

## Contributed and Selected

### UNITED STATES PHARMACOPŒIA.

NINTH REVISION.

#### ABSTRACT OF PROPOSED CHANGES WITH NEW STANDARDS AND DESCRIPTIONS.

Copyright, 1914, by the Board of Trustees of the United States Pharmacopœial Convention.\*  
All Rights Reserved

#### PART VI—FIRST PROOF.

A sixth installment of the Abstract of proposed new descriptions and standards, and of changes in descriptions and standards is herewith submitted.

This Abstract embraces a miscellaneous group of pharmacopœial articles and includes most of those which have not already been published in abstracted form.

Where no reference is made to rubrics, formulas, directions, tests, or assays, it is understood that the material facts remain the same as in the United States Pharmacopœia, Eighth Revision.

Comments should be sent to the Chairman of the Revision Committee, Joseph P. Remington, 1832 Pine street, Philadelphia.

*Acidum Citricum.*—Melting point omitted. Added tests: An aqueous solution of Citric Acid (1 in 10), which has been nearly neutralized with ammonia water, remains clear on the addition of calcium sulphate T. S. (oxalic acid). Heat about 5 Gm. of powdered Citric Acid for fifteen minutes on a water-bath with 5 Cc. of sulphuric acid in a porcelain dish, which has been previously rinsed with sulphuric acid, keeping the mixture protected from dust. No darker color than yellow develops (tartaric acid). Dissolve 10 Gm. of Citric Acid in 20 Cc. of distilled water, add 2 Cc. of sulphurous acid and boil the mixture until the odor of sulphur dioxide is barely perceptible. Cool the solution, mix it with 1 Cc. of a solution of sodium cyanide in distilled water (1 in 10) and follow this immediately with stronger ammonia water until the solution possesses a slight odor of ammonia. When cold, transfer the solution to a glass-stoppered cylinder of practically colorless glass, graduated at 50 Cc., dilute with sufficient distilled water to measure 50 Cc. and add 3 drops of a solution of sodium sulphide in distilled water (1 in 10). After mixing the solution well, the color produced, if any, when viewed downward against a white surface, is not greater than the color of a solution prepared as follows: To prepare the solution for the blank test, dissolve 3 Gm. of ammonium chloride (conforming to the tests for purity described in the Appendix), in 20 Cc. of distilled water, add 4 Cc. of a solution containing 0.080 Gm. of lead nitrate in 1000 Cc. of distilled water, and then 1 Cc. of diluted hydrochloric acid. Treat this solution with sulphurous acid, sodium cyanide and stronger ammonia water, then dilute and mix with sodium sulphide

\* Permission to reprint for purposes of comment can be had on application to the Chairman of the Board of Trustees, J. H. Beal, 801 W. Nevada St., Urbana, Ill.

as described above. Before adding the sodium sulphide solution, the liquid must possess a distinct odor of ammonia. The two cylinders used must be matched and must be of practically colorless glass and have the same internal diameter (lead).

*Acidum Hydriodicum Dilutum.*—Rubric changed from “not less than 10 percent.” to “not less than 9.5 percent. nor more than 10.5 percent.” Added test: Mix 0.5 Cc. of Diluted Hydriodic Acid with 10 Cc. of distilled water, add 8 Cc. of silver nitrate T. S. and 6 Cc. of ammonium carbonate T. S., digest the mixture for 10 minutes on a bath of boiling water, cool, and filter. The filtrate, upon supersaturating with nitric acid, should not become more than slightly opalescent (chloride). Residue of 8.3 percent. on evaporation changed to 3 percent. on evaporation and ignition at low red heat.

*Acidum Hydrobromicum Dilutum.*—Rubric changed from “not less than 10 percent.” to “not less than 9.5 percent. nor more than 10.5 percent.” Residue on evaporation changed from “no appreciable residue from 10 Cc.” to “not more than 0.0025 Gm. from 25 Cc.” *Assay.*—Weigh accurately about 20 Cc. of Diluted Hydrobromic Acid, dilute it with 30 Cc. of distilled water, and titrate with normal potassium hydroxide V. S., using methyl-orange T. S. as indicator.

*Acidum Hydrochloricum.*—Rubric changed from “31.9 percent.” to “not less than 31 percent. nor more than 33 percent.”

*Acidum Hydrochloricum Dilutum.*—Rubric changed from “10 percent.” to “not less than 9.5 percent. nor more than 10.5 percent.”

*Acidum Hypophosphorosum.*—Rubric changed from “30 percent.” to “not less than 30 percent. nor more than 32 percent.”

*Acidum Hypophosphorosum Dilutum.*—Rubric changed from “10 percent.” to not less than 9.5 percent. nor more than 10.5 percent.” Added test: Neutralize a portion of the Acid with ammonia water, filter and render the filtrate alkaline with ammonia water; it shows no turbidity with calcium chloride T. S. Modified test: 6 Cc. of Diluted Hypophosphorous Acid with 3 Cc. of nitric acid, and 10 Cc. of distilled water, evaporated to dryness on a water bath, should not respond to the arsenic test.

*Acidum Nitricum.*—Rubric changed from “68 percent.” to “not less than 67 percent. nor more than 69 percent.”

*Acidum Phosphoricum.*—Rubric changed from “85 percent.” to “not less than 85 percent. nor more than 88 percent.”

*Acidum Phosphoricum Dilutum.*—Rubric changed from “10 percent.” to “not less than 9.5 percent. nor more than 10.5 percent.”

*Acidum Sulphuricum.*—Rubric changed from “not less than 92.5 percent.” to “not less than 93 percent. nor more than 95 percent.”

*Acidum Sulphuricum Dilutum.*—Rubric changed from “not less than 10 percent.” to “not less than 9.5 percent. nor more than 10.5 percent.”

*Acidum Tartaricum.*—Melting point omitted. Added test: Dissolve 10 Gm. of Tartaric Acid in 20 Cc. of distilled water, add 2 Cc. of sulphurous acid and boil the mixture until the odor of sulphur dioxide is barely perceptible. Cool the solution, mix it with 1 Cc. of a solution of sodium cyanide in distilled water

(1 in 10) and follow this immediately with stronger ammonia water until the precipitate formed is redissolved and the solution has a slight odor of ammonia. When cold, transfer the solution to a glass-stoppered cylinder of practically colorless glass, graduated at 50 Cc. Dilute it with sufficient distilled water to measure 50 Cc. and add 3 drops of a solution of sodium sulphide in distilled water (1 in 10). After mixing the solution well, the color produced, if any, when viewed downward against a white surface is not greater than the color of a solution prepared as follows: Dissolve 2 Gm. of ammonium chloride (conforming to the tests for purity described in the Appendix), in 20 Cc. of distilled water, add 4 Cc. of a solution containing 0.080 Gm. of lead nitrate in 1000 Cc. of distilled water, and then 1 Cc. of diluted hydrochloric acid. Treat this solution with sulphurous acid, sodium cyanide and stronger ammonia water, then dilute and mix with sodium sulphide as described above. Before adding the sodium sulphide solution, the liquid must possess a distinct odor of ammonia. The two cylinders used must be matched, must be of practically colorless glass, and have the same internal diameter (lead).

*Adeps Benzoinatus.*—10 Gm. of Siam Benzoin directed instead of "20 Gm. of Benzoin."

*Aether.*—Rubric changed from "about 96 percent." to "from 95.5 percent. to 97.5 percent., by weight of ethyl oxide." Added requirement: Ether for anesthesia is to be dispensed only in small, well closed containers and is not to be used as an anesthetic after the original container has been open twenty-four hours. Specific gravity: changed from "0.716 to 0.717" to "from 0.713 to 0.716" at 25° C. Boiling point changed from "about 35.5° C." to "about 35° C." Added description: It is slowly oxidized by the combined action of air, moisture and sunlight with the formation of peroxides, which produce explosive compounds. Modified tests: The moist residue left on the spontaneous evaporation of 25 Cc. of Ether from a shallow dish is odorless and neither reddens nor bleaches blue litmus paper. Dried at 100° C., this residue does not exceed 0.001 Gm. On shaking 10 Cc. of Ether occasionally during one hour with 1 Cc. of potassium hydroxide T. S. in a glass-stoppered tube, protected from light, no color is developed in either liquid (aldehyde). Added test: Shake 10 Cc. of Ether occasionally during one hour with 1 Cc. of a freshly made solution of cadmium potassium iodide (1 in 10) in a glass-stoppered cylinder, previously rinsed with the Ether under examination and protected from light; no color is developed in either liquid (peroxides). Test for undue amount of alcohol or water omitted.

