SUGGESTIONS FOR PHARMACOPOEIAL REVISION.*

George E. Ewe: The detergent base (linseed oil) can be effectively replaced by certain other satisfactory and cheaper materials. It is suggested that the U. S. P. permit the use of these other satisfactory cheaper materials, dependent upon the lowest price quoted at the time of purchase for manufacture. See American Pharmaceutical Association Proceedings for 1914, page 277, and for 1918, page 170.

NOTE: The phenol coefficient of compound solution of cresol (within the limits of error inherent in the Hygienic Laboratory method of determining phenol coefficient) is dependent particularly upon the phenol coefficient of the cresol used and not the detergent base.

I have frequently made samples of compound solution, of cresol from various samples of corn oil and find corn oil to be satisfactory in every way, including the phenol coefficient.

Among the materials which have been found satisfactory are oleic acid, cottonseed oil, peanut oil, sesame oil, soya bean and cocoanut oil. The present prices of various materials suitable for making compound solution of cresol, according to our Purchasing Department (H. K. Mulford Company) are:

Oleic Acid	$23^1/_2$ cents per lb.
Linseed Oil	$25^1/_3$ cents per lb.
Cottonseed Oil	$26^1/_4$ cents per lb.
Peanut Oil	Much higher
Sesame Oil	$40^7/_{10}$ cents per lb.
Soya Bean Oil	25 cents per lb.
Cocoanut Oil	22 cents per lb.

Apparently the cheapest material is cocoanut oil, but this is only apparent and not real. The really cheapest material at present is oleic acid because only $^9/_{10}$ as much is required as of linseed or other oils because of the presence of the glyceryl radical in the oils. Therefore, the practical price (for purposes of comparison) of oleic acid is really only $21^1/_{10}$ cents per lb.

I would suggest that the U. S. P. permit the use of these other satisfactory cheaper materials dependent upon the lowest price quoted at the time of purchase for manufacture.

Regarding the other Pharmacopoeial standards of quality for these materials, I would present that this is not important providing the phenol coefficient, color, clarity, odor, consistency, detergent power, clarity of mixture with water, proportions of "phenols" and "inert ingredient (water)" statements were included in the U. S. P. description. Unfortunately, it is probably premature to require the phenol coefficient to be determined, but it must be taken into consideration that South Carolina requires this at present, other states are considering the matter and it is safe to predict that the officers in charge of enforcing the National Insecticide Law will be successful in getting through legislation requiring the phenol coefficient statement on the label of all disinfectants and similar products before the revision of the U. S. P. X comes up for consideration. I might say that the H. K. Mulford Company has anticipated this and has for many years placed a phenol coefficient statement on the label of Liquor Cresolis Compositus. The other requirements are very readily stated as familiarity with this product presents exact evidence. I would suggest the following requirements based upon my experience:

Formula:

Cresol	500 Gm.
Detergent Base	See below
Sodium Hydroxide	See below
Water, a sufficient quantity to make	1000 Gm.

Detergent base: Oleic acid, linseed oil, cottonseed oil, peanut oil, sesame oil, soya bean oil, cocoanut oil or corn oil may be used. When oleic acid is used, employ 270 Gm. When any of the other oils are used, use 300 Gm.

Sodium Hydroxide: While 54 Gm. has proven satisfactory with the materials mentioned in this suggestion, yet it would be better to specify the specific quantities of sodium hydroxide to be used with the different detergent bases, the quantity of sodium hydroxide being based upon

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* Continued from p. 312, March 1919 issue.

the average saponification value of the various detergent bases obtained from a source satisfactory to the U. S. P. Revision Committee.

These two ingredients (detergent base and alkali) might be included in the form of a table, as follows:

Detergent Base (Gm.).		Sodium Hydroxide (Gm.).
Linseed Oil.....	300	54 Gm.
Oleic Acid.....	270	54 Gm.
Corn Oil, etc.....	300	?

Dissolve the sodium hydroxide in 50 mils of water and warm the solution to 70° C., add it to the detergent base and mix thoroughly; then continue to heat the mixture with stirring until a small portion is found to be soluble in boiling water without the separation of oily drops. While yet warm add the cresol and mix thoroughly, maintaining the temperature at about 70° C. until a clear solution is produced. Finally add sufficient water to make the finished product weigh 1000 Gm.

Color: Brownish to reddish brown.

Clarity: Perfectly clear, free from sediment.

NOTE: When very cold turbidity may develop. The liquor should be rendered clear by warming before being dispensed.

Odor: Cresol-like, not rancid.

Consistency: Syrupy.

Detergent power: When shaken vigorously with 10 times its volume of distilled water, voluminous lather must be obtained. A mixture of 1 volume with 10 volumes of distilled water must be perfectly clear.

Proportion of Phenols: Considerable controversy has come up in regard to the proportion of phenols. The following note abstracted from "Laboratory Notes" by George E. Ewe and Chas. E. Vanderkleed presented at the Detroit meeting of the A. Ph. A. in August 1914, represents my opinion regarding this matter.

"Influence of Method of Manufacture on Composition of Compound Solution of Cresol: When prepared by the cold process exactly as prescribed by the U. S. P. VIII a lot of compound solution of cresol assayed 8.5 per cent. of water and 48.5 per cent. phenols by the methods of assay given in Bulletin 107, Bureau of Animal Industry, U. S. Dept. of Agriculture. When prepared by the more satisfactory method of heating to saponify the linseed oil and dissolving the resultant soap while hot in the cresol, many lots manufactured ranged from 5 to 8.6 per cent. of water and from 48 to 50 per cent. of phenols."

Therefore, I would suggest a standard of 45–50 per cent. phenols and the inclusion of the method outlined in Bulletin 107 will cover this requirement thoroughly.

Inert Ingredient (Water) should be recognized in the next revision since it is required by the National Insecticide Law. The method should be based on that outlined in Bulletin 107, but no standard can be set, it being merely necessary to stamp the water content, as found by assay, on the label of each lot. The H. K. Mulford Company has adopted a standard of "not more than 18 per cent. water," based on the use of linseed oil and sodium hydroxide. The water contents mentioned in the A. Ph. A. note (see above) were based on the U. S. P. VIII formula calling for linseed oil and potassium hydroxide.

As this product is used in such large quantities for sanitary and detergent purposes, every effort must be made to reduce the cost to the consumer. Proportion of phenol standard will prevent controversies.

LIQUOR MAGNESII CITRATIS.

S. L. Hilton: Substitute sugar 51 Gm. for 60 mils of syrup. I can see no advantage in using syrup whether on hand or not. Syrup not freshly made is likely to contain spores that will cause trouble in the solution. Sugar is much better, easier to handle, filters practically as fast and gives better results. I am now making some experiments using heavy oxide of magnesia instead of the carbonate in its proper equivalent. So far as I have gone it seems to give a preparation that keeps better and is much easier and quicker to make.

Bertha Mueller: It is recommended that the technic be modified:

Put the citric acid and the magnesium carbonate into a graduated vessel, add about half of the required amount of water and allow to stand until the reaction is complete, then add the

syrup, oil of lemon talc, and the remainder of the water. Filter the solution into clean bottles and stopper them lightly with a pledget of cotton, then place them in a water-bath and gradually heat them to boiling. Retain that temperature for a half hour, then remove the cotton pledgets and stopper the bottles tightly. Add the potassium bicarbonate when the solution of magnesium citrate is to be dispensed.

