properties of surfactant-organized media as well as summarizes the state of knowledge concerning their utilization in analytical chemistry. By and large, the literature citations are current up through 1995 and provide a good cross-section of the voluminous literature available. The 16-page subject index at the end of this volume is very thorough for a work of this magnitude. The book is also remarkably free from errors, well-produced, and well-illustrated.

The use of different surfactant-organized media has become rather pervasive in analytical chemistry today, and this monograph is a welcome source of valuable information, not only for those considering such applications but also for the more experienced practitioners in the field. Were it not for the price, it could also serve as a useful textbook for a graduate course on this topic. Overall, I find this to be a very timely addition to the series of monographs on comprehensive analytical chemistry. The monograph is highly recommended as a library acquisition as it is probably a bit too expensive for an individual purchase.

Note Added in Proof. Those interested are referred to another recent review of this work: von Wandruszka, R. *Analyst* **1991**, *122*, 101N−102N.

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Organic and Bio-organic Mechanisms. By Michael Page(The University of Huddersfield) and Andrew Williams (The University of Kent). Addison-Wesley-Longman: Essex. 1997. x + 298 pp. £27.99. ISBN 0-582-07484-3.

Page and Williams have succeeded in producing a short text that reports on the intersection of three large fields of inquiry: physical organic chemistry, bio-organic chemistry, and mechanistic enzymology. Their book begins with two chapters that establish the fundamental assumptions for mechanistic investigations, followed by three chapters covering the analysis of specific experimental approaches including free-energy relationships, isotope effects, solvent, temperature and pressure effects, and the use of strongly acidic and basic media. The last third of the book includes two survey chapters covering bio-organic group-transfer reactions and several classes of enzymatic reactions, along with two chapters on various aspects of catalysis.

The style of the early chapters is somewhat disconcerting as the authors often use references to later sections of the text in place of immediate definitions or explanations for unfamiliar concepts and jargon. For example, in the first chapter, Page and Williams use the terms "intrinsic barrier" and "Eigen plot" without definition in an explanation of nonperfect synchronization reactions. The authors direct the reader instead to sections and figures in chapter six. At first reading, this style is bothersome, but in this age of hypertext it does not take much effort to accept the "links" to later chapters, and the style does enhance the book's function as a reference work. There are also a few eccentricities in the book, such as the unconventional use of the term "intrinsic isotope effect" to denote a semiclassical isotope effect maximum, and the presentation of an uncommon notation for isotope effects as convention.

Organic and Bio-organic Mechanisms is at its best when Page and Williams lay out the mechanistic reasoning and assumptions associated with specific problems. The presentation of the use of Brønsted relationships and the chapter entitled Bio-organic Group Transfer Reactions are particularly good in this light. Page and Williams begin their treatment of Brønsted relationships with a discussion of critical assumptions and a prudent description of effective charge as a measure of transition-state character. They next present several literature examples to illustrate the process of crafting mechanistic insights from effective charges. Their Brønsted treatment, as well as their presentations of other mechanistic probes, are further enhanced in an intriguing chapter called Transition-State Structures -- Anomalies. In a similarly appealing approach, Page and Williams organize their group-transfer chapter around the common notion of stepwise vs concerted reaction mechanisms using several introductory sections to outline the issues and pertinent mechanistic reasoning.

The book should be especially useful to enzymologists who want a concise but discerning introduction to the developments of physical organic chemistry over the last 30−40 years as they apply to bio-organic and enzymatic mechanisms. The catalysis chapters are particularly valuable as they showcase the insights and perspectives of Page and Williams on a wide range of mechanistic issues.

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Ligand−Receptor Energetics: A Guide for the Perplexed. By Irving M. Klotz (Northwestern University). Wiley Interscience: New York. 1997. xi + 170 pp. $44.95. ISBN 0-471-17626-5.

To quote part of the preface to this book, "The first step in essentially all biological activities is an interaction between separate molecular constituents, ligand and receptor, to form a macromolecular complex". Certainly, a complete understanding of biology, as well as the ability to mimic biology in man-made systems, requires an in-depth understanding of the energetics of intermolecular interactions. This book focuses upon the mathematics of such interactions, methods to solve for equilibrium constants in complex scenarios, and methods of graphical presentation of the data. To quote the preface again, "The objective of this volume is to present the core principles that provide the foundation for quantitative perspectives".

The first chapter of this book covers the simple mathematics of molecular interactions by following the concentration of free ligand, and the perturbation of properties of the ligand when bound. The second chapter takes on an analysis from the point of view of the receptor binding sites. In this chapter the traditional binding isotherms are covered, along with linearization procedures, and methods to determine the number of binding sites that a receptor possesses. Chapter 3 is quite short, and generalizes the binding equations to multivalent receptors, as does Chapter 4, but from a point of view that the author entitles "ghost-site perspective". These two chapters are quite heavy on the mathematics, and it would have been useful for the author to give a deeper analysis of how to apply these equations to everyday experimental analyses. Chapter 5 is a very useful chapter. It is titled Fact and Fantasies from Graphical Analyses. This chapter covers the pitfalls one may encounter when attempting to measure affinity constants using a wide variety of common experimental and graphical techniques: curve fitting to the typical one-to-one hyperbolic binding algorithm, Scatchard plots, and semilogarithmic plots. This chapter will be an invaluable tool in the hands of our research group, and I would recommend this chapter to anyone working in the field of biochemistry and supramolecular chemistry. Chapter 6 increases one's understanding of the numerical methods for evaluating binding constants, and lists several binding constants for biological entities. The next chapter covers affinity profiles, detailing cooperativity between different binding sites in a single receptor. Chapter 8 covers the mathematics and experimental methods for measuring the thermodynamics of binding, giving several examples of enthalpies and entropies of complexation. Chapter 9 gives a quick overview of the forces that dictate intermolecular association: solvation, dispersion forces, hydrophobic effect, electrostatics, and hydrogen bonding. Further, this chapter includes a quick overview of clathrate compounds. The last chapter is called Molecular Scenarios, and covers the mathematics of regulatory responses to the concentration of effectors, as well as allosteric effects. Finally, the remainder of the book includes four appendices that cover experimental methods in dialysis, more details of graphical analyses, and even more mathematical relationships between different types of binding constants.

In summary, the strengths of the book are the insights into complex multivalent receptors and the experimental methods for accurately determining their individual binding constants. Another strength is the discussion of the limits of different analysis methods for determining the affinity constants. Finally, the book is quite short, does not waste words in explaining its points, and is easy to read. Due to these strengths, I would recommend this book to anyone who routinely measures equilibrium constants for intermolecular complexation events. The weaknesses are minor, but include a lack of insight into how to apply the complex equations to "real-life" scenarios, and a glossary analysis of the forces of intermolecular interactions. Therefore, the book is not appropriate for one that is primarily interested in learning about the microscopic forces that hold molecules together.

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