DIGEST OF CRITICISMS

ON THE

UNITED STATES PHARMACOPŒIA

SEVENTH DECENNIAL REVISION (1890).

General Remarks.

1. *Criticisms.* A series of criticisms on the general features of a pharmacopœia, by Oldberg. (Bull. Ph. 96, 198 & 246).

2. *Pharmacopœial Requirements.* Lloyd thinks that several of the rather exacting descriptions and requirements should be qualified, and a scale of reasonable variations be affixed, else they might work hardship. He divides the substances and preparations into three classes:

I. Preparations which begin to change almost immediately, and continue to alter.

II. Preparations in which the qualities demanded are such as to render their production impractical or unnecessarily expensive.

III. Substances for which the demands of commerce, necessities of manufacture or of custom have established qualities different from the standard of the U. S. P. (A. J. Ph. 96, 297).

3. *Alkalimetry.* Reinbach proposes to start from sodium borate instead of sodium carbonate and to use $\frac{N}{10}$ solutions. (Ph. Centrlh. 93, 201. Ph. Rundsch., N. Y., 93, 111. Proc. 94, 997).

4. *Alkalies.* Reagent. Dissolve equal parts of tannin and iodine separately in absolute alcohol, and mix. This reagent gives a transient rose color to alkaline solutions, and is sensitive to 1 potassium carbonate in 1,000,000 water. Schweissinger (Ph. Era 92, 143. Proc. 93, 739, & 94, 999).

5. *Alkaloids.* Prescott points out that the liability of alkaloids to split off acids, of which they really are the ethereal salts, or split off other alkaloids of which they are the true ethers, should always be remembered in all manufacturing works in which alkaloids are involved. (Proc. 95, 211).

Schaer calls attention to the fact, that the color reactions of alkaloids, which are so much relied upon, are in comparatively few cases peculiar to the pure alkaloids, but in some cases are due to the

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presence of hitherto unsuspected foreign substances or contaminations, and in many cases are merely group reactions.

He was led to these remarks by studying the behavior of acetanilid toward reagents (with chromated sulphuric acid strychnine-like reaction; with sulpho-nitric acid morphine-like reactions, etc.) (Arch. Ph. 94, 249. Proc. 95, 665).

Localization. Braemer. (Compt. Rend. cxvii., 753. Ph. J. & Tr. 94, Febr. 623. Proc. 94, 1096), and Clautriau (Ph. J. & Tr. 94, Nov. 355. Proc. 95, 980).

Melting point. Francis thinks that the difference in the melting points as given by different chemists is largely due to the fact that decomposition sets in before the melting temperature is reached, and also due to the longer or shorter time before fusion takes place. (Bull. Ph. 93, 541).

Volumetric estimation. Barthe finds that the following alkaloids are unaffected by phenolphtalein: Aconitine, brucine, cinchonine, cinchonidine, cocaine, codeine, duboisine, morphine, pilocarpine, quinidine, quinine, sparteine, strychnine, veratrine. He proposes to titrate them with $\frac{N}{10}$ sulphuric acid. (Ch. News 92, 223. A. J. Ph. 92, 368. Proc. 93, 817).

Indicators. Study of the most reliable. Kebler (A. J. Ph. 95, 499). And Comm. on Indicators, A. Ph. A. (Proc. 95, 185).

Furfurol test. Mix 5 drops of furfurol with 10 Cc. sulphuric acid, and add to 2 or 3 drops of this reagent a minute quantity of the alkaloid, stirring with a glass rod. Wender (Ch. Ztg. 93, 950. Proc. 94, 1094).

Ammonium sulpho-molybdate test. Loof (Ph. Post. 95, 435).

Behavior to a solution of sodium vanadate, acidulated with acetic acid. Jawarowski (Ph. Zts. Russ. 96, 326).

Behavior on evaporating with nitric acid, and subjecting the residue to the action of certain chemicals, chiefly ammonia and potassium cyanide. Formanek (Ph. Post. 95, 179. Proc. 95, 978).

Behavior to Valser's reagent. Tanret (J. Ph. & Ch. 93, 433, 490, & 94, 104. Proc. 94, 1092).

6. *Alligation in Pharmacy*. Its limitations. Reed (W. Dr. 94, 363. Proc. 94, 279).

7. *Ammonium Molybdate Test Solution*. Gigli recommends to keep the solution of ammonium molybdate separate from the dilute nitric acid (1, 185), and mix them when wanted. (Boll. Farm. Ch. 92, 235. A. J. Ph. 92, 572. Proc. 93, 739).

8. *Analysis*. Use of carbon disulphide as a means of separating small quantities of precipitates (sulphides) from aqueous suspension. Musset (Ph. Centrlh. 93, 737. Ph. Rdsch., N. Y., 94, 40. Proc. 94, 1021).

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9. *Assay of Drugs.* (Of extracts, see "Extracta" and "Extracta Fluida.") Patch points out that results will vary according to whether the assay be made from samples selected from the whole drug, or from the whole batch powdered, and also according to the fineness of the powder. (Proc. 93, 88).

Comparison. Coblentz concludes that the gravimetric methods of Beckurts, Dunstan and Lyons, will give widely varying results due to unavoidable small deviations in the manipulation, whereby smaller or larger amounts of fat and extractive are brought into the final alkaloidal residue, which easily can be verified by comparing with the result of titration. He does not at present recommend titration, because its successful application requires more special training than the average pharmacist at present possesses. He recommends Lloyd's process as easily executed, and giving tolerably accordant results compared with titration. (Ph. Rdsch. 93, 160).

Chloroformic emulsions. Gunn breaks them up by filtering under pressure. This will admit of a thorough shaking, regardless of the formation of emulsion. It applies also to emulsions due to the presence of gummy or pectic matter. (Ch. & Dr. 94, Oct. 552. Proc. 95, 534).

Mayer's solution is unsatisfactory because in the hands of different experimenters it gives widely varying results. Hallberg (Proc. 94, 199).

By electrolysis. Beal (Am. Dr. 94, 137. Proc. 94, 555).

Titration. Caspari and Dohme recommend to assay alkaloidal drugs by titration with volumetric acids, contending—1) That it is the most reliable and trustworthy method of assaying known at present. 2) Gravimetric methods as heretofore used, give results in many cases very wide of the truth, and hence unreliable. 3) They admit, however, that some of the methods (Lyons, Lloyd, Beckurts, Thompson) are better adapted for some drugs than the other methods. (A. J. Ph. 93, 477. Proc. 93, 118).——See also Kebler on the same subject. (Am. Dr. 94, Sept. 178. Proc. 94, 193).——These assertions are controverted by Farr & Wright (Ph. J. & Tr. 94, Aug. 126. Proc. 95, 622).