It is very desirable to have a preparation that will keep; therefore, the U. S. P. directions should be modified, for they do not yield a satisfactory product so far as keeping qualities are concerned.

LIQUOR POTASSII ARSENITIS.

Dr. A. R. L. Dohme: The total arsenic should be estimated in addition to the arsenous arsenic.

MAGMA BISMUTHI.

Dr. A. R. L. Dohme: The electrolytic assay method should be used in assaying this preparation. By simply evaporating a definite quantity of the magma to dryness and weighing the residue, soluble salts present in the preparation are estimated also.

MAGMA MAGNESIÆ.

S. L. Hilton: Increase standard to at least 7.5 per cent. magnesium hydroxide. It is easy to obtain a product assaying 7.5 per cent. It shows less separation on standing and is equal to any proprietary product on the market.

Bertha Mueller: It is recommended that dried magnesium sulphate be used in place of magnesium carbonate. The following formula is submitted:

Magnesium Sulphate, dried.....	270 Gm.
Sodium Hydroxide.....	120 Gm.
Distilled Water to make.....	1000 mils

Dissolve the dried magnesium sulphate in enough water to make 750 mils, and the sodium hydroxide in enough water to make 250 mils; filter both solutions. Then gradually and with constant stirring, pour the sodium hydroxide solution into the magnesium sulphate solution. Mix thoroughly, and add sufficient water to make the product measure 4000 mils. Allow to subside, then decant. Continue washing by decantation until the supernatant liquid is tasteless. Then allow the magma to subside to the required volume and preserve according to U. S. P. directions.

Magnesium sulphate is preferable to magnesium carbonate because it is soluble in water, hence can be filtered and thus freed from mechanical impurities. Then again, the use of magnesium sulphate means a saving of time and labor for two reasons, namely: The resulting magma does not require nearly so much washing, due to the fact that sodium sulphate is more easily washed out than sodium carbonate; neither does it lend to the magma the persistent, disagreeable alkaline taste that the latter salt imparts to it as long as a trace of it is present.

Dr. A. B. Lyons: Much of the milk of magnesia now offered is made by the formula which accompanies Keasbey and Mattison's "Magma Magnesiae," yielding a product which contains about 40 grains to the fluidounce of magnesium hydroxide, whereas the maximum allowed by the U. S. P. IX is 7.5 per cent. or about 36.4 grains to the fluidounce. Would not the 8+ per cent. (say 8.5) be preferable any way to 7.5 as less liable to separate?

MAGNESII CARBONAS.

George E. Ewe: A large proportion of the market supply of magnesium carbonate contains calcium oxide in excess of the U. S. P. limit according to the U. S. P. method of test. It is suggested that the U. S. P. Revision Committee get in touch with manufacturers of this chemical and arrange for conformance with the present U. S. P. standard or reduce the standard. Seven lots examined since June 1916 contained calcium oxide as follows:

0.9 per cent.
0.3 per cent.
Excess.
1.32 per cent.
3.76 per cent.
1.7 per cent.
0.3 per cent.

The U. S. P. standard is "not more than 0.8 per cent."

MAGNESII OXIDUM.

George E. Ewe: A large proportion of the market supply contains calcium oxide in excess of the U. S. P. limit according to the U. S. P. method of test. It is suggested that the U. S. P. Revision Committee get in touch with manufacturers of this product in an effort to obtain conformance with the U. S. P. standard or reduce the standard.

22 samples from different sources tested since June 1916 contained calcium oxide as follows:

O. K.	9.74 per cent.
7.2 per cent.	3.46 per cent.
O. K.	2.00 per cent.
0.3 per cent.	1.10 per cent.
Slight excess	0.50 per cent.
1.16 per cent.	1.80 per cent.
4.2 per cent.	0.57 per cent.
3.2 per cent.	2.20 per cent.
9.97 per cent.	1.8 per cent.
2.57 per cent.	1.02 per cent.
2.6 per cent.	Excess.

The U. S. P. standard is "not more than 2 per cent. CaO."

MANNA.

Prof. Heber W. Youngken: Description: In irregular, more or less elongated, flattened 3-sided pieces; externally yellowish white or cream-colored; friable, somewhat waxy; internally nearly white, porous, and crystalline in appearance (large flake manna) or in irregular masses of brittle fragments from yellowish white to yellowish gray in color (small flake manna), or in irregular masses consisting in part of brittle and soft resin-like fragments, sticky and but slightly crystalline, yellowish white to brownish yellow (manna in sorts). Odor suggesting maple-sugar, taste sweet, slightly bitter and faintly acrid.

The present Pharmacopoeia makes no mention of the commercial varieties of this drug under the description of its physical characteristics. The retail trade, accordingly, when ordering manna, has largely received the cheapest grade, *e. g.*, "manna in sorts." It would be well to have standards for the three grades in commerce.

MASSA HYDRARGYRI.

Dr. J. M. Francis: Our (Parke, Davis and Company) experience with mercury preparations has convinced us that any attempt to estimate the mercury content is unsatisfactory unless one finally resorts to the expedient of estimating the solution of mercury as a sulphide as in the case of the assay given on page 214 (U. S. P. IX) for the assay of corrosive sublimate. The assay of mass of mercury is quite complicated and is finally concluded by the titration method, using tenth-normal potassium sulphocyanate V. S. We have always found that this method gives us low results and it is open to the further objection that it is a colorimetric method.

We are thoroughly convinced that the official method for mass of mercury will always give results that are one or two units below facts. To this extent the official process is troublesome to the manufacturers of mass of mercury and furthermore, it is the cause of a great deal of useless trouble to the pharmaceutical manufacturers who market mass of mercury in the form of pills. We find that the chemists of the various health boards universally get low results in attempting to use this official process, particularly when applied to mass of mercury pills.

My recommendation, therefore, is that the proper committee in due season look into this matter very carefully and insofar as possible, utilize the precipitation as a sulphide in all mercury assays.

MISTURA GLYCYRRHIZÆ COMPOSITA.

S. L. Hilton: Revise the formula by omitting opium. This eliminates much trouble—registration of all sales—and the small amount of opium contained therein plays little if any medicinal part.

Edward A. Wickham: Revise the formula, deleting the Tinctura Opii Camphorata contained therein and adding

Acid Benzoic, 5 Gm.
Camphor, 5 Gm.

instead. This suggestion is made with the fact in mind that the opium content is too small to be of any value and consequently its deletion will not impair the value of the preparation but will eliminate one exempted narcotic-bearing preparation.

OLEORESINÆ.

Ralph S. Swinton: Manufacture of U. S. P. Oleoresins: The U. S. P. IX specifies ether as solvent. Omit this specification, leaving solvent to the discretion of the manufacturer. Ether is a very costly and unsuitable solvent. Many very much cheaper and more easily handled solvents produce an equally good or even better oleoresin. The fire risk with ether is also very great.

OLEORESINA ASPIDII.

Alfred A. Burdick: Include an assay process for this oleoresin.

Dr. A. R. L. Dohme: An assay process should be given. Several reliable processes are available. Large quantities of oleoresin of malefern are marketed which do not contain 27 to 28 per cent. of filicin—the amount present in a good product.

OLEUM AMYGDALÆ AMARAE.

