Pancreatinum.

There being at least three different ferments represented in the pancreas, proteolytic, amylolytic and emulsifying, the question arises, which of these ferments the test of efficiency should be chiefly aimed at. 1. The emulsifying power of the pancreatic juice is very feeble, or entirely lost after the death of the animal, or the removal of the pancreas from the body. Hence pancreatin is useless as an emulsifier. 2. There is no special necessity of making use of its amylolytic properties, since we have other agents, less complicated, for such purposes. 3. What pancreatin is chiefly wanted and used for is to render proteids soluble. As it is comparatively easy to test the preteolytic power of pancreatin, and as this appears to be its chief practical usefulness, the test has been confined to this. Rice (Circ. 166, p. 1009).

Paraldehydum.

Specific Gravity. 0.998. Merck (Index, p. 182.)

The aqueous solution becomes turbid on warming. German Comm. (Ap. Ztg. 94, 205).

Pepsinum.

Strength. It is believed that the experience of most physicians is based on a strength of 1:2000, or at most 1:2500. Since pepsin in its undiluted form is usually prescribed in combination with other substances, it makes comparatively little difference what the *lower* limit of strength of a pepsin is, as long as this limit (which, of course, should not be too low) is *known*. It is, of course, impossible to fix upon any upper limit of digestive power, since the same pepsin, which has already done its work, may be made to do twice, or even more times as much by presenting to it new material under the proper conditions of dilution, acidity, &c. The absence of the *upper* limit then implies that the Pharmacopœia recognizes any pepsin, which responds to the lower limit. Rice (Circ. No. 137, p. 868).

A liquid preparation is wanted. Beringer (A. J. Ph. 93, 471). ——Hallberg proposes a glycerite. (W. Dr. 94, 87.)

Description. The official description is too elastic. Beringer proposes to introduce two pepsins, one in powder (the so-called insoluble), and one in crystals (the soluble). (A. J. Ph. 94, 15.)

Solutions. These are best cleared by shaking with sugar of milk, and filtering. Wearn (Proc. 94, 583 & 963).

Klug states that dog's pepsin is much more active than that from pigs. (Ph. Era, 95, xiv. 299.)

Assay. History of the various methods of manufacture. (Beale, Scheffer, Jensen, Le Roy Webber, Russell.) (Ph. J. & Tr. 93, Jan'y, 588.)

The different official tests are perhaps sufficient to ascertain whether a given sample is above or below a certain standard, but they do not give the actual strength. Slight variations in the manipulation will often occasion widely differing results with the same pepsin. The real digestive power of a pepsin is measured by the amount of peptone which it is able to produce in a given time, while at present the tests are satisfied with ascertaining the amount of albumen dissolved. The steps of action are:

1. Conversion into syntonin, parapepton and peptone. 2. Pepsin, if allowed to act on more albumen than it can digest, converts it chiefly into syntonin, and very little peptone is formed. 3. 100 grains of albumen require 1 fl. oz. of acidulated water for solution. 4. In order to ascertain how much peptone and syntonin are formed, the mixture should be boiled, then filtered from any undissolved albumen, and the filtered solution, while still warm, neutralized with sodium carbonate, which throws down the syntonin. The amount of peptone is the difference between syntonin plus the undissolved albumen and the original amount of albumen. (Ph. J. & Tr. 93, Jan'y, 591. A. J. Ph. 93, 140. Proc. 93, 722.)

Webber separates pepsin from peptone, without injury to the ferment, by the use of sodium sulphate at a moderately high temperature. (Ph. Era, 93, 51. Proc. 93, 724.)

Bartley boils the white of egg with 9 times its weight of distilled water. Since the whites differ considerably in the p. c. of albumin, it will be necessary to mix the whites of several eggs, an aliquot part of which must be well mixed with the water before applying the heat, and then kept in constant motion while heating to near the boiling point for at least ten minutes, then strain. This solution will contain 10 p. c. of egg-white, which latter contains on an average 12 p. c. of albumin. The amount of HCl to be added is twice the amount directed in the U. S. P., because part is consumed in neutralizing the alkaline salts present. The time of 6 hours is considered excessive; Bartley proposes only 4 hours, stating that in comparative tests there would then be a pretty close concordance. (Am. Dr. 94, 212. Proc. 94, 221 & 964.)

Ph. Helvetica. Immerse a fresh egg for five minutes in boiling water, and after cooling, rub through a 15 Mm. sieve. Triturate 10 Gm. of this with 100 Gm. of water of 50° C., and 2 Gm. of dilute HCl, then add 0.1 Gm. of pepsin mixed with a little water. Digest with frequent shaking. The albumen should be dissolved within 1 or at most 2 hours, excepting a little flocculent matter. After a further digestion of five hours, a few Cc. should be rendered only faintly turbid on addition of 20 to 30 drops of dilute nitric acid. (Ph. Rdsch. N. Y. 94, 84.)

