

Book review

Interfacial Forces in Aqueous Media, C. van Oss, , 2nd ed., CRC Press (2006). ISBN: 1-57444-482

Carel van Oss is emeritus professor of microbiology and immunology, adjunct professor of chemical and biological engineering and of geology at the State University of New York at Buffalo. Two of his earlier books which impinged on my thoughts as a younger scientist were his *Phagocytic Engulfment and Cell Adhesiveness* (1975) with C.F. Gillman and A.W. Neumann and one on Clays. This is some remarkable man with such a range of expertise. The first edition of *Interfacial Forces in Aqueous Media* was significant in that it reflected the author's eclectic interests, marrying physical chemistry with biology. The new edition has been extensively revised and new chapters added. The title makes no concessions to a biological orientation as it deals with theory, rigorously, and with theory applied to a variety of phenomena.

Part I of the book concentrates on basic theory: Lifshitz-van der Waals interactions, Hamaker constants, polar Lewis acid-base interactions, electrical double layer interactions, Brownian movement forces and osmotic interactions of polymers. Part II concentrates on interfacial properties and with the role of water in both hydrophobic attraction and hydrophilic repulsion.

Part III is a valuable section, too, as it deals with experimental methods, adherence to the strict principles of surface

chemistry being essential to obtain worthwhile results. Part IV discusses "associated phenomena and applications" and readers of IJP may find this the most rewarding dealing *inter alia* with phase separation in polymers (how often neglected theoretically in the design of polymeric carriers) coacervation, solubility of polymers, cell and particle stability, adsorption and adhesion, ligand receptor interactions, veritable key-words in modern biopharmaceutics.

There is an excellent index and references are conveniently collected at the end of the book. Commendably the author cites original articles of eponymous scientists such as van der Waals (1873) and Hückel (1924), an example for young authors who have a tendency to cite only the most recent reviews. Leo Vroman, who has two works cited in the book, once wrote "all that we do or cry is interface". This volume takes almost any aspect of interfaces and tackles the theoretical basis of their behaviour. This is a text that will not be an easy read for many, but an essential book for frequent reference in serious laboratories.

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