

associated physical properties. The molecular chain structure is particularly emphasized and is illustrated by large-scale molecular models. Then, with the aid of mechanical analogies, the packing of the chains is related to the physical properties, tight-, medium- and loose-packing corresponding to fibres, heat-softening plastics and rubbers respectively. In the case of the rubber structures, the chains can be locked by means of cross-connecting atoms, and this produces a heat- and chemical-resistant material which is called a heat-hardening or thermosetting plastic. The use of fillers to improve this plastic is also discussed. To illustrate the chemistry, the phenol-formaldehyde plastic is considered. The last part of the film ranges over the industrial use of plastics. The production of the film is of a high standard, and scientific accuracy has been maintained throughout. No doubt the film will be widely used for educational purposes, and it can be strongly recommended for showing to senior forms of schools, etc. Applications for the loan of prints should be made to Bakelite, Ltd., 18 Grosvenor Gardens, London, S.W.1. *26*

Plant Propagation by Cuttings

A USEFUL short paper by E. E. Kemp (*J. Roy. Hort. Soc.*, 73, Part 9, 291-305; Sept. 1948) gives some very practical information on the rooting of more difficult cuttings. The author draws on the extensive practical experience of the Edinburgh Royal Botanic Garden to describe the important factor of selection of material for this type of propagation. Descriptions of this are greatly helped by a series of very clear photographs. In the sections on preparation of cuttings for insertion and on rooting media, the writer interprets practically the physiological approach typified by Priestley and Swingle. Nodal cuttings are more generally satisfactory because of the absence of pith and the presence of additional meristem. The effect of environment on the healing of the cut wound and subsequent formation of callus and roots are also described on a physiological basis, which further indicates the chief desiderata of the rooting medium—air and water. It is indeed refreshing, in this era of hormonal rooting of cuttings, to find a good exposition of the blending of 'normal' physiology with practice for dealing with some of the difficulties of propagation. *26*

Industrial Management

A BOOKLET by Colonel L. Urwick entitled, "Occasional Papers No. 1: A Short Survey of Industrial Management", is the first of a series published by the British Institute of Management; it consists of 32 pages and is priced at 2s. 6d. After reviewing successively the nature of management, the evolution of 'scientific management', and the mechanics and dynamics of management, Colonel Urwick emphasizes the immense amount of work still to be done, alike in widening and deepening the field of research and in securing a uniform application of the results already attained. This admirably written paper displays to the full the wide range of the author's thought and reading and his keen appreciation of the work of F. W. Taylor, Mary P. Follett and Elton Mayo. Merely as an introduction to the literature of management it could scarcely be bettered, and the bibliographical references are full and properly placed; but beyond this, Colonel Urwick writes much that is pertinent on such matters as the control of production, the selection of personnel,

joint consultation, job analysis and the like. This paper sets a high standard which succeeding papers will do well if they can maintain.

Engineering Metrology

A FULL-TIME postgraduate course in engineering metrology (technical measurement), extending over one academic year, is being started this year as a permanent feature in the courses provided at the Manchester Municipal College of Technology. The course will deal with the science and practice of measurement in relation to engineering products and the machine tools employed in production, and to industrial and scientific research. In addition to the subject of metrology, other aspects of engineering will be dealt with in the course, and facilities for research will be provided. This course, which is the first of its kind in Great Britain, represents an initial step towards solving the problems whereby the accumulated store of engineering knowledge can be passed on to the newcomers in the engineering industries and professions. Candidates for admission to the course must be of postgraduate standing. In the first year the number of admissions will be limited to a maximum of about twelve. Further information may be obtained from the Principal, College of Technology, Manchester, 1. *26*

Biology of Water Supply

THE exhibit at the British Museum (Natural History) showing how living organisms affect our water supplies has recently been extended and rearranged. To help the public to a better understanding of the display the original pamphlet called the "Biology of Water Supply" has been re-written by Dr. Anna Hastings and may be obtained from the Museum. Besides descriptions of the plants and animals which may enter waterworks, the pamphlet also contains an account of the treatment of river waters, the standard tests for purity, how water is delivered to the consumer and how cast-iron mains are corroded, as well as a classified list of all the plants and animals which affect water supply in some way. The pamphlet would be of considerable help to sixth-form biology teachers making use of project methods. *26*

Research Boards of the Department of Scientific and Industrial Research

THE following new members of the Research Boards of the Department of Scientific and Industrial Research have been announced. *Building Research Board*: C. W. D. Rowe, managing director, London Brick Co. (a former member of the Board); B. Sandercock, member of executive council, Amalgamated Society of Woodworkers; R. M. Wynne Edwards, Messrs. Richard Costain, Ltd. (formerly director of constructional plant, Ministry of Works). *Chemistry Research Board*: Prof. M. G. Evans, professor of physical chemistry, University of Manchester; Dr. H. W. T. Thompson, lecturer in chemistry, University of Oxford; Dr. F. Roffey, Distillers Co., Ltd. *Forest Products Research Board*: Col. A. H. Lloyd, Imperial Forestry Institute, Oxford; H. J. Nuttall, director, Thomas White and Son, Ltd.; V. A. M. Robertson, chief civil engineer, Southern Region, British Railways. *Fuel Research Board*: Dr. R. Holroyd, research manager, Billingham Division, Imperial Chemical Industries, Ltd.; Sir Charles Ellis, scientific member of the National