

BOOK REVIEWS

Kerrick, D. M. *The Al₂SiO₅ Polymorphs*. Washington, D.C. (Mineralogical Society of America: Reviews in Mineralogy, Vol. 22), 1990. xii + 406 pp. Price \$20.00

In the 25 volumes of *Reviews in Mineralogy* so far only two have been single author works, the first was on Fluid Inclusions by Ed Roedder and this is the second.

In this volume Dr. Kerrick presents us with a very thorough treatment of all aspects of the Al₂SiO₅ minerals from their structure, properties, etc. and their occurrence in granites and migmatites—something many readers will not have considered. The 11 chapters are entitled: Introduction; crystal structures, optical and physical properties; phase transition equilibria; non-stoichiometry; lattice defects; Al/Si disorder in sillimanite; the fibrolite problem; metamorphic reactions; reaction kinetics and crystal growth mechanisms; aluminium metasomatism; aluminium silicates in anatexitic migmatites and peraluminous granitic rocks. The monograph is completed by a list of perhaps 1000 references.

The longest chapter is, not-surprisingly, on phase equilibria which occupies 72 pages. In this the author discusses all the main experimental studies and in each case adds his own critique of their experiments. In many cases he has given an alternative interpretation of the results presented but he has been extremely fair in his comments. His conclusion to this chapter is that he would like to see 'tight' experimental brackets on the andalusite-sillimanite equilibrium on materials which are as nearly as possible pure Al₂SiO₅ composition. As far as this reviewer can judge, Dr. Kerrick does not state his preferred figure for the *P* and *T* of the table point; however in the latest issue of *American Mineralogist* a paper by Hemingway Robie, Evans and Kerrick (1991, pp. 1597–1612) gives the values of *P* 3.87 ± 0.3 kbar and *T* 511° ± 20°C.

To the petrologist whose interests are more field-oriented, chapters 8, 9 and 10 will probably be very welcome because Kerrick has reviewed the literature very thoroughly and presents details of very many examples of the occurrence of these minerals, illustrated with maps and photomicrographs. The only map with which this reviewer

has some familiarity has unfortunately had a scale superimposed which must be wrong by a factor of 10.

Many of the chapters begin with a quotation and these are very well chosen. One of them from W. S. Fyfe (1969), referring to the experimentalists' obsession with the system Al₂O₃-SiO₂, states: 'There are other systems that can perhaps yield more exact information about the same problems involving rocks, and our progress in this system does not exactly promote confidence in our abilities.' One quotation which the author did not use is from Richardson and Powell who were attempting to deduce the pressure and temperature of the metamorphic climax in the Central Highlands of Scotland: they wrote that 'this can be done without recourse to the bloodied field of the Al₂SiO₅ phase diagram.' F. J. Turner in the Second edition of his text book on 'Metamorphism' misquoted this (probably on purpose) and replaced the word 'bloodied' by 'bloody' and in the United Kingdom these two words are used quite differently. Dr. Kerrick has bloodied the field even more.

The reviewers and Editor of *Reviews in Mineralogy* made a wise decision in accepting Derrick Kerrick's monograph for this series because it is published at a price which most graduate students will be able to afford and no serious student of metamorphic petrology should be without this book.

W. S. MACKENZIE

Schwertmann, U. and Cornell, R. M. *Iron Oxides in the Laboratory*. Weinheim, New York, Basel and Cambridge (VCH), 1991. xiv + 137 pp. Price £45.00.

The core of this book is a collection of recipes for preparing 5–10 g of the iron oxides and hydroxides. These are excellent and the preparative methods are clearly specified. The recipes are intended for those who require small amounts of these oxides for laboratory study and the methods are those proven by the authors to provide high purity products.