



Figure 1—Sampling probes, showing immersion depth (A).

To reduce probe interference, five probe designs (Fig. 1) were tested with a six-place dissolution apparatus. All of the probes were constructed in this laboratory. Probes 3 and 4 were used early in the dissolution work. Probe 5 was designed to be similar to probes used in some commercial dissolution equipment. Probe 1 was the result of the laboratory's search for a probe with minimum interference in the dissolution test. Probe 2 was chosen to give an intermediate size between Probes 1 and 3. All probes were constructed from 3-mm o.d. glass tubing. The tip of Probe 1 was a 1.3-mm o.d. melting-point capillary. Commercially available filters were used. The 5-mg prednisone tablets used for the test were from a sample known to give dif-

ferent results depending on the presence or absence of a sample probe during the test.

One probe was suspended in each of five dissolution vessels, and the sixth vessel was used without a probe. The probes were placed halfway between the vessel wall and the paddle shaft, with the probe tip 25 mm below the liquid surface (approximately halfway between the liquid surface and the top of the paddle). The dissolution test was conducted for 30 min; samples then were withdrawn with a syringe for analysis by the USP (2) procedure. The test was repeated, and then the probes were moved to different vessels. This procedure was repeated until all probes were tested in duplicate in each vessel. This experimental design eliminated interference from sources other than the probes.

The data (Table I) show that there was a direct relationship between the displacement volume of the sampling probe and the increase in dissolution rate for the sample used. With the tablets used in this study, no effect on the observed dissolution rate was noted from Probe 1. However, the presence of any foreign object disturbs the hydrodynamics of the dissolution medium, and it is possible that the results from other, more sensitive samples could be influenced by the use of Probe 1.

The results show that the displacement volumes of sampling probes used with automated samplers should be as small as possible to reduce interference with the dissolution test.

(1) "The United States Pharmacopeia," 20th rev., United States Pharmacopoeial Convention, Rockville, Md., 1980, p. 959.

(2) *Ibid.*, p. 655.

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## BOOKS

### REVIEWS

**Pharmacy: A Profession in Search of a Role.** By JACK ROBBINS. Navillus Publishing Corp. 1979. 143 pp. 15 × 23 cm. Price \$14.95. (Available from Technomic Publishing Co., 265 Post Rd. W., Westport, CT 06880.)

The title of this book is both provocative and ambiguous. Readers seeking a definitive statement of the professional status or role of the pharmacist will not find it, nor will they find an expression of the need for clinical pharmacy, specialists, or new directions for the future.

Most of this book (large type, liberal white space) is devoted to an objective presentation of a 1975 mail survey of pharmacists. The study attempts to "correlate the dynamic changes in pharmacy during the past half century with the various modes which pharmacists have adopted to make their role expectations more consonant with their performance" and "to incorporate social-psychological theory in order to better understand the motivations underlying pharmacists' various adaptation modes." Theories (including role theory, role conflict and adaptation, and professionalization) are presented in easily understood language and context. Although a more in-depth discussion might be preferred, this approach is rational, laudable, and worthwhile in an area that too often is merely descriptive.

Chapter 5, Generational Effects: Younger *versus* Older Pharmacists, is especially intriguing to the reader seeking insight into the direction of future change. Chapter 8, Role Conflict and Social Change, is excellent and expands on the familiar business-professional conflict, reporting both the extent and direction of conflict within the context of practice changes.

Given the emphasis and style, chapter titles, acknowledgments, and cautious conclusions and projected future trends, one suspects that the book originally was a dissertation, a suspicion heightened by a citation of the same title by the same author in *Dissertation Abstracts* (1977). The dissertation subtitle, Functional and Psychological Adaptations of Pharmacists to Technological and Social Changes During the Past 50 Years, is descriptive of the contents. Exclusion of the survey instrument and the inadequate literature search (for example, no citations after 1976) will disappoint the researcher.

