FLEISCHER (M.). *1975 Glossary of Mineral Species.* Bowie, Maryland (Min. Record, Inc.), 1975. vi+145 pp. Price $4.00 (send orders to Glossary of Mineral Species, P.O. Box 10404, Alexandria, Virginia 22310, U.S.A.).

This is a revision of the first edition (1971), incorporating new minerals and new data as of 1 January 1975. Major innovations are the inclusion of the crystal system, the colour when distinctive, and a reference to the first description, to an abstract of the first description, or to a recent significant paper. The main listing remains the chemical formula, with special reference to polymorphs, similar minerals, and group relations. The treatment of mineral groups has been expanded with a listing of the members of 28 groups; more references to discredited species are given. Diacritical marks are not included, except for umlauts. This handy little volume, listing authoritatively some 2800 mineral names together with chemical compositions and recent references, should without doubt be on every mineralogist's desk. R. A. HOWIE

REED (S. J. B.). *Electron Microprobe Analysis.* London, New York, and Melbourne (Cambridge University Press), 1975. xvi+400 pp., 167 figs., 29 tables. Price £12·00.

One man's view on a subject is often preferable to an edited collection of papers and in this book it certainly results in a cohesive approach without overlap and with very good cross references. The title is accurate as the author has not allowed himself to be diverted into discussion of other probe techniques.

As the author states, this work 'emphasises physical principles in relation to the design and operation of the instrument and the interpretation of results' and he has attempted and I believe succeeded in avoiding 'superfluous theoretical detail'. This does not mean that the book ignores practical aspects as it is liberally interspersed with useful experimental details.

After the introductory chapter, nine chapters are devoted to aspects of the design and operation of the instrument, dealing with the specimen stage, light and electron optics, scanning, spectrometers, and counters. Particularly important, because they deal with topics not adequately covered elsewhere, are chapters VIII, IX, and X on counting electronics, solid state detectors, and electronics for solid state detectors. Two minor criticisms in chapter VIII are that in the section on amplifiers insufficient emphasis is placed on the conflicting requirements of low noise and high count-rate performance, and that there should be some discussion of the commonly used delay line amplifiers. In chapter X it is pleasing to see a description of the very high performance Kandiah pulse processing system and of the beam-switching technique.

Chapter XI is devoted to experimental aspects of quantitative analysis and it is followed by five chapters on various aspects of matrix corrections. These are mainly concerned with what might be called a conventional ZAF procedure and its variants but there is some discussion of Transport Equation and Monte Carlo methods. The treatment of the alpha coefficient method of Bence and Albee is rather brief and could be misconstrued as implying limiting experimental conditions. A more detailed treatment would have been useful here, particularly as the majority of published mineralogical analyses have probably used this method.

The excellent treatment of solid state detector systems continues in chapter XVII, which deals with their application to quantitative analysis. The specialized subjects of light-element analysis and thin-film analysis are dealt with in the succeeding chapters. The importance of light-element analysis to mineralogy is obvious but that of thin-film analysis less so. However the increasing use of analytical electron microscopy in mineralogy makes even this chapter relevant to some mineralogists.

Despite the fact that any description of applications must become dated the final chapter serves as a useful indication of the wide range of problems to which micro-analysers have been applied. Mineralogy and more specifically meteoritics, fields in which the author is particularly experienced, take up the lion's share of this chapter. The book ends with a useful appendix on X-ray spectra.

This well-written book should be essential reading for all microprobe analysts; it has the added advantage of appearing at a time when no major changes in the technique can be forseen.

PAUL SUDDABY

GADSDEN (J. A.). *The infrared spectra of minerals and related inorganic compounds.* London (Butterworths), 1975. 277 pp. Price £15·00.

This book aims to assist in the location of reference infrared spectra by listing on over 200 pages the wavenumbers of absorption maxima in selected published spectra of over 600 minerals and some 100 related compounds. Literature references (685 in all) are given for these and for a further 550 minerals and inorganic compounds. The remaining pages include subject and mineral name indexes, and a 30-page review covering applications, techniques, the more important papers dealing with each group of salts and minerals, and the general characteristics of their spectra. No line spectra are included.

The justification for this book therefore rests largely on the rather questionable value of the data compiled. The experienced eye can quickly match a recorded line spectrum with a standard, taking account of relative band intensities, band contours, and submaxima, but a similar match involving listed wavenumbers is slow and uncertain, and requires, as the author warns, reference to a line spectrum for confirmation. Now line spectra for over 80 % of the compounds for which data are listed appear in less than ten publications; 70 % are covered by the collections of Moenke and of Nyquist and Kagel alone. These will therefore be the first choice for the spectroscopist seeking to match an unknown spectrum.

Comparison with the multi-author Mineralogical Society Monograph 'The Infrared Spectra of Minerals' (in which the reviewer must declare an interest) shows that both give access to a common core of references containing spectra of about 700 named minerals; Gadsden covers more non-mineral compounds, and includes more post-1970 references. The Monograph's 500 pages of text allow a fuller treatment of theory and a more critical and complete discussion of each mineral class, but give data on only about 450 minerals, including 200 line spectra, many of which are new. Their prices to libraries are comparable, and reflect the new high levels now imposed by printing and paper.

V. C. FARMER