

U.K. Honours Courses in Mathematics

A PAMPHLET on honours courses in mathematics in the universities of Great Britain, prepared by A. P. Rollett, was published in 1963 by the Association of Headmasters and the Association of Headmistresses (*Honours Courses in Mathematics in the Universities of Great Britain*. Pp. ii+61. London: Incorporated Association of Headmasters, 1963. 3s. 6d.). In this, those honours degree courses which required mathematics as at least one-half of the course were described, with notes on entrance qualifications and an informative general introduction. This guide has already proved its worth in helping the prospective undergraduate to discover those universities which are offering courses most suited to his or her particular aptitudes and tastes, while the introduction does something to help him to bridge the gap, always tending to widen, between school mathematics and university mathematics. A first supplement, compiled by W. J. Langford, has now been issued, in which details of courses available in the ten colleges of advanced technology are given, and alterations and additions to the 1963 university information are noted (*Honours Courses in Mathematics in the Universities and Colleges of Advanced Technology in Great Britain, Supplement No. 1*. Pp. 28. London: Incorporated Association of Headmasters, 1964. 1s. 6d.). The usefulness of these signposts to a somewhat tangled domain is beyond question. It is good to know that new editions may be expected in 1965, and that information about courses in regional technical colleges and in training colleges may then be included.

New Labelled Compounds from the Radiochemical Centre, Amersham

Of the radioisotope preparations available for blood cell labelling, di-isopropylphosphorofluoridate-³²P is considered by many workers to provide most nearly the qualities of an 'ideal' label; it appears not to elute, does not produce measurable cell damage and is not re-utilized. The Radiochemical Centre, Amersham, has now made available a sterile solution in propylene glycol. The solution cannot be heat-sterilized because of thermal instability and reaction with the solvent, but γ -irradiation has been successfully adopted as the sterilization process. It is supplied in the following forms:

Packaging	Price
Ampoules containing 200 μ c. in 1-ml. propylene glycol	5 ampoules (1 mc.) £15; 10 ampoules (2 mc.) £25; then £10 per 5 ampoules
Penicillin-type bottles containing 1 mc. in 5-ml. propylene glycol	1 bottle (1 mc.) £12; then £8 per bottle
'Clabritic' vaccine bottles containing bulk solution at 200 μ c. per ml.	1 mc. £12; then £6 per mc.

The following compounds have been introduced since the issue of the Radiochemical Centre *Supplementary List No. 1*: DL-adrenaline-7-^T; allyl isothiocyanate-³⁵S; carbaminoylcholine(methyl-¹⁴C) chloride; dimethyl sulphoxide-³⁵S; dodecane-1-thiol-³⁵S (dodecyl mercaptan-³⁵S, lauryl mercaptan-³⁵S); iodinated polyvinyl pyrrolidone-1125, sterile solution; oestradiol-4-¹⁴C (benzene/2 per cent methanol solution); oestrone-4-¹⁴C (benzene solution). Further information can be obtained from the Radiochemical Centre, Amersham, Bucks.

Codes of Practice on Prestressed Concrete

THE ever-increasing use of prestressed concrete in building and civil engineering in the United Kingdom and in most European countries stems largely from interchange of ideas and the results of international research. Codes of practice and specifications may, and often do, vary from one country to another, and contractors and engineers concerned with overseas contracts must necessarily have prior knowledge of such variations. As a practical means of collating information on this subject from different sources, not only for builders and civil engineers, but for all those concerned with design and construction in prestressed concrete, translations of the

present-day specifications and codes of practice operative in different European countries are available (*Codes of Practice on Prestressed Concrete*. Nos. 1-7. London: Cement and Concrete Association. 20s. each). Of this valuable series, seven are now available: No. 1 (Germany), *Prestressed Concrete: Code of Practice for Design and Execution* (Version of October 1953, DIN 4227); No. 2 (Belgium), *Code of Practice for the Use of Steel in Prestressed Concrete Structures* (December 1960, document 215/4); No. 3 (Holland), *Directives for Prestressed Concrete* (Amsterdam, Stuvo, 1962); No. 4 (Austria), *Directives for the Design and Construction of Prestressed Concrete Structures* (Wien, Bondi and Sohn, 1960); No. 5 (Switzerland), *Standard Specifications relating to Concrete, Reinforced Concrete and Prestressed Concrete Structures* (Zürich, Société Suisse des Ingénieurs et des Architectes, 1956); No. 6 (Poland), *The Design of Prestressed Concrete Structures* (Konstrukcje z betonu Sprezonego, Warsaw, 1957); No. 7 (Finland), *Code of Practice on Prestressed Concrete* (Helsinki, Rakennusinsinööriyhdistys r.y., 1958).

Coal Research in Australia

THE Division of Coal Research, Commonwealth Scientific and Industrial Research Organization (Chatswood, New South Wales), publishes periodically a useful bulletin, *Coal Research in C.S.I.R.O.*, to provide "... an outline of the investigations in progress at the laboratories at North Ryde". A recent issue (No. 23; July 1964, Melbourne) emphasizes the importance of research into processes offering new potential methods for utilization of certain by-products of coal carbonization in gasworks and steelworks. It is noted that profitable disposal of by-products of coal carbonization has hitherto played an important part in the economics of this process, including coke in the case of gasworks, but due to the rapid growth and competition of the petrochemical industry, such disposal in recent years is becoming increasingly difficult. Changes in the pattern of chemical manufacture due to this cause are to-day world wide. The papers in this issue include "Predicting Coke Strength"; the theme here is that "... it would be of immense assistance to coke-oven operators to be able to make accurate predictions of coke strength based solely on the characteristics, as measured in the laboratory, of the coal being carbonized. This article suggests a basis for making such predictions". Another paper, on improving the flow properties of road tars, describes how, by suitably treating coal tars, "... relatively low-cost road binders can be prepared which in certain important respects are at least equal to the petroleum bitumens now being used as binders in the construction of all-weather sealed roads". D. J. Williams contributes an article on oxidation of sulphur dioxide in combustion processes, wherein it is shown that in the oxidation of sulphur dioxide to the trioxide in combustion gases, of the active intermediates involved, the role of atomic oxygen appears to be the most important. The porous structure of solid fuels influences their behaviour in combustion and gasification; an article on surface-area measurements describes a method of surface-area determination based on measurements of the adsorption of xenon and krypton. An article on the structure of low-temperature tars deals with tars derived from low-temperature fluidized carbonization of coal, for which, up to now, there has apparently been little commercial outlet. This article discusses an investigation involving both physical and chemical techniques, "... whereby existing knowledge of the average compound-type composition of such tars has been extended further into the high-molecular-weight range, thus bringing one stage nearer the possibility of utilizing tars for a wider variety of purposes than at present". The issue concludes with a short paper on tars from the Onia-Gegi gasification process. The inclusion of abstracts of some recent C.S.I.R.O. research papers is a useful guide to other work on coal utilization carried out by this Organization.