

## BOOK REVIEWS

Brown, P. E. and Chappell, B. W. (eds.) *The Second Hutton Symposium on the Origin of Granites and Rocks*. Edinburgh (Royal Society of Edinburgh), 1992, 507 pp. Price £55.00

This volume, which also constitutes volume 83 parts 1 and 2 of the *Transactions of the Royal Society of Edinburgh: Earth Sciences*, contains the proceedings of the Hutton symposium held at Canberra in September 1991. It comprises 43 papers and 70 abstracts, with a worldwide authorship representing a fair cross-section of the most active researchers on granites and related rocks. Naturally there is a strong emphasis on geochemical studies, but a few structural papers are also included.

Many of the authors describe particular granite complexes, and interpret their compositional variation in terms of more or less plausible genetic models. The I- and S-classification continues to be popular, particularly among the Australian authors, and the first paper in the volume is a review by Chappell and White of the I- and S-concept as applied to its type area, the Lachlan fold belt. As well as occasional references to A- and M-type granites, a new alphabetic category C-type, is introduced by Kilpatrick and Ellis to describe those magmas produced by dry melting at very high temperatures which give rise to igneous charnockites. Lower crustal orthopyroxene-bearing granites are also described in a paper by Shimura, Komatsu and Iiyama, who give the results of some high pressure melting and crystallisation experiments on these rocks. Other experimental phase equilibrium studies in a range of metaluminous to peraluminous compositions are reported in papers by Green and by Holtz, Johannes and Pichavant.

Several of the contributions are concerned with the relationship between magmas and restites. For example Ellis and Obata discuss the segregation of melt from migmatites on the basis of petrographic observations and phase equilibria, while Burnham presents geochemical arguments to support the restite unmixing hypothesis, i.e. the ideas that granites represent mixtures of melt and restite. A paper by Zeck gives further details of the Hoyazo dacite, a volcanic rock with apparently restitic inclusions.

Stable and radiogenic isotope studies are des-

cribed by many of the authors, but particularly interesting are several papers on the use of the SHRIMP ion microprobe at the Australian National University for U-Pb geochronology of zircons. The photomicrographs and isotopic data which accompany these papers reveal the complex history of zircon growth in granites, and the great potential of this technique for uncovering the history of their magmatic source regions. Another relatively new area of research is the study of oxidation state of granitic magmas, and the paper by Blevin and Chappell considers how oxidation state among other factors can influence the metallogenetic character of granites.

Although this is a most valuable collection of papers on recent granite research, and it is pleasing to see that unlike many symposium volumes the contributions are packed with detailed and often new information. The volume is very well produced and illustrated, although it is a pity that it has been priced beyond the reach of most researchers. Granite specialists will be indebted to Bruce Chappell for the organisation of the Second Hutton Symposium. The next meeting in the series will be held at the University of Maryland in 1995.

A. HALL.

Kerrick, D. M. (ed.) *Contact Metamorphism*. Washington D.C. (Mineralogical Society of America: Reviews in Mineralogy, Vol. 26), 1992, xvi + 847 pp. Price \$26.00.

My first thought while leafing through the contents of this sturdy volume was that the authors had left us with nothing else to do with thermal aureoles except apply the collected knowledge gathered together here. I began to fear that, by its very comprehensiveness, the volume might inadvertently secure the demise of its own subject through a public perception of a line ruled across the page and marked 'knowledge of this field is now complete'. Well, of course, by fourth thoughts I was beginning to see some glimmerings of things still left to think about, but Derrill Kerrick and his authors are really to be congratulated on a work that is awesome in its scope and completeness, and more than maintains the standards of its stable-mates.