

## Book Review

*Advances in Supramolecular Chemistry*, Volume 2. G. W. Gokel (Ed.). JAI Press, London, 1992.

This excellent book continues the trend established in the first volume of the *Advances in Supramolecular Chemistry Series*, namely a consideration of the field in its very broadest sense. There is a slight focus on membrane chemistry with three of the five chapters dealing with different aspects of amphiphile design and physical behavior. The other two chapters focus on the use of hydrogen bonding interactions to control complex formation both in solution and the solid state. Overall, the contributions are of a high quality with literature current through much of 1991.

The first chapter from Professor Angel Kaifer deals with the use of cyclodextrins both to complex amphiphiles and as amphiphiles themselves. This is a timely topic given the upswing of recent interest in rotaxane synthesis and in the construction of Langmuir Blodgett films. The chapter provides an excellent discussion of the field with particular focus on the electrochemical consequence of cyclodextrin complexation of electroactive amphiphiles. The second contribution is an outstanding review of bolaamphiphile chemistry from a leader in the area, Professor Fuhrhop, and his collaborator, Dr. Bach. Using excellent graphics they outline the remarkable structural consequences of placing two head groups on an amphiphile. Exceptional stability is seen in many cases and the identification of macrocyclic bolaamphiphiles in archaeobacteria suggest they may also have played an evolutionary role.

The third chapter from Professor Aoyama deals with the incremental advantage of collecting many binding sites in a receptor molecule. Dr. Aoyama provides an excellent review of the field placing particular emphasis on metal containing as well as multiple hydrogen receptors. A key theme is the increase in binding strength and selectivity that accrues from accumulating several points of interaction. He gives good examples from his own work that evolve from relatively unselective metalloporphyrins to highly selective functionalized cyclophanes. An intriguing part of this work is the focus on biologically-important substrates (from amino acids to flavins to carbohydrates) and the different strategies for their recognition are well described.

The fourth chapter moves far from the field of organic chemistry with a consideration of the investigation of membrane dynamics. A comprehensive description is given first for the theory of thermal fluctuations and second for the experimental approaches for observing deformations of vesicles. The final chapter is from Professor Toda and describes his work on the control of crystal packing patterns. This provides an exhaustive survey of the design of inclusion complexes and particularly their use in optical resolutions and also the control of product selectivity in solid state reactions.

Overall, this is a strong second volume for what promises to be an important series in the field of supramolecular chemistry. The quality of the graphics is somewhat inconsistent among the chapters, reflecting direct reproduction of the authors' variable originals. However, this does not detract from an excellent compilation of studies from five laboratories with very diverse approaches to supramolecular chemistry.

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