*Aqua Hamamelidis.*—Process omitted. New description: A saturated aqueous distillate obtained by distilling hamamelis bark with steam or water and containing not less than 14 percent. by volume of absolute alcohol. Clear and colorless, or not more than faintly opalescent or slightly yellowish liquid having a characteristic aroma and taste. Added tests: Neutral or only faintly acid to litmus. Specific gravity: 0.979 to 0.982 at 25° C. Free from mucilaginous or fungus growths or an acetous odor. It gives no reaction with hydrogen sulphide T. S. or with ammonium sulphide T. S. (metallic impurities). Not more than 0.025 Gm. of residue remains on evaporating 100 Cc. to dryness on a water bath (limit of

dissolved impurities). Assay for alcohol content by general method in Appendix. Add 8 drops of an aqueous solution of resorcinol (1 in 200) to 5 Cc. of Hamamelis Water, and then carefully pour this upon 5 Cc. of sulphuric acid, contained in a test-tube, in such a manner that the two liquids do not mix. After standing 3 minutes a rose-red ring should not appear at the line of contact of the liquids nor should a distinct, white layer appear above this zone (formaldehyde). Ten Cc. of Hamamelis Water should give no reaction for methyl alcohol when treated according to the test given under alcohol for the detection of methyl alcohol.

*Aspidosperma*.—The dried bark of *Aspidosperma Quebracho blanco*, Schlechtendal (Fam. Apocynaceæ), without admixture of more than 2 percent. of wood and other foreign matter. In irregular chips or in longitudinal pieces attaining a length of 14 cm. and a thickness of 35 mm.; outer corky layer from 3 to 35 mm. in thickness, brownish-gray or reddish-brown and deeply furrowed, frequently somewhat reticulate with longitudinal and shallow transverse fissures, the crevices being occasionally lined with the mycelia of a grayish mould; outer surface of bark from which the cork has been separated, light reddish-brown and usually more or less roughened; inner surface occasionally with adhering wood, otherwise light yellowish-brown to light reddish-brown, longitudinally finely striate and finely porous; fracture short-fibrous with projecting bast fibers; nearly inodorous, taste bitter and slightly aromatic. Under the microscope transverse sections of *Aspidosperma* show a number of successive layers of cork separated by large groups of stone cells, isolated bast fibers and parenchyma; inner bark with starch-bearing medullary rays 1 to 5 cells in width, separating narrow wedges composed of large prominent groups of stone cells in which are occasionally included one or more thick walled bast fibers; bast fibers usually single, very thick walled, strongly lignified and surrounded with crystal fibers and starch-bearing parenchyma. Powder: Reddish-brown, bast fibers single, very long and surrounded by crystal fibers, the crystals being in prisms frequently terminated by pyramids and from 0.008 to 0.030 mm. in length; stone cells in large thick groups composed of numerous more or less tabular cells; cork cells more or less polygonal in outline with thick, slightly lignified walls; starch grains single or 2 to 4 compound, the individual grains spherical, ovoid or more or less planoconvex, from 0.003 to 0.025 mm. in diameter.

*Calcii Glycerophosphas*.—The normal calcium salt of glycerophosphoric acid containing not less than 90 percent. of anhydrous normal calcium glycerophosphate. A fine white powder, odorless and almost tasteless, somewhat hygroscopic. One Gm. dissolves in about 50 Cc. of water at 25° C.; soluble in less water at a lower temperature; the presence of citric acid increases its solubility; insoluble in alcohol. An aqueous solution shows an alkaline reaction to litmus and to phenolphthalein. A cold, saturated, aqueous solution yields white, iridescent scales of anhydrous Calcium Glycerophosphate when heated to boiling. When heated above 170° C. the salt is decomposed, evolving inflammable vapors and at a red heat is converted into calcium pyrophosphate. A saturated aqueous solution of the salt yields with ammonium oxalate T. S. a white precipitate, insoluble in acetic acid but soluble in hydrochloric acid. With lead acetate T. S. the

saturated solution yields a white precipitate which is soluble in nitric acid. Dissolve 1 Gm. of Calcium Glycerophosphate in 10 Cc. of diluted nitric acid and add an equal volume of cold ammonium molybdate T. S.; no precipitate should be formed within one hour (phosphates). On heating the mixture, however, a yellow precipitate will be formed. Ten Cc. of an aqueous solution of the salt (1 in 100) in water, acidified with a few drops of hydrochloric acid, does not respond to the test for heavy metals. Dissolve 0.1 Gm. of the salt in 10 Cc. of diluted nitric acid and add 1 Cc. of silver nitrate T. S.; a distinct opalescence may appear but no precipitate within one minute (chloride). Dissolve 0.1 Gm. of the salt in 10 Cc. of diluted hydrochloric acid and add 1 Cc. of barium chloride T. S.; no distinct turbidity appears within one minute (sulphate). Shake 1 Gm. of finely powdered Calcium Glycerophosphate with 25 Cc. of absolute alcohol, filter the mixture, evaporate the filtrate on a water bath and dry the residue for an hour at a temperature not exceeding 70° C. The resulting residue does not weigh more than 0.01 Gm. (limit of alcohol, soluble impurities, etc.). Weigh accurately from 0.5 to 1 Gm. of the finely powdered salt and dry it to constant weight at a temperature of 130° C.; the loss does not exceed 10 percent. (limit of water). Weigh accurately about 0.4 Gm. of the salt, previously dried to constant weight at 130° C., dissolve it in 20 Cc. of a 5 percent. solution of acetic acid and add 30 Cc. of distilled water. Heat the mixture to boiling and add an excess of ammonium oxalate T. S. Collect the resulting precipitate, wash, dry, and then ignite it until of constant weight. This residue of calcium oxide weighs not less than 23.47 percent. of the weight of Calcium Glycerophosphate taken. Weigh accurately about 1 Gm. of Calcium Glycerophosphate and ignite it to constant weight; the resulting residue of calcium pyrophosphate weighs not less than 54.4 percent. of the amount taken.

*Ceratum*.—White Petrolatum omitted; new formula: White Wax, 300 Gm., Benzoinated Lard, 700 Gm.

*Ceratum Cantharidis*.—Cantharides, in No. 60 powder, 350 Gm., Glacial Acetic Acid 25 Cc., Oil of Turpentine 150 Cc., Yellow Wax 175 Gm., Rosin 175 Gm., Benzoinated Lard 200 Gm. To make 1000 Gm. Macerate the Cantharides for 48 hours in a warm place, in a covered container, with the mixed Oil of Turpentine and Glacial Acetic Acid. Melt together the Rosin, Yellow Wax and Lard, add the macerated Cantharides and heat the mixture on a water-bath, with occasional stirring, until it weighs 1000 Gm. Finally stir until firm. Formerly 320 Gm. of Cantharides were macerated with 150 Gm. of Liquid Petrolatum for 48 hours under the same conditions, the mixture was then added to the melted Rosin, Wax and Lard and heated for one hour on a water-bath before cooling.

*Collodium Flexile*.—New formula: Collodion 950 Gm., Camphor 20 Gm., Castor Oil 30 Gm. To make 1000 Gm. Weigh the ingredients, successively, into a tared bottle and shake the mixture until the Camphor is dissolved.

*Cresol*. — Modified definition: A mixture of the isomeric cresols ( $C_6H_4.CH_3.OH$ ) obtained from coal tar. Specific gravity changed from "1.036 to 1.038" to "from 1.030 to 1.038" at 25° C. One Cc. of Cresol dissolves in about 50 Cc. of water, usually forming a cloudy solution; it is miscible with alcohol, ether, benzene, petroleum benzin, and glycerin; it is soluble in solutions

of the fixed alkali hydroxides. Added test: A saturated, aqueous solution of Cresol becomes blue-violet on the addition of ferric chloride T. S. and is neutral or shows a slightly acid reaction to litmus. Modified test: A solution of 1 Cc. of Cresol in 60 Cc. of water shows not more than slight turbidity (hydrocarbons).

*Elixir Aromaticum*.—No change.

*Elixir Adjuvans*.—Title changed to Elixir Glycyrrhizæ and the amount of Fluidextract of Glycyrrhiza changed from 120 Cc. to 125 Cc. per 1000 Cc.

