

Bioinorganic Chemistry

I. Bertini, H.B. Gray, S.J. Lippard and J.S. Valentine, University Science Books, Mill Valley, CA 1994, 611 + ix pages, US \$58, £28.95
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This is an ambitious book. Bioinorganic chemistry is not a discipline but an area, and multidisciplinary at that. The authors/editors say that the material in this book is suitable for a course in bioinorganic chemistry for graduate students or advanced undergraduates. To achieve suitable coverage they have presented nine reviews, each of which contains enough exposition of underlying principles to allow students to read and understand research literature. The individual chapters have been class-tested at UCLA, Caltech, and the University of Wisconsin, so that they should be, at the least, comprehensible to good students. How well has the whole project succeeded?

My opinion is that the authors/editors have succeeded remarkably well, perhaps because they have not tried to present a conventional text book. Each chapter is complete of itself, including a selection of appropriate review references. The material is presented with enough background that the reader can understand the current research literature, and uses the same formats and presentation. This is no watered-down student text.

For example, Chapter 1, on transition-metal storage, transport, and biomineralisation, summarises the func-

tions of the principal “biological” transition metals, then discusses the chemical behaviours of the individual elements, and next presents the current data on storage and transport. The discussion of zinc enzymes which follows in Chapter 2 seems comprehensive and up-to-date, but it introduces NMR line-shape analysis for studying exchange between two sites, the use of relaxation rates to study water binding, and the use of substitution of zinc by paramagnetic ions. This is all within the context of zinc enzymes, though not related solely to them.

Further chapters deal with calcium, dioxygen carriers, dioxygen reactions, electron transfer, iron–sulfur proteins, metal–nucleic acid interactions, and metals in medicine. This leaves gaps. There is little about sodium and potassium, and molybdenum enzymes do not attract the usual coverage. The favourite of organometallic chemists, vitamin B₁₂, is dealt with only cursorily. However, in so far as bioinorganic chemistry is not clearly defined, this is not unreasonable, and, given the breadth of material in this book, to be encouraged. The perspective of the editors seems to me to be right. This is an excellent book, and I recommend it to students and teachers alike.

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