

BOOK REVIEW

Catalysis of Gas Reactions by Metals. By A. J. B. ROBERTSON. Springer-Verlag New York, New York, 1970. xi + 183 pp. \$9.80.

This book must be read in the spirit of the author's intent as expressed in his preface. There he clearly states that the subject content is selective and that it deals primarily with simple reactions which have been studied with ultrahigh vacuum techniques. In terms of these objectives the author has accomplished his purpose well. Unfortunately, one does not know this from the title and, in this particular case one gets the erroneous impression that here is a book dealing with a subject as broad in scope as, for instance, that covered by "Catalysis by Metals" by Bond. This point is made because heterogeneous catalysis is a highly practical subject upon which a vast industry is built and which accordingly employs a great number of scientists and engineers who think of "Catalysis of Gas Reactions by Metals" in terms of their industry. The title of this book should therefore have been selected more carefully.

Looking at the book as a whole one finds that both Chapters 1 and 2 are well done, although it is difficult to see where the one leaves off and the next begins. These two chapters should perhaps have been combined into a single chapter. The so-called "modern ideas" as far as one can tell do not extend beyond 1960; out of 104 references cited in Chapter 2 only seven are dated after 1960 and, of these, five are books and one is a chapter in *Advances in Catalysis*. Chapter 3, for a quick insight into ultrahigh

vacuum research and technique, is well done. Chapters 5 and 6 whose titles actually represent the backbone of chemical industry lack the proper depth to make them really meaningful. These two chapters together add up to only 15 pages. Because of this brevity, unless one is already an expert in catalysis one cannot get much out of these pages, unless external sources are consulted. Chapters 7, 8, and 9, considering the limited space devoted to them, are done well.

Chapter 10, "The Possible Importance of Active Sites in Catalysis by Metals" represents a topic that an industrial catalyst chemist would get excited about. But unfortunately this chapter was not written with him in mind. For example, the decomposition of formic acid on single crystal faces of silver and on silver films undoubtedly has its place in this book, but it would have been much more relevant to have included examples such as the epoxidation of ethylene over silver and others of similar industrial magnitude. The final two chapters are both interesting and well written.

In summary, the two serious deficiencies of this book are; it lacks depth of subject content and it presents little or nothing of direct benefit to the industrial catalyst scientist. Lastly, the book is expensive for its size and material content.

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