

*Reactions of Coordinated Ligands, Volume 2*, edited P.S. Braterman, Plenum Press, 1989, US\$95, viii + 414 pages, ISBN 0-306-43094-0.

This is the second and final volume of *Reactions of Coordinated Ligands*, and deals with the chemistry of ligands bound to metals through non-carbon atoms, and of coordinated carbon dioxide. It is tempting to compare the first chapter, dealing with coordinated carbon dioxide, with the recent book by Arno Behr on the activation of carbon dioxide by metal complexes. This account is more thorough in its detailing of the complexes, but it was less successful in its approach to the insertion reactions of  $\text{CO}_2$ , which do, in most cases, presumably involve precoordination of the ligand.

The second section, by Hidal and Misobe, reviews the reactions of coordinated dinitrogen and related species. Work in this area has increased greatly over recent years, with the aim of understanding, and mimicing, the fixation of atmospheric nitrogen as ammonia, or converting it to hydrazine or other nitrogen containing compounds under ambient conditions. A lengthy section on the chemistry of nitrosyl ligands follows, reflecting the very long history of these complexes.

Hydrolysis and condensation reactions of oxygen and nitrogen bound ligands form the subject of the next chapter, by Robert Hay. The interconversions of carbonyl derivatives at metal centres have been increasingly investigated in recent years, not only because of the remarkable rate increases which may be obtained in the presence of the metals, but also because of their relationship with metalloenzymes. Whilst hydrolytic reactions are the most common, we are now beginning to see some processes which could be said to be proceeding in the "synthetic direction".

The final chapter is a short one detailing the reactions of coordinated sulphur and phosphorus ligands. The phosphine section deals almost entirely with cyclometallation reactions, and this is also considered for the sulphur ligands. Activation of  $\text{CS}_2$  might have been more logically considered with  $\text{CO}_2$ . I was a little disappointed to see a rather weak treatment of the oxidation of coordinated phosphines. The selection of material for this chapter must have been difficult, but I feel it merited a rather more extensive account.

The text of the book appears to have been produced by the editor in camera ready form, but a proportion of the diagrams are clearly the authors' originals. Most are of a high standard, though one or two are a little small by comparison with the large and clear text typeface. The book is adequately indexed, but it would have been nice to see each chapter with a rather fuller contents list, at the start of the chapter, rather than the brief listing at the front of the book.

The material covered in the chapters in this volume is rather more specialised than the subjects detailed in the first volume, which would have been of very general interest to organometallic chemists. Several of the reviews are good, but they will have a more limited appeal. Whilst this will prove a useful reference work and libraries should certainly buy it, it will have a limited market for personal purchase.

*School of Chemistry and Molecular Sciences,  
University of Sussex, Falmer, Brighton (U.K.)*

**Penny A. Chaloner**