denly roused by its federal recognition as a legal standard. It had aimed at nothing higher than to supply a popular demand, uncritically and blindly; and suddenly found itself set up as a leader for this very demand. The position is in many ways highly anomalous. These are problems, however, which do not concern the medical profession and that is my principal reason for pointing them out.

There is no doubt that preparations such as those listed in the National Formulary are used by the profession as well as by the laity; and thus there is a legitimate need for such a book, which it well meets. There should be definite and legalized standards of strength for such preparations, although the working formulas and flavoring of the National Formulary should in practice be made optional with the manufacturer. To this extent the National Formulary deserves encouragement, and if the American Pharmaceutical Association so desires, the American Medical Association could authorize the Council on Pharmacy and Chemistry to act as an advisory committee to whom such questions as doses, the desirable strength of mixtures, or obvious therapeutic incompatibilities might be referred. Further than this, however, we should not go. The medical profession should emphatically decline to share in the responsibility for a book so professedly uncritical as the National Formulary, by its very nature, must be.

In conclusion, I feel very sincerely that I must ask pardon for my presumption in occupying so much time in the discussion of matters in regard to which I am distinctly an outsider. I wish to assure you, however, that I did not undertake the matter lightly, but after much serious thought and hesitation, not because, as Professor Remington has said, "If any man wants a subject for discussion, and one which he can hit with safety, there is always the Pharmacopeia." My motive has been the conviction that all the preaching in the world will not and can not make the Pharmacopeia the practical standard of medical prescribing so long as the revision committee adheres to its present ideals and methods. The ideals and methods which I have laid before you can only be realized by the practical cooperation of the medical profession. In less than two years the pharmacopeial convention meets. If you agree with all or part of what I have said you have a personal duty to discharge, and it was the sense of my own share in this duty which has prompted me to address you on this subject. My personal inclination would have been for almost any other subject.

Experimental Reproduction of Whooping Cough.—W. N. Klimenko reports in the *Centralblatt für Bakteriologie*, Oct. 10, 1908, that he has succeeded in cultivating the Bordet-Gengou bacillus from the catarrhal secretions of children with whooping cough, and with it has reproduced the disease in 48 young dogs and in monkeys, afterward cultivating the bacillus again from the secretions of the animals. It was in 1906 that the Belgians, Bordet and Gengou, announced the discovery of a bipolar bacillus in the first week of pertussis, which they regarded as the causal germ. Klimenko found this same germ in 80 per cent. of 76 children in the first week of whooping cough, while the findings were constantly negative in 50 healthy infants and in patients with other various affections. The period of incubation in the experimental pertussis ranged from two to six days, and the duration of the disease averaged 48 days. Bordet found a specific amboceptor for this bacillus in the serum of children convalescing from pertussis.

THE NEED OF MORE INTIMATE KNOWLEDGE OF THE U. S. PHARMACOPEIA AND THE NATIONAL FORMULARY AMONG PHYSICIANS.*

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There is need of a sober viewing of the question of pharmacy in its relation to medicine. While these two professions are engaged to an extent in different fields of observation and practical work, they have many interests in common, and it is especially in behalf of those higher ethical principles on which real progress depends that joint meetings and free discussions of the natural lines of contact will prove mutually strengthening and result in a real gain to mankind. Indeed, the program of procedure has been already outlined, and men with definite convictions, beliefs, hopes and aspirations for better things, have enlisted in the movement under the general direction of the American Medical and American Pharmaceutical Associations, and it is fitting that this section should have been fixed on as one of the principal centers for the consideration of subjects affecting so vitally the present and future welfare of both medicine and pharmacy.

I realize that the subject which I am about to discuss must be approached carefully and calmly, and also that in emphasizing the importance of the utilization of the U. S. Pharmacopeia and the National Formulary in the practice of medicine, nothing is to be gained by extravagant claims or unreasonable statements. I can only hope (and I believe) that the result of my recent experience and investigations into the question may be of assistance to other practitioners. Admittedly, no member of our profession is deserving of censure who honestly strives to bring to his aid in the treatment of disease all the therapeutic adjuvants at his disposal. He should, however, make thrice certain that he is weaponed with reliable instruments. Such a course would exemplify a proper appreciation and respect for scientific pharmaceuticals. The time has come to recognize the fact that a reform movement among pharmacists is now, and will be as time passes, in progress, working through the American Pharmaceutical Association and its numerous branches. A parallel movement with a view to meeting the requirements of the higher ethical standards and improved conditions generally in the medical profession has been brought about in recent years, chiefly through the efforts of Dr. George H. Simmons, editor of THE JOURNAL, Dr. Frank Billings, Dr. McCormack and other individual members of the Association, the work of the Council on Pharmacy and Chemistry, and of the Council on Medical Education of the American Medical Association, and the passage of the federal Food and Drugs Act.