George E. Ewe: Oil of bitter almonds free from HCN is used extensively in flavoring pharmaceutical preparations. A U. S. P. standard for freedom from or limit of HCN should be adopted in order to exclude oils containing dangerous proportions of HCN. The quantitative test for HCN in U. S. P. oil of bitter almonds when applied to "Oil Bitter Almonds, free from HCN" sometimes indicates an apparent HCN content of as much as 0.1 per cent. This may be due to the error inherent in a volumetric process. Manufacturers of this oil should be requested to submit a practical monograph.

OLEUM LIMONIS.

George E. Ewe: Terpeneless oil of lemon varies widely in citral content. It is widely used and superior to oil of lemon in keeping qualities. It should be described in the U. S. P., an assay method included based on present U. S. P. assay method for citral in oil of lemon. A basic standard of 36 per cent. citral should be established and permission granted to use an oil in proper proportion based on the citral content of the oil. Seventeen lots examined during the past four years varied as follows:

Per cent.	Per cent.
12.55	52.20
21.50	54.10
20.20	59.20
24.20	60.30
25.80	67.90
26.60	12.55
33.40	26.70
44.30	28.60
49.40	

Average, 36.4 per cent.

OPII PULVIS.

George E. Ewe: Fuller's earth should be excluded from the term "inert diluent" or milk sugar specified instead of "inert diluent." Milk sugar is a practical inert diluent.

Fuller's earth is popularly considered as an inert substance but actually reduces the apparent strength of the powder. A specified inert diluent is desirable for purposes of uniformity.

OPIUM.

Alfred S. Burdick: In the opium assay, the morphine crystals should be washed with morphinated water until free from ammonia.

S. L. Hilton: Return to the gravimetric method. Personally I think it is much more satisfactory and I cannot see that it takes any more time. I believe the results are just as accurate.

Analytical Laboratory, Department of Customs and Inland Revenue, Ottawa, Canada, by Alfred Tingle: Under the assay of opium omission of the preliminary extraction of opium by water and the substitution of some method by which the whole of the sample taken for assay

would be treated with lime or some similarly alkaline base is recommended. I do not wish to exploit any one lime method rather than another but should suggest the adoption of either the B. P. 1914 method of that of Stevens (Pharm. Archives) preferably modified by increasing weight of sample as in Allen's "Commercial Organic Analysis" VI, 425, 4th American Edition, where, however, the factor requires correction. The recognized fact that some of the morphine present in opium cannot be extracted by water is the reason for this proposal. The morphine left unextracted has not been alleged to lack physiological activity, however.

OPIUM DEODORATUM.

George E. Ewe: Fuller's earth should be excluded from the term "inert diluent" or milk sugar specified instead of "inert diluent." See suggestions under Opium above.

OPIUM GRANULATUM.

George E. Ewe: Fuller's earth should be excluded from the term "inert diluent" or milk sugar specified instead of "inert dilent." See suggestions under Opium above.

PETROLATUM and PETROLATUM ALBUM.

Henry T. Copeland, of L. Sonneborn and Sons: We suggest that no changes be made in the text for these articles without full discussion with the manufacturers. Our Dr. Sonneborn and Mr. Hart, our chief chemist, will be ready at any time to coöperate in any way possible.

PETROLATUM LIQUIDUM.

Henry T. Copeland, of L. Sonneborn and Sons: We suggest that no changes be made so far as Petrolatum Liquidum is concerned. See Petrolatum above.

PHENOL.

The Barrett Company: Change congealing point from 38° to 39° C. A phenol melting as low as 38° C. is a rather impure material and the specification should be raised in order to insure greater purity. A higher specification will not be a serious drawback to manufacturers, practically all of whom are now working with a specification of 39° C.

PHYSOSTIGMA.

George E. Ewe: Present U. S. P. assay method does not yield reliable results. See THIS JOURNAL, December 1919, and January 1920, for a proposed method.

PODOPHYLLUM.

George E. Ewe: It is suggested that the resin finally obtained in the U. S. P. precipitation assay method be dried at 100° C. instead of spontaneously in the air or that the "shake out" method mentioned in my suggestion under fluidextract of podophyllum be adopted.

POTASSII HYDROXIDUM.

John K. Thum: There should be a requirement that potassium and sodium hydroxides be free of chlorides. Both are largely used in the making of liquid soap and it is well known that chlorides precipitate soap. The merest traces interfere with the making of a perfectly clear liquid soap. When a manufacturer had his attention called to the fact that his product had spoiled a large batch of liquid soap, he stated that it complied with the U. S. P. and so it did, nevertheless, it could not by any stretch of the imagination be termed pure.

QUININE.

Dr. A. R. L. Dohme: The test for foreign cinchona alkaloids in quinine and its salts should be revised. The amount of ammonia water (7 mils) permitted by the present U. S. P. is entirely too high and would permit quinine or quinine salts with as much as 8 per cent. of foreign cinchona alkaloids. There is no reason why such salts should be used, especially since the purification of quinine sulphate is not very difficult. In no foreign pharmacopoeia is such a large amount of ammonia water permitted.

N. V. Nederlandsche Kininefabriek and *Semerangsche Administratie Maatschappij, Dept. Bandoengsche Kininefabriek:* In connection with present high prices for quinine salts owing to scarcity of this valuable drug we beg to ask your attention for the following:

During the great war the demand for quinine was enormous and prices were very high; the production of the bark in Java was increased more than was reasonable and the present quinine famine is the logical outcome of it. In order to improve the situation all losses in the

production must be reduced to a minimum and the output increased as much as possible. The standard of purity in the countries where a great consumption exists is, therefore, very important. The difference, f. i., between the standard of the British Pharmacopoeia, 1898, and the U. S. Pharmacopoeia IX, is only a slight one as far as the percentage of other alkaloids is concerned. In fact it is not more than $^1/_2$ per cent. of these. The costs necessary to remove these foreign alkaloids is not only unreasonably high but also a considerable loss of quinine is resulting from the treatment with acids and heat. It is agreed upon between makers that 115 kilos of quinine sulphate, B. P. 1898, represent only 100 kilos of quinine sulphate, Pharm. Germ, 4th Edition.

In order that quinine throughout the world may be available as much as possible and of a generally accepted constant quality, we would sincerely recommend to you to make the new U. S. Pharmacopoeia standard according to that of the B. P. 1898. For the same reason the British Government has abolished the new standard of the B. P. 1914, and put into force again the standard of the B. P. 1898.

The very severe standards to which the Pharmacopoeia Germanica served as an example were skilfully used as an advertisement for German ability and knowledge and moreover, were a very good reason to exact higher prices from the consumers when quinine was cheap and an overproduction of bark was available. The circumstances, however, have been changed. There exists at present underproduction of cinchona bark and any increase over and above the normal price for the usual B. P. quality must be avoided.

RESINA JALAPÆ.

Dr. A. R. L. Dohme: The solubility test in ether and chloroform should be revised. The details of the present method are not sufficiently clear.

RESINA SCAMMONIÆ.

