sufficiently widespread in industrial and laboratory practice.

The author gives maximum attention to the various different melt-growth processes (chapters 3–5). The Bridgman, Czochralski and other melt-growth methods are described in detail, covering both theory and practice. Typical examples of current use are given for each production method.

Chapters 6–8 are devoted to solution growth processes. Chapter 6 looks first at solvent and solutions and then at the main classes of low-temperature solution growth methods. It is a short, but very full, account of the general principles of solution growth. High-temperature solution growth of semiconductors and ionic materials is considered in chapter 7. This chapter is very compact and gives basic information on all available methods. Hydrothermal growth is discussed in chapter 8. The author looks first at the technology and then at the effects of processes parameters on the growth of crystals – quartz in particular. It should be noted that some particular methods of crystal growth from hydrothermal solutions are not reflected in this chapter; also, this chapter seems to omit the connection between the type of solvent used and the character and distribution of the defects that occur in the crystal.

Chapters 9 and 10 are concerned with the method of chemical vapour transport and other vapour transport methods, which have undergone sensational developments lately, connected with electronic requirements. Chapter 11 describes the growth of single crystals from solid phases, including solid-state epitaxy and growth in gels.

The final chapter deals with the problems of method selection and optimization.

The book has good illustrations and extensive and useful bibliographies at the end of each chapter.

On the whole, this is a nicely produced and readable book. It will be valuable to readers from many backgrounds who need to know about crystal growth.

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P-симметрия и ее дальнейшее развитие. А. М. Заморзаев, Ю. С. Карпова, А. П. Лунгу, А. Ф. Палистрант. **(*P*-symmetry and its further development.** By A. M. ZAMORZAEV, YU. S. KARPOVA, A. P. LUNGU and A. F. PALISTRANT.) Pp. 156. Kishinev: Shtiintsa, 1986. Price 1r 60k.

P-symmetry is one of the broadest generalizations of antisymmetry and colour symmetry. This account describes the progress made in this field during the past decade. It is a succinct review of the underlying mathematical ideas, although references are provided for physical applications.

The book is prepared with great care, giving a large amount of information in 156 pages of small format. It gives an impression of the ever-expanding frontiers of the symmetry concept to the general reader, but it is those few experts working on the general theory of symmetry who can truly benefit from this first-hand account by some of the pioneers of the field, Professor Zamorzaev and his school.

The book includes a list of 164 references.

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Rates of phase transformations. By R. H. DOREMUS. Pp. x+176. Orlando, Florida: Academic Press, 1985. Price US $29.00, £26.00.

This new book by Doremus fills a gap in the existing literature, as almost fifty years have passed since M. Volmer's famous first extensive treatment of the subject under essentially the same title *Kinetik der Phasenbildung* (strangely enough this important work is nowhere mentioned or referred to in Doremus' book).

I have read the book with much interest and pleasure. It serves well the demand for an introductory treatment of the subject for both the research scientist and the graduate student in many fields, *inter alia* crystallography, solid-state physics, crystal growth, metallurgy, physical chemistry, and chemical engineering. A brief introduction and Chapters 2 (*Diffusion and phase change*) and 3 (*Thermodynamics of interfaces*) serve as the basis for the eight chapters following. Chapters 4 and 5 deal with nucleation of liquid droplets from the vapour and nucleation from condensed phases. Unfortunately, the important atomistic nucleation theory is not dealt with. Bubble nucleation should also be covered briefly. In a future edition, Chapter 6 (*Phase separation of liquids*), only six pages long, should be extended to cover more extensively the important phase separation of partly immiscible liquids, a field in which considerable progress has been made during the last few years. Chapter 7 (*Crystal growth from the vapour*) follows more or less the usual treatment. One misses mention of the books by Strickland-Constable and by Faktor and Garrett and would certainly appreciate some reference to applications, *e.g.* to crystal-growth techniques. In Chapter 8 (*Solidification*) one would perhaps like to read more about dendritic growth, surface melting (Menzel, Nenov, Lacmann) and constitutional supercooling. Chapter 9 deals with crystal growth from solution. I feel it needs some extension to cover in more detail such important subjects as adsorption and its influence on crystal habit and combination of forms and Ostwald ripening (*e.g.* recent papers by Kahlweit). The book ends with Chapters 10 (*Grain growth*; missing some treatment of sintering) and 11 (*Precipitation in metals*). In a future edition one would like to have a chapter on the important field of electro-crystallization included.

As the book is also intended to serve as a textbook, a future edition should avoid use of obsolete units (atm, kcal)