It is safely within the limits of strict justice and truth to remark that legitimate pharmacy has been grossly neglected by the medical profession during the past quarter of a century—a period during which physicians have been depending largely on proprietary preparations and "secret nostrums," and in which there has developed a stolid indifference to ethical obligations. The propa-

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

ganda in favor of the U. S. Pharmacopeia and National Formulary will be productive not only of cordial relations between these two professions, but through their collaboration the warfare already begun will be carried to a victorious issue. The ultimate aim of such a union of forces should be to overthrow, by effective legislation and in other ways, all quackery, charlatanism, the "club practice" evil, unethical proprietaries and secret nostrums. To this end there should also be a public awakening—a prevailing demand for absolute publicity as regards the composition and therapeutic application of the physician's armament.

In general, education of the medical profession in the importance of the information to be derived from a careful study of the U. S. Pharmacopeia and the National Formulary is a leading consideration and one which should not be ignored. It is certain that the advantages to be gained from such a course in the past have not been appreciated, principally because of the prevailing ignorance in regard to the contents of these authoritative works. Indeed, the present unenviable situation and the shortcomings of the medical world in relation to pharmaceuticals are largely the result of the errors of the past, especially in the direction of a dominating tendency to employ proprietaries and secret nostrums. The profession had lost sight for a considerable interval of time of the successive achievements of the geniuses to which the science of pharmacy owes its being. For their wisdom and the unselfish, steadfast devotion of superior endowments to the highest interests of the medical profession, these men are worthy of the most distinguished recognition.

It may, however, be justly claimed that at present the medical profession of America is slowly and gradually recovering from the debauched condition into which it had fallen in consequence of the wide use of proprietary remedies, and what is even more regrettable, illicit combinations between certain of its members and those manufacturing druggists who pursued dishonorable methods.

The time, therefore, is ripe for direct, pointed statements concerning the lack of studious attention on the part of the medical profession to the U. S. Pharmacopeia and the National Formulary. If physicians were to inform themselves more fully on the reliable facts and data contained in these books they would appreciate their superior advantages in practical therapy. It is universally admitted that the U. S. Pharmacopeia has been edited and revised by men who by training are entirely competent to accomplish the task in a thoroughly scientific, trustworthy and acceptable manner. Its teachings form one of the truly important foundation-stones of rational therapeutics.

Physicians may rest assured that the preparations to be found in the U. S. Pharmacopeia are to be preferred, as a rule, to the newer, untried, unofficial preparations exploited by pharmaceutical chemists and manufacturers. On the other hand, there are certain synthetic proprietary articles in general use and widely approved by the best element of the medical profession; and a selected few of these might be advantageously introduced into the U. S. Pharmacopeia.

The adequate training of the physician of the future will demand an acquaintance with the contents of the volume under consideration. "The undergraduate's knowledge of the subject-matter need not extend beyond

a complete summary, but this he should have with a view to stimulating his subsequent interest in this branch of practical medicine. In medical schools in which the professors of materia medica and therapeutics are authors of works on these subjects, it is proper and advantageous for the students of such schools to adopt them as text-books, but under these circumstances teachers should avail themselves of the opportunity to force conviction on the minds of students as to the importance of the U. S. Pharmacopeia as a work of reference and post-graduate study. I have examined carefully the catalogues of the regular medical colleges of this country, numbering 144, and found that of these sixteen have recommended the U. S. Pharmacopeia, while one mentioned the National Formulary."¹ The figures indicate conclusively the lack of sentiment among medical educators favorable to the important matter of instructing students of medicine "as to those portions of the U. S. Pharmacopeia which are of value to the practitioner." The adoption of measures to bring about a more general use of this work in the training of undergraduates is to be advised and encouraged. It is gratifying to record that at an informal conference called by Prof. J. P. Remington of the teachers in the medical schools of Philadelphia, the following resolution was passed:

Resolved, That it is of the utmost importance for accuracy in prescribing, and in the treatment of disease, that students of medicine be instructed fully as to those portions of the United States Pharmacopeia which are of value to the practitioner, and that members of the medical profession be urged to prescribe the preparations of that publication, and, further, that this resolution be forwarded to the medical and pharmaceutical journals, and to the teachers of medicine and therapeutics in the United States.

The motto for the recent graduate should become "Publicity and open dealing, the while prescribing the preparations of the U. S. Pharmacopeia."

I am ready to grant that natural conditions and means are assuming more and more importance in combating human ills. And while drugs have been practically abandoned in the treatment of certain diseases, notably tuberculosis, they have a distinct sphere of usefulness; and the decadence of the use of drugs on account of the rapid progress made by the science of hygiene in recent times is no good reason for carelessness and indifference in regard to their quality and ability. The medicinal agents employed by the physician then still form an important part of the physician's armamentarium, so long as he can depend on their proclaimed composition. It is obvious that from this point of view too little intelligent discrimination has been exercised in the selection of medicines in the past. Hand in hand with the progress of knowledge concerning the action of drugs on the human economy must go definite and accurate knowledge of the composition of the substances used in the treatment of disease. It is in this connection that the U. S. Pharmacopeia and National Formulary would contribute materially to future medical progress if they were made the subject of universal study and consideration among the physicians of the United States. It is earnestly hoped and believed that the rational outcome of the present movement which seeks to abandon indefinite, uncertain and variable preparations, will effect an increasing tendency

1. Anders, J. M.: The United States Pharmacopeia from a Physician's Standpoint: *Monthly Cycl. Pract. Med.*, May, 1908.

to the use of the more reliable and unchanging preparations of the U. S. Pharmacopeia.

