

gen atom transfer steps should be different since it is very probable that hydrogen atom transfer to the former is considerably faster than to the latter. Thus, the transition state involving the  $\alpha$ -chlorovinyl radical should come earlier along the reaction coordinate and stereoselectivity factors should be less important than in the  $\alpha$ -methyl system. The olefin product ratio should tend more toward the *trans*:*cis* vinyl radical distribution at lower scavenger concentrations as is observed in the *cis*- $\alpha$ -chloro perester system. Thus, we still believe the discrepancy in the kinetic parameters ( $k_{\text{inversion}}/k_{\text{H transfer}}$ ) derived for both systems from the product ratios is associated with special features of the

*trans* system. Our conclusion suggesting complexation between the acyloxy radical formed from the *trans*- $\alpha$ -chloro perester and  $\pi$ -systems remains unchanged.

**The Juvenile Hormone. V. Synthesis of the Racemic Juvenile Hormone.** [*J. Am. Chem. Soc.*, **89**, 5292 (1967)]. By KARL HEINZ DAHM, BARRY M. TROST, AND HERBERT RÖLLER. Departments of Zoology and Chemistry, University of Wisconsin, Madison, Wisconsin 53706.

In Scheme I, reaction III  $\rightarrow$  VI, 1.) Mg should read 1.) NaOC<sub>2</sub>H<sub>5</sub>.

## Book Reviews

**Interactions in Electrolyte Solutions (Metal Complex and Ion-Pair Formation in Solution).** By GEORGE H. NANCOLLAS, Professor of Chemistry, State University of New York at Buffalo, Buffalo, N. Y. American Elsevier Publishing Co., Inc., 52 Vanderbilt Ave., New York, N. Y. 1966. 14.5  $\times$  21.5 cm. x + 214 pp. \$14.50.

This monograph consists of a Preface, List of Main Symbols, Chapter 1 (Introduction, 23 pp), Chapter 2 (Experimental Methods: Determination of Association Constants, 48 pp), Chapter 3 (The Association Constant, 20 pp), Chapter 4 (Relationships Involving the Association Constant, 23 pp), Chapter 5 (Thermodynamic Properties, 49 pp), Chapter 6 (Mechanism of Complex Formation and Structure of the Complex, 13 pp), Appendix (7 tables, 26 pp), and Author and Subject Indexes.

The monograph is stated in its preface to be intended "as an introduction to the research work being done with aqueous solutions of electrolytes, particularly the thermodynamics of formation of ion-pairs and mononuclear complexes." As anyone with any knowledge of the author's contributions to this area would know it must, the book contains excellent and authoritative discussions of many important subjects. Chapter 2 falls in this category, as does Chapter 3, on the evaluation of association constants and the methods of working up data so as to obtain the most, and the most reliable, information from them. These include procedures for varying parameters for best least-squares fitting, which were not feasible before the advent of the computer. Of particular merit also are some of the interpretative passages of Chapters 4 and 5 and the tables in the appendix, in which are assembled critically selected values for  $\Delta G^\circ$ ,  $\Delta H^\circ$ , and  $\Delta S^\circ$  of a large number of association reactions.

The writer of a monograph in this field is, however, confronted with a problem which the present reviewer cannot consider this book to have been completely successful in solving. This arises from the need for satisfactory theories of water structure and of the thermodynamics of aqueous ions if fully satisfactory interpretations of association processes are to be possible. Unfortunately, both water and electrolyte theories are at present in incomplete and even unruly stages, specialists in each being engaged in spirited controversies, of which the eventual outcome will seem to many still to be uncertain. In presenting a general background for his own studies, therefore (Chapter 1), and in the general discussion, for instance, of entropies of hydration (part of Chapter 5), the author has had to "decide where doctors disagree," and the results are understandably less satisfying than is the major part of the book, which reflects his own principal expertise. Thus, even aside from "proof-reading" errors, such as the statement that the Nemethy-Scheraga statistical treatment of water is rigorous (p 6) or that "For a binary electrolyte:  $G = G^\circ + RT \ln m + RT \ln \gamma_{\pm}$ ," there are places where confusion which had crept into the literature is perpetuated, and where discrepant treatments are outlined almost side-by-side as though they supplemented, rather than contradicted, each other.

This shortcoming should not weigh too heavily against the real merit of a book which is not likely to be taken as a textbook in the subjects at issue. The disclaimer in the preface, "The present monograph is not exhaustive," also largely disarms the possible criticism that there exist "interactions in electrolyte solutions" which find no mention here, and that the degree of detail in which different interpretative essays are described is uneven. The author has a background of different degrees of involvement in these interpretations, and it is both natural and desirable that he should most emphasize what most interests him or to what he himself has most largely contributed. Every good book must necessarily bear a personal stamp, and the debt under which this author has placed us by writing this book is not lessened by its personal character.

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## BOOKS RECEIVED, October 1967

H. R. ALLCOCK. "Heteroatom Ring Systems and Polymers." Academic Press Inc., 111 Fifth Ave., New York, N. Y. 1967. 401 pp. \$16.50.

LOUIS F. FIESER and MARY FIESER. "Reagents for Organic Synthesis." John Wiley and Sons, Inc., 605 Third Ave., New York, N. Y. 1967. 1457 pp. \$27.50.

ROBERT M. MAZO. "Statistical Mechanical Theories of Transport Processes." Pergamon Press Inc., 44-01 21st St., Long Island City, N. Y. 1967. 166 pp. \$9.50.

A. N. NESMEYANOV and R. A. SOKOLIK. "The Organic Compounds of Boron, Aluminum, Gallium, Indium and Thallium." The World Publishing Co., Cleveland, Ohio. 1967. 628 pp. \$24.00.

CHARLES P. POOLE, JR. "Electron Spin Resonance. A Comprehensive Treatise on Experimental Techniques." Interscience Publishers, John Wiley and Sons, Inc., 605 Third Ave., New York, N. Y. 1967. 922 pp. \$29.75.

HIROSHI SUZUKI. "Electronic Absorption Spectra and Geometry of Organic Molecules. An Application of Molecular Orbital Theory." Academic Press Inc., 111 Fifth Ave., New York, N. Y. 1967. 568 pp. \$24.00.

J. M. THOMAS and W. J. THOMAS. "Introduction to the Principles of Heterogeneous Catalysis." Academic Press Inc., Ltd., Berkeley Square House, Berkeley Square, London, W. 1, England. 1967. 544 pp. \$21.50.