

immiscibility and partial melting, where extensive studies have been published. With such omissions, a more appropriate book title could be 'Nature and Origins of Complex (Plutonic) Granitic Assemblages'.

Despite such imbalance, this book does inform, stimulate and entertain. It is written by a scientist who has contributed more to the subject than most other living geologists. I recommend it as very good value to those advanced students who have already balanced the options by reading 'Igneous Petrology' (Carmichael, Turner and Verhoogen).

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Wilson, M. J., Ed. *Clay Mineralogy: Spectroscopic and Chemical Determinative Methods*. Chapman & Hall, London. 1994. 367 pp. Price £79.00. ISBN 0-412-53380-4

In the preface the aim of the book is stated to be to make more accessible to the non-specialist a variety of spectroscopic and chemical techniques now being increasingly used for the study of clay materials.

After a general introduction to molecular spectroscopy methods there then follow six chapters describing specific spectroscopic methods: infra-red, Mössbauer, nuclear magnetic, electron paramagnetic, X-ray photoelectron and X-ray fluorescence spectroscopy. The final two chapters are devoted to chemical analysis of clay materials and the characterisation of poorly ordered minerals by selective chemical leaching. Each chapter follows a similar format outlining the principles of each technique, experimental procedures and their applications with examples.

This volume can be seen as an accompanying one to the 'Handbook of Determinative Methods in Clay Mineralogy' also edited by Dr Wilson. Three of the chapters from this volume have been reproduced with some updating in the current book, namely those on infra-red spectroscopy, chemical analysis and the characterisation of poorly ordered minerals by selective chemical methods. However, the changes to the chapters are minimal and as these three chapters make up 30% of the new book, this might be a disincentive to purchasing it for those who already have the 'Handbook of Determinative Methods in Clay Mineralogy'.

At times the book seems to belie its title with sections in many chapters devoted to the application of the techniques to the study of non-clay minerals e.g. infra-red spectroscopy of olivines, Mössbauer spectroscopy of feldspars.

Perhaps it might have been more appropriate to have referred to Clay Materials or Soil Mineralogy rather than Clay Mineralogy in the title.

Overall the book achieves its aim of introducing these various spectroscopic and chemical techniques for the study of clay materials to the non-specialist. Anyone embarking on the use of these analytical methods for the first time will find this book of great value. It provides in one volume a good compilation of basic information that would otherwise be available only from a variety of different sources. For this reason, despite its high price, I am sure that it will soon be on the shelves of many libraries and part of the book collections of clay mineralogists and soil scientists.

H. F. SHAW

Guthrie, G. D. Jr. and Mossman, B. T., eds. *Health Effects of Mineral Dusts* Washington, D.C. (Mineralogical Society of America: Reviews in Mineralogy, Vol. 28), 1993. xvi + 584 pp. Price \$28.00. ISBN 0-939950-33-2

This new volume in the series 'Reviews in Mineralogy' breaks new ground in the extent to which it is interdisciplinary in coverage and interest. The primary sources of mineral dusts are clearly in the realm of Geology but mineral extraction, separation and industrial processing are also very pertinent. The structures and physics and chemistry of minerals form an essential foundation, but since we are concerned here not with the minerals *per se* but with their interaction with the human body, we necessarily enter the fields of biochemistry, pathology and epidemiology. And because some of the mineral dusts can constitute such serious health hazards, we need to address methods of identification and measurement, and also control and regulatory procedures. All of these aspects, and others, are examined in this review, which follows from an M.S.A. short course endorsed by the American College of Chest Physicians and the U.S. Geological Survey.

After a general introduction the next chapter summarizes the nature of the major constituents of mineral dusts, particularly two which occur in asbestiform varieties, the amphiboles and serpentines, but also micas, clays, silica and zeolites. A fascinating part of this chapter deals with the generation and migration of natural dusts and their quantitative estimation, an often neglected background upon which man-made dusts are superimposed. A further three chapters deal more extensively with the aforementioned minerals and also with oxides and phosphates,