Keller extracts with ammoniated ether or ether-chloroform, shakes the separated ethereal liquid with acidulated water, separates the water and treats it with ammoniated ether or ether-chloroform (whichever is most suitable), and evaporates the ethereal liquid to dryness. (Schw. Woch. 94 . . . A. J. Ph. 94, 42. Proc. 94, 400, & 95, 536).——Beckurts finds that Keller's method gives good results except with hyoscyamus and conium. (Ph. Centrlh. 94, 566. Proc. 95, 535).

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Schwickerath extracts with a dilute Prollius' liquid. An aliquot part of the filtrate is shaken with acidulated water, the alcohol and ether allowed to evaporate, and the aqueous liquid filtered into a "perforator," where it is washed with ether, and then "perforated" with ammoniated ether. Evaporate to dryness and titrate. He modifies the Prollius' liquid according to the drug by replacing the ether with a mixture of benzin and chloroform, which, besides being cheaper, has the advantage of not taking up water or glycerin, hence the drying will be finished in a few minutes. For other drugs he replaces the ether with benzin and the alcohol with water. (Ph. Rdsch., N. Y., 93, 282 & 94, 57 & 136. Dr. Bull. 93, 534, & 94, 246. Proc. 94, 533).

Van Ledden-Hulsebosch uses what he terms the "perforator" method, and gives the following advantages: 1) Ether is used for extraction. 2) The acidified solution can by preliminary treatment with ether be freed from impurities soluble in that liquid. 3) The alkaloids are completely extracted after being set free from their combinations with acids by means of alkalies. 4) Cinchona and strychnos alkaloids can be weighed in the pure state as such. 5) The possibilities of decomposition are reduced to a minimum. 6) The same apparatus can be used for other liquids (Ph. Weekbl. 93 . . . Am. Dr. 93, Mch. 180).——See also Liljenstroem (Ph. Ztg. 94, 56).——Dieterich finds that this method is neither expeditious nor very accurate; nevertheless he admits that it is worth trying to improve it. (Helf. Ann. 92 . . . .)

Vitali estimates certain metals and alkaloids by precipitating with hydrogen sulphide and titrating the liberated acid (Orosi. 93 . . . W. Dr. 94, 14).

10. *Bettendorf's Test.*. Hirsch says that the name should be spelled with one "f." (Ph. Rdsch. 93, 256.)

Tin-foil. It should be borne in mind that the presence of tin-foil is inadmissible in testing preparations of antimony and bismuth for arsenic, because metallic tin precipitates antimony and bismuth as well as arsenic. Curtman (A. J. Ph. 94, 389. Proc. 95, 935).——Also Umney (Ph. J. & Tr. 93, Nov. 439. Proc. 94, 1012).

12. *Balsams and Resins.* Solubilities. Dieterich (Helf. Ann. 93, 30. Zeits. Anal. Ch. 93, 629. Proc. 94, 557).

13. *Diphenylamine* (U. S. P. 473) is to be dissolved in dilute sulphuric acid ; Nagelvoort states that the official dilute acid is not strong enough. (Apoth. 95, Nov. 54).

14. A *Dose* table is desired by many.

15. *Drops.* A table of drops, similar to one found in Remington's Pharmacy and in several European Pharmacopœias, is suggested.

16. *Drugs.* Moisture in air-dry drugs has been determined by Lieurance (Proc. 93, 480).

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17. *Fats.* Weiss finds that the "critical" temperature of the solution in a mixture of alcohol and ether is sufficiently distinct to distinguish between the different fats. Dissolve at a higher temperature, and allow to cool. At a certain definite temperature (varying with the nature of the fat) the previously clear liquid becomes turbid (Ph. Ztg. 96, 268).

18. *Filtering Paper.* Salzer points out that some filtering papers contain starch, which will interfere with their use in special cases (Ch. Ztg. xvi. 421. Proc. 94, 490).——Andree has, besides starch, found quite frequently chlorine (Ap. Ztg. 94, 222 Am. Dr. 94, 45. Proc. 94, 490).

· Gray filtering paper should never be employed, because it contains no inconsiderable amount of inorganic impurities. Lardier (Rep. Ph. 94. . . . Proc. 94, 490).

19. *Funnel.* Landis recommends a ground glass funnel for analytical work. The filter adheres so tightly that the upper edge can be washed without danger of loss (J. Am. Ch. Soc. xv. 480. Proc. 94, 489).

20. *Glass.* Action of acids on glass. Foerster (Berichte 93, 2915. Proc. 94, 497).

21. *Guaiacum Tincture* is highly recommended by Schaer as a reagent (Ph. Centrlh. 94, 565 & 599. Proc. 95, 921).

22. *Hair.* Microscopical examination of hairs on vegetable drugs. Ruddiman (Tenn. Proc. 94. . . . Proc. 94, 692).

23. *Hydrogen.* The addition of a few drops of a solution of either cobalt or nickel nitrate to the acid and zinc, accelerates enormously the evolution of the gas. Ball (Ph. J. & Tr. 93, Oct. 342. Proc. 94, 1026).

For Gutzeit's test Nagelvoort finds it advantageous to heat the dilute sulphuric acid to about 60° C. before adding it gradually to the zinc. (Ph. Rdsch. N. Y. 94, 109).

24. *Hydrogen Sulphide.* As a substitute Schiff and Tarugi propose ammonium thioacetate. (Orosi. 94. . . . Ph. Rdsch. N. Y. 95, 66. Proc. 95, 920.)——Objections will be found in W. Dr. 95, 284, (from Ch. News).

Test. Kral recommends the use of paper, moistened with solution of sodium nitroprusside to which a few drops of ammonia have been added. Purple color. (Oest. Zts. Ph. 96, 206. Ph. Rev. 96, 88).

25. *Indicators.* Iodeosin. Partheyl recommends an ethereal solution (2 Mgm. in a litre of ether). This is sufficiently sensitive to allow titration with $\frac{N}{1000}$ alkali. It will not do, however, for quinine (Ap. Ztg. 92, 435. A. J. Ph. 92, 522. Proc. 93, 403).

