By carefully reading the authorities above quoted it will be seen that the remedy given at the rate of 10 grains an hour of the sulphate gave the best results. The bisulphate is more soluble and more likely to be absorbed.

For the purpose of disinfecting the intestinal tract the remedy should be given moistened only with a little water and not in solution at all. This is my latest judgment. Slight symptoms only of cinchonism have been observed when the comparatively insoluble sulphate has been used. Larger doses than 10 grains have been given, but are more likely to be followed by vomiting. The fear of severely ill effects from the doses recommended, may be set aside, as the lethal dose lies somewhere beyond one ounce of the drug, and moreover quinin is antiemetic in cholera. Major-General Leonard Wood told me, that for malarial symptoms, he had himself, several times while in Cuba, taken doses of 75 grains of quinin. He promised to use it when he went to the Philippines, but about one year since wrote me that he had not had, to his knowledge, a case of cholera in the province under his command. There are yet scattering cases in the Philippines to which I have called his attention, but without any report as yet.

(The use of quinin in cholera is mentioned in Wood's work on therapeutics, eighth, ninth and tenth editions; in all recent editions of Shoemaker's "Materia Medica and Therapeutics"; and in the latest edition of Potter's "Materia Medica, Pharmacy and Therapeutics" there is fullest mention of all.)

DISCUSSION.

DR. N. R. COLEMAN, Columbus, Ohio, stated that the sum of our knowledge of the treatment of cholera, to date, shows that where quinin has been used the mortality has been lowered. If cholera should ever break out in this country this method of treatment should be kept in view, not only by practitioners, but by those engaged in teaching. There is no question, he said, that quinin is one of the best intestinal antiseptics.

DR. A. W. BAER, Chicago, asked Dr. Fullerton whether he stated that the maximum dose of quinin is an ounce.

DR. FULLERTON answered that an ounce is not the minimal dose.

DR. BAER referred to a case verbally reported from the Nashville Military Hospital during the war where an ounce of quinin was given during twenty-four hours for tetanus. The patient did not die of tetanus, but from the effects of the quinin.

DR. E. B. FULLERTON, Columbus, said that he has treated cholera and has seen all the symptoms subside after administering 15 or 20 grains of quinin.

THE COMING REVISION OF THE PHARMACOPEIA OF THE UNITED STATES.*

M. I. WILBERT, PH.M.
Apothecaria at the German Hospital.
PHILADELPHIA.

While therapeutic measures, other than drugs and medicines, are very properly receiving an ever increasing amount of attention we must not lose sight of the fact that drug therapy can not, as yet, be considered among the practices that we can well do without. From evident indications it is probable that drugs and medicines will continue to occupy a very important position in the prevention as well as in the treatment of disease for decades, if not for centuries to come.

* Read in the Section on Pharmacology of the American Medical Association at the Fifty-seventh Annual Session, June, 1906.

If the continued need for drugs and medicinal preparations be admitted to be evident it will readily be acknowledged that the need for a more systematic and detailed knowledge of the nature, uses and limitations of the several substances that are used in drug therapy can not be questioned and will, therefore, serve as an apology for introducing what may appear to some to be a hackneyed and uninteresting subject for discussion.

HISTORICAL REVIEW.

That the need for generally recognized descriptive lists, or treatises, of the materials used in medicine, manifested itself at an early period, in the history of the human race, is evidenced by the still existing works by Dioscorides and by Pliny and also by the much older Egyptian scroll usually referred to as the "Papyrus of Ebers." The more modern, and more distinctively pharmacopeial works, such as I propose to discuss in connection with this paper, appear to have had their origin with the Arabian school of medicine, about the end of the eighth century, and the earliest of the officially recognized pharmacopeias, in Europe, is probably to be found in the formulary published by the medical school of Salerno, and recognized by an imperial decree of the Emperor Frederic II, during the twelfth century.

To refer more specifically, however, to the history and the development of pharmacopeias in our own country, it may be interesting to you to know that it is just a century ago that James Jackson and John C. Warren, two of the most eminent and most respected medical men of the city of Boston, in pursuance of their instructions, as a committee of the Massachusetts Medical Society, prepared the manuscript for the first American pharmacopeia, and it is now ninety-nine years, almost to the day, since the completed manuscript was presented, at a meeting of the Councilors of the Massachusetts Medical Society, for publication. This interesting and in many respects unique volume is generally recognized as being the origin of pharmacopeial work in this country and it is perhaps not to the credit of the present, or of preceding, generations of medical men to point out that, if we expect to make reasonable progress in the development of a more satisfactory and a more generally acceptable materia medica, we must of necessity go back and readopt the principles and the ideals aimed at by these early pioneers in pharmacopeial work.

