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Book reviews

Coordination Chemistry-21 (Proceedings of the 21st I.C.C.C., Toulouse, France, July 1980) edited by J.P. Laurent, Pergamon Press, Oxford, 1981, ix + 190 pages, $50.00, £21.00.

Transition Metal Chemistry (Proceedings of a Workshop held at Bielefeld, Germany, July 1980); edited by A. Müller and E. Diemann, Verlag Chemie, Weinheim, 1981, xii + 338 pages, DM 88.

Conferences used to be occasions when researchers who rarely met were able to exchange ideas and data in a reasonably intimate and relaxed atmosphere. Nowadays they tend to be massive and ponderous events in which the common herd of chemists rush from venue to venue in order to hear the word from chosen luminaries. Almost inevitably the short-lived and ephemeral opinions and ideas expressed appear as a book, and one is tempted to ask "why?" Is this kind of publication a valuable contribution to the literature, or does it appear as a consequence of some perhaps less than solely benevolent whim of a publisher? These two books show that both questions can be answered positively, if not unequivocally.

The International Conference on Coordination Chemistry are of the gargantuan kind, despite their humble and restricted origins of some years ago. The Plenary and Section lectures of the Toulouse conference of 1980, replete with subject index, appear as a rather expensive volume, made up from camera-ready copy and hence a variety of type faces. Of the plenary lectures, Mason describes the use of polarised neutron diffraction to determine the distribution of impaired electron density in complexes, which promises at last to provide an empirical check on calculation. Then Cotton discusses an area which he has exploited with signal success, that of metal—metal multiple bonds. In a completely different talk, Gray discusses energy storage in complexes, and finally Freeman presents a detailed discussion of "blue" copper proteins. These are all topical, all interesting, but of variable quality.

The eleven Section lectures are a typically varied selection, varying from the biological coordination chemistry of nickel, at one extreme (Sarkar) via transition metal complexes as biochemical catalyst (Volpin), metal alkoxides (Mehrotra), and solid state conductors (Interrante) to electron distribution in metal—metal and metal—ligand bonds (Coppens). Some are good and instructive, some are catalogues, others are not very new. This is what one expects, a mixed bag, undoubtedly a reflection of modern coordination chemistry, both in scope and quality. Some of the contributions are worth reading, but from there one has to go deeper into the literature. In other words, a light hors d'oeuvres, suggestive of further delights, but not a nourishing meal. Undoubtedly, this collection is useful to look at and browse through. But to buy for repeated and detailed use? I doubt it.

"Transition Metal Chemistry" is described as the "Proceedings of a Workshop" on current problems of general, biological, and catalytic relevance. Now, this is not strictly true. There is no cut and thrust of dissent and discussion. This book contains the written versions of nineteen lectures, delivered by invited individuals at a select gathering, and it purports to be a series of "state-of-the-art" reviews of some exciting current topics.

In the initial contributions, Cotton reviews eighty years of coordination chemistry in eight pages, interestingly perhaps, but hardly "state-of-the-art". A further contribution by Cotton related to his metal—metal bond work is much more apposite. There follows interesting, but not exhaustive, reviews of transition metal chemistry in selected areas: Special Synthetic Methods (photochemistry and metal vapour synthesis), Compounds with Metal-to-Metal Bonds (clusters and metal—metal multiple bonds), Polynuclear Compounds (a long and valuable review by Coucouvanis on substances such as $[MoS_4]^{2-}$ as ligands and a very interesting review by Krebs on electron distribution in molybdates and tungstates), Unusual Ligands (methylene, phosphanealkanes, and boron compounds), Bioinorganic Chemistry (zinc, transition metals, nitrogen fixation, sulphur, and Mössbauer studies), Homogeneous Catalysis (asymmetric synthesis, optically active electron-rich olefins, metallocarboranes in catalysts) and Platinum Coordination Chemistry (a long general review by Beck).

As befits a volume dealing with "workshop" proceedings, the contributions have an urgency and a relevance to current developments which is lacking in the volume of conference proceedings. That said, relatively few of the contributions are of a kind to which one would wish to refer repeatedly, so that I would be doubtful whether the cost will justify the use.

Of the two volumes, the second is undoubtedly the more valuable. Whether either is likely to finish up on shelves other than in libraries I very much doubt.

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