Litmus. (Tincture.) Exhaust litmus with hot distilled water,

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filter, saturate with acetic acid, and evaporate to extract consistence. By treating this extract with alcohol, erythrolitmin and acetic acid will be taken up. Filter off, wash with alcohol, and dissolve residue in hot distilled water, and filter. (Boll. Ch. Farm. 93, 298. A. J. Ph. 93, 500. Proc. 94, 999).

Extract 100 Gm. litmus with warm distilled water, evaporate filtrate to 200 Cc., acidulate with 20 to 25 p. c. hydrochloric acid, and dialyse through parchment paper until all HCl is removed. Precipitate with alcohol, and dry. Luettke (Ap. Ztg. 91, 643. Proc. 93, 743).

Exhaust litmus with distilled water, evaporate to extract consistence, and macerate with alcohol, acidulated with HCl. Wash the precipitate with acidulated water, and dissolve in water containing a few drops of ammonia, add 10 p. c. of alcohol. Schaeffer (Ap. Ztg. 94, 839. Merck Rep. 95, 26. Proc. 95, 625).

Testing of the coloring power of litmus. Triturate 5 Gm. litmus with 80 Cc. of water, digest for 2 hours at 50°C., add sufficient water to 100 Cc., allow to settle, and filter. 100 Cc. of water tinted with 0.05 Cc. of this solution (0.0025 Gm. litmus) must appear distinctly tinted when looked at from above through a layer of 20 Cc. Dieterich (Ph. Rdsch. Prag. 94, 779).

Dieterich gives a table showing the limits of sensitiveness of the different test papers, manufactured by him, to HCl and KOH. He also calls attention to the fact that different batches of litmus tincture and litmus paper show varying degrees of sensitiveness. The same holds good for turmeric paper. (Ph. Post, 95, 3.)

Saltzer explains the apparent alkalinity of alcohol (which imparts a blue tint to a tincture of litmus that has been rendered as neutral as possible, and then has a wine-red color) by stating that the wine-red color is due to the presence of carbonic acid gas dissolved in the water, and dispelled on addition of alcohol. (One drop of such a solution to 2 or 3 Cc. of alcohol shows this plainly.) He refers to the familiar fact of alcohol dispelling air from water. (Ap. Ztg. 95, 48.)

Study, as applied to alkaloids. Kebler (A. J. Ph. 95, 499. Proc. 95, 185).

26. *Melting Point.* The Pharmacopœia should give specific directions for properly taking the melting point, since there will be a difference according to whether the temperature has been raised rapidly or gradually. Oldberg (Apoth. 95, Nov. 95).——Nagelvoort proposes that the melting point be taken in a dry capillary tube placed inside of an empty, strong test-tube immersed in sulphuric acid, paraffin, glycerin or water, according to the substance to be examined. The capillary tube will then always be in an air-bath.

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The respective substance should be dried previously over sulphuric acid, or at 100°C., as the case may be. (Apoth. 95, July 1.)

27. *Nomenclature*, General. Biltz pleads for scientific accuracy tempered with common sense. The names should be:—1) As short as possible. 2) Not changing with every new theory. 3) Comprehensible. 4) Well-known and familiar, through usage. (A. J. Ph. 94, 26.)

Chemical. The termination "ol" should be limited to phenols and alcohols, but should not be used for aromatic hydrocarbons. (For instance, benzol and toluol should be "benzene" and "toluene".) The terms "hydrochlorate" and "hydrobromate" should be changed to "hydrochloride" and "hydrobromide." A. P. A. Comm. (A. J. Ph. 95, 484. Proc. 95, 240.)——Beringer contends that names as "sodic chloride" and "potassic nitrate," etc., are more accurate than "sodium chloride" and "potassium nitrate," etc. (A. J. Ph. 93, 472).——Rice admits the general correctness of the proposition to invert the chemical terms at present in use, but shows that the adoption of this rule would lead to great inconvenience, and respecting compound salts this rule could not be consistently applied, being impracticable. (Circ. 166, p. 1007, 1011.)

The question of the nomenclature of salts of organic bases—morphine hydrochlorate *vs.* hydrochloride, etc.—has been much agitated, and there are strong reasons in favor of both methods. The present Committee believed that, if a change had to be made, the time for it had not come when the present Pharmacopœia was issued.

Botanical. Beringer queries, whether the adoption of the rules of the Botanic Club of the A. A. A. S., is not premature, in view of the unsettled state of botanical nomenclature. (A. J. Ph. 93, 513, and 95, 606.)

28. *Oxygen*. Preparation. On adding 4 Gm. of manganese dioxide to 50 Cc. of a 10 p. c. solution of hydrogen dioxide, one liter of oxygen will be obtained. Dott (Ph. J. & Tr. 93, Febr. 702. Merck, Report, 93, 40).

29. *Percolation*. Edel recommends intermittent percolation (Fairthorne's original idea, see Proc. 82, 115). (W. Dr. 93, 218. Proc. 94, 501.)——Ph. Helv continues the percolation of alkaloidal drugs until 10 Cc. of the percolate, to which 3 drops of diluted HCl has been added, evaporated to dryness, and the residue dissolved in water and filtered, is no longer rendered turbid by Mayer's reagent. (Ph. Rdsch. N. Y. 94, 84).——McPherson proposes to place the sponge or other filtering medium in a separate apparatus, connected with the percolator by an India rubber tube furnished with a pinchcock. In

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case the sponge, etc., becomes clogged, it can be taken out and cleansed. (P. J. & Tr. 94, Mch. 783).——Coblentz recommends glass-wool instead of cotton for plugging, because it does not lose its spongy condition, nor ball together on being wetted. (Handbk. Pharm. 195.)——Vin Arny proposes to reduce the unavoidable loss of alcohol by the use of a closed percolator on the principle of Mohr's ether percolator. (Bull. Ph. 93, 100.)

30. *Repercolation.* Cripps thinks that repercolation might advantageously be employed for some drugs. He proposes two methods—1) Reserve a portion from each of the four percolators. 2) Reserve only from the first percolator, carrying the whole of the percolate through the three last percolators. (Ph. J. & Tr. 95, June, 1169. Merck Report, 95, 289. Proc. 95, 508.)

31. *Powders.* (Prel. Not., p. xl). "Not more than ¼ should pass through a sieve having 10 meshes more to the linear inch." This would necessitate two additional sieves, between Nos. 20 and 40, and Nos. 60 and 80. After "ten meshes to the linear inch" (p. xl), should be added: "4 meshes to the centimeter." (Ph. Ztg. 93, 524.)

