lack of megacryst suite minerals, Mg ulvöspinels, and monticellite (which typify 'archetypal' kimberlites). The mineralogy of diamond is not discussed on the grounds that it is a xenocryst.

'Orangeites' are said to be "easily" distinguished from archetypal kimberlites on the basis of the different trends of groundmass micas, which evolve towards tetraferriphlogopite as in lamproites. In fact it may be not that easy since some archetypal kimberlites also contain groundmass TFP. Groundmass (microphenocrystal) olivine in both orangeites and lamproites tends to be more Mg-rich, than in kimberlites. Of the two dominant trends of spinel evolution found in kimberlites, only one (Al magnesian chromite – Ti magnesian chromite – ulvöspinel/magnetite) is found in both orangeites and lamproites.

Newcomers to kimberlite studies will therefore be struck by the fact that electron microprobe mineral analyses may be necessary to classify these rocks into their correct textural-genetic niche. Furthermore, field relationships with consanguineous rocks may be critical in distinguishing evolved 'orangeites' from lamproites!

Appraisal of bulk geochemical data suffers from the perennial kimberlite problem of alteration and xenocryst 'contamination'. In addition, since 'orangeites' show a range of evolved compositions, they cannot be differentiated as a group from 'archetypal' kimberlites using concentrations/ratios of Nb, Zr, Hf, Th, U, Sm, Ce, P, Cs, La/Yb, K/Rb. However, K, Rb and Pb are higher in 'orangeites' reflecting higher mica content.

From Nd–Sr isotopes, Craig Smith has shown that Group I kimberlites have an asthenospheric signature, whereas Group II kimberlites have been derived from ancient metasomatically enriched lithospheric mantle (as with lamproites). Since such continental lithospheres are compositionally varied, so are the potassic magmas derived therefrom. The so-called 'orangeites' are compositionally and genetically so close to lamproites, on the data presented by Mitchell, that one wonders why they should not be encompassed by that group without further unnecessary proliferation of alkaline rock nomenclature.

P. H. Nixon

Chang, L. L. Y., Howie, R. A. and Zussman, J. *Deer, Howie and Zussman, Rock Forming Minerals. Volume 5B: Non-silicates; sulphates, carbonates, phosphates and halides.* Harlow, (Longman), 1996, 383 pages, price (hardback) £115. ISBN 0-582-30093-2.

The Rock-Forming Minerals Series by Deer, Howie and Zussman, universally referred to by the initials DHZ have become standard mineralogy texts. Several generations of undergraduates have started with the Introduction to Rock Forming Minerals, "Students' edition", and the full versions with well-used black covers are a feature of most mineralogy laboratories. It is now nearly 35 years since the first edition, and when the first volume of the second edition appeared in 1978, Volume 2A on Pyroxenes. Great things were expected. The Orthosilicates volumes 1A and 1B arrived in 1982 and 86, but there has been a gap of nearly 10 years until this most recent volume. With that rate of production the authors would all be centenarians by the time the task was completed. It was perhaps with that in mind that extra specialist authors were recruited to help produce the new editions. This book sees the first of the new recruits, with the senior author Professor Chang, contributing nearly two-thirds of the content. Does this work? Should you change a winning team?

The general layout is much the same as the previous editions, with a chapter on each mineral, and with a few species in the carbonate section promoted to individual chapters (smithsonite, cerrusite, nyerereite, malachite and azurite). Each chapter starts with the familiar summary and diagram of crystallography and optical properties followed by detailed description of structure, chemistry, experimental work, optical and physical properties, distinguishing features and paragenesis. Comprehensive references up to 1994 complete each chapter. The use of subheadings is not always consistent, for instance some chapters have experimental work included in the chemistry section. What I found irritating was the font used for these subheadings, a spidery-thin specimen, easily missed when flicking through the book for a particular section and less prominent than the bold lower-order headings.

The old Volume 5 on Non-silicates has been split into two, with 5A on oxides, hydroxides and sulphides yet to appear. The number of pages in 5B devoted to sulphates, carbonates etc., is roughly twice as long as the previous edition, growing from less than 200 to nearly 400 pages. The sections on structure are fuller with recent information and modern diagrams of atomic structure. The sections on chemistry are a bit longer and include more modern analyses in many cases. The coverage of experimental work and mineral stability is much expanded and up to date and provides a most useful source of information. The discussion of paragenesis is much more extensive and has a wider geographic scope, with less reference to UK localities than the first edition. The chapters by Professor Chang include many more North American examples as might be expected. In several places data from new techniques such as Mössbauer and Raman spectroscopy are now included. Information on optical properties and distinguishing features is at a similar level to the previous edition.

A noticeable feature of the differences in style between the authors is the presentation of the tables of chemical analyses. These tables in the carbonate chapters do not include any optical properties, perhaps largely due to the fact that they are mostly relatively recent and probably by electron microprobe. Several of the other chapters still contain many old analyses that were in the first edition and this is particularly marked in the sulphates section. The very first analysis in the book is a baryte analysis from 1954 with 2.01 wt.% SiO_2; surely there are better analyses available now. If modern analyses mean no optical data, that is a sacrifice well worth making, as these days chemistry is the main diagnostic property, not precise determination of optical properties. I was disappointed to see that several chapters had no chemical analyses at all, particularly as these are mostly the new chapters: smithsonite, cerrusite, malachite, azurite and, surprisingly, fluorite. I regard this as a serious omission as the great value of this series of books is as a first (and sometimes last) point of call, where there is something about everything. A quick check on that unexpected microprobe analysis. How much lead is there in cerrusite? It should be there.

In general the book is well written, and extensively illustrated with clear diagrams that aid understanding. There are a few typographical errors, such as a mislabeled diagram or two and dates missing from references, but apart from these and the subheadings mentioned earlier, it is a well presented book. A great strength of this series is the consistent layout which makes finding information so much easier. The balance of content and length is just right with the overindulgence of some of the previous second editions (300 pages on olivine in Vol. 1A) avoided.

Adding a new member to the team introduces minor differences in style but the quality is just as good. If this change means that future volumes will appear sooner this is most welcome. This volume continues the tradition as an excellent reference book. When looking for information about rock-forming minerals there will rarely be a better starting point and on many occasions all you want will be there. The cost of £115 may seem high but with such a wealth of information it is good value for money. How long would it take to track things down from such diverse sources? The book is a must for all libraries and well equipped mineralogy laboratories, but individuals would have to be very keen on these particular minerals to make the outlay.

M. T. STYLES

Viner, D. *The Iona Marble Quarry*. Inverness (New Iona Press). 1992, 24 pp. Price £3.95 (+ £0.50 p & p). ISBN 0-9516283-2-1.

This slim booklet gives a description of the occurrence and working of the Iona marble (a Precambrian serpentinized forsterite-tremolite marble, mainly white but with streaks and patches of light to dark green serpentine). There is evidence of it first having been worked in the late 15th century; it was re-opened in 1907, but only occasional working has been carried out since the First World War. Photographs show the quarry at work, and details are given of how to reach this rather hidden locality, some 500 m NNE of the most southerly point of the island of Iona, off the Ross of Mull; there is also a plan of the marble quarry itself.

R. A. HOWIE