evaporated in the oven until entirely crystallized and analyzed. The results are as follows:

TABLE V.

Crystals.	Hypochlorites.	Chlorates.	Chlorides.	Alkalinity % NaOH.
Crystals (10° C.)	14.83	0.02	5.58	....
Crystals (10° C.)	11.60	1.93	9.13	36.07
Crystals (10° C.)	11.61	1.99	9.25	26.77
Crystals from mother liquor	15.87	3.69	4.19	....
Crystals from mother liquor	20.38	3.66	3.58	....
Crystals	2.89	5.36	46.19	8.53
Crystals	3.12	5.35	57.72	8.88

The crystals prepared at $-10°$ C. were very hygroscopic and dissolved in their own water of crystallization. No effort was made to purify them.

REFERENCES (NO. 5).

Mellor, "A Comprehensive Treatise of Inorganic and Theoretical Chemistry," Longmans & Co., 1922.
Canot, *Chemical News*, 73, 157, 1896.
Wisener and Teller, *Am. Jour. Pub. Health*, 11, 613, 1921.
Elledge, *Chemical News*, 116, 64, 1917.
Williams, *Chemical News*, 107, 109, 1913.
Ruyzs, *Jour. Chem. Soc. Lond.*, 114, 125, 1918.
Rideal, *Jour. Soc. Chem. Ind.*, 40, 64, 1921.
MacMillan, *Chem. Met. Eng.*, 23, 1064, 1920.
Coblentz and Vornik, "Volumetric Analysis," 1909.
Schimpf, "Manual of Volumetric Analysis," 1909.

(To be continued.)

UNIVERSITY OF WASHINGTON,
COLLEGE OF PHARMACY,
SEATTLE.

UNSOLVED PROBLEMS OF U. S. P. REVISION.*

BY A. H. CLARK.

Some of the unsolved problems of the U. S. P. Revision are concerned with the organization, and methods of working, of the Convention and of the Revision Committee. Among these I know of nothing more important than the present-day method of spasmodically attacking the problem of revision. Every ten years a new committee is elected and it works very energetically for four or five years and then gives no further thought to the subject of revision until the next convention time rolls around. It would seem to me far better that the Committee should continue to work throughout the period of ten years and when this period comes to an end they should have the Pharmacopœia in proper condition for presentation to the Convention for its approval. This would avoid, I think, many of the imperfections which are bound to creep in under the present plan. We now base our

* Read before the Unofficial Conference of U. S. P. and N. F. Revision workers at Chicago, January 12, 1924.

revision, or rather we are supposed to base our revision, upon the work that has been published since the appearance of the previous Pharmacopœia. This plan has not always been adhered to, and, even if it were, it is a rather dangerous procedure in that the Committee is very likely to accept work that has been published without examining it very critically. This results sometimes in having things incorporated in the Pharmacopœia which are subsequently found to be of no value or to be in error in some respect. Original work during the period of revision is objectionable because the time is too short to check up carefully on results that are obtained. This is true not only of the members of the Revision Committee but is also true of the many willing workers throughout the country who coöperate with the Committee in their work. During the rush of trying to get out the book in just as short a time as possible the amount of matter submitted to outside collaborators is so great that it is impossible for them to keep track of it carefully or to check up very carefully on the things which may be to them of great interest or importance. If the process of revision were a continuous one, much original work could be done and checked by the members of the Committee and still further examined critically by those outside of the Committee who take such a deep interest in the work of revision. I feel quite certain that this would result in much good to the Pharmacopœia.

Whether or not the above plan has merit another phase of revision has always seemed to me to be important and worthy of serious consideration. This is the separation of the book into two parts—Part I on general topics and Part II on the more technical subjects. I believe this would have many advantages to the users of the Pharmacopœia and make it much more valuable and interesting to both pharmacist and physician. By eliminating all technical matter such as assay methods, chemical tests, technical microscopic descriptions, etc., much more space in Volume I could be given to matter which is of direct interest to the physician and the pharmacist. While I do not look upon the Pharmacopœia as being a textbook for teachers or students I believe that this scheme would result in a book of greater advantage to them also, and finally it would result in Part I being less expensive than the present-day volume, which might increase its popularity to some extent. The argument often advanced that two volumes are difficult to handle and lead to confusion has no weight in my opinion. Two volumes is only an extension of the present idea of two parts. Very few will deny the advantage of the present two parts. To many the present book is "too scientific" or "too technical;" to others it is not sufficiently so. Two volumes could be made to meet the ideas of both groups and as far as size or unwieldiness is concerned, there would be an advantage to both groups. The writer believes that in quite a number of cases even items now described in full in Part I of the present U. S. P. could be transferred to Volume II and placed in the list of reagents, or a new classification could be made of them.

From the viewpoint of the pharmacist the present Part I could be improved by more fully describing the pharmaceutical processes with perhaps the various reasons for the particular procedure directed and special cautions as to procedure and methods. Working formulas could more generally be given which would enable the pharmacist to prepare many things which he is now unable to do as far as the Pharmacopœia is concerned because no working formulas appear. Full

instructions for preserving drugs and chemicals would be a valuable addition. There are many directions in which this idea might be extended.

The general description of drugs and chemicals (not technical descriptions) might be enlarged upon so that the physician or pharmacist could get some idea from these descriptions as to what these things really are.

