The EMBO Question Debated

from our Special Correspondent

A discussion of the proposed European Molecular Biology Laboratory was held at the Royal Society on October 21. Although it was the intention of the organizers that the discussion should be private, the occasion has been widely talked of in the past few days. What follows is an account of some of the proceedings which has been pieced together from several sources. *Nature* apologizes to those among the participants who may be surprised to see their opinions appear in print—they have been widely talked of—and to its readers for being unable to provide a fuller account of what went on.

BRITISH participation in the proposed laboratory of the European Molecular Biology Organization (EMBO) was discussed last week at a meeting of molecular biologists and others at the Royal Society. The purpose of the meeting was to assist the working party set up by the Council for Scientific Policy to decide whether Britain, already a member of EMBO, should be committed to supporting the EMBO laboratory, the annual running costs of which are expected to run to £700,000. The question at issue was whether such funds, if made available from the British science budget, should be devoted to expanding molecular biology in Britain or to supporting the EMBO laboratory.

The background to the meeting was set out by Dr John Kendrew, Secretary-General of EMBO. The chief motives for founding the EMBO laboratory are that Europe has not kept pace with the United States and many molecular biologists have emigrated. The nature of the subject, which stretches across disciplines and nations, is such that it is best advanced by establishing large focal centres of research but only three such centres exist in Europe today. An international laboratory would help in three ways; first, it would inject the molecular biological approach into European universities both at the teaching and research levels; second, it could provide a natural meeting place for European biologists (equivalent to Woods Hole and Cold Spring Harbor in the United States); and, third, it would provide services that are difficult to secure at a national level such as the large scale production of rare enzymes and specialized facilities. Although the argument for the laboratory rests chiefly on efficiency in research and training, political considerations of European harmony add considerable weight to the proposals.

The scientific programme of the laboratory, Dr Kendrew said, is to be discussed anew in November, but it will certainly include work on cell differentiation and the central nervous system. An EMBO laboratory must certainly have a core of high grade research in frontier areas of the subject; there must also be groups working in better established fields to provide advanced teaching in the basic essentials of biology at the molecular level. The EMBO laboratory "would make an important contribution to the development of European universities and research institutions, both by produ-

cing a constant stream of trained research workers and by providing a forum where established members of university staff could interact with one another and bring up to date their own skills and interests. Such contributions have been an important reason for the success of CERN and there is every prospect that an EMBO laboratory could exert a similar influence".

Dr Kendrew estimated that the building costs would be £2.1 million (assuming that the site is donated by the host government) and the equipment costs also £2.1 million. With a staff of 567 persons (257 staff and visitors, 310 technicians and others) the annual running costs would be £3.5 million.

Dr M. G. P. Stoker, a member of the working party on the EMBO laboratory set up by the Council for Scientific Policy, said that Britain's expected share in supporting the laboratory would amount to £700,000 of the annual running costs and £1.3 million of the capital expenditure for planning and building, spread over 8 years. The CSP working party has been studying an alternative to the EMBO laboratory, a federation of two or three laboratories run by EMBO in different countries. These might contain up to 100 scientists each and be closely linked with large universities. Though a federation would be less economical than a single laboratory, it might prove more flexible and give better contact with subjects at present outside the scope of molecular biology.

The chief arguments against British participation in the EMBO laboratory were presented by Professor Henry Harris (University of Oxford). Professor Harris made it clear that, although an erstwhile antipodean, he was as good a European as any particularly where scientific cooperation was concerned. Nonetheless he was opposed to the EMBO laboratory for three reasons. First, the research programme drawn up for the EMBO laboratory is highly unoriginal, consisting largely of research already being carried out in the United Kingdom and elsewhere. In all the proposed fields of study, Britain has leading workers, in many cases the leading workers, who are already producing successful results. It is unlikely that the proposed laboratory will attract a more distinguished galaxy of talent than already exists in Britain. (Speaking earlier, Dr Sydney Brenner (MRC Laboratory of Molecular Biology) had said that, although his own laboratory

already does much of what the EMBO laboratory would do, a European laboratory would be able to draw on a wider range of talent.)

There are two speculative items in the proposed research programme, Professor Harris said, which he excepted from the general charge of unoriginality. These are the study of the nervous system and of the differentiation of higher cells. Neither of these is likely to be crowned with great success in an EMBO laboratory. Some molecular biologists have recently turned to study of the nervous system, but Professor Harris could not say that the field of neurology had been transformed by their attention. It is not the want of facilities that impedes progress in these two fields, but the want of new ideas. In the differentiation of higher cells, some recent progress has been made—for example, in cloning and cell hybridization—but the workers in these fields would not dream of calling themselves molecular biologists.

