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Book reviews

Modified-Release Drug Delivery Technology
M. Rathbone, J. Hadgraft and M. Roberts (Eds.); Drugs and the Pharmaceutical Sciences, Vol. 126; Marcel Dekker, New York, Basel, 2003; 975 pages, ISBN 0-8247-0869-5 ($ 195)

This latest volume from the series *Drugs and the Pharmaceutical Sciences* is a fine collection of chapters covering the various approaches currently being used to achieve modified-release drug delivery in pharmaceutics. Although comprehensive in its attempt, it is inevitable that a multi-authored work of size will be of greatly varying quality. The book's 80 chapters suffer—in places quite severely—from this problem, but do succeed in giving an extremely useful overview of the major and minor developments in the field of controlled-release drug technology.

The book is divided into parts, each of which addresses a particular route of drug absorption. In Part I, oral drug delivery is considered in detail. After an introductory overview of oral modified-release delivery systems, we find chapter after chapter of individual, specialist delivery systems for all application. With all respect to the undoubted novelty and usefulness of many of these systems, I do admire some of the wonderful copyright names given to some of them. For example: Procise (a drug delivery system based on geometric configuration), Ringcap (a banded tablet), Smartrix (erosion-controlled), Theriform (layer-by-layer technology), Accudep (dry powder deposition), Dissocubes (nanosuspensions), etc. These minor technologies are all pulled together in this first section. In Part II, we are given a roller-coaster ride through colonic drug delivery systems. I liked the clearly written chapters from Clive Wilson; and Gordon Amidon's 0-order sustained release system makes interesting reading. We turn in Part III to ocular delivery system and find ourselves in a world of the acronyms such as NODS (New Ophthalmic Delivery System) and the BODIs (Bioadhesive Ophthalmic Drug Inserts). The oral mucosa, the poor relation of delivery systems, is considered comprehensively in Part IV. This covers such classical systems as micro-particles and medicated chewing gum, but also includes things such as Periochips and other acronym-things called S-DBMP-Ts and BCTSs. Dermals and transdermals are described in detail in Part V. John Hadgraft gives his usual good overview of transdermal technology. The following chapters deal with all possible aspects of current dermal and transdermal research, including micro-needles, and Gregor Cevcs' Transfersomes. Of interest to me were the chapters on needle-free drug delivery and the dermal PowderJect device. I also particularly like Part VI of the book concerning injections and implants. The nine chapters here cover a number of fascinating new developments in this field. At the risk of being tedious, I cite just Depofoam technology, Medipad systems, and SAIB (sucrose acetate iso butorate) systems. Two chapters on nasal drug delivery are brief, but give an interesting overview of this drug delivery route. The same applies to genital drug delivery in Part VIII. Part IX concerning pulmonary drug delivery is, as one might expect, of substantial size. Commercial systems are described such as AERx technology, inhalers at powder inhalation systems, the Spiros inhaler, and of course the Respimat. An excellent brief chapter by Toni Hickey and others described formulation challenges for inhalation powders, and also delivery of protein powders by inhalation. This book also has color illustrations, some of which evidently are originally taken direct from advertising and marketing, which tends to limit their scientific merit. All the same, I find this book to be extremely useful. It is highly valuable as a teaching aide, or for advanced undergraduate students, to give them some idea of the broadness of approach used in modern drug delivery systems. It is also a valuable source of information about the numerous commercial systems currently under investigation. If I hadn't been asked to review this book, I would certainly have bought it for my Departmental library. My recommendation? Despite the greatly variable quality, you must have it!

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Surfactants and Polymers in Drug Delivery
Drugs and the Pharmaceutical Sciences, vol. 122; Martin Malmsten (Ed.); Marcel Dekker, New York, Basel, 2002, 336 pages; ISBN 0-8247-0804-0 (US$ 165)

This book attempts to integrate surfactant science into the art of drug delivery. Do not forget, though, that pharmaceutical scientists should already process quite a lot of knowledge about surfactants and their use in drug delivery systems. Although the tone of this book is fine, I cannot help but feel that the author is trying to explain the basics of colloid science to a reader who knows nothing about it. The contents of the various chapters of this book should therefore, already be well-known in pharmaceutical circles. I doubt if it is necessary to have a sort of summary of quite mixed scientific level that is offered in this book.

Initially the author describes surfactants, micelles and liquid crystals. It is interesting reading, but was not for me particularly helpful. Following are individual chapters on liposomes, micro-emulsions, and aerosols. There are much more comprehensive studies of these systems available in the pharmaceutical literature. The same is true of the last three chapters dealing with the use of polymers in pharmacy. I am just not sure that the interested pharmaceutical researcher would find new information of value to him here. The last chapter of the book deals in a very superficial manner with the spray-drying and the freeze-drying of formulations containing surfactants and polymers, and is definitely not too exciting.

Of course, it is always nice to have books such as these available in the Department library. I am certain I could use some of the diagrams in my lecture on Pharmaceutical Technology and Biopharmaceutics. I would not, however, buy the book.

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Physical Chemistry of Foods
By Pieter Walstra; Food Science and Technology; vol. 121; Marcel Dekker, New York, Basel, 2003, 807 pages; ISBN 0-8247-9355-2 (US$ 95)

This is really a text book of food physics. As Peter Walstra says in his Preface, it can be used as a basis for a course for food science undergraduates, but also overlaps somewhat into the field of postgraduate studies. Indeed, it is really a reference book covering a large number of different subjects inside physical chemistry which are otherwise to be found scattered in individual specialist volumes. As such, this is really quite a handy reference work for a pharmaceutical scientist working either in industry or commencing a research project.

After a brief but very readable introduction to relevant aspects of thermodynamics we find chapters on interactive forces, reaction kinetics, and transport phenomena. These are all extremely well and clearly written and readily understandable at the undergraduate level. Two chapters follow considering polymer and protein science. Again, succinct overviews are given. The physical chemistry of dispersed systems is then considered in some detail. After an introductory chapter on surface phenomena, there are several chapters on emulsions and foams, colloidal interactions, changes in dispersity including instability of dispersed systems, and nucleation phenomena. With admirable clarity Walstra describes quite complex physical–chemical events and makes them clearly understandable. Of course, the disadvantage of this style of presentation is its simplicity and lack of scientific rigorousness at the research level. However, I would certainly not express this as a criticism of the book in any way. The last three chapters of the book consider crystallization, glass transitions, and semi-solids. The areas of common interest between food sciences and pharmaceutics are especially evident in these chapters.

This is a really admirable book and suitable for anyone looking for a concise source of information about physical chemistry relevant to pharmaceutics. It is certainly useful at an undergraduate level; and many postgraduate students would be wise to work through its chapters!

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Amorphous food and pharmaceutical systems
Harry Levine (Ed); The Royal Society of Chemistry, London, 2002, 346 pages; ISBN 0-85404-866-9, £99.50

We pharmaceutical researchers and developers who are interested in stabilizing and formulating protein pharmaceuticals are perpetually interested in the amorphous state. Our colleagues in the 'Light Brigade' (i.e. those working with low molecular weight actives) know the amorphous state only as something to be avoided. We 'Heavy Brigaders' (i.e. working with high molecular weight actives) know, however, its true value, whilst recognizing