mental conditions. A by-product of intensity extraction is the determination of one or more possible space groups.

Methods for solving the structure are covered in chapters 10 to 16. These are grouped as adaptations of standard single-crystal techniques, direct-space methods based on prior chemical knowledge, and a combination of the two. In chapter 11 there is a useful list of pitfalls to avoid when using powder data. Although this is specifically aimed at users of direct methods, several of the items listed are applicable generally. Other methods adapted to powder diffraction data are Patterson techniques and the maximum-entropy approach (chapters 13 and 14). Direct-space methods, global optimization strategies (chapter 15) and simulated annealing (chapter 16), were mainly, but not exclusively, developed for molecular compounds. They involve creating a plausible structural model and then assessing its validity by comparing calculated and experimental powder patterns. Extraction of the intensity of individual reflections is thus avoided in this approach.

As mentioned in chapter 1, the final stage in the process is refinement of the structure by means of the Rietveld method; this should confirm the correctness of the solution, but it can also reveal inadequacies in the structural model. The method is not treated separately, though there are references to it throughout the book. It is presumed that the reader will refer the IUCr Monograph on Crystallography No. 5 for details, but an overview of the method would have been desirable, if only for completeness and to emphasize that it is a key stage of the process.

In the final chapter, L. B. McCusker and Ch. Baerlocher stress the importance of using additional information, such as chemical composition, physical properties, structural features of related compounds and the results of non-diffraction experiments. These factors can help to offset the relatively low information content of a powder pattern, compared with a single-crystal dataset. McCusker and Baerlocher show how the extra information can be used at every stage, from data collection onwards. This important chapter should therefore be read at the outset, in conjunction with chapter 6, since its content can influence strategy in subsequent stages.

The book concludes with a list of the principal computer programs needed for structure solution from powder data, but there is no mention here of the Collaborative Computational Project No. 14. Crystallographic software for powder diffraction is freely available from the CCP14 website (http://www.ccp14.ac.uk) for use by students and academia. Most of the listed programs can be downloaded, either directly from the site or *via* appropriate links. Although the site is updated regularly, users should check that they are using the latest version of programs.

This monograph is the eventual outcome of the International Workshop on Structure Determination from Powder Data held at Wadham College, Oxford, in July 1995. The authors all have considerable expertise in the field and many of them contributed to the workshop, but the book is not a Proceedings as such. However, much of it appears to have been drafted some years ago, judging from the references cited, though some authors have included more recent examples. Indeed, a valuable feature is the use of copious examples throughout, to illustrate the key stages of the process, and there are references to other work covering a wide range of materials. The book is an essential and complete text for newcomers to structure solution from powder data and those who are familiar with the technique should find much of interest in its pages.

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books received

The following books have been received by the Editor. Brief and generally uncritical notices are given of works of marginal crystallographic interest; occasionally, a book of fundamental interest is included under this heading because of difficulty in finding a suitable reviewer without great delay.

Perovskites modern and ancient. By Roger H. Mitchell. Thunder Bay, Ontario: Almaz Press, 2002. Price USD 70.00. ISBN 0-9689411-0-9

A review of this book, by A. M. Glazer, has been published in the December 2002 issue of *Acta Cryst.* Section B, page 1075.