32. *Purity.* Altschul recommends to determine the purity of chemicals by their "critical" temperature, contending that physical reactions are more sensitive than chemical reactions. (Ber. Phys. Ges. 94, 252. Ph. Rdsch., N. Y., 95, 41).——Squire states that the purity required should be as high as is compatible with first-class products made by the manufacturing chemist. (Ch. & Dr. 95, Mch. 386.)

33. *Reactions and Reagents.* Importance of moisture in chemical reactions. Baker (Ph. Ztg. 93, 739. Ph. Rdsch., N. Y., 94, 20).

Under "Arsenic Test, Bettendorff's" (page 466), after the words "together with a small piece of pure tin-foil," insert: "(except when testing preparations of antimony or bismuth)."

Under Mercurous Nitrate Test-Solution (page 476) read "and dissolve them in 10 Cc. of water."

34. *Refractometer.* Its application. Edwards (Proc. 93, 139, & 94, 295).

Abbe's universal refractometer is not only for liquids, but also for solids. (Bull. Ph. 92, 325. Proc. 93, 936.)

35. *Rotatory Power.* Influence of temperature. LeBel (Compt. Rend. cxviii. 916. Proc. 94, 494).

36. *Sodium Light.* Inexpensive wick. Edwards (Proc. 94, 296).

37. *Solutions.* Detrimental action of colloidal bodies on weak solutions. Beadle & Gore (Dr. Bull. 94, 272. Proc. 94, 489).——See also Gore (Proc. 94, 587).

38. *Solubilities* in water of so-called insoluble salts. Hollmann (Ph. Ztg. 93, 624. Ph. Rdsch., N. Y., 93, 262).

39. *Specific Gravity.* Dott pleads for a standard temperature of 20°

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C. (Ph. J. & Tr. 94, Febr. 632. Proc. 94, 505).——Influence of temperature. Fletcher (Ch. & Dr. 93, 394. Proc. 94, 505).——Sp. gr. taken at other temperatures, referred to 15° C. Curtman (Ph. Rdsch., N. Y., 94, 108. Ph. Era 94, 392. Proc. 94, 506).

40. *Starch Solution.* Keeps better on addition of a little chloroform. Kral (Ph. Ztg. 94, 743. Proc. 95, 919).——For iodometric estimations. Meinecke advises not to use starch from grains (wheat, rice, etc.), because they give as end-reaction a violet or reddish-brown coloration, while arrowroot and potato starch give a pure blue. (Ch. Ztg. 94 . . . Proc. 94, 1034.)

Sterilization of pharmaceutical preparations. Degener (Ch. Ztg. 93, 1389. Proc. 94, 508).

41. *Sulphates.* Prothière recommends as indicator neutral (yellow) potassium chromate. Titrate with $\frac{N}{10}$ barium chloride. One drop of the solution added to one drop of chromate solution on a piece of white paper, will turn the golden-yellow color of the latter to yellowish-white when all the sulphates have been precipitated; but the golden color remains as long as sulphates are present. Dark colored liquids are tested on black paper. The drops then appear black, but the smallest excess of barium chromate produces a milky turbidity. (Union Ph. 95, 151. Ph. Rdsch., N. Y., 95, 190.)

42. *Thermometer.* The Fahrenheit equivalent should be left out. Beringer (A. J. Ph. 93, 468).

43. *Titles.* Some contend that the Pharmacopœia should indicate the part of the plant used even if only one part be officinal, for practical reasons.

> Hallberg gives a scheme for a more scientific and uniform classification of preparations:—1) Tinctures and extracts should indicate the strength (Deture, vinture, centure; detract, vintract, quintract, etc.). 2) Waters is the proper term for solutions of volatile substances in water; and Solutions for solutions of non-volatile substances in water. 3) Spirits for solutions of volatile substances in alcohol; and Tinctures for solutions of extractive substances in alcohol. 4) Mixtures for aqueous liquids keeping in suspension insoluble substances for internal use. 5) Liniments for oily or alcoholic liquids holding in suspension or solution soap or resinous substance for external use. 6) Emulsions for aqueous liquids holding in suspension fatty or resinous substances for internal use. (W. Dr. 93, 388).

44. *Volume.* Change of volume when liquids of different densities are mixed. Scoville (W. Dr. 93, 434. Proc. 94, 379). See also Kahlenberg (A. J. Ph. 94, 329).

45. *Volumetric Solutions* (p. 483, first paragraph) . . . "are in practice frequently rounded off" . . . does not appear to harmonize

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with the precautionary remark on p. 482, second paragraph, nor with the exacting chemical requirements of the pharmacopœial processes. Beringer (A. J. Ph. 94, 95).

46. *Weight.* Study of grain weight. Lloyd (Proc. 94, 137).——Oldberg proposes a "fluigramme," the volume of 1 Gm. of pure water at 20° C. (Bull. Ph. 96, 3.)

Acacia.

Tests. The best test for pectic compounds is ruthenium red. Mangin (Am. Dr. 93, 361. Proc. 93, 795).

Guichard distinguishes between the various acacias by their rotatory power. (Ch. & Dr. 93, 1444. Proc. 94, 901.)

Dextrin. Heat a solution of acacia to boiling with aniline sulphate. Pure gum gives a straw color, presence of dextrin an orange or brownish-red. Pietro (Am. Dr. 94, 328. Proc. 94, 901). ——To a 20 p. c. solution of acacia add a solution of 15 drops of ferric chloride solution, 15 drops of a saturated solution of potassium ferrocyanide, and 5 drops of HCl (1.165), in 60 Cc. of water. If the gum was pure, the mixture will acquire a yellow color which does not alter within 8 to 10 hours; in presence of dextrin the color will become blue within 1 to 2 hours. (Ph. Post 94, 563. Proc. 95, 867.)

Acetanilidum.

Reactions. Color reactions with sulphuric acid and potassium bichromate, potassium ferrocyanide, manganese dioxide, potassium permanganate, ceric oxide, nitric acid, bismuth subnitrate. Schaer (Arch. Ph. 94, 253. Proc. 95, 665).

Schweitzer states that mixtures of acetanilid and phenacetin, no matter in what proportions, begin to melt at 92° C. and clear up at 106–134° C. (Ph. Era 95, xiv, 683. Am. Dr. 95, xxvii, 234.)

Ritsert gives the following distinctions from methacetin and exalgin: 0.1 Gm. of acetanilid dissolves, on shaking, in 1 Cc. HCl, but separates out after a few minutes as hydrochlorate, while methacetin and exalgin remain dissolved. (Ph. Ztg. 93, 598.)

