Time Lags and V–V′ Steady States in the Infrared Laser Induced Decomposition of $CHClF_2$ and $CDClF_2$ under Collisional Conditions [*J. Am. Chem. Soc.* **1982**, *104*, 3014]. ERNEST GRUNWALD,* SHU-HUEI LIU, and CHARLES M. LONZETTA.

Page 3016, Table I: The headings of columns 2 and 3 and of columns 5 and 6 should be transposed.

β-Alkyl Transfer in the Lanthanide Model for Chain Termination [*J. Am. Chem. Soc.* **1982**, *104*, 6471–6473]. P. L. WATSON* and D. C. ROE.

Page 6473, left column, last two lines: Values for the equilibrium constants appear reversed. The sentence should read as follows: The equilibrium constant for eq 1 is thus $\approx 10^{-5}$ and for eq 2 is $\approx 10^{-3}$.

Ketonization of Enols. Enol Content and Acid Dissociation Constants of Simple Carbonyl Compounds [*J. Am. Chem. Soc.* **1982**, *104*, 6122–6123]. Y. CHIANG, A. J. KRESGE,* and P. A. WALSH.

Page 6123, seventh line after eq 4 should read as follows: ... $K_a = 2.4 \times 10^{-12}$ M, $pK_a = 11.63 \pm 0.03$ ...

Book Reviews

Advances in Chemical Engineering. Volume 11. Edited by Thomas B. Drew (Massachusetts Institute of Technology), Giles R. Cokelet (University of Rochester), John W. Hoopes, Jr. (ICI Americas, Inc.), and Theodore Vermeulen (University of California). Academic Press, New York. 1981. xiv + 452 pp. $58.00.

This volume is the latest in a series devoted to a comprehensive review of important topics of current interest in chemical engineering. The book is divided into four parts, which are written by different authors.

The first part is by Jean-Claude Charpentier and deals with Mass Transfer Rates in Gas-Liquid Absorbers and Reactors. It is exceptionally well-written and updates (unfortunately only through 1975) the Astarita and Danckwerts books on absorption with chemical reaction. The treatment is more like a textbook than a review and might well be used in that fashion. The review of the theory of combined diffusion and chemical reaction of the form

$$A + zB \xrightarrow{k_2} \text{products}$$

is directed toward an understanding of the important variables for size scale-up of laboratory reactors and of the simulation of absorbers with laboratory scale reactors. The latter includes prediction of performance of a given absorption system without the need for physical property and kinetic data. Also reviewed are correlations and/or experimental methods for obtaining solubility, diffusivity, and interfacial area data as well as gas- and liquid-side mass-transfer coefficients. Seven types of absorbers are treated. Coverage is limited to the isothermal operation.

The second part, by Dee H. Barker and C. R. Mitra, discusses The Indian Chemical Industry--Its Development and Needs. The historical development of the chemical industry in India is reviewed together with the present structure of the industry. Since independence was achieved in 1947, industrial development has accelerated so that a comprehensive, integrated chemical industry now exists in that country. However, the industry has serious needs, including more appropriately trained engineers, more industrial research, manufacturing facilities better suited for local conditions, and less dependence on imported petroleum and imported raw materials. Most research is conducted by government research laboratories and universities and fails to meet industrial requirements. College and university students receive little exposure to industrial practice. Because of an inadequate transportation system and power supply, the industry would benefit from a more highly dispersed structure of smaller plants. Indigenous coal should be substituted for imported petroleum.

The third part concerning The Analysis of Interphase Reactions and Mass Transfer in Liquid-Liquid Dispersions, by L. L. Tavlarides and M. Stamatoudis, covers a broad area including modeling and physical behavior of liquid–liquid dispersions. It discusses a variety of modeling approaches and their potentials and deficiencies, a behaviorial description, and the need for additional data. Information on droplet size, surface area, coalescence, and breakage provides a basis for using the overall models. Both turbulent and laminar/transitional flow regimes are covered.

The fourth part dealing with Transport Phenomena and Reaction in Fluidized Catalyst Beds, by Terukatsu Miyauchi, Shintaro Furusaki, Shigehatu Morooka, and Yoneicki Ikeda, considers the flow properties of fluidized catalyst beds, the factors affecting the flow properties, the mixing properties, heat and mass transfer, and chemical reactor models for these beds. The theory of recirculation in a gas–liquid bubble column is applied to analysis of turbulent-flow phenomena in fluidized catalyst beds. This application seems justified since the fluidity of the emulsion phase in these beds is nearly equivalent to that of water. Several industrial applications of fluidized catalyst beds are mentioned and a brief discussion of technical design problems is presented.

Charles Glatz and Thomas D. Wheelock, *Iowa State University*

Catalytic Aspects of Metal Phosphine Complexes. ACS Symposium Series. No. 196. Edited by E. C. Alyea (University of Guelph) and D. W. Meek (Ohio State). American Chemical Society, Washington, DC. 1982. 421 pp. $69.95.

This volume is based on the 1980 Biennial Inorganic Chemistry Symposium held in Guelph, Canada, June 5–7, 1980. The symposium program included 30 talks and 23 poster presentations. This volume contains 24 of the oral papers and a listing of the poster presentations in the Appendix. The title is somewhat misleading, since very few of the presentations center on catalysis. The following subtopics were addressed: ^{31}P NMR and the nature of the metal–phosphorus bond, the chemistry of bulky phosphine ligands, polydentate phosphines, the reactivity of transition-metal phosphorus compounds, and asymmetric synthesis. Specific catalytic studies include: Palladium–Triarylphosphine Catalysis of Vinylic Halide Reactions (Heck); Rhodium–Polyphosphine Olefin Hydrogenation Catalysts (Meek); Catalytic Oxidation Using Rhodium and Rhenium Clusters (Roundhill); Asymmetric Catalysts (Knowles); Asymmetric Hydrogenation (Bosnich); Asymmetric Hydrocarbonylation (Pino).

This volume appears to continue the high standards set by this series through the years.

P. E. Garrou, *Dow Chemical—New England Laboratory*

Biochemical Education. Edited by C. F. A. Bryce (Dundee College of Technology). Croom Helm Ltd., London. 1981. 219 pp. $32.50.

Perhaps someday a book will be written to provide chemists an overview of advances in science education with applications to the teaching of chemistry. "Biochemical Education" is not such a book. It includes nine diverse chapters of mixed quality. These relate to a range of educational issues and are connected only by the diffuse theme of teaching biochemistry.

The first chapter, which presents a "systems approach" in teaching biochemistry, is not substantially different from a generic "systems" approach well described elsewhere. The chapter on medical biochemistry curricula offers little new. The chapter on "case oriented" approaches suggests alternatives to chemical academicians who believe that lecturing is the only suitable technique for teaching hard sciences, a notion amplified in subsequent chapters on "innovations," "gaming," and "small groups." The chapter on "assessment" is not useful, either for novice readers or experts. An unusual chapter on "use of print" seems entirely too specialized for inclusion among this mix of other biochemically slanted topics. The chapter on "computer-based learning" contains little of use to novices and little of substance to experienced educators.

This reviewer feels that an investment in two annual subscriptions to any of several broad-based science education journals would provide a substantially higher return on investment than would this single hard-bound edition.

David W. Brooks, *University of Nebraska-Lincoln*