Active in reducing tension

Martin J. Schick

Surfactants.

Edited by Th. F. Tadros.

Academic: 1984. Pp.342. \$30, £20.

SURFACTANTS not only present intriguing problems of basic science to the physical chemist but are of widespread application in industry. The field is thriving, on both its "pure" and "applied" sides. To examine the current state of work in this area, a residential school — sponsored by the Royal Society of Chemistry and attended by a galaxy of experts — was held at Bristol University in 1983. This book contains the printed record of lectures presented at the meeting, and is divided into two unequal parts; ten chapters deal with the basic principles of the physical chemistry of surfactants and dispersed systems, while a final three cover applications.

The first four contributions provide a contemporary overview of the solution properties of surfactants, with accounts of the thermodynamics of surfactant solutions, phase equilibria and mesophases in surfactant systems, and the structural aspects of micellar systems. The last of these, by B. Lindman, is especially successful in making clear the importance of simple geometric features and electrostatic effects. New methods for the study of micellar systems, such as quasi-electric light scattering, multifield ^{13}C NMR chemical shift, multifield proton NMR and NMR water self-diffusion, are explained, and the timely subject of microemulsions is illustrated by J.T.G. Overbeek with phase diagrams, thermodynamics, techniques of characterization and applications. Also included are discussions of the microstructure and rheology of surfactants in dilute and concentrated systems, adsorption at the three interfaces (with explanations of experimental procedures), and the role of surfactants in controlling the stability of emulsions, foams and suspensions. This first part of the book concludes with an up-to-date account of the fundamentals of wetting, incorporating a selective review of the recent literature.

Unfortunately, the last three contributions — on surfactants in enhanced oil recovery, macromolecular surfactants, and applications in biological systems — do not measure up to the standard of the earlier part of the book. For example, the title "Macromolecular Surfactants" is grossly misleading since this chapter deals almost exclusively with non-ionic surfactants originating only from the author's own company. On p.287 the misprint of the formula of the alkylphenol ethoxylate is unfortunate and on p.305 the downgrading of the HLB system is not justified.

Yet the high quality of the first ten chapters more than compensates. The concise treatment and scholarly approach to be found there will make this volume useful to both the newcomer and the practitioner who wants to learn about the latest developments. Graduate and research chemists will benefit greatly from reading it. Still, I can't help but feel that omission of the applications chapters and a title such as *Introduction to the Physical Chemistry of Surfactants* would have meant an altogether more useful book. □

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Something cooking

G.D. Clarke

Cell Culture Methods for Molecular and Cell Biology, Vols 1,2,3 and 4.

Edited by David W. Barnes, David A. Sirbasku and Gordon H. Sato.

Alan R. Liss/Wiley: 1984. Vol. 1 pp.353, \$49.50, £38. Vol. 2 pp.280, \$39.50, £30. Vol. 3 pp.300, \$49.50, £38. Vol. 4 pp.263, \$39.50, £30.

THE science of making media for animal cell culture grew slowly out of the black arts of the bacteriologist's "kitchen" with its steamy atmosphere, arcane recipes and horny-handed aficionados. They knew nothing of the composition of their brew, merely that it worked. This art, even in its modern, scientific form is not an activity with appeal for all, yet scientists in the laboratories of such as Richard Ham and Gordon Sato — herein represented — have made contributions which show signs of increasing application, not only to pure scientific enquiry, but also to industrial and clinical practice. Their achievement is in devising serum-free media which do not merely grow aberrant cells selected in these media, but also cells from embryonic, adult and tumour tissues of many different types.

These are not books for every biologist or the common reader: Alan Freshney's recent *Culture of Animal Cells* from the same stable fulfils that role best. These are for the specialist and, in particular, for those who choose not to rely on commercial sources for the many growth factors which now take the place of serum. Much of the first volume concerns the history and philosophy of synthetic media and solid substrata, though it also contains details for the purification of the less esoteric growth factors (PDGF, MSA, EGF, type β -TGF, MDGF and ECGF). Others of more limited use are conveniently covered in the more specialized volumes: FGF in Vol. 3 (*Epithelial Cells and Fibroblasts*), interleukin-2, T-cell growth factor and thymosins in Vol. 4

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