

**BIOCHEMIC DRUG ASSAY
METHODS, WITH SPECIAL
REFERENCE TO THE
PHARMACODYNAMIC
STANDARDIZATION OF DRUGS**

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Biochemic Drug Assay Methods, with Special Reference to the Pharmacodynamic
Standardization of Drugs by Paul S. Pittenger & F. E. Stewart

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MACODYNAMIC STANDARDIZATION OF DRUGS

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PREFACE

This Manual of Biochemic Drug Assay Methods is intended for students of pharmacy, pharmaceutic chemistry and medicine, also for the use of experts engaged in laboratories devoted to drug standardization work.

The data has been collected from monographs, Government bulletins, papers read before medical and pharmaceutical societies, and also from laboratory notes containing the results of the author's original research and observations.

Much of the original data was previously contributed in the form of papers to several national and state medical and pharmaceutical societies, including the American Therapeutic Society, The American Medical Association, The American Pharmaceutical Association and The Pennsylvania State Pharmaceutical Association.

The authors of much of the information on the biochemic assay of drugs appearing in the literature assume that the readers are familiar with the apparatus and technique of the subject. In other words, the literature is written for experts rather than to teach beginners. There is, therefore, a field for a work explaining in detail the methods and apparatus employed for pharmacodynamic standardization. Such a volume is demanded by the rapid advance in the scientific knowledge of drugs as therapeutic agents. It is commencing to be realized by physicians that drugs should be instruments of precision. Chemical assay and standardization is sufficient to render them so when they contain active principles of such character as to permit their identification and isolation in the pure form by chemical methods. But there is another class of drugs not amenable to chemic standardization. Such drugs as digitalis, ergot, cannabis indica, etc., do not lend themselves to standardization by chemical methods. It is with this class of drugs that this volume exclusively deals.

The wants of the pharmaceutical colleges and their students have been considered. Methods familiar to experts, but not referred to in the literature with sufficient detail for students and beginners, are fully described. Apparatus used in the pharmacodynamic labora-

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ories of the universities both in Europe and America, is placed before the reader in the form of picture illustrations with explanations as to the use of the same. The illustrations and detailed explanation will enable the student intelligently to follow lectures and demonstrations, and will also prove useful to persons unfamiliar with the subject and unprovided with extensive reference libraries.

Judging from the want of appreciation by the medical profession of the wide variation in the therapeutic activity of drugs (see Table I, page 6), this Manual, although intended primarily for the use of the pharmacist and pharmaceutical chemist, could be advantageously employed in teaching medical students.

In conclusion, the author takes occasion to acknowledge his indebtedness to Professor F. E. Stewart for his aid in editing the manuscript, to Professor Charles E. Vanderkleed for collaboration in original research, to Dr. Thomas Stotesbury Githens of the Rockefeller Institute for many details in technique, to the Harvard Apparatus Co. of Boston, and C. F. Palmer Co. of London, England, for cuts of special apparatus of their manufacture, and to the H. K. Mulford Company, for laboratory facilities, animals, etc.

P. S. P.

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