Preface

This is the third Volume of this series which attempts to review the literature in the general field of heterogeneous catalysis and in related areas of homogeneous catalysis. The main emphasis is on the progress in fundamental research but applied and industrial papers are also mentioned. No attempt is made to cover the whole field in each volume but, instead, we choose a balanced range of subjects in which there has been significant interest for review each year, with the objective that most areas will be reviewed at least once in the first three or four volumes. But the literature in catalysis is so large that our authors have to exercise considerable selection in deciding how much to include and what to omit or mention only briefly – they are encouraged to be selective rather than comprehensive in their reports.

The first chapter by S. J. Thomson on catalysis on well-defined surfaces takes up a theme which was included in Volume 1 and he assesses the progress relevant to catalysis in the increasing number of publications from the 'surface scientists'. Three of the chapters are concerned with oxidation – a subject which has not featured extensively in Volumes 1 or 2. R. W. Clayton and S. V. Norval cover the work in the period 1972 to 1978 on oxidation on copper, silver, and gold catalysts, while M. H. Stacey reviews high-temperature oxidation by the platinum group metals over a slightly longer time span. C. N. Kenney writes on the special topic of oxidation of sulphur dioxide – a topic of great practical significance. Another field of industrial importance is reviewed by G. W. Bridger in his chapter on steam reforming of hydrocarbons, which covers the period since 1974 when an earlier review was written for another S.P.R. title.

One subject selected for inclusion in the field of oxide catalysis is reactions on zinc oxide reviewed by C. S. John. This is a catalyst of great interest because of the definitive work on it by the late R. J. Kokes and because of the comparatively detailed knowledge available of intermediates and mechanisms involved. The other area is the growing field of catalysis on non-faujasitic zeolites and other strongly acidic oxides reviewed by M. S. Spencer and T. C. Whittam – their chapter is designed to complement that by R. Rudham and A. Stockwell on faujasitic zeolites in Volume 1. The only chapter firmly based on homogeneous catalysis in this volume is that by D. C. Sherrington on polymerization by carboanions and carbocations. We hope to have more on the homogeneous theme in Volume 4.

Finally, one of us attempts in a somewhat subjective manner to discuss critically the topic of spillover which is now attracting a considerable mention in the primary literature.

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