From the physicians' standpoint there might be added such things as tables of antidotes, description of physiological tests which are crowded out of the present Pharmacopœia for lack of space and also probably because the present ones are out of date. While I do not approve of discussing therapeutics in the Pharmacopœia, an agreement might be reached upon the inclusion of a table on therapeutic indications of drugs. The popularity of such a thing is evidenced by the arrangement of the matter in New and Non-Official Remedies of the A. M. A. in which the articles described are classified so far as possible according to therapeutic uses.

When we come to consider Volume II, I believe that a great majority of chemists, Government and otherwise, scientists, etc., who may be interested in the Pharmacopœia will agree that by putting all this material into one volume it could be made a great improvement over the present Pharmacopœia in respect to analytical detail. All the assay methods for drugs and chemicals could be more fully described and even alternative methods could be introduced with advantage in many cases. It has often been said that for the purpose of the Food and Drugs Act methods of assay should be as explicit as possible; in fact, should be so explicit that one need not in the least vary the procedures directed. Under the present plan it is impossible to do this because of lack of space. If a special volume is devoted to these subjects, space would be ample.

Volumetric methods have been the most popular in the Pharmacopœia presumably because they are the most rapid. This may be true of the chemists who are working every day along these lines or making a relatively large number of estimations which require a particular set of volumetric solutions. When we consider, however, the person who is an occasional worker in this line, gravimetric methods frequently require less time and labor than volumetric methods. Furthermore, in a number of instances no satisfactory volumetric method is known while gravimetric methods can be successfully applied. Under the plan which I am advocating general gravimetric methods could be given for sulphate, chloride, phosphate, etc., and a method for the gravimetric determination of sodium and potassium might be included. We have a few gravimetric methods in the Pharmacopœia at present and I see no reason why they should not be extended materially in such a book as Volume II could be made.

Other methods that could be more fully treated are—electrolytic; gasometric; colorometric; turbidimetric; polariscopic; boiling point and melting point determinations, etc.

General identity tests could be made more valuable because they could be more fully described. Special identity tests could be more generally introduced into Volume I.

The standardization and preservation of volumetric solutions could be more fully treated.

The two volumes could thus be made far more useful to the interests served by the Pharmacopœia, namely the physician, the pharmacist, and the analyst. Who

knows but that in this way the frequently discussed problem of Government revision of the U. S. P. might be solved? Why not let the pharmacist and the physician revise their part stating what they want to have included and fixing the standard of purity and strength, and let the Government experts decide upon how we shall determine whether or not the standards are met?

DISCUSSION.

WILLIAM B. DAY—The subject is very well presented by Professor Clark. I think it would not be wise to turn the Pharmacopœia over to the Government. We are too much inclined to say "let the Government do it." I doubt whether the Government could work in harmony with the large manufacturers, or command the services of the kind of men we now have. Our present organization could not be excelled. I would regret to see the teachers in the colleges of pharmacy out of touch with pharmacopœial revision.

There should be some way of carrying on the revision continuously. The old Committee ought not to quit working when the book is out. They can tackle problems in preparation for the next revision. By a very slight modification of precedent the work of the committee could be carried on. Some provision should be made so that the whole time of the General Chairman of the Committee could be had.

E. L. NEWCOMB—Why should we make two parts? Why not enlarge the present book somewhat? By cutting down the $1^1/_2$ inch margin which is only for looks and somewhat reducing the historical and non-essential parts, much space could be had for useful information. Keep it one volume instead of two.

A. H. CLARK—I am not necessarily in favor of Government control but of some central continuous control. I do think more should go into the Pharmacopœia than convenient in a single volume.

NEW YORK PHARMACEUTICAL ASSOCIATION.

A questionnaire has been prepared by Samuel S. Dworkin, Chairman of the Committee on Commercial Interests of New York Pharmaceutical Association. Retail pharmacists throughout the State are urged to reply to the questions, or to as many of them as they are personally interested in. They are concerned with such important subjects as cut rates, "drugless drug stores," drug "peddlers" and Sunday closing, and a good response from the retailers of the State will make it possible for the committee on commercial interests of the New York State Pharmaceutical Association to do something toward solving some of the problems involved. Replies should be mailed to Mr. Dworkin, 151 St. Anne's Ave., New York City.

PENNSYLVANIA PHARMACEUTICAL ASSOCIATION.

The *Pennsylvania Pharmacist* for March gives fully a fourth of its pages to A. Ph. A. Headquarters publicity. An account is given of the recent Executive Committee Meeting when preparations were made for the annual convention to be held in Bethlehem.

J. Q. Reinhart, of Philadelphia, was selected as Chairman of the Entertainment Committee. This will be good news for all who expect to attend the Bethlehem Convention. Former attendants, and particularly the ladies, will remember with pleasure the very capable services he has given on previous occasions. The plan this year is to introduce several novel features by way of entertainment and bend every effort to make all the new members feel perfectly at home at the meeting. Mr. Reinhart will have an able corps of helpers, including Messrs. D. M. McMurtrie, of Altoona, J. J. Kelly, of Philadelphia, Paul B. Anspach, of Easton, D. M. Knabb, of Allentown, together with the following members from Bethlehem: George F. Metzger, M. W. Fox, E. O. Prosser and George W. Roland.

DENVER DRUGGISTS' ASSOCIATION.

Druggists of Denver have formed an organization to be known as "Denver's Dependable Druggists," for the purpose of better acquainting the public with the service rendered by the druggists of the city. The officers of the new organization are Julius F. Earnest, president, Earl Van Zandt, vice-president, and Charles J. Clayton, secretary-treasurer.