Sherrard finds that the presence of HCl is not absolutely necessary for dissolving the albumen. Under exactly similar conditions he found that water, containing 2 p. c. of HCl, dissolved 8.73 p. c. of the albumen; 1 p. c. HCl, 11.17; 5 p. c. 9.93; pepsin solution U. S. P. strength, but without the acid, 11.49; pepsin solution four times the U. S. P. strength, 9.09; distilled water alone (no acid), 13.06; artificial gastric juice, 100 p. c. of albumen. (Dr. Circ. 95, 263. Proc. 95, 229.)

Sherrard & Tegarden emphasize the necessity of subjecting the pepsins to be compared to exactly the same treatment in every particular, in order to obtain reliable data for comparison, and give the results of investigating 15 different brands. (Proc. 95, 244.)

Harding explains the action of pepsin by stating that the syntonin formed by the acid is converted by pepsin into peptone, thus giving the remainder of the syntonin a chance to enter into solution. He gives the proper proportion of acid as 1 ounce of acidulated water to 100 grains of albumen. It is necessary to find out what quantity of acidulated water is necessary to dissolve a given amount of albumen, and not what weight of albumen will be digested in an excessive quantity of water. The digestive power of the same pepsin will vary accordingly. Since an acid solution alone dissolves albumen, the value of a pepsin depends on the amount of peptone formed, and not on the amount of albumen dissolved. (Am. Dr. Febr. 95. 101. Proc. 95, 898.)

Moffat questions Harding's assertion of the great solvent power of acidulated water (leaving out the pepsin), and finds that when a large quantity of albumen is present, about 3 p. c. will be dissolved, while nothing will dissolve when the albumen is in small proportion (Ph. J. & Tr. 95, May, 1028). He finds that the same pepsin tested after the U. S. P. method indicated a strength of 1:3000, and after that of the P. Br. only 1:250. On investigating the reasons, he finds that the difference in the time and in the frequency of shaking are the chief factors. He thinks that the time of the U. S. P. (6 hours) is too long, and that the requirements of the P. Br. (30 minutes, 130° F.—54° C.— and shaking every five minutes) are preferable, because easier to carry out. He calls attention to the fact that the test is one of solution and not of digestion, and for comparative purposes it is not necessary to slavishly imitate the natural conditions of the human digestion. In order to better estimate the amount of undissolved albumen, he proposes to add a few drops of an aqueous solution of roseine acetate, the magenta color of which will make the white albumen more distinct by contrast. (Ph. J. & Tr. 95, March, 813.)

Hornblower finds that pepsin dissolves albumen in the cold, the amount depending on the time allowed, and deduces from his experiment the caution to make any comparisons immediately after expiration of the time allotted. (Ph. J. & Tr. 95, May, 984.)

Eccles points out that the present method of testing pepsin gives too much latitude to personal equation, and shows, step by step, how the least deviation one way or other from the strict letter of the method will influence, favorably or otherwise, the result. He therefore recommends his plan, first published in Proc. 90, 144 & 145, of using albumen dissolved in water; the whites of eggs measure to ascertain the volume, and add three such volumes of water. Shake vigorously and strain (or filter, when this can be done rapidly by suction). Place the mixture in a covered beaker, which is immersed in a water-bath so as not to touch the bottom, raise it to the boiling point, and keep thereat for ten minutes. As soon as sufficiently cool, add sufficient HCl to make it 0.2 p. c. strong, and add as much pepsin as the test may call for. Keep it at the required temperature until the digestion is complete. The nitric acid test should be used to determine this. The value of pepsin should be determined by the amount of coagulated material thrown down by boiling solutions of definite amounts, drying and weighing. This procedure will eliminate "personal error." This coagulated material bears a constant and definite relation to the proteolytic power. The presence of gummy matter will naturally vitiate the result, but such pepsins are usually easily spoiled and therefore recognizable. (Dr. Circ. 96, 52.)

Ph. Helvetica and Ph. Hungarica allow three days, Ph. Br. 30 minutes, Ph. German 1 hour, all the others 6 hours.

Friedlaender recommends to dissolve the pepsin in HCl water, filter, and digest at 50° C. for six hours with albumen, when nitric acid will show the result. (Ph. Ztg. 93, 72.)

Petrolatum Liquidum.

"Readily soluble in fixed oils"—may be questioned; it is apparently insoluble in castor oil. Beringer (A. J. Ph. 94, 15).

Moistened blue litmus paper should not be reddened in contact with the previously well-shaken liquid petrolatum. German Comm. (Ap. Ztg. 94, 197).——According to Salzer (Ph. Centralh. 91, 178), a liquid petrolatum, containing 0.025 p. c. of sulphuric acid, does not impart an acid reaction to alcohol, but to water.

The attention of the Committee has been called to the fact that the Liquid Petrolatum of the market is no longer "more or less yellowish," but altogether colorless.

Petrolatum Molle.

"More or less fluorescent"—"Nearly, or quite free from fluorescence" would be a better way of putting it, since the fluorescence depends on impurities present. Beringer (94, 15).