George E. Ewe: No scammony resin of U. S. P. quality regarding ether solubility has been on the market for years, but during the past two years the quality in this respect has improved, so that now it is possible to obtain scammony resin almost up to the U. S. P. requirement. It is recommended that the requirement of 95 per cent. ether solubility be reduced to 85 per cent. in order to make the standard more practical. Scammony resin offered during the past two years has ranged between 84 and 91 per cent. in ether solubility. A lot of scammony resin, made in our Research Laboratory (H. K. Mulford Company) from botanically correct scammony root was only soluble to the extent of 87.1 per cent. in ether. The determination of the ether solubility requires particular care. It is necessary to place the sample in a 4-ounce round nursery bottle, add anhydrous ether (as ordinary ether contains enough moisture to "gum" up the resin and prevent its solution in ether), shake, let stand or centrifuge and pour off the ether extractions. This is repeated several times, and finally the gummy insoluble matter must be triturated with the ether by means of a weighed glass rod in order to obtain total extraction. The bottle must be kept closed as much as possible in order to prevent the evaporation of the ether, which results in the deposition of moisture and "gumming up" of the resin, thus preventing complete extraction by the ether. We always use these precautions, yet have difficulty in obtaining ether solubility of 95 per cent. even with authentic resin as mentioned above.

RESORCINOL.

Dr. Thomas S. Blair: Admit resorcin extracted from vegetable resins as a diatomic phenol, and define a dosage for it. Retain the present official resorcinol made synthetically, but give no internal dosage for it. Synthetic resorcin is toxic, producing convulsions. It is very useful externally but I believe it unsuited for internal administration. The natural resorcin is of established value internally but is almost out of trade, which is unfortunate.

SABAL.

W. H. Stone: The fresh, ripe berries preserved by U. S. P. alcohol are suggested to be made official in place of the partially dried, ripe fruit. These berries are used for making the fluidextract and fresh berries produce a fluidextract which is superior to that made from the dry berries. The fresh berries can be readily preserved by alcohol which is later used in making the fluidextract.

SANGUINARIA.

George E. Ewe: Assay is proposed. A method and standard are suggested as follows:
Assay for alkaloids: Powdered drug 5 Gm. Place in a bottle, add 100 mils of ether and

10 mils of 10 per cent. ammonia water. Shake for four hours. Filter off an aliquot. Shake out with 1 per cent. H_2SO_4. Make acid extractions alkaline with 10 per cent. ammonia and extract with ether. Evaporate ether extractions. Dry residue of alkaloids at 80° C. and weigh.

Standard: Not less than 2.5 per cent. of alkaloids.

NOTE: The assay process described above is the typical "immiscible solvent gravimetric" alkaloidal assay process. The only specific feature is the use of 1 per cent. H_2SO_4. Weaker acid may be employed but 2 per cent. acid results in a precipitation of alkaloidal sulphate which interferes with drawing off the acid extractions.

SAPO MOLLIS.

Bertha Mueller: It is recommended that the technic for making soft soap be simplified.

Dissolve the caustic potash in an equal weight of water in a container which will hold the heat developed during the process of solution. When solution has taken place, add the required amount of oil, followed by the alcohol. Stir with occasional intermittance until saponification has taken place, then add the remainder of the water with occasional stirring until it is absorbed and a clear soap results. The present U. S. P. directions are unnecessarily complicated.

George E. Ewe: The soft soap on the market is usually neutral or possesses a negligible acidity. There would appear to be no objection to this, therefore, it is recommended that the U. S. P. quantitative reaction test read as follows:

The combined filtrate and washings, on the addition of 0.5 mil phenolphthalein T. S. and titration with $\frac{N}{10}$ sulphuric acid or $\frac{N}{10}$ potassium hydroxide, as indicated by the phenolphthalein, shows not more than 0.25 per cent. of KOH or not more than 0.1 per cent. of oleic acid. Each mil of $\frac{N}{10}$ H_2SO_4 used corresponds to 0.00561 Gm. of KOH or each mil of 1 $\frac{N}{10}$ KOH used corresponds to 0.0282 Gm. of oleic acid. See page 90, Proceedings Pennsylvania Pharmaceutical Association, 1919.

Neutral or negligibly acid soft soap is quite as effective as faintly alkaline soft soap.

SCILLA.

H. C. Colson, Jr.: See recommendations under Digitalis above.

SCAMMONY.

S. L. Hilton: The definition should be so worded as to admit Mexican scammony. The majority of scammony now on the market comes from Mexico. True scammony is practically unobtainable, and the Mexican scammony seems to answer every purpose and has the same medicinal properties.

American Drug Manufacturers' Association: This Association recommends the admission of Mexican Scammony. See "Additions" above.

SODII BENZOAS.

George E. Ewe: A deficiency in the U. S. P. tests is pointed out and a remedy suggested.

The U. S. P. sanctions the use of synthetic benzoic acid and requires it to be tested for chlorine, a possible impurity. Synthetic benzoic acid can be and probably is used to manufacture sodium benzoate, yet the U. S. P. evidently by oversight neglects to direct the application of a test for chlorine to sodium benzoate. However, all of the many lots of sodium benzoate used by the H. K. Mulford Company from June 1, 1917, to June 1, 1918, were free from more chlorides than allowed in benzoic acid.

SODII BICARBONAS.

George E. Ewe: U. S. P. description of taste does not fit all lots. The U. S. P. describes the taste as "cooling, mildly alkaline." Some lots which answer all U. S. P. requirements have a distinctly saline, cooling, mildly alkaline taste. These particular lots are always almost perfectly free from normal carbonate as shown by the fact that a saturated aqueous solution gives no color or practically no color with a few drops of phenolphthalein T. S. I have never observed this saline taste in lots which give color in this test and contain normal carbonate within the U. S. P. limits. Of course, all U. S. P. sodium carbonate contains a little NaCl but always so small as not

to reduce the assay for $NaHCO_3$ below 99 per cent. I ascribe the saline taste to the absence of normal carbonate rather than to the presence of NaCl. Because this is a matter of taste, and tastes are variable, I do not wish to propose a change in the U. S. P. description of taste unless many similar instances are brought to the attention of the Revision Committee.

SODII GLYCEROPHOSPHAS.

George E. Ewe: The U. S. P. standard of not less than 68 per cent. of anhydrous $Na_2C_3H_7PO_6$ is too low. A standard of not less than 95 per cent. is suggested. During the past four years we have examined 28 samples with the following results:

Per cent.	Per cent.	Per cent.	Per cent.
71.0	74.4	73.0	100.0
71.28	72.3	70.7	100.0
72.16	72.0	70.2	100.1
73.0	101.0	75.6	99.6
77.3	99.9	71.63	99.9
69.92	101.5	99.5	99.8
78.0	99.9	87.8	99.9

The order in which the results are given in this table represents the order in which they were examined. It will be noted that recent lots appear to be anhydrous.

SODII HYDROXIDUM.

John K. Thum: See suggestions given under "Potassii Hydroxidum."

SPIRITUS ÆTHERIS NITROSI.

Prof. L. E. Sayre: This preparation should be stabilized—made more permanent. We are having no end of trouble with this preparation in the west. Although there has been some improvement, it still seems impossible for pharmacists to meet the U. S. P. standard. Over 30 per cent. of the spirit sent to the state laboratory is woefully below standard. We are experimenting with this preparation, endeavoring by some changes to stabilize it. Have no recommendations to make at present. We are inclined to recommend, for one thing, that the percentage of ethyl nitrite be reduced to conform with other countries.

SPIRITUS AMMONIÆ AROMATICUS.

Dr. A. R. L. Dohme: Total alkalinity should be determined, on account of the liability of a loss in ammonia to occur in the manufacturing of the product.

SPIRITUS JUNIPERI COMPOSITUS.

