

The memoir is completely rewritten and reconstructed. While it is satisfyingly and appropriately rooted in field observation, there is plenty of traditional and high-tech laboratory information on textures, rock modes, whole-rock chemical information, trace-element comparison diagrams for lavas and dykes, oxygen, strontium and neodymium isotopic data, and radiometric age determinations. The text is written in an engaging, enthusiastic style, largely free of jargon and hence accessible not only to professional geologists, but also to the general geological public and, hopefully, even to tourists to the islands.

Successive chapters ascend the stratigraphic column (Lewisian Complex, Torridonian Group, Mesozoic Rocks, Tertiary) and are followed by chapters on structure, geophysical investigations and age-determinations, Pleistocene and Recent, and economic geology (essentially the thick olivine and chromite sands in Harris Bay which are potentially exploitable). The Tertiary geology is divided into 5 chapters: Introduction and Rum Central Complex - Stage 1; Minor intrusions; Rum Central Complex - Stage 2; Layered Suite; Lavas and associated sedimentary rocks; Magma genesis and tectonic setting. Appendices tabulate the features of beds in type sections of three Mesozoic formations on Eigg and Muck, and present whole-rock geochemical data for selected lavas and intrusives, along with rock and mineral oxygen isotope data for igneous and sedimentary rocks on Rum. Igneous petrologists will inevitably wish there was more detail on geochemistry, and discussion of inter-magma relations and origin of the magmas, however further information is available in the literature and to include more here would have been to unbalance the Memoir's content.

Much of the research work that has been done remapping and re-investigating Rum, and to a lesser extent the other Small Isles, has been carried out by numerous PhD and MSc research students, and also by undergraduate students doing Honours mapping projects. While some of this work remains unpublished, much of it is known to Emeleus and has been incorporated by him in the Memoir and the accompanying map sheet. Emeleus's willingness to include the data of workers of different levels of experience and his ability to present alternative views evenhandedly are striking features of the Memoir.

Harker would envy the abundance of full colour diagrams and maps in the new Memoir which have been prepared to a very high standard

and are skilfully deployed to elaborate the geology. Numerous plates (mostly in colour) illustrate landscapes, outcrops and thin section features. All the illustrations have reproduced superbly and greatly enhance the utility of the Memoir. A superior, kaolinised paper has been used and the cover is printed with a mouth-watering view from Askival across the layered rocks of Hallival, with the Torridonian of northern Rum, the Sound of Sleat, and the mountains of southern Skye as a backdrop – one of the finest scenes in British geology (when it isn't raining)!

The original Small Isles Memoir represented Harker's second Hebridean *tour de force*, following by 4 years his memoir on the Tertiary rocks of Skye. Three generations of British petrologists have honoured the author by informal reference to the work as "Harker's Small Isles Memoir". I have no doubt that its successor will be similarly honoured as "Emeleus's Small Isles Memoir". It stands as a fitting tribute to the late Malcolm Brown, former Survey Director, former colleague of Emeleus at Durham and before that one of his PhD mentors, and the man whom Professor Lawrence Wager chose to spearhead modern investigation of Rum in the late 1940's.

I don't normally praise publications for their price but this ought to cost more than £35; the perennial excuse of pressure on library budget preventing purchase of a copy can't be invoked here.

C. H. DONALDSON

Mitchell, R. H. *Kimberlites, Orangeites, Lamproites, Melilitites, and Minettes; A Petrographic Atlas*. Thunder Bay (Almaz Press Inc., 1427 Ridgeway St., Thunder Bay Ontario, Canada P7E 5J7), 1998 243 pp., 400 colour plates, price US\$100. ISBN 0-88663-026-6.

This book consists mainly of 400 very high quality colour photomicrographs of thin sections of some alkaline rocks viewed under the microscope, about 50 of them being back scattered electron images with false colouring. The majority are of standard thin sections photographed in plane polarized light or between crossed polars. The plates in the book are 100 mm × 150 mm in size and the magnifications at which most of the plates are reproduced are ×60 or ×152. The electron microscope images are of higher magnification and a few of the optical photomicrographs were taken at lower magnifications in order to show a larger field of view.