Animal and Vegetable Fats. Triturate 5 Gm. with 5 drops of a saturated solution of potassium permanganate. The color will be rose-red if pure; but chestnut-brown, if these fats be present. Crouzel & Dupin (Bull. Comm. 94, 369. A. J. Ph. 95, 143. Proc. 95, 632).

Water and Peru balsam can be mixed with it on addition of a little castor oil. Van Goole (Nat. Dr. 94, 139. Proc. 94, 640).

Petrolatum Spissum.

Fluorescence. See under "Petrolatum molle."

Melting Point. Should be 48° to 52° C. 45° C., as it now stands, is both "hard" and "soft." Beringer (A. J. Ph. 94, 15).

The Committee has received letters from prominent wholesale houses pointing out that there is no need of two kinds of Petrolatum, not one pharmacist in fifty asking for or keeping both kinds. "The Petrolatum of commerce has a melting point of about 45° to 48° C. Anything of a lower melting point the pharmacist cannot use, and there is absolutely no demand for any petrolatum of a higher melting point."

Specific Gravity. 0.820 to 0.840. Merck (Index, p. 184).

Phosphorus.

Appearance. Curtman states that his stock of phosphorus generally becomes covered with an opaque, white crust, while the inner part turns yellow, at times red. He has some phosphorus moulded in thin, long pencils (for fractional gas analysis), which does not show in the least a white crust, but conforms to the official description, though both are preserved in the same manner. (Circ. No. 112, p. 690.)

"Black" phosphorus is arsenic. Flueckiger (Arch. Ph. 92, 159. A. J. Ph. 92, 371. Proc. 93, 789).

"Red" phosphorus is not amorphous. Rettger (Zts. Anorg. Ch. 93, 399. Proc. 94, 1056).

Estimation in Medicinal Preparations. Extract with carbon disulphide, and convert the phosphorus into magnesium pyrophosphate by successive treatment with argentic nitrate, nitric acid, ammonium molybdate and magnesia mixture. Toth. (Ch. Ztg. 93, 1244, & 94, 191. A. J. Ph. 93, 493. Proc. 94, 1056.)

Physostigma.

Alkaloidal Yield. 100 kilos beans yield 120 to 180 Gm. of physostigmine sulphate. Adrian (Bull. de Ph. 92, 486. Proc. 93, 819).

Assay. With more or less modified Prollius' mixture. Schwickerath (Ph. Rdsch. N. Y. 94, 137).

Physostigminæ Sulphas.

Identity. Color reactions with nitric acid, followed by potassa and ammonia. Formanek (Ph. Post, 95, 179. Ph. Rdsch. N. Y. 95, 242. Proc. 95, 979).——Da Silva states that on dissolving it in fuming nitric acid, and heating on a water-bath, the yellow color changes to orange, and on evaporating to dryness, to green, which color changes to blue, on adding a drop of nitric acid, where not touched, and the solution is reddish-violet, becoming finally a greenish yellow, when diluted, fluorescent with blood-red. (Ph. J. & Tr. 93, Sept. 182.)

See also Flueckiger's Reactions (Am. translation, p. 52).

Pilocarpinæ Hydrochloras.

It should be "Hydrochloridum." A. P. A. Comm. (A. J. Ph. 95, 484. Proc. 95, 240.)

(Sixth paragraph.) Nagelvoort states that the green coloration with fuming nitric acid is not characteristic of pilocarpine at all, but is due to the presence of a small quantity of moisture. It is well-known that a small quantity of water will turn the reddish-brown color of the fuming nitric acid to bluish and greenish. (Ph. Rdsch. N. Y. 93, 268.)

Melting Point. At 193 to 195° C. German Comm. (Ap. Ztg. 94, 205.)

Pilocarpus.

The prominence of the veinlets should be mentioned (see "Digest" on U. S. P. 1880, p. 129), and also otherwise the description does not fit the two varieties. Beringer (A. J. Ph. 94, 16).

Alkaloidal Yield. 100 kilos. yield 500 to 600 Gm. pilocarpine nitrate. Adrian (Bull. de Ph. 92, 486. Proc. 93, 819).

P. c. of total alkaloids in Pilocarpus pennatifolius (0.18 to 0.33) and P. microphyllus (0.16 to 0.19). Apparently the hairy leaves, which have now almost disappeared, contain more alkaloids than the smooth leaves. Dohme (A. J. Ph. 95, 488. Proc. 95, 266).

Stalks and leaflets. Conroy obtained 0.76 p. c. from the leaflets, and 0.37 from the stalks. (Am. Dr. 95, May, 307. Proc. 95, 548.)

A distinction should be made between P. pennatifolius and P.

microphyllus. A method of assay should be devised, and the required p. c. of alkaloid stated. A. P. A. Comm. (A. J. Ph. 95, 485. Proc. 95, 241).

Assay. With more or less modified Prollius' mixture. Schwickerath (Ph. Rdsch. N. Y. 94, 139).

