe now are "flexibility" and "variable geometry". Flexibility means more freedom from control by the Council of Ministers and its delegate bodies. Variable geometry means increasing participation in the commission's research projects by including nations from outside the European community—Sweden and Switzerland are mentioned the most often, and both are already members of Euratom's JET fusion project at Abingdon in Oxfordshire. Variable geometry would also mean that not every government would join every programme. There could be *à la carte* programmes, bringing together a limited number of members of the EEC.

Neither the Treaty of Rome, which set up the EEC and the European Commission, nor the Euratom treaty, under which research into nuclear fusion and nuclear fission is conducted, foresaw either of these approaches. There is some argument in Brussels that Europe needs a new treaty to create a "European technological community". Treaties being by their nature inflexible, a new "technology treaty" may not be the political dish of the day in Milan. However, there could well be modifications to the existing treaties to define new ways of organising technological projects.

Brussels produced a set of proposals this week that would increase the EEC's research effort three or fourfold, to reach 6 to 8 per cent of the communities' budget by 1990. Narjes wants to concentrate on 10 fields, including information technology, lasers and optics, and biotechnology.

For Brussels the stakes are high. If the commission does not recover the initiative on the Eureka project, which the French government saw initially as a direct answer to the challenge of star wars, then the ambitions of the commission's research programmes are doomed.

Eureka is an agency which, in principle—"it's still damned vague" said an official at the commission—could establish and run "variable geometry", flexible European projects in areas such as lasers, supercomputers, new materials and all the other glamorous advanced technologies of the future. At least, that is the picture painted by the project's French originators. (France may at last name one or two specific projects in Milan.) The French argument is that Eureka would be outside the Treaty of Rome, and less constrained than the bureaucracy in Brussels. □