

results correlate with the drug bioavailability. Hence, throughout the book, major emphasis is given to the procedural details and the regulatory requirements of the test, but little on its importance as predictor of drug bioavailability.

Overall consideration for dissolution testing, presented in Chapter 1, gives a brief historical perspective of the dissolution test development. Only the contributions made by the author and the individuals associated with the USP Drug Standards Laboratories were credited with the early developments in this field. It is unfortunate that the author failed to recognize the contributions made by industry, government, and academia. Instead, the author wrongly criticized them for suggesting test methods because they all had "a private axe to grind."

Chapter 2 deals with the discussion of the classical Noyes-Whitney equation with respect to the dissolution test conditions. The necessity of having laminar, nonturbulent fluid dynamics recommended by the author is unwarranted. Some degree of turbulence is actually desirable for achieving homogeneous mixing of the dissolved drug. A detailed description of the official USP-NF methods including allowable design variables and compendial constraints set for those methods is described in Chapter 3. The following chapter gives a description of the flow-through apparatus and a few other nonofficial methods. Here, as well as in Chapter 8, the author advocates the use of only the official methods. It is doubtful that such a view will be shared by the scientific community, simply because it can stifle future progress in the field. Chapters 5 and 6 deal with the various test variables and provide guidelines for setting-up the official test methods. The last chapter deals with the methods employed for the automated monitoring of dissolution rates. Overall, the book gives practical guidance for the routine analysis of dissolution rates by the current official methods.

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Analytical Profiles of Drug Substances, Vol. 11. Edited by KLAUS FLOREY, Academic Press, 111 Fifth Avenue, New York, NY 10003. 1982. 665 pp. 15 × 23 cm. Price \$39.00.

In continuation of the yearly volumes of this series, this collection gives (in about 550 pages) analytical profiles of 16 drug substances: aminophylline, ascorbic acid, captopril, cefotaxime, cefoxitin sodium, clofibrate, clotrimazole, dopamine hydrochloride, ergonovine maleate, flufenamic acid, hexestrol, mestranol, noscapine, penicillin G benzathine, phenylbutazone, and sulfadiazine.

A new feature has been introduced in this volume: profile supplements. These profiles are intended to be a regular part of future volumes. The profile supplements, occupying about 110 pages, are for five substances that originally appeared in Volume 1: levaterenol bitartrate, meprobamate, triamcinolone, triamcinolone acetonide, triamcinolone diacetate. The supplements are not a republishing of the original monographs, they are only additions and/or changes. The paragraph numbering of the original profile has been retained, so that the new or altered data can easily be correlated with the original. This volume does not contain the 'Addendum' section which was a feature of several previous volumes.

The profiles in this hard-bound book contain the following nine major sections: description, physical properties, methods of preparation, stability-degradation, methods of analysis, metabolism, biopharmaceutics and pharmacokinetics, toxicity, and references. There are numerous figures of structures and spectra, and tables of properties and chromatographic systems. Since each profile is by a different author, this basic outline may be expanded to other topics or somewhat curtailed, depending upon the information available from the extensive review of the literature and unpublished works. The difference in authorship causes a difference in type size and face style from profile to profile. A cumulative index gives the volume and page number of each substance that is the subject of a particular profile.

This volume, like others in the series, is a valuable reference for those interested in pharmaceutical formulation and pharmaceutical quality assurance and should be available as a reference for those requiring information on drug metabolism, biopharmaceutics, and pharmacokinetics.

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Modern Methods of Pharmaceutical Analysis. Edited by ROGER E. SCHIRMER. CRC Press Inc., Boca Raton, FL 33431. 1982. 18 × 25 cm. Vol. I, 304 pp. Vol. II, 264 pp. Price \$81.00 ea. Vol. III, 244 pp. Price \$72.00.

Modern Methods of Pharmaceutical Analysis is a three-volume set mostly written by R. E. Schirmer. Of the 13 chapters, Dr. Schirmer has written eight. The remaining five have been authored by three scientists from Eli Lilly and Co. Each volume is self-contained with identical Forwards and Introductions. Volume III contains the cumulative index; the indexes in the first two volumes are restricted to their respective contents.