Botany and Chemistry. Holmes (Ph. J. & Tr. 95, Dec. 520 & 539. A. J. Ph. 96, 216). See also an article by Vogl (Oest. Zts. 96, 8).

(Pilulæ.)

Excipient for alterable substances. 2 parts of kaolin, 1 part of anhydrous sodium sulphate and 1 part of water. Carles (Bull. Ph. Bord. A. J. Ph. 93, 337. Proc. 93, 436 & 600).

Glycerinated extracts. See "Extracta solida."

Pills with creosote. See "Creosote."

With volatile oils. Excipient with benzoin, borax, glycerin and licorice root. Goetting (Ph. Rdsch. N. Y. 94, 85. Proc. 94, 594).

Size. Lyon discusses the advisability of reducing the size of the official pills. (Ph. J. & Tr. 95, May, 1031.)

Pilulæ Aloes et Ferri.

An addition of glycerin will prevent undue hardening. Martin (Ch. & Dr. 94, 210. Proc. 94, 597).

Pilulæ Catharticæ Compositæ.

Caspari recommends to use powdered extract of jalap instead of the pilular extract. (Pharmacy, p. 331.)

Pilulæ Ferri Carbonatis.

The quantity of potassium carbonate is insufficient to decompose all the ferrous sulphate. The pills should be protected by a coating with ethereal solution of tolu, which would obviate the necessity of making them freshly. Beringer (A. J. Ph. 94, 16).

Pilulæ Ferri Iodidi.

Coating. Caspari states that the ethereal solution of tolu is unsatisfactory, because the ether evaporates too quickly; he recommends Patch's solution: 540 grains of tolu and 180 grains of mastic are dissolved in 2 fld. ozs. of alcohol, and filtered.

Pilulæ Phosphori.

Size. Should not the pills be made smaller? Beringer (A. J. Ph. 94, 16).

Preparation. It is recommended to melt suet, and dissolve the phosphorus in it; or, to dissolve the phosphorus in carbon disulphide; or, to use amorphous phosphorus. (Montreal Ph. J. 94, 81. Proc. 94, 601.)

Parker recommends carbon disulphide and licorice powder. He states that coating is not necessary. The free phosphorus is estimated by extracting with carbon disulphide, oxidizing with nitric acid in presence of a fragment of iodine, adding sodium bicarbonate, and titrating with uranium acetate solution. (Ph. J. & Tr. 94, Sept. 197. W. Dr. 94, 325.)

Martindale dissolves 10 parts of phosphorus in 200 fld. parts of carbon disulphide, and adds 490 fld. parts of melted cacao butter, and, after complete solution, adds sufficient disulphide to make 750 fld. parts. Sufficient of this solution is mixed with powdered acacia and syrup to make pills of the required strength. (Ph. J. & Tr. 96, March, 202. Bull. Ph. 96, 213.)

Coating. See Caspari's remarks under "Pilulæ Ferri Iodidi."

Pimenta.

Ash. Not over 6 p. c., of which only ½ p. c. should be insoluble in HCl. (Ph. Centralh. 93, 238.)

Piper.

The resin cells of the alburnum are colored red, after having been macerated in a concentrated solution of chloral hydrate. Herlant (Nat. Dr. 95, 80. Proc. 95, 1005).

Ash. Not over 6.5 p. c., of which not more than 2 p. c. should be insoluble in HCl. (Ph. Centralh. 93, 238.)

Piperinum.

Color Reaction. It is colored red by a solution of chloral hydrate. Herlant (Nat. Dr. 95, 80. Proc. 95, 1005).

Plumbi Acetas.

Solubility. Authorities disagree. U. S. P., 1880, in 1.8 parts of water; Kropf & Scheuber (Am. Dr. 85, 194), 1.87; Hirsch & Schneider (Commentar. p. 535), 2; Ph. German. III., 2.3. In alcohol: U. S. P., 1880, 8; Thiessen (Ph. Rdsch. N. Y. 90, 205), 30.2; Ph. German. III., 29.0. From experiments made by simply digesting weighed portions of the salt with water and with alcohol, Power finds that Ph. German. III. and Thiessen are most nearly correct. The solubilities in boiling water and boiling alcohol are in accord with Flueckiger (Ph. Ch. p. 512. Circ. No. 112, p. 692).——Soluble in 3 parts of chloroform and in 3 parts of glycerin. Merck (Index, p. 146).

Plumbi Carbonas.

The basic character should be indicated in the name. A. P. A. Comm. (A. J. Ph. 95, 435. Proc. 95, 240).

On adding solution of soda to the solution in nitric acid, a precipitate is formed, which is soluble in an excess of soda. German. Comm. (Ap. Ztg. 94, 176).

Iron. On precipitating the lead, from its solution in nitric acid, by sulphuric acid, and filtering, the filtrate should not be altered by solution of potassium ferrocyanide. German Comm. (Ibid.).

(Last paragraph.)——"Not less than 0.85 Gm." Theoretically, the quantity is 0.863 Gm., but some allowance has to be made for moisture, etc. Power (Circ. No. 112, p. 693).

