

production costs. I wish I could understand the pricing policy of publishers! Here is a book at £31.60, yet visitors tell me they have already seen it on offer in New York, through Astro Minerals, for about \$35. It is the best book of its kind that I know, with potential sales to libraries, collectors, and professional mineralogists running to three or four thousand copies or even more—yet this market has probably been halved by the price asked. The day of the £25 specialist reference work is already regrettably with us, but £31.60 for a book with considerably greater popular appeal seems very short-sighted. If you can afford it, I recommend it.

P. G. EMBREY

BANCROFT (G. M.). *Mössbauer spectroscopy: An introduction for inorganic chemists and geochemists*. McGraw Hill Co. (U.K.) Ltd., 1973, xii+252 pp., 84 figs. Price £6.95.

This book falls naturally into three sections of almost equal length. Chapters 1–3 cover the theory and practice of the Mössbauer effect itself, and of fitting Lorentzian lines to Mössbauer spectra; Chapters 4–6 cover the applications to inorganic chemistry, and the last three chapters those to mineralogy and geochemistry. Any mineralogist wishing to understand the background to the work that has been done on the subject in the last ten years would be well rewarded by reading the first section, and if he was seeking a summary of the applications themselves he would find it in the third section. If he intended to contribute to the subject himself he would be all the better prepared by stretching his mind to follow the details of the chemical applications in the central section, even though he is unlikely actually to become involved either with the more exotic Mössbauer nuclei like Xe and Ru or with most of the ligands that are there discussed. Each chapter is followed by problems, which would serve either to test his own understanding or to use in his teaching.

By way of criticism one could say that the author found it difficult to know where to begin and where to stop. The former is the more trivial criticism, but any reader who needs the contents of the first three pages will be in real trouble by Chapter 2, if not before. In the third section there are included topics such as pleochroism and the thermodynamics of ordering that have nothing to do with Mössbauer spectroscopy as such. The only excuse for the section on the pleochroism of glaucophane-riebeckite is that it can be explained on the basis of the cation distribution ‘partially deduced from Mössbauer spectra’—although in fact already deduced before Mössbauer spectra were invented.

More importantly the reader could be misled by the author’s enthusiasm for his subject. Although one finds in the text caveats against most of the pitfalls, the presentation is such that they are likely to be lost on the unwary. Much use is made of the concept of ‘fingerprint technique’, but a fingerprint is a pattern so complex as to be unique.

Mössbauer spectra are far from satisfying this criterion and one is staggered at the logic of ‘a doublet is observed with a quadruple splitting of 2.15 mm s^{-1} indicating

that a Fe^{2+} pyroxene is formed'. One is surprised at the author's judgement about the general potentiality of the technique for routine determination of accurate $\text{Fe}^{3+}/\text{Fe}^{2+}$ ratios and again when one reads that a good example of its utility is in showing that manganese nodules contain α - FeOOH or γ - FeOOH , or a mixture of both, or possibly other combinations of ferric oxides or a mixed iron-manganese oxide; one wonders whether a few minutes introspection would not have been a quicker (and cheaper) route to so vague a conclusion. The geochemical section could certainly have been improved by the omission of some of the less relevant passages and some of the wilder flights of optimism. The fact that the author is not on his home ground in mineralogy tends to show through slightly in some of the nomenclature. There are silicate formulae with unbalanced charges on p. 182, and on p. 196, where there also seems to be confusion in the nomenclature of the spectral peaks. However, the number of errors noticed was not excessive and the book will undoubtedly be a useful one.

E. J. W. WHITTAKER

NICKEL (E.). *Grundwissen in Mineralogie. Teil 2: Aufbaukursus Kristallographie. Ein Lehr- und Lernbuch auf elementarer Basis für Kristall-, Mineral- und Gesteinskunde.* Thun and Munchen (Ott Verlag), 1973. 301 pp., 141 figs. Price S.Fr. 27.80.

This book is the second part of a three-volume work. The first part (Grundkursus), published in 1971, contains an introduction to crystals and rocks, and the third part, promised for the end of 1973, is concerned with petrography.

This second part is concerned with crystallography and begins with crystal morphology and then deals with lattice symmetry before describing crystal chemistry and crystal optics. The book concludes with a description in simple terms of X-ray crystallography, and includes a short section on electron and neutron diffraction.

The book is well illustrated and German students should find it valuable.

A. C. BISHOP

ANDERSEN (C. A.), editor. *Microprobe Analysis.* London and New York (Wiley-Interscience), 1973. xiv+571 pp., 166 figs. Price £12.50.

The title of this book, *Microprobe Analysis*, is now used generally to denote techniques that depend for their operation on a focused beam of particles or electro-magnetic radiation impinging on a selected region of a solid specimen, and that provide chemical, structural, and other types of information with a resolution usually less than $\sim 100 \mu\text{m}$. The well-established technique of electron-probe analysis occupies the major part of this volume (421 pp.), which also includes discussions of the more recently developed and less widely used laser-probe (82 pp.) and ion-probe techniques (46 pp.).