As a means of familiarizing physicians with these works I would strongly recommend future joint meetings between the many branches of the American Pharmaceutical Association and local medical societies. United action, if properly directed and maintained, would serve to promote materially the interests of scientific pharmacy. We have arrived at an era in the history of American medicine at which the trained pharmacist and the physician can each render important service to the profession of the other if granted a favorable opportunity.

Moreover, it is fitting that the medical profession should pay just tribute to the significance of the service which the National Formulary is rendering both to practitioners and to the larger public.

I find that many physicians are not acquainted with the contents, objects and meaning of the National Formulary. For the benefit of this class it may be pointed out here that this neat volume contains many excellent formulas for preparations, none of which have been as yet introduced into the U. S. Pharmacopeia, but which were formerly made after different formulas (in different sections of the country and also in the same city), and have come into established use, but have been brought, after much experimentation and labor by the committee on National Formulary of the American Pharmaceutical Association, to a common, authoritative standard. The above-named committee having accomplished the stupendous task set before it with success, it behooves the medical profession to cooperate whenever possible by accepting the formulae contained therein, "instead of designating any special maker's product." It is not my intention to advocate the use of the National Formulary to the exclusion of prescriptions written at the bedside to meet the indications presented by individual cases, to which preference is to be given in the majority of cases.

It may well be asked why learned members of the profession should permit the use of their names by manufacturers of preparations foisted on the market solely for commercial reasons. Again, why should the information given to the medical profession by these manufacturers be regarded as authoritative and convincing by the rank and file of the profession? Wiley² has well said:

We have reached a stage in the evolution of therapeutics and practice in which the physician can take a firm stand. There are plenty of remedies of known character to employ his entire skill and to furnish the munition of his therapeutic armament. There can be no excuse, therefore, for the recommendation or prescription of the secret, fake or unknown proprietary remedy.

In this connection of particularly evil omen for the attainment of this most desirable state of affairs is the strong tendency, already emphasized, to prescribe proprietaries. Physicians are too apt in prescribing to be controlled by motives of convenience, using the remedies that are brought to their attention and exploited by convincing hired agents, instead of taking the precaution and trouble to acquaint themselves fully with the official preparations so abundantly to be found in the United States Pharmacopeia and National Formulary. As a means of counteracting this subtle, widespread, yet influential tendency, a more intimate knowledge of the

contents and aims of the United States Pharmacopeia and National Formulary would, I strongly believe, prove efficient.

The intention of the present paper is not to present a laudatory account in ornate phrases of the works under discussion, but rather to eradicate the curious notion which numbers of physicians of this country have that what is of first-rate therapeutic value is to be found outside, among the newer, unofficial preparations. If physicians could be induced to devote more of their energies to the study of the remedies that have stood the test of time a more healthful, robust, therapeutic tone would be the inevitable result. I am pleading for a spirit of unity among the members of the American Medical Association regarding this important question.

THE PHARMACOPEIA AS A LEGAL STANDARD.*

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Many years before the publication of the first edition of the United States Pharmacopeia it was recognized by the leaders of the medical and pharmaceutical professions that standards for potent well-known drugs were highly desirable, if not absolutely necessary for the proper treatment of human ailments. Tangible evidence of this feeling was manifested by the publication of a number of books by various authors which contained standards or descriptions of drug products of much value. The first edition of the Pharmacopeia appeared in 1820 and was immediately voluntarily accepted as the proper guide by both professions. Successive editions appeared decennially; and Congress in 1848 recognized this authority as the legal standard for drugs imported into the United States in the following language:

If, on examination, any drugs, medicines, medicinal preparations, whether chemical or otherwise, including medicinal essential oils, are found, in the opinion of the examiner, to be so far adulterated, or in any manner deteriorated, as to render them inferior in strength and purity to the standard established by the United States, Edinburgh, London, French, and German pharmacopeias and dispensaries, and thereby improper, unsafe, or dangerous to be used for medicinal purposes, a return to that effect shall be made on the invoice, and the articles so noted shall not pass the custom-house, unless on a reexamination of a strictly analytical character, called for by the owner or consignee, the return of the examiner shall be found erroneous, and it is declared as the result of such analysis, that the articles may properly, safely, and without danger, be used for medicinal purposes.

The necessity of thus recognizing the Pharmacopeia had been emphasized by numerous investigations of medicinal agents which showed that a great number of inferior articles were imported into the United States. These examinations were largely stimulated by the activities of the Philadelphia and New York colleges of

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