Plumbi Iodidum.

(Fourth paragraph.) The solution (with ammonium chloride) contains the double salt $PbI_2(NH_4Cl)_4.2H_2O$, and behaves very peculiarly toward hydrogen sulphide. If H_2S gas be passed into the clear hot solution, a dark-red precipitate is at first thrown down, then, on cooling, white, silky crystals are formed, which do not become blackened even when the liquid is saturated with H_2S. HCl appears to decompose the compound with the formation of lead chloride, but on subsequent addition of H_2S, so that the liquid smells strongly of it, no blackening occurs, even on the further addition of water. Power (Circ. No. 112, p. 694).

Plumbi Nitras.

This salt is hardly worth being retained in the Pharmacopœia. Beringer (A. J. Ph. 94, 16).

Podophyllum.

Gathering. The best time is in the autumn, the p. c. of resin and ether-soluble resin being then the largest. Tilden (A. J. Ph. 94, 10. Proc. 95, 334).

Separation of podophyllotoxin, picropodophyllin, &c. Umney (Ph. J. & Tr. 92, Sept. 207 & 440. A. J. Ph. 93, 24. Proc. 93, 631). He also states that the activity is dependent on the amount of picropodophyllin.

Microscopical Structure. Bastin (A. J. Ph. 94, 417).

Potassa.

"Brittle"—Hirsch does not consider this term appropriate, as it requires some effort to break the sticks. (Ph. Rdsch. N. Y. 93, 279.)

(Eighth paragraph from top on p. 312.) "After boiling"—For this test it is not necessary to add alcohol. Hirsch (Ibid.).

(Last paragraph on p. 312.) "Not less than 9 Cc. of normal sulphuric acid"—corresponding to at least 90 p. c. of pure potassa. Considering the high degree of purity required, this allowance of something *not* potassa, can only refer to water. Is that not too much? Hirsch (Ibid.).

The brown color caused by hydrosulphuric acid is very often not due to lead but to silver, from the silver pans in which the potassa is fused. Kobbe (Ph. Ztg. 92, 178, & 93, 44).

Many manufacturers object to the "high" percentage (90 p. c.) of the official alkali. Moreover, they claim that the requirements of purity, such as *absence* of calcium, iron, aluminum, etc., are hypercritical, and would compel the pharmacist to purchase a so-called chemically pure potassa at a high price, which is not at all necessary for the purposes for which potassa is usually required. Rice.

Potassa Sulphurata.

The quantity of sulphur directed is too small. The official potassium carbonate must contain 95 p. c. of pure carbonate, and as it is required to dry it, it will become nearly 100 p. c. One part of potassa of this strength requires at least 1.237 parts of sulphur for the complete conversion into sulphurated potassa. As it is, the official product contains no inconsiderable amount of undecomposed potassium carbonate. Hirsch (Ph. Rdsch. N. Y. 93, 281).

The U. S. P. of 1880 requires the presence of at least 56 p. c. of the *true* sulphide of potassium. The official preparation contains K_2S and K_2S_3, possibly also some portions of K_2S_4 and K_2S_5, but the proportion even of the two first is liable to vary in the most carefully made preparation. Which of them is the *true* sulphide? How is it possible to calculate the p. c.? The relative proportion of the different sulphides depends partly on the temperature, and partly on the amount of S oxidized into SO during the repeated opening of the crucible to observe the progress of fusion. Curtman (Circ. No. 86, p. 355).

Potassii Acetas.

Lead. Its presence is due to the fact that the acetate is, at least yet to some extent, though much less so than formerly, made as a by-product in white lead manufactories.

Arsenic. This impurity is derived from the sulphuric or hydrochloric acids used in the manufacture of acetic acid.

Iron. Vulpius found that the reaction of potassium ferrocyanide on minute quantities of iron does not appear in the presence of traces of carbonic acid; it will, therefore, be necessary to acidulate the solution with the HCl, before adding the ferrocyanide. (Ap. Ztg. 94. 609.)——Ferricyanide of potassium has been recommended instead of ferrocyanide, because it gives distinct reactions with ferric as well as with ferrous salts. It does not, however, attain the delicacy of the reaction of ferrocyanide. With 1 part of Fe_2Cl_6 in 400,000 parts of water, no reaction could be perceived with ferricyanide, while the same solution with 20 times more water (1:8,000,000) showed a decided blue color with ferrocyanide. Curtman (Circ. No. 86, p. 360).

Potassii Bichromas.

A 5-p. c. solution, strongly acidulated with nitric acid, should not be affected by a solution of barium nitrate, nor at a boiling heat by a few drops of a solution of argentic nitrate. German Comm. (Ap. Ztg. 94, 609).

Purity. As the bichromate is used only for battery filling and for external application, there is no need of giving strict tests of purity for pharmaceutical purposes. Curtman (Circ. No. 86, p. 361).