*Emplastrum Belladonnæ*.—Process omitted. Rubric changed from "not less than 0.38 percent. nor more than 0.42 percent. of mydriatic alkaloids" to "30 percent. of extract of belladonna leaves and yielding not less than 0.35 percent. nor more than 0.40 percent. of mydriatic alkaloids." It may be made with a vehicle of rosin plaster or rubber adhesive plaster. *Modified Assay*: Remove the cloth from the face of the plaster and introduce 10 Gm. of the spread plaster cut into strips, into a flask, add 50 Cc. of chloroform, and shake it until the plaster is dissolved. Pour the chloroform solution into a 250 Cc. beaker and wash the cloth upon which the plaster was spread, and which is in the flask, with two portions of 25 Cc. each of chloroform, adding the washings to the chloroform solution in the beaker. Then wash this cloth with 80 Cc. of alcohol containing 1 Cc. of ammonia water and pour the washings into the chloroform solution in the beaker. Stir the mixture gently and allow it to stand until the rubber has separated into a compact mass. Dry the cloth upon which the plaster was spread, weigh it and subtract its weight from the original weight of the plaster. Pour the chloroform-alcohol solution into a 350 Cc. separator, rinse the beaker and rubber with 10 Cc. of alcohol and add the rinsing to the separator. Then add to the separator 100 Cc. of water, rotate the mixture until thoroughly mixed and allow it to stand until the liquids separate. Then draw off the chloroform into a second separator containing 50 Cc. of water, shake it thoroughly and after separation draw off the chloroform into a beaker and pour the aqueous solution into the first separator. Return the chloroform solution to the second separator and shake out the contents of the first separator with two portions of 10 and 5 Cc. each of chloroform, adding them to the chloroform in the second separator. Completely extract the alkaloids from the chloroform solution by shaking it out repeatedly with weak sulphuric acid. Collect the acid washings in a separator and add ammonia water until the solution is decidedly alkaline to litmus, and completely extract the alkaloids by shaking out repeatedly with chloroform. Filter the chloroform solution through a pledget of cotton, evaporate it to dryness and dissolve the alkaloids from the residue in exactly 5 Cc. of tenth-normal sulphuric acid V. S., and titrate the excess of acid with fiftieth-normal potassium hydroxide V. S., using cochineal T. S. as indicator. Each cubic centimeter of tenth-normal sulphuric acid V. S. consumed, corresponds to 28.92 milligrammes of mydriatic alkaloids.

*Emplastrum Cantharidis*. — Cantharides Cerate, Rosin Plaster spread on fabric, each, a sufficient quantity. Prepare Cantharides Plaster by spreading cantharides cerate upon rosin plaster, leaving a margin around the edges. Each square centimeter of spread plaster is to contain 0.1 Gm. of cantharides cerate.

It may also be spread on muslin, paper, or other suitable material. It should be made extemporaneously.

*Emplastrum Capsici*.—No change.

*Emplastrum Plumbi*.—Lead Oxide 1000 Gm., Olive Oil 1000 Gm., Lard 1000 Gm., Boiling Water, a sufficient quantity. Heat the Olive Oil and Lard in a bright copper or other suitable vessel of a capacity of not less than four times the bulk of the ingredients, sift the Lead Oxide through a No. 80 sieve upon the surface of the hot liquid and mix thoroughly. Then gradually add 350 Cc. of Boiling Water, and continue the boiling, constantly stirring with a wooden spatula, and adding sufficient boiling water, from time to time, to replace that lost by evaporation until the mass is homogeneous and a small portion removed and dipped into cold water is found to be pliable and tenacious. Then remove from the fire and wash several times with warm water to remove the glycerin. Finally knead the mass until it is free from water, roll it into cylindrical forms of suitable size, and wrap them in paraffined paper.

*Emplastrum Resinæ*.—Rosin, in fine powder, 140 Gm., Lead Plaster, 800 Gm., Yellow Wax 60 Gm. To make 1000 Gm. Melt the Lead Plaster and Yellow Wax together with a gentle heat, then add the Rosin and, when melted, mix thoroughly, strain, and allow it to cool, stirring until it stiffens.

*Extractum Physostigmatis Pulveratum*.—It yields not less than 1.7 percent. nor more than 2.3 percent. of the alkaloids of Physostigma. One gramme of the Powdered Extract to represent 13 Gm. of average strength Physostigma. Exhaust 1000 Gm. of Physostigma, in No. 60 powder, by percolation first using 1000 Cc. of alcohol, 3 volumes, and water, 1 volume, in which 5 Gm. of Tartaric Acid has been dissolved, and continuing with Alcohol, 3 volumes, water, 1 volume. Distil the alcohol from the percolate, at as low a temperature as possible, and evaporate at not more than 80° C. to 200 Cc. Wash this residue with two portions (250 Cc. and 200 Cc. respectively), of purified petroleum benzin, evaporate the washed residue to pilular consistence, at a temperature not exceeding 80° C., incorporate 20 Gm. of starch and dry in warm air. Dry, powder, assay, and add a sufficient quantity of Starch. Former process directed exhaustion with Alcohol, evaporation of percolate to dryness on water bath, assay and dilution with a sufficient quantity of powdered glycyrrhiza.

*Extractum Viburni Prunifolii Pulveratum*.—One gramme of the Powdered Extract to represent 5 Gm. of Viburnum Prunifolium. Exhaust 1000 Gm. of Viburnum Prunifolium in No. 30 powder, with Diluted Alcohol. Distil the alcohol from the percolate at as low a temperature as possible, evaporate, at not more than 80° C. to a soft extract, incorporate 5 Gm. of magnesium oxide and dry on glass plates in warm air. Powder and add sufficient starch to make 200 Gm.

*Fluidextractum Aspidospermatis*.—Use No. 30 powder, and prepare by Type Process B, using a mixture of 110 Cc. of Glycerin, 670 Cc. of Alcohol and 220 Cc. of Water as Menstruum I, and a mixture of two volumes of Alcohol and one volume of Water as Menstruum II.

*Fluidextractum Cascarae Sagradae Aromaticum*. — New formula: Cascara Sagrada 1000 Gm., Magnesium Oxide 125.0 Gm., Pure Extract of Glycyrrhiza 40.0 Gm., Glycerin 200.0 Cc., Alcohol 250.0 Cc., Benzosulphinide 1.0 Gm.,

Oil of Anise 2.5 Cc., Oil of Cassia 0.2 Cc., Oil of Coriander 0.1 Cc., Oil of Betula 0.2 Cc., Boiling Water, a sufficient quantity, to make 1000 Cc. Mix the Cascara Sagrada with the Magnesium Oxide, moisten with 2000 Cc., of Boiling Water, stirring occasionally during 2 hours, and percolate with Boiling Water until the drug is exhausted. Evaporate percolate to 500 Cc., and while warm, dissolve in it the Pure Extract of Glycyrrhiza. When cold, add the Glycerin, then the Alcohol containing the Benzosulphinide and the Oils and then add sufficient Water to make 1000 Cc.

*Fluidextractum Scilla*.—Macerate 1000 Gm. of Squill, in No. 20 Powder, for 2 hours, with sufficient of a mixture of 2000 Cc. Alcohol, 1000 Cc. Water in a tightly-covered vessel. Then shake down evenly in a percolator, add more of the same menstruum and, when saturated, macerate 48 hours. Now percolate slowly, using same strength menstruum, to obtain 1000 Cc. of percolate. Again macerate drug in percolator for 12 hours, afterwards collecting a second 1000 Cc. of percolate. Again macerate for 12 hours and collect a third percolate of 3000 Cc. Distil the alcohol from the mixed percolates at as low a temperature as possible, and evaporate the liquid to 800 Cc. Slowly add to this residue when cold, with continuous agitation, 2000 Cc. of Alcohol and set aside, tightly closed for 12 hours. Decant supernatant liquid from syrupy layer, filter decanted liquid and wash syrupy residue with two portions, 300 Cc. each, of a mixture of alcohol 4 volumes, water 1 volume, passing the washings through the filter into the previously collected alcoholic liquid. Reduce the combined alcoholic liquids, by distillation, to 800 Cc. and add Diluted Alcohol to make 1000 Cc. Former process directed extraction with a mixture of Acetic Acid 275 parts and water 725 parts, and evaporation to 1000 Cc.

