SCOPE OF THE PHARMACOPOEIA.

BY HENRY KRAEMER.

In the biological sciences it is said that in the development of the individual, it passes through, in a very brief space of time, the evolution of the race. I am getting to believe that in pharmacopoeial work, if one serves long enough on the Committee of Revision, he will pass through the experiences of all those who have had anything to do with pharmacopoeial revision since pharmacopoeias were written. It would seem that it is experience that gives a man his point of view. Of course, he must have a mind to note his observations, possess sufficient judgment to form right conclusions and backbone enough to state his point of view.

I was much interested the other day in reading an article by that pharmaceutical seer, who seems to comprehend the wisdom of the ages—John Uri Lloyd. This time he was writing concerning spurious drugs. He said: "I am of the opinion that in the majority of cases, adulteration and misbranding are unintentional. Collectors do not possess the necessary technical knowledge, confusing plants of similar appearance and habitat with the genuine." I have just come to a like conclusion as a result of farming and harvesting several acres of medicinal plants at the University of Michigan. The experiment was started on an extensive scale because I expected a loss of about 90 percent but instead we lost less than one-tenth of one percent out of 20,000 plants. I was not prepared to harvest the crop but nevertheless went at it with an inadequate amount of drying space. Drugs were strung on wires as well as spread on the floors. It required care to prevent admixture at times and I came to view the whole question of adulteration in an entirely different light. Furthermore, it almost seemed to me like a waste of energy in taking the question of adulteration as seriously as we do. Not that the question is of minor importance, but our finding should be communicated to the collectors, who should be told of their shortcomings and instructed to carry on their work differently. In other words our present organization in securing pure drugs is wonderfully inefficient and will continue so until we begin our work at the point where errors creep in. From a practical experience of this kind, as well as field work in the collection of medicinal plants, we find that a good many closely related species resemble each other and even plants that are widely separated have many points in common, as young plants of Poke closely resemble those of Belladonna. The first fact that is brought out in the study of the scope of the Pharmacopoeia will show that one's point of view will depend upon one's practical use of the book.

The subject which is bound to come up for discussion, and on which there are two viewpoints, is the number of articles to be included in and deleted from the U. S. P. IX. There are two views, namely, (I) that it should be confined to useful drugs and limited to simple preparations for which tests and standards capable of verification can be applied. Those holding this view would relegate to the National Formulary all those drugs which, no matter how much they may be employed, they consider useless. For this work they would also relegate all compound preparations, as Mistura Glycyrrhizae Composita, Pilulae Catharticae Compositae. There is another class that hold to the view that the Pharmacopoeia should include in it all those drugs for which there is a demand by the medical profession, and which are largely employed in the manufacture of proprietary preparations for which there is an enormous demand by the laity as well as physicians.

I am of the opinion that it would be desirable for the medical profession to name the substances which should go into the Pharmacopoeia, but so long as there is no concerted action representing an expression from the majority of the physicians of this country, it is not possible for us to be guided by what a few representatives of the medical profession desire. For the most part, those who have expressed themselves are pharmacologists and could tell nothing about the action of drugs, unless they had a sphygmomanometer or a myocardiograph for measuring the influence. I do not wish to be misunderstood as not recognizing that the work of the pharmacologist is fundamental, leading to the development of a rational therapeutics. But in pharmacopoeial work we must bear in mind that we cannot wait for a science to develop and we, who are actively engaged in the investigation and manufacture of drugs and medicines, know that there are many substances, not included in the U. S. P., which are more or less extensively and successfully employed, and for which manufacturers must prepare some standard. Whether a drug is in the Pharmacopoeia or not does not affect its use, but if there is no standard furnished by a body of disinterested investigators, representing the Committee of Revision, the manufacturer must grope

in the dark. We must educate the national and state analysts to a comprehension of what has been learned with years of effort and explain to those who oft-times are unable, because of a lack of practical experience, to comprehend the essentials in the making of desirable, elegant and efficient preparations. We might well go back to the wisdom of Dr. H. C. Wood, who as president of the U. S. Pharmacopoeial Convention said:

> "A common, fallacious belief is that pharmacopoeial recognition means that the drug recognized is of value; the fact is that the United States and other pharmacopoeias have in them numerous drugs of very little use. The nature or motif, so to speak, of a pharmacopoeia is not to distinguish between worthy and worthless drugs, but to see that a drug which is asked for is, as sold by the apothecary, pure, and that proper preparations of uniform strength are made by the apothecary.
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> "The question which the framers of the pharmacopoeia ask themselves is not, Is this drug of value, but is there a demand for it by the profession of medicine? If five thousand doctors in the United States believed brick dust to be a valuable remedy and habitually used it, brick dust would have to go into the Pharmacopoeia. Witch-hazel is probably as active and as useful as is brick dust, but witch-hazel is a fad and is enormously called for, and so witch-hazel must go into the Pharmacopoeia. The Pharmacopoeia exists for the purpose of requiring the apothecary to give, in the first place, pure brick dust or pure witch-hazel when asked for; and, in the second place, uniform preparations of these remedies."

During the last revision I adhered as closely as I could to the dictum that the physician ought to know what he wants, and in the preparations of the monographs on Digitalis and Strophanthus I yielded to this opinion. In the case of Strophanthus I even gave way to my better judgment in including the seeds of two species of Strophanthus. I may add, however, that I doubt very much if the situation regarding Strophanthus will be improved until the Pharmacopoeia requires that Strophanthus shall be imported in the original follicles so that we can identify the species being used.

