

REVIEWS

Goodman and Gilman's The Pharmacological Basis of Therapeutics: 6th Ed. Edited by ALFRED GOODMAN GILMAN, LOUIS S. GOODMAN, and ALFRED GILMAN. Macmillan, 866 Third Ave., New York, NY 10022. 1980. 1843 pp. 18 × 26 cm. Price \$45.00.

This latest edition of L. S. Goodman and A. Gilman continues a time-honored tradition of serving as an accurate source of past and present knowledge upon which therapeutics is based. It differs from its predecessors, however, in the recognition that diseases are dynamic and that standard therapy is inadequate to meet the needs of a patient who, for example, has a myocardial infarction accompanied by diabetes mellitus. Much emphasis is placed on individualization of therapy, the need for compliance, and the results of noncompliance.

Principles of pharmacokinetics and biotransformation patterns appear in the early chapters and reappear in Appendix II under the heading Design and Optimization of Dosage Regimens along with pharmacokinetic data pertaining to oral availability, urinary excretion, plasma binding, and clearance of 100 widely used agents to expedite drug selection by the physician. The intervening chapters reflect those areas that have advanced rapidly in recent years—autonomic and antihypertensive agents, anti-inflammatories, autacoids, antineoplastics, and antimicrobials—and those that haven't—local anesthetics, cathartics, antianemics, salts and ions, vitamins, and oxytocics.

Looking back 4 decades at the first edition, when pharmacology was discarding the mantle of *materia medica* and computer technology was at the abacus stage, the reviewer is impressed with the amount of basic material then available, with the skill of the two authors who organized the information so logically and clearly, and with the realization that practitioners without an understanding of prodrugs, receptor configurations, pharmacokinetics, food and drug interactions, and the phenomena of tolerance and addiction could practice medicine reasonably well. In this edition, 55 contributors, some of whom are specialists in areas unheard of a few decades ago, have produced a noteworthy successor to earlier editions that will enable those who utilize therapeutic skills directly or indirectly in patient management to achieve a refinement in combating disease hitherto unequalled.

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Biochemical Applications of Mass Spectrometry: First Supplementary Volume. Edited by GEORGE R. WALLER and OTIS C. DERMER. Wiley, 605 Third Ave., New York, NY 10016. 1980. 1279 pp. 21 × 28 cm. Price \$150.00.

The editors of *Biochemical Applications of Mass Spectrometry: First Supplementary Volume* are to be congratulated on a job well done. Between the covers of this book (which are separated by 4.6 cm of pages), the novice and the experienced mass spectrometrists alike can find valuable information relating to a host of mass spectrometry-related topics. A section on instrumentation (spectrometers and data systems) is followed by one on the interpretation of mass spectra. Emphasis is on the data systems found in 10 of the leading mass spectrometry laboratories around the world and on computer-based identification of unknowns. Inclusion of a general chapter discussing the interpretation of spectra might have been desirable at this point.

These two sections are followed by the major section—applications—containing approximately 30 chapters covering nearly all of the topics in which biochemists and scientists in related fields would have an interest. Although many of these chapters discuss chemical-ionization and field-desorption-based analyses, this reviewer finds it unfortunate that no chapters are dedicated specifically to these two important techniques. Chapters discussing ^{252}Cf plasma desorption mass spectrometry and negative-ion mass spectrometry are included. The emphasis of most of the applications chapters is on structure elucidation, but quantitation is by no means ignored and Chapter 37 covers this topic exclusively. (I must disagree with the authors of this chapter on one point: isotope effects are not always “negligible,” and a labeled compound need

not behave “isographically” with the analogous unlabeled compound in all chromatographic systems.)

Some of the applications chapters are descriptive, and several are highly detailed and crammed with fragmentation pathways complete with mechanisms. Chapter 25 (flavor components) should be of special value to students and teachers involved in learning about basic mass spectrometry since it contains numerous fundamental fragmentation pathways plus simple but highly illustrative spectra. This chapter also answered a question some of us home gardeners have asked for years—what is the source of the characteristic aroma produced by tomato plant leaves. The answer—2-isobutylthiazole. Chapter 34 (Volatiles Emitted by Humans) reports on some “way-out” applications of mass spectrometry, but it is short on hard data.

Classic chapters include those on fatty acids, amino acids and amino acid sequencing, steroids, hormones, flavonoids, vitamins, and carbohydrates. Newer fields covered equally well are pheromones, drug metabolism, pollutants, and clinical medicine. The value of derivatization and GLC—mass spectrometry is made abundantly clear by many of the authors, and some speak with hope about liquid chromatography—mass spectrometry. All chapters contain useful lists of recent references.

This book should be a welcome addition to the libraries of natural products, synthetic organic and drug metabolism chemists, many persons involved in biological studies where structure elucidation and quantitation are necessary for advances, and researchers working on environmental problems.

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The first supplementary volume continues the standard of excellence established in the original compendium of biochemical mass spectrometry [*cf.*, Book Reviews, *J. Pharm. Sci.*, **62**, 516 (1973)]. Largely written by the original authors, as the subtitle indicates, the discussions and the reference, figure, and table numbering continue from the earlier review. The editors have maintained consistent styles among the 35 chapters contributed by nearly 80 authors. Section I, Instrumentation, begins with a useful discussion of newer ionization and sample handling techniques (Chapter 2). Of less interest to the nonspecialist is the discussion on Data Acquisition and Processing in the following chapter.

Section II, Interpretation of Mass Spectra, describes the latest advances and utility of metastable ions as an aid to interpretation (Chapter 5). Compound Identification by Computer Matching (Chapter 6) might be helpful to those contemplating purchasing access to the MSDC/EPA/NIH MSSS system. On the other hand, the computer programs, the basis for the discussion on automated scientific inferences (Chapter 7), may not be readily accessible.

Section III, Applications, comprising 30 chapters and over 1000 pages, more than amply fulfills the editors' objective to promote mass spectrometric research capabilities and interests in a diverse group of investigators. Building on the discussions of the original volume, the experts chosen to write the individual chapters clearly develop guidelines for the interpretation of the various classes of compounds encountered in biochemistry and organic chemistry. Both the expert and novice would benefit from these reviews in the elucidation of unknown structures. The chapters in this section are filled with structures, fragmentation patterns, and mass spectra. Each review appears to have referenced the literature through 1977, with a significant number of them containing several references from 1978 and a few references from 1979. It should be relatively easy to locate the most recent articles working from the combined reference list of both volumes and Science Citation Index.

The negative-ion review is very timely. Notable omissions from the supplementary volume is the review of positive-ion chemical-ionization and field-ionization/desorption. More recent reviews should be consulted, rather than the original volume, for a background in these areas. The original volume, still in print, should be consulted for the more fundamental interpretation of the various classes of compounds. In summary, the complementary volumes should be in every book collection in institutions where mass spectrometry is being used.

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