The opening paragraphs of the preface of the Pharmacopeia of the Massachusetts Medical Society contain several important suggestions, on the significance and the uses of a pharmacopeia, that may well serve as a text for what I wish to say to you to-day. In this preface Drs. Jackson and Warren assert:

It is the intention of a Pharmacopeia to point out those articles whose properties entitle them to be employed for the cure of diseases, with the best methods of preparing them, and to supply the preparations and compositions of them with names by which they may be known or referred to without constantly repeating a description of their ingredients.

Such a work is mutually convenient to the physician and apothecary. As it is the business of the physician to prescribe, and of the apothecary to prepare medicines, the physicians as a body ought to point out those articles of medicine which they shall ordinarily employ, and the standard preparations of them.

It will not be necessary for me to discuss at length how far and how physicians, as a body, have failed to take advantage of their evident duty to "point out those articles of medicines which they shall ordinarily employ," particularly as the direct results of this neglect or failure are so evidently apparent on all sides.

In the matter of revising the now well established Pharmacopeia of the United States the members of the medical profession have, for five decades or more, taken an ever decreasing interest, and the selection of the content of that book, as well as the revising of the text and of the descriptions, is now practically left entirely in the hands of pharmacists and of a limited number of medical men who are directly interested in the book, either as teachers or as authors of text-books on therapeutics or materia medica.

The increasing neglect of the Pharmacopeia, on the part of members of the medical profession, appears to have led to a corresponding increase in the number of articles admitted or retained, as official, and this superabundance of material, much of it antiquated or useless, serves to detract materially from the proper appreciation to which the book is rightfully entitled. Size and numbers are so persistently taken to be synonymous with completeness that it need not surprise us to learn that with a very few exceptions the Pharmacopeia of the United States now contains from 20 to 50 per cent. more titles than any of the other known pharmacopeias.

That this superabundance of supposedly useful articles of the materia medica must be considered to be a matter of doubtful utility will be more apparent when we consider the uses to which such an authoritative list or pharmacopeia might properly be expected to be put.

In addition to being of value as an indication of "those articles whose properties entitle them to be of use in the treatment of disease a pharmacopeia should also serve as a guide to the pharmacist in making the preparations that are enumerated and described in its pages. A book of this kind should also serve as a text-book or guide to the students of medicine and of pharmacy.

PLEA FOR A MORE LIMITED MATERIA MEDICA.

It is in connection with its possible uses as a text-book for the student of medicine that a pharmacopeia containing a reasonably limited number of articles would be of greatest value. It will readily appeal to all that with the numerous branches that are now being taught in medical schools, and the accompanying relegation of materia medica as a subject of secondary importance, it must be practically impossible to impart to medical students any appreciable amount of practical information in connection with the 4,000 or 5,000 different medicinal substances enumerated in some of the so-called text-books on materia medica. If, on the other hand, instruction in materia medica could be confined to 400 or 500 widely used and thoroughly well established drugs and preparations the student could be given a thorough grounding in the uses and in the limitations of these fundamentally important articles, he would have little that he could afford to forget and the knowledge that he has would serve him as a basis for rational elaboration.

The more general acceptance of a more limited or basic materia medica would also lead to a more evident appreciation of the need for international uniformity in connection with the strength of potent medicaments. With the ever increasing facilities for inter-communication between widely separated peoples this need for greater uniformity in all lines of research is becoming more widely appreciated. In no branch of human progress should this tendency for unity of effort receive more hearty encouragement than in connection with the science of medicine, and in no department of this science is the need for unification more pressing than in connection with the materials that are used, or to be used,

in the prevention or the treatment of disease and the accompanying endeavors to prolong human life.

PLEA FOR INTERNATIONAL UNIFORMITY.

In this connection it will not be necessary for me to recount the several efforts that have been made to secure greater uniformity in the strength or the composition of the materials used as medicine; suffice it to say that little or nothing of practical importance was accomplished until September, 1902, when the "International Conference for the Unification of the Formulæ of Potent Medicaments" was convened in the city of Brussels, Belgium, with thirty-one officially accredited delegates, representing sixteen of the leading countries of the world.

Despite the fact that this conference was held practically three years before the eighth decennial revision of the Pharmacopeia of the United States was published, and that the committee on revision had received definite instructions, from the National Convention, to keep in view the desirability of uniformity in the strength of potent remedies, which are in general use among civilized nations, the members of the committee on revision did not see their way clear to adopt fully all of the provisions of the resulting protocol and the Pharmacopeia of the United States, in place of being one of the first to fully endorse this admittedly desirable innovation, will probably be the last, of those represented in the conference, to adopt the several provisions *in toto*.

