

Meetings

476TH Meeting of the Biochemical Society, November 18, Medical Research Council Laboratories, Carshalton (Executive Secretary, The Biochemical Society, 7 Warwick Court, Holborn, London, WC1).

FLUORO-ORGANIC Chemistry, March 28–29, 1968, University of Birmingham (Assistant Secretary, Society of Chemical Industry, 14 Belgrave Square, London, SW1).

AUTHORITY and Leadership Working Conference, March 29–April 11, 1968, Leicester (Conference Secretary, Centre of Applied Social Research, Tavistock Centre, Belsize Lane, London, NW3).

BIOLOGY of Reproduction in Mammals, April 9–11, 1968, Nairobi (Professor E. C. Amoroso, Department of Physiology, Royal Veterinary College, University of London, Royal College Street, London, NW1).

MARINE Food Chains, July 23–27, 1968, University of Aarhus (Dr J. H. Steele, Department of Agriculture and Fisheries for Scotland, Marine Laboratory, P.O. Box 101, Victoria Road, Aberdeen).

HAEMOPHILIA, August 26–28, 1968, Montreal (The World Federation of Haemophilia, 122 Arlington Avenue, Montreal 6, Quebec).

CORRESPONDENCE

Informed Chemists

SIR,—It is encouraging to those like myself working on the bibliographical side of science to read in a recent issue (*Nature*, 215, 1324; 1967) that British chemistry PhD students are to be kept up to date by computer. The students will all be in their third year and this should mean that they carry the resulting familiarity with mechanized information services over into their future jobs.

In planning this exercise, one wonders why the Office for Scientific and Technical Information thought it necessary to select and train six liaison officers to act as regional agents. Why not make use of university library staffs, already to some extent conversant with local research projects, with far better lines of communication into local chemistry departments and already working in the documentation field? Does OSTI not know that British university libraries already act as local agents for other computerized information services such as that for medical literature (MEDLARS) and that many of them are developing courses on documentation for PhD students, chemists included, which would make an ideal platform for promulgating schemes such as this?

I recognize that the scheme is an experiment, run in conjunction with the Chemical Society's Research Unit in Information Dissemination and Retrieval at Nottingham University. But in an experiment on such a scale and especially one designed also to influence people's future actions, why not normalize as far as possible the business of getting students to describe their research project in terms of an array of subject headings? This is rarely as painless as it sounds. It would be a pity if experience of a rather remotely controlled experiment in information dissemination like this were to put students off the kind of information services, based on libraries, which will be available to them later on in industry or Government research.

Yours faithfully,

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Towards a Broader Curriculum

SIR,—Few engineers would disagree with the spirit of the Declaration of the Cambridge Conference on a Broader Curriculum in sixth forms reported in your columns of 23rd September (*Nature*, 215, 1329; 1967), or underestimate the seriousness of any failure to solve the many educational problems involved. D. W. Hutchings in a recent survey for CRAC found that only 137 out of 2,006 science and technology students at 5 major universities had obtained an "A" level in an arts subject.

Priority appears to have been given at the Conference, not unnaturally, to the interface between schools and university, but Dr. Nichol drew attention to looking at education as a whole, and this entails a closer look at the social needs of the country whose taxpayers, after all, foot the bill directly or indirectly. The end point of schools is too apt to be conditioned by the number of university places obtained, irrespective of the suitability of the discipline entered in relation to its later value. Equally important would seem to be the interface between university and the field of postgraduate employment.

It is so often said that universities would be ready to change curricula if they only knew what the customer really wanted, but that the industrial customer gives conflicting requirements. It is suggested that an extensive survey is needed over the whole field of technology on the lines of that conducted in 1961 by Professor Edgeworth Johnstone for chemical engineers, and in 1964 by Professor Hutton and Dr Gerstl for mechanical engineers. The recent CEI/Ministry of Technology survey of 20,000 professional engineers has already shown the superior earning capacity over the £2,000 mark of graduates compared with non-graduates. A further survey conducted in conjunction with other learned societies could yield much of value.

The Hutton/Gerstl survey covering 387 mechanical engineering graduates revealed that the usage of subjects in the practice of their profession ranked in the order—mathematics, engineering drawing, technical report writing, applied mechanics, properties and strength of materials, industrial administration, followed by some fourteen technical subjects with foreign language rating last. But when asked to suggest an ideal course the general opinion favoured a time distribution of

Basic Engineering Sciences, e.g., strength of materials	27%
Fundamental Sciences (maths, physics, chemistry)	23%
English and Humanities	7%
Technical Report Writing	7%
Foreign Languages	7%
Design Engineering	13%
Industrial administration, economics, social science	10%
Speciality engineering, e.g., instrument or textile	6%

which illustrates that these engineers themselves were well aware of the great importance of non-technical subjects, particularly of communication, and of the danger of blinkered curricula. Maybe the doctor provides the remedy, but the patient can at least indicate the symptoms; a similar survey of graduates qualified in the last 10 years, say, including Dip.Techs., might reveal a great many worrying symptoms, with the need for much greater liaison between universities and industry.

Mr Morrison's suggestion of five subjects for university entry prompts the question of whether consideration has been given to the suitability of the proposed European International Baccalaureat.

Any changes in curricula, however, will only be pipe dreams unless an adequate number of well qualified maths and science teachers is forthcoming. The CEI/Ministry of Technology survey indicates that the salaries of maths and science (men) graduate teachers in maintained schools were below those for graduate engineers, particularly after the age of 38.

Yours faithfully,

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