Even if an original research programme were to be formulated for the laboratory, Professor Harris could not see that a large international laboratory was necessary. Such institutions are needed only in fields such as nuclear physics, where the costs are too great for individual countries. But molecular biology is little science, not big science. With the possible exception of computers, there is no single item needed for a molecular biology laboratory that costs more than £40,000. Most of the items needed are now standard equipment in universities. As for the production of rare enzymes, cited as a facility which the EMBO laboratory could proffer, Britain is well served by the facilities already existing at the Microbiological Research Establishment at Porton.

Dr Kendrew answered that Europeans tend to think more naturally (than Britons) in terms of cooperation with each other. It is true that since the 1930s Britain has been scientifically self-sufficient (except in regard to projects such as the CERN machine) as far as other European countries are concerned. Archaic university systems in Europe and the brain drain have helped to make European science dominated by the United States; nonetheless, standards in France and Germany have been rising so rapidly that within another generation Britain may no longer be self-sufficient and would then stand to gain rather more from European cooperation.

The strength of CERN, apart from the big machine, is that it has acted as a centre and meeting ground for senior scientists from European institutions. Unlike the nuclear physicists, molecular biologists in Europe have no meeting place equivalent to Woods Hole or Cold Spring Harbor; it is this that an EMBO laboratory would provide.

The research programme to which Professor Harris referred, Dr Kendrew said, had been drawn up in 1966; a new programme is to be devised this winter. In any case, an advantage of the laboratory would be that it is easier to update the research programme of a laboratory that is not tied to any university syllabus.

Professor H. L. Kornberg (Leicester University) described the laboratory project as chimaera, a glittering idealistic concept to which he was asked to subscribe without knowing its cost or its purpose. He himself was innocent of this passion for real estate. The Max Planck Institutes in Germany and the CNRS in France are similar foundations to the proposed EMBO labora-

tory; what more or different could the EMBO laboratory do? People go to Woods Hole and Cold Spring Harbor because they are educational meeting places. Is it necessary to build a large laboratory for this purpose?

Professor Kornberg said he was disarmed by the fact that the EMBO laboratory had prepared no scientific programme to talk about. As for Dr Kendrew's belief that the research programme at the EMBO laboratory would be easy to update, he suspected that arteries might harden in a large institution and EMBO would soon lose its flexibility. The way to foster molecular biology in Europe is to bring about a close association between institutions and universities. Instead of creating more elitist groups, the elitist groups should be joined to leaven the existing groups. The laboratory project is the thin end of a white elephant, Professor Kornberg said.

The general tone of the discussion that followed the main speeches was one of hostility to the proposed laboratory. For instance, Sir Harold Himsworth, the previous secretary of the Medical Research Council, said that the laboratory would be a disaster for molecular biology because it would funnel the subject into terms of reference that were too narrow; moreover, the laboratory would be too large, exceeding in membership the MRC Laboratory of Molecular Biology at Cambridge which Sir Harold regarded as the largest desirable size.

Supporters of the EMBO laboratory included Dr Mark Bretscher (MRC Laboratory of Molecular Biology), who lamented that, although molecular biology had been born in Cambridge and Paris and a bit in California, all the most serious work was now being done in the United States, crystallography excepted. The reason, he suspected, was that the structure of universities in Europe is too inflexible; this and the shortage of good people in Europe were cogent reasons for setting up an international laboratory, not tied to a university system.

Professor M. R. Pollock (University of Edinburgh) said he felt too much emphasis had been placed, both by the opponents and proponents of the laboratory, on the grandiose research projects which the laboratory was expected to undertake. Certainly the laboratory must have something to offer that Britain could not produce alone; but the part the proposed EMBO laboratory has to play lies not in big research projects but in teaching and in infiltrating molecular biology into other disciplines. To do this the laboratory needs to be neither large nor international. The two ways in which it could help are, first, in being a centre for the organization of postgraduate summer schools and technical courses and, second, in providing a meeting ground where teams of workers could get together for a joint project. Both these facilities are extremely hard to set up on a sufficient scale even in a large department. If the grandiose research projects were whittled back, the EMBO laboratory could perform a uniquely useful function without being large or expensive.

Also among the supporters of the project was Sir Bernard Katz (University College, London), who felt that the molecular biologists were being used by the politicians in a design to secure another foothold in Europe; Sir Bernard, however, believed that his colleagues should allow themselves to be used in this way.