Acetum Opii.

Assay. Kebler states that the method of assay is unpractical. Each 100 Cc. contains 20 Gm. of sugar, and after preparing for the assay, in addition 8 Gm. of calcium acetate and about 5 Gm. of extract of opium, a total of 33 Gm. of solids. The final evaporation has to continue to a weight of 14 Gm. He, therefore, proposes the following modification: 100 Cc. are rendered alkaline with strong ammonia (8 to 10 Cc.), and 2 Cc. ether added to prevent frothing. Shake vigorously for 10 minutes, and set aside for at least 6 hours.

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Pass through a filter, previously wetted with water, and wash the precipitate sparingly. Transfer while still moist to a capsule, add 10 Cc. of 5 p. c. sulphuric acid, warm, let stand for at least one hour, filter and wash. Now evaporate to 14 Gm., and proceed further as directed in the U. S. Ph. Ascertain the purity of morphine by the lime water test. (A. J. Ph. 94, 136. Proc. 94, 554.)

"It should yield from 1.3 to 1.5 Gm. of crystallized morphine."

Acetum Scillæ.

Preparation. No. 30 powder is too fine, and gives a glairy liquid, difficult to filter. Macpherson (Ph. J. & Tr. 94, Mch. 782).——Caspari thinks that No. 20 powder is sufficiently fine; he advises to strain the mixture with expression, and states that it will be advantageous to allow the strained liquid to stand for three or four days before filtering it. (Pharm. p. 254.)

(Acida.)

In order to make the dilute acids acidimetrically uniform, it will be necessary to start, not from the percentage of the pure acid, but from the molecular weight, exactly as with test-acids. Hirsch (Ph. Rdsch. N. Y. 93, 233).

Description. German Comm. states that the first part of the description should give the necessary properties which establish the identity of the acids. (For instance, Hydrochloric acid, that it gives with argentic nitrate a curdy, white precipitate, soluble in ammonia; and so on.) (Ap. Ztg. 93. . . .)

Acidum Aceticum.

Specific Gravity. Nickels overcomes the difficulty of the increase up to 80 p. c. and subsequent decrease, by taking the sp. gr. as usual, then diluting with water, and taking the sp. gr. again. If there is an increase of sp. gr., the higher p. c. may be assumed to be correct; if there is a decrease, then the lower p. c. is correct. (Ch. Ztg. 92, 1793. Proc. 93, 802.)

Test for Mineral Acids. Griggi uses a 25 p. c. solution of fuchsin in alcohol, one drop to 1 Cc. of the acid. If pure, the color is red; in presence of mineral acid, the color will be dirty-yellow. (Ph. Ztg. 93, 675. Proc. 94 1075.)

The color of a dilute solution of methyl-violet turns blue with nitric acid, and green with hydrochloric and sulphuric acids. (Boll. Ch. Farm. . . . Proc. 93, 802.)

Percentage. Estimation by refractometer. Edwards (Proc. 94, 305).

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Acidum Aceticum Glaciale.

Refraction. Edwards (Proc. 93, 155).

Acidum Arsenosum.

Sublimation. Sublimes at 137.6° C. (Merck. Index 4.)

Tests. Nagelvoort points out some of the loose language of the Pharmacopœia, respecting reactions. (Proc. 94, 282.)

Thiele states that hypophosphorous acid precipitates arsenous acid without boiling, in a solution strongly acidulated with HCl. The addition of KI facilitates the reaction. (Annalen. cclxv. 55. Proc. 93, 756.)

Bettendorf's Test. Both Power and Curtman concur in the opinion that Bettendorf's Test, although not the most sensitive, is sufficiently delicate for pharmacopœial purposes, as it is neither practicable nor necessary in most cases to require "absolute" freedom from arsenic. Curtman states that, for practical purposes, 0.03 Mgm. is the utmost limit of sensitiveness necessary. He prefers metallic tin (except in the examination of antimonial and bismuthic preparations) and heating. (Circ. 75, p. 296. A. J. Ph. 94, 387. Proc. 95, 935.)

Gutzeit's Test. Nagelvoort combines this method with Klein's, conducting the current of hydrogen over finely powdered argentic nitrate packed over glass-wool in a U-tube. (Ph. Rdsch. N. Y. 94, 109. Proc. 94, 1208.)——Kral recommends a piece of frosted glass instead of the filtering paper. (Ch. Ztg. 92, 1767. Ph. Ztg. 93, 43.)

Marsh's Test. The brown spots on the porcelain are not metallic arsenic, but arseniuretted hydrogen in the solid state. Retgers (Ph. Centralh. 94, 445. Proc. 94, 1011).

Acidum Benzoicum.

The natural and artificial acids should have been kept separate. Physicians state that the artificial acids have some undesirable by-effects. Beringer (A. J. Ph. 93, 518).

"Friable needles." Is "friable" the proper term to use?

Solubility. Soluble in 10 parts of glycerin. (Merck, Index 4.) ——"Sparingly soluble in benzin," Power states that 1 part dissolves in 106.3 parts at 15° C. (Ph. Rdsch. N. Y. 89, 288.)

Melting Point. At 120° C. (Merck, Index 4.)——The melting point of the Pharmacopœia refers to toluene-benzoic acid. (Merck, Index 5.)

Boiling Point. At 250° C. (Merck, Index 4).

Chlorine Test. (Paragraph seven on p. 8) "More than traces of chlorine." Is this not too rigid a test in view of the permission to keep toluene-benzoic acid? (Ph. Ztg. 93, 599.)

Distinction of benzoin-acid from that derived from other sources.

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Add resorcin and sulphuric acid to the alcoholic solution of the acid. Pure acid gives a beautiful red color. This is the well-known aldehyde test. Goeldner (Ph. Ztg. 92, 697. A. J. Ph. 93, 12. Proc. 93, 804).

Acidum Boricum.

Solubility. In 3 parts of boiling water. German Comm. (Ap. Ztg. 93, 212).

"In 10 parts of glycerin" is not correct; it should read "5" parts. Macpherson (P. J. & Tr. 94, Mch. 782).

Acidum Carbolicum.

Nomenclature. It would have been more in accordance with chemical nomenclature to make "Phenolum" the title, and "Acidum Carbolicum" the synonym. Beringer (A. J. Ph. 93, 518).

