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# BOOK REVIEWS

*Mineralogical Applications of Crystal Field Theory* (second edition). By Roger G. Burns*. Cambridge Topics in Mineral Physics and Chemistry, No. 5. Cambridge University Press, 1993, 551 pages, US $79.95 (ISBN 0-521-43077-1).

Like many other geologists of my generation, I was first introduced to crystal field theory in undergraduate classes in mineral deposits and geochemistry. Initially perplexed by the strange direction the lectures were taking, I eventually found it intriguing that a theory so firmly tied to spectroscopy could be so *useful* in understanding many problems in geochemistry. And so it remains; the second edition of *Mineralogical Applications of Crystal Field Theory* maintains its balance between introductory spectroscopy, crystal chemistry and geochemistry.

Crystal field theory is a chemical bonding model widely used by spectroscopists to explain some of the processes which contribute to optical absorption spectra. Although this book centers on crystal field theory, it discusses optical absorption spectroscopy in a broader context, eventually covering the problems involved in assessing the crystal field contribution to optical spectra of minerals. As with the first edition, there is mention of the "competition"; the book closes with a discussion of a molecular orbital approach to interpreting "crystal field" spectra.

It has been twenty-three years since the publication of the first edition of the book, during which there has been an enormous generation of optical absorption spectra of minerals. This extensively revised second edition shows it, at more than double the original size and with the chapter on the absorption spectroscopy of minerals now dealing with more than twice the number of mineral groups dealt with in the first edition. The layout is much the same as the original edition, with the addition of only one chapter on the compositions of planetary surfaces. This reveals a shortfall of the topic, namely that growth in the subject has been mainly in the study of new problems, less so in new applications of crystal field theory. One could argue that the breadth of application shown by the first edition left little room for expansion. It is certainly this breadth that remains the strength of the book; the causes of color in minerals, causes of cation order, trends in thermodynamic properties of transition metals, the geochemistry of trace elements, and rudimentary aspects of transition element metallogenesis are some of the many topics addressed from the perspective of crystal field theory. The book is strong on detail in many areas. I found sections on the spectroscopy of unusual valence states of transition elements, on the use of crystal field theory to explain the effect of $Mn^{3+}$ upon aluminosilicate stability, and on the reflectance spectroscopy of extraterrestrial bodies interesting, as was the modern context to the section on mantle studies.

The book is generally well written, and quite readable. Like the first edition, it provides an ample outline of crystal field theory. Good forward-referencing is a strong point, as are chapter summaries. There is a moderate amount of repetition, which improves readability; however, some readers may find this annoying. Non-spectroscopists might find the slingshot introduction to Schöenflies symbols overwhelming; however, two appendices and a selection of background readings exist for the novice. Most drawings of crystal structures and absorption spectra are well chosen; however, some of the of line drawings did not reproduce well.

Who should buy this book? The book is certainly intended as a reference text for researchers. Given its breadth and its application to all fields supported by the MAC, any reader of *The Canadian Mineralogist* should find it interesting. This new edition won't have quite the impact of the first one, but given the extensive amount of revision, those with the earlier edition on their bookshelf should certainly consider the upgrade.

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* We who are connected with this journal are saddened to hear of the recent death of Dr. Roger G. Burns. Roger very ably served on the Editorial Board of this journal as Associate Editor from January 1988 to December 1990.

*Understanding Earth*. By Frank Press and Raymond Siever. W.H Freeman & Co., New York, 1993, 593 pages, CAN $44.95 (ISBN 0-7617-2239-9) soft cover.

Every so often a text is published that breaks with tradition and stands apart from the rest. Such was *Earth*, written in 1974 by Frank Press and Raymond Siever in a clear and precise style, and accompanied by equally clear and precise diagrams. It was our recommended text for many years, and after 20 years it is still a delight to read and to use as a reference. Editions 1 and 4 of *Earth* stand in my bookshelf alongside Holmes's *Physical Geology* and Lobeck's *Geomorphology*. I was therefore looking forward to adding *Understanding Earth* to the shelf and being able to recommend it for our introductory courses. Each year I experience some degree of frustration in selecting a text because many of those offered are so similar. In this review I have decided, in addition to discussing *Understanding Earth*, to take the opportunity to make some general comments on the content and format of contemporary textbooks in introductory geology.