The foreword indicates that the book should be read by social scientists, pharmacy educators, individual pharmacy practitioners, pharmacy association executives, other health-care practitioners and organizations, members of Congress, and health-care planners and administrators. Such a broad appeal is unlikely to satisfy anyone completely.

The book should be of interest to pharmacy school administrators and pharmaceutical industry executives and employees whose market is practicing pharmacists. Chapter 4, Opinions About the Industry and

Selected Companies, may hold particular interest for the latter group. For other readers, the chapter is an unnecessarily lengthy digression from the theme. The book deserves library space and would be a useful addition to a reading list for an introductory pharmacy course.

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**Analytical Procedures for Therapeutic Drug Monitoring and Emergency Toxicology.** By RANDALL C. BASELT. Biomedical Publications, P.O. Box 495, Davis, CA 95616. 1980. 316 pp. 18 × 26 cm. Price \$35.00.

It is a realistic world that we work in, but one that is governed by idealistic regulatory agencies. As this compilation of analytical methods points out, one can only generate the "numbers" with the available equipment afforded by his or her employer. For example, you cannot determine the blood level of phencyclidine by nitrogen-specific GLC if all you have available is a dual-beam spectrophotometer. On the other hand, you will never achieve the sensitivity needed for phencyclidine detection using a dual-beam spectrophotometer. Baselt is realistic in pointing out that not all laboratories are equally equipped and that one may have to sacrifice some accuracy for speed, depending on the situation.

The book presents alphabetically a series of potential quantitative methods for 84 drugs and some general screening procedures. The drugs and chemicals included are those generally encountered by the clinical chemist and analytical toxicologist. For example, GLC procedures are given for ibuprofen, ketamine, and methylphenidate. Three methods are given for the oral hypoglycemics. Blood levels in the therapeutic and toxic ranges are given for each drug.

The introduction could have included some guidelines for the interpretation of the blood levels given for therapeutic, toxic, and lethal concentrations. Consideration must be given to whether these levels were obtained from human or animal data. Also, lethal levels may be those reported from only a single, isolated case or may represent a minimum lethal level. Consideration also must be given to any disease states or tolerance the person may have to a particular drug.

In general, the book lacks any specific indications of the factors that affect blood drug levels. The book deserves consideration and will serve as a reference in any forensic or clinical laboratory. It is useful for new laboratories or for laboratories that are expanding the number of tests they perform. It also gives important information concerning the equipment and supplies necessary in establishing an analytical toxicology laboratory.

The greatest utility of this book will be for analytical toxicologists, pathologists, and medical technologists in a large teaching hospital where emphasis is placed on therapeutic drug monitoring.

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**How to Write and Publish a Scientific Paper.** By ROBERT A. DAY. ISI Press, 325 Chestnut St., Philadelphia, PA 19106. 1979. 160 pp. Price \$8.95.

This valuable and witty book was written by a managing editor with 25 years of experience. Until this year, he was managing editor for the journals published by the American Society for Microbiology. The first 15 of the 26 chapters deal with the preparation of the different elements of a manuscript, beginning with a definition of a scientific paper and ending with where and how to submit the manuscript. The next two chapters describe the review and publishing processes. Chapter 22 is on ethics, rights, and permissions. The next three chapters discuss the use and misuse of English.

I recommend the book to authors and editors. If authors would learn its lessons, editors would return fewer manuscripts to be rewritten due to poor style. Perhaps editors should enclose a copy of the book with returned manuscripts! The book should be required reading for those who prepare internal documents in our institutions—academic, corporate, and governmental.

The next edition should have a chapter on footnotes, one on the metric system, and one directed to the typist. Manuscripts are received with footnotes typed single spaced at the bottom of the page. Too many authors of documents do not know how to abbreviate the metric or English system of units. The appendix on accepted abbreviations in this book gives the abbreviations for cubic centimeter, gram, and liter but not for milliliter. Typists must receive on-the-job training in manuscript preparation; their schools do not teach them, nor apparently do their employers.