Nomenclature. *Di*-chromate vs. *Bi*-chromate. Curtman holds, that the official salt ($KHCr_2O_7$) is a secondary salt of a presumable *di*-chromic acid ($H_2Cr_2O_7$), and, therefore, should be named potassium *di*-chromate. *Bi*-chromate would denote a primary salt of chromic acid, and the formula would be ($KHCrO_4$). (Circ. No. 86, p. 361.)

Potassii Bitartras.

Coull points out that by the alkalimetric test calcium tartrate, if present, would on ignition be converted into calcium oxide, and in this way apparently increase the p. c. of bitartrate. (Ph. J. & Tr. 94, March, 787.)

Solubility. In alcohol of various strength. Wenger (Merck, Market Report, 93, 12) and Roelofsen (Am. Ch. J. 94, 464. Proc. 95, 958).

In water. Authorities disagree.

Flueckiger (Ph. Ch. I, p. 314).

At 0° C	1:312.
At 15° C	1:240.
At 80° C	1:25.
At 100° C	1:16.

At 15° C.	
Alluard	1:175.4
Chancel	1:180.8
Babo & Portele	1:243.3
Kissel	1:203.1
Ph. German	1:192.

As the difference of accurate observers is so great, the question is: did they use the same salt? or perhaps those of *lævo-*, or *dextro-*, or *inactive* tartaric acid? Curtman got 1: 201.045 to 1: 201.079 for the pure salt, and 1: 205.2 for the purest commercial salt. Blarez (Comptes Rendus. ccii, p. 434) states that at t° there are dissolved in 100 parts of water: $0.351 + 0.00151t + 0.00055t^2$. Curtman states further, that potassium bitartrate is, at the ordinary temperature, absolutely insoluble in a mixture of 100 parts of alcohol (90 p. c.), 900 parts of water, 4 parts of potassium tartrate and 2 parts of tartaric acid. (Circ. No. 86, p. 364.)

The volumetric test of the first issue has been changed to read as follows: "If 1.88 Gm. of potassium bitartrate be thoroughly ignited at a red heat, it should require for complete neutralization not less than 9.9 Cc. of normal sulphuric acid (each Cc. corresponding to 10 per cent. of the pure salt), methyl-orange being used as indicator."

Potassii Bromidum.

Solubility. The solubility in water changes with the amount of chloride present, of which the Pharmacopœia permits up to 3 p. c . . . "Boiling water," as far as solubility is concerned, is not identical with "water at 100° C." At 100° C. water, saturated with KBr, does not boil; a saturated solution of KBr boils at 112° C., but contains more KBr than at 100° C. Curtman (Circ. No. 86, p. 366).

Barium and Calcium. The presence of these is due to recent modes of manufacture with barium and calcium hydrates, using SO_2 to reduce the bromate, &c. (Ibid.)

"Colorless or white"—depends on the mode of manufacture. Certain manipulations enable the formation of either kind of crystals. (Ibid.)

Chloride. The U. S. P. allows the presence of not more than 3 p. c., while the German Ph. only permits 1 p. c. There is no reason why we should have a salt of less purity (than 1 p. c.), as the commercial bromide will allow a salt of 98 p. c. to be manufactured without costly processes of purification. (Ibid.)

An examination of seven commercial specimens of the salt, to ascertain the percentage of actual bromide, showed that three of them were above the required standard (97.168 to 97.566), while the others were below it (95.575 to 96.968). Curtman (Circ. 260, p. 1275).

The question has been asked, why bromine is allowed to contain 3 per cent. of chlorine, while potassium bromide is allowed to contain only 3 per cent. of chloride, while it might, on the basis of the allowance for bromine, contain as much as nearly 4.2 per cent.? The answer is that manufacturers are in the habit of working up the mother-waters left after the first crystallization separately. The first crops of crystals always contain a smaller percentage of chloride, and it is this purer quality which ought to be used for medicinal purposes. But, as shown by Curtman, the limit might easily be raised to 1 per cent.

Potassii Carbonas.

Sulphate. Is hardly ever present in carbonate made from the bicarbonate, from which the bulk of the carbonate is made. In that prepared from potassium bitartrate, it is due to the use of impure nitrate. Curtman (Circ. No. 86, p. 371).

Canadian Potash. Reed (Proc. 93, 126).

Potassii Chloras.

Adulteration. Vigier mentions an adulteration of the powdered salt with powdered alum. (Ph. Ztg. 95, 298.)

Potassii Citras.

(Seventh paragraph.) The addition of calcium chloride must be in excess, so as to convert all of the potassium citrate into the calcium salt. If only a small amount of calcium chloride be added, the calcium citrate is kept in solution by the alkaline citrate. On cooling, the calcium citrate is slowly and partially redissolved. Curtman (Circ. No. 90, 425).

Lead. A test for lead is necessary, this metal having been found repeatedly. Haussmann (A. J. Ph. 94, 177. Proc. 94, 1081).

Potassii Citras Effervescens.

