Book Reviews

Metals in Biological Systems
M.J. Kendrick, M.T. May, M.J. Plishka and K.D. Robinson, Ellis Horwood, Chichester, England, 1992, pp. 183. £19.95
ISBN 0-13-577727-5

This little book is intended as an introduction to the study of metal ions in biological systems for undergraduates. As such it has no claim to comprehensiveness, and intends merely to whet the appetite. It does this elegantly and informatively, and to my mind strikes just the right note to attract students beginning to learn about metals in biology. It finishes with a "Multiple Choice Self-Test" of 50 questions which range from the fundamental to the practical *via* the very basic (sodium nitroprusside contains which of the following transition metals, Fe, Co, Ni, Mn or Ru?), but which will be useful to many students.

It begins with a listing of elements found in biological systems and a very brief description of the entatic state hypothesis. Since there is relatively little later discussion of function and mechanism, the latter is of unclear value. It then discusses very cursorily (and in no way adequately if this is to be the only source of information) the physical methods used to study enzymes. This is nevertheless appropriate to the subsequent discussion, and it even includes more recent applications such as of EXAFS. The references are to basic texts which describe the fundamental principles of the methods surveyed.

There follow short (Ca – 3 pages, Mg – 5 pages, including photosynthesis and ATP, really too superficial; sodium – 3 pages, but again eschewing all detail; Co – 9 pages, with rather more detail, *etc. etc.*). I feel that some of these discussions are so brief that they contain little of pedagogic value; it will require careful instruction for the student to appreciate the significance of much that is discussed. The discussion of iron is much fuller, though the references are curiously sparse.

Nitrogenase is dealt with exceedingly briefly and the Figure labelled "Structures of 4Fe–4S cluster in component II of nitrogenase" is positively misleading. No N_2 complex is mentioned Table 11.2 is said to give a comparison of nitrogenase proteins, but actually omits all mention of them. Figure 11.4 is a K-edge EXAFS spectrum, presumably of iron, though this is not stated, and the caption is clearly wrong. There are short chapters on nickel, aluminium, and zinc, and then a discussion of inorganic drugs.

In summary, this is an attractively produced book, which is aimed at a rather low undergraduate level of understanding. The result can be a superficiality which at times detracts from the value of the project. However, it is a basic guide to the study, and could be very useful as a back-up to some undergraduate courses.

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Gmelin Handbook of Inorganic and Organometallic Chemistry, 8th Edition, Fe, Organoiron Compounds, B19, Springer Verlag, Berlin, 1992, pp. 493 + xxiv. DM 2754
ISBN 3-540-93649-1

The Gmelin treatment of organoiron compounds has been issued in three series, A (ferrocene and its derivatives including ferrocenophanes) of at least eleven volumes, B (all other mononuclear organoiron compounds) of which this is the nineteenth volume, and C (di- and poly-nuclear organoiron compounds other than ferrocenes) constituted of seven volumes to date.

The current, and probably the last, B volume continues the treatment of compounds with ligands bonded by six carbon atoms and with additional polycarbon ligands. It covers the literature up to at least the end of 1990. The cost is enormous, but the cost per page of text is only marginally more than that of its recent companion volumes. Consequently, if you have been prepared to pay for earlier volumes, you should not really bridle at the cost of this.

The format and presentation employ essentially the well-tried Gmelin methods. The contents are listed by compound with full details of preparations, structures, and physical properties. The initial compounds contain