In *Understanding Earth*, a modified and condensed version of *Earth*, Press and Siever have once again written in a clear and precise style. As far as the standard topics of a course in physical geology are concerned, they have met their challenge "to present the essential material, both traditional and modern, that a good geology course should cover". However, like most authors, they have omitted to devote a section to paleontology and historical geology. As the omitted topics play such key roles in understanding the earth and are so important in the oil industry, and as so many students are exposed to only one geology text, I feel that introductory texts should include these topics.

*Understanding Earth* is one of a host of texts in introductory geology with similar layouts that come from the major publishers each year to tempt the instructors of the large classes. All these texts cover much the same material and even use some of the same illustrations. They adopt a similar format of italics or bold type to accentuate terms, of boxes to illustrate specific examples of processes or features, and of lists of terms and concepts at the end of each chapter. I feel that the presentation of information in this sort of introductory geology text is becoming too condensed. For example, it takes an average of about two minutes to read a page of *Understanding Earth*. At this rate, the whole book could be read aloud to a class in the course of one term. Such texts are little more than lecture notes, and not, as they should be, a resource to augment and amplify lectures and a useful reference for students in upper years.

I feel that the superior quality of the writing in *Understanding Earth* is badly served by other aspects of the text, namely: the general layout, the approach to learning, and the sometimes incomplete, and in too many cases, wrong or misleading illustrations.

The layout of each chapter begins with a two-page spread, two-thirds of which is occupied by a photo and its title, and the remaining third by a triple-spaced introduction that is partially superimposed on a topographic map that looks like something spilt on the corner of the page. Since there are 23 Chapters, this means that these short paragraphs and pictures take up 46 pages or approximately 8% of the book. Perhaps there would have been room for paleontology and historical geology after all.

Thirty-six "boxed" essays on specific issues of current concern are scattered throughout the text. Students enjoy reading these accounts, which contribute to the understanding of our earth and are an incitement to further reading in geology. Unfortunately the essays, like the triple-spaced introductions to the chapters, are overprinted on parts of topographic maps. This type of superimposition may make a pleasing graphic design, but it is a strain on one's eyes to read, and rather bothersome with its vague suggestion of some subliminal message.

The way in which each chapter is reviewed in *Understanding Earth* seems sloppier than it was in the authors' earlier text. In *Earth*, each chapter concluded with a section titled **Summary** in which key concepts were reviewed in three or four paragraphs. In the present text, a less aptly titled **Summary** is presented in the more cumbersome form of questions and answers, and another section titled **Exercises** also consists of a selection of questions that often require very short answers, sometimes only one word, for example: "To what element does rubidium-87 decay radioactively?; Give three examples of landforms!; What are pelagic sediments?; What is a delta distributary?" Such questions do not constitute exercises.

The authors of *Understanding Earth* claim to have "deliberately emphasized a broad view" in their text, yet they tend to present their material as a series of discrete facts isolated for memorization. For example, they follow the practice of placing key terms in italics or bold type and offer a selection of over 1100 multiple-choice questions with which to examine the students. This is what I call a "trivial pursuit" approach to learning.

Geology a visual science; that is why geology textbooks are full of pictures and illustrations. The illustrations must accurately reflect the written text. Unfortunately, too many of the illustrations in *Earth* are in error and do not match the text, whereas others are either incomplete or badly drawn. Examples of illustrations that do not match the text include: a thrust fault, which is defined on page 225 as a reverse fault with a small angle of dip but is shown in Figure 18.13 on page 412 with a high angle; a tidal flat, described on page 572 as a broad, flat region of muddy or sandy

sediment, covered and uncovered in each tide cycle but illustrated in Figure 17.12 on page 378 as a surface below low-tide level; the standard, concave-upward longitudinal profile of a river, which is illustrated and described on page 292, but shown to be convex upward in Figures 10.22, 10.26, 11.15, 13.8, 13.20, and 16.11.

Beginning students in geology have a hard time visualizing in three dimensions, and I think that diagrams like the following would only add to their confusion. In Figure 11.7 on page 240, inappropriate shading implies incorrectly that the near edge is folded over to the northeast. In Figure 15.15 on page 337, an attempt to show the ice mass has ribbing that contradicts the ice movement shown in Figure 15.13. The ribbing suggests that the bottom ice moves faster than the surface ice. In Figure 10.18 on page 221, the red bed is shown to be cross-cutting the older beds where it comes to the surface on either side of the diagram. In Figure 18.3 on page 405, four diagrams illustrate the elastic rebound theory. Diagrams (b) and (c) in the figure are sketched and shaded in such a way as to suggest that the A block forms an arch and the B block forms a depression. In Figure 2.23 on page 42, most of the calcite pieces appear to be rectangular in outline. Except for two or three fragments, the photograph could be used to illustrate the cubic cleavage of halite rather than the rhombohedral cleavage of calcite. In Figure 3.2 on page 53, a laccolith (although not defined as such) is shown as a discordant rather than a concordant intrusion.