Volumetric Estimation. Urban compares three methods:—Standard bromine; $5NaBr + NaBrO_3$; and standard I. (W. Dr. 93, 9. Proc. 93, 925.)

Congealing Point. Of different mixtures with water. (Ph. Post, 93, 247. Proc. 93, 927.)

Melting Point. Should not be higher than 38.8° C. Nor the *Boiling Point* higher than 182° C. Coull. (Ph. J. & Tr. 94, Dec. 533.)——Rice states that it would be useless to give a definite melting point, since hardly two experimenters are likely to agree. It is preferable to specify the congealing point. (Circ. 120, p. 776.)

Red Coloration. Is due to oxidation, and will rapidly appear in presence of ammonia, dust, or direct sun-light. On shaking the red acid with stannous chloride, the latter acquires a green color. Hanko (Ch. Ztg. 95, 1143. Ph. Rdsch. N. Y, 95, 191.)

Distinction from creosote. "Coagulates albumen" (paragraph 9, p. 9). This is certainly an error; it is creosote which coagulates albumen. (Ph. J. & Tr. 93, Sept. 241.)

Acidum Carbolicum Crudum.

Explanation of the Manufacturing Terms. One hundred, etc., p. c. is based upon the solubility in soda solution:—25 to 30 p. c. contains 2 to 3 p. c.; 40 to 60 p. c. contains 3 to 5 p. c.; 80 p. c. contains 50 p. c.; and 90 to 100 p. c. contains 80 p. c. Seiler (Schweiz. Woch. 92, 365. A. J. Ph. 92, 566. Proc. 93, 924). Jayne shows these to be unreliable. (A. J. Ph. 94, 117.)

Manufacture. Jayne (A. J. Ph. 94, 113).

Requirements. Jayne proposes the following:—The crude acid should not be soluble in less than 15 parts of water at 15° C., which solution should not show an alkaline reaction. On treating with a

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10 p. c. soda solution, it should not leave more than 5 p. c. insoluble. It should not show more than 2 p. c. of water, and 90 p. c. should distil under 225° C. The official test is unpractical. A 60 p. c. acid answered the requirements of the Pharmacopœia, but after distillation, to remove tarry matter and about 11 p. c. of water, showed 30 p. c. insoluble. (A. J. Ph. 94, 119. Proc. 94, 1215).

Acidum Chromicum.

It would probably be more correct to make "Chromic Trioxide" the title, and "Chromic Acid" the synonym. Beringer (A. J. Ph. 93, 518).

Last paragraph, but one. ". . . should yield nothing soluble to water" "(absence of alkalies)" should be added.

Acidum Citricum.

Salzer states that finely powdered citric acid, slowly heated, becomes anhydrous at 55° C. (Arch. Ph. 94, 514. Proc. 95, 972.)

Identity. Add to a solution of the acid a few drops of $\frac{N}{10}$ potassium permanganate, and heat until the red color disappears, then add 3 to 4 drops of bromine water which causes an opalescence or white precipitate on addition of soda solution, when a distinct odor of bromoform will be noticed. Stahr (Ch. Ztg. Rep. 95, 187. Ph. Rdsch. N. Y. 95, 190).

Lead. Lead has repeatedly been found in citric acid, hence a specific test would be advisable. Buchet (Un. Ph. 92, 203. Proc. 93, 816), and Warrington (Soc. Ch. Ind. 93, 97. Proc. 94, 1089).

Tartaric Acid. Crismer adds 1 Gm. of the acid to 1 Cc. of a 10 p. c. solution of ammonium molybdate, and then a few drops of diluted H_2O_2 (1 : 400). If the acid was pure, a yellow color is developed, which remains unchanged on heating for three minutes to 100° C.; in the presence of tartaric acid, the color becomes blue. (Bull. Soc. Ch. 93, 23. Ph. J. & Tr. 93, Mch. 757.)——Stark improves this test as follows:—Add 1 Gm. of the acid as above to ammonium molybdate solution. If any blue color develops, warm until colorless. Now add 5 Cc. of H_2O_2 (0.25 p. c.) when an intense yellow color will be noticed. If heated for five minutes on a water-bath, the color disappears in presence of tartaric acid. A blank experiment should be carried out for comparison. (Ph. J. & Tr. 93, Mch. 758.)

Acidum Gallicum.

Melting Point. At 220–240° C. (Merck, Index 11.)

Acidum Hydrobromicum Dilutum.

Examination of the commercial. LaWall (A. J. Ph. 95, 13).

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Preparation. Beringer proposes to make it by treating bromine water with hydrogen sulphide. (A. J. Ph. 95, 51.)

Acidum Hydrochloricum.

Strength. Estimation by refractometer. Edwards (Proc. 94, 297).

Purity. (Fourth paragraph). Leaving no residue "if the acid was perfectly pure." "Absence of fixed impurities" would be more correct. Hirsch (Ph. Rdsch., N. Y., 93, 234).

Boiling Point. At 76.75° C. Merck Index 12.)

Acidum Hydrocyanicum Dilutum.

Assay. See under AQUA AMYGDALÆ AMARÆ.

Second Formula. "5 Cc. HCl" is an excess; 6 Gm. of argentic cyanide require only 5.1 Gm. HCl, and 5 Cc. HCl weigh 5.8 Gm. U. S. Ph. 1880 directed only 5 Gm. Hirsch (Ph. Rdsch., N. Y., 93, 234).

Acidum Hypophosphoricum Dilutum.

Beringer prefers a 50 p. c. acid, as being more stable. (A. J. Ph. 93, 519.)

Acidum Lacticum.

Strength. Estimated by mixing 4 to 5 Gm. of the acid with 20 to 25 Cc. of water, adding 50 Cc. (or an excess) of $\frac{N}{1}$ potassa and a few drops of phenolphtalein solution. Boil for 15 to 20 minutes, and ascertain excess of alkali by $\frac{N}{1}$ oxalic or $\frac{N}{1}$ sulphuric acid. Multiply number of Cc. of alkali required by 2. (Am. Dr. 93, 384. Proc. 93, 809.)

Test for Mannite, Sugar and Glycerin. The ether test of Ph. Germ. (III) is liable to fail when these substances amount to less than 10 p. c. Rice (Circ. No. 120, p. 782).

Acidum Nitricum.

