

example, pyrrargyrite and other rarely occurring crystals in a book of this kind.

The second part deals with the rocks; tables and diagrams cover the distribution of the elements in rocks, the composition of the earth's crust, and the average composition of the major rock groups. Tables describing the characteristics of the several rock types and including the uses of such rocks are of great use: the uses to which some rocks are put must pre-suppose considerable capital expenditure or low working costs! It is doubtful what value the inclusion of relatively rare rocks like vogesite, theralite, keratophyre, etc., has in such a work as the present one.

The third section deals with the identification of gemstones. Again the tables are good. Terms such as uniaxial, biaxial, optic axis, and others could have been made much clearer by the inclusion of simple diagrams. It would also have been useful to have a little more extended description of the use of instruments for the identification of gemstones. Synthetic gemstones are considered briefly. The coloured plates are reasonably well done but the inclusion of coloured absorption spectra of selected gemstones would have been useful.

The great value of this book is the presence of excellent tables, the intelligent use of which makes for ease of identification wherever they are used.

B. S.

RANKAMA (K.), editor. *The Precambrian*. Vol. 2. London (Wiley), 1966. vi+454 pp. Price: 113s.

This second volume of the Interscience series on the Precambrian deals with the regions bordering the North Atlantic in Spitsbergen, Britain, Greenland, and Canada. Like the first volume, it consists of several self-contained sections, each of which covers a different region and has a different author. The greater part of the volume is devoted to systematic regional descriptions, which, with the many simple maps and full bibliographies, make the book a valuable work of reference. It is excellently produced and illustrated. Yet the final impression is disappointing.

The Precambrian terrains covered in this volume have been the birth-place of concepts of fundamental importance—for example, the notions of structural provinces, of metamorphic zoning, of the distinction between Oberbau and Unterbau. Yet in spite of the advance of knowledge since these and other ideas were first put out, they are not consistently

developed here and there are few attempts to relate local geology to the evolution of major crustal units such as basins of deposition or orogenic fold-belts. One is left with the feeling that an opportunity to make a positive contribution to Precambrian geology has been missed.

The first section, on Spitsbergen and Bjønøya, by T. S. Winsnes, is short and workmanlike. The variations of the Hecta Hoek sequence are summarized in some useful tables and a concluding paragraph attempts to set the details against the regional picture. In dealing with the British Isles, J. G. C. Anderson has had to cope with a very voluminous literature, a fact which has perhaps encouraged a certain parochialism. The classic regions of the north-west Highlands, covering the Lewisian and Torridonian and the Moine Thrust-zone, are dealt with very briefly. The complex geology of the Moinian and Dalradian regions is clearly summarized. The scattered Precambrian outcrops south of the Highland Boundary fault receive unduly generous treatment (25 % of the space given to regional description) and it is difficult to see the value of the rather random collections of chemical analyses given in Tables 3-5. It is a pity that so much recent work, especially in the field of geochronology, came too late to be included in the text.

The section dealing with Greenland, by A. Berthelsen and A. Noe-Nygaard, is perhaps the most interesting part of the book. Making use of hitherto unpublished maps, the authors are able to present a surprisingly complete account of the coastal regions, with a more detailed study of the alkaline igneous province of south-western Greenland. The descriptive sections are clearly coordinated and are shown to contribute to a regional picture dominated by the building-up of successive orogenic belts.

The Canadian shield, a key-area in discussions of Precambrian geology, is the subject of the last third of the book, written by M. E. Wilson. The long time-interval between completion of the manuscript (dated 1962, revised 1963) and publication has had a particularly unfortunate effect here, in that there is little reference to the important geological and geochronological work published over the last five or six years by the Geological Survey of Canada. The current scheme of division into tectonic provinces is not adopted (such well-established terms as Superior province, Slave province, and Bear province do not appear at all). The author uses instead the traditional St. Lawrence, Ungava, Churchill, and Arctic islands provinces, not all of which seem, in the light of geochronological evidence, to make valid geological units. This weakness in the general approach makes it difficult for the reader to get the most out

of the comprehensive descriptive sections, which include a welcome summary of the distribution and relationships of the principal economic deposits.

J. WATSON

RAGUIN (E.). *The geology of granite* (Translated from the 2nd French edition by E. H. Krank and P. R. and J. M. Eakins). London (Wiley), 1965. xxi + 314 pp. 51 figs. Price: 68s.

The first edition of Raguin's 'Geologie de Granite' appeared in 1946; the second, considerably revised, notably by the inclusion of much new descriptive material and references, was published in 1957. 'Geology of Granite' is a very faithful translation of the second French edition. Indeed, the rendering is in places unnecessarily literal, as 'The concept of a geochemical culmination gives distinct firmness (donne une consistance précise) to the chemical fronts resembling successive waves (semblable à des vagues successives)' (p. 96). There are, of course, a number of difficulties in translation, especially where there is no satisfactory equivalence in terminology or even of concepts. Such difficulties the translators have clearly recognized and overcome by the use of footnotes. Occasionally, however, one feels that it would have been better not to have translated a term; thus 'filtering columns' hardly conveys 'colonnes filtrantes' and sounds odd as 'an expression of Pierre Termier' (p. 94).

Raguin's book is majestic in concept; granite is a major phenomenon of the earth's crust and an understanding of the nature, environments, and genesis of granite lies at the heart of geological thought. The work provides a comprehensive and appreciative description of all aspects of the petrology of granite, its mode of occurrence, and its structural setting. The list of chapter headings itself conveys the broad scope of the treatment. The reader is, moreover, guided in his appraisal on the significance of the data. Such guidance is in some measure subjective or intuitive, but on this topic it can hardly be otherwise; indeed, it provides not only a coherence to the work, but also a stimulus to critical thinking.

Despite the revision and incorporation of much new data in the second edition, the book retains the atmosphere of the 1946 edition when notions on the genesis of granite were largely focused around two opposing schools of thought, the magmatists and the transformists. The relevance of the argument is, however, greater than current attitudes might suggest, for the development of additional methods of approach has complicated rather than resolved the original controversy.

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