

Book Reviews

Works intended for notice in this column should be sent direct to the Editor (P. P. Ewald, Polytechnic Institute of Brooklyn, 99 Livingston Street, Brooklyn 2, N.Y., U.S.A.). As far as practicable books will be reviewed in a country different from that of publication.

Crystal Structures. By RALPH W. G. WYCKOFF. Volume III (Chapters XIV, XV, Compound Index). 244 text pages, 176 illustrations, 220 pages of tables. Price \$14.50. Volume III (Supplement II: Additions to Chapter XIII). 30 text pages, 64 pages of tables. Price \$4.00. New York: Interscience Publishers. 1953.

Dr Wyckoff's great work *Crystal Structures* is now so well known, not only to crystallographers but to chemists and all those concerned with the structure of matter, that it is only necessary to make a brief reference to it in these columns. The pages before us comprise the Second Supplement, containing additions to Chapter XIII, dealing with the structures of aliphatic compounds. This is the first chapter of Volume III (Organic compounds). In addition, there are two new chapters, XIV and XV, dealing with the structure of benzene derivatives and with the crystal structures of alicyclic and heterocyclic compounds, and of carbohydrates. This largely completes the organic portion of the work, although the Compound Index for these chapters, announced by the publishers, has not yet reached us.

We hasten to congratulate the author on bringing this magnificent work, which aims at describing and illustrating all known crystal structures, to such an advanced stage. Completion is a word which should perhaps not be used in this connexion because an essential feature of the design of this work is a loose-leaf system which enables the material to be kept continually up to date by the issue of supplements to the various chapters. But nearly the whole field of crystal structures has now been covered, and the bibliographies to the present chapters contain a number of references as late as 1952. The work is thus considerably more up to date than the more detailed *Structure Reports* in which the latest volume, just issued, covers the year 1950.

The title of the first new chapter is 'Derivatives of Benzene', but this includes not only polyphenyl compounds but all the condensed ring aromatic hydrocarbons as well. As in the other chapters, there is a descriptive section, an extensive section devoted to tables, a section of special drawings illustrative of the crystal structures, and a bibliography, each of these sections having independent pagination. At first this separation of the tables, illustrations and bibliography from the main text is rather vexatious, but one gets used to it in time and

begins to realize that it is an essential part of the plan for keeping the material up to date, a feature that is perhaps specially necessary in the case of organic structures. In the descriptive part of this chapter a classification based on crystal symmetry is used. The weakness of this method is that it may tend to bring into juxtaposition compounds which are chemically incongruous; but in the present instance it works quite well because some fairly extensive series of related compounds have been studied and these frequently belong to the same common monoclinic space group. In the next chapter, on alicyclic and heterocyclic compounds, no such symmetry classification is attempted, but instead the compounds are arranged approximately in order of increasing chemical complexity. In the organic field in general a chemical classification would appear to be the only one which is really feasible in the long run.

The careful and critical descriptions and the neat compilations of data in this book deserve the highest praise and should earn the gratitude of all crystallographers, and especially of all chemists. One of the most outstanding features of the book, however, lies in the extensive sections of illustrations which accompany each chapter. In this part the reader will find all the important structures illustrated, usually by means of an accurate projection and a beautifully shaded packing drawing in which the molecules stand out with amazing clarity. When it is remembered that all important structures are so illustrated, that the molecules may be as complex as the phthalocyanines, penicillin or strychnine, and that all or nearly all the atoms in six or more molecules are drawn for each structure, the tremendous labour involved will be appreciated. The reviewer has been privileged to see some of the originals of these drawings full scale as they were being executed and hand shaded by Dr Wyckoff, and they are really works of art. Fortunately the reproductions are excellent and on a scale large enough to do justice to the originals.

This book is already widely accepted as a standard and indispensable work of reference in many laboratories throughout the world. These latest additions fully maintain the standard already set, and now bring it to a state of completeness which greatly enhances its value.

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Books Received

The undermentioned works have been received by the Editors. Mention here does not preclude review at a later date.

Bau und Bildung der Kristalle. By F. RAAZ and A. KÖHLER. Pp. iv+185 with 166 figs. Vienna: Springer. 1953. Price 31s.

A New Periodic Table of the Elements. By S. I. TOMKIEFF. Pp. 33 with 7 figs. London: Chapman and Hall. 1954. Price 10s.