The reviewer wonders why the photo from space in Figure 10.27 on page 225 is in this awkward position. Global geography is not a strong point with students these days. In this case, the photograph would be visually easier to understand if it were inverted and if the viewing direction was noted. The reviewer also wonders why the perfectly good photograph of offset along the San Andreas fault in Figure 18-8 in *Earth* (4th edition) was replaced by one of much poorer quality in Figure 18.4 in *Understanding Earth*. Finally, Figure 14.1 on page 307 shows a plan view of the major wind belts but fails to include the third dimension normally shown on the boundary of the globe indicating how the air rises at the equator and descends at the 30° latitudes. The sketches in Figure 11.5 on pages 238 and 239 are simply examples of bad illustration. One hesitates to speculate on the nature of the material in the avalanche flowing down the valley.

Some labeling is wrong, and some diagrams are incomplete. In Figure 21.8 on page 488, the legend is not colored. In Figure 20.11 on page 459, the oldest ocean floor is missing from the legend, and the Late Jurassic floor is incorrectly labeled as Early Jurassic. In Figure 11.4 on page 236, the label should read: bluffs before and after the earthquake. In Figure 15.15 on page 331, the notation fails to mention that the height of the snow line varies not only with latitude but also with precipitation; thus the snow line is highest (6000 m) at the horse latitudes and not at the equator as noted.

After examining the illustrations, one begins to suspect that the authors have been advised by the publisher to leave the illustrations to them. The publishers in turn have relied on illustrators with limited knowledge of geology who do not understand the necessity for accurate technical drawings, as opposed to artistic impressions. The picture on the cover of *Understanding Earth* is an example of this. It is pure fantasy. One should compare this with the image on the cover of the 4th edition of *Earth*, which shows earth as seen from space. The space image has scientific value and interest, as explained in a paragraph within the text. An artist's impression of earthquake waves on page 428-429 is another example of artistic fantasy.

It is a pity that this well-written text was sent to print before a detailed examination of the illustrations was carried out. If *Understanding Earth* were a new car model, it would be subject to recall by the manufacturer. My advice is to wait for a second edition.

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*Geochemical Reference Material Compositions: Rocks, Minerals, Sediments, Soils, Carbonates, Refractories and Ores used in Research and Industry.* By P.J. Potts, A.G. Tindle and P.C. Webb. CRC Press Inc., 2000 Corporate Blvd. N.W., Boca Raton, Florida 33431, U.S.A., 1992, 313 pages, US$130.95 (ISBN 1-870325-40-0) hardbound.

This book is an extensive collection of data on geochemical reference samples. It includes over 450 standard samples used in research and industry, of which almost all are natural geological samples, with the exception of a few supplementary industrial reference samples. The authors have partitioned the samples into the following data-compilation tables: i) silicate rocks, ii) silicate minerals, iii) sediments, iv) soils, v) carbonates, vi) oxide ores and refractories, and vii) ores. The number of samples included in each table ranges from a minimum of 18 (silicate minerals) to a maximum of 160 (ores).

Sample lists and data-compilation tables are preceded by a brief and informative introduction, which thoroughly outlines the purpose of this compilation and greatly enhances the serviceability of the information compiled within. Following the introduction is a list of issuing organizations, two lists of reference

material, indexed by sample name and sample description, data-compilation tables on reference samples, data-concentration ladders, and references to source data.

This book is intended to complement previous compilations of reference material, and to provide a broader base of materials and a tabulation of the most recent data available on both established and newly introduced samples. The authors also have tried to standardize the variable terminology and conventions used over the years to describe the confidence limits of individual values, thereby eliminating (or at least reducing) the uncertainty and confusion that often surround these values.

