his colleagues at Nagoya University, Japan, examined the effect of alkali metal additions to palladium/alumina in terms of electron transfer to the palladium, while I. S. C. Hughes, J. O. H. Newman and G. C. Bond (Coal Research Establishment, Stoke Orchard, and Brunel University, Uxbridge) demonstrated a marked increase on the rate of olefin synthesis by iron/alumina brought about by the incorporation of platinum in the catalyst, even when only physically admixed as platinum/alumina.

These highlights do scant justice even to the few contributions selected for specific mention, and they and the many other interesting papers will be read attentively when they appear in a forthcoming issue of the *Journal of Molecular Catalysis*. The conference was attended by some 150 scientists from twelve countries, Hungary and Poland being particularly well-represented. The fact that it took place at a time when public transport in the Belgian capital was at a standstill due to a strike can only help to fix it in the memory of those who attended. The banquet, and the quality of the papers, posters and discussions, alone would have made it a memorable occasion. G.C.B.

The Platinum Metals in C_1 Chemistry

Catalysis in C_1 Chemistry, EDITED BY WILHELM KEIM,
D. Reidel Publishing Company, Dordrecht/Boston/London, 1983, 312 pages, Dfl. 135·00, $58·50.

Current interest in the chemistry of single carbon molecules, C_1 chemistry, has resulted in several reviews of the subject over the past few years, stimulated initially by the prospect of synthetic fuels in the late 1970s. This book is based on a series of lectures, given as part of a C_1 chemistry course at Aachen under the sponsorship of the European Community, concerned principally with homogeneous transition metal catalysed reactions of carbon monoxide, hydrogen cyanide, methane and carbenes.

Most of the chapters present interesting overviews of relevant industrial process chemistry, patent and general literature. They highlight the mechanistic chemistry involved and have a general data base up to 1981 with a few references to 1982 publications. Interest in the platinum group metals is covered in the previously well documented activity of rhodium and palladium complexes in hydrogenation, carbonylation and hydroformylation reactions. The Fischer-Tropsch section naturally refers extensively to data from the Sasol operation although the claimed versatility for diesel production of the Sasol 2 reactors is misleading. The activity of ruthenium catalysts for diesel fractions and methane under different operating conditions is detailed in addition to the activity of rhodium bimetallic catalysts for alcohol production. The chapter ends with a discussion of selectivity control and the conclusion that future exploitation of this chemistry will be based on selective production of olefins and alcohols rather than for transport fuels.

A review of methanol homologation reactions, especially the formation of ethanol, includes graphic details of recent data on cobalt from a dissertation by H. Loevenich at Aachen. It also highlights the activity of ruthenium co-catalysts for this reaction, patented by several petrochemical firms in 1981–82, and refers to the few detailed studies on other platinum group metals in this system. The major area of interest for platinum group metals chemists is likely to be the chapter by A. Behr on carbon dioxide activation where several platinum group metals and transition metal complexes with activity in this respect have recently been identified. This detailed review covering 312 references up to 1982 is subdivided into the insertion reactions of carbon dioxide in metal-ligand bonds. It includes specific reactions of carbon dioxide with hydrogen, alkenes and heterocyclic compounds and gives a valuable update in an expanding area of research. The author recommends the need for further work on the formation of carboxylic acids by this route, where the total functionality of the carbon dioxide is retained in the product.

The absence of a uniform chemical nomenclature system detracts from the overall quality of the text, but this book will provide a useful overview for those interested in a wide range of C_1 chemistry, particularly those without ready access to standard texts such as Kirk-Othmer's Encyclopaedia of Chemical Technology and Comprehensive Organometallic Chemistry. P.C.H.