In spite of all that was done, and we deleted some 30 vegetable drugs for which I had most laboriously prepared definitions and descriptions, the very men representing the medical profession set up a howl of dissatisfaction, because the number was not increased three-fold and limited to only those drugs which could be used for experimentation upon frogs, cats and dogs. I do not say that their interest in humanity is not as great as that of the practicing physician, but their manner of expressing it is distressing as well as unsportsmanlike. I do not say that I will not support the dictum that substances to be included in the Pharmacopoeia should not represent therapeutic value and pharmaceutical necessity, but I will ask for a broader, more humane and more practical interpretation of these principles. In other words *the scope must be all-inclusive.*

With the limited time at my disposal I cannot discuss the other large questions which will come up from time to time for consideration. One of these is the question of simple preparations *versus* compound preparations. It must be borne in mind that both druggists and doctors are going to continue making and prescribing the compound preparations and it will not solve the difficulty to merely cut these out of the U. S. P., and transfer them to the National Formulary, for the N. F. is also a legal authority just as is the U. S. P. Such transference from the U. S. P. to the N. F., therefore, is about as sensible a procedure as transferring an article from the right hand pocket to the left.

For my own part, I am coming firmly to the conclusion that the advance in Pharmacy must, to some extent, consist in the preparation of a larger number of compound medicaments and of which Huxham's Tincture stands as the exponent. I cannot get away from the days when we ground the Cinchona, Bitter Orange Peel, Serpentaria, and made a finished preparation of compound Tincture of Cinchona fit for a king. Someone must work out these combinations in which we have the re-enforcement of a valuable drug by adjunctives which enhance its quality and potency, imparting at the same time, taste and flavor to the finished preparation. I feel that everything should be done by the Revision Committee of the Pharmacopoeia to encourage the manufacture of compound preparations which are used both directly and indirectly in medicine.

I was much interested in reading the article by John K. Thum, in which he advocates the inclusion of a liquid soap in the next Pharmacopoeia. His arraignment of the Committee of Revision is rather interesting to me as I am well aware of his adhesion to those tenets which will make for a conservative Pharmacopoeia.

Among the other subjects which must be considered in the scope of the new Pharmacopoeia I may mention the following:

1. The extension of the definitions to include additional sources of supply. During the war we were practically confronted with this question and it was found possible to extend the available supplies and reduce the expensiveness of quite a number of drugs. The situation practically forced Mexican Scammony on the market and also the American Styrax, because the Levant article was not obtainable.

2. The stability of certain important drugs and their preparations will doubtless receive greater consideration than ever before. It seems to be a fact that a considerable quantity of such preparations as the fluidextract and tincture of Digitalis, fluidextracts of Ergot and Convallaria, which are on the market, are of inferior quality. It has been stated to me that 30 percent of the fluidextract of Ergot on the retail druggists' shelves to-day is practically worthless and, hence, worse than useless. This does not apply to the best pharmacists or those who are enjoying a large prescription trade and who, consequently, carry fresh stock.

3. The physiological assays of the various drugs and drug derivatives, including the diphtheria antitoxin, seem to demand a most painstaking revision. This is likely to be a vexatious problem, because there is a division of sentiment among pharmacologists as to the accuracy of such assays and also as regards the details of each particular assay. In addition to providing standard assay methods it would seem desirable to extend the list of the drugs subject to physiological assay to include some of the more important vaccines, as anti-typhoid vaccine, which are now just as valuable and as largely consumed as the anti-diphtheritic serum.

4. The Pharmacopoeia should acknowledge the value of the carbolic acid coefficient as demonstrating germicidal activity and thereby officially covering assay of the important class of germicides. This will involve a thorough review of the methods of determining carbolic acid coefficient and the approval of some one particular method, rather than leaving the field open, as at the present time, to three or four assays.

5. In this connection, there might be included a tentative list of suggested additions to the U. S. Pharmacopoeia X:

Acidum Acetylsalicylicum
Acidum Diaethylbarbituricum (Veronal)
Benzene (Benzol)
Benzyl Alcohol
Cantharidin
Chlorinated Paraffin (Dakin)
Duboisine
Dionin
Epinephrina (Adrenalin)
Fluorescein (Diagnostic) Reagent
Protargol
Solution of Chlorinated Soda
Theobromina
Tuberculinum
Vaccinum Staphylococcicum
Vaccinum Typhosum
Sodii Biphosphas
Salvarsan (Arsenobenzol)
Serum Antimeningococcum
Sodii Arsanilas (Atoxyl)

These, it occurs to me, are some of the large questions involved in the scope of the Pharmacopoeia which should receive the attention of pharmacists, and upon which we must have positive ideas in order to develop a Pharmacopoeia which meets the requirements of good practice of to-day.

U. S. P. REVISION—WHO SHALL DO THE WORK AND WHY?

BY ROBERT P. FISCHELIS.

The United States Pharmacopoeia is no longer a book of formulas. It is now a book of standards recognized as such by the Congress of the United States which represents all the people of this country. It is no longer published in the interest of the pharmacist or the physician alone, but also, and largely, in the interest of the public. Shall this addition to the function of the Pharmacopoeia cause a transfer of the work of revision to a new organization responsible directly to