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BOOK REVIEW

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A.G. Volkov (ed) Liquid interfaces in chemical, biological, and pharmaceutical applications (Surfactant Science Series, Vol. 95)

Dekker, New York, Basel, 2001. XIII, 853 pp (ISBN 0-8247-0457-6), US$ 250.00

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Interfaces between two immiscible liquids play an outstanding role in contemporary science. They are important for fundamental physical and chemical studies of ion and electron transfer and they play a key role in understanding membranes in biological systems. Not less important is their role in applied science, i.e. in chemical technology and analytical chemistry. It was a great idea to publish a volume devoted to the various aspects of liquid interfaces. This book could have been published also in any electrochemistry series, physical chemistry series or even biophysical series. The placement in a series of surfactant science is no less reasonable, and it can only be strongly wished that this book does not escape the attention of all those scientists working in electrochemistry, biochemistry, biophysics, pharmacy, etc., who can benefit from it. The book is divided into three parts: Chemistry at liquid interfaces (18 chapters), Liquid interfaces in biological applications (10 chapters), and Pharmaceutical applications: Drugs at liquid interfaces (5 chapters). It is not possible to list the titles of all the 33 chapters here, but it may suffice to give some examples.

The books starts with the fundamentals (''Interfacial potentials and cells'' by Z. Koczorowski; ''Ion solvation and resolvation'' by T. Osakai and K. Ebina) and continues with various features of liquid interfaces, for example adsorption (T. Kakiuchi), non-linear optics, theoretical models (''The lattice-gas and other models for liquid-liquid interfaces'' by W. Schmickler), SEM as a local probe of chemical processes at liquid-liquid interfaces, catalytic effects, voltammetry at micro-ITIES, capacitive and surface tension measurements (Z. Samec), and finally ion selective electrodes.

The second part, devoted to biology, comprises chapters on ''Water-in-oil microemulsions: protein encapsulation and release'' (D.G. Hayes), ''Biomimetic charge transfer through artificial membranes'' (S. Kihara, H. Ohde, K. Maeda, Y. Yoshida, O. Shirai), ''Phospholipids at liquid-liquid interfaces and their effect on charge transfer'' (L. Murtomäki, J.A. Manzanares, S. Mafé, K. Kontturi) and further treats DNA-modified electrodes, biocatalysis, biocompatible electrodes, oscillation of membrane potentials, Langmuir and Langmuir-Blodgett films of chlorophyll *a* and photosystem II, and finally action potentials in green plants.

The third part, devoted to pharmaceutical aspects, starts with a chapter entitled ''Voltammetry study of drugs at liquid-liquid interfaces'' (M. Senda, Y. Kubota, H. Katano), and continues with chapters on electrical potential oscillation across a water-oil-water liquid membrane in the presence of drugs, a chapter on transfer mechanism and lipophilicity of ionizable drugs (F. Reymond), NMR studies on lipid bilayer interfaces, and finishes with a chapter on lipid bilayers in cells and the implications in drug and gene delivery.

The strength of this book is that it combines the basics with the most recent research. Thus it can be taken as a textbook to enter the subject, as well as for obtaining an up-to-date overview. The width of the aspects covered is impressive and the single chapters are very carefully written, illustrated and edited. This is a volume of lasting significance and I can highly recommend it to anybody who is working with liquid-liquid interfaces, and moreover to anybody in electrochemistry, biophysics and biochemistry. The book is not cheap, however, but worth the money. Libraries must have it, and private purchase is a good investment.

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