copper, silver, gold group should differentiate between the two theories. Accordingly, much work has been done on these systems, and for many years the balance of data seemed sometimes to favour one, then the other. However, some of the data, even with sophisticated surface techniques, was subsequently shown to be flawed, and the rigid band theory is now not favoured.

The basic fundamentals of catalysis and catalytic reaction theory are the subject of chapter six, and this is followed by a major chapter on the preparation and characterisation of metal and alloy catalysts, together with no less than 465 references. This chapter reviews various techniques for preparing macroscopic materials (films, foils, wires, single crystals, etc.), small unsupported metallic particles (metal blacks, colloids, Raney alloys), and supported metal catalysts of many types, and constitutes a very useful source-book in its own right!

The second half of the book is devoted to the use of alloy catalysts in practical catalytic reactions, beginning with some general observations in which the authors very sensibly recognise that amongst all of the reasons for studying catalysis on alloy systems, the primary ones are the desire to learn more about how catalysis works, and the wish to produce catalysts having better performance. There is, rightly, a feedback loop from one to the other, but much of the work published in the literature stems from a more empirical approach. Of course, the majority of industrial catalysts comprise metals or alloys on an "inert" support: in practice such supports are rarely inert, and thus contribute in one way or another to the reactivity of the catalyst. Also, in many cases such catalysts are not properly characterised (and in some cases not characterised at all, except by reactivity), and so effects observed may not be directly attributable to the presence – or absence – of alloy formation.

The authors have chosen to formulate the chapters in this half of the book on the basis of reaction type. Thus, there are chapters on reactions involving hydrogen (including isotopes), hydrogenation/dehydrogenation, oxidation, reforming, etc. While this is probably the most practical approach – and the best from the point of view of the practising chemist – it inevitably means that references to individual alloy systems are spread throughout the text, although there are useful summaries of a few individual systems, such as the alloys of nickel, palladium, platinum with copper, silver, gold, referred to above.

Surprising is the very small amount of space devoted to pollution control catalysis – especially for motor vehicles – which has been a major practical use of catalysis for more than twenty years, and which almost invariably has involved multimetal catalysts.

But, I must not complain: this book surely represents several man-years of effort in accumulating the references and attempting to summarise them, and is a truly laudable effort. Professor Bond's first major book published almost 35 years ago (2) was a source of inspiration to a whole generation of catalyst chemists: hopefully this volume will provide an equal impetus to the further study of alloys.

Readers will be pleased to note that a number of citations appearing in "Catalysis by Metals and Alloys" are to articles which have appeared in *Platinum Metals Review*.

This book is available from Elsevier, P.O. Box 211, 1000 AE Amsterdam, The Netherlands, or in the U.S.A. and Canada from Elsevier Science Inc., P.O. Box 945, Madison Square Station, New York, NY 10160-0757. D.E.W.

References

1 D. McDonald and L.B. Hunt, "A History of Platinum and its Allied Metals", Johnson Matthey, London, 1982, Chapter 12

2 G. C. Bond, "Catalysis by Metals", Academic Press, London, 1962

Platinum Group Metals Conference

Over 200 offers of contributions have already been received for presentation at the Sixth International Conference on the Chemistry of the Platinum Group Metals, to be held at the University of York from 21st to 26th July, 1996. A second circular and application form will be available shortly. Anyone wishing to contribute or attend should contact Dr John F. Gibson, The Royal Society of Chemistry, Burlington House, Piccadilly, London W1V 0BN, U.K., Fax: 0171-734-1227, Email: conferences@rsc.org.