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engineering fundamentals, the book has much to recommend it. A discussion of pertinent equipment has been included with each topic covered. Many solved problems are included. Nearly every chapter contains a new set of problems for solution by the student. The development of the theory contains numerous references to pertinent recent research. Moreover, topics of which our knowledge is at present inadequate are brought to the attention of the student. Finally, the authors have, on the whole, succeeded in conforming to the notation adopted as standard by the American Institute of Chemical Engineers.

EDGAR W. SLOCUM

X-ray Diffraction Procedures for Polycrystalline and Amorphous Materials. H. P. Klug and L. E. Alexander. John Wiley and Sons, Inc., New York (1954). 716 pages. $15.00.

The phases of the subject emphasized by the present book are indicated in the title. First, it concentrates on the experimental or procedural aspects of the field; second, it is devoted entirely to polycrystalline or amorphous materials; i.e., it omits entirely single-crystal techniques, such as the Laue method and the rotating-crystal method. The authors contend that although the widest applications of X-ray diffraction are to polycrystalline materials, most previous treatments of this field are out of date or incomplete, especially with regard to the use of the Geiger counter spectrometer.

As a result of the concentration on techniques and on polycrystalline materials, this book is more suitable as a reference book for those who actually use X-ray diffraction methods in the laboratory rather than as a student textbook. Nevertheless, it is not entirely a reference book. In order to make the book as self-sufficient as possible, the authors have included introductory chapters on crystallography, the production and properties of X rays, and X-ray diffraction by crystals. These introductory chapters cover the first 160 pages of the book. They are well presented and in themselves constitute a handy little textbook for one who wishes to review these topics.

The principal parts of the book deal with the techniques and applications in the study of Debye-Scherrer diffraction patterns by both photographic and spectrometric methods. Topics include interpretation of powder-diffraction data, qualitative and quantitative analysis of crystalline powders, precision-lattice constant determinations, crystallite-size determination from line broadening, stress measurement in metals, and preferred orientation determination. A chapter on diffraction by noncrystalline materials is then given. The final chapter deals with small angle scattering.

The reader interested in metals may bemoan the brevity of the section devoted to preferred orientation determination and to the description of the use of the stereographic projection in such studies. Even more disturbing is the implication (page 556) that annealing removes rolling textures, without any mention of the existence of recrystallization textures.

A. S. NOWICK