
Science Policy News

Editorial Note:

The following text by Dr John Tooze, Scientific Coordinator of the European Molecular Biology Laboratory in Heidelberg, is taken from the EMBO Annual Report for 1990, and reprinted with the kind permission of the Director General Dr L. Philipson, and of Dr Tooze. It is of interest to all young scientists working in the field of molecular biology in its widest sense and proposes the establishment of international pre- and postdoctoral fellowships on a Europe-wide basis. The international exchange and mobility of the coming generations of life scientists is essential for the future of research. National barriers must fall. The EMBO is a significant step in this direction, and Dr Tooze's call for a 'European molecular biology' should receive the widest attention. It is to this purpose that EXPERIENTIA reprints it here in its entirety.

Towards a European Molecular Biology

The last, but by no means the least important purpose of EMBL laid down in the Agreement establishing the Laboratory is the advanced training and teaching. The Laboratory fulfils this function in several ways, for example, by organising in collaboration with EMBO advanced practical courses, eight in 1990, by holding symposia and workshops, by training postdoctoral fellows and by its graduate student programme. If, as many would agree, students are Europe's biggest asset for the long term future of its science, the small EMBL investment in its predoctoral programme – an experiment to test the viability of a PhD training programme on a European rather than a national basis – bears no relationship to the importance of this facet of the Laboratory's activities. Currently at EMBL there are 63 predoctoral fellows working for their PhD degrees either from Heidelberg University or from universities in their homeland. Forty of them have EMBL fellowships and the remainder fellowships from other agencies. All the 'predocs', however, regardless of the source of their stipend go through the same stringent and highly competitive selection procedure. They all also receive the same stipend with the Laboratory topping up external fellowships to the EMBL level; to have different rates of pay for the same job would only lead to dissension. Once within the programme the predoctoral fellows are exposed to a well equipped research environment that encourages interdisciplinary collaboration and is international. Added to which in their first year the predoctoral fellows attend short but intensive formal lecture and practical courses

organised by each of the four major Programmes at the EMBL Heidelberg, in a local version of an American graduate school. The predoctoral fellows' evaluations of each course make interesting reading and provide the feedback necessary to improve the courses and adapt them to the requirements of the participants.

If the publication records of the EMBL predoctoral fellows, their success in obtaining postdoctoral positions in outstanding laboratories in both Europe and the USA, and the fierce competition each year first amongst the EMBL Programmes and then amongst the group leaders in those Programmes for the incoming predoctoral fellows are valid criteria, the conclusion is clear, the EMBL predoctoral programme goes from strength to strength. The predoctoral fellows' contributions to the intellectual life of the groups in which they work, and with few exceptions they work very hard, amply repays the Laboratory's investment in this programme, so much so that EMBL will aim for a further expansion to reach a steady state population of about 80 predoctoral fellows instead of the current 60. That target would mean on average two graduate students per eligible research group which, by the standards of many groups in national research institutions and universities, is a modest number.

In EMBL's Annual Report for 1987, and elsewhere (*Endeavour* 14, 95–98, 1990) I have argued the case for establishing in Europe an international predoctoral fellowship programme, on a much larger scale than that operated at EMBL, precisely designed to encourage outstanding graduates to pursue studies for a PhD degree in a foreign country; a programme involving people at the very outset of their research careers that would increase exchange and collaboration between European laboratories; that would at minimal cost help break down national barriers to mobility and not least contribute to international understanding and mutual appreciation of national idiosyncrasies. Two lines of evidence indicate that amongst the graduates of Europe there is a demand for such a programme. First a very large number of applications are received for the dozen or so fellowships EMBL can offer. Second EMBO receives numerous inquiries about the possibility of obtaining financial support for young scientists wishing to do their PhD in a foreign but European laboratory.

The recent political changes in Eastern Europe have resulted in many forlorn requests for fellowships from ambitious young graduates, or their mentors, in those countries. With prospects so bleak at home they are desperate to move to Western Europe to be able to do some state-of-the-art research for their PhD. In the past such an

idea would for political reasons have been inconceivable. Today the political barriers have gone but financial ones remain. All the requests for predoctoral support that EMBO receives, regardless of from which European countries, are turned down because EMBO has no funds for a predoctoral fellowship programme. To my mind a European predoctoral fellowship programme, to include the whole of Europe, would be one of the most timely and rewarding investments that could be made. If many young graduates from Eastern Europe end up in American graduate schools enhancing the USA's intellectual resources, and which resources will be more important in the future, Western Europe will have only itself to blame. There is no gainsaying the fact that many young graduates in Europe, from Ireland to the Urals, would jump at the opportunity of studying for a PhD in a foreign country. But what are the views of the scientific establishment, those who head the laboratories in Western Europe that are the potential recipients of foreign predoctoral fellowships? At least as far as molecular biologists are concerned we now have some data. Last year a set of proposals for a really large increase in the size and scale of the EMBO programmes as well as a proposal to establish a network of EMBLs was sent to the EMBO membership. They were asked for their comments and whether or not they endorsed the entire package proposals or some of them. The set of proposals comprised an increase in the existing EMBO long and short term fellowship programmes, the establishment of an EMBO predoctoral fellowship programme, the establishment of a programme of EMBO investigatorships and finally the establishment of further EMBLs.

