text-book *Eruptive Rocks* did S. J. Shand use the term 'alkaline rocks' yet N. L. Bowen had a chapter headed 'alkaline rocks' and Daly also used the term extensively. This is probably because Shand defined the term 'peralkaline' and thought that the word alkaline was too vague or too closely associated with geographical subdivisions of eruptive rocks. This reviewer feels that the term 'alkaline rocks' has already been extended to cover too wide a spectrum of rock types.

Those who organize symposia generally like to have the papers published in one volume. For many years publishers did not welcome this type of publication but the situation appears to have changed and many publishers are quite anxious to publish collections of papers. A volume on the topic of alkaline rocks can be guaranteed to generate interest but it is difficult to know how such a volume should be priced. At one time it might be assumed that every University and departmental library might buy such a volume but this may no longer be true as the costs of journals and monographs continue to rise.

Despite these comments and minor criticisms this book represents a very useful addition to the geological literature: the editors are to be congratulated on their selection of papers and on the very useful introduction to the volume.

W. S. MacKenzie

Kwak, T. A. P. *W-Sn Skarn Deposits and related metamorphic skarns and granitoids.* Amsterdam, Oxford and New York (Elsevier), 1987. xvi + 451 pp. Price Dfl. 215.00 ($105.00).

A concise, yet universally agreed definition of the term 'skarn' has long eluded geologists. Most of us have a common feeling for what constitutes a typical skarn; the difficulty lies in deciding where to fix the boundaries. Hoping that this book would offer some insight to the problem, I immediately tackled page 1 under the heading 'What is a skarn?' Unfortunately this question was not answered until page 40, but at least the author immediately made it clear that his boundaries were going to be much broader than might normally be expected. Thus he considers not only the typical replacement of carbonate rocks, but also replacement of such diverse rocks as granites, hornfelses, and basic igneous rocks. (In this he seems justified, but the problems of terminology are compounded when he also decides to include greisens under the skarn classification!)

This book is, in essence, a compilation of the geological characteristics of tin and tungsten mineralisation associated with skarns and similar replacement bodies. For this the author is to be congratulated, for his extensive research has brought together information concerning a variety of deposits from all over the globe. The book therefore constitutes a valuable source of information on this style of mineralisation, and will also be of relevance in the increasingly important study of gold-bearing skarns. Much of the text relates to the mineralogical and petrographic characteristics of the deposits but a certain amount of geochemical (including fluid inclusion and stable isotope) data is also presented. One aspect that continually appears in descriptions of skarns is the zonation of alteration assemblages. This is repeatedly described in the book but, despite the enormous advances in our understanding of the processes governing infiltration and diffusion metasomatism in recent years, the causes of these zonations are only covered in a superficial fashion. Another aspect which also could have been discussed in more depth is that of the source of the transporting fluids and ore components, particularly the roles of granites and magmatic activity as opposed to the influence of the surrounding country rocks.

The book has many diagrams and plates, but the text and references do contain an annoying number of mistakes. In summary, I consider the book to be a good reference source for this type of mineralisation but feel that it is rather lacking in any concepts concerning the genesis of the deposits. I certainly now know more about the diverse characteristics of this mineralisation but must admit to being even more confused about the meaning of terms such as skarn and greisen!

D. H. M. Alderton

McClay, K. *The Mapping of Geological Structures.* Milton Keynes (Open Univ. Press) and New York (Halsted Press), 1988. vi + 162 pp. Price (paper) £7·95.

This small book of 161 pages is another in the Geological Society of London Handbook Series. It is primarily aimed at undergraduate students as a basic guide to the field mapping of deformed rocks and the interpretation of the data obtained during such a project. However, the information as set out will make it a useful text for a much wider audience. The objectives of the book are admirable and, I think, are attained. The nine chapters are easy to follow and are logically set out. The final chapter giving guidelines for the first stages of analysis, interpretation and report writing, whilst not exhaustive, is particularly useful.

