

INDUSTRY AND THE TECHNICAL COLLEGE IN BRITAIN

THE handbook entitled "Industry and the Technical Colleges"* which has been issued by the Joint Federation of British Industries-Technical Colleges Committee under the auspices of the Federation's Education Committee, is based on papers prepared by the Committee as a sequel to discussions at a conference convened by the Federation in May 1954 between representatives of industry and the technical colleges. Among the points covered at the conference were co-operation between industry and the technical colleges, flexibility in technical education, recruitment from the secondary schools, the supply of teachers, sandwich courses, advanced short courses in applied science and technology, research in technical colleges, technological careers for women, the technical college and education for management, and equipment in technical colleges. The handbook, which is published as a contribution to the public discussion of these important issues, sets forth the views and recommendations of the Joint Committee.

Recognizing that a growing proportion of the technicians and technologists required by industry in Britain will come from the technical colleges, the handbook urges the need for greater co-operation, both formal and informal, between industry and the technical colleges: unless they are aware of each other's activities, the colleges will be unable to provide what is needed and industry will not reap the full benefit of the resources available. Accordingly, the Committee recommends that directors and senior executives should be prepared to serve on governing bodies, advisory committees and regional councils and that firms should plan training programmes in close consultation with colleges and expand part-time day release wherever possible. The colleges are recommended to review, where appropriate, the composition and terms of reference of governing bodies and advisory committees, and to adjust courses and teaching methods to the changing needs of industry. They should also encourage the secondment of teachers to industry, and firms are recommended to make available qualified members of their staff for part-time teaching.

As regards courses, firms are recommended to assist actively the development of 'sandwich' courses, and small- and medium-sized firms should co-operate in jointly sponsoring appropriate specialized courses. The co-operation of industrialists in the selection of management students is essential, and firms should inform colleges and regional advisory councils of the calls for special advanced courses. On their side, the colleges should see that syllabuses of vocational courses contain a proportion of liberal subjects and should see both that secondary school boys and girls are more fully informed of their facilities and that more information about advanced courses is brought to the knowledge of industry generally. Research in technical colleges should be expanded and devoted primarily, but not exclusively, to the solution of industrial problems. Teaching staffs should be encouraged to undertake research, and industry could help by grants, gifts and loans of special equipment, and of periodicals and special publications, as well as by establishing research

studentships or junior fellowships. The importance of publishing industry-sponsored research whenever possible is stressed.

The handbook recommends the employment of more women in scientific and technological work and suggests that the colleges could help here by training girls for employment in such capacities as laboratory assistants. The need for better technical equipment is also emphasized, and firms are recommended to assist by donations in cash or in kind, while the establishment by the colleges of a central clearing-house for exchange of information on offers of equipment is suggested. The importance of social amenities is likewise stressed, and any help which industry can give in this respect will be a very real contribution towards achieving the aims of technical education in Britain to-day.

SOCIAL AND ECONOMIC RESEARCH

A COMMITTEE with considerable if indirect influence on Great Britain's social and economic policy was set up in 1947 by the then Lord President of the Council and the Chancellor of the Exchequer. The committee is called the Interdepartmental Committee on Social and Economic Research and its members are drawn from university and government departments concerned with social and economic matters either as subjects of study and research or as branches of public administration. The Committee was given the following terms of reference and these have not been changed during the intervening years: "to survey and advise upon research work in government departments, and in particular (a) to bring to the notice of departments the potential value for research purposes of the material which they collect and to suggest new methods and areas of collection; (b) to advise on how there could be made available to research workers information gathered for their own purposes by the departments which has potential value as material for research".

The Committee has now produced its third report and, in it, surveys the recommendations it has made and the results it has achieved over the past nine years*. Various lines of approach have been used for ensuring that government departments are aware of the interest of research workers in the data assembled for administrative purposes and also in appropriate cases to suggest new methods and areas of collection. For example, general recommendations have been addressed to social and economic departments on such matters as consultation on their statistical programmes; the deposit of unpublished government papers in suitable libraries has been advocated and facilitated; the aims and activities of the Committee have been brought to the notice of a wider public through the publication of reports and "guides to official sources". The more usual procedure during the period under review, however, has been to make suggestions to particular departments after their work and the material which they collect and produce have been intensively studied by one of the specially appointed sub-committees, which are suitably strengthened for the purpose.

The second main concern of the Committee is that research workers should know what material is

* Industry and the Technical Colleges: A Review of Some Current Problems. (F.B.I. Handbook.) Pp. iii+44. (London: Federation of British Industries, 1956.) 3s.

* Report of the Interdepartmental Committee on Social and Economic Research (H.M.S.O., 1956).

available and should, within reason, be helped to gain access to it. To some extent the Committee's recommendations have led to the publication of additional material by departments in annual reports or otherwise. The Committee itself has published several "Guides to Official Sources"; has circulated to a select list of university and other research libraries particulars of unpublished material which departments are willing to make available to the libraries; and, on a few occasions, the Committee has been able to put individual research workers in touch with the appropriate departmental officers.