Strength. Estimated by refractometer. Edwards (Proc. 94, 300). ——Curtman states that the acid sold as "U. S. P." seldom reaches over 1.22. The present strength (1.414) can be easily made from either a higher or lower grade acid by fractional distillation. The higher acid, on boiling, loses stronger acid until the boiling point becomes constant at 120.5° C., and an acid of sp. gr. 1.414 remains, which distils over unchanged. The lower acid will, on boiling, lose water until sp. gr. 1.414 is reached. An acid of 1.42, as required in U. S. Ph. 1880, is not to be obtained from the manufacturers except on special order. Power concurs in the above. (Circ. No. 75, p. 310.)

Iodic Acid. To test for this acid, Pieszczek prefers metallic tin,

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because it does not combine with the liberated iodine. (Ap. Ztg. 93, 322. A. J. Ph. 93, 383. Proc. 94, 1003.)

Nitrites. Add to a very dilute solution of a nitrite a few drops of potassium ferrocyanide solution and a little acetic acid, when a yellow color will appear. Deventer (Ph. Centralh. 93 . . . Proc. 93, 793).

Acidum Oxalicum.

Identity. A solution of this acid produces a yellow color in a solution of ferrous phosphate ($Fe_3 2PO_4$) with excess of phosphoric acid. Mineral acids interfere, destroying the color. Gunn (Ph. J. & Tr. 93, Nov. 408. Dr. Circ. 94, 9. Proc. 94, 1083).

Melting point. At 160° C. The anhydrous acid melts at 189.5° C. Guareschi (Ch. & Dr. 94, July 21).

Acidum Phosphoricum.

Specific Gravity is 1.725. (Merck, Index, 19.)

Silicic Acid. Not unfrequently found; a test would therefore be necessary. Coull proposes: "When mixed with an equal volume of distilled water, no precipitate should be formed." (Ph. J. & Tr. 92, Sept. 236.)

Metaphosphoric Acid. Dropped into a diluted solution of albumen, no opalescence should be noticed.

Acidum Salicylicum.

Manufacture. (Avoidance of distillation by superheated steam.) To the crude liquid add some stannous chloride solution, which precipitates a dark, oily mass, leaving the supernatant liquid clear as water. Separate, and precipitate by HCl; wash and centrifuge. Hoffmann (Ph. Centralh. 92, 412. Proc. 93, 812).

Methyl Salicylate Reaction. Nagelvoort proposes the following improvement: Dissolve 5 Mgm. of the acid in 1 Cc. of methyl alcohol, and add from a pipette 1 Cc. of sulphuric acid in drops, keeping the test tube surrounded with cold water. Heat in a water-bath to the boiling point for two minutes, allow to cool, then heat again until the odor is noticed. The odor is more readily perceived when no hot vapors of methyl alcohol interfere with it. (Apoth. 95, 98.)

Benzoic Acid. The sublimation test, relied upon by several chemists, is no criterion for the presence or absence of benzoic acid, since every pure salicylic acid will sublime, if not rigidly freed from moisture. Curtman.——Power states the same, and adds that there is no simple test for benzoic acid, although advantage might be taken of the greater solubility in benzin of the latter acid, together with the difference in the crystalline form and the melting point. (Circ. No. 144, p. 912.)

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Acidum Stearicum.

Crystallizes from alcohol in brilliant leaflets. (Merck, Index, 22.)

Acidum Sulphuricum.

Strength. Estimation by refractometer. Edwards (Proc. 94, 303).

Indicators. Relative value. Kebler & La Wall (A. J. Ph. 95, 302. Proc. 95, 190).

Selenium. A test for selenium is necessary. Stratify in a test tube with an equal volume of HCl, containing in solution a granule of sodium sulphite: the zone of contact should not become colored red. Curtman (Circ. No. 75, p. 317).

Acidum Sulphuricum Aromaticum.

Strength. Power proposes to make the strength referable to the "absolute" acid instead of to the "official" acid, which would but be in conformity with the plan of the other dilute acids. This would, of course, require a different proportion of sulphuric acid in the formula. (Circ. No. 75, p. 319.)

Acidum Sulphurosum.

Preparation. Ph. Germ. uses instead a fresh solution of sodium sulphite and dilute sulphuric acid. (Ph. Centralh. 93, 354.)

Test Paper. Make 2 Gm. of wheat starch into a paste with 100 Cc. of boiling water, and mix with a solution of 0.2 Gm. of potassium iodate in 5 Cc. of water. Soak filtering paper with it, and let dry. When moistened it shows free sulphurous acid by the blue coloration. For sulphites, it will be necessary first to moisten the paper with dilute HCl (1:100). (Suedd. Ap. Ztg. 92, 219. A. J. Ph. 92, 463. Proc. 93, 755.)

Acidum Tannicum.

Assay. By powdered albumin. Fleury (J. Ph. & Ch. 92, 499. Proc. 93, 814).

Purification. May be effected by amyl alcohol, in which the impurities are insoluble. Precipitate with benzol or benzin. Hagemann (Ph. & J. & Tr. 95. Mch. Appendix, 88).

Gallic Acid. Although even the purest tannic acid is colored momentarily pink on addition of a solution of potassium cyanide, it should not be colored permanently red, which would indicate presence of gallic acid. Vulpius (Ph. Rdsch. Prag. 95, 42. Proc. 95, 976).

Acidum Tartaricum.

Test for Oxalic Acid. To a water-white solution of ferrous phosphate, containing excess of phosphoric acid, add a solution of tartaric acid, when a yellow color will be noticed. Mineral acids interfere

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with this reaction. Gunn (Ph. J. & Tr. 93, Nov. 408. Dr. Circ. 94, 9. Proc. 94, 1083).

(Aconitinum.)

Should be introduced. Beringer (A. J. Ph. 93, 598).

Aconitum.

Assay. Dohme comes to the conclusion that, until we know more about the alkaloids and other constituents of the root, no reliable assay can be devised. (Proc. 95, 210.)——Prescott thinks that Squibb's physiological test (see "Digest," 1890, 284), is still the most reliable test which we have. (Proc. 95, 210.)——Kebler considers the volumetric more reliable than the gravimetric test. (Am. Dr. 94, Sept., 179.)

Keller extracts with ammoniated ether-chloroform, shakes out with acidulated water (1 p. c. HCl), makes alkaline with ammonia, and takes up the alkaloids with ether. (Schweiz. Woch. 94 . . . Ph. Ztg. 94, 345. Proc. 95, 539.)

Schwickerath. With benzin, chloroform, water, etc. (Dr. Bull. 94, 246, etc. Ph. Rdsch., N. Y., 94, 137. Proc. 94, 533.)

