

Physical Chemistry

By A. J. Mee. Fourth edition. Pp. xix+753. (London: William Heinemann, Ltd., 1951.) 25s.

THIS well-written book has for years been recognized as a standard introduction to physical chemistry for university students. By resetting the type and by some rearrangements, the publishers have shortened the book by twenty-nine pages: otherwise there is very little alteration from the 1947 edition. The new matter amounts in the aggregate to two pages only; of these, one page is given to chromatography and the other is made up of some additions to a few chapters each too small to be of much value. Further, the author has deleted two adversely criticized pages dealing with the theory of ionic discharge and has not filled the gap. With the uneven advance of knowledge this policy of leaving well alone is highly questionable. For example, the small and unchanged section devoted to artificial radioactivity is now out of all proportion to the very numerous papers appearing on this subject. Again, as the author has left his discussion of nuclear fission unchanged from 1947, he still makes no mention of plutonium and neptunium, of Powell's work on mesons, of the production and use of radioactive tracers, or of polarography. Accordingly, it is astonishing to read the publishers claim that the book has been "revised throughout" and that the treatment of nuclear fission is "up-to-date". Finally, throughout the book the bibliographies are now behind the times.

G. FOWLES

Intermediate Practical Chemistry

By Sylvanus J. Smith. Pp. vii+248. (London: Macmillan and Co., Ltd., 1951.) 8s. net.

TO the text-books already to his credit Mr. S. J. Smith has now added a complete practical chemistry intended for the advanced course in schools and for classes of a similar standard. In selection and treatment the author keeps mostly to the classical tradition; but he occasionally introduces a novelty. Thus in the section on volumetric analysis (83 pages), students are encouraged to prepare standard sodium carbonate by a laboratory modification of the Solvay process. Mr. Smith gives 21 pages to gravimetric and colorimetric analysis, and 35 pages to physical chemistry; organic chemistry, mostly preparations, gets 55 pages and qualitative analysis 52. An appendix contains directions for the preparation of reagents and a table of logarithms. The scheme contains more experiments than can usually be done in a school course, but does not contain any on the colloidal state, or on the determination of gas-volume ratios, and few on inorganic preparations. Still, the book contains a good course of work, and the author is obviously an experienced teacher who knows the limitations of a school laboratory.

Inorganic Syntheses

Editor-in-Chief, Ludwig F. Audrieth. Vol. 3. Pp. xi+230. (London: McGraw-Hill Publishing Co., Ltd., 1950.) 32s.

THIS volume continues a series intended to provide chemists with a compilation of tested methods for the synthesis of inorganic compounds. Any such series is likely to have the limitation evident in this volume—that it provides only for a restricted number of specialists in particular fields of research. The wide variety of techniques common in modern

inorganic chemistry tends to bring discontinuity into any text covering selected compounds rather than chosen experimental methods.

In addition to a number of specially selected single substances, this volume covers several interesting groups of inorganic compounds such as alkali phosphates and fluo-phosphates, a number of anhydrous metal fluorides, and several organo-silicon derivatives. The special techniques required for the preparation of strontium sulphide and selenide phosphors are fully detailed, and a particularly interesting section outlines the extraction and separation of zirconium and hafnium from cyrtolite. Further sections deal with the preparation of boron trichloride and tribromide, rendered particularly difficult by the ease of hydrolysis of these compounds.

The descriptive detail of this volume maintains the high standard set by volumes 1 and 2, and the whole work gives evidence of careful selection and testing of the prescribed methods. It is a worthy addition to any reference library, although the frequency of its use will largely depend on the particular interests of inquiring readers. The book also provides useful material for a neglected aspect of university work—the teaching of preparative inorganic chemistry.

A. J. E. W.

Inland Waterways of Great Britain and Northern Ireland

Compiled by Lewis A. Edwards. Pp. xvi+440. (London: Imray, Laurie, Norie and Wilson, Ltd., 1950.) 30s.

THIS book contains much valuable and detailed information about the canals and rivers of Great Britain and Northern Ireland. The bulk of the text consists of an alphabetical account of each canal and river at present open to navigation, giving areas served, distances, maximum dimensions for craft using the waterway, speed regulations and other information essential to users. In addition, there is a valuable appendix containing short sections on such matters as the history of inland waterways, locks and lifts, aqueducts, bridges and types of commercial craft. There are also navigation hints, tides and tidal information and a list of rivers suitable for canoeing. Particularly useful is the glossary of canal terms, with its definitions ranging from the so-frequently misused term 'barge' to 'chalico' (the mixture used for dressing the timbers of wooden boats) and to the 'gongoozler' (an idle and inquisitive person who stands staring for long periods at anything out of the common).

In a foreword, Mr. R. F. Aickman, chairman of the Inland Waterways Association, stresses the point that the two thousand miles of navigable river and canal in Great Britain offer unlimited possibilities for pleasure traffic, and argues that what has been done on the Norfolk Broads can be done throughout the country.

Under the provisions of the Transport Act, 1947, our navigable rivers and canals have become national property, and the great interest now taken in the possibilities of using these waterways for pleasure traffic, together with the efforts of the Inland Waterways Association, is leading to considerable developments. In addition, it is clear that local water shortages, coupled with serious flooding in many areas, make the maintenance and improvement of the inland waterways of Great Britain a national necessity.

K. G. FENELON