Edward A. Wickham: Delete Spiritus Juniperi Compositus, inasmuch as the leaders of the medical profession, with but few exceptions, have decreed that alcoholic liquors are not of therapeutic value, and inasmuch as their feelings met with approval at the hands of the last Revision Committee, brandy, whisky, etc., being deleted from the U. S. P. IX, it would seem but logical to delete the above named product, which is delicately flavored diluted alcohol of about the same alcoholic strength and flavor as "gin."

STYRAX.

George E. Ewe: U. S. P. Storax is not obtainable. An available type should be included in the U. S. P.

S. L. Hilton: Definition should be so worded to admit American Storax. American storax seems to answer every purpose and it is plentiful while the Oriental has been unobtainable for some time.

STRAMONIUM.

George P. Koch: See recommendations under Belladonna Folia above.

George E. Ewe: The whole dried plant either with or without the root should be made official instead of only the leaves. (See *American Journal of Pharmacy*, January 1919). The cost of U. S. P. stramonium would be reduced since the harvesting is simplified. A larger supply of stramonium is rendered available.

STROPHANTHINUM.

George E. Ewe: The U. S. P. statement that it "is very soluble in water" is not consistent with market supplies of otherwise U. S. P. quality. The statement should read "is slowly but completely soluble in water." Three lots which answered all other U. S. P. requirements were not "very soluble in water," since even minute quantities dissolved very slowly, although completely. D. H. Brauns, Ph.D., and O. E. Clossen, Ph.B., state in THIS JOURNAL, May, June and July 1913, that "cold water dissolves strophanthin slightly, 1 part to 43 parts of water at 18° C."

STROPHANTHUS.

H. C. Colson, Jr.: See recommendations under Digitalis above.

SYRUPUS.

Dr. J. M. Francis: I hope we may not issue another revision of the U. S. P. or for that matter another revision of the National Formulary without seriously considering the advisability of changing the formulæ of those syrups and elixirs containing an appreciable amount of free acid in conjunction with sugar syrup. Now, it is an incontrovertible fact that one cannot keep a combination of sugar syrup and free acid, even without any medicament whatsoever, without there inevitably being a reaction, whereby more or less of the sugar is caramelized or decomposed, with the production of an objectionable yellowish or brownish color. As is known by experience, if there is sufficient acid present and the mixture is kept for a sufficient length of time, such a syrup or elixir will become almost black. Not only is this reaction objectionable in itself because of the developing of decomposed products from the sugar, but it is equally true that in this breakdown other medicaments, as for instance the iron salts quite frequently used, may be broken down also or reduced.

I cannot see that there is any objection whatsoever aside from conservatism or precedent why in all such preparations we cannot omit the sugar altogether and substitute the necessary amount of glycerin.

If the prejudice or conservatism of our revisers would permit, I would even go so far as to suggest that in a few instances where the public has become accustomed to very sweet syrups, that the sweetness of the glycerin be supplemented by the addition of a trace of saccharin. Whether it will be permissible to use saccharin or not, I do sincerely hope, however, that the revisers may see the logical reason for substituting glycerin for sugar.

Now then we are going to face an objection on the part of some to continuation of the use of the terms "syrup" or "elixir." Such an objection would be, perhaps, more logical in the case of "syrups" than it would in cutting the sugar out and substituting glycerin in "elixirs." We might perhaps call such a syrup "glycerite" though I can see an objection to this in that many pharmacists, physicians and a greater or less proportion of the consuming public are used to the term "syrup" and look with suspicion upon the term "glycerite." After all, as a matter of plain common sense, why does the term "syrup" mean a solution containing a large proportion of sugar? As a very good illustration of what I have in mind, I would merely refer you to Syrup of Calcium and Sodium Lactophosphates.

SYRUPUS AURANTII.

S. L. Hilton: Omit the citric acid. This will make a more stable preparation, just as pleasant to taste, and I can see no advantage to be obtained by having an acid syrup.

SYRUPUS LACTUCARII.

W. H. Slone: It is suggested that this syrup be deleted. There is very little demand for it. The price of the drug is too high to warrant its use and has been practically unobtainable for the past two years.

SYRUPUS PRUNI VIRGINIANÆ.

Henry Paul Busch: During the past year or so we have had considerable trouble and loss from fermentation of syrup of wild cherry. Increasing the sugar and glycerin did not prove satisfactory. A small percentage of benzoate of soda was also tried and found wanting. Salicylates and formaldehyde were not deemed suitable even for trial.

Five per cent. of alcohol, however, gave us a stable syrup. There are various reasons, however, why this addition is not desirable, and we made various trials to obtain a stable syrup

without alcohol. The active work was done in our laboratory by Mr. George E. Spangler and Mr. John Devitt.

Our final conclusion is that if the syrup can be made rapidly, with very little exposure of the percolate, a stable preparation may be had. We went back to the U. S. P. 1890, which used rather more glycerin. We found that if the drug were moistened and allowed to lie loosely in a closed vessel during maceration, percolation could be completed rapidly with water and the drug practically extracted.

We found that collecting the percolate and afterwards making the syrup offered an opportunity for fermentation to begin. If the percolate was allowed to drop into a mass of sugar in the receiving bottle, which is a common practice, it was often impossible to dissolve all the sugar, but if the sugar were placed in a second percolator below that containing the drug, the tincture falling only two or three inches into the sugar, the sugar would be completely dissolved by the time the requisite amount of syrup had been collected. The sugar must be coarse granulated or Crystal A. Fine granulated packs too closely and will not dissolve. Syrup made by this process has good appearance, and samples of it exposed for three months past in a southern window over a steam radiator have remained in perfect condition. I would, therefore, suggest the following formula and directions for the coming Revision:

Wild Cherry Bark in No. 20 powder	150 Gm.
Sugar coarse-granulated	700 Gm.
Glycerin	150 mils
Water, q. s., to make	1000 mils

Mix the glycerin with 300 mils of water, moisten the wild cherry bark with a sufficient quantity of the liquid and macerate twenty-four hours in a closed vessel.

Prepare two percolators, a cylindrical one for the drug and immediately below it, one containing the sugar, and below this a graduated receiver.

When maceration is complete, pack the drug firmly in the percolator, pour on the remainder of the liquid, and follow it with water. Allow percolation to proceed rapidly, the percolate from the drug falling directly on the sugar. Continue until 1000 mils of syrup have been collected, when the sugar should be completely dissolved.

TALCUM PURIFICATUM.

S. L. Hilton: Coarse powder should be specified for filtration purposes; the fine powder is unsatisfactory.

TEREBENUM.

George E. Ewe: Occasional market supplies have higher boiling range than U. S. P. prescribed. An opinion is desired whether this nonconformance warrants rejection as being non-U. S. P. Occasional lots answer all U. S. P. requirements except that the boiling range mounts as high as 185° C. instead of only 172° C., as prescribed by the U. S. P. These laboratories (H. K. Mulford Company) reject all such lots. Harvard (*Chemical Abstracts*, Vol. 13, December 10, 1919, page 3279) recommends "distils between 165–185° C." and "not more than 5 per cent. distils below 160° C."

TERRA SILICEA PURIFICATA.

George E. Ewe: The limit of loss upon ignition may be too low. It is suggested that the U. S. P. Revision Committee consult with manufacturers in an effort to have them supply U. S. P. material. Otherwise the allowable loss upon ignition should be raised.

