

The Constitutional Diagrams of Alloys

A Bibliography. Originally compiled by Dr. J. L. Haughton. Second edition compiled by A. Prince. Pp. 324. (London: Institute of Metals, 1956.) 35s.; 5.50 dollars.

THIS bibliography is of great value to physical metallurgists, or anyone else who wants to find out quickly what work has been done on the constitution of a particular alloy system. The first edition appeared in 1942 and the present edition, which is about twice as large, covers work published up to the end of 1954, and for some journals until the middle of 1955. There are more than two hundred pages of entries on binary alloys, approximately eighty pages on ternary systems, rather more than ten and less than one, respectively, for quaternary and quinary systems, and one entry for a senary system. It is following a somewhat worn path to point out how well these figures (they are in a very rough way inversely proportional to the possible number of alloy combinations) emphasize the almost infinite scope left for investigation of alloy equilibria, especially when more than two metals are involved. A very useful feature is that the compilers have given, where possible, references to Institute of Metals abstracts. This arrangement fails for certain important ferrous systems, where few references are given; here it would surely have been appropriate to cite the abstracts of the Iron and Steel Institute. However, this is a very minor point, and in conclusion one can only admire the compilers' industry and congratulate the Institute of Metals on publishing this valuable work.

A. R. BAILEY

Chemistry

The Conquest of Materials. By Kenneth Hutton. (Pelican Book No. A353.) Pp. xii + 228 + 26 plates. (Harmondsworth, Mdx.: Penguin Books, Ltd., 1957.) 3s. 6d.

THIS book is divided into two parts, the first of which (58 pages) is devoted to pure chemistry. Holding the view that the layman likes to know something about this aspect of the science, the author goes into it sufficiently for that class of reader to grasp the meaning of such fundamental terms as element, compound, acid, base and salt. In addition, he tackles formulæ and equations, the atomic theory and the periodic system. The molecular structures appearing in this section and the numerous ones given in Part 2 will doubtless please the school pupil but puzzle the layman. The second part of the book deals with the occurrence, manufacture, properties, and the economic and industrial uses of materials, especially those which are the product of modern synthesis. Among these are foods, fuels, fibres, drugs, detergents, explosives, plastics, silicones, spermicides, vitamins and weed-killers. Dispersed through the text are the names of books going deeper into the subject in question. The illustrations consist of twenty-six half-tone plates and thirty-two figures; there are also eleven tables.

The author writes in a pleasing, conversational style and seasons his descriptions with a delightful humour. Whether expatiating on salvarsan, electricity versus coal, 'Terylene' ties and socks, or the hazard of putting an alcoholic under an anaesthetic, he is always accurate and informative. With the knowledge gained from his extensive reading, his visits to industrial works, his experience

as a chemistry master and from his life at home, he has punctuated his descriptions with comments and arresting sidelights so that almost every page is replete with interesting information. Indeed, the book contains a wealth of valuable matter attractively presented. Dr. Hutton has made a great effort to explain the triumphs and the great possibilities of chemistry to the intelligent but non-scientific reader, and it has been a pleasure to review his book.

G. FOWLES

Organic Chemistry

By Louis F. Fieser and Mary Fieser. Third edition. Pp. v + 1112. (New York: Reinhold Publishing Corporation; London: Chapman and Hall, Ltd., 1956.) 60s. net.

SINCE the second edition of this well-known textbook was published in 1949 there have been important advances both in experimental and theoretical organic chemistry. These have been adequately incorporated in this completely revised edition. In theory, conformational analysis, molecular orbital theory and reaction mechanisms have been treated. The elementary discussions of wave mechanics and its relations to valency theory are appropriate in a book on organic chemistry, since the full treatment will usually come in later courses in physical chemistry and the student of elementary organic chemistry needs to know something of them before this. On the factual side the book is unusually complete, with an emphasis on biochemistry which makes it especially valuable. The general treatment of classical organic chemistry is very sound, preparative methods and group reactions not being sacrificed to undue emphasis on reaction mechanisms, although these have their place. Interest is added by brief biographical sketches of past and present organic chemists; the authors say that there are 454 of these. All the formulæ are clearly set out, and the illustrations of apparatus are unusually attractive. There can scarcely be any other book covering such a wide range as this and so up to date. The concise and clear style has enabled the authors to present an astonishing amount of information in a book of reasonable size.

J. R. PARTINGTON

Heterocyclic Compounds

Edited by Robert C. Elderfield. Vol. 5: Five-Membered Heterocycles containing Two Hetero Atoms and Their Benzo Derivatives. Pp. vii + 744. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1957.) 160s. net.

THE fifth volume of this useful series deals with five-membered heterocyclic systems containing two heteroatoms, that is, 1:3-dioxolanes, pyrazoles, indazoles, imidazoles, oxazoles, benzoxazoles, isoxazoles, thiazoles and benzothiazoles. The presentation follows that established by the previous volumes; general methods of synthesis of each class are followed by a discussion of the properties and reactions pertaining thereto. This complex mass of information is methodically and clearly laid out and, although each chapter has different authorship, a pleasingly uniform presentation has been achieved. These volumes are proving most useful in filling the hitherto large gap in the systematic text-book literature of heterocyclic chemistry, although the price will no doubt deter some prospective buyers.

R. A. RAPHAEL