*Gelatinum*.—Modified description: An amorphous solid, in sheets, flakes, ground, powdered or shredded form, colorless or slightly yellowish, and having a slight characteristic odor and taste; unalterable in the air when dry, but decomposing when moist or in solution. Modified test: A hot solution of Gelatin in distilled water (1 in 40) should be free from putrid odor, and is not more than slightly acid to litmus; it appears not more than slightly opalescent in a stratum of 2 cm. and on cooling to 6° C. and standing for several hours it forms a firm, transparent or translucent jelly. Ash changed from 2 percent. to "not more than 3 percent." Added tests: A solution of the ash in 25 Cc. of distilled water, made with the aid of heat and a few drops of hydrochloric acid, does not respond to the Test for heavy metals. Heat 1.5 Gm. of Gelatin with 30 Cc. of hydrochloric acid (1 in 4) in a 150 Cc. Erlenmeyer flask on a water bath, and when the Gelatin has dissolved, add 3 Cc. of saturated bromine water and heat it on a water bath for 15 minutes, shaking the flask occasionally. Then add 0.5 Gm. of potassium iodide and follow it immediately with 0.5 Cc. of a 25 percent. solution of stannous chloride. Heat the solution for 5 minutes on a water bath, cool and subject it to the test for Arsenic. The stain produced, if any, is not greater than that produced in a test made with the same quantities of the reagents to which 2 Cc. of the standard arsenic solution has been added.

*Glucosum*.—The product obtained by the hydrolysis of starch, consisting chiefly of dextrose and dextrines. A colorless or slightly colored, thick, syrupy



liquid. Odorless or nearly so; it has a sweet taste. Very soluble in water, sparingly soluble in alcohol. An aqueous solution is neutral or slightly acid to litmus. Add a few drops of an aqueous solution (1 in 20) to 5 Cc. of hot alkaline cupric tartrate T. S.; a copious red precipitate of cuprous oxide will be produced (distinction from cane sugar). Weigh accurately about 0.5 Gm. of Glucose in a wide, glass-stoppered, tared weighing bottle, add 2 Cc. of distilled water, evaporate the water at about 70° C. and then dry it to constant weight at 90° C. The loss in weight of the Glucose does not exceed 21 percent. (water). Not more than 1 percent. of ash on incineration at a temperature not exceeding a low red heat. A solution of 5 Gm. of Glucose in 15 Cc. of distilled water, mixed with 5 drops of phenolphthalein T. S. requires not more than 0.6 Cc. of tenth-normal potassium hydroxide V. S. to produce a pink color (free acid). Dissolve about 2 Gm. of Glucose in 50 Cc. of distilled water, boil the solution for one minute and cool. The addition of one drop of tenth-normal iodine V. S. to this solution produces no blue color (starch). On now adding a few drops of starch T. S. to the solution, a blue color is produced (sulphur dioxide). Ten Cc. of an aqueous solution of Glucose (1 in 20) does not respond to the test for heavy metals. If the solution of Glucose is not colorless, comparison must be made with 10 Cc. of the same solution, to which a volume of distilled water, equal to that of the hydrogen sulphide, has been added. Dissolve 1.5 Gm. of Glucose in 5 Cc. of distilled water, add 5 Cc. of diluted sulphuric acid and 1 Cc. of bromine water and heat for 5 minutes on a water bath. Then add 0.5 Gm. of potassium iodide, follow it with 5 drops of stannous chloride T. S., cool and subject the solution to the test for Arsenic. The stain produced, if any, is not greater than that produced in a test made with the same quantities of the reagents to which 2 Cc. of the standard arsenic solution has been added.

*Glyceritum Hydrastis.*—No change in formula. *New Assay:* 100 Cc. yields not less than 1.12 Gm. nor more than 1.37 Gm. of the ether-soluble alkaloids of Hydrastis. Proceed as directed in the Assay of Fluidextract of Belladonna Root, modifying the process there given by using 5 Cc. of the Glycerite of Hydrastis instead of 10 Cc. of the Fluidextract of Belladonna Root. Use only ether as the immiscible solvent throughout the assay. Wash the final ether extractions with 10 Cc. of water, draw off the water and discard it. Then filter the ether solution through a pledget of purified cotton, wash the cotton with ether, evaporate the filtrate and washings and dry the residue at 100° C. to constant weight instead of titrating it. The weight will represent the amount of ether-soluble alkaloids in 5 Cc. of the Glycerite of Hydrastis.

*Linimentum Saponis.*—Modified directions: Add the Soap to 700 Cc. of Alcohol in which the Camphor and Oil are dissolved, then add water to make 1000 Cc., agitate the mixture until Soap dissolves and filter. 725 Cc. of alcohol was formerly used.

*Magma Bismuthi.*—Containing an amount of bismuth hydroxide equivalent to not less than 5.50 Gm. nor more than 6.00 Gm. of bismuth oxide in each 100 Cc. Bismuth Subnitrate 80 Gm., Nitric Acid 120 Cc., Ammonium Carbonate 10 Gm., Ammonia Water, Distilled Water, each, a sufficient quantity, to make 1000 Cc.

Mix the Bismuth Subnitrate with 60 Cc. of Distilled Water and 60 Cc. of Nitric Acid in a flask and agitate, warming gently until a solution is formed. Pour this solution with constant stirring, into 5000 Cc. of Distilled Water to which 60 Cc. of Nitric Acid has been added. Dilute 480 Cc. of Ammonia Water with 4000 Cc. of Distilled Water in a glazed or glass vessel of at least 12000 Cc. capacity. Dissolve the Ammonium Carbonate in this solution and then quickly pour the Bismuth solution into it with constant stirring. If the mixture is not distinctly alkaline, add a sufficient quantity of Ammonia Water to make it so and allow the mixture to stand until the precipitate has subsided, then pour or syphon off the supernatant liquid and wash the precipitate twice with Distilled Water, by decantation. Afterwards transfer the magma to a strainer of close texture, arranged in a percolator so as to provide continuous washing with Distilled Water, the outlet tube being elevated to prevent the surface of the magma from becoming dry, and allow the operation to proceed until the washings cease to react with phenolphthalein T. S. Then transfer the moist magma to a graduated vessel and add a sufficient quantity of Distilled Water to make the product measure 1000 Cc. and mix thoroughly. A thick, white, opaque liquid containing bismuth hydroxide in suspension in water. Neutral to litmus and phenolphthalein. One Cc. of hydrochloric acid added to 1 Cc. of Bismuth Magma produces a clear solution. Pour the clear solution into 10 volumes of distilled water; a white precipitate is produced. Evaporate 10 Cc. of Bismuth Magma to dryness and ignite the residue to constant weight; not less than 0.550 Gm. nor more than 0.60 Gm. of bismuth oxide results.

*Massa Ferri Carbonatis.—Added Assay.*—Weigh accurately about 1 Gm. of Mass of Ferrous Carbonate, dissolve it in 15 Cc. of diluted sulphuric acid and dilute the solution with distilled water to about 100 Cc. The immediate titration with tenth-normal potassium dichromate V. S., potassium ferricyanide T. S. being used as indicator, shows not less than 41.5 percent. of ferrous carbonate.

*Massa Hydrargyri.—Added Assay.*—Weigh accurately about 1 Gm. of Mass of Mercury, dissolve it in a mixture of 10 Cc. of distilled water and 5 Cc. of nitric acid and heat it on a water bath until red fumes cease to be evolved, and the liquid becomes pale yellow. Then add 150 Cc. of distilled water and 2 Cc. of ferric ammonium sulphate T. S. and titrate the solution with tenth-normal potassium sulphocyanate V. S. It shows not less than 32 percent. nor more than 34 percent. of mercury.

*Nitrogenii Monoxidum.*—A gas, Nitrous Oxide ( $N_2O$ ). It is colorless, possesses a slight characteristic odor and a somewhat sweetish taste. It supports the combustion of many substances. For convenience in handling and use it is compressed in metal cylinders. It is quite soluble in water at low temperatures; at 25° C., 1 volume of water dissolves about 1.3 volumes of Nitrous Oxide. Pass 2000 Cc. of the gas, measured under normal atmospheric pressure at about 25° C. through 100 Cc. of barium hydroxide T. S. at a rate not exceeding 4000 Cc. per hour; not more than a slight turbidity is produced (carbon dioxide). No opalescence is produced in a mixture of 100 Cc. of distilled water and 1 Cc. of silver nitrate T. S. by 2000 Cc. of the gas under the conditions described above (halogens). No change in color is produced in 100 Cc. of distilled water to

which 5 drops of litmus T. S. have been added, by the passage of 1000 Cc. of the gas through the liquid under the conditions described above (acids or bases). No alteration in color is produced in a solution of 0.2 Cc. of tenth-normal potassium permanganate V. S. in 100 Cc. of distilled water by the passage of 1000 Cc. of the gas through the liquid under the conditions described above (reducing substances).

*Oleatum Hydrargyri*.—The 25 Cc. of Distilled Water is replaced by 20 Cc. of Alcohol in the new formula.