Alkaloids. Comparison of German, English and French varieties. Dunstan & Carr (J. Ch. Soc. 93, 491. A. J. Ph. 93, 297. Proc. 93, 820).

Yield. 100 Kg. gave 80–100 Gm. amorphous and 100–150 Gm. crystallized aconitine. Adrian (Bull. de Ph. 92, 486. Proc. 93, 819).——Keller found from 0.87 to 1.23 p. c., and that the root with the lowest yield showed the largest proportion of sugar. (Schweiz. Woch. 94 . . . Ch. & Dr. 94, 858. Proc. 94, 538, and 95, 539.)

Copper. Percentage. (Ph. Ztg., 94, 30. Proc. 94, 566.)

Adeps.

(Second paragraph.) "Insoluble in water," is not absolutely correct; it is "slightly soluble." (Merck, Index, 145.)

Adulterations. Taylor's scheme for differentiating pure from adulterated lard depends on the time necessary to solidify. (Nat. Dr. 92, 103. Proc. 93, 717.)

Neufeld thinks that neither Huebl's test nor the silver reaction are of much use in testing for small quantities of adulterants. (Ch. Centralbl. 93, 778. Proc. 94, 634.)

Cottonseed Oil. Pure white filtering paper is just moistened with a 12 p. c. solution of argentic nitrate, and held over a small sample of the lard, which is gradually heated in an oil-bath to 240° F. (115.5° C.), when, if even less than 1 p. c. cottonseed oil is present, the paper will turn light-brown to nearly black. Pure fresh lard does not affect the paper. Crooks (Analyst, 93, 221. Proc. 94, 634).

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Gantter dissolves 1 Gm. of the anhydrous fat in 10 Cc. benzin, and shakes the solution with 1 drop of sulphuric acid. Pure lard shows a pale-straw or reddish-yellow color; in the presence of even 1 p. c. of cottonseed oil the color is brown. (Ch. Rep. 93, 166. A. J. Ph. 93, 379. Proc. 94, 1181, and 95, 1054.)

Schweitzer and Lungwitz propose phosphomolybdic acid, which gives no coloration with a solution of pure lard in chloroform or ether, but a blue color with cottonseed oil. The iodine number is rapidly obtained by keeping the lard at a temperature of 45° C. for 25 minutes. They also attach considerable value to the temperature of crystallization. (Ch. & Dr. 94, 758. Proc. 94, 635.) See also Welmans (Nat. Dr. 93, 112. Proc. 94, 955).

Gantter states that he has met with samples of cottonseed oil which answered the silver test very poorly. (Ztg. Anal. Ch. 93, 308. Proc. 94, 634.)

Bevan points out a source of error in the silver test for cottonseed oil. The surface portion of lard is so affected by the air, that it reduces the silver solution. (Ch. & Dr. 94, April, 551. Proc. 95, 630.)

Soltsien calls attention to an empirical test for the presence of cottonseed oil and tallow, which consists in observing the behavior on solidifying. Pure lard invariably solidifies with a concave surface, the addition of either of the two causes the surface to become level. (Ph. Ztg. 94, 350.) See also Utescher (Ap. Ztg. 95, 9).

Beef fat. Stock's test is based on the slight solubility of beef fat in ether at 13° C. (Analyst, 94, 2. Proc. 94, 636.)

Adeps Benzoinatus.

Beringer much prefers to mix the lard with powdered benzoin, keep the lard fluid for six hours, occasionally stirring, and straining. When tied in a bag, only a small portion comes in contact with lard. (A. J. Ph. 93, 519.)

Adeps Lanæ Hydrosus.

Dieterich points out that lanolin is liable to become rancid. A sample had in 1886 the acidity figure of 0.84, and in 1893 the figure was 17.36. (Ph. Post. 93, 426. A. J. Ph. 93, 491. Proc. 94, 636.)

"Miscible with twice its weight of water . . ." depends on the temperature. At the normal temperature only an equal weight can be incorporated, but on warming the mortar, twice as much. Beringer (A. J. Ph. 93, 519).

Purity. A mixture of 0.1 Gm. of lanolin with 10 Cc. of sulphuric acid shows an intensely red color with green fluorescence. On shaking this mixture with 10 Cc. of chloroform, on separation the chloro-

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formic layer will be bright-red, and on the line of contact a black line will be noticed. Astolfi (Ap. Ztg. 94, 94. Proc. 94, 637).

Chlorine. Is detected by boiling lanolin with alcohol, filtering after cooling, and adding an alcoholic solution of argentic nitrate. (Nat. Dr. 94, 27. Proc. 94, 638.) See also Beckurts and Liebreich (Ph. Ztg. 94, 408 and 470).

Æther.

(Last paragraph) "(absence of aldehyde, etc.)" The "etc." should be defined. Beringer (A. J. Ph. 93, 520).

Refractive Index. Edwards (Proc. 93, 150).

Dott states that most of the commercial ether contains methyl ether. Dott (Ph. J. & Tr. 93, Jan'y, 618. Proc. 93, 915).

Purification. Ekenberg purifies ether by mixing it with 5 to 10 p.c. of its bulk of liquid paraffin, and distilling at 40 to 50° C. On heating the paraffin to 120° C. it will become sufficiently pure for further use. (Ch. Ztg. 94, 1240. Ph. Era xiii. 95, 302. Proc. 95, 1067.)

Purity. Cautiously dropped into well-cooled sulphuric acid, it should dissolve without color. Ph. Helv. (Ph. Rdsch. N. Y. 94, 84.)

Hydrogen Dioxide. It should remain colorless when shaken for half an hour in a glass-stoppered bottle with ten volumes of a 10 p. c. solution of potassium iodide. Nagelvoort (Apoth. 95, 68).

In the test for aldehyde, potassium hydrate T. S. is to be used, instead of potassium iodide T. S., which was given in the first issue.

Æther Aceticus.

Examination of commercial ether. Leake (Ph. Rev. 92, 201. Proc. 93, 916).

(Eighth paragraph.) The "ether-water" test is only reliable when a tolerably pure ether is examined. It would be better to replace the water with glycerin. Nagelvoort (Apoth. 95, 99).

Hirsch gives the spec. grav. at 0.906, and the solubility in water as 1 in 16 to 17. It should not be soluble in less than 13 to 14 parts. (Handbuch d. prakt. Pharm. i. 319.)

Alcohol.

It should conform to the requirements of deodorized alcohol, and the latter be dropped. Beringer (