

chemistry of melts from different planetary environments. The main conclusion of this chapter, that silicate minerals are recorders of the geochemical and petrological processes on their parent bodies, will come as little surprise to geochemists and petrologists. The summary highlights the regular fractionation trends between the Earth, Moon, Mars and asteroid 4 Vesta that reflect nebular accretion location and variable core formation.

Overall, this is an excellent book that is going to be a valuable resource for meteoriticists and planetary scientists for at least the next decade. It provides a wealth of information and data; the appendices to each chapter containing representative analyses of specific planetary materials will be particularly useful. The layout, content, diagrams, references and indexes are first-rate. I have two complaints, one which is technical, the other scientific. First, reproduction of SEM and thin section images is poor, presumably a reflection of the production mechanism rather than the authors. But the authors must take responsibility for my second complaint: even though (as stated in the introduction) the text aims primarily at "a comprehensive coverage of the mineralogy and petrology of planetary materials", too little space was dedicated to discussion of the wider issues concerning planetary materials. I am thinking specifically of more process-oriented discussion, focusing on formation histories, chronology and alteration. Isotope chemistry, particularly noble gas geochemistry was sadly underrated.

Having said this, as soon as I received the book to review, I ordered a further two copies, one for home and one for my office, so that I will always have the volume to hand! I recommend this text to meteoriticists and planetary scientists, and congratulate the authors and the editor on their efforts in producing the book. M. M. GRADY

Aleksandrov, S.M. *Geochemistry of Skarn and Ore Formation in Dolomites*. Utrecht (VSP) 1998, x + 300 pp. Price DM 248 / US \$148 / Sterling £98. ISBN 90-6764-281-9

This book provides a summary of the author's research into metasomatism and ore formation in magnesian skarns carried out over the last 30 years. The book is divided into several sections. The first two chapters deal with the formation of zoned skarns at the magmatic stage, reviewing

primary skarn formation and the contact metamorphism of marbles, the influence of intrusion composition on skarn composition, and the influence of the primary skarn composition and zonation on later stages of alteration and mineralization. The second section (Chapters 3, 4 and 5) reviews the effects of post-magmatic metasomatism and ore formation in skarns. The chapters dealing with ore formation review both oxide and sulphide deposits, and focuses particularly on mineralogical aspects of skarn-related tin and boron deposits. Part three deals with the hypergene modification of skarn deposits, whilst part four reviews stable isotope and experimental studies of skarn mineralization. The final section addresses the application of mineralogical and geochemical data in prospecting for, and appraising, magnesian skarn related ore deposits.

The book contains many descriptions of Russian skarn related deposits that may be new to the western reader, and provides reviews of many details of the mineralogy of boron, tin and other elements in skarn environments which may not be available elsewhere. It also covers the basic description, classification, formation and modification of zoned skarns at the magmatic and post-magmatic stages. This work is extended to examine hypergene alteration. Coupled with details of experimental studies into the formation and stability of Sn and B minerals, and detailed discussions of their mineralogy, this means that the book may be of interest to many other researchers working in this field and have some value as a reference text.

However, both the preface and the publisher's sales publicity describe the book as a fundamental investigation into skarn and ore formation. As such one would expect it to include, under the above headings, reviews of many aspects of skarn formation including fluid chemistry, thermodynamics, fluid flow, and flow and reaction modelling, isotope geochemistry, mineralogy and ore formation. On many of these counts the book is disappointing, being largely descriptive in nature. Equally it is difficult to extract information from some sections due to the dense and convoluted grammatical style.

Many areas are inadequately referenced, either omitting mention of other work, or concentrating only on a specific subset of the Russian literature. One notable example is the brief section on boron isotopes, which makes no reference to the work of any other author. Other areas are almost reverential in their reference to the work of

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individual authors. In a similar way the book repeatedly refers to geochemical "laws" and the "laws" of skarn formation.

In summary this book presents potentially interesting new data, particularly on the mineralogy, formation and alteration of tin and borate minerals in skarn environments. However, the

style of writing makes it difficult to extract useful information from the review sections, and emphasizes description of occurrences rather than genetic interpretations. Finally the narrow focus on the author's own research means that much of the book is badly under-referenced.

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