European collaboration

How, where?

European collaboration in science is a little like the bringing up of children: everybody agrees that it should be done well, but few agree on how. This seems to be the general impression left on those attending the symposium on European science organized last Thursday (8 July) in Bonn by the Max-Planck-Gesellschaft and the European Science Foundation. The symposium was intended as a mark of respect for Dr Friedrich Schneider, for much of his life the general secretary of the Max-Planck-Society, who then served as secretary general of the science foundation until 1980. Schneider died last year.

Lord Flowers, rector of Imperial College London and president of the European Science Foundation for six years until 1980, seems to have left the symposium with the most vivid impression with a forceful argument that universities are not ivory towers but, rather, are embedded in society. So, he said, they should be prepared to shoulder their part of the burden of industrial research — and should also welcome present privations as a means of putting right the excesses of the 1960s.

On mechanisms for supporting research, Flowers argued for a clearer division of responsibility between scientists, governments and politicians (parliamentarians). Scientists, his argument went, should give advice on how funds should be distributed within some chosen field, but governments inevitably have a decisive influence in determining which fields should be cultivated. Because in democratic states only "parliamentarians" can hold the ring, "we must educate our politicians". He commended the British Parliamentary and Scientific Committee as one way of doing this.

Professor Herbert Curien, chairman of the Centre National des Etudes Spatiales in Paris and also president of the European Science Foundation, pointed to the benefits but also the disadvantages of international collaboration built on large projects. The European synchrotron radiation project, he said, would be a valuable project for collaboration, but the danger (exemplified by European research centres such as the Community's laboratory at Ispra in Italy) is that "when you have a facility, you need to find a programme".

Professor Reimer Lüst, president of the Max-Planck-Geseelschaft and chairman of the Schneider symposium, argued, however, that every opportunity for collaboration should be seized, citing as an example the successful collaboration between his organization and the Centre National de la Recherche Scientifique in the high-field magnetic laboratory at Grenoble, on which each organization could have embarked successfully on its own but where the collaborative laboratory was better than either would have been.

Schneider's own work until his death was devoted largely to persuading European governments to collaborate on the synchrotron radiation project, with little success. Schneider, a man with an exceedingly dry wit who was also a famous gourmet, would not have been surprised that Vicomte Etienne Davignon, the commissioner for research at the European Commission, did not arrive to deliver his promised contribution at the symposium. "He's always doing this", said one of the organizers.

Foot and mouth disease

Race to vaccine

The race to produce a synthetic foot and mouth vaccine to replace the use of inactivated virus is still wide open. The United States company Genentech, like other biotechnology companies, is putting its money on genetically engineered virus polypeptide VP1. The Wellcome Foundation in Britain, one of the principal manufacturers of inactivated virus vaccine, is, however, backing both VP1 and the synthetic peptide portion of it now known to be immunologically effective (see *Nature* 1 July, p.30).

The United States Department of Agriculture last year raised hopes that genetically engineered VP1, the main antigenic determinant of the virus, would be the answer. But the department's announcement has been criticized as premature. For while it seems that genetically engineered *E.coli* can be a prolific source of VP1, the intact polypeptide is not as immunologically effective as expected. The synthetic peptides, corresponding to amino acids 141–160 within the VP1 polypeptide, seemed more promising when described earlier this month.

Genentech, working under an agreement with the Plum Island Laboratory of the US Department of Agriculture, is not convinced that peptides are the only feasible route to a synthetic vaccine. The company now claims that it has achieved similar protection with VP1 polypeptide in small mammals by an improved method of extraction and purification. Dr Dennis Kleid, head of the project at Genentech, says that the new technique does not denature the VP1 polypeptide.

Genentech and Plum Island have apparently refined their recombinant DNA technique to produce 2×10^6 VP1 molecules per bacterium. Genentech says that it is growing genetically engineered *E.coli* in a 10-litre fermenter and purifying enough VP1 for trials in cattle at Plum Island. Dr Kleid hopes that scale-up will be quick, and that field trials can be mounted in South America, one of the largest markets for foot and mouth vaccine, late this year or early next. A commercial vaccine, says Kleid, could be ready some time in the mid-1980s. Genentech is working on the problems of scale-up with the International Minerals and Chemical Corporation of Indiana, which has already been licensed for commercial production.

The Wellcome Foundation, however, does not share Genentech's optimism about VP1 polypeptide. Although the foundation will keep an interest in VP1, it plans to spread its risks by exploring the possibilities of a commercial peptide vaccine. But the economics of a synthetic vaccine, of whatever type, may not appear the same to the Wellcome Foundation as to Genentech and the International Minerals and Chemical Corporation.

Wellcome already manufactures foot and mouth vaccine on a large scale by inactivating virus grown in cell culture. Individual doses cost just a few cents. A synthetic vaccine will have to be markedly cheaper to persuade the company to convert its existing manufacturing processes, according to Thomas Pay, scientific coordinator of the foundation's foot and mouth disease technical division. Pay is also sceptical of arguments that synthetic vaccines would be safer than those based on inactivated virus. He says that inactivation has been improved by avoiding the use of formaldehyde.

In the meantime, neither Wellcome nor Genentech believes that the prospect of a synthetic vaccine should hold up foot and mouth eradication programmes. That view is shared by the Food and Agriculture Organization of the United Nations, which says that the chief practical effect of a synthetic vaccine will be to do away with the need to refrigerate vaccine stocks — hardly a requirement to delay eradication programmes. **Judy Redfearn**

Developing countries

European split

Brussels

The European Parliament has given the European Commission's research and development programme on behalf of the developing countries a hostile reception. The Parliament last month ridiculed the programme on the grounds that it was too small, for its choice of priorities and because the chief beneficiaries would be research institutions in the Community and not scientists in developing countries.

The Commission's proposal is to spend 40 million units of account (£70 million). The debate took place against the background of heated arguments over the Community's new world hunger strategy and the attempts by the development commissioner, Edgard Pisani, to redirect development aid from large construction projects to grass-roots stimulation of the poorest economies.

The Commission admits that the funds available will not make a substantial contribution in the areas regarded as most important for the developing countries — nutrition, health, energy and natural

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