*Inorganic High Pressure Chemistry: Kinetics and Mechanisms. Studies in Inorganic Chemistry 7*; edited by R. van Eldik; Elsevier, Amsterdam, Oxford, New York, Tokyo, 1986, x + 448 pages, Dfl. 280 (US$ 112). ISBN 0-444-42692-2.

I learnt of this volume, the first to deal with this important area of chemistry, during a fascinating and lucid plenary lecture delivered by Prof. A.E. Merbach at the XXIV International Coordination Chemistry Conference in Athens, last summer. It was not until then that I became aware of the rapid advances which high pressure measurements had brought to our understanding of solvent exchange and substitution reactions. Merbach's review (45 pages; 78 refs.; co-written with Y. Ducommun) forms the second chapter of this book, and it elaborates and extends the content of his plenary lecture. It should be read by all organometallic and coordination chemists, whatever their prejudices concerning inorganic reaction mechanisms. As a firm believer in the Nyholm equation, I found this review, and indeed the whole book, fascinating and enlightening, and I cannot recommend it too highly.

The opening chapter (R. van Eldik; 68 pages, 161 refs.) describes the fundamental principles of high pressure kinetics, followed by an excellent description of experimental techniques (including cell designs), data treatment and interpretation, and the correlation of these results with thermodynamic parameters. Chapter 3 (R. van Eldik; 104 pages, 203 refs.) continues Merbach's themes of Chapter 2, and describes studies of classical reaction types (ligand exchange, complex formation, anation, hydration and hydrolysis (including base and metal-ion catalysed), ligand substitution, addition, elimination and isomerization) for octahedral complexes, whereas the following chapter (M. Kotowski and R. van Eldik; 53 pages, 111 refs.) deals with similar reaction types for square planar and tetrahedral complexes. The fifth chapter (T.W. Swaddle; 22 pages, 80 refs.) deals with electron-transfer reactions, with the emphasis on outer-sphere reactions, followed by an exceptionally well written chapter by Peter Ford (44 pages, 64 refs.) dealing with the effect of pressure upon photochemical and photophysical processes. The penultimate chapter (K. Heremans; 55 pages, 146 refs.) describes bioinorganic systems, concentrating (in particular) on spin equilibria in myoglobin, haemoglobin and other haem proteins, ligand binding to, inter alia, haem, myoglobin, metmyoglobin, haemoglobin, and cytochrome *c*, and redox reactions of haem proteins. The final chapter is a critical overview by the editor, putting the field of high pressure kinetics into perspective.

In summary, this is a well produced book (for camera-ready copy, the text is exceptionally clear) upon a new and intriguing area of inorganic chemistry. The volume contains both an author index and a subject index (which could have been improved), and has been exceptionally well edited. Indeed, we owe Rudi van Eldik a debt of gratitude for editing, and writing a substantial part of, this volume. It is not only a comprehensive research text, but could also be read by third year undergraduate students. Indeed, it would bring a new excitement to the normally tedious approach of teaching inorganic reaction mechanisms to undergraduates. The editor should seriously consider condensing this volume, and producing a paperback student edition.

It should be noted that, in the U.S.A. and Canada, this book is available from Elsevier Science Publishers Co. Inc. (P.O. Box 1663, Grand Central Station, New York, NY 10163).

*School of Chemistry and Molecular Sciences,*
*University of Sussex, Brighton BN1 9QJ (Great Britain)*

KENNETH R. SEDDON