

The theories are grouped in the usual manner into those where the activity determining factor is structural or geometric and those where it is electronic. There are only a few omissions of the notions used currently in discussing catalytic mechanisms. Such are Horiuti's stoichiometric number and Borekov's correlation between the strength of the oxygen surface bond and the activity of metal oxides in redox reactions, although relations similar to the latter are briefly discussed. The continuity of exposition of the first part is absent in the second, but, given the circumstances, this must be expected.

The list of references, drawn from world sources, permits the reader to consult the pertinent literature when further details are desired. Typographical errors are few, almost all of them found in the author index.

The book, as a whole, is recommended both for the practicing catalytic chemist and for the graduate student tackling problems related to adsorption and catalysis. We can hope, that the at times mathematically demanding treatment, especially of the adsorption, will not discourage the application by the practitioner and that the work will help to narrow the theory-practice gap. The price is on the high side, inflation notwithstanding, but the expenditure, in the opinion of the reviewers, is worthwhile.

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**Catalytic Processes and Proven Catalysts.** By CHARLES L. THOMAS, Academic Press, New York, 1970. xiv + 284 pp. \$12.50.

This book is a "public" edition of what was for a number of years a private company edition of a "how to do it book" in catalysis. The book is aimed at those scientists and engineers who are concerned with process problems in catalysis. It will be of particular value to individuals who have little or no background in the field and who need orientation in a subject prior to embarking on a

research and development program. The more knowledgeable, and even the expert, will find the book valuable as a quick reference for information outside his immediate field.

The book is an excellent source for finding out what catalyst to use for a particular reaction, manufacturers of individual catalysts (or, if not available, directions for making recommended catalysts) and the ranges for the main catalyst usage parameters such as temperature, pressure, feed rate, catalyst life, (short- and long-range) catalyst poisoning and catalyst regeneration.

Numerous references are included for those who wish to learn more about a particular field. The reference material is summarized at the end of the book under author and subject headings.

There are 22 chapters in the book. All the main areas of catalysis as practiced in the petroleum, chemical, and related industries are covered. Three chapters cover a description of various catalytic reactors, a summary of the scientific and engineering aspects of catalysis including regeneration, descriptions of various catalyst support materials, and directions for obtaining samples of commercial catalyst carriers and supports. Individual chapters are devoted to isomerization, cracking, dehydration, dehydrogenation, reforming, and alkylation; four chapters are devoted to various areas of hydrogenation processes; three chapters are devoted to oxidation; two chapters are devoted to polymerization. Additional separate chapters cover preparation of synthesis gas and hydrogen production, gas purification, and ammonia and methanol production. Twenty-seven miscellaneous processes not covered in other parts of the book are summarized in Chapter 21.

Considering the author's objectives, this reviewer has found the information to be comprehensive and up to date. Not included are the alkali promoted catalysts for the production of synthesis gas and hydrogen from naphtha. This is a recent development of wide usage at the present time.

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