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## NOTICES

*Stabilitätsprüfung in der Pharmazie: Theorie und Praxis.* By W. GRIMM and G. SCHEPKY. Editio Cantor, D-7960 Aulendorf, West Germany. 1980. 397 pp. 16 × 24 cm. (In German.)

*Les Cosmétiques.* By H. THIERS. Masson Publishing USA, 14 E. 60th St., New York, NY 10022. 1980. 340 pp. 16 × 24 cm. (In French.)

*Casarett and Doull's Toxicology—The Basic Science of Poisons, 2nd Ed.* Edited by JOHN DOULL, CURTIS D. KLAASSEN, and MARY O. AMDUR. Macmillan, 866 Third Ave., New York, NY 10022. 1980. 778 pp. 17 × 26 cm. Price \$29.95.

*The Renin-Angiotensin System.* Edited by J. ALAN JOHNSON and RALPH R. ANDERSON. (Advances in Experimental Medicine and Biology, Vol. 130.) Plenum, 227 W. 17th St., New York, NY 10011. 291 pp. 16 × 25 cm.

*Neurochemistry and Biochemical Pharmacology.* Edited by K. F. TIPTON. (International Review of Biochemistry, Vol. 26.) University Park Press, 233 E. Redwood St., Baltimore, MD 21202. 1980. 314 pp. 16 × 23.5 cm. Price \$29.50.

*Recent Developments in Chromatography and Electrophoresis, 10.* Edited by ALBERTO FRIGERIO and MALCOLM McCAMISH. (Analytical Chemistry Symposia Series, Vol. 3.) 1980. 342 pp. 16 × 24 cm. Price \$68.25.

*Advances in Chromatography, Vol. 18.* Edited by J. CALVIN GIDDINGS, ELI GRUSHKA, JACK CAZES, and PHYLLIS R. BROWN. Dekker, 270 Madison Ave., New York, NY 10016. 1980. 292 pp. 15 × 23 cm. Price \$38.50.

*Fundamentals of Human Lymphoid Cell Culture.* By J. LESLIE GLICK. Dekker, 270 Madison Ave., New York, NY 10016. 1980. 157 pp. 14 × 23 cm. Price \$22.50.

*IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, Vol. 22: Some Non-Nutritive Sweetening Agents.* International Agency for Research on Cancer. 1980. 208 pp. 17 × 24 cm. Price \$15.00. (Distributed by the World Health Organization, 1211 Geneva 27, Switzerland.)

*WHO Expert Committee on Specifications for Pharmaceutical Preparations, 27th Report.* (Technical Report Series, No. 645.) World Health Organization, 1211 Geneva 27, Switzerland. 1980. 53 pp. 14 × 20 cm. Price Sw. fr. 4.

*Lithium Effects on Granulopoiesis and Immune Function.* Edited by ARTHUR H. ROSSOF and WILLIAM A. ROBINSON. (Advances in Experimental Medicine and Biology, Vol. 127.) Plenum, 227 W. 17th St., New York, NY 10011. 1980. 475 pp. 16 × 25 cm. Price \$47.50.

*Vitamin D: Molecular Biology and Clinical Nutrition.* Edited by ANTHONY W. NORMAN. (Basic and Clinical Nutrition, Vol. 2.) Dekker, 270 Madison Ave., New York, NY 10016. 1980. 800 pp. 15 × 23 cm. Price \$85.00.

*Reagents for Organic Synthesis, Vol. 8.* By MARY FIESER. Wiley, 605 Third Ave., New York, NY 10016. 1980. 602 pp. 15 × 23 cm. Price \$36.00.

*Trends in Enzyme Histochemistry and Cytochemistry.* (Ciba Foundation Symposium 73.) Excerpta Medica, P. O. Box 1126, 1000 BC Amsterdam, The Netherlands. 1980. 114 pp. 15 × 24 cm. Price \$53.75.

## NEW JOURNALS

*Journal of Pharmacy.* M. AMIN, Chief Editor. Faculty of Pharmacy, University of the Punjab, Lahore, Pakistan. 1980. 68 pp. 18 × 25 cm.