The conventions used in this book are well chosen (bold-face type for data assigned to the highest confidence category, plain typeface for other compiled data, with "?" indicating additional uncertainty, italic typeface for published values derived from an established analytical technique but from an insufficient data-base). They are logical and easily adopted by even a casual user of the text, and convey information at a glance. Should questions or concerns still remain, all data are fully referenced, allowing individual analysts to further investigate reported values. Symbols are identified and clearly explained in the introduction, except for SUM Tr., which (I assume) is the sum of all trace data converted to weight percent.

The compilation tables are well planned; data for up to six reference samples are presented on two full, facing pages, in vertical, well-spaced columns. The upper half of the left-hand page lists major-element data in weight percent. Trace-element data are presented in parts per million and in alphabetical order of chemical symbol, occupying the lower half of the left-hand page and the entire right-hand page. A different format was used in the ore section, where all data are listed in alphabetical order of chemical symbol and presented in parts per million or weight percent where appropriate (a table of element-to-stoichiometric oxide conversion factors is thoughtfully provided in the introduction). The extensive listing of trace-element data is broken at regular (alphabetical) intervals by a wide, horizontal band. These, along with other innovations utilized in the data-compilation tables, result in a well-planned, "user-friendly" layout.

Data included in this compilation are current to 1991. Individual samples or values are easy to find, and their reliability is readily established. The comprehensive range of sample types included under one cover is a welcome improvement over earlier compilations. The paper quality is good, and the binding is strong. An indication of the availability of the standards listed would be useful, though probably not practical, since supplies are continuously being depleted. Overall, this book represents good value for the money and can be highly recommended to geochemical analysts or anyone requiring access to reliable data on geochemical standards.

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*Natural Glasses*. Edited by Vladimír Bouska. Ellis Horwood Limited, Market Cross House, Cooper Street, Chichester, West Sussex, PO19 1EB, England, 1993, English Edition, 354 p. Also available from Simon and Schuster International Group, New York, N.Y. Hardbound: US$75.00 (ISBN 0-13-612797-5).

This book seeks to summarize published information (up to 1990) on natural glasses. This is a second edition of this book, but apparently the first to be published outside Europe and, therefore, to be available to the typical North American scientist. The chapters (9) have various authors (6), all apparently residing in what was (in 1990) Czechoslovakia. This volume is immediately of interest since it contains many data from the often semi-accessible literature of Eastern Europe. However, potential readers should be aware that the emphasis of this book is on impactite glasses and tektites, which are of particular interest to the Editor. Judging by the number of errors and omissions I found, I believe that this volume would have greatly benefitted from a more thorough review. I also found a number of provocative statements unsupported by references, which could lead readers astray.

The book opens with a good introduction to the physicochemical characteristics and modes of formation of natural glasses (75 pages). I found this summary to be of considerable interest, since this material is generally given a much briefer treatment in most geological compendia and textbooks. Glass weathering is also covered in this chapter, although I believe that the volume of available data and current level of interest in this subject would have warranted additional depth to the discussion. I found a number of errors here, for example the oldest known natural glasses are not 65 *million* years old (page 46), rather they are approximately 4.5 *billion* years old (in chondritic meteorites), an error of two orders of magnitude. Also, the *intensities*, rather than the *positions*, of electron-density maxima indicate the number of atoms in a structure (page 51).

The chapter on volcanic glasses was, for me, much too short (only 35 pages) given the tremendous quantity of available information on this subject. This chapter is really no more than an introduction to this topic. However, given the huge quantity of existing books on volcanic rocks, perhaps this was all that was really necessary for this book.

The next two chapters (Impact Glasses on the Earth

and Tektites), at a combined length of 130 pages, really form the core of this book. Whereas tektite studies have never regained the interest they held when there was still a possibility that they were from the Moon, the subject of terrestrial impacts and impactites is currently very popular. These chapters contain a great deal of valuable information for impact mavens, particularly with regards to the Ries impact crater and associated moldavite tektites. The down side of any book that seeks to summarize the state of a rapidly expanding field is that it is somewhat outdated by the time it appears. Since the time this book was prepared (probably 1988, given the references), a number of results have superseded its contents. For example, the Tunguska bolide is now believed to have been an ordinary chondrite, rather than a comet (p. 122), microtektites (of a sort) have now been found associated with the Cretaceous–Tertiary boundary impact event (p. 125), and liquid immiscibility has now been found in impactites. Significant new results on Wabar, Lonar, Libyan Desert and Zhamanshinite glasses have also appeared. Also, I am not aware that moissanite (SiC) has actually been found in impactites (as reported on page 149, no reference or locality given), and Cretaceous–Tertiary is abbreviated "C/T" in the book, rather than the "K/T" more common in the West. Poor Frank Dachille; his name is never spelled correctly or even the same way twice in this book.

