

Book Review

GEOLOGY OF SCOTLAND Edited by G. Y. Craig, xiv + 472 pages, £ 55.00, Scottish Academic Press, Edinburgh, 1983.

The first edition of 'The Geology of Scotland' was published by Oliver and Boyd in 1965. It had 15 chapters in 533 pages, plus an index of 22 pages. There was a coloured geological map of Scotland at the end of the book. The second edition published in 1983 by the Scottish Academic Press has 454 pages and an index of 18 pages. This reduction in the number of pages is not due to less of data but due to smaller types and a larger format of the book. In the new edition of the book there are some changes in the authorship of some chapters. Thus, Chapter 7 in the former book (Caledonian igneous activity) was written by E. L. P. Mercy whereas in the second edition Chapter 7 (Caledonian and earlier magmatism) is written by P. E. Brown. Chapter 8 (Old Red Sandstone) is written by W. Mykura. Chapter 11 (Permian and Triassic) is written by J. P. B. Lovell in place of G. W. Craig. Chapter 13 (Tertiary igneous activity) is written by C. H. Emeleus. With minor modification (e.g. 'The growth and structure of Scotland' instead of 'The geological growth of Scotland'), the chapter headings are practically the same. But the contents show a significant difference, mainly because of the large amount of data collected during the last 20 years since the first edition of the book was published. In his preface to the new edition, the editor points out that no other country of such a small size as Scotland has been the focus of so much geological attention during the last 20 years. The reasons as listed by Craig are as follows: (1) remarkable advances in geophysics and petrology during this period; (2) the refinement of radiometric methods of dating with facilities of advanced methods available in the Scottish Universities now; (3) application of the concept of plate tectonics; and (4) the discovery of oil in the North Sea in 1970, leading to extensive drilling of the continental shelves of the British Isles. The influence of all these is reflected in the new account of Scottish geology.

The book is a comprehensive account of the geology of Scotland from the Early Precambrian to Quaternary, distributed in 15 chapters, each written by a well-known worker in the particular field. The chapters are divided into era or period, each containing detailed accounts of the geological information available for that era/period, followed by an exhaustive list of references. In the introductory chapter, A. L. Harris cogently summarizes the evolutionary history of Scotland from the Precambrian to the end of the Mesozoic. The pride of place is taken by Chapters 2, 3 and 4 (Lewisian by Watson, Torridonian-Moine and Dalradian by Johnson). The Chapter on Lewisian provides a superb summary of the methods used, data collected and inferences drawn regarding the evolution of these old gneissic rocks made famous by Peach *et al* in their classic memoir of 1907. The radiometric age data obtained during the last two decades have been effectively utilized in this summary. This chapter is a 'must' for all students working on basement gneisses. The Torridonian-Moine and Dalradian rocks of the regions, wherefrom many seminal ideas of modern structural geology started, have been dealt with in Chapters 3 and 4. Excellent photographs, maps and sections and block diagrams have been presented.

In the chapter on Dalradian, in particular, the regional metamorphism and its time-relation to deformations have been cogently summarized. Walton's accounts of Lower Palaeozoic stratigraphy (Chapter 5), and structure and palaeogeography (Chapter 6) are very detailed indeed. Some magnificent photographs of 'pipe rocks', stromatolites, chert nodules, sole markings, and folds of different types adorn these chapters. Although Walton's stratigraphic descriptions are followed by a synthesis of Lower Palaeozoic structure and palaeogeography, and Mykura's discussions (Chapter 8 – Old Red Sandstone) deal with conditions of deposition, palaeogeography etc., the picture of depositional environment may still remain somewhat hazy to a student not very familiar with the details of Scottish stratigraphic divisions. Francis' Chapters on the Carboniferous System and Carboniferous-Permian igneous rocks are detailed accounts of the stratigraphy and palaeogeography of the Carboniferous, and of the igneous activities during those periods. Recent work on trace elements, seismic data and radiometric ages have been brought to bear on the evolutionary history of the igneous rocks. The Chapters on Permian and Triassic by Lovell, and on Jurassic-Cretaceous-Tertiary sedimentary rocks by Hallam are comparatively short. But Lovell's Chapter provides some synoptic palaeogeographic maps from Early Permian to Rhaetian. The Chapter on Tertiary igneous activity by Emeleus deals with some of the most famous igneous bodies such as those of Ardnamurchan, Arran, Mull and Skye. Together with a few beautiful photographs, there are up-to-date structural and gravity anomaly maps. A discussion of both ferrous and non-ferrous metals, and of fossil fuels by Duff (Chapter 15 – Economic Geology) has added to the usefulness of the book. A geological-cum-tectonic map of Scotland as frontispiece, and a map of the continental shelf of the British Isles showing the locations of oil and gas fields, are additional attractions.

In Summary, *Geology of Scotland* is one of the finest accounts of geology of a country which has given birth to many ideas of geology, and no library can afford to exclude it from its shelves.

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Announcements

STRUCTURAL METHODS FOR PROFESSIONAL GEOLOGISTS

A two-week course on 'Structural Methods for Professional Geologists' is being organized at the Indian School of Mines, Dhanbad from November, 11-23, 1985. The course is meant for geologists working in professional organisations, mining and exploration companies

Further details can be obtained from :

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