To make an effervescent preparation, containing only citrate, is rendered difficult on account of the citric acid containing, when crystallized, one molecule of water of crystallization. This is sufficient to convert a mixture of it with potassium bicarbonate into a paste, and to effect a complete expulsion of the carbonic acid, if time be given. We must either deprive the acid of its water of crystallization before mixing it with the bicarbonate, or the resulting paste must be dried very rapidly and powdered. The latter method is preferable, for the following reason: When citric acid is heated in powder form very slowly, it will lose part of its water, but all of it (18 parts in 210) will not escape until it is heated to 153° C. The acid, however, will melt at a much lower temperature, and it is somewhat difficult to ascertain the point of perfect dehydration. It is more convenient to mix to a paste, and dry it rapidly, so as to give no time for an extensive amount of reaction. Curtman (Circ. No. 90, p. 426).

Potassii Cyanidum.

Since this salt is so very poisonous, the *taste* might as well be left out.

Pure. Preparation. (Ph. Ztg . . . Am. Dr. 93, 372. Proc. 93, 792.)

The commercial salt generally contains a notable p. c. of sodium cyanide, which will make it possible to overlook as much as 15 p. c. of impurities, owing to the difference in the atomic weight of potassium and sodium. Kayser (Ch. Ztg. 92, 1148. Proc. 93, 792).

(Seventh paragraph on p. 320.) For the "Prussian blue" test of identity it is not necessary to use a mixture of ferric and ferrous salt, as is usually directed, but ferrous sulphate alone, which within one minute after solution will have enough ferric salt from aerial oxidation. Curtman (Circ. No. 90, p. 428).

Potassii et Sodii Tartras.

Solvent action on metallic hydrates. Warren (Ph. J. & Tr. 94, March, 815. A. J. Ph. 94, 226. Proc. 94, 1060 & 1088).

It requires much time, and keeping below 70° C., to deprive the salt of water, without melting it. Curtman (Circ. No. 90, 429).

Potassii Ferrocyanidum.

The crystals are not quadratic, as formerly assumed, but, according to Grote & Wyranboff, monoclinic, the angle being 89.27°, instead of 90°. Curtman (Circ. No. 90, p. 431).

It is easily decomposed, not only by the weakest acids, but also by a number of non-acid substances, dilute acids, containing even less than 0.1 p. c., and substances as hydrogen sulphide, phenols, peptones, casein, &c. The non-poisonous action is due to its being very slowly decomposed; acids, of course, being rigorously excluded. Autenrieth (Arch. Ph. 93, 99. Proc. 93, 792.)

Potassii Hypophosphis.

As hypophosphorous acid is monobasic, the formula KH_2PO_2 might mislead, as if other salts might be formed by substitution of H_2. Curtman (Circ. No. 90, p. 432).

Potassii Iodidum.

"Cubical" crystals—Octahedral crystals are formed from solutions containing free iodine. Curtman (Circ. No. 90, p. 434).

Solubility in alcohol of stated p. c.: 7 p. c., 1:0.75 parts; 11 p. c., 1:0.804; 23.5 p. c., 1:1; 29 p. c., 1:1.112; 40 p. c., 1:1.30; 48 p. c., 1:1.506; 63 p. c., 1:2.07; 86 p. c., 1:8.772; 91 p. c., 1:16.13; 94 p. c., 1:18; 100 p. c., 1:40 parts. Gerardin (Circ. No. 90, p. 434).

"The white, opaque variety being crystallized from an alkaline solution"—This must be understood only conditionally, since it is quite possible to obtain both transparent and opaque crystals from the same solution. Hirsch (Ph. Rdsch. N. Y. 93, 280).

Iodate. To a solution of 1 Gm. of potassium iodide in 5 Cc. of water add a small quantity of a solution of barium chloride, in the presence of only 0.002 p. c. of iodate: a granular precipitate will be thrown down. Spica (Ph. Ztg. 94, 309. Proc. 94, 991).

Chloride. A test for chloride would appear necessary, as Curtman found several samples contaminated with potassium chloride. (Ph. Rdsch. N. Y. 94, 204.)

Impurities. Griggi tests in the following way for several impurities by one and the same reaction: On adding an alcoholic solution of neutral lead acetate to an alcoholic solution of potassium iodide, plumbic iodide will be precipitated, while potassium acetate remains in solution. In presence of sulphate, bromide, iodate, carbonate and cyanide of potassium and chloride and nitrate of sodium, there will be formed lead salts of the respective acids, all the salts of which, excepting plumbic bromide, are white and insoluble in alcohol. Being specifically lighter than plumbic iodide, these precipitates will appear on top of the plumbic iodide. (Boll. Ch. Farm. 94, 12. Ph. Ztg. 94, 63. Ph. Rdsch. N. Y. 94, 265.)

Titration. Curtman recommends titration with thallous chloride, using as indicator sodium-palladious chloride. (Ph. Rdsch. N. Y. 94, 205.)

Potassii Nitras.

Perchlorate. A test is wanted. Hellich (Ch. Ztg. 94, 485. Proc. 95, 954).

