

BOOK REVIEWS

EMELEUS, C. H. & BELL, B. R. 2005. *British Regional Geology: the Palaeogene Volcanic Districts of Scotland*, 4th ed. x + 214 pp. + map in folder. Keyworth: British Geological Survey. Price £18.00 (paperback). ISBN 0 85272 519 1.
doi:10.1017/S0016756806213050

This, the long-overdue fourth edition of this book, has been completely rewritten by two of the most knowledgeable petrologists currently working on the British Tertiary Igneous Province: Henry Emeleus (Durham) and Brian Bell (Glasgow). Given the undoubted petrological pedigree of the two authors it is no surprise that this publication is first class and is suitable for use by a wide variety of people ranging from undergraduates, school teachers, researchers, lecturers, field trip leaders, civil engineers to enthusiastic amateur geologists.

The book is written in clear and lucid style and is lavishly illustrated with numerous colour maps, tables, diagrams and stratigraphic columns, all of which are ideal for teaching purposes. A significant number of well chosen clear photographs and some photomicrographs also illustrate the most salient geological features of the area. A useful A3 fold-out colour map of the Scottish Palaeogene igneous province is also contained in the back pocket of the book. The book has also benefited from contributions by Dave Stephenson from the BGS (Edinburgh).

Chapter 1 presents an informative overview of the geology of western Scotland and the Hebrides and places the Scottish Palaeogene province in its wider context as part of the North Atlantic Tertiary Igneous Province. The next three chapters focus on the geology and structure of the pre-Tertiary rocks onto, and through, which the Palaeogene volcanic rocks and intrusions were emplaced. A sound understanding of the nature of these basement rocks and sediments is important in the elucidation both of the siting of the Palaeogene volcanic complexes and their petrogenesis, particularly crustal contamination of the magmas. Chapter 5 reviews the regional setting, ages and igneous stratigraphy of the Scottish Palaeogene rocks, and the point is made that the igneous activity in the province may have occurred in several discrete pulses over a period of three million years, around 60.5–57.5 Ma.

The next three chapters provide an extensive summary of the field characteristics and basic petrography of the lavas (including interbedded sediments), dykes, plugs and sills of the province and this is followed in Chapter 9 by an excellent synthesis of the field relations and petrography of the intrusions in each of the province's central complexes. The following chapter consists of a (slightly too) brief summary of the vast wealth of elemental and isotopic data which have been gathered on these Hebridean Tertiary igneous rocks over the past ~ 40 years and highlights how these data have been used to elucidate mantle sources and melting processes as well as magmatic processes such as crustal contamination, fractional crystallization and magma mixing. Given that much of our increased knowledge of the Scottish Palaeogene igneous province over the last 50 years has resulted from such geochemical research it is slightly disappointing that this chapter is not a little more

detailed. Chapter 11 discusses the structure of the lava fields and the structural effects of central complex emplacement on the country rocks. This chapter also highlights the importance of several major faults which cross-cut the province, namely the Camasunary and Skerryvore Fault and the Great Glen Fault; strangely, the Highland Boundary Fault which cross-cuts Arran is not discussed in this section.

Chapter 12, a short account of the late Palaeogene to early Neogene history, is followed by a detailed chapter on the Quaternary geology of the region. As would be expected this chapter is principally concerned with the several glacial episodes which have affected the region during the Quaternary period. The final chapter of the book briefly reviews the somewhat limited economic geology of the region; however, this review is none the less useful in that it highlights historically important economic deposits and small scale deposits as well as large scale quarrying.

In summary, this book at £18 represents excellent value for money. It brings up to date the Tertiary Hebridean igneous story for a wide variety of users. It deserves to be bought by many individuals and libraries and I am confident it will remain one of the standard general references for Hebridean Tertiary geology for many years to come. This book clearly shows that, despite many years of research, much of it going back to the very dawn of geology as a science, there is still much work to be done on the Hebridean Palaeogene igneous rocks. Lets hope we don't have to wait another 45 years for the fifth edition!

Andrew C. Kerr

POTTER, P. E., MAYNARD, J. B. & DEPETRIS, P. J. 2005. *Mud & Mudstones. Introduction and Overview*. xi + 298 pp. Berlin, Heidelberg, New York: Springer-Verlag. Price Euros 79.95 (+ VAT at local rate), SFr 135.50, £61.50, US \$89.95 (hard covers). ISBN 3 540 22157 3.
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The book *Mud and Mudstones* is a fairly comprehensive outline and assessment of fine-grained argillaceous rocks and sediments. The authors have aimed it at a broad audience including undergraduate geology and engineering students, but in particular for those professionals who require an introduction to this important and diverse aspect of the geological sciences.

The book is subdivided into nine chapters, a set of appendices and a glossary of terms useful to the study of muddy sediments and rocks, for the non-specialist. Included within each chapter is text within specific boxes, which have been used to expand on the background of technical details, to avoid sidetracking within the main body of the text. For the more knowledgeable reader this helps avoid some unnecessary detail, while for those new to the subject it acquaints the reader, while maintaining the continuity of the chapter. The book benefits from the inclusion of a significant number of examples cited from published literature, together with a section at the end of each chapter entitled 'Digging Deeper' and containing further sources of reference. These features should enable the interested reader to pursue particular topics of interest with greater ease.