It is not completely clear to this reviewer the rationale for assigning specific chapters to each volume unless it was to restrict each of the "guest" authors to only one volume per author or to keep the number of pages per volume approximately equal. Volume I contains five chapters starting with Separation of Drugs from Excipients. The remaining four chapters describe the following spectroscopic methodologies: UV and Visible Absorption Techniques, IR Methods of Analysis, Fluorometric Analysis, and Optical Rotation. Other methods of separation and purity analysis are not encountered until Volume III. Its five chapters are Gas-Liquid Chromatography, High-Performance Liquid Chromatography, Thermal Analysis, Phase-Solubility Analysis, and The Determination of Isomeric Purity. Situated in the middle is Volume II with Nuclear Magnetic Resonance Spectroscopy, Polarography, and Coulometry.

A better title might have been "Industrial Methods of Pharmaceutical Analysis." The selection of chapters is based on the analytical problems defined by the editor as those commonly encountered in the pharmaceutical industry. These include analysis of the raw materials, synthetic intermediates, the final drug entity, and the formulated product. The analytical methodology must detect types and levels of impurities and degradation products. Lacking is a chapter on mass spectrometry, although there is a brief mention of its use as a detector in chromatography and determination of isomeric purity. Also there is no chapter on immunoassay methodology.

In general each subject is well covered. There is a detailed topic outline for each chapter. The typical format is to begin with a discussion of the principles of the analytical technique followed by a description of the specific instrumentation. Then, depending on the analytical method, there may be an overview of the sample preparation. Each chapter concludes with pharmaceutical applications and a reasonable number of examples. For the most part, the individual chapters should not be considered exhaustive reviews of the pharmaceutical analysis literature. Nevertheless, good bibliographies accompany each chapter. There is good consistency, which probably is due to the majority of the chapters being written by one person.

This is an expensive set of volumes for individual purchase, considering the fact that the basic information of theory, instrumentation, and sample preparation already will be adequately covered in one or more advanced undergraduate or graduate level analytical chemistry textbooks. The cost of the latter is generally lower due to their volume of sales. The on-line searches of the *Chemical Abstracts* data bases permit the analytical chemist to rapidly obtain the most current applications. A few years ago this reviewer probably would have ended with the usual recommendation for library purchase. This is not true in today's economic times. Libraries and individuals should first determine if their collections are adequate and current before making such a major purchase.

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Dictionary of Organic Compounds, 5th Ed. Edited by J. BUCKINGHAM, J. D. G. CADOGAN, R. A. RAPHAEL, C. W. REES, and an INTERNATIONAL ADVISORY BOARD. Chapman and Hall, 733 Third Avenue, New York, NY 10017. 1982. 7766 pp. 28 × 20.5 cm. Price \$1950.00 (Canada \$2350.00).

The fifth edition of Heilbron's *Dictionary of Organic Compounds*, now in five volumes with two additional volumes of indexes, includes about 50,000 entries listing more than 150,000 compounds. The intent of the *Dictionary* is to describe structural, chemical, and physical properties of common organic compounds of importance to chemists, biochemists, pharmacologists, and biologists. The present edition includes some types of information not listed previously. Leading literature references are included, and annual supplements (including about 2000 entries each)

are planned. Obviously, the selection of compounds is of paramount importance for a work of this type: the fifth edition has maintained the careful and useful selection that has characterized the previous editions.

Compounds are listed by the most commonly used name, with other names included. The structural formula is included with the entry, which shows the stereochemical configuration where required. The R,S and E,Z systems have replaced the older D,L and *cis-trans* stereochemical conventions. Other information provided in each entry includes the molecular formula and weight, source, physical data for stereoisomeric forms, melting points of both compound and derivatives, spectral data, and use. Hazard and toxicity information is included in this edition, along with a Registry of Toxic Effects of Chemical Substances number. Bibliographic references include both old and new references (up to 1981), and many indicate the type of information included. Physical constants such as pK_a and optical rotations are often listed in the entry; specific references generally indicate synthetic methods, reviews, and some spectroscopic data. Crystallization solvents are also frequently mentioned.