As large crystals are much more liable to be impure, from inclosure of mother-lye, than small crystals or granular powder, the latter are to be preferred. The granular salt is now easily and cheaply obtained, almost absolutely pure, from manufacturers of gun powder, so that absence of reaction with argentic nitrate and with barium chloride may be demanded without incurring the blame of unnecessary rigor. Curtman (Circ. No. 90, p. 437).

Potassii Permanganas.

Adulteration. Schlumberger reports a curious adulteration with dextrin, colored with malachite green, and scaled. (Rep. de Ph. 94, 260. Proc. 94, 1060.)

Prunum.

Should be the "dried" fruit. Beringer (A. J. Ph. 94, 16).

Prunus Virginiana.

Bastin calls attention to the absurdity of calling the bark of Prunus "serotina"—Prunus "virginiana." (A. J. Ph. 95, 224, 450. Proc. 95, 224.)

Microscopy. Bastin (A. J. Ph. 95, 435 & 595. Proc. 95, 211).

Hydrocyanic Acid. The green bark contains a little more HCy than the thick bark. Dohme & Englehardt (Ph. Rdsch. N. Y. 95, 260).——The thick bark contains more glucoside, and consequently yields more HCy than the thin bark. The thick bark, amygdalin, &c., 4.12 p. c., and HCy, 0.32 to 0.35 p. c.; the thin bark, amygdalin, &c., 3.16 p. c., and HCy, 0.24 to 0.27 p. c. Stevens & Judy (A. J. Ph. 95, 482 & 534. Proc. 95, 226).

Pulsatilla.

A tincture should be introduced. Beringer (A. J. Ph. 93, 470).

Pulvis Glycyrrhizæ Compositus.

Caspari prefers a No. 80 sieve. (Pharmacy, p. 364.)

Pulvis Morphinæ Compositus.

The formula would look much better if the quantity of camphor were increased to "20." Caspari (Pharmacy, p. 364).

Pulvis Rhei Compositus.

Caspari recommends to first mix the ginger and rhubarb, and then to add the magnesia in small quantities at a time. (Pharmacy, p. 364.)

Pyrethrum.

The crown of the root usually contains tufts of hair from the base of the pubescent stem, which might be mentioned. Beringer (A. J. Ph. 94, 17).

Pyroxylinum.

Preparation. Flint proceeds as follows: Into a stone jar, containing 6 parts of nitric acid, pour 12 parts of sulphuric acid, and, when the temperature falls to 35° C., put the jar in ice-water. When the temperature has fallen to 15° C., place 1 part of absorbent cotton on the acid in small masses, and press with a glass rod. Should the temperature rise to 17° C., no cotton must be added until the temperature is again 15° C. Let the jar remain in the ice-water for 5 hours. Drain off the acids as much as possible, take up the cotton in small portions, and wash quickly in large quantities of cold water.

Repeat the washing. Wring out, and spread it on paper to dry. Hot water, and an elevated temperature will spoil it. Keep it in an open jar, covering it with distilled water. (Proc. 94, 663.)

Bienert states that when sulphuric acid of sp. gr. 1.83 is being used, the nitric acid should not be higher than 1 36 to 1.38. He states also that the acids need not be thrown away, as they can very well be used a second or third time, if needed, adding a little more of the sulphuric acid. (Ph. Ztg. Russl. 94, 676.)

Quassia.

Is not inodorous, but has a faint odor. Hirsch.

(Quinidina.)

Microchemical reactions. Behrens (J. Ch. Soc. 94, 491. Proc. 95, 997).

Quinina.

Thalleioquine Test. In order that about the same depth of green tint may be obtained from every official quinine salt, the strength of the several aqueous solutions to be employed for this test has been adjusted so as to contain approximately the same quantity of the alkaloid quinine calculated as hydrate. Rice (Circ. No. 137, p. 854).

Tests. Examination of the most favorable conditions for the successful application of the thalleioquine, bromine, and herapathite tests, and the bitter taste. Curtman (A. J. Ph. 94, 561. Proc. 95, 996).

Kubli is dissatisfied with all methods proposed, and recommends the following:

1. Water test. This is based on the fact that the sulphates of bases other than quinine are more soluble than quinine sulphate, while with the free alkaloids the contrary is the fact. If we therefore set free the alkaloid of a given quantity of quinine sulphate with an alkali, we can form an idea of the contamination by the quantity of water necessary to dissolve it. He uses pure sodium carbonate, and for comparison, "normal quinine."

2. Carbon dioxide test. This test is based on the fact that, when a saturated solution of neutral quinine sulphate is precipitated by sodium carbonate, the alkaloidal quinine is easily dissolved in sodium bicarbonate. On passing carbonic acid into this solution, quinine separates in needle-shaped crystals. Now, there will be found perceptible differences in the volume and the general look of the crystal mass, according to the kind and amount of contamination. (Ph. Zts. Russl. 95, 593 to 737 incl. Bull. Ph. 96, 25.)