Of the 380 EMBO members who replied all but 8 were in favour of the whole package or parts of it. How could the result have been otherwise? Molecular biologists are bound to endorse a proposal to channel more funds to their field. However, the priorities many of the members attached to the various proposals and in particular the proposed predoctoral fellowship programme were more revealing. Apart from the 8 who wanted nothing of the package none of the other 372 commented against the proposal to establish a European predoctoral fellowship programme and many singled it out for special endorsement. To give some examples of the comments: 'A scheme of predoctoral fellowships would be very timely and highly desirable'; 'From the UK viewpoint it would be excellent to have molecular biological graduate students working in European laboratories'; 'I am especially in favour of an increase in long term fellowships and the graduate student fellowships'; 'I especially approve of the predoctoral scheme'; 'Most effective of all would be a larger predoctoral support program than that suggested in the document thus making a bigger investment in the longer term future of European science'; 'I really believe the creation of a graduate student program and the establishment of EMBO research groups would greatly help in breaking the static habit of many national

universities, mine included'. Those comments made by EMBO members working in France, Switzerland, Italy, Belgium and the UK are typical of the many which were strongly in support of launching an EMBO predoctoral fellowship programme. The conclusion seems clear, amongst the senior molecular biologists in Europe there is considerable enthusiasm for a European predoctoral fellowship programme.

A comment made often was that all the EMBO fellowship programmes, the short and long term fellowships that exist and the proposed predoctoral fellowships, should be extended to include Eastern European scientists. Max Birnstiel, the retiring president of EMBO Council summed it up in a nutshell when he said that with regard to Eastern Europe what we now urgently need is a Marshall Plan for Science. But do we have in Europe a latter day General Marshall to set it up and give his name to it?

The proposal to attempt to establish a predoctoral fellowship programme was not at all contentious but the proposal to establish a network of EMBLs was, and it provoked some forthright comments. First let it be said that over 300 of the 380 EMBO members who replied endorsed the entire package of proposals, including a network of EMBLs. The latter proposal has, therefore, the support of the great majority of the respondents. That stressed, the remaining replies fell into two opposed camps, those strongly against the idea or wanting to shelve it for the foreseeable future and those strongly in favour. The primary reasons for opposing the proposal had to do with money. It was argued that the money used to establish additional EMBLs would inevitably result in a reduction in the financial support of national laboratories and in particular drain it away from already hard pressed universities. Although the EMBO proposals emphasized that funding for an enlarged EMBO programme and more EMBLs would have to be additional to existing funding for national laboratories and not at their expense, these members were not persuaded that that could in practice be achieved. The opponents argued against further investment in buildings, bricks and mortar.

One from Britain wrote: 'I support all aspects of the expansion apart from the setting up of a network of EMBL labs, which I oppose. If such labs are set up in smaller countries, or those that are weak scientifically, they are unlikely to work in the near future, if ever. If they are set up in countries with strong molecular biology, they will duplicate and detract from existing resources.' That is a particularly interesting statement because the comments of the EMBO members revealed that there is a North versus South division of opinion about additional EMBLs. The strongest opponents were, almost without exception, from North European countries with strong national molecular biology groups, with a long tradition of excellent research in the field but with current financial problems. On the other hand, those

giving additional EMBLs a high priority were almost exclusively from the South of Europe and in particular Italy, where there is clearly very strong support for establishing an EMBL. I quote two examples that summarise the views of many Italian EMBO members: 'Considering the conditions of basic research in my homeland, I feel strongly that the creation of one or two EMBLs in Italy would have a tremendous impact, for the reasons listed in the document but also because they would set a visible standard of objectivity in evaluating programs and efficiency in administering funds, thus influencing the local institutions and their way of managing research.' And 'I am particularly in favour of EMBO research groups and of a network of EMBLs. As an Italian I do not see any possibility to rescue the Italian academic system from the inside. The power (the positions and the money) is solidly in the hands of people who have often little to do with science. I do not see possibilities of major changes in the near and far future unless other forces from the outside will destabilize this power. A European enterprise can do that. I also think, as mentioned in the EMBO document, that the national scenarios are definitely too narrow for modern science.'

To find that the different countries in Europe have different strengths and weaknesses, different needs and priori-

ties, which extend even to molecular biology, is no discovery. If, however, such differences are allowed to result in a stalemate, or in the pursuit of nothing better than the lowest common denominator they will certainly persist and may well burgeon. If questions of European collaboration are always answered from a purely national point of view then attempts at integrating our separate countries into a European whole that transcends its parts are doomed to fail.

Knowing that over 300 of the 380 respondents support the proposals for more EMBO short and long term fellowships, for new programmes of predoctoral fellowships and EMBO investigatorships and for a network of EMBLs, the EMBO and the EMBL will continue to campaign for the complete package, attaching only one crucial condition, namely that the funding must be additional to, and not at the expense of, the budgets of national laboratories and universities. Although one item or another may be more readily achieved than the rest, and given the repercussions of events in the Persian Gulf none may be easy to realise, the final goal remains the complete set of proposals each satisfying a different need but all in the end synergistic.

J. Tooze