The selection of compounds for inclusion followed these criteria: fundamental organic compounds of simple structure, most compounds of widespread industrial or commercial use, all important natural products, and other compounds of particular chemical or biological interest. More than 12,000 natural products have been entered, and this may well be the most current and extensive compilation of natural products available. Also, more than 10,000 heterocyclics and 1,500 organometallics are recorded. In regard to compounds of pharmaceutical interest, about 450 drug substances are listed under C alone, which compares with 118 substances listed under this letter in the *USP XX*.

Page layouts and the typographic plan for each entry have been improved over those of previous editions, and the pages have a distinctly uncluttered appearance. The structural formulae also reflect a new standard. A greater clarity, and consequent ease of use, has been achieved.

Changes over previous editions include a much greater amount of stereochemical data, the inclusion of hazard warnings and toxicity data, greater use of *Chemical Abstracts Service* names, as well as *USAN* and *BAN* names and *CAS Registry* numbers. Also, the annotation of the bibliography is a marked improvement.

Multiple indexes are also included for the first time. Four indexes are provided: a *Name* index, which includes alternative names; a *Molecular Formula* index; a *Heteroatom* index; and a *CAS Registry Number* index. The latter provides a link to computer-based information services which incorporate these numbers.

Heilbron's Dictionary of Organic Compounds has been valued by organic chemists for practically 50 years; the fifth edition should be as valuable to biochemists, biologists, and pharmacologists. It is recommended for every library serving these disciplines as a most time-saving and convenient source of information on the more useful organic compounds.

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NOTICES

Advances in Thyroid Neoplasia 1981. Editors: MARIO ANDREOLI, FABRIZIO MONACO, and JACOB ROBBINS. Field Educational Italia, Piazza Montegrappa, 4, Rome, Italy. 1981. 361 pp. 16 × 23 cm. Price Lire 10,000.

The Alkaloids, Vol. 11. (A Specialist Periodical Report). A Review of the Literature Published Between 7/79–6/80. Senior Reporter: M. F. GRUNDON. Royal Society of Chemistry, Burlington House, London, W1V 0BN, England. 1982. 259 pp. 13 × 22 cm. Price \$111.00 (£50.00).

Analyzing Experimental Data by Regression. By DAVID M. ALLEN and FOSTER B. CADY. Lifetime Learning Publications, Ten Davis Drive, Belmont, CA 94002. 1982. 394 pp. 16 × 24 cm. Price \$28.95.

Annual Report 1981. International Agency for Research on Cancer. 150, cours Albert-Thomas, 69372 Lyons Cedex 2, France. Health & Biomedical Information Programme, World Health Organization, 1211 Geneva 27, Switzerland. 166 pp. 18 × 24 cm.

Antacids in the Eighties. Edited by F. HALTER. Urban & Schwarzenberg, 7 E. Redwood St., Baltimore, MD 21202. 1982. 153 pp. 15 × 23 cm. Price \$22.00.

Applications of Mass Spectrometry to Trace Analysis. (Lectures of a course held at the Joint Research Centre, Ispra, Italy, 29 Sept.–3 Oct. 1980). Edited by S. FACCHETTI. Elsevier Scientific Publishing Co., P. O. Box 330, Amsterdam, The Netherlands. 1982. 321 pp. 16 × 14 cm. Price \$78.75 (Dfl. 185.00).

Articular Synovium: Anatomy, Physiology, Pathology, Pharmacology, and Therapy. Edited by P. FRANCHIMONT LIEGE. S. Karger AG, Basel, P. O. Box Postfach, CH-4009 Basel, Switzerland. 1982. 183 pp. 15 × 23 cm. Price \$68.50 (Sw Fr. 114/DM 137).

Biological Substances: International Standards Reference Preparations and Reference Reagents. Geneva, World Health Organization, 1211 Geneva 27, Switzerland. 1982. 87 pp. 15 × 24 cm. Price: Sw Fr. 11.

Chemotherapy of Malaria. 2nd Ed. Edited by L. J. BRUCE CHWATT. Health & Biomedical Information Programme, World Health Organization, 1211 Geneva 27, Switzerland. 1981. 259 pp. 15 × 24 cm. Price: Sw Fr. 30.

Clinical and Experimental Hypertension: Part B: Hypertension in Pregnancy. Edited by FREDERICK P. ZUSPAN and E. MALCOLM SYMONDS. Dekker, 270 Madison Ave., New York, NY 10016. 1982. 141 pp. 17 × 25 cm. Price \$346.00 (for Parts A and B).