The book provides a step by step introduction to the techniques of mapping and the important data

that needs to be simultaneously collected. The approach adopted in this book is very easily followed, the descriptions being particularly lucid. It is important to build confidence in a student new to mapping as many find the amount of data to be collected together with simultaneous analysis a daunting task. Five chapters of the book deal with the handling of specific features, explaining clearly what procedures to adopt, allowing the student to easily comprehend the observations required in a structurally complex area. The text is thus capable of building the confidence to map such an area. The summary tables at the end of each section which describe what observations have to be made, what to be measured and the results which may be expected from an analysis of the data, are particularly useful.

The way that structural features are explained is very good, and the book can even be considered to form an introduction to some of the more advanced structural texts, as it explains simply many complicated features. The additional reading lists also naturally lead in this direction.

Illustrations are plentiful and have been thoughtfully devised. The only weak point is the way in which some of the photographic illustrations have reproduced, losing some of their detail. However, since it is important that price is kept low this can be excused. Most students probably map in areas of deformed sedimentary rocks, but I feel that a little could have been added (perhaps in the section on polyphase deformation) on gneissose rocks which can pose slightly different problems. However, the author is to be congratulated on producing such an excellent text. The whole range of mapping techniques that an undergraduate student will require are described and the book will still be immense help to post-graduates setting out on their research work. The book represents extremely good value and is thoroughly recommended.

C. R. L. FRIEND

Elliott, I. L. and Smee, B. W., Eds. Geoexpo/86: Exploration in the North American Cordillera. Rexdale, Ontario (Association of Exploration Geochemists), 1987. x + 220 pp. Price (Post free from A.E.G., P.O.B. 523, Rexdale, Ontario, M9W 5L4 Canada). $ Canadian 45.00.

This book contains 22 of the numerous papers presented at a symposium on the theme of exploration in the North American Cordillera, and which was held in Vancouver in May, 1986. The Cordillera has traditionally been important as regards precious metals production and the majority of the papers are naturally concerned with gold mineralisation, particularly in Alaska, British Columbia, and northwestern U.S.A. There are useful reviews of mineralisation and descriptions of individual deposits in these areas, case histories involving geochemical exploration, and applications of isotopic and fluid inclusion studies to genetic modelling. There are additional papers on such diverse topics as gallium, trace elements in tourmaline, massive sulphides from the Juan de Fuca Ridge, the application of ion chromatography to exploration, and diamond exploration.

This publication is well-produced and constitutes a very useful summary of mineralisation and exploration in the region. It can be recommended for those interested in exploration and mineralisation in the Cordilleran environment and precious metal mineralisation in general.

D. H. M. ALDERTON

Jones, M. P. *Applied Mineralogy: a quantitative approach.* London (Graham & Trotman) 1987. x + 259 pp., 171 figs., 37 tables. Price £45·00 h/b; £19·95 p/b.

The title of the book—*Applied Mineralogy*—hardly gives the potential buyer any real understanding of what its contents are. It is only when the subtitle (*a quantitative approach*) is also included that an estimate of the contents can be made. The book deals with *mineralogy* from the view-point of the mineral engineer, and almost every chapter is geared to this approach. The author describes modern methods for obtaining accurate quantitative data on minerals and mineral products, and the interpretation of such data.

Chapter 1 starts with a general background to minerals in industry and the role of the mineral engineer. Table 1.1 is dated (1982 BGS source) and a more up-to-date one could have been compiled from the *Mining Annual Review*. In Table 1.4 the quality of diamond (as mined) is given as 1 part in 1–10 million parts, but diamond is economic down to 7 carats per 100 tonnes of 1 part in 50 million. In the mineralogical section of this introductory chapter several mistakes or curious omissions occur such as the Al_2SiO_5 minerals being left out of Table 1.5 which deals with commonly occurring polymorphs; the reader is told erroneously that feldspar is 'commonly written *felspar*', and that a modal analysis is given in terms of weight per cent of minerals (Table 1.6). However such mistakes are rare and most of my comment deals with the structure and content of the book itself. Chapter 2 is on sampling procedures and the discussion includes rock core and other forms of sampling rock or orebodies, but the bottom line is usually