19. *Groupoids*; *OD-structures*; *polytopes*; *enhancement of symmetry* (6 pages; 110 references)
20. *Characters* (1 page; 4 references)
21. *Homology, similarity* (3 pages; 33 references)
22. *Semicontinua, continua* (Lie groups) (1 page; 17 references)
23. *Coloured point and space groups in* E^n ($n = 0, 1, 2, \ldots$); *magnetic structures* (16 pages; 282 references)
24. *Generalised crystallography* (*modulated structures, space-time groups, non-Euclidean spaces*), *modulated structures* (10 pages; 178 references)
25. *Quadratic forms, theory of reduction, translation lattices, geometry of numbers, twins, relation: structure-morphology* (19 pages; 307 references)
26. *Polygons and polyhedra* (12 pages; 213 references)
27. *Polytopes* ($n \geq 4$) (8 pages; 129 references)
28. *Theory of graphs, topology* (5 pages; 78 references)
29. *Isomers, molecular structure* (2 pages; 24 references)
30. (*a*) *General chemistry, crystallography, mathematics and physics*; (*b*) *History*; (*c*) *Symmetry in philosophy, arts and biology* (72 pages; 1340 references).

Appendix. *Theory of Patterson syntheses and vector sets* (but mainly only when point 'atoms' are considered; otherwise it is part of diffraction theory) (12 pages; 159 references).

Within each topic the titles are basically arranged alphabetically and within each author chronologically, although there are a significant number of (non-alphabetical) addenda.

The original bibliography (but not the addenda) has been checked as far as possible by R. Allmann (Marburg/Lahn), L. N. Smirnova and L. A. Shuvalov (Moscow) and D. G. Watson (Cambridge). Requests, stating which sections are required, should be sent to The Executive Secretary, International Union of Crystallography, 5 Abbey Square, Chester CH1 2HU, England. Photocopies will be sent at reduced size, *i.e.* two pages per A4 sheet of paper.

Notes and News

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Suggested guidelines for the publication of Rietveld analyses and pattern decomposition studies

A letter from R. A. Young, E. Prince and R. A. Sparks to the Editor of *Journal of Applied Crystallography* has been published [*J. Appl. Cryst.* (1982), **15**, 357–359] with the above title. The first paragraphs read as follows:

At the request of the Commission on Journals, we drew up some draft guidelines for the publication of Rietveld analyses and of pattern decomposition studies with powder diffraction patterns. The draft was sent for comment to some 25 persons in Europe, Australia, Japan, and the USA. We are grateful for their responses, which both were generally supportive of the idea that there be guidelines and were most helpful in illuminating oversights and other deficiencies. Not all suggestions were incorporated in the revised draft, of course (in fact, a number were mutually contradictory), but all were carefully considered and many were incorporated in the version which follows.

In presenting these suggested guidelines, we emphasize that we offer them as guidelines, not rigid rules. They are intended primarily to be helpful to the co-editors; they are not intended to infringe on a co-editor's judgement of scientific worth of a submitted manuscript, nor should they be allowed to do so. For the most part, these suggested guidelines address matters of format and presentation of details, and not the fundamental question of scientific interest and worth of the submission. It is primarily for the making of such fundamental judgements that the co-editor system exists; for the health of our science it cannot and should not be replaced with a system of blind rules on a check-off sheet. It is against this background of more overreaching considerations that we offer the following suggestions for guidelines to assist, but not to control or coerce, the co-editors in their acceptance decisions.

Book Reviews

Works intended for notice in this column should be sent direct to the Book-Review Editor (J. H. Robertson, School of Chemistry, University of Leeds, Leeds LS2 9JT, England). As far as practicable books will be reviewed in a country different from that of publication.

Acta Cryst. (1982). A**38**, 559–560

La structure de la matière – du ciel bleu à la matière plastique. By A. GUINIER. Pp. 288. Paris: Hachette, 1980. Price 140.18 FF.

This is the first of a series intended for science teachers in secondary schools in order to keep them informed of current developments in science. After a short discussion of atomic structure and chemical bonds, the author classifies matter in two states: the disordered (the perfect gas) and the ordered (the perfect crystal). A major part of the book is concerned with the field between these two extremes from liquids *via* colloids, liquid crystals, polymers, crystalline aggregates with their preferred orientations, to real crystals with their defects.