Next follows a very nice description of Lunar Glasses. Lunar samples were returned by the Apollo and Luna missions a quarter of a century ago. Additional lunar samples have been provided (with little cost to the taxpayer) in the form of meteorites. Study of lunar glasses reveals much concerning volcanic and regolith-maturation processes, and should point the way toward a better understanding of these processes on Mercury, other moons and asteroids.

The book concludes with very brief chapters on Meteorite Glasses, Fulgurites and Other Natural Glasses, and a few pages devoted to Practical Utilization on Natural Glasses (20 pages, total). The best of these chapters is the one on fulgurites; I do not know where one would find a more illuminating summary for these objects. Much less satisfying is the brief treatment given to meteorite glasses. Meteorites and Interplanetary Dust Particles include our only samples of nebular condensates and other materials from the early solar system, asteroids, comets and the Martian surface. From the presentation of these subjects in this book, one would form the impression that little work had been performed on these samples, whereas quite the opposite is true. I was somewhat surprised by this, given the extensive treatment given to other extraterrestrial materials in this book. The name of the Shergottite meteorite ALHA 79001 is incorrectly given as A 79 001 (p. 281), which could be confusing to the *noncognoscenti.*

Finally, the book has 27 lovely color plates. Unfortunately, a number of these images are not very useful (six feature moldavite in jewelry), when balanced against their cost. Otherwise, the book is well produced and printed.

I do not believe that there are many general books out there on the subject of natural glasses. Accordingly, I believe that this book will be convenient as a general aid for persons yearning to learn more about glasses, but will be read with the most profit by planetary scientists. It is for the latter individuals that this book would represent the best value for the money.

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*Magmatic Processes and Plate Tectonics*. Edited by H.M. Prichard, T. Alabaster, N.B.W. Harris and C.R. Neary. Special Publication 76, Geological Society of London, The Geological Society Publishing House, Unit 7, Brassmill Enterprise Centre, Brassmill Lane, Bath BA1 3JN, U.K., 1993, 526 pages, US$108.00, £65.00, available to members of The Geological Society for £29.00 (ISBN 0-903317-94-X), hardbound.

This book is a tribute to Ian Gass by his students and coworkers. As such, the book is a collection of papers divided into five major sections: **Mantle and magmatic processes** (four papers); **Ophiolites and oceanic crust** (eleven papers); **Tectonics and convergent margins** (six papers); **Continental rifting** (five papers); and **Analytical techniques** (one paper).

The section on **Mantle and magmatic processes** begins with a paper on *Basaltic-volcano systems* (a review of the morphological features of basaltic volcanoes by G.P.L. Walker). The second paper, *Trace element geochemical effects of imperfect crystal–liquid separation* by M.J. O'Hara, uses three-dimensional diagrams to illustrate the effects of melting and crystallization processes intermediate between the equilibrium and perfect fractional cases. The third paper (*Differentiated rocks of the Galapagos hotspot*) by A.R. McBirney, is an essay in which the author argues that oceanic rhyolites in the Galapagos are the products of remelting of felsic differentiates, not of fractional crystallization. The final paper in this section (*Palaeozoic and Cenozoic lithoprobes and the loss of >120 km of Archaean lithosphere, Sino-Korean*

*craton, China)*, by M.A. Menzies, W. Fan and M. Zhang, uses trace element and isotopic data from xenoliths in Palaeozoic kimberlites and Cenozoic basalts as the basis for a model of the tectonic history of the Sino-Korean craton.