*Oleoresina Petroselini*.—Exhaust Parsley Seed, in No. 60 powder, with Ether. Distil most of the Ether from the percolate, using a water bath and evaporate the remainder spontaneously, stirring frequently. Allow the Oleoresin to stand without agitation for four or five days and decant the clear liquid portion from any solid residue.

*Oleum Sesami*.—A fixed oil expressed from the seeds of one or more cultivated varieties of *Sesamum Indicum* Linné (Fam. Pedaliaceæ). Preserve in well-closed containers. Sesame Oil is a pale yellow, oily liquid, almost odorless, and having a bland taste. Slightly soluble in alcohol, miscible with ether, chloroform, petroleum benzine and carbon disulphide. Specific gravity: 0.916 to 0.921 at 25° C. Shake 1 Cc. of the Oil for half a minute, with a solution of 0.1 Gm. of sugar in 10 Cc. of hydrochloric acid; the acid layer will become bright red and change to dark red on standing. Blue litmus paper previously moistened with alcohol is not more than slightly reddened by 2 Cc. of the Oil (free acid). Mix 5 Cc. of the Oil in a test-tube with 5 Cc. of a mixture of equal volumes of amyl alcohol and a 1 percent. solution of sulphur in carbon disulphide and immerse the test tube to one-third of its depth in boiling saturated aqueous salt solution. No reddish color develops in 15 minutes (cottonseed oil). Saponification value not less than 188 nor more than 193. Iodine value not less than 103 nor more than 112.

*Oleum Terebinthina*.—The volatile oil recently distilled from the concrete oleoresin obtained from *Pinus Palustris* Miller and from other species of *Pinus* (Fam. Pinaceæ) with water, below 100° C. Added: optical rotation variable. Solubility in alcohol changed from "3 volumes" to "5 volumes." "Very slight residue on evaporating 1 Cc." changed to "Not more than 0.05 Gm. of residue on evaporating 10 Cc. in a small dish on a water bath." Added tests: Distil 200 Cc. of the Oil at the rate of two drops per second, from a 300 Cc. globe flask, having the side tube 8 cm. above the bulb. Ninety percent. of the Oil distils between 154° and 170° C., the temperature being read with the mercury column of the thermometer immersed in the vapor. Five Cc. of the Oil added to an equal volume of hydrochloric acid in a test tube, shaken vigorously and allowed to stand for a few minutes, does not give a brownish or greenish color (resinous oils or their derivatives). Introduce 5 Cc. of Oil of Turpentine cautiously, drop by drop, into a small flask, of from 35 Cc. to 50 Cc. capacity, having a long graduated neck, and containing 25 Cc. of fuming sulphuric acid, and agitate the mixture cautiously but vigorously and frequently during five minutes, keeping the temperature just below 65° C. by immersion in cold water. Then cool, and add sulphuric acid until the bottle is filled to the upper graduation on the neck, when the clear, reddish viscous layer, which forms after the

dark mass has settled for 2 hours, should not exceed 1 percent. of the volume of Oil taken. A larger residue of colorless liquid, with a refractive index of less than 1.500 at 20° C. shows the presence of mineral oil. Caution: The addition of the Oil of Turpentine to the fuming sulphuric acid, drop by drop, is necessary because of the violence of the reaction.

*Opium Deodoratum.*—No change.

*Opium Granulatum.*—No change.

*Pilulæ Ferri Carbonatis.*—*Added Assay:* Dissolve three pills in 15 Cc. of diluted sulphuric acid and dilute the solution with distilled water to about 100 Cc. The immediate titration with tenth-normal potassium dichromate V. S., potassium ferricyanide T. S. being used as an indicator, shows not less than 0.065 Gm. of ferrous carbonate in each pill.

*Pilulæ Ferri Iodidi.*—*Added Assay:* Dissolve five pills in 15 Cc. of diluted sulphuric acid and dilute the solution with distilled water to about 100 Cc. The immediate titration with tenth-normal potassium dichromate V. S., potassium ferricyanide T. S. being used as indicator, shows not less than 0.04 Gm. of ferrous iron in each pill.

*Potassii Chloras.*—*Modified Test:* Ten Cc. of an aqueous solution of the salt (1 in 20) does not respond to the test for heavy metals. *Modified Assay:* Weigh accurately about 0.1 Gm. of Potassium Chlorate, transfer it to a 250 Cc. flask and dissolve it in 10 Cc. of distilled water. Then add 25 Cc. of acidulated ferrous sulphate T. S. to the solution, insert a valve stopper (see below) and boil the mixture for ten minutes. Now cool the mixture, add 10 Cc. of a 10 percent. manganous sulphate solution and titrate the excess of ferrous sulphate with tenth-normal potassium permanganate V. S. At the same time conduct a parallel experiment with another portion of 25 Cc. of acidulated ferrous sulphate T. S. to ascertain the total amount of ferrous sulphate in the solution used. *Valve Stoppers.*—Take a piece of rubber tubing of convenient diameter, and about 5 cm. in length and, having placed a piece of glass rod in one end and having slipped the other end over a glass tube which passes through a perforated stopper of a size convenient to fit the flask used, cut a longitudinal slit about 15 mm. long in one side of the rubber tube about half way up.

*Resina.*—Specific gravity changed from "1.070 to 1.080" to "from 1.07 to 1.09" at 25° C. Ash statement changed from "yielding no appreciable ash" to "ash not exceeding 0.05 percent." *Added description:* Its alcoholic solution shows an acid reaction.

*Scopolaminæ Hydrobromidum.*—Hyoscyne Hydrobromide added as a synonym. *Modified description:* "The Hydrobromide of lævorotatory scopolamine, also known as hyoscyne, obtained from various plants of the Solanaceæ. Colorless, transparent, rhombic crystals, sometimes of large size, odorless, slightly efflorescent. Its aqueous solution (1 in 20) is neutral or at most only slightly acid to litmus. "It melts at 151.8° C." changed to "when anhydrous it melts between 190° and 192° C." Reference to melting point of the chloraurates omitted. "Strongly lævogyrate" changed to "specific rotatory power of the salt, determined in an aqueous solution containing the equivalent of 5 Gm.

of anhydrous scopolamine hydrobromide in 100 Cc. of solution, at 25° C., is from 22° to 25.75° in a 100 mm. tube. Added tests: Two Cc. of chloroform shaken with 1 Cc. of an aqueous solution of the salt (1 in 20) to which a few drops of chlorine water have been added, will cause the chloroform to assume a brownish color. When dried to constant weight at 100° C. the loss in weight does not exceed 13 percent. It also loses its water of crystallization slowly over sulphuric acid. "No residue on incineration" changed to "On incinerating 0.1 Gm. no weighable ash remains." Added tests: A few drops of ammonia water T. S. added to 1 Cc. of an aqueous solution (1 in 20) causes no turbidity; the addition of potassium hydroxide T. S., only a whitish, transient turbidity (foreign alkaloids). Add 0.05 Cc. of tenth-normal potassium permanganate V. S. to 15 Cc. of an aqueous solution (1 in 100); the solution is not completely decolorized within 5 minutes (apoa tropine). Modified test: The solution of about 0.1 Gm. of the salt in 1 Cc. of sulphuric acid, produces not more than faint yellow color (carbonizable impurities); a drop of nitric acid added to this solution, will produce an orange color, due to the liberation of bromine, but no deep-red color, fading to orange, should be noticeable (morphine). The platinic chloride test is omitted.

*Serum Præparatum.*—Added tests: One Gm. of Prepared Suet dissolved in 50 Cc. of hot alcohol and a few drops of phenolphthalein T. S. added, does not require more than 0.6 Cc. of tenth-normal potassium hydroxide V. S. to produce a pink color (limit of free acid). Saponification value: not less than 193 nor more than 200. Iodine value: not less than 33 nor more than 48.

