British regional geology: The Palaeogene volcanic districts of Scotland

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Foreword to the fourth edition

Uniquely in the British Regional Geology series, the boundaries of the area covered by this volume are not easy to define, either geographically or geologically. In broad terms it covers the northern islands of the Inner Hebrides, with parts of the adjoining mainland, plus the Isle of Arran in the Firth of Clyde. This area spans several geological terranes in which most of the pre-Mesozoic rocks are already well described in other volumes of this series. It is characterised by extensive outcrops of igneous rocks of early Palaeogene age (formerly Tertiary) and by locally thick sequences of Mesozoic sedimentary rocks that, in many places, owe their preservation to a protective cover of Palaeogene lavas. Consequently, the descriptions in this volume concentrate largely upon the geological
processes and products of the Mesozoic and Cainozoic eras. The term ‘Tertiary’ is no longer approved, having been replaced formally in both chronostratigraphical and lithostratigraphical nomenclature by the Palaeogene and Neogene systems/periods. However, it continues to be used informally by some authors.

The first edition of this book, by J E Richey, was published in 1935. It was revised and updated mainly by the original author in the second edition of 1948 and by A G MacGregor and F W Anderson in the third edition of 1961. At the time of the last edition, many of the tools and techniques now taken for granted in geological and geophysical research were in their infancy, and the concepts of global tectonics were hardly known. The purpose of this completely rewritten new edition is to provide an up-to-date, generalised account of the geology that is comprehensible and of interest to the informed amateur, undergraduate and professional geologist, planner or civil engineer. While the emphasis is on the fundamentals of the regional geology and, in particular, what can be seen in the field, this account also demonstrates how some of the major advances in our understanding of the area have been made possible through the application of new techniques and concepts, and for some of these this region has provided a crucial test bed. This is most apparent in the extensive geochemical investigations of the igneous rocks, which have contributed so much to our knowledge of magma generation and evolution, both in the Hebrides and worldwide. For this reason a chapter has been devoted to the subject of magmas, which the authors feel is necessary for a complete discussion of the processes involved in the evolution of this igneous province of worldwide importance.

Although an enormous amount of specialised research has been conducted in the area in the last 40 years by university workers from around the world, there has been no systematic resurvey by Geological Survey staff. However, following in the footsteps of Alfred Harker of Cambridge University in the early 20th century, resurveys of the Small Isles, parts of Skye and to a lesser extent Ardnamurchan and northern Mull have been conducted on behalf of the British Geological Survey by university staff. Almost all of this work has been by Henry Emeleus of Durham University and Brian Bell of Glasgow University, and we are very fortunate that they have pooled their collective experience, gained from this and other work in the area, to produce this new edition.

David Falvey, PhD. Director. British Geological Survey.

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