In earlier reports the Committee emphasized how difficult it sometimes was for the research worker to discover what material of relevance to his studies actually existed in government departments and how these could be made available.

Recent investigations suggest that, in general, departments publish statistics more freely than they used to and are usually prepared to deal sympathetically with requests for access to unpublished material in their possession.

The well-proved device of *ad hoc* sub-committees, made up of those members of the Committee with special knowledge or special interest in the subjects under review and reinforced with outside experts co-opted for the purpose, has again been the standard mode of procedure in the examination of the basic questions: what do departments collect; how far is it or could it be published or made otherwise accessible to students; and are there changes in present methods or treatment of the material that seem worth making in the department's own interest on one hand or in that of research workers on the other?

The work of four such sub-committees during 1951-55 is covered by the present report. They were concerned with the Board of Trade; with the proposed content of statistical tables for the reports of the 1951 Census; with local government statistics relating particularly to finance; and with the Ministry of Food.

Recommendations made to departments during the five years ranged widely. Patents, company records, insurance and bankruptcy statistics, as well as statistics relating to the administration of enemy property, are among the subjects on which recommendations were made to the Board of Trade; the Committee also conveyed its views to the Board on the question of publishing selected papers on foreign economic relations.

The registrars general were advised on tables for information obtained by the 1951 Census on birth-place and nationality, education, classification by social class, the cross-classification of occupation within industries, fertility, housing and the characteristics of private households. The Committee also made suggestions for detailed census statistics of the large conurbations (Greater London, west Midlands, south-east Lancashire, Merseyside, west Yorkshire, Tyneside and central Clydeside).

Recommendations were made to those departments concerned with local services and which publish, either in their annual reports or as separate returns, a wide range of local government statistics on such matters as finance, health education, child care, police and fire services and local elections.

The broad nature of the survey of Ministry of Food material did not preclude the committee from making recommendations on points of detail. The report refers to statistics of food supply and procurement, home production, processing and manufacture;

stocks; the distribution and use of food; the administration of food controls; prices and margins; and household food surveys. In particular, the Committee pointed to the research interest in the continuance of the National Food Survey and advocated two publications on statistics of food and agriculture: a periodical for current figures and a further addition to the series of "Guides to Official Sources".

The report touches on the relevance to the Committee's work of the recommendations of the Grigg Committee on departmental records, and also emphasizes the importance to research in the social sciences of being able to obtain comparable statistics from each part of the United Kingdom. In the latter connexion, reference is made to the recent production by departments of a key to differences between English and Scottish statistics of crime.

This report serves as a reminder of the need for close co-operation between departments, as the gatherers and producers of information (particularly statistical data) on almost every aspect of economic and social conditions, and the universities and research institutes which can also use that material for the common good.

TREATMENTS AFFECTING FREE ENDOGENOUS GROWTH-SUBSTANCES IN PLANTS

BECAUSE they considered that the possible effects of synthetic auxins and anti-auxins on the metabolism of indole-3-acetic acid have been inadequately studied, L. J. Audus and R. Thresh have investigated the effects of such synthetic substances on the levels of free endogenous growth-substances in plants (*Ann. Bot.*, N.S., 20, 79, 439; 1956). Seedlings of peas, beans and sunflower were treated with the synthetic auxin, 2,4-dichlorophenoxyacetic acid, and two supposed anti-auxins, 2,3,5-tri-iodo-benzoic acid and maleic hydrazide, at non-toxic levels sufficient to cause well-marked growth responses. Estimates of the content of alcohol-extractable growth-substances were afterwards determined, after separation by paper partition chromatography. Six active natural compounds were indicated in these extracts, but only the effects of treatments on indole-3-acetic acid levels have been followed in detail.

As 2,4-dichlorophenoxyacetic acid treatment of both leaves and roots had no detectable effect on the levels of free endogenous indole-3-acetic acid, the authors conclude that it is an auxin in its own right and does not act on growth by disturbing the indole-3-acetic acid metabolism. There are indications that considerable amounts of the absorbed 2,4-dichlorophenoxyacetic acid are converted in plant tissues to a neutral detoxication product which is easily decomposed to liberate 2,4-dichlorophenoxyacetic acid during chromatographic analysis. Treatment of pea roots by 2,3,5-tri-iodo-benzoic acid is very effective in reducing their free endogenous indole-3-acetic acid content, in some cases to 1/10,000 the normal level. The implications of these findings are discussed in terms of the physiological and morphological responses of plants to 2,3,5-tri-iodo-benzoic acid treatment. The authors state that maleic hydrazide may increase slightly the level of free endogenous auxin in pea roots but that further confirmatory work is required.