*Sodii Glycerophosphas.*—The sodium salt of glycerophosphoric acid containing not less than 66 percent. of anhydrous Sodium Glycerophosphate. It occurs either in the form of white, monoclinic plates or scales, as a white powder, or as a semi-solid mass having a saline taste; odorless. Very soluble in cold and hot water, nearly insoluble in alcohol. An aqueous solution (1 in 20) shows an alkaline reaction with litmus and a very slightly alkaline reaction with phenolphthalein T. S. Heated to about 60° C. the salt begins to lose water. When strongly heated it is decomposed, evolving inflammable vapors, and at a red heat is converted into sodium pyrophosphate. An aqueous solution (1 in 50), acidified with hydrochloric acid, does not respond to the test for heavy metals. Dissolve 1 Gm. of Sodium Glycerophosphate in 20 Cc. of diluted nitric acid and add an equal volume of cold ammonium molybdate T. S. No precipitate is formed within one hour (phosphates). On heating the mixture, a yellow precipitate will be formed. Triturate about 1 Gm. of Sodium Glycerophosphate, accurately weighed, with 25 Cc. of absolute alcohol, filter the mixture, evaporate the filtrate on a water-bath and dry the residue for one hour at a temperature not exceeding 70° C. The residue weighs not more than 1 percent. of the amount of salt taken (limit of alcohol-soluble impurities). Weigh accurately about 2.5 Gm. of the salt, dissolve it in 50 Cc. of distilled water and titrate with half-normal hydrochloric acid V. S., using 3 drops of methyl orange T. S. as indicator. It indicates not less than 66 percent. of anhydrous Sodium Glycerophosphate.

*Syrupus.*—No change.

*Syrupus Acaciæ.*—No change in formula. The syrup is to be heated at boil-

ing temperature for fifteen minutes, the volume restored with boiling water and the product preserved in sterilized bottles, closed with sterilized stoppers and capped.

*Syrupus Acidi Citrici*.—No change in formula. The syrup is directed to be made at short intervals and preserved in containers which have previously been washed with boiling water.

*Syrupus Aurantii*.—No change.

*Syrupus Aurantii Florum*.—No change.

*Syrupus Calcii Lactophosphatis*.—The Sugar has been reduced from 725 Gm. to 650 Gm. and 50 Cc. of Glycerin has been added.

*Syrupus Hypophosphitum*.—The Sugar has been reduced from 650 Gm. to 600 Gm., 50 Cc. of Glycerin added and the Tincture of Fresh Lemon Peel omitted. The alternative percolation method has been omitted.

*Syrupus Ipecacuanhæ*.—No change.

*Syrupus Lactucarii*.—No change.

*Syrupus Picis Liquidæ*.—The preliminary washing of the tar is omitted. An alternative percolation method is added.

*Syrupus Pruni Virginianæ*.—The Sugar has been increased from 700 Gm. to 800 Gm. and the Glycerin reduced from 150 Cc. to 50 Cc. The drug is moistened with water containing the Glycerin, allowed to macerate 24 hours before starting percolation and 500 Cc. of percolate then collected. The Sugar is dissolved in the latter by agitation and Water added to make 1000 Cc. Formerly the aqueous percolate dropped into the Glycerin in the receiving bottle and did not percolate through the drug.

*Syrupus Rhei*.—No change.

*Syrupus Rhei Aromaticus*.—No change.

*Syrupus Sarsaparillæ Compositus*.—The Oils are mixed with Alcohol to make 20 Cc., then alcoholic solution added to the fluidextracts and this mixture added gradually to enough Syrup to make 1000 Cc. Formerly 650 Gm. of Sugar was used and water to make 1000 Cc. No alcohol was added.

*Syrupus Scillæ*.—No change.

*Syrupus Scillæ Compositus*.—The Antimony and Potassium Tartrate is dissolved in 10 Cc. of hot water and this solution added to 750 Cc. of Syrup to which is then gradually added the mixed Fluidextracts, and finally enough Syrup to make 1000 Cc. Formerly the alcohol was evaporated from the mixed Fluidextracts, 300 Cc. of water added and the mixture filtered through talc, the filter being washed with Water to make 400 Cc. of total filtrate. The Antimony and Potassium Tartrate, dissolved in 25 Cc. of hot Water, was then added and 750 Gm. of Sugar dissolved in the liquid, water being added to make 1000 Cc.

*Syrupus Senegæ*.—No change.

*Syrupus Sennæ*.—No change.

*Syrupus Tolutanus*.—No change.

*Syrupus Zingiberis*.—No change.

*Tinctura Cantharidis*.—The drug is to be macerated with the Alcohol in a container fitted with a reflux condenser (upright glass tube) at a temperature

of from 50° to 55° C., during 24 hours, with frequent agitation. The mixture is then transferred to a percolator and 1000 Cc. of percolate obtained. Formerly the drug was percolated with Alcohol in the usual way after 6 hours maceration, no heat being used.

*Terra Silicea Purificata*.—(Purified Kieselguhr). A form of Silica consisting of the frustules and fragments of diatoms, purified by boiling with diluted hydrochloric acid, washing and calcining. It does not contain more than 10 percent. of hygroscopic moisture. Preserve it in tightly closed containers. Purified Siliceous Earth is a very bulky and very fine powder, white or of a pale light gray or pale buff color, without odor or taste. It readily absorbs moisture and will retain about four times its weight of water without the mixture becoming fluid. It is insoluble in water, acids or dilute alkaline solutions. Boil 10 Gm. of Purified Siliceous Earth with 50 Cc. of distilled water and filter the mixture; the filtrate is colorless and neutral to litmus. When ignited it does not darken nor lose more than 10 percent. of its weight (excessive moisture). The dried powder does not darken or lose appreciably in weight on ignition (organic impurities). Add 1 Gm. of Purified Siliceous Earth to 25 Cc. of hydrochloric acid; no effervescence should occur (carbonates) and after boiling and filtering, the filtrate is colorless, and separate portions, when tested, yield no precipitate with barium chloride T. S. (sulphates) and no blue color with potassium ferrocyanide T. S. (iron). Treat 1 Gm. of Purified Siliceous Earth with 20 Cc. of diluted hydrochloric acid and filter. Ten Cc. of the filtrate, when evaporated to dryness and the residue ignited, should not leave a residue weighing more than 0.005 Gm.

*Tinctura Cinchonæ*.—Menstruum II changed from Alcohol 65 parts and Water 25 parts to Alcohol 75 parts and Water 25 parts.

*Tinctura Cinchonæ Composita*.—Red Cinchona powder and Bitter Orange Peel powder changed from No. 60 to 40. Menstruum II changed from Alcohol 65 parts and Water 25 parts to Alcohol 75 parts and Water 25 parts.

*Tinctura Digitalis*.—Menstruum changed from diluted Alcohol to Alcohol 3 volumes and Water 1 volume.

*Tinctura Iodi*.—The 50 Gm. of Potassium Iodide is dissolved in 50 Cc. of distilled water in a bottle, 70 Gm. of Iodine is then dissolved in this solution by agitation and enough Alcohol added to make 1000 Cc. No water was used in the former process.

*Tinctura Sanguinaria*.—Ten Cc. of Hydrochloric Acid replaces the 20 Cc. of Acetic Acid, otherwise the process remains the same.

*Trioxymethylene*.—It contains not less than 96 percent. of trioxymethylene or paraformaldehyde;  $(\text{HCOH})_3 = 90.05$ , a polymeric form of formaldehyde. It occurs in white, friable masses, or as a powder, having a slight odor of formaldehyde. On heating it is partly converted into formaldehyde and partly sublimed unchanged. Slowly soluble in cold water, more readily soluble in hot water with the formation of formaldehyde, insoluble in alcohol or ether; soluble in fixed alkali solutions. A mixture of about 0.01 Gm. each of Trioxymethylene and morphine sulphate and 10 drops of sulphuric acid assumes a violet-red color, changing to blue. On incinerating 2 Gm. of Trioxymethylene, not more than 0.1

percent. of ash remains. Shake about 0.5 Gm. of Trioxymethylene, finely powdered, with 10 Cc. of distilled water; the latter should remain neutral to litmus. Assay: Weigh accurately about 1 Gm. of Trioxymethylene, finely powdered, mix it with 50 Cc. of normal potassium hydroxide V. S. in a 250 Cc. flask and add immediately, but slowly, through a small funnel, 50 Cc. of solution of hydrogen dioxide which has been previously rendered neutral to litmus with sodium hydroxide. When the reaction has ceased and the foam subsided, rinse the funnel and the sides of the flask with distilled water, allow the liquid to stand for half an hour and then determine the excess of alkali with normal sulphuric acid V. S., using litmus T. S. as indicator.

*Trochisci Acidi Tannici.*—No change.

*Trochisci Ammonii Chloridi.*—No change.

*Trochisci Cubebæ.*—No change.

*Trochisci Potassii Chloratis.*—No change.

*Trochisci Sodii Bicarbonatis.*—No change.

*Unguentum.*—Five percent. or more of the Benzoinated Lard may be replaced by White Wax in southern latitudes and during the heated season in other localities.

*Unguentum Acidi Borici.*—The Paraffin is reduced to 50 Gm. and the White Petrolatum correspondingly increased. 100 Gm. of Paraffin was formerly directed.

