

placebo effect, are assimilated better, and are not toxic when used appropriately. The authors consider herbs from the standpoint of the pharmaceutical sciences. The fallacy of this stance is illustrated by the fact that adverse drug reactions are now the fourth leading cause of death in the United States (1998. JAMA 279:1200-1205). As the authors state, "drugs of any kind, natural or synthetic, prescription or self-selected, should improve the consumer's health, not cause it to deteriorate" (p xviii). Although the author made this statement to explain his conservative stance toward herbal products, it is much more appropriate for consideration of the risk-to-benefit ratio of man-made pharmaceuticals.

In the chapter, Laws and Regulations, the authors justifiably outline the need for more realistic laws and regulations regarding evidence required to prove the safety and efficacy of herbal products. They also make an excellent recommendation that the Latin binomial be used on labels instead of the common names of herbs, to avoid as much confusion as possible. Following this chapter are informative descriptions on more than 100 herbs, from Alfalfa to Yucca. A summarized evaluation of these herbal remedies is provided at the end of the book. This handy chart provides a method for quickly viewing the essential information on the herbs that are included in this useful reference guide.

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#### APPLIED BIOELECTRICITY: FROM ELECTRICAL STIMULATION TO ELECTROPATHOLOGY.

By J Patrick Reilly; with chapters by Hermann Antoni, Michael A Chilbert, and James D Sweeney. New York: Springer. \$89.95. xix + 563 p; ill.; index. ISBN: 0-387-98407-0. 1998.

The expressed goal of this book is to describe theory and measurements dealing with acute biological effects of electrical current. This material is covered in the first 10 chapters; one chapter describes heart pacemakers, but the major emphasis is on electrical shock and thermal injuries produced by high voltages and high currents.

The ability of electricity to generate heat and cause shocks has long been known. Models that explain these phenomena on the basis of the Hodgkin-Huxley equations and Joule heating are described in many books, including one by the author (1992. *Electrical Stimulation and Electropathology*. Cambridge (UK): Cambridge University Press). The treatment here is systematic, but few new data have been obtained in the last 20 years, probably because the intellectual content of the subject, as presently understood, has been exhausted.

The problems with the final chapter are more serious. It advances the position of several industrial

trade associations that chronic exposure to electromagnetic fields in the environment produced by power lines, cellular telephones, and radio and television antennas pose no risk to human health because these electromagnetic fields do not cook or cause shock. A naive reader would have no idea that the chapter represents only the industry viewpoint regarding possible health hazards; opposing theory and data are absent. Further, whatever one's view about the industry rationale regarding the electropathology of fields, the chapter is badly out of place in a book that claims to be focused on short-term reactions to electrical current.

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#### BIOMEDICAL SCIENCES

##### PROTEIN DELIVERY: PHYSICAL SYSTEMS. *Pharmaceutical Biotechnology, Volume 10.*

Edited by Lynda M Sanders and R Wayne Hendren. New York: Plenum Press. \$95.00. xxi + 433 p; ill.; index. ISBN: 0-306-45359-2. 1997.

Advances in biochemistry and molecular biology have made it possible to produce large quantities of synthetic peptides, polysaccharides, nucleic acids and lipids for pharmaceutical applications. Many of these molecules act as enzymes or interact with enzymes or specific receptors to mediate therapeutic effects. Although many molecules are currently used in successful treatments and many more appear promising for future medicine, inherent problems are the stabilization and delivery of these drugs.

This book describes recent advancements in protein delivery technology. The chemical and physical nature of specific devices, the pharmacodynamics (and in some cases the manufacturing of different delivery devices) is discussed in each chapter. One strength of the book is that each chapter thoroughly describes not only the physical nature of these systems, but also provides historical, chemical and biological contexts for the development of different delivery systems. The themes that emerge from each chapter include the complex and fragile nature of drugs, the need for compatible drugs and devices, and the lack of universally applicable devices. Although each chapter covers the same criteria for each device, there is a discrepancy between chapters in the amount of detail that is given. Some chapters provide thorough reviews of the literature while others cover the material in a more cursory fashion. The book emphasizes the need for rational peptide delivery systems, especially with regard to concerns for device biocompatibility, drug dosage,