While it is true that the differences now existing are more matters of detail than of vital importance, it is nevertheless to be remembered that matters of minor detail frequently appeal more strongly, even to the apparently well informed, than do matters of greater moment.

To cite but one of the numerous differences, now existing, I may refer to the variation in nomenclature. Here the members of the committee on revision not alone ignored the suggestions made by the International Conference, but even went out of their way to introduce in connection with fluid extracts a lexicographic monstrosity that simply adds one other to the already too numerous minor differences of names and titles.

Up to the present time the provisions of the protocol have been fully adopted in the recently published Pharmacopeias of Spain, Austria and Holland and it is announced that they will also be included in the prospective Pharmacopeias of France, Belgium and Switzerland, to be published in the course of the current year. It may be added, in passing, that the protocol of the International Conference includes three chemical substances, ten crude drugs and twenty-six pharmaceutical preparations, or a total of thirty-nine titles, apart from the general provisions of policy or principle in pharmacopoeial work.

COÖPERATION OF PHYSICIANS NEEDED.

The history, the uses and the needs of the pharmacopeia would all appear to indicate that the medical profession of the country should take a more active interest in the content and in the revision of the Pharmacopeia with a view of making that book, as it really should be, a reflection of the practice and the ideals of the science of medicine in the United States.

To have the Pharmacopeia used as a reference book, by physicians, would necessitate that it be published as a manual or treatise on materia medica, as it is out of reason to expect that a book, of the technical nature that a Pharmacopeia must necessarily be, could be made

to appeal to physicians or be useful as a reference book on *materia medica*. On the other hand, if physicians are to be led to take an interest in perfecting their own *materia medica*, and are expected to eliminate from the Pharmacopeia obsolete or useless materials they should of necessity have access to some ready reference list containing only pharmacopeial articles, their medicinal uses and doses.

CHANGES SUGGESTED.

A book of this description would be of little or no use to the apothecary who must have technical descriptions and detailed directions to insure uniformity of materials. It is evident then that among the innovations to be introduced by the present, or at least by a succeeding committee on revision, should be the publication of two distinct books: The Pharmacopeia proper for the use of apothecaries and druggists, and a manual of *materia medica* for ready reference by physicians.

Among other necessary changes I might suggest the revision of the Pharmacopeia before the decennial meeting of the National Convention, the elimination of the secrecy that has hedged in and hampered former revisions of the Pharmacopeia, and the reduction of the number of members of the committee on revision to a directly responsible board of editors, composed practically of the chairmen of the several sub-committees.

The first of these changes could, and very properly should, be introduced by the present committee on revision. The publication of a small handbook of the *materia medica* of the Pharmacopeia would enhance the use and the value of the Pharmacopeia materially and go far toward securing greater uniformity in the medicinal products now available.

The practical revision of the present Pharmacopeia, in advance of the National Convention, is an undertaking that is not alone authorized but even expected under the resolution instructing the committee to "report a complete plan for the revision of the Pharmacopeia at the next decennial convention."

The fact that such a plan could not be considered final would permit of widespread publicity, in a special bulletin, or in medical and pharmaceutical journals, and thus insure that prospective delegates to the decennial convention come well prepared to discuss and to act on the more important features of the revision. The need for reducing the number of the members of the committee on revision is one that has appealed to many, and particularly to members of the revision committee itself, and is perhaps evidenced by the increasing delay in the publication of the past three or four revisions.

The work that is now being done by an unwieldy committee of twenty-five or twenty-six members residing in widely separated sections of the country could readily be supervised by five or six specialists as responsible editors of the several departments of the Pharmacopeia and the credit for excellence or the censure for shortcomings would be more readily meted out to the one more directly responsible. Such an innovation would of necessity presuppose a more active interest in the Pharmacopeia on the part of all who are in any way dependent on the use of it, and the ultimate success of the change would depend very materially on the coöperation and the support given it by the medical practitioners of the country.

In further explanation of this suggestion it may be pointed out that the American Pharmaceutical Association, for nearly half a century, has taken an active interest in pharmacopeial work and the members of the several standing committees on the revision of the Phar-

macopeia have not alone contributed materially toward improving the several decennial revisions but were also instrumental in bringing about the changes which established the Pharmacopeia of the United States as the peer of national pharmacopeias.

