

Zeolite catalysis

Zeolite Chemistry and Catalysis. (ACS Monograph, 171.) Edited by J. A. Rabo. Pp. viii+796. (American Chemical Society: Washington DC, 1976.) \$65.

In the preface to D. W. Breck's *Zeolite Molecular Sieves* (Wiley-Interscience, 1974), the author states that the important subject of zeolite catalysis was deliberately omitted. This serious omission has now been rectified by the publication of the only other major work in this field, edited by Jule Rabo, an associate of Dr Breck at the Union Carbide Corporation. All zeolite chemists now have two texts to keep on hand, which between them cover all the aspects of the subject and survey many important papers published up to the end of 1973.

It is a pity, however, that a book as costly as this one could not have been published more quickly, so that there

is not such a wide gap in the literature. The book has, however, been carefully edited. There are only a small number of printing errors, most of which are obvious to a reasonably well-informed reader.

Six of the chapters are written by personnel from the Union Carbide Corporation, making the book somewhat biased in its outlook. This is a pity considering that much important work in this field is being carried out in European and Japanese laboratories. It is also a pity that a chapter emanating from the Mobil laboratories, where some of the most important research in this field has been carried out, could not have been included.

Despite these criticisms, this is an excellent book which will be an essential acquisition for all those working in this field.

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Unity of chemistry

Inorganic Aspects of Biological and Organic Chemistry. By R. P. Hanzlik. Pp. xvii+402. (Academic: New York and London, 1976.) \$37; £26.25.

ALTHOUGH I agree whole-heartedly with the intentions expressed in the foreword to this book I am somewhat dissatisfied with the way in which they have materialised. It is true that interdisciplinary areas such as those between inorganic and organic chemistry (organometallic chemistry) and between inorganic and biochemistry (bioinorganic chemistry) provide a teaching opportunity which, if properly accepted, could show a student the unity of chemistry. The obvious danger is that, while stressing the interdisciplinary elements of the topic, the clear strengths of the disciplines themselves are lost.

The title tells us that the three disciplines we need are those of Inorganic Chemistry, Organic Chemistry and Biology. The author tackles inorganic chemistry bravely in the introductory chapter and covers the organic chemistry well in later chapters (that is, its inorganic aspects). As there are many good texts on organometallic chemistry, however, I looked for something extra which would provide the essential link with biology. Surely this must be through topics such as oxygen insertion, Grignard reagents, hydrogen activation, ester and amide synthesis, hydrolysis, and so on.

I feel then that I should have been given detailed contrasts between peroxidase, cytochrome P-450 and Fenton's reagent; magnesium Grignard reagents and vitamin B₁₂; Wilkinson catalysts and hydrogenases; and between Lewis acid-base catalysts and metallo-enzymes. Unfortunately many of these topics receive scant treatment. The reason is I believe a lack of insight into biology, and I therefore look upon this volume as a brave and worthy attempt, rather than a great success, for I miss the special features of the discipline which is biology.

Surely the staggering feature of all biological chemistry is organisation without simple order. Even trivial compounds such as calcium carbonate have to be regarded with different eyes when they appear before us in shells, with their enormous variety of shape and form. Again, to mention cytochromes and not the organised system of catalysts of photosynthesis, or to leave out chlorophyll and its special organised function in the leaf, or to omit halogenation by peroxidases and the relation to immune systems, leaves the feeling that the inorganic aspects of biological chemistry are not seen in their true depth.

Dr Hanzlik has produced a good book, but there was the material here for a really wonderful one.

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