charge transfer, intermetallic compounds as well as more concepts such as bond valence. Thus, certain general crystal chemical themes emerge. One criticism that might be levelled is that perhaps too much space is devoted to nomenclature and classification, but this is offset by the presence of abundant examples, homely as well as esoteric, drawn upon as illustrations which will be useful to the student and instructor alike.

Perhaps the most helpful feature of this book, which makes it an especially attractive resource for anyone involved in teaching the subject, is the inclusion of problems (and model answers) at the end of each chapter. These serve to emphasize some of the points made in each chapter and will be useful for anyone working through the book themselves. Inevitably, in view of the multi-author nature of the volume, the level of these problem sets is somewhat variable, but this also means that there is something for almost everyone! I imagine, therefore, that most libraries would wish to obtain a copy of this collection of crystal chemical conundrums, but the price (in common with all Kluwer NATO volumes, it seems) will place it out of reach of most private individuals.

S. A. T. REDFERN

Gasparrini, C. *Gold and Other Precious Metals: From Ore to Market.* Berlin, Heidelberg and New York. (Springer-Verlag) 1993, xxii + 336 pp. Price DM 228 (hardcover). ISBN 3-540-54976-5.

This volume sets out to bridge the gap between the fields of metallurgy and mineralogy to give a comprehensive description of the geology, mineralogy and mineral processing of gold and other precious metals. The book also covers U and a number of other metals and several non-metals which are important industrial minerals.

The aim is praiseworthy in providing in one volume a review of the chemistry, geochemistry, economics, geological occurrence, mineralogy and mineral processing of not just gold, silver and the platinum group elements but also uranium, beryllium, boron, carbon (as graphite and diamond), magnesium, aluminium, potassium, titanium, chromium, manganese, iron, cobalt, nickel, copper, lead, zinc, arsenic, niobium, tantalum, molybdenum, tin, antimony, barium, rare earths, tungsten, mercury and bismuth! It also includes a part on mineral exploration. Even more surprising is that the work is the effort of a single author.

However, although the expectation is high, the book does not deliver. The presentation, for a book of its price, is of poor quality with numerous typographical mistakes in the text and in tables and diagrams. All the tables are of a standard below what is acceptable for publication and many of the diagrams appear, to this reader, to have no real value except to fill in the space between the text (for example, badly reproduced spectra on p. 49). Other diagrams are difficult to read such as Figures 2 and 3 on pp. 28–29, which were produced on low quality dot matrix printers, and in the modern age of laser printers simply not acceptable in a publication of this sort. A partially redeeming feature are the good quality photomicrographs although these are annoying in that information on locality is lacking from most of them.

As to the content, it is clear (particularly from the poor reference list) that the author has had a lot of experience in gold, silver and uranium. These sections are a mixture of unnecessary basic facts (considering the book is aimed at graduate level) and useful information on these elements. The section on platinum group elements is one of the worst reviews of these minerals this reviewer has read and is not a patch on the Cabri book produced by the Canadian Institute of Mining. The base metal section (including numerous non-metals) is brief and uninformative with little for those involved in the exploration and processing of the many elements studied. The text contains a few typographical errors but there are more in the tables. In the preface the author admits to not using IMA convention for mineral names and formulae and is good to her word. What is more confusing, however, is the varying terminology between the different sections, e.g. using three different general formulae for covellite (or covelline in several places). Much of the text consists of quotes from private communications and few of the references given could be gained through a library. Needless to say, the references are extremely poor and by no means a reflection of the fields covered by the book. In summary, I guess there are some who will buy the book to wade through the chapters on gold, silver and uranium to pull out its useful information but at the price on offer and because of overall quality I would imagine only a few research libraries will take this edition. The book has the feel of a first draft and I would strongly recommend waiting for a much needed edited and revised edition before purchasing.

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