

adequately indexed, and typographically very clean. Their aggregate price in the series is \$43. There is no royal road to learning, but the roadside stands, like those along more common highways, extract a King's ransom from the eager traveler.

JACOB H. GOLDSTEIN

LEON MANDELL

ALFRED E. WILHELM

*Department of Chemistry and*

*Department of Biochemistry,*

*Emory University*

## Crystallography

**Crystal Data.** Determinative tables.

J. D. J. Donnay and Gabrielle Donnay, Eds. American Crystallographic Association, 1963 (order from Polycrystal Book Service, Brooklyn, N.Y.). x + 1302 pp. \$20.

The first edition of this book, published by the Geological Society of America in 1954, carried the subtitle "Classification of substances by space groups and their identification from cell dimensions." Part 1 of that volume, on the classification by space groups, which was prepared by Werner Nowacki, is omitted from the present volume, but we are promised a second edition of it. The tables for the determination of crystalline materials from cell dimensions have been greatly expanded. "The number of entries, which was about 6,000 in the first edition, is now estimated at about 13,000." However, there are many multiple entries. Parts of the colossal task of compilation were carried out in Leeds, London, Paris, and elsewhere, with subeditors for inorganic compounds, organic compounds, and proteins, but the final assembly was carried out in Baltimore.

The work consists of a short preface and introduction, followed by tables (pages 19 to 1019), indexes (by formula and by name), and two appendixes. The tables are similar in form to those in the first edition. There is a section for each crystal system, in which substances are listed in the order of numerical values of certain axial ratios. For each substance the following information is given: cell dimensions, space group, cell content, structure type, measured and calculated specific gravity, name or formula, and literature reference. For many substances there are editorial comments,

generally referring to auxiliary information, pseudocells, conflicting data, or related matters, with references to other entries.

The introduction is much briefer than the one in the first edition. The true *reduced cell* rather than the *De-Launay cell* is now chosen to define the lattice. This change, which should affect only triclinic (now called "anorthic") materials, is referred to only in a footnote. The concordance of space group notations is copied without change from the first edition. Appendix 1, by M. V. King, is devoted to protein crystal data. Appendix 2, tables of space group criteria, is slightly modified from that in the first edition.

The general editor concludes the preface with this statement, "With due humility I repeat a former warning to the reader to beware of misprints and above all not to quote from this book second-hand numerical data." The number of misprints and other errors in the book is certainly very small. I noted one faulty reference in the name index. Other apparent errors probably can be attributed to conflicts in editorial policy and to the inclusion of material from the earlier edition without needed modifications. For example, incorrect data and the extended comments on schairerite (H-2.742) are repeated unchanged from the first edition, though correct data appear in standard reference works. The statement, in the introduction, that "the space group may not be known until the crystal structure is fully worked out" implies that, when the structure is fully worked out, the space group is known. Nevertheless, alternative space groups are listed for a number of materials for which the structure is "fully worked out."

Under the heading Structure, there are indications of the state of knowledge with respect to the crystal structure of the substance for which the lattice is recorded. This might be most helpful. Unfortunately there are many blanks; I sampled 15 pages throughout the book, and the result suggests that structural information is lacking for about 40 percent of the materials for which the lattice is known. However, such a conclusion would be unduly pessimistic. In many cases the blanks probably mean only that there was no structural information in the source cited, although a full structure determination may have been reported elsewhere. Strangely, blanks also appear in

some instances when a full structure determination was reported in the source of the data cited.

This work, nominally a set of determinative tables for the identification of crystalline materials by axial ratios based on cell dimensions, is also by far the most comprehensive guide to the sources of crystal data. It is appropriate to repeat some remarks that I made in a review of the first edition, which apply equally to the present one. "This reviewer has spent pleasant hours just browsing through the tables enjoying the bits of intriguing information. But the volume can be put to much more solid uses and not only in the identification of crystalline substances. In its pages can be found suggestions for many problems in crystal chemistry and the solutions of others. This book is highly recommended to all mineralogists and crystallographers (chemists, metallurgists and many others) and it is hoped that it may lead some to realize the advantages of single crystal x-ray examination for purposes of identification" [*Am. Mineralogist* **40**, 784 (1955)].

A. PABST

*Department of Geology and  
Geophysics, University of  
California, Berkeley*

## Science and Society

**Heredity and Human Life.** Hampton L. Carson. Columbia University Press, New York, 1963. xviii + 218 pp. Illus. \$5.

The well-read and well-educated person who wants an introduction to human genetics will find it in this book. The first half of the book clearly and concisely describes the processes of genetics as they apply to man. The discussion includes the current findings in chromosomal genetics and a bit about the chemistry of heredity, but correctly stops short of the intricacies of these subjects. Gene and chromosome mutations are discussed as natural and as artificially caused phenomena. This section creates some false impressions, particularly in that it stresses the effects of strontium-90, which is not important genetically, but neglects almost all of the other elements which, though mostly transient, contribute high doses of radioactivity to the gonads.

The mood and tone of the book