

**Table I**—Formation Constants ( $K_f$ ) for Cycloheptaamylose-Barbiturate Interactions and Substrate-Induced Shifts for Cycloheptaamylose Protons at 30°

Substrate	$K_f^a$	$\Delta\delta^b$ , p.p.m.					
		H-1	H-2	H-3	H-4	H-5	H-6
Barbital	$1.51 \times 10^2$	-0.10	-0.03	0.00	-0.03	+0.05	0.00
Amobarbital	$1.24 \times 10^3$	-0.02	-0.02	+0.03	-0.03	+0.12	+0.01
Pentobarbital	$1.82 \times 10^3$	-0.01	-0.02	-0.01	-0.02	+0.13	+0.00
Phenobarbital	$3.60 \times 10^3$	+0.04	+0.03	0.00	+0.06	+0.31	+0.11

<sup>a</sup> Calculated according to Thoma and Stewart (9) from solubility data obtained by the method of Higuchi and Lach (6). <sup>b</sup> Substrate-induced shift =  $\Delta\delta = (\delta_{free} - \delta_{saturated})$  with barbiturate. Determined from chemical shifts measured at 100 MHz. (relative to tetramethylsilane as external reference) of about 2% (w/v) solution of cycloheptaamylose in D<sub>2</sub>O without, and saturated with, the respective barbiturates. Accurate to  $\pm 0.02$  p.p.m.

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## BOOKS

**Pharmacognosy 6th Edition.** By E. P. CLAUS, V. E. TYLER, and L. R. BRADY. Lea & Febiger, Philadelphia, PA 19106, 1970. xii + 518 pp. 18 × 26 cm. Price \$17.50.

A fresh revision of a widely adopted, standard textbook is always a welcome event. The appearance of this, the 6th revised edition of Gathercoal and Wirth's classic contribution to pharmacognosy, is no exception.

This revision will continue to provide a useful service, particularly as an undergraduate textbook in pharmacognosy. The authors have attempted to organize and include information that is pertinent to the current concepts of the science and to satisfy the needs of the individual training to practice the profession of pharmacy.

The arrangement of the material is essentially the same as in the previous edition, but several changes have been made. A number of illustrations of histological sections of crude drugs and microscopic elements of powdered drug samples have been eliminated. Likewise, some of the botanical descriptive material has been reduced in bulk or deleted. On the other hand, the number of chemical structures and biosynthetic pathways of important plant and animal constituents has been increased which is in keeping with the current trend on more emphasis on the chemical rather than the botanical phases of the science. References to specific editions of the *United States Pharmacopeia* or *National Formulary* in which a drug was included have been omitted. The useful references, included at the end of each chapter, have been updated and in several instances are more comprehensive than in the previous edition.

The introductory material in several instances, including antibiotics, has been expanded and is quite complete. The photographs and illustrations are well chosen, are good in quality, and serve as a valuable addition to the written text.

It is somewhat unfortunate that the Appendix on Powdered Drugs has been deleted. Although this may be of minor importance

for teaching purposes, it has served as a handy reference when this sort of information was needed.

The book will serve as a valuable teaching tool and is versatile enough to allow for the several avenues that may be employed in teaching the subject. The material is inclusive enough to make it a good reference as well. Those students and teachers who use it should want to make it a permanent part of their professional collection.

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**Molecular Radiation Biology.** By HERMANN DERTINGER and HORST JUNG. Springer-Verlag, Berlin, West Germany, 1970. 15 × 23 cm. x + 237 pp.

The field of radiobiology extends into a number of related disciplines. Since it is broad and important enough to accommodate scientists of many backgrounds and interests, it is quite difficult to define its borderlines. However, it would seem quite possible to establish some basic principles in determining the extension of radiobiology into other associated areas.

This book is a collection of lecture topics on radiobiology. It does not present the fundamental principles of molecular radiation biology *per se*, but it offers certain specific problems of this field

and some theoretical and experimental methods of investigation. Except for a few chapters, the main part of the book can be classified as a mathematical treatment of the physical and chemical process of radiation biology.

Of its 14 chapters, the first chapter of the book outlines the subject matter to be covered. The next seven chapters discuss various theoretical concepts and experimental results, extending from the Hit Theory and the interaction of radiation with matter to the effects of temperature and oxygen on the action of radiation. This section of the book uses a variety of mathematical approaches that require a sound background of calculus. The next three chapters deal with the effect of radiation on molecular systems; however, the treatment is limited only to nucleic acids and enzymes. Of the last three chapters, two are devoted to the action of radiation on viruses and bacteria, and the final one deals in a superficial way with the radiosensitivity of various biological systems.

