

RESEARCH IN TECHNICAL COLLEGES

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THE question of the status of higher technology is a matter which has been exercising all levels of critical opinion in Britain. In all cases, however, it has been generally agreed that little progress in higher technological education can be made except it be in an institution which itself encourages technological research and development in the appropriate departments. In this field it is of interest to consider the progress in research which has been made in the Textile Department in the Bradford Technical College and some of the difficulties which have still to be faced in this work.

The Wool Textile Research Council was formed some years ago as a committee representative of the industry to collect a statutory levy from the wool industry and dispense the funds among the Wool Industries Research Association, the universities and the major technical colleges of the wool areas of Great Britain. Bradford Technical College draws a considerable sum of money from this body every six months, and together with other grants and scholarships from the City of Bradford, the International Wool Secretariat, the Rayon Research Federation, the Bradford Dyers' Association, Woolcombers, Ltd., and the local Hospital Management Committee, etc., has been able to draw up a wide and comprehensive research programme. This work is partially technological, that is, research and development work on spinning, weaving and designing is in progress, and also a scientific programme has been inaugurated dealing mainly with fibre structure and the growth and development of wool and other related tissues.

A team of research workers in the Department of Textile Industries has been collected during the past three years, and attempts have been made to recruit research Fellows and Scholars from as wide a field of training as possible. It is obvious that this is the best way to broaden the scope of the work and the outlook of the research student during and after his training period. To this end, during the past three years, a staff has been recruited as follows. (These include four members of the research teams who are carrying out work in the Department of Chemistry and Dyeing, and who, with other research workers outside the scope of this discussion, are under the general direction of Dr. R. L. Elliott, head of that Department): (a) four Research Fellows, from the Universities of Oxford, Manchester, Sheffield and London (Bradford external student); (b) eleven Research Scholars for scientific research, from Manchester, Sheffield, Liverpool, London (internal) and London (external); (c) five Research Scholars for technological research—one internal London graduate and four past diploma students of the Textile Department of the Technical College.

It is clear from the list of research workers, whose remunerations vary between £300 and £900 (approximately) a year, that the industry and local authority have carried out their commitments to the full and with a considerable sense of urgency. In point of fact, the specialized equipment is provided mainly by the Wool Textile Research Council, although it must be clearly understood that from the point of view of development work the education authority has during

the past provided a complete range of pilot plants so that trials can be carried out in a routine manner in the spinning, manufacturing and finishing sheds of the Department. Thus, even before its expansion the Textile Department has had adequate equipment for certain of its anticipated research and development work. When, however, one considers the academic awards available to the students, the situation can at its best be described as chaotic and at its worst, farcical.

First, there is no fundamental difficulty for London graduates in submitting work for higher degrees. Secondly, in the case of non-London graduates, those from the civic universities can submit work for M.Sc., but are not acceptable to these institutions as Ph.D. students. In this way they are no more favourably placed than graduates working in industry, so that research in technical institutes with scholarship finance is only likely to attract a core of enthusiasts. The graduates from the older universities are in an even less enviable position; there is no research degree which they can attain.

Finally, for the diploma students the outlook is no more encouraging. All the students mentioned earlier with the primary qualification are eligible for the direct award of associateship of the Textile Institute two years after obtaining the diploma and when they reach the age of twenty-five years. Three of these students have already carried out sufficient research to submit the work for the award of fellowship of the Institute, essentially a research qualification, but the latter diploma cannot be held for some years after the student has been awarded the associateship qualification. (I am not in disagreement with the principle of the award of the associateship at twenty-five and fellowship at thirty (approximately), as many factors other than academic ability are involved in all such professional awards.) Thus, academically, students may well be of fellowship standard before they have reached the age barrier of associateship. Unfortunately, there is no award whatsoever which can give these technological research workers an academic designation of the standard which they have attained.

From the academic point of view, therefore, the provision of appropriate degrees is the final stage in the establishment of a school of textile research in Bradford Technical College. The standard of research work and the theses submitted by the research students of the College have been of a sufficiently high standard that up to the present no application for a higher degree has been rejected by the external examining bodies, from which it is reasonable to assume that the work is of an adequate standard. One might therefore ask, what is the difficulty?

No longer can the blame for the inadequate provision of opportunity be laid at the door of the City or the industry; it now appears to rest firmly on the shoulders of these bodies whose terms of reference include the authorization and institution of scientific and technical degrees and diplomas. I have directed attention to these anomalies and difficulties with some diffidence.