

BOOK REVIEWS

Structure Reports for 1954. Volume 18. General Editor, A. J. C. WILSON; Section Editors, W. B. PEARSON (Metals), A. M. BIJVOET (Inorganic Compounds) and J. DONOHUE (Organic Compounds). Published for the International Union of Crystallography N.V.A. Oosthoek's Uitgevers Mij, Domstraati-3 Utrecht, The Netherlands. 1961. viii + 845 pp. 17.5 × 25 cm. Price, \$33.50.

To anyone who is concerned with molecular structures or crystal structures, "Structure Reports" is an essential and indispensable set of volumes. The present volume completes the set through 1954, counting the first seven volumes of its predecessor, the *Strukturbericht*. Completion of the gap in this series a few years ago now makes it possible for the Editors to bring this valuable addition to the literature more nearly up to date.

These reports of molecular and crystal structures are more than abstracts. The Editors and Abstractors succeed admirably in their objectives of complete coverage of the literature, and the presentation of information sufficiently complete that no further structural information could be gained by consulting the paper itself. Indeed, one frequently finds in these abstracts very useful corrections of errors in the original papers, results of further calculations sometimes omitted by the authors, and comparisons of the results with references to current literature which may not have been available to the original authors at the time of first publication. Clearly the efforts have been great, and the results are quite successful. Also clearly, the literature has doubled in a space of about 10 years, and one must hope that every encouragement will be given to the continuation of publication of these volumes at this same high level as the current literature is approached.

Even though the minimum criterion for reporting a paper is the determination or redetermination of a unit cell, there is also included a very large number of other related reports on molecular structure (e.g., electron diffraction) or crystal structure (e.g., powder data, texture, etc.) in these volumes. The Russian journals and some less accessible journals are well covered. Ordinarily, one may expect to find the unit cell and space group, atomic positions and parameters, the interatomic and intermolecular distances, bond angles, details of structure analysis and discussion and related references. Particularly valuable are the occasional editorial comments, which are always in brackets.

The indexing system is complete and useful. A subject index and author index are both available, but most valuable is the formula index in alphabetical order of chemical symbols. An additional index of carbon compounds is also quite useful for the rapid location of compounds. One must be sure to look for the symbol of each element of an intermetallic or inorganic compound in order to use the formula index properly.

Certainly every technical library, every structural research group, as well as every diffraction laboratory should have these volumes readily accessible.

DEPARTMENT OF CHEMISTRY
HARVARD UNIVERSITY
12 OXFORD STREET
CAMBRIDGE 38, MASSACHUSETTS

WILLIAM N. LIPSCOMB

International Tables for X-Ray Crystallography. Volume III. Physical and Chemical Tables. KATHLEEN LONSDALE, General Editor. CAROLINE H. MACGILLAVRY and GERARD D. RIECK, Editors. The Kynoch Press, Witton, Birmingham 6, England. 1962. xvi + 362 pp. 21.5 × 28.5 cm. Price, £5. 15. 0.

The initial revolutionary impact upon the physical sciences of the discovery of X-ray diffraction dates back some fifty years. Subsequent developments in theory and practice have given rise to X-ray crystallography as a well defined field affording a range of methods for the study of diverse structural problems. Especially notable are the increasingly powerful single-crystal techniques for the determination of complex structure; such techniques, it is fair to say, have supplied the basic information utilized by several recent Nobel Laureates in fashioning their outstanding achievements.