The author tells us in the Preface that the principal objective of this work is to provide a guide to the petrographic character of the commoner textures and assemblages of minerals found in a group of alkaline rocks of interest to both academic petrologists and exploration geologists. The economic interest of course is that the first three rock types are primary sources of diamond but since the diamonds are considered to be xenocrysts, further comment on their occurrence is not relevant in this work.

Not all readers of this Journal can be expected to have an extensive knowledge of the great variety of names which have been given to rocks over the last 150 years by enthusiastic petrographers. In Tomkeieffs *Dictionary of Petrology* there are 173 names given to rocks which could be described as basalt but it is hoped that few scientists will be as ignorant as one of that increasingly popular species of what are known as interior designers, who recently announced on television that if granite, used as a decorative stone, is highly polished, it is called marble. However even petrologists who are not specialists in these particular rock groups may be forgiven for not knowing what an 'orangeite' is. The first eight pages of this book consist of notes on the terminology used and definitions of the rock types described. It was in 1928 that P.A. Wagner suggested that 'micaceous kimberlites' should be called 'orangeites' and Mitchell (1995) revived this name in preference to calling them 'group II kimberlites' which some other investigators prefer.

'This Atlas is a very useful companion to many of the recent publications of Roger Mitchell, particularly three text-books, on these unique and fascinating rocks and their mineralogy. In this respect it could be considered as directed to a very specialized readership, but I believe it may have an equally useful function as an aid to teachers of petrography and to petrologists in general. I do not know how many geology departments in the U.K., or for that matter in any other country, have sufficiently good rock collections to illustrate more than one or two examples of even kimberlites or melilitites. It is a great pleasure for me personally to see thin-sections of rocks from well known localities, of which one has heard but never seen, and from localities which are entirely new to me.

Of the 400 illustrations, 188 are of kimberlites, 62 orangeites, 84 lamproites, 50 melilitites and 16 minettes. The photographs are the best reproduc-

tion of photomicrographs which I have seen anywhere and they were produced from 35 mm transparencies. The magnification chosen by Mitchell is just over four times that of his transparencies and I believe that his choice of 100×150 mm prints is the main reason for the considerable impact of this beautiful collection of photographs; it goes without saying that the original transparencies had sharp focus and uniform lighting.

There is one unfortunate result of adhering to this large size for the plates and that is the explanatory text for each photograph has had to be assembled at the end of the book occupying 34 pages; only one line of text is printed under each photograph and this gives the name and the locality from which the specimen was obtained. I found it most inconvenient to have to search for the page on which the description of a specific photograph is given and I therefore obtained Xerox copies of these pages of text and cut them up into groups of four to insert between adjacent leaves of colour photographs. There are two solutions to this problem, one of which is to reduce the size of only those photographs which have descriptions too long to fit into the space available, but I believe that this is rather difficult for the page designer and the printer. The other solution is to reduce the size of all the photographs by the required amount to accommodate the length of the longest section of text which in this case is about seven lines: this will of necessity result in some large blank spaces. This reviewer and his co-authors have been unable to think of suitable caustic replies to critics, who on observing large blank spaces adjacent to illustrations in our books, have enquired whether these spaces are to accommodate corrections to the text by the reader.

This reviewer is not familiar with prices of books in Canada or the U.S.A. at the present time but for a publication containing so many excellent colour photographs it seems a very reasonable price to pay. It can be obtained from the publisher directly for US\$100 plus US\$10 for postage.

W. S. MACKENZIE

Comin-Chiaramonti, P. and Gomes, C. B. (Eds). *Alkaline Magmatism in Central-Eastern Paraguay; Relationships with Coeval Magmatism in Brazil*. São Paulo (Editora da Universidade de São Paulo) 1996, 458 pp. ISBN 85-314-0326-6.