

(M. R. W. Johnson); 4. Dalradian (M. R. W. Johnson); 5. Lower Palaeozoic rocks—stratigraphy (E. K. Walton); 6. Lower Palaeozoic rocks—palaeogeography and structure (E. K. Walton); 7. Caledonian igneous activity (E. L. P. Mercy); 8. Old Red Sandstone (E. H. Francis); 9. Carboniferous (E. H. Francis); 10. Carboniferous-Permian igneous rocks (E. H. Francis); 11. Permian and Triassic (G. Y. Craig); 12. Jurassic, Cretaceous and Tertiary sediments (A. Hallam); 13. Tertiary igneous activity (F. H. Stewart); 14. Quarternary (J. B. Sissons); 15. Economic geology (P. McL. Duff).

It is a well-produced book and contains an abundance of photographic plates, including several air photographs, line drawings, and maps; all of excellent quality. A folded coloured geological map of Scotland on the scale 25 miles to one inch is included at the back of the book. It aims at providing a synthesis of the present state of knowledge of Scottish geology, including references to pertinent material published as recently as 1965.

Perhaps the only minor criticism concerns some of the sections on igneous activity, which tend to stress the petrography of the rocks but do not deal very fully with petrogenetic aspects. The present trend of opinion towards a mode of origin other than simple fractional crystallization for many of the Tertiary granites will be seen by some as at least a partial vindication of much abused earlier work on these rocks.

Geologists who have attempted to keep abreast of the extensive and frequently contradictory literature on Lewisian, Moine, Torridonian metamorphism, and the Dalradian, will find these sections particularly valuable, although specialists in these areas will have no difficulty in finding points of difference; the origin of F_2 folds in the Dalradian for instance. However, alternative views seem to be fairly stated (as they should be in any synthesis) and, comparing the price of the book with other geological texts, its cost is not unreasonable. T. W. BLOXAM

FITZ OSBORNE (F.), editor. *Geochronology in Canada*. Royal Society of Canada Special Publication, No. 8. Toronto (University of Toronto Press), 1964. 156 pp. Price: 48s.

This volume consists of nine papers presented at a colloquium of the Geology Division of the Royal Society of Canada at the annual meeting in Quebec, June 1963. One group of papers deals with the validity and limitations of a variety of methods used for establishing the geological time-table, and with related problems of nomenclature. The titles of the papers are: The Geological Time-Scale (F. K. North); The Chronological

Value of Fossils (D. L. Dineley); Limitations of Radiometric Dating (H. Badsgaard, G. L. Cumming, R. E. Folinsbee, J. D. Godfrey); Palaeomagnetism as a Means of Dating Geological Events (L. W. Morley and A. Larochele); Principles of Time-Stratigraphic Classification in the Precambrian (C. H. Stockwell). Another group of papers is concerned with application of the methods to selected areas in Canada, ranging in age from Precambrian to Recent; the titles are: Age and Correlation Problems in the Appalachian Region of Canada (W. H. Poole, D. G. Kelley, E. R. W. Neale); Historical Geology of the Devonian System in Western Canada (R. de Wit); Geochronology of Plutonic Rocks in Two Areas of the Canadian Cordillera (H. Gabrielse, J. E. Reesor); Notes on the Pleistocene Time-Scale in Canada (A. Dreimanis). The volume does *not* offer a comprehensive review of the geochronology of the Canadian Shield or of its bordering regions.

The different contributions are variable in quality, spanning the range from chatty, generalized discourse to detailed and interesting research reports. It appears from those papers on the application of isotopic dating methods that the *geological interpretation of measured mineral ages* is sometimes beset with major uncertainties. The discussion of the Canadian Appalachian region will be of particular interest to those British geologists struggling to elucidate the finer points of the chronology of the Caledonian orogenic belt in the British Isles. Clearly, there are many detailed similarities between opposite sides of the Atlantic, though this is outside the scope of the book.

The volume contains some rich examples of North American imagery, of which 'surfaces of equi-time' (p. 62) and 'feed-forced indiscriminately into the maw of the time-machine' (p. 23) are notable.

The aims and achievements of this book are modest, but several of the contributions provide useful summaries of specific topics that should appeal to time-minded geologists. There are numerous excellent tables and diagrams, and plenty of references.

S. MOORBATH

PETTJOHN (F. J.) and POTTER (P. E.). *Atlas and glossary of primary sedimentary structures*. Berlin (Springer) 1964. xv+370 pp., 117 plates.

This book contains a collection of plates, most of them full-page, illustrating a great variety of sedimentary structures. The collection is clearly not intended to be comprehensive, a deficiency compensated for by appending a lengthy (80 pages) and thoroughly documented glossary. The whole is preceded by a short preface and general introduction and