

background information on the Data File, and matters such as how the data have been edited and presented, a very welcome addition to the second issue is a series of three keys to enable the File to be used in mineral identification. Thus, key 1 lists all the minerals in order of increasing reflectance in air at 546 nm, plus the data for the other three COM recommended wavelengths (470, 589, 650 nm) citing, as do the other keys, the page number of the major entry for that mineral. In key 2, colour values are used in a similar way with minerals listed in order of increasing luminance (Y%), and in key 3 minerals are listed in terms of increasing reflectance in air and oil at 440 nm, with data given also at 500, 600 and 700 nm. There is also a brief bibliography and a brief section dealing with the historical background to the Data File.

The whole volume is attractively produced with the same blue used both in the binding and in the headings and subdivisions of the tables, the data standing out in a clear black typeface. The only regret might be that this large body of data is not yet available in a form that can be mounted on a computer and manipulated so as to plot and compare spectral curves with ease; but I believe that plans are underway to make the data available in this form in future issues. However, we do now have this excellent compilation, and no laboratory with a serious interest in ore minerals should be without it. As a contribution to the study of ore minerals it is invaluable; a credit to the editors and to the British Museum (N.H.) who have had the far-sightedness to publish it.

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Barker, D. S. *Igneous rocks*. Engelwood Cliffs, New Jersey, U.S.A. (Prentice Hall, Inc.), 1983. xii + 417 pp. 228 figs. Price £43.80.

This book has much to commend it, and some failings. It presumes an elementary knowledge of igneous petrology for its readers, and seeks to enhance their knowledge to a relatively advanced level. As such it occupies the overcrowded 'middle ground' in igneous petrology textbooks. It would not be first choice as a book for describing and classifying igneous rocks. Nor could it be described as an 'advanced' text, detailed discussion of petrogenetic theory is alluded to, but not evaluated. It covers many aspects of igneous petrology, including chapters on the Role of Magma in Geological Processes; Igneous Minerals; Phase Relations; Estimating, Reporting and Comparing Igneous Rock Compositions; Classification of Igneous Rocks; Crystallisation and Textures; Generation and Evolution of Magma; Forms of Igneous Rock Bodies; and Effects of Volatile Components. Some

groups of igneous rocks are selected for Chapters of their own—Ultramafic Rocks, Mafic Rocks, Intermediate and Felsic Silica-Oversaturated Rocks, and Silica-Undersaturated Rocks. These four chapters include sections on most types of igneous rocks, but somehow fail to convey an appreciation of the relative abundances and significance of the rock types. The last three chapters of the book cover Metasomatism, Magmatism and Tectonism, and Relations of Magma to Energy and Mineral Resources.

The overall presentation of the book is good, but not outstanding. The price is high enough to exclude this book from the 'popular' range. There are a large number of carefully prepared figures in the text, although many are small. The photographs are disappointing, especially the photomicrographs, lacking definition and appearing out of focus. The index is comprehensive and the reference list exhaustive, but few papers published after 1980 are included. There is a certain haphazardness in the coverage of topics: pyroclastic rocks are discussed in part of the chapter covering 'Forms of Igneous Bodies', for example. Chapter One (The Role of Magma in Geologic Processes) makes reference to plate tectonics, the lithosphere and asthenosphere, subduction, heat flow within the Earth, geothermal gradients, pressure within the Earth, magmatism on other planets, etc., and yet somehow fails to explain how igneous rocks are produced by partial fusion (this is explained in Chapter 7). Many topics are referred to in the text, but the discussion is frequently unsatisfactory, detailed explanations or their significance is often lacking. Even in a book at this level, some elementary account would be expected of the important conclusions to be drawn from modern trace element and isotopic studies.

Nevertheless the book has much to recommend it. The subject is covered and the book will be useful to the non-specialist. It includes the answers to those questions one did not like to ask the igneous petrologist. Where else could the stratigrapher, palaeontologist or other mortal men find out about A-type granites, spreading centres, fertile mantle, jacupirangite or even KREEP.

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Freer, R. and Dennis, P. F. (editors). *Kinetics and Mass Transport in Silicate and Oxide Systems* (Materials Science Forum, Vol. 7). Aedermannsdorf, Switzerland, and Rockport, Massachusetts (Trans. Tech. Publications Ltd.), 1986. xii + 331 pp., 150 figs. Price SFr. 150.00 (\$70.00).

This book represents the proceedings of an international conference held in London in September