The crystal structure of solids. By P. J. BROWN and J. B. FORSYTH. Pp. 172, Figs. 81, Tables 20. London: Arnold, 1973. Price £4·40, (paper) £2·20.

This easy-to-read monograph is part of a series of short texts on topics in solid-state science designed to provide the reader with a fairly complete understanding of basic concepts. It begins with introductory chapters on crystal geometry and the production of X-rays, neutrons, and electrons, whose scattering and diffraction by atoms and crystals is considered next. A brief review of experimental methods is given in Chapter 5, while the next three chapters describe the crystal structures of elements, polar (ionic) compounds, and binary alloys. A five-page concluding chapter acquaints the reader with some of the compendia of crystal structures and indicates how they can be utilized to garner structural information.

The authors' intent, as outlined in the preface, is to provide the reader with an appreciation of the power of diffraction techniques and to give some feeling for the orderliness of crystal structures and how it has provided much insight into their chemical, physical, and mechanical properties. This aim seems to have been achieved successfully, although it is difficult for a reviewer already familiar with the subject to judge just how effectively such concepts can be conveyed within the brevity of the coverage afforded to a relative neophyte, to whom this book is directed. One thing is clear, the reader will need to have a fairly good mathematical grounding, including familiarity with Fourier theory, to follow the central portions of the book, as well as patience to assimilate the rapidly presented catalog of a fairly large variety of structures.

A discussion of organic structures has been omitted because 'they add little to our understanding of structural principles'. Similarly, departures from perfect crystals are not considered, except for a statement in the discussion of extinction that 'normal crystals are made up of large numbers of small blocks of perfectly arranged crystal separated by regions containing imperfections'. This is unfortunate because it tends to ignore the rather extensive literature on the role of crystal defects, disorder, *etc.*, in determining diffraction effects (and other crystal properties), and it serves to resuscitate the 'mosaic' crystal model that was laid to rest 18 years ago by P. B. Hirsch [*Prog. Met. Phys.* (1955). **6**, 263–339].

As often happens with an attempt to condense a rather diverse subject into a short text, various subjects receive uneven coverage, often reflecting the authors' particular interests. Thus inclusion in a discussion of crystal monochromators of such details as suppression of $\lambda/2$ components by choosing the 111 reflection of Ge or Si crystals 'because the scattering power of the (222) planes is zero in this instance', or that Pu can be used with 1 Å neutrons for the same purpose because it has resonant capture at 0·52 Å, may be excessive when a discussion of Pauling's rules must be limited to half a page. These are all matters of taste, however, and do not limit the book's usefulness as introductory (supplementary) reading for a senior or a graduate student in solid-state sciences. The one shortcoming of this book, which can be corrected easily in a later edition, is the relative paucity and unevenness of bibliographic references. A short general listing of 25 papers and books assembled at the end of the text is followed by a list of books and journals containing structure data and a list of books on X-ray structure determination. The latter does not include Buerger's *Crystal structure analysis* (given under general references) but does include proceedings of a 1961 conference on computing methods! A more complete current listing of books and review articles, in which the reader can expand his knowledge of the subjects covered in all nine chapters, would make this book much more useful to students and teachers alike.

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The Raman effect. Vol. 2. Applications. Edited by ANTHONY ANDERSON. Pp.xi + 1033, Figs. 124, Tables 69. New York: Marcel Dekker, 1973. Price $45.00.

This second, final volume of *The Raman Effect* contains five reviews covering the application of the phenomenon to inorganic chemistry, molecular, ionic, covalent and metallic crystals, electronic transitions and high-resolution studies of gases. It complements the first volume (published in 1971) which reviewed general principles, instrumental methods and developments and included sections on the stimulated effect and Brillouin scattering.

The entries in the present volume are mainly well supported by references – if one excludes that quoted (p. 755) claiming that the *Journal of Chemical Physics* was in print in 1670. Three of the articles contain no references later than early 1970, the remaining two apparently dating from the following year despite the 1973 publication date. The last two years have seen an enormous growth of interest in resonance effects in Raman spectroscopy and applications to the study of rapid reactions and molecules of biological interest. These important areas find no place in the present volume and this omission reduces significantly the value of the work. No doubt all research groups in this field will feel obliged to obtain these highly priced volumes for their virtues of inclusion rather than their sins of omission.

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Magnetically ordered crystals containing impurities. By YU. A. IZYUMOV and M. V. MEDVEDEV. Pp.x + 168. Figs. 31. New York: Plenum Press, 1973. Price $34.00.

This monograph is a translation, with corrections, of a text first published in Moscow in 1970. The very high price, for a volume of 165 pages in paperbacked format, will discourage individual buyers. It may be noted that the translation is an excellent one.

The report is a detailed account of the effects on the excitation spectrum of ordered Heisenberg spin systems of the introduction of foreign spins. The analysis is entirely in terms of a localized spin model usually with nearest-neighbor interactions. The impurity spins differ from those of the host either in spin magnitude or in their interactions or both. As originally shown by Lifshitz, this problem may