Clinical Pharmacy and Hospital Drug Management. By DAVID H. LAWSON and R. MICHAEL E. RICHARDS. Chapman and Hall (In Association with Methuen, Inc.), 733 Third Ave., New York, NY 10017. 1982. 383 pp. 15 × 23 cm. Price \$39.95.

Compendium of Current Source Materials for Drugs. By EUTYCHIA G. LONDOS. Scarecrow Press, Inc., 52 Libert St., P. O. Box 656, Metuchen, NJ 08840. 1982. 140 pp. 21 × 28 cm. Price \$12.50.

Compendium of Pharmaceuticals and Specialties. 7th Ed. Edited by CARMEN M. E. KROGH. Dekker, 270 Madison Ave., New York, NY 10016. 1982. 824 pp. 20 × 28 cm. Price \$65.00 (20% higher outside the U.S.).

Comprehensive Analytical Chemistry (Edited by G. SVEHLA) Vol. XII—*Thermal Analysis: Part B: Biochemical and Clinical Applications of Thermometric and Thermal Analysis*. Edited by NEIL D. JESPERSEN. Elsevier Scientific Publishing Co., P. O. Box 330, Amsterdam, The Netherlands. 254 pp. 15 × 22 cm. Price \$69.75 (Dfl 150).

Covalent Catalysis by Enzymes. By LEONARD B. SPECTOR. Springer-Verlag New York Inc., 44 Hartz Way, Secaucus, NJ 07094. 1982. 276 pp. 15 × 23 cm. Price \$32.90.

Disposition of Toxic Drugs and Chemicals in Man. 2nd Ed. By RANDALL C. BASELT. Biomedical Publications, P. O. Box 495, Davis, CA 95617. 1982. 795 pp. Price \$49.50.

The Enchanted Ring (The Untold Story of Penicillin). By JOHN C. SHEEHAN. The MIT Press, 28 Carleton St., Cambridge, MA 02142. 1982. 224 pp. 13 × 20 cm. Price \$15.00.

Endorphins: Chemistry, Physiology, Pharmacology and Clinical Relevance. (Modern Pharmacology—Toxicology Series. Vol. 20). Edited by JEFFREY B. MALICK and ROBERT M. S. BELL. Dekker, 270 Madison Ave., New York, NY 10016. 1982. 296 pp. 15 × 23 cm. Price \$37.50 (20% higher outside the U.S. and Canada).

Environmental Carcinogens—Selected Methods of Analysis. Vol. 4. (Some Aromatic Amines and Azo Dyes in the General and Industrial Environment). IARC Scientific Publications No. 40. Edited by H. EGAN, L. FISHBEIN, M. M. CASTEGNARO, I. K. O'NEILL, and H. BARTSCH. Lyons, France. International Agency for Research on Cancer. (Distributed for IARC by the World Health Organization.) 1981. 347 pp. 18 × 24 cm. Price \$30 (Sw Fr. 60).

Environmental Health Criteria 17: Manganese. Published under the joint sponsorship of the United Nations Environment Programme, the International Labour Organization, and the World Health Organization, 1211 Geneva 27, Switzerland. 1981. 110 pp. 14 × 21 cm.

The Essential Guide to Prescription Drugs. 3rd Ed. By JAMES W. LONG. Harper & Row, 10 E. 53rd St., New York, NY 10022. 1982. 935 pp. 15 × 23 cm. Price: cloth \$32.95, paper \$9.95.

Family Formation Patterns and Health: An International Collaborative Study Colombia, Egypt, Pakistan, and the Syrian Arab Republic. Study Coordinators and Editors: A. R. OMRAN and C. C. STANLEY. World Health Organization, Geneva, Switzerland. 1981. 464 pp. 15 × 24 cm. Price Sw Fr. 44.

Frequently Prescribed and Abused Drugs. Reference Edition (Their Indications, Efficacy, Rational Prescribing). Edited by SIDNEY COHEN, CHARLES BUCHWALD, JOEL SOLOMON, JAMES CALLAHAN, and DANIEL KATZ. The Haworth Press, Inc., 28 E