*Unguentum Acidi Tannici.*—No change.

*Unguentum Aquæ Rosæ.*—The clause is omitted directing the omission of the Sodium Borate when the ointment is used with metallic salts, otherwise no change.

*Unguentum Belladonnæ.*—The Hydrous Wool-Fat is increased from 20 Gm. to 30 Gm., 10 Gm. less of Benzoinated Lard being taken. No other change.

*Unguentum Chrysarobini.*—No change.

*Unguentum Diachylon.*—White Petrolatum replaces Olive Oil in the Ointment.

*Unguentum Gallæ.*—No change.

*Unguentum Hydrargyri.*—No change.

*Unguentum Hydrargyri Ammoniati.*—No change.

*Unguentum Hydrargyri Dilutum.*—The mercury has been reduced from 33.5 percent. to 30 percent.

*Unguentum Hydrargyri Nitratæ.*—Modified process: Mercury 7.0 Gm., Nitric Acid 17.5 Gm., Lard, free from Water, 76.0 Gm. To make about 100 Gm. Warm the Lard in a capacious porcelain dish until it has just melted (about 45° C.); add 7 Gm. of the Nitric Acid all at once and continue the heat until the characteristic reaction is complete. Hold an inverted glass funnel over the dish to protect the operator from any Lard spurting from the dish during the reaction. Withdraw the heat immediately after the rapid rise of froth which accompanies the end reaction and cool the treated Lard, stirring it until it assumes a bright citrine color. Dissolve the Mercury in the remainder of the Nitric Acid, warming it if necessary, to prevent crystallizing and mix the solution with the previously prepared Lard. The quantity prepared has been changed from 1000 Gm. to 100 Gm. Formerly 70 Gm. of Nitric Acid was added to 760 Gm. of melted Lard at 105° C. and, when the reaction moderated, the heat was reapplied until effervescence



ceased. The mercuric nitrate solution was then stirred into the cooled, prepared Lard as above.

*Unguentum Hydrargyri Oxidi Flavii.*—No change.

*Unguentum Iodi.*—No change.

*Unguentum Iodoformi.*—Benzoinated Lard replaces the Lard; otherwise no change.

*Unguentum Phenolis.*—2.25 Gm. of Liquefied Phenol replaces 3 Gm. of Phenol and Ointment replaces White Petrolatum as the vehicle.

*Unguentum Picis Liquidæ.*—No change.

*Unguentum Stramonii.*—No change.

*Unguentum Sulphuris.*—Sublimed Sulphur replaces Washed Sulphur; otherwise no change.

*Unguentum Zinci Oxidi.*—No change.

#### ARSENIC TEST.

*Standard Arsenic Test Solution.*—Dissolve 0.1 Gm. of pure arsenic trioxide which has been finely pulverized, dried in a desiccator and accurately weighed, in about 5 Cc. of a 20 percent. solution of sodium hydroxide (free from arsenic). Neutralize the solution with diluted sulphuric acid, and then dilute it in a graduated flask to exactly 1000 Cc., using recently boiled distilled water at 25° C., to which 10 Cc. of diluted sulphuric acid has been added. Accurately measure 10 Cc. of this solution, transfer it to a 1000 Cc. flask and again dilute it to 1000 Cc. with recently boiled distilled water at 25° C., to which 10 Cc. of diluted sulphuric acid has been added. Employ this solution, containing 0.001 milligrammes of arsenic trioxide in each 1 Cc. in preparing the standard stain. This solution should be kept in a glass-stoppered bottle. It is advisable to prepare fresh solutions whenever new standard stains are to be prepared.

*Preparation of the Chemical to be Tested.*—Add 1 Cc. of a mixture of equal volumes of concentrated sulphuric acid, and distilled water to 5 Cc. of an aqueous solution of the chemical (1 in 25) or to a solution in 5 Cc. of distilled water of the residue remaining after special treatment. Acidulation as just directed is not necessary in the case of inorganic acids. Then add 10 Cc. of a saturated aqueous solution of sulphurous acid. Heat this liquid in a small beaker, on a water-bath, until it is free from sulphurous acid and has been reduced to about 2 Cc. in volume. Dilute this evaporated liquid to about 5 Cc. with distilled water.

*Test-Apparatus.*—Prepare several generators, equipped with tubes, etc., as described below. Select as a generator a bottle of about 50 Cc. capacity, having a mouth about 2.5 cm. in diameter and provide a well-fitting rubber stopper, suitably perforated. In one of the perforations in this stopper insert a thistle tube about 5 mm. in diameter and 15 cm. long, slightly bent where it emerges from the stopper and constricted at its lower extremity to an opening about 1 mm. in diameter, reaching within about 2 mm. of the bottom of the bottle. Insert through another perforation of the stopper a vertical exit tube about 13 cm. in total length and 1 cm. in diameter throughout the upper portion (about 10 cm.) and constricted at its lower extremity to a tube of about 3 cm. in length and about 5 mm. in diameter. This latter tube should extend but slightly below the stopper. In

the lower part of this exit-tube is to be inserted a small pledget of dry glass wool and then a strip of the freshly-prepared but dry lead acetate test paper rolled into a coil, and above this a plug of the moist (not wet) lead acetate glass wool. In the upper extremity of this tube insert through a perforated cork stopper, a glass tube 12 cm. in length, having an internal diameter of about 3 mm. In this is to be placed the mercuric bromide test paper, bending or creasing the upper portion of the strip so that it will retain its position. The strip should extend within about 2 cm. of the perforated cork stopper and must not be introduced into the tube until ready to start the test. This tube should be thoroughly cleaned and dried each time it is used.

*Preparation of Standard Stain.*—Introduce into the generator about 8 Gm. of the zinc followed by 25 Cc. of dilute sulphuric acid (1 in 4) and 5 drops of the acid stannous chloride T. S. Insert the stopper containing the thistle tube and the exit tubes into which have been placed the glass wool pledget, the dry lead acetate test paper, the moist lead acetate glass wool, and the mercuric bromide test paper as described under the Test Apparatus. Add at once through the thistle tube 2 Cc. (accurately measured) of the standard arsenic T. S. and wash this down into the apparatus with 5 Cc. of the dilute sulphuric acid (1 in 4). Should the evolution of the gas be violent at first, check the reaction by immersing the bottle in cold water. Should the reaction subside, increase it by placing the bottle in warm water. If the reaction be too violent, the stain will spread and not form a distinctive band, thus making the color intensity comparisons difficult. After the test has continued for forty-five minutes, remove the mercuric bromide test paper and place it in a clean, dry tube for comparison. This stain represents 0.002 milligrammes of arsenic trioxide in addition to any stain produced by the reagents. The stain from the reagents should scarcely be perceptible when determined by a blank experiment. For preservation the standard test strips are to be dipped into hot melted paraffin.

*Testing the Chemical.*—Introduce into another generator about 8 Gm. of the zinc, followed by 25 Cc. of the dilute sulphuric acid (1 to 4) and 5 drops of acid stannous chloride T. S. Insert the stopper containing the thistle tube and the exit tube charged with the test papers and glass wool, as just described. Then add at once through the thistle tube 5 Cc. of the solution to be tested, previously reduced as directed, under *Preparation of the Chemical*, and wash this down into the apparatus with 5 Cc. of the dilute sulphuric acid (1 in 4). When the evolution of hydrogen has proceeded actively for forty-five minutes, remove the mercuric bromide test paper and carefully compare it with the standard stain prepared as described above. The stain produced by the chemicals tested should not exceed in length or intensity of color that prepared as a standard, indicating not more than 1 part of arsenic in 100,000 parts of the substance tested.

*Antimony*, if present in the substance tested, will produce a gray stain. Sulphites, sulphides, thiosulphates, and other compounds which liberate hydrogen sulphide or sulphurous acid, when treated with sulphuric acid, must be oxidized by means of nitric acid and then reduced by means of sulphurous acid as directed under *Preparation of the Chemical*, before introducing into the apparatus. Sulphur compounds as well as hydrogen phosphide give a bright yellow band on

test-paper. If sulphur compounds are present, a simultaneous darkening of the lead acetate test paper and glass wool will occur. If such be the case, the operation as directed under *Preparation of the Chemical* must be repeated upon a fresh portion of the sample, using greater care in effecting the complete removal of the sulphurous acid. In testing hypophosphites special care should be observed to completely oxidize the sample as directed, otherwise a yellow stain, which might be confused with the orange yellow color produced by arsenic, may be produced through the evolution of hydrogen phosphide. Compounds containing antimony should be tested for arsenic by Bettendorf's Test. The test apparatus should be thoroughly cleaned and dried immediately after use.