The second section of the book, **Ophiolites and oceanic crust**, includes five papers on the Troodos ophiolite and the tectonics of Cyprus, which include a historical review (*Development of concepts concerning the Troodos ophiolite and adjacent rifts in Cyprus* by A. Robertson and C. Xenophontos), two papers on the structural geology of Troodos (*Spreading-induced faulting and fracturing of oceanic crust: examples from the Sheeted Dyke Complex of the Troodos ophiolite, Cyprus* by D. Dietrich and S. Spencer; and *Structure and tectonic evolution of the Southern Troodos Transform Fault Zone, Cyprus* by C.J. MacLeod and B.J. Murton), a discussion of the Cretaceous tectonics of southwestern Cyprus (*The development of a late Cretaceous microplate suture zone in SW Cyprus* by J. Malpas, T. Calon and G. Squires), and new gravity data for Troodos (*Troodos revisited: the Mount Olympus gravity anomaly* by A.W. Shelton). The six papers that make up the balance of this section deal with a variety of aspects of the tectonics and geochemistry of the ocean crust. The papers are: *Tectonic significance of the Hellenic–Dinaric ophiolites* by A.G. Smith; *The interaction and geometries of diapiric uprise centres along mid-ocean ridges: evidence from mantle fabric studies of ophiolite complexes* by I.D. Bartholomew; *Petrogenesis of ophiolitic chromite* by S. Roberts and C. Neary; *An overview of the PGE concentrations in the Shetland ophiolite complex* by H.M. Prichard and R.A. Lord; *Geochemical and thermal fluxes, high-temperature venting and diffuse flow from mid-ocean ridge hydrothermal systems: the TAG hydrothermal field, Mid-Atlantic Ridge, 26°N* by H. Elderfield, R.A. Mills and M.D. Rudnicki; and *MORB peridotite – seawater interaction: experimental constraints on the behaviour of trace elements, $^{87}Sr/^{86}Sr$ and $^{143}Nd/^{144}Nd$ ratios* by M.A. Menzies, A. Long, G Ingram, M. Tatnell and D. Janecky.

The third section of the book, **Tectonics and convergent margins**, includes six papers dealing with topics ranging from trace element models of mantle melting to the tectonics of East Africa. The papers with a tectonic theme include: *Orogenic uplift and collapse, crustal thickness, fabrics and metamorphic phase changes: the role of eclogites* by J.F. Dewey, P.D. Ryan and T.B. Andersen, *Tectonics of the Mozambique Belt in East Africa* by R.M. Shackleton, *The growth of continental crust during the Late Proterozoic: geochemical evidence from the Arabian Shield* by N.B.W. Harris, C.J. Hawkesworth and A.G. Tindle, and *Evaluating Late Quaternary uplift in Greece and Cyprus*) by C. Vita-Finzi. The papers by J.A. Pearce and I.J. Parkinson, *Trace element models for mantle melting: application to volcanic arc petrogenesis*, and P.J. Wyllie and M.B. Wolf, *Amphibolite dehydration-melting: sorting out the solidus* are geochemical and petrologic in content.

The fourth section includes five papers on topics ranging from the relationships of dike and magma sheet orientation to the local stress field to the melting relations of the deep crust and uppermost mantle under hydrous conditions. The papers include: *The Proterozoic Gardar rift zone, south Greenland: comparisons with the East African Rift System* by R. Macdonald and B.G.J Upton, *Alkali basalts from Shuqra, Yemen: magmas generated in the crust–mantle transition zone?* by K.G. Cox, N. Charnley, R.C.O. Gill and K.A. Parish, *The isotope and trace element geochemistry of basalts from the volcanic islands of the southern Red Sea* by N.W. Rogers, *Basic and intermediate volcanism in the Mongollon–Datil volcanic field: implications for mid-Tertiary tectonic transitions in southwestern New Mexico, U.S.A.* by J.M. Davis, W.E. Elston and C.J. Hawkesworth, and *Re-evaluation of inclined intrusive sheets and dykes in the Cuillins volcano, Island of Skye* by G.P.L. Walker.

The final section of the book, **Analytical techniques**, consists of a single paper (*Advances in analytical technology and its influence on the development of modern inorganic geochemistry: a historical perspective*), by P.J. Potts, C.J. Hawkesworth, P. van Calsteren and I.P. Wright. That paper presents a historical review of the development of instrumentation for the bulk analyses of rock and mineral samples and the impact of that development on geochemical thinking.

The physical production of the book is good, but I found the type size to be a bit small. The book is well edited, and the number of typographical errors is effectively below the noticeability threshold. The book has a nice color photograph on the cover, but I was unable to find any indication of what the picture represents or where it is from. The biggest problems with the book are the uneven level of the papers (a normal problem in a group of papers) and the apparently irrational organization of the papers into sections. I also found the title to be misleading in that the book contains little discussion of magmatic processes.

This book will be of considerable interest to those studying ophiolites, particularly Troodos. Although there are several significant contributions in other areas, I cannot recommend it to a more general audience, given the relatively high price (US $108.00) and somewhat eclectic nature of its content.

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