The lots received during the past 5 years yielded the following losses:

Per cent.	Per cent.	Per cent.	Per cent.
10.4	19.6	19.4	23.4
18.3	10.3	10.9	13.48
4.8	10.38	14.55	11.1
6.75	7.8	11.89	12.86
10.4	11.16	8.4	11.4
10.6	22.8	11.93	10.3

TINCTURA ACONITI.

H. C. Colson, Jr.: See recommendations under Extractum Aconiti above.

George E. Ewe: A reduction in alkaloidal standard to 0.04 to 0.05 Gm. alkaloids per 100

mils and a corresponding change in the physiological standard is suggested. See my suggestions under Aconitum above.

TINCTURA BENZOINI COMPOSITA.

George E. Ewe: Substitute an obtainable variety of storax for Storax, U. S. P. in this formula.

TINCTURA CINCHONÆ COMPOSITA.

John K. Thum: This preparation should be made with a menstruum of dilute alcohol. At the present time when alcohol is being heavily taxed any legitimate means of exercising economy in its use will be welcomed by the retail pharmacist and manufacturer. It has been my experience that the drugs are thoroughly exhausted by using diluted alcohol, U. S. P. Assaying of the finished product bears out this statement. It has also been noticed that in dispensing and mixing with other preparations in prescription work better and more sightly mixtures are the result; something that should be striven for in the making of medicines for the sick.

TINCTURA COLCHICI SEMINIS.

Ebbert Webber: I desire to submit for your consideration the following method for assaying tincture of colchicum seed. You will see at once that there is only a slight change from the method given in the Pharmacopoeia, but I am of the opinion that this change will eliminate two probable errors in manipulation.

Assay: Evaporate 150 mils of the tincture of colchicum seed on a water-bath to about 20 mils, transfer it to a 300-mil graduated flask and rinse the evaporating dish with about 10 mils of distilled water in divided portions. Then add 10 mils of solution of lead subacetate, shake the mixture thoroughly and add enough recently boiled distilled water to make 300 mils. Then proceed as directed in the assay under Colchici Semen, page 120, fifth line of the assay beginning with the words "filter off 200 mils."

TINCTURA GENTIANÆ COMPOSITA.

John. K. Thum: Would recommend that the glycerin be eliminated in the interest of economy, as it fails to accomplish its object. Glycerin was added to diminish precipitation, which takes place almost at once, and in our experience cannot be prevented. As the extractive contained in the drugs comprising this tincture are easily soluble in the menstruum required by the Pharmacopoeia, very light packing of the drugs for percolation is advantageous in that it hastens the process and prevents the going through of inert matter. The Pharmacopoeia should have a requirement that the preparation be allowed to stand about a week or ten days and then filtered. This is the only practical way to handle the situation.

TINCTURA HYOSCYAMI.

W. H. Stone: A menstruum of 6 volumes of alcohol and 3 volumes of water is suggested. This menstruum yields a clearer and brighter preparation.

S. L. Hilton: The U. S. P. IX requires 250 mils of tincture of hyoscyamus for the assay. While this is advantageous in some ways—that, is, a larger amount of alkaloids to be finally titrated—it has a serious disadvantage in introducing a very large amount of fat which I find is so troublesome that it is almost impossible to separate the alkaloids and obtain concordant results. It more than overbalances the care that is necessary in working on the smaller amount of alkaloids obtained from 10 mils of tincture. I have made repeated failures working with 250 mils of tincture owing to the fat, while with 100 mils of tincture I have practically no trouble.

TINCTURA LACTUCARII.

W. H. Stone: It is suggested that this preparation be deleted. There is very little demand for it. The price of the drug is too high to warrant its use and has been practically unobtainable for the past two years.

TINCTURA OPII CAMPHORATA.

Thomas S. Blair: Increase opium strength to 2–1.4 grains per fluidounce so that it is no longer exempt under the Harrison Antinarcotic Act. Paregoric is very extensively sold and used as drug preparation of addiction, not only for the opium therein but for the alcohol. It is sold in groceries and general stores to quite a degree. I have positive knowledge of cases in which as high as one pint of paregoric has been consumed by one person in one day. So much is this prep-

aration abused that the Commissioner of Health in Pennsylvania has been obliged to issue special rulings in order to control its use by drug addicts as well as its sale in quantity not at all justified in medical or pharmaceutical practice. Increasing its strength to the slight degree suggested would take it out of the exempt class of preparations and limit its legal dispensing to legitimate purposes.

TINCTURA PHYSOSTIGMATIS.

George E. Ewe: The U. S. P. method of assay has not yielded reliable results. A more reliable method is suggested. See "The Assay of Calabar Beans and Preparations of Calabar Beans" on page 1006 of THIS JOURNAL, December 1919.

TINCTURA RHEI.

J. P. Snyder: In the case of tincture of rhubarb, U. S. P., I failed to obtain a satisfactory product with the official formula and also when I omitted the glycerin, as both precipitated upon standing, although I cannot say that the absence of glycerin tended to increase the volume of the precipitate and to make an entirely satisfactory tincture it is necessary to resort to aging.

TINCTURA SANGUINARIÆ.

George E. Ewe: Standardization is suggested. A method and standard are proposed:

Evaporate 50 mils on oak-sawdust until all alcohol is off. Place the impregnated sawdust in a bottle add 100 mils of ether and 10 mils of 10 per cent. ammonia water. Shake for four hours, filter off an aliquot, shake out with 1 per cent. H_2SO_4. Make acid extractions alkaline with 10 per cent. ammonia. Extract with ether, evaporate ether extractions, dry at 80° C. and weigh as alkaloids.

Standard: 0.25 Gm. alkaloids per 100 mils.

NOTE: The assay process described above is the typical "immiscible solvent gravimetric alkaloidal assay" process. The only specific feature is the use of 1 per cent. H_2SO_4. Weaker acid may be employed, but 2 per cent. acid results in a precipitation of alkaloidal sulphate which interferes with drawing off the acid extractions.

TINCTURA ZINGIBERIS.

J. P. Snyder, of the Norwich Pharmacal Company: In connection with the subject of ginger I wish to direct to your attention the standard of the U. S. P. for tincture of ginger? It is evident that the standards for solids and water soluble solids are wrong, and I have taken the matter up on several occasions. The last time was with Mr. Beringer at whose suggestion the work that I did upon this subject was published in the *American Journal of Pharmacy*, Volume 90, page 253. I wish that the possibilities of considering a change in the standard for tincture of ginger would be placed before the proper committee.

UNGUENTUM.

I. Lewyn: I recommend the following change: In place of benzoinated lard use

White Wax	200 Gm.
Peanut oil in lard form	800 Gm.

Mix by heating the wax first and then add the peanut oil. Stir until cool.

This is simpler than the U. S. P. formula, is less expensive and keeps better, especially in tropical climates.

UNGUENTUM ACIDI BORICI.

S. L. Hilton: Paraffin is unsatisfactory in ointments. This formula should be experimented with, as the ointment does not keep well.

I. Lewyn: The following formula is recommended: Boric Acid 100 Gm., Ointment 900 Gm. Mix. This is simple and easy to make and will keep in any climate.

UNGUENTUM ACIDI TANNICI.

I. Lewyn: The following formula is suggested:

Tannic Acid	20 Gm.
Glycerin	20 Gm.
Ointment	60 Gm.

Dissolve the acid in the glycerin by heat and mix with the ointment until cool.