The three volumes of the "International Tables for X-Ray Crystallography," comprising approximately 1400 pages of expertly prepared and edited material, are admirably suited to foster the further applications and development of X-ray crystallography in whatever directions these may take. Although any structural study with some claim to sophistication will use information distributed among all three volumes, "Vol. I. Symmetry Groups" rather stands by itself, and no crystallographer

would willingly dispense with it. "Vol. II. Mathematical Tables" and "Vol. III. Physical and Chemical Tables" complement one another so closely as to make the whole greater than the sum of the parts. The scope of these volumes is well beyond that implied by their titles. The tables are there—as comprehensive tabulations of quantitative information ranging from the vital to the merely convenient. But the tables are accompanied and, where need be, are dominated by excellent summarizing discussions of the pertinent operations or principles, including references to exhaustive treatments thereof. "Section 3, Measurement and Interpretation of Intensities," pp. 133–253 of Vol. III, illustrates the treatment of a particularly important subject. No less than five experts contribute to the 24 pages (of which less than six are tables) of "Sec. 3.1. X-Ray Intensity Measurements." The earnest reader of this collaborative product must inevitably gain a good picture of the requirements, applications and special virtues or failings of both the photographic and counter techniques for intensity measurement; he gets, in any case, a clear indication of where his further reading should lie. Other major topics of "Sec. 3, 3.2. Absorption, 3.3. Atomic Scattering Factors, 3.4. Compton Scattering of X-Rays," run more to comprehensive tables, but receive similarly expert summarizing discussions. The data pertaining to X-ray scattering are exhaustive, and are supplemented by tables pertaining to electron and neutron scattering. Indeed, it is the general practice in both Vol. II and III to provide "bonuses" of this sort.

Volume III is divided into eight general sections of which the content and sequence of the first four are particularly adapted to the requirements of structure investigation by single crystal techniques. Section 1, pp. 3–36, "Examination and Preparation of Specimens," displays a commendable insistence upon the useful connections of a wide variety of physical properties with structure. Section 2, "X-Rays and Their Interactions with Crystals," pp. 39–129, is concerned (among other things) with fundamental units and constants, the quantitative characterization of X-rays, and, for the most part, the geometrical aspects of the interaction of X-rays with crystals. An exception to the last statement, and an example of an interesting bonus item, is "Thermal Expansion in Relation to Structure." Section 3 was chosen for earlier comment. Section 4, pp. 255–285, "Interatomic and Interionic Distances," provides critically compiled working tables which, to be sure, should not allow one to ignore original sources. Section 5, pp. 287–329, "Texture and Line-Broadening Analysis. Small-Angle Scattering," presents an authoritative treatment of a very important field. "Protection Against Radiation Injury," pp. 333–338, is the laudable subject of Section 6. A "Dictionary of Crystallographic and Other Terms for Volume III," pp. 339–354 (in five languages) and a "General Subject Index for Volumes I, II and III," pp. 355–362, constitute the respective Sections 7 and 8.

Viewed as completely dependable, constantly used working equipment, the "International Tables for X-Ray Crystallography" come at trifling cost. The gratitude of all who are appreciative of the fundamental role of structure in nature is due the numerous expert contributors to these volumes, especially Dame Kathleen Lonsdale, General Editor, and most generous contributor.

DEPARTMENT OF CHEMISTRY
CORNELL UNIVERSITY
ITHACA, NEW YORK

J. L. HOARD

Steroid Drugs. By NORMAN APPLEZWEIG, Director, Norman Applezweig Associates, Consulting Biochemists. McGraw-Hill Book Company, Inc., 330 West 42nd Street, New York 36, New York. 1962. xv + 742 pp. 16 × 23.5 cm. Price, \$7.50.

This book consists of four parts. The first, consisting of 30 pages, is concerned with the history and background of steroid product development. The second describes in 46 pages steroid production processes. The third, consisting of 208 pages, is entitled: "Steroids in Drug Therapy" although actually more than therapeutic use is described. An attempt is made to review the basic biology of the steroid hormones and the role that synthetic and natural steroids play in modifying these processes. Part 4 is concerned with the classification and tabular listing of biologically active steroids, and the author requires 438 pages for this effort. A short, but useful, index concludes the book.

This is indeed an extraordinary effort to present every aspect of steroidology from the basic chemistry of these compounds to their commercial preparation, their physiological activities, their clinical utilities and some aspects of their biochemistry. The author has stated in his preface that he is indeed seeking to