

uate year at a university. The chapters are (1) *Principles of Crystallography*; (2) *Geometrical Representation of Crystals*; (3) *The Nature of Diffraction*; (4) *Properties of Radiation Useful for Studying the Structure of Materials*; (5) *Recording the Diffraction Pattern*; (6) *Determination of Crystal Structures*; (7) *What Else Can We Learn from Diffraction Experiments besides the Average Structure*; (8) *The Dynamical Theory of Diffraction*. Going through them the reader very soon accepts that this book has evolved over a fifteen-year period. Nearly all the questions, which students and also people experienced in the field of diffraction normally ask, are explained. Each chapter culminates in a reference list and in 20 to 25 problems. The answers to most of the problems are given in an appendix. X-ray generators are only mentioned, the excellent rotating-anode generators being referred to only in a footnote. However, one finds a good review on counters in this book including position-sensitive counters, solid-state counters and also the method of nondispersive diffraction by means of a multichannel analyser. The authors have succeeded in revealing the mutual limitations in the application of electron, X-ray, and neutron diffraction. The pioneer of X-ray fluorescence analysis and of chemical analysis by absorption, R. Glocker, should perhaps receive some mention in the second edition.

The very essential point *Determination of the Power of the Direct Beam in X-ray Diffraction* is treated in an appendix (10 pages). The thorough treatment of the different aspects is kept to a high standard up to the end of Chapter 6 on p. 356, but one finds in Chapter 7 only certain very fundamental principles, for example of small-angle scattering work or of diffraction from liquids and amorphous solids.

Since the determination of residual stresses and of textures is also treated in a very brief way elsewhere in the text, there is a challenge to expand Chapter 7. In Chapter 8, B. Batterman and H. Cole have collaborated with L. H. Schwartz and J. B. Cohen to present the review on dynamical diffraction (73 pp.).

It must be hoped that this excellent text book will find a wide distribution and will thus open the way for further fruitful applications of X-ray, electron, and neutron diffraction methods.

S. STEEB

*Max Planck Institut für Metallforschung  
Institut für Werkstoffwissenschaften  
Seestrasse 92  
7000 Stuttgart 1  
Federal Republic of Germany*

**Crystal growth 1977.** Edited by R. L. Parker, A. A. Chernov, G. W. Cullen and J. B. Mullin. Pp. xvi + 662. North Holland, 1977. Price Dfl 350.00, US \$ 152.25.

In this *Proceedings Volume* of the *Journal of Crystal Growth*, refereed manuscripts are presented from both invited and contributed speakers at the 5th International Conference on Crystal Growth, held at the Massachusetts Institute of Technology, USA, during July 1977. The volume contains some 92 manuscripts from the 265 talks presented at the Conference and is therefore not a full record but it constitutes a good representation of the content of the Conference. The volume covers all

the major aspects of crystal growth and is divided into thirteen clear groupings concerned with theory and nucleation, vapour growth and epitaxy, solution growth and crystallization, organic and biological crystals, flux growth, liquid-phase epitaxy, basic studies of melt growth, melt growth of high-melting-point materials such as oxides, fluid dynamics and microgravity, growth techniques, special materials and new developments, eutectics and alloys and, finally, defects. These sections commence with useful review papers which up-date the relevant topics. Distributed amongst the various sections are many useful papers upon the crystal growth of modern electronic device materials such as silicon, the III-V compounds, magnetic garnets, lasers, piezoelectric compounds and infrared window materials. Computer simulation of crystal growth and efforts to automate appropriate parts of crystal growth processes also feature prominently. An understanding of crystal defects and their control is always important to crystal-growth scientists and this aspect is well covered. The links now being forged between crystallization processes and biological materials are also apparent in a number of papers.

In summary, this is a useful addition to the crystal-growth literature as a reference volume for current trends but for a full appreciation of the Conference to which it relates, it must be examined in conjunction with the regular editions of the *Journal of Crystal Growth* where some of the other papers presented are due to appear.

B. COCKAYNE

*Royal Signals and Radar Establishment  
Malvern  
Worcestershire  
England*