This is easy to prepare and will keep in good condition in any climate.

UNGUENTUM AQUÆ ROSÆ.

S. L. Hilton: Use liquid petrolatum instead of oil of sweet almonds. Liquid petrolatum makes a far superior product, does not become rancid on standing, is more acceptable generally and as usually employed seems to be a better product as it is not as readily absorbed.

I. Lewyn: The substitution of peanut oil for almond oil is recommended. Almond oil is getting higher priced all the time and is not always pure. Peanut oil is obtainable at a lower price and is always pure.

UNGUENTUM BELLADONNÆ.

I. Lewyn: I recommend the substitution of peanut oil in lard form for the benzoinated lard. A more stable product is insured, and the price is lower.

UNGUENTUM CHRYSAROBINI.

I. Lewyn: I recommend the use of peanut oil in lard form in place of benzoinated lard.

UNGUENTUM GALLAE.

I. Lewyn: I recommend the substitution of ointment as per suggestion made under "Unguentum" above.

UNGUENTUM HYDRARGYRI.

L. T. Andrews: The following recommendation is made for the assay of this ointment:

Add 20 mils of nitric acid and 20 mils of distilled water to 2 Gm. of the ointment, warm, stir occasionally and then titrate with potassium sulphocyanate.

Dr. A. R. L. Dohme: The limits of the amount of mercury present in the preparation should be more liberal. This recommendation is made in consideration of the difficulties which are experienced in making the ointment.

UNGUENTUM HYDRARGYRI OXIDI FLAVI.

S. L. Hilton: A 1 per cent. ointment is what is usually used. This ointment is used mostly by oculists and they only use as 1 per cent. ointment. Why is it necessary to have an ointment of 10 per cent. strength?

UNGUENTUM PICIS LIQUIDÆ.

Bertha Mueller: It is recommended that the technic for making tar ointment be modified:

Melt the wax, add the lard, and when the whole is melted, pour it into a mortar and let it cool to a semi-solid consistency, then gradually and with constant stirring add the tar.

The U. S. P. directions do not yield a satisfactory product, owing to the fact that too much heat is directed to be used. It has been our experience, that in order to obtain an ointment which is fairly permanent, and in which the tar, during the process of making the ointment, does not undergo a change by which a portion of it is thrown out in the form of sticky particles, it is highly essential that the least possible amount of heat should be used in the manufacture of the ointment.

UNGUENTUM SULPHURIS.

Prof. J. G. Beard: I recommend that the benzoinated lard be melted and added to the sulphur, first in such a quantity as will make a thick paste and this thoroughly triturated, and then the remainder of the lard with constant stirring until cold. The tendency with the present process is for the sulphur ointment to be granular unless the benzoinated lard is perfectly free from granulation. If the lard be melted and the whole mixture stirred while cooling, the resulting product will be perfectly smooth.

UNGUENTUM ZINCI OXIDI.

S. L. Hilton: A more satisfactory formula should be devised. The present formula is far from satisfactory. The present preparation on standing becomes granular and in hot weather is entirely too soft.

VIBURNUM PRUNIFOLIUM.

Dr. J. M. Francis: The U. S. P. VIII and previous editions specified "Dried bark of the root." The U. S. P. IX specifies "The dried bark of viburnum prunifolium, without the presence or admixture of more than 5 per cent. of wood or other foreign matter."

An examination of black haw bark now generally obtainable from American collectors

shows that it consists almost wholly of the bark of the trunk and stems with only a very small percentage of the bark of the root; and many shipments consist wholly of bark collected from that part of the tree above ground and contains none of the root bark whatsoever.

In other words, the inevitable has happened When the revisers of the Pharmacopoeia permitted the use of the bark from the whole tree, including both the bark of the portion above ground and also the roots, the drug collectors have "followed the lines of least resistance" and have gotten into the habit of collecting the bark which is most convenient and easy to handle, and do not bother to dig up the roots and peel them.

Now there may be, and there undoubtedly is some question in the minds of some of our most advanced therapeutists as to the actual therapeutic value of viburnum prunifolium, yet on the other hand, there are a great many physicians in this country who are convinced that the root bark is possessed of very considerable virtue, and this is still one of the most popular and largely consumed of our native drugs. If the drug has a medicinal activity, there is no doubt that the bark from the trunk and stems is very much inferior to the bark from the roots. This can be easily demonstrated, by making up a fluidextract or tincture from the two sources.

I would, therefore, like to suggest a most careful reconsideration by the revisers of the U. S. P. X, and if this drug is to be retained in the Pharmacopoeia or in the National Formulary, we should not allow the presence of bark collected from either the trunk or stems of the tree in a quantity amounting to more than 25 per cent.

XANTHOXYLUM.

Prof. Heber W. Youngken: It is recommended that the word "transverse" before "sections" under the description of the histology of both Northern and Southern Prickly Ash barks be deleted and the descriptive text be accordingly revised. Medullary rays in Northern Prickly Ash, while mostly 1-cell in width, are occasionally 1 to 2 cells wide. Medullary rays in Southern Prickly Ash are mostly from 1 to 2 or 1 to 3 cells wide, occasionally 1 to 4 cells wide.

Transverse sections are poor criteria for ascertaining the range in width of medullary rays, in terms of cells. This would obtain alike for all bark, root or stem drugs. Longitudinal tangential sections should be employed for this purpose.

ZINGIBER.

Dr. J. M. Francis: Under the head of Ginger, the U. S. P. recognizes Jamaica Ginger, African Ginger, Calcutta Ginger, Calicut Ginger. It furthermore states that ginger is used in the manufacture of Fluidextract Aromatic. Fluidextract of Ginger. Oleoresin of Ginger. Aromatic Powder. Compound Rhubarb Powder. Syrup of Ginger. Tincture of Ginger.

We find that in the manufacture of fluidextract of ginger, tincture of ginger and syrup of ginger (from the fluidextract), it is specifically directed that only Jamaica Ginger shall be used.

Under Oleoresin of Ginger it is permissible to use any of the several varieties.

In Compound Powder of Rhubarb Jamaica Ginger is specified.

In Aromatic Powder Jamaica Ginger is specified.

In other words, in all of the official preparations, it is demanded that Jamaica Ginger be employed and the several other varieties are permissible for only the manufacture of the Oleoresin.

The inevitable result of forcing practically all the consumption of ginger to the Jamaica variety is that there is an insufficient supply so that a great deal of this specific variety of drug on the market is inferior in quality and this monopoly of the drug, barring its use in the manufacture of oleoresin and perhaps in veterinary remedies, enables the producers and drug dealers to command a very high price for Jamaica Ginger.

I wish to take issue with this decision on the part of the Revision Committee and say that I think they made a mistake which should be corrected in the next revision. I have made a study of different varieties of ginger—procuring samples from time to time from different drug dealers in New York and elsewhere and I do not hesitate to say that a great deal of the African ginger and the so-called Cochin Ginger is very much superior to the average Jamaica. Such drug is cheaper in price and it actually yields a fluidextract or a tincture of superior flavor and of greater strength than the average Jamaica Ginger now available on the market.

I do not mean to say that the best grade of Jamaica Ginger is not superior in flavor to an inferior grade of African or Cochin Ginger. I don't hesitate to assert however, that a fair quality of African or Cochin Ginger is equally as good and perhaps superior in flavor and in strength to the same grade of Jamaica Ginger.

