of theobromine over the official preparations that one of us has conducted a pharmacologic study of the problem involving probably about 200 experiments. While the results of these experiments are not conclusive, they do not afford any evidence that the proprietary preparation has any advantage over the official Theobromine Sodio-Salicylate. However, they do tend to throw light on the value of these preparations for the relief of cardiac pain in certain conditions.

As indicated in the rules, this does not interfere with the therapeutic study of any proprietary preparation, nor does it prevent the use in any department of the Hospital of any substance, concerning the superiority of which the staff is so firmly convinced that it is willing to conduct a scientific study of its uses, or to provide it at departmental expense. Since the publications of the Formulary, the Committee has continued to pass on the acceptability of various formulas and articles requested by the staff.

The Committee could not have carried out its plans without the whole-hearted coöperation of the staff, and, with very few exceptions, the rulings of the Committee have been accepted without protest after the whole subject had been discussed in considerable detail.

It is hardly necessary to state that the use of the Formulary has resulted in marked economy, but it is too early to determine the precise amount saved to the Hospital. However, we are mainly interested in a system of rational therapeutics, and we believe that the use of official preparations is far more conducive to rational therapeutics than is the use of secret or semi-secret preparations, or of a great variety of preparations having nearly similar effects, and differing only in dosage.

It is hardly necessary to state that this plan requires for its fullest success a highly skilled pharmaceutical staff capable of coöperating with the medical staff of the hospital in the conduct of therapeutic research. The training of men to fill the pharmaceutical positions in such progressive hospitals constitutes at once an opportunity, and a challenge to the schools of pharmacy, for there are few such pharmacists now available.

Pharmacology in the Medical Curriculum and the United States Pharmacopœia.*

BY JOHN C. KRANTZ, JR.

The rise of organic chemistry during the latter half of the past century, and the ever-increasing number of plant principles which were isolated, created an urgent demand for an adequate trial of these substances as therapeutic agents. To meet this emergency the science of pharmacology was created. It is a fundamental science, a combination of biological and physical science, a science that bridged the chasm between the maker and the prescriber of medicines, a science so comprehensive that to-day it touches all of the ramifications of medical practice.

In America the science of pharmacology had its beginning with the appointment of John J. Abel as professor of pharmacology in the Johns Hopkins University in 1892. The far-reaching influence of Abel's appointment is evidenced by the fact that many of the chairs of pharmacology in the leading universities in this country are occupied by his pupils. Since this time there has been a steady and definite trend in medical education away from Materia Medica as an empirical, didactic course to modern pharmacology an experimental science. In the medical curricula to-day, generally in the second year of study, there is a major course designated as pharmacology.

Generally the department of pharmacology of the medical faculty embraces, besides pharmacodynamics and pharmacotherapeutics, elementary materia medica, toxicology, posology, prescription writing and pharmacy. Prior to this period, in the training of the medical student, he has not come in contact with drugs or medicines and in this course the entire scope of medical pharmacology is to be introduced and the student prepared to intelligently use drugs in the clinical courses. It is at this point in the education of the physician that be becomes acquainted with the relationship between medicine and pharmacy and the significance of a national pharmacopœia in the field of therapeutics.

In the School of Medicine of the University of Maryland, we have approached the subject by dividing the material under the following subdivisions.

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* Department of Pharmacology, School of Medicine, University of Maryland.

1. The Nature and Source of Drugs.
2. Preparing Drugs for Administration.
   (*a*) Pharmacy.
3. Legal Control of Drugs.
   (*a*) National Standards.
   (*b*) Food and Drugs Act.
4. Administering Drugs.
   (*a*) Prescription-Writing.
5. The General Theories of Drug-Action.
6. The Local Action of Drugs.
7. The Systemic or General Action of Drugs.

This scheme of presentation is based upon the tracing of the drug from its source to the fate of the substance in the human organism. Topics 1 to 4, inclusive, are treated in about 20 per cent of the time devoted to the subject. Topics 5 to 7, inclusive, occupy the remaining 80 per cent of the time.

Although the status of the Pharmacopœia is emphasized in an early lecture in the course, its contents are treated in practically all of the subsequent training. The student is required to prepare 8 or 10 typical pharmaceutical preparations of the Pharmacopœia. These are prescribed by him and his own prescriptions are compounded. In this manner he is brought directly in contact with the field of incompatibility and made to appreciate the rôle of the pharmacist as a compounder of drugs.

In prescribing drugs, emphasis is placed on simplicity of prescriptions. Complicated mixtures multiply the chances of failure. Our students are urged to prescribe only those drugs, the pharmacology of which is well understood. These drugs are found between the covers of the Pharmacopœia and deviation from this authority is often born of pharmacological ignorance or general gullibility.

It has been a matter of general acceptance that oftentimes dependable therapeutic agents are developed by pharmaceutical manufacturers and owing to the patents these substances could not be recognized by the Pharmacopœia. These conditions are not very frequent. It is difficult to accumulate dependable therapeutic data. It requires often years to show the merit or uselessness of a drug. Therefore for the practitioner of medicine and for his patient as well, a progressive conservatism is indeed a safe policy. Never hastily discard the old and not without pharmacological and clinical proof try the new.

Through the ever-vigilant and indefatigable efforts of Professor Cook, the policy of the new Pharmacopœia meets this medical need. The committee is slowly but progressively reaching the stage, where recognition of a drug in the Pharmacopœia is evidence of its usefulness and merit in the diseases for which it is prescribed. This is a goal which should be diligently sought.

The innovation of an active interim revision program makes nugatory the criticism so often leveled at our Pharmacopœia; namely, that it did not keep abreast of the advance of science. In therapeutics our official standard has now acquired the unique characteristic of perpetual youth.

This formidable list of remedial agents forms the basis of modern pharmacology. Those who persistently digress, prescribing products the merits of which are extolled only by one manufacturer, should heed the dictum.

"It takes a long neck observer to see the whole firmament out of one window."

The drugs of the Pharmacopœia represent those seen through a window of national scope, by critical eyes and unprejudiced minds.

(*To be continued*)

The successful promotion of pharmacy results not only from the developed capacities of its votaries, but is equally dependent upon their active coöperation. Share in the activities of your state and national associations.