All in all, the book is an excellent beginning and the editors are congratulated in obtaining the consistently good help of so many competent contributors.

But there are serious omissions in a text that by its title claims exposition of both theory and practice, and there are inclusions that seem a bit unnecessary here, however necessary and important as ancillary materials that have been very properly treated in other works.

As to the latter, it seems that for the most part the chapters on heat transfer, momentum transfer, and fluid flow have been well treated elsewhere and need not have been included here, however well done. In actual practice an engineering department would or should function competently in these areas.

It is interesting to note that the technological details of dosage form development in the various areas are never tied in with control and production in the sense that in a well-run outfit development should issue detailed specifications for the finished job and assume the responsibility for the accuracy of these regardless of the degree of control and production involvement during the planning stages of new drug design. The chapter on pilot plant scale-up techniques is well done technically, but needs the finishing touch of stress on the responsibilities to be assumed and by whom. This is the important connecting link between development and production and is an extremely important administrative factor in the pursuit of industrial pharmacy. Interestingly, it is often disregarded in practice as it is disregarded in this text.

Little if any reference is made to the construction and control of labeling information, to include both label and package circular, yet these are grave responsibilities that come much earlier in the scheme of things than the mechanical control of finished labeling.

In the chapter on quality assurance, reference is made to a zero-defect concept. It is unfortunate that this widely used term is repeated here since it is a physical and psychologic anomaly. Yet the notion, as developed by Sinotte and others, is a most interesting approach to quality control because it deals with the fallibilities of the human which, after all is said and done, constitute the fundamental need for control. But the term "zero defect" should be replaced with one of greater semantic digestibility. Personnel may and should be qualified not only by training, experience, and the like, but also by their emotional attitudes toward the job after training and motivational incentives have been applied. The applicable paragraph on page 715 could and should be greatly expanded by competent psychological treatment. It is not too difficult to calculate a standard deviation, but a human can ruin its importance.

The control of bulk raw material is well spiced with general statements such as "adequate systems," "appropriate records," and our old friend "careful handling." A few pages later these are followed by a quite satisfactory handling of statistical quality control for the purposes of this text, but in neither case nor in any other area of this volume is much attention given to how samples are taken, and where and when, and by whom. It is one thing to give a blessing to Military Standards sampling plans, but quite another to show how these are not complete and practical answers to the requirements of practice. The reader should like to know who trains the sampler or his supervisor and how this is done and what responsibilities reside in these operators. Often no one else sees what they do, or how they do it.

Automated sampling and assay procedures have already solved many problems in quality control, as this reviewer prophesized many years ago, and as this volume gives adequate description, but we need more definitive treatment of hand sampling and bench assay operation in a text on industrial pharmacy too, it would seem. The day is somewhat in the future when relatively small pharmaceutical operations will have disappeared. These need specific and truly applicable help in these areas of quality control far more than their more sophisticated counterparts.

This reviewer is impelled once again to point out that it seems almost axiomatic that authors in this field must use terms such as, "carefully," "adequate," "absolutely correct," "proper," "suitable," "reasonable," and the like. This volume has far too many such terms. As a text it needs none of them, or at the most, few. But it does need definitive statements in these applicable areas.

In no place was there found any statement as to the organizational responsibilities and authorities of the director of quality control. This matter has been so avoided or mishandled in the industry generally that a careful discussion of it would seem to be in order. The statement in the last paragraph on page 748 is good, but it is altogether too general for a text without more detailed support.

The matter of patents is well discussed and is quite informative to those of little experience in the field, which is as it should be. It would have been most helpful however, if some discussion of the manner in which ideas are developed in the group research that pertains today, and the difficulty of assigning the proper credit to individuals who participate in invention. These are the very facts of life to directors of development, or should be. Patents protect and provide incentive, but they are not the research "thing" itself. The "thing" itself is the heart and soul of industrial pharmacy.

But this is an excellent "first try" in the elaboration of a text that has been long sorely needed. Careful revision will make it into a most valuable resource. Such revision will surely follow its use as a text, a use which is recommended.

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**European Pharmacopoeia.** Vol. 1. Published under the direction of the Council of Europe (Partial Agreement) in accordance with the Convention on the Elaboration of a European Pharmacopoeia. Maisonneuve S. A., 57-Sainte-Ruffine, France, 1969. i + 401 pp. 15.5 × 24.5 cm. (*English and French versions available*)

The publication of the *European Pharmacopoeia* represents a significant step toward greater cooperation across national boundaries in the field of public health. The European Pharmacopoeia Commission was established by a Convention signed in September 1964 by the following countries: Belgium, France, Federal Republic of Germany, Italy, Luxembourg, the Netherlands, Switzerland, and the United Kingdom.

For the past five years, some hundred scientists, representing these eight countries, have been preparing this compilation. Application of the standards established in this volume must be made before January 1, 1972, with this volume gradually replacing the traditional national pharmacopoeias.

This volume contains general methods of analysis as well as 51 monographs on specific basic medicinal substances. A second volume of this compendium containing biological substances such as hormones, vaccine serum, and antibiotics is scheduled for publication next year.

*Staff Review* ■

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**Pharmacology and Patient Care.** By Solomon Garb, Betty Jean Crim, and Garf Thomas. Springer, 200 Park Ave. So., New York, NY 10003, 1970. x + 597 pp. 14 × 21.5 cm. Price $8.95 (hard cover), $6.75 (soft).

This, the third edition of *Pharmacology and Patient Care*, is somewhat broader than the first two editions. Garf Thomas, Chief Hospital Pharmacist, University of Missouri Medicial Center, has been added as a coauthor, in an attempt to give this book, originally published as a textbook for nurses, a more interdisciplinary, paramedical approach.

This edition contains several new chapters, with all the chapters from the preceding editions being updated. Of particular interest are the chapters on "Drug Interaction and Incompatibilities" and "Pharmaceuticals and Society."

*Staff Review* ■