While the work covers the whole field of crystallography, there is little use of mathematics. The author's aim is not to give rigorous proofs of physical laws but to demonstrate the consequences of these laws in everyday life.

Many university teachers would do well to incorporate in

their courses some of the examples given by Guinier. He reminds us in a very elegant manner that the study of physics is not confined to the laboratory but extends to the universe. It can provide explanations both for the blue colour of the sky and for the physical properties of plastics.

The author's style is so clear that it is a pleasure to recommend this book not only to science teachers (the effort for English-speakers will be repaid) but also to teachers of French in English-speaking schools. At a single blow it would improve the standard of French and increase the quality of the science intake in universities.

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Crystallography: an introduction for earth science (and other solid state) students. By E. J. W. WHITTAKER. Pp. xii + 254. Oxford: Pergamon Press, 1981. Price £8·35, US $19.95 (softback); £13·50, US $32.50 (hardback).

In the historic past, crystallography was kept alive by chemistry and mineralogy because it promised explanations of some features of these sciences. This promise was fulfilled, for now it has become a necessary discipline which underlies certain aspects of biology, chemistry, metallurgy, mineralogy, igneous petrology, that part of physics known as the solid state, and that part of engineering known as materials science. Most universities devote many meters of shelf space to books dealing with some aspects of crystallography, which are often very specialized. Not many of these are easy reading for beginners who wish to learn the features which characterize crystals. But this book is one which can be easily understood by students who have a reasonable background in geometry and trigonometry.

The author has divided his text into two parts. Part I comprises seven chapters which are concerned, for the most part, with external morphology of crystals. Part II is devoted, for the most part, to the internal geometry of the crystal structure and how it can be experimentally investigated with the aid of X-rays and electron beams. This part contains 11 chapters.

Except for the last two chapters, each chapter is followed by a short list of problems based on the material of the chapter. After the last chapter there are several useful addenda: Glossary of terms used in crystallography; Answers to problems; Further reading; and Index.

The teaching sequence in X-ray diffraction is what would be expected, except that, in part II, the instruments and their use are limited to the powder camera and powder diffractometer, and the rotating- and oscillating-crystal camera. Instruments which were introduced later, starting with the Weissenberg camera, are not discussed since they are treated in other books. This is acceptable since Whittaker's book is intended for use in two terms of instruction.

Both the text and the figures of this book are well planned. In particular, the drawings are neatly executed; those which display an object in three-dimensional space are drawn in clinographic projection so that each displays well the purpose of introducing it. In a few cases the author has made use of stereoscopic drawings (with instructions on how to see the picture in three dimensions without having to resort to a stereoscope). These are used to good advantage in illustrating the symmetry elements $\bar{1}$, 4, 2_1, 3_1, 4_1, 4_3, 6_1, *a*, *b*, and *n*.

In the last two chapters of part II, the author deviates from discussing the general theme and opens a door to understanding some of the simpler items of physical crystallography. In chapter 17, he first discusses cleavage and parting, then twinning in the form of growth twinning, shear twinning, transformation twinning, and nucleation twinning. (But translation gliding, which should be discussed with shear twinning, is not mentioned.) Also discussed are polytypes, stacking disorder, edge and screw dislocations. (The figure which shows the structure of asbestos should not be a nest of concentric cylinders, but rather a scroll-like roll.)

In the reviewer's opinion, this book presents a good text with which the science student can begin to make easy headway in his first approach to the interesting features of crystals.

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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.

The architecture of solids. By G. E. BACON. Pp. viii + 140. London: Taylor & Francis, 1981. Price £5·50. A review of this book, by S. C. Nyburg, has been published in the May issue of *Acta Crystallographica*, Section B, page 1683.

The rare earths in modern science and technology, Vol. 2. Edited by G. J. MCCARTHY, J. J. RHYNE and H. B. SILBER. Pp. xxiii + 647. New York: Plenum, 1980. Price US$59.50. A review of this book, by P. Caro, has been published in the May issue of *Acta Crystallographica*, Section B, page 1685.