The American Medical Association on the other hand has so far contributed little or nothing toward the work and has not even indicated, as it properly should, what articles might preferably, be included. The collection of data, on the desirability of including certain widely used drugs and preparations, and of omitting such as may be of lesser importance, is a duty that would appear to come particularly within the province of this association, organized as it is to represent the better class of medical practitioners in all sections of the country. Minor details, as to the manner in which information is to be collected, could well be left for the responsible officers of the association to arrange. That this information should be collected, and that the American Medical Association, as an organized body, should take a more active interest in the revision of future editions of the Pharmacopeia of the United States is for you, as members of the Section on Pharmacology and Therapeutics to suggest.

CONCLUSION.

I recapitulate briefly the more salient features of the proposed innovations:

To be really national in character, the Pharmacopeia should receive the active coöperation and support of physicians as well as pharmacists.

The content of the book should be indicated by physicians, and should be limited to an enumeration and description of articles whose properties and uses are well established and generally recognized.

The work of revising the Pharmacopeia should be practically accomplished before the meeting of the National Convention, and the several changes, as proposed, should be given widespread publicity.

As in the past, the National Convention should act on the general principles that are involved and entrust the more minor details to the Committee on Revision and the Board of Trustees.

The supervision of future editions of the Pharmacopeia should be entrusted to a much smaller committee of directly responsible editors.

Finally, and perhaps of more immediate interest and importance, The American Medical Association should institute a standing committee on the Pharmacopeia for the two-fold purpose of collecting information to be used in connection with the revision of the Pharmacopeia itself and of popularizing the Pharmacopeia and its content with members of the medical profession.

DISCUSSION.

DR. O. T. OSBORNE, New Haven, Conn., thinks that no one is quite so disappointed with the Pharmacopeia as are those who teach practical therapeutics and *materia medica*. The profession has been talking, for years, against ordering a proprietary preparation when the Pharmacopeia has just as good a one; also against ordering a drug by its trade name when there is a Pharmacopeial name. The new Pharmacopeia, he said, absolutely defeats this object. Students can not be compelled to write on prescription blanks some of the names used in the Pharmacopeia. The bulk of material contained therein makes it almost impossible for any student to familiarize himself with it. Dr. Osborne has long contended that the Pharmacopeia should be in a convenient form and size. It should not be a great, unwieldy volume of instructions to the pharmacist in which medical men are not interested. They can have as large a dispensatory as they see fit. Then,

the answer comes, there should be some particular method for the pharmacist to follow in making all preparations. How many druggists, he asked, make these preparations? The majority of the preparations are made by manufacturing concerns, therefore that part of the Pharmacopeia can not be of much use to pharmacists. In the next place, it was unfortunate leaving out of the Pharmacopeia the preparations under the drugs. The doses in many cases have been carelessly put in. Why, he asked, depart from the metric system? Physicians talk of it, insist on it, the Pharmacopeial commission insisted on it, and then proceeded in such a way as absolutely to defeat the object of the metric system. There is no use in saying a dose is 4 c.c. when 5 c.c. is the dose it should be. It is impossible to teach students 0.025 of a gram or .75 cgrms. On the other hand, take acetanilid: The dose given is 37.5 cgms., much too large, while the dose of Pulvis Acetanilidi Compositus is positively dangerous and should never be repeated in the same day. Dr. Osborne hopes that a committee will be appointed to report at the next meeting on the recommendations of this paper, and to devise means of getting in closer touch with the commission for 1910.

DR. WM. J. ROBINSON, New York City, asked who is responsible for the dosage in the Pharmacopeia?

DR. C. S. N. HALLBERG, Chicago, said that the physicians are responsible.

DR. WM. J. ROBINSON, New York City, said that it was most likely the absence of physicians or at any rate the absence of real practicing physicians. All, he said, were looking forward expectantly to the doses in the Pharmacopeia, thinking that at last some order would be introduced into the chaotic condition of posology, but the doses in the Pharmacopeia have made confusion worse confounded. For instance, the average doses of cinnamon and of zinc oxid as given in the Pharmacopeia are exactly alike, namely, four grains. The physicians know that cinnamon can be given in 15 and 30 grain doses, and, if judging by analogy, he decided to give a similar dose of zinc oxid, what, asked Dr. Robinson, would be the result? From a careful study of the doses in the Pharmacopeia it is apparent to Dr. Robinson that the doses were not given by a practicing physician, if by a physician at all, and it is no wonder that the medical profession does not want to know anything about the Pharmacopeia, for it contains little or no information of value to physicians and much of the information it contains is not information, but misinformation.

