

PITCHER (W. S.) and FLINN (G. W.), editors. *Controls of metamorphism*. London (Oliver and Boyd), 1965. 368 pp. Price: 84s.

The book contains a collection of 20 papers presented at a symposium on the 'Controls of metamorphic crystallization' held in the Department of Geology, University of Liverpool, in January 1964. The papers provide both new data and valuable review material in the field of metamorphism, although they vary in the degree to which they embrace the actual *controls* of metamorphic processes. It is unfortunate that the discussions, even in some edited form, were not included in the book. Nevertheless, the book provides some of the most up-to-date data and interpretations on the subject and will find a place on many petrological bookshelves despite its not inconsiderable price.

1. 'Introduction'. W. S. Pitcher. pp. 11-21. 2. 'Some recent advances in our understanding of the controls of metamorphism'. J. Sutton, pp. 22-45. 3. 'Deformation in metamorphism'. D. Flinn. pp. 46-72. 4. 'Nucleation and growth of metamorphic minerals'. N. Rast. pp. 73-102. 5. 'The science of metamorphism in metals'. D. McLean. pp. 103-118. 6. 'Tectonic overpressures'. R. W. R. Rutland. pp. 119-139. 7. 'Factors in the study of metamorphic reaction rates'. E. D. Lacy. pp. 140-154. 8. 'The study of mixed crystals of minerals in metamorphic rocks'. E. Hellner, Th. Hinrichsen, and F. Seifert. pp. 155-168. 9. 'The chemical significance of isograds'. M. P. Atherton. pp. 169-202. 10. 'Experimental anatexis and genesis of migmatites'. H. von Platen. pp. 203-218. 11. 'The nature and origin of migmatites: metasomatism or anatexis'. B. C. King. pp. 219-234. 12. 'Isotopic dating of metamorphic rocks'. S. Moorbath. pp. 235-267. 13. 'Some comments on the application of experimental results to the study of metamorphism'. W. S. MacKenzie. pp. 268-273. 14. 'The iron-titanium oxide phases in metamorphism'. M. I. Abdullah. pp. 274-280. 15. 'The composition of garnet in regionally metamorphosed rocks'. M. P. Atherton. pp. 281-290. 16. 'Compositions of micas in metamorphic rocks'. B. C. M. Butler. pp. 291-298. 17. 'The relationship between composition of calciferous amphibole and grade of metamorphism'. B. E. Leake. pp. 299-318. 18. 'The pyroxenes of metamorphic rocks'. R. A. Howie. pp. 319-326. 19. 'The aluminium silicate polymorphs'. W. S. Pitcher. pp. 327-341. 20. 'Crystallographic aspects of feldspars in metamorphism'. W. L. Brown. T. W. B.

RICH (C. I.) and KUNZE (G. W.), editors. *Soil clay mineralogy, a symposium*. N. Carolina (Oxford Univ. Press), 1965. xvi+330 pp. Price: 64s.

This book is the record of a seminar held at the Virginia Polytechnic