## REAGENTS.

*Arsenic Trioxide, Pure (Arsenous Oxide).*— $\text{As}_2\text{O}_3$ . Arsenic trioxide for use in the Arsenic Test should comply with the description and tests given under Arseni Trioxidum, and also the following additional tests: One Gm. of the trioxide, when heated in a porcelain crucible under a hood until vapors are no longer evolved, should yield not more than 0.2 mgm. residue (non-volatile matter). Reduce the arsenic trioxide to a fine powder and thoroughly dry it in a desiccator; it should show 100 percent. of arsenic trioxide when assayed as directed under Arseni Trioxidum.

*Filter Paper, Quantitative.*—For use in the Arsenic Test use Schleicher and Schull's No. 589 (Blue Ribbon) or Swedish O, filter paper, or other make of like surface or quality, for the Mercuric Bromide Test Paper.

*Glass Wool.*—(Spun Glass.)—Fine threads of spun glass. Two Gm. of glass wool when digested on a bath of boiling water for one-half hour with 100 Cc. of diluted hydrochloric acid, the mixture filtered and the filtrate evaporated to dryness and then dried at  $110^\circ\text{C}$ ., should leave not more than 0.01 Gm. of residue (soluble matter). Boil 1 Gm. of glass wool for a few minutes with a mixture of 25 Cc. each of diluted nitric acid and distilled water; filter, evaporate the filtrate to dryness and treat the residue with 10 Cc. of distilled water and again filter it; the filtrate should not be affected by the addition of hydrogen sulphide T. S. (lead).

*Lead Acetate (Glass Wool).*—Immerse Glass Wool in a mixture of equal parts of lead acetate T. S. and distilled water and remove the excess of liquid by pressing it between filter-paper. The glass wool should be prepared as just described immediately before it is required in the test.

*Lead Acetate Test-Paper.*—Immerse strips of heavy white filter-paper 5 cm. wide and 8 cm. long in a mixture of equal parts of lead acetate T. S. and distilled water, drain off the excess of liquid and dry the strips on glass in an oven at  $100^\circ\text{C}$ .

*Lead Acetate Test Solution.*—Dissolve 10 Gm. of clear, transparent crystals of lead acetate,  $\text{Pb}(\text{C}_2\text{H}_3\text{O}_2)_2 \cdot 3\text{H}_2\text{O}$  (Plumbi Acetas, U. S. P.) free from adhering lead carbonate, in sufficient water to measure 100 Cc. Preserve the solution in well-stoppered bottles.

*Mercuric Bromide.*— $\text{HgBr}_2$ . It occurs in white rhombic needles or prisms or

lustrous scales or as a granular, crystalline powder fusing at about 325° C. and subliming without decomposition. Soluble in 200 parts of water at 25° C. and 5 parts of boiling water; readily soluble in boiling alcohol.

*Mercuric Bromide Test Paper.*—Cut stiff, heavy quantitative filter-paper into strips 3 cm. in width and 12 cm. in length. Immerse these strips for five minutes in alcoholic mercuric bromide T. S. Remove the excess of solution by pressing the strips between filter-paper and then dry them quickly on glass in an oven heated to 100° C. Place the strips at once in a wide-mouthed bottle and stopper it securely.

*Mercuric Bromide Test Solution, Alcoholic.*—Dissolve 5 Gm. of Mercuric Bromide in 100 Cc. of alcohol, employing a gentle heat to facilitate solution. Keep it in glass-stoppered bottles protected from the light.

*Stannous Chloride, SnCl<sub>2</sub> + 2H<sub>2</sub>O.* Colorless crystals readily soluble in water and alcohol. When in contact with air or excess of water, the salt readily forms a basic chloride, hence when dissolved, its solutions should be acidulated with hydrochloric acid. The presence of arsenic above the U. S. P. limits should be determined. Boil two grammes of the salt with 10 Cc. of hydrochloric acid for several minutes; the solution should remain clear and colorless for one hour. When tested for arsenic as directed under the blank test for arsenic, 0.3 Gm. of stannous chloride should not produce a stain. *Alternative process:* Heat tin with concentrated hydrochloric acid, taking care that the metal is in excess. When the acid has become saturated, pour off the clear fluid from the undissolved excess of tin, filter it through asbestos and set it aside until crystallization takes place. Break up the crystals, drain, and dissolve them at once as directed under the Test Solutions or in Bettendorf's Arsenic Test. When thus prepared, stannous chloride must respond to the tests for arsenic given above. 0.3 Gm. of stannous chloride should not produce a stain. When freshly prepared the salt should be completely soluble in one part of alcohol (foreign salts).

*Stannous Chloride Test Solution, Acid.*—Dissolve 40 Gm. of stannous chloride crystals in 60 Cc. of concentrated hydrochloric acid and preserve it in a glass-stoppered bottle.

*Sulphuric Acid, Concentrated for Tests, H<sub>2</sub>SO<sub>4</sub>.* When concentrated sulphuric acid is especially directed in a test, it is intended that the strongest pure acid of a specific gravity of not less than 1.834 at 25° C. be employed. In addition to the tests prescribed for this acid in the text of the Pharmacopœia, it is required to conform to the following more rigorous tests before it can be employed as a reagent. Dilute 1 part of the acid with 4 parts of distilled water; the stain from 25 Cc. of this dilute acid should scarcely be perceptible when subjected to the Arsenic Test. Pour 1 Cc. of diphenylamine T. S. carefully so as to form a separate layer upon 5 Cc. of the concentrated sulphuric acid contained in a test-tube; no distinct blue color should appear at the zone of contact (nitric acid). Upon carefully pouring about 2 Cc. of hydrochloric acid, in which a particle of sodium

sulphite has been dissolved, over about 2 Cc. of the concentrated sulphuric acid, no reddish zone should appear and no precipitate should form (selenium).

*Tin, Sn.*—Pure metallic tin in the granulated or mossy condition. Digest 5 Gm. of tin with 40 Cc. or a sufficient quantity of nitric acid (Acidum Nitricum, U. S. P.), on a bath of boiling water until entirely converted into a white powder, then evaporate it completely to dryness. Stir the residue with 25 Cc. of diluted nitric acid and 25 Cc. of distilled water and filter it. To the filtrate add 1 Cc. of diluted sulphuric acid (Acidum Sulphuricum Dilutum, U. S. P.), evaporate it as far as possible upon a water-bath, and to this add 10 Cc. of distilled water; no weighable residue should remain undissolved (lead). When converted into stannous chloride it should comply with the tests directed under that salt.

*Zinc for Arsenic Test.*—The Zinc should preferably be in globular form, about 3 to 6 mm. in diameter, known as No. 7 Shot Zinc. It should be free from sulphur and phosphorus. The stain from 8 Gm. of Zinc should scarcely be perceptible when determined by a blank experiment.

*Heavy Metals Test.*—This test is to be used to detect the presence of undesirable metallic impurities in official chemical substances or their solutions; these should not respond affirmatively within the stated time. Acidulate 10 Cc. of a solution of the substance in distilled water (1 in 50) contained in a test-tube of about 40 Cc. capacity with 1 Cc. of diluted hydrochloric acid (unless otherwise directed), warm it to about 50° C., add an equal volume of freshly prepared hydrogen sulphide T. S., and allow the mixture to stand in a well-stoppered test-tube, in a warm place, at 35° C. for half an hour. At the end of this time the mixture should still possess the odor of hydrogen sulphide; if not, it should be thoroughly saturated with the gas and again set aside for half an hour. Any change in the color of the solution which is being tested should be noted by comparison with the same volume of the hydrogen sulphide T. S. (which has been likewise acidulated), when viewed crosswise by reflected light while held against a white surface.

---

### GREAT PURCHASE OF SUGAR.

The Western Mail states that in consequence of the cessation of the British supply of beet sugar from Germany, Austria, and Belgium, Mr. McKenna, Home Secretary of the British Government, has purchased 900,000 tons of raw sugar at about £20 (\$97.33) per ton, the transaction involving an outlay of about £18,000,000 (\$87,597,000). The sugar has been purchased in Demerara, Java, Mauritius, and other places. This is by far the largest purchase of sugar which has ever been made. The sugar is to be sold virtually at cost price to the refiners, who by arrangement with the Government have agreed to sell the commodity when refined to the dealer at a fixed price based upon the cost of the article, plus a fair manufacturing profit.