My obvious recommendation, therefore, is that this specification of confining practically all the pharmaceutical preparations except the oleoresin to Jamaica Ginger, be rescinded or modified so as to permit the use of African or Cochin Ginger as an alternative.

By taking such action, the market is greatly enlarged, there is introduced an element of competition and the drug trade at large will be able to obtain this valuable material at a reduced cost and at the same time, there will be no reduction in quality and consequently the consumer will be at no disadvantage.

NOTE: Dr. Francis' opinions are concurred in by *Mr. J. P. Snyder,* of the Norwich Pharmacal Company, *Mr. Howard T Graber,* of the Digestive Ferments Company, the Scientific Section of the American Drug Manufacturers' Association, *Dr. F. B. Kilmer,* of Johnson and Johnson, and *Dr. John Uri Lloyd,* of Lloyd Brothers.

PART II.

REAGENTS.

Acetic Anhydride:—*Dr. A. B. Lyons:* I fail to see how a deficiency of only 1 per cent. would correspond to the presence of about 7 per cent. of acetic acid. However, that is not here nor there. The point is that the present U. S. P. assay of acetic anhydride does not detect acetic acid as an impurity in the anhydride.

DEXTROSE (CHEMICALLY PURE GLUCOSE).

Chr. E. G. Porst, Corn Products Refining Company: Since 1914 we have been manufacturing Chemically Pure Glucose for various scientific institutions, for instance, Rockefeller Institute of Medical Research, hospitals which have been using it for intravenous injections, etc. We have, through the courtesy of E. R. Squibb and Son, had tablets made from chemically pure glucose instead of lactose and found these to dissolve readily. Chemically pure glucose can undoubtedly replace Lactose in many pharmaceutical preparations. It appears in the form of a very fine crystalline powder manufactured from commercial glucose by repeated crystallization. New methods for making chemically pure glucose developed the last few years will enable the manufacturer to place this product on the market at reasonable prices and it will undoubtedly be a better product for many pharmaceutical preparations than cane sugar or lactose.

PERCHLORIC ACID.

Genesee Chemical Company: It is recommended that perchloric acid, $HClO_4$ be included among the reagents. Free from sulphates, barium, chlorides, and all metallic salts, evaporating 5 mils to dryness with unweighable residue. Strength of solution to be 60 per cent. by weight. Specific Gravity 1.54.

FILTER PAPER, QUANTITATIVE.

George E. Ewe: The U. S. P. directs the use of Schleicher and Schull's product on page 532. Some other make should be specified as Schleicher and Schull's is unobtainable. There are other makes that will answer the purpose.

TOLUOL.

The Barrett Company: Change boiling point from 110–112 to 1° boiling range. Change words "boiling between 110–112°" to read "boiling within 1° C., including the 111° point." The proposed change is a somewhat stricter specification covering more pure material and the manner of wording would make it less liable to controversy due to some slight difference in method of determination.

XYLOL.

The Barrett Company: Change words "it boils between 136 and 140° C." to read "it boils between 137 and 142° C." Change words "specific gravity about 0.850 at 25° C." to read "specific gravity 0.860 at 25° C." The boiling range given in the old specifications just barely includes the boiling point of the main constituent meta-xylol which boils at 139.5. Sufficient leeway is given below. The proposed boiling range puts the boiling point of meta-xylol in the middle of the range. The gravity 0.850 at 25° C. given in the previous specifications is incorrect.

TENTH-NORMAL IODINE VOLUMETRIC SOLUTION.

George E. Ewe: A shorter method of preparation is suggested. Instead of dissolving 12.692 Gm. of purified iodine in a solution of 18 Gm. of potassium iodide in 300 mils of distilled water, use only about 40 mils of water. The U. S. P. method requires from 2 to 3 hours, this modified method requires only about 10 minutes.

COMPARISONS.

Method.	Time Required.	Factor of the $\frac{N}{10}$ Iodine.
U. S. P. method procedure	3 hours	1.000
Modified method, diluting after the iodine is completely dissolved (10 minutes)	15 minutes	1.001
Modified method, allowing to stand undiluted for 1 hour after iodine is completely dissolved	$1^1/_4$ hours	1.001

TENTH-NORMAL POTASSIUM DICHROMATE VOLUMETRIC SOLUTION.

C. L. Black: The first paragraph, page 552, U. S. P. VIII having been deleted, the statement beginning "when used" bottom of page 562 of the Ninth Edition, is hardly intelligible, since it refers to the solution mentioned in the deleted paragraph.

DIAGNOSTIC TESTS.

Prof. L. E. Sayre: Some of these tests should be revised and others added, perhaps. Our Dr. C. Ferdinand Nelson is one who will probably be able to suggest improvements and additions to this list of reagents.

Albert Schneider: The preparation of culture media and stains should be in accordance with the recommendations of the American Public Health Association and the U. S. Public Health Service, etc. All that the committee on bacteriology would be required to do would be to copy carefully the methods of the Laboratory Section of the American Public Health Association and of the American Public Health Service after consulting with these bodies.

GENERAL TESTS.

M. Ebbert Webber: I believe that there should be included along with other general tests a solubility test, where practical, for all official chemicals. This test should be in addition to the present solubility data. For instance, the U. S. P. IX requires that sodium salicylate produce a "nearly clear and colorless solution" when dissolved in 10 parts of distilled water. I have not made a careful analysis of the U. S. P. IX to ascertain how many other chemicals have a similar requirement, but I feel safe in saying that the number is very small. My reason for being interested in having an official solubility test is that I have been forced to accept, as being U. S. P. quality, over 500 pounds of sodium benzoate which I knew did not deserve such recognition. Sodium benzoate, as you know, when pure, will produce a colorless solution when dissolved in 5 parts of distilled water. This lot produced a yellow solution but because the U. S. P. was silent on this point, the manufacturers maintained that the goods were satisfactory because they met all the requirements of the U. S. P.

TEST FOR HEAVY METALS.

George E. Ewe: The U. S. P. IX test for heavy metals makes no provision for those heavy metals beyond the lead and arsenic groups, principally zinc. A modification is suggested.

Between the phrases "and again set aside for half an hour" and "The color produced, if any, etc.," add "evaporate to dryness. Redissolve the residue in 1 mil of diluted hydrochloric acid. Dilute with 10 mils of water. Filter, make the filtrate alkaline with a measured volume of ammonia water. Boil until nearly free from ammonia. Filter. Wash the filter with enough distilled water to obtain 10 mils of filtrate, add 1 mil of ammonia water, followed by distilled water sufficient to make 20 mils and saturate with hydrogen sulphide gas." Add the phrase "either by the hydrogen sulphide T. S. or the hydrogen sulphide gas" after "The color produced."

TESTS OF PURITY UNDER U. S. P. SALTS.

A. R. Bliss, Jr.: Under Calcium Bromide, for example, "not more than a slight turbidity is produced at once (chlorides)" completes the description and requirements of the U. S. P. test. The test as described is too indefinite, for what might be called "a slight turbidity" by one individual might be called a "decided" or "marked turbidity" by another. Specific limits should be set, as for example with the test for chlorides under Calcium Bromide, a limit of say 0.000,002 Gm. Cl (or whatever limit might be looked upon as practical and desirable) in 1.00 Gm. of sample might be set. The methods in many cases could be rapid colorimetric methods. The above is simply an example of many indefinite tests for purity in the present revision of the U. S. P.