This book is obviously not written for the novice. Most of the theories are developed on the basis of physical and mathematical relationships. It is doubtful that even a trained radiobiologist will glean much information from the very brief discussions. The authors are quite ambitious in having attempted to pack so much information in so short a volume. Some aspects of the physicochemical processes of molecular radiation biology are well examined, but whether the position of this field in radiobiology is successfully defined by the authors is quite questionable. The excellence of the book is in the extensive bibliography and the clear presentation of a limited number of typical experiments. Overall, this volume would be a good reference for interdisciplinary investigators whose work may cross into the field of radiation biology.

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**Prescription Pharmacy: Dosage Formulation and Pharmaceutical Adjuncts.** Edited by JOSEPH B. SPROWLS, JR. J. B. Lippincott Company, Philadelphia, PA 19105, 1970. xi + 679 pp. 18 × 26 cm.

This book, the second edition, continues the organization and objectives of the original volume. The number of contributors has been increased by three, which represents five new authors and deletion of two from the first edition. All chapters retained have been revised and updated, some more thoroughly than others.

Two new chapters have been added entitled, "Therapeutic Incompatibility" and "The Coordinator of Health Services."

Throughout the text references are cited in the body of the chapters and many additional references have been added. Tables and figures representing recent study and research data have been included.

Chapter I dealing with "The Prescription" retains the basic information necessary for processing a physician's medication order. The family prescription record form has been added. Chapter II entitled, "Biopharmaceutical Considerations in Dosage Form Design," presents the topics fundamental to an introductory treatment of physical, chemical, and biological factors that affect therapeutic efficacy of active ingredients. The material presented requires considerable elaboration by an instructor.

The presentations on dosage forms include the basic background information descriptive of the classes, such as aerosols, powders, capsules, tablets, suppositories, and solutions. Composition, design, compounding methods, and prescriptions serve to illustrate dispensing needs. There are some obsolete prescription examples, such as the salol and camphor combination. The physical-chemical principles applicable to design and evaluation are presented in terms of such concepts as rheology, bioavailability, chemical and mathematical principles, and others where involved.

Recognition of the significance of drug reactions and interactions has led to a chapter on "Therapeutic Incompatibilities." Mechanisms of drug interactions are presented and typical examples are cited. Many tables are included as well as 203 references.

The inclusion of chapters on "Prescription Accessories," "Hospital Pharmacy," and "Radiopharmaceuticals" expands the usefulness of this text for several areas of the pharmacy curriculum. In other words, the book does not lend itself as a textbook for any one particular pharmacy course. Study assignments in this book could be valuable for courses in pharmacy technology, product development, dispensing pharmacy, biopharmaceutics, and clinical or professional practice.

The trends in pharmacy curriculum design are reflected in the selection of subject matter of all fifteen chapters which deal with the health-care needs of patients.

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**Principles of Aerosol Technology.** By PAUL SANDERS. Reinhold, 450 West 33rd St., New York, NY 10001, 1970. x + 418 pp. 15.5 × 24 cm. Price \$17.50.

After the publication of a number of books and chapters on aerosols, most of which follow a now familiar pattern, Mr. Sanders has managed to write a book on aerosols with a new approach. This does not mean that everything in the book is new but the emphasis definitely is, that emphasis being on the fundamental principles that govern the characteristics and behavior of pressurized aerosol systems involving mainly fluorochlorohydrocarbon propellants. A serious shortcoming of the book is the lack of significant material on the flammable hydrocarbon or compressed gas systems.

This failure is easily understood in that the book is a modified and expanded version of lectures presented by members of The Freon Products Division of the E. I. du Pont Company to groups interested in various areas of aerosol technology. Subjects include spray characteristics, vapor pressure, solubility, viscosity, density, stability, and flammability. The physical-chemical principles are presented in a clear, step-by-step manner which should be comprehensible to any person involved in formulation or production but will, no doubt, be criticized by some as being too elementary. However, it is a significant advance in most areas over present books in the field.

The section in the book on emulsions, foams, and suspensions is particularly outstanding and truly unique to the aerosol literature. It is "must reading" for all those engaged in cosmetic and pharmaceutical aerosol formulation. The exclusion of nonfluorochlorohydrocarbon propellants systems is less damaging to this section than it is to others.

The chapter on miscellaneous aerosol systems appearing in the last section of the book is the only textbook treatment available on such subjects as co-dispensing, bag-in-can, and aspirator systems. Mr. Sanders has also chosen to include three chapters by other authors; the one on food aerosols is more or less academic due to emphasis on the fluorochlorohydrocarbon propellants. The others on sampling of aerosol systems and toxicity are excellent, the latter being a good starting point for those interested in the present aerosol toxicity controversy.

The book should be included in the library of researchers and teachers and is highly recommended reading for all students interested in aerosol systems.

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