BOOKS

Proceedings of an International Symposium on High Temperature Technology, Stanford Research Institute. 348 pages, McGraw-Hill Book Company, New York. $15.00.

"High Temperature Technology" is a collection of the papers and discussions presented at an International Symposium on the subject on October 6 through 9, 1959. The conference, held on the Asilomar Conference Grounds near Monterey, California, must have been as pleasant, judging from the informal snapshots included in the discussion, as it was successful.

The book is not, as is often true with collected writings, merely a group of papers on related topics in which the authors happen to be interested. The careful selection of the authors has made the edition a unified and organized view of the whole field of high temperature technology. The consistency of point of attack of the many contributors reflects the well-planned organization of the conference by those responsible—the Stanford Research Institute and fifteen representatives of various university, government, and industrial research groups under the chairmanship of N. K. Hiester.

The symposium was organized into five sections, each under a chairman: Techniques and Measurements, Materials, Processes, Behavior of Materials, and Research Abroad. The book is similarly divided with a sixth section, and one which is definitely an integral part of the book, devoted to the discussion which took place at the conference on the first four of the topics. Section I contains papers on image furnaces, high intensity electric discharges, measurement of temperature, flux, and emittance, and problems of missile re-entry. The section on materials includes discussion of the refractory metals, oxides, graphites, and carbides, nitrides, sulfides, silicides, borides, aluminides, and intermetallics. High pressure, condensed state reactions and phase equilibria, fused salt chemistry, pyrometallurgy, and chemical synthesis are topics of papers in the "Processes" section. The fourth division gives references to work on mechanical properties, thermoelectric power, and mass spectrometry in high temperature chemistry. Section V on research abroad is the most uneven one in the book. It consists of papers by representatives from five groups—the United Kingdom, France, Germany, Japan, and Scandinavia—who were each given the heroic task of reviewing the sum of work at high temperatures presently being carried out in their countries. The discussions varied in style from that of Dr. Trombe and Dr. Foex of France who present an extensive survey, including 262 literature references, of research in their country to that of Dr. Mii of Japan who dealt more with the work with which he was personally familiar—the solar furnace.

Throughout the book literature refer-

(*Continued on page 5D*)

(*Continued from page 2D*)

ences are abundant; they are one of its valuable features. Mention is made of complete bibliographies which are made available by the IUPAC Commission on High Temperatures and Refractories.

The book gives a broad survey in considerable depth of the modern high temperature field. It will be of most interest to those wishing to keep abreast of the progress and direction in this field.

John R. Bartlit

Principles of Unit Operations, A. S. Foust, L. A. Wenzel, C. W. Clump, L. Maus, and L. B. Andersen. John Wiley and Sons, Inc., New York (1960). 578 pages. $15.00.

In this text the unit operations of chemical engineering are presented in unified groups related by identical basic principles. The general approach employed emphasizes the scientific laws upon which the operations are based; the arrangement certainly appears to give the student a much greater opportunity to understand this basis than did the previous classical approach to unit operations.

Topics are divided into three major sections: Part I dealing with those operations which are equilibrium controlled processes, Part II dealing with rate dependent processes, and Part III which applies the principles of equilibrium and rate processes to the design of equipment for various unit operations.

It would seem that the text represents, to a certain extent, a compromise between the classical concept of unit operations and the more recently developed transport process considerations. In effect the latter two sections of the book serve as texts in both areas; Part II could serve as a text for the study of transport processes alone, while Part III is an extensive consideration of unit operations and design calculations along more or less traditional lines.

The subject matter included in this unified approach is extensive. Of particular interest is the treatment of unsteady state molecular transport and the consideration of boundary layer theory. On the other hand, it is felt that a more extensive discussion of the recent developments in film theories, such as that of surface renewal, would have been a desirable complement to the section on turbulent—molecular transport.

The text is well illustrated throughout; diagrams and nomenclature are clearly presented and easily followed. There are a large number of illustrations of process equipment included, although this may be a doubtful qualification considering the availability of descriptive literature for equipment and the cost to the student for the duplication of this information in the text.

It is evident that this volume represents quite a departure from the traditional presentation of unit operations, and the reviewer feels the authors are quite justified in saying ". . . . the unification presented here is the next logical step in the evolution of the concept of unit operations."

John B. Butt

Computer Program Abstracts

Readers of the *A.I.Ch.E. Journal* who are interested in programming for machine computation of chemical engineering problems will find in each issue of *Chemical Engineering Progress* abstracts of programs submitted by companies in the chemical process industries. Collected by the Machine Computation Committee of the A.I.Ch.E., these programs will be published as manuals where sufficient interest is indicated. The following abstracts have appeared this year:

CEP (September, 1960), p. 78

Double-Pipe Heat Exchanger Calculations (059)
Solution of Simultaneous Linear Equations (060)
WL DST1 (061)