

emphasized: the genesis of kimberlite, and of its diamonds, is probably a process of very long duration.

R. A. HOWIE

WEBER (J. N.), Editor. *Geochemistry of Germanium* (Benchmark Papers in Geology). Stroudsburg, Pennsylvania (Dowden, Hutchinson, and Ross), 1974. xiv+466 pp., 148 figs., 2 pls. Price \$23.00.

It is an unenviable task to have to select, without significant omission, a number of important papers on this topic. The 43 papers that were chosen, however, cover the subject-matter well except that there is very little on the general crystal chemistry of germanium. Special attention has been given to papers on germanium in meteorites and on meteorite classification, especially those by J. T. Wasson, published in the usually accessible *Geochimica et Cosmochimica Acta*.

The editor's comments are short and do not add much to the value of the book. The quality of production is generally good but the reproduction of photomicrographs is barely adequate and in the reviewer's copy the pages were bound in the wrong sequence. This book is unlikely to be a strong contender for the use of library funds especially when a library already has the *Handbook of Geochemistry* (*Min. Mag.* **38**, 533-4). The chapter on germanium in the latter is undoubtedly of more use for a summary of the pre-1969 literature and for its good bibliography. Weber's book has the advantage that more than twenty of the selected papers were published between 1966 and 1970 and some of these are from the less accessible Russian journals.

P. HENDERSON

KUDRYAVTSEV (A. A.). *The Chemistry and Technology of Selenium and Tellurium* (Transl. from the 2nd Russian edition and revised by E. M. ELKIN). London and Wellingborough (Collet's Ltd.), 1974. viii+278 pp., 56 figs. Price £4.75.

THIS convenient handbook provides a useful ready reference for mineral chemists, metallurgists, and economic mineralogists whose research interests are concerned with the physical and chemical properties of selenium and tellurium, together with their inorganic and organic compounds and various binary alloy systems.

A brief introduction includes a review of the geochemistry of the two elements, and tables of minerals containing selenium and tellurium, several of which are incorrectly spelt (krennerite, montbrayite, csiklovaite) and in which there are a considerable number of omissions.

The main body of the work is sectionalized as follows: (1) Properties of selenium, (2) Selenium compounds, (3) Properties of tellurium, (4) Tellurium compounds, (5) Equilibrium systems of sulphur, (6) Binary systems of selenium and tellurium, (7) Recovery methods, (8) and (9) Recovery methods, (10) Materials of Construction, (11) Chemical Analysis, (12) Uses, and (13) Health and Safety Aspects. The bibliography lists 851 references.

There is considerable overlap in the contents of this handbook with two other translated publications in the series, both by Chizhikov and Shchastlivyi, *Tellurium and Tellurides* (1970, 320 pp.) and *Selenium and Selenides* (1968, 403 pp.).

A. P. MILLMAN

WINKLER (H. G. F.). *Petrogenesis of Metamorphic Rocks*. Berlin, Heidelberg, and New York (Springer-Verlag: Study Edition), 1974. xi+320 pp., 92 figs. Price DM 24.10 (\$9.80); £5.10.

It is seldom that an established textbook changes its approach to a subject as fundamentally as this one has done. In the publishers' words, 'The new concept of defined metamorphic grades and isograds (isoreactiongrads) replaces the now obsolete sub-facies and facies classification of previous editions and other works on the subject'. Winkler expounds this new doctrine with all the fervour showed to the old in previous editions, although in view of the rapid development of ideas in metamorphic petrology it might have been appropriate to be a little cautious. In one sense the book has not changed its theme from previous editions: it remains an account of the conditions of metamorphism of metamorphic rocks based on their mineral parageneses, a more restricted topic than the title suggests. A gain in this new version is a short chapter indicating to the student how a mineral paragenesis may be recognized from a thin section of a metamorphic rock.

The field of conditions of metamorphism is divided by approximately isothermal metamorphic reactions into four large fields which Winkler terms in order of increasing temperature: very-low grade metamorphism, low grade metamorphism, medium grade metamorphism, and high grade metamorphism. This definition of metamorphic grade conflicts with the traditional usage of field petrologists: for example a coarse-grained blueschist with glaucophane and lawsonite, found among fine-grained metamorphosed greywackes, is classified as a 'very-low grade rock'. The main section of the book traces five compositional classes of rocks (carbonates, marls, ultramafics, basic igneous rocks, and pelites) through the four metamorphic grades. The later chapters discuss 'granolite high grade' rocks, eclogites and anatexis. 'Granolite' is a new term, coined to avoid the confusion surrounding the term 'granulite'.

Although the illustrations in the book are well presented, the remark on p. 247 'Granolite is not a misprint . . .' has an unintended irony. Some of the more glaring examples are 'fledspar', 'disposide', 'shpene' and 'Pitscher' (for W. S. Pitcher in both text and bibliography, which suggests that the error was not the printers.) The style is also occasionally too cumbersome for a book intended for widespread use among undergraduate students.

Having recommended this book to students for many years, this reviewer regrets that he must exclude the new edition from undergraduate book lists because the scheme of classification used is so idiosyncratic and its exposition not lucid. Research workers and teachers, however, will continue to find Winkler's ideas stimulating, and for them it is essential to buy this new edition if they have been making extensive use of the old.

ROGER MASON