

Fisheries and Food should have seriously advocated such an awkward structure. Who, under the new arrangements, will be to blame if an unproductive research programme is blessed with ministry money? Who, if anybody, will be responsible if imaginative proposals are turned down for administrative or budgetary reasons? Under the new arrangements, the chances are that the Chief Scientist and his administrative superior will be best of all equipped to shift the blame from one to another. The result will be a research programme which is less sharp than it might have been and which is, for that reason, an assurance that Britain will benefit less from the merits of the Rothschild recipe than it might have done. Another unpalatable feature of the arrangement is that the ministry appears to be bent on perpetuating the old tradition that scientists should be kept out of the line of managerial responsibility.

Unhappily, the government's response to its own white paper, published nearly three months ago, is equally laggard in other fields. In the Department of Trade and Industry, for example, where the customers are to be represented by a series of what are called Requirements Boards, progress seems to be painfully slow. So far, the department has not been able to announce the formation of a single board. The more charitable of its critics may suppose that there are second thoughts about the wisdom of this strange device for creating within the same department of government organizations which represent customers (the requirements boards) and organizations which represent contractors (most of whom will be the department's own laboratories). But it is also possible to regard the quite inexcusable delay since the requirements boards were first mentioned in the early summer as a measure of the department's unwillingness urgently to reconstruct its own machinery for making decisions on research and development.

Broadening the PhD

THE Science Research Council and the Social Science Research Council have made a useful if so far modest approach as to how best to devise ways of broadening postgraduate courses. Four years ago, the two research councils set up a joint committee to give advice on the development of courses and the making of awards for the students concerned, with Professor H. Kay of the University of Sheffield as chairman. The committee has now produced an informal report on the subject (*Broader Education for Graduates*, free of charge from the SRC) which starts from the premise that the traditional PhD course is well designed to equip graduates for research work but that it is too narrow for those who follow careers in development, technical planning and production. So the committee has set out to identify opportunities for developing more broadly based PhD courses which would be "intellectually as demanding as the traditional PhD . . . but more directly oriented towards industrial careers". The committee says that the most compelling need for a more broadly based PhD course is the need "to use the enormous resources derived from the discoveries of science and the developments of technology in ways that give the maximum benefit and the minimum harm to the community". Its successes so far include the sponsorship of what is called the interdisciplinary higher degree at

Aston University, an industrial PhD at Loughborough University, an integration of science and economics at the PhD level at the University of Stirling, and schemes for linking postgraduate study with, for example, studies in science policy at a handful of other British universities.

Although the numbers of studentships awarded under this scheme amounted to only 38 in 1971, this is not a field in which anybody would look for rapid progress. The joint committee itself acknowledges some of the more obvious doubts about the broadening of PhD instruction. In particular, it raises the question whether its objectives might not be more easily attained and more permanently secured by a broadening of undergraduate education in British universities, still well on the way to being the most specialized in the world, at least where the brighter students are concerned. The committee is probably right in thinking a more broadly based postgraduate course would help enormously to influence university departments and their teachers in beneficial ways, but unhappily it takes the view that for the "foreseeable future" the tendency to specialize at the undergraduate level will be predominant. Need this be so? Are university courses in Britain so immune to reform? Is there not in any case a likelihood that the brighter undergraduates, those most likely to finish up in PhD courses, will seize such options as are available for broader undergraduate courses? These issues need more careful attention.

At the postgraduate level, there remains a need to know more about the quality of such integrated PhD courses as exist. The danger, of course, is that many attempts at broadening will consist of a traditional PhD course garnished with superficial studies in other disciplines. On the principle that a little learning can never be dangerous, developments like these would no doubt be advantageous to the people concerned. Whether they would be similarly beneficial to employers and to the community is a more open question. It is always possible that the snobbish influence of what might be called PhD-ism might create the illusion that some intellectual magic has been performed. Evaluation should be the next step.

100 Years Ago



THE Commissioners of Her Majesty's Works and Public Buildings intend to distribute this autumn, among the working classes and the poor inhabitants of London, the surplus bedding-out plants in Battersea, Hyde, the Regent's, and Victoria Parks, and in the Royal Gardens, Kew. If the clergy, school committees, and others interested, will make application to the Superintendents of the Parks nearest to their respective parishes, or to the Director of the Royal Gardens Kew, in the cases of persons residing in that neighbourhood, they will receive early intimation of the number of plants that can be allotted to each applicant, and of the time and manner of their distribution.

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