DR. S. SOLIS-COHEN, Philadelphia, said that it is highly important that the methods and results of Pharmacopeial revision be considered carefully. The manner in which the revisions can be bettered is by giving greater weight to the views of physicians. He urged the appointment of a committee to study the whole subject leisurely and deliberately and to present a well-considered recommendation at the next meeting.

PROF. H. P. HYNSON, Baltimore, does not believe that the Pharmacopeia is a controlling influence in medical practice; the Pharmacopeia should be the servant of medical men. All the Pharmacopeia should be, and all it can expect to be, is a standard. If there is any need for a larger number of preparations there is no reason why the National Formulary should not furnish them. Pharmacists want the Pharmacopeia to offer more standards, especially the standard maximum dose. If physicians were in drug stores and knew the trials pharmacists have on this score they would appreciate the importance of this point. The druggists of the country do not want the Pharmacopeia restricted, unless the National Formulary is adopted, which will be satisfactory as an auxiliary standard.

DR. M. G. MOTTER, Washington, D. C., said he thought that Dr. Cohen wished to imply that the committee of revision was inclined to disregard the views of the medical profession. The facts of the case are utterly different. The call for the eighth revision convention was sent out to all the medical societies of this country with the request that they present suggestions, and there were only four medical societies which did present such reports. These were: Colorado

Medical Society, Medical Society of South Carolina, New York State Medical Society, New York Academy of Medicine.

DR. S. SOLIS-COHEN, Philadelphia, declared that on the whole he considers the new Pharmacopeia a splendid book. It can be improved and made more practical when pharmacists pay more attention to the opinions of clinicians, and when medical men are more willing to assume their share of the actual burden of revision. The object of the Pharmacopeia is to prescribe a standard. Physicians do not have to use anything or to teach anything simply because it is in the book. Each man makes his own selection and will continue to do so, whether the number of admitted articles be less or more. On the other hand, omission of drugs or preparations in actual use by any considerable number of practicing physicians leads to confusion and difficulty. Dr. Solis-Cohen's criticisms were more of omissions than of commissions.

DR. REID HUNT, Washington, D. C., referred to the importance of the Pharmacopeia as a legal standard. While the practitioner does not care very much about the methods of detecting impurities which may be present in drugs, this is very important from the health officer's standpoint. The Pharmacopeia has to serve as the standard for so many people that it must be looked at from many sides, and its importance as a legal standard is increasing rapidly. The medical man wants a small, compact book, containing only the drugs he uses, yet throughout the whole country so many of the other preparations are being used that there ought to be some sort of a standard for them also. The Pharmacopeia, Dr. Hunt said, is becoming more and more the legal standard by which pure drug laws are enforced.

MR. M. I. WILBERT, Philadelphia, said that it is impossible to discuss so wide and important a subject in any reasonable amount of time that could be given to it. The appointment of a committee to consider the recommendations at length, he thought a good move. The criticism that the Pharmacopeia is too diffuse for medical men, is a just one, if future generations of medical men are to be instructed in but a few, or comparatively few, subjects. This need for restricting the Pharmacopeia is illustrated by the expansion of medical schools. For instance, the medical department of the University of Pennsylvania less than thirty years ago had 6 branches and 8 instructors; at present it has 21 departments and 137 instructors, and materia medica plays but a minor part. From being the one-sixth of the total instruction thirty years ago, it is the one twenty-first today, and is given secondary consideration at that. Mr. Wilbert is in favor of limiting the official preparations to a reasonable number that can be fully standardized and controlled. The question of dosage is an important matter, from the pharmacists' point of view, but it is readily demonstrated that doses are but relative. A normal dose for one patient might be a huge dose for another patient, so that any attempt at stating a maximum would be exceedingly unfair and would cause no end of trouble.

MALARIAL HEMOGLOBINURIA

WALTER V. BREM, M.D.
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ANCON, CANAL ZONE.

(Concluded from page 1904.)

ANALYSIS AND DISCUSSION OF CASES.

ETIOLOGY.

Nationality.—Nine of the cases occurred in Americans, two in Spaniards, one in an Italian, one in a Greek, and one in a Spanish-American. Of the 1,107 malarial patients admitted during the period covered, the Teutonic race constituted 53.6 per cent.; Spaniards, 24.4 per cent.; Italians, 4.7 per cent.; Spanish-Americans, 5.6 per cent.; Greeks, .7 per cent.; seventeen other countries represented, 11 per cent. Hemoglobinuria developed, then, in about 1 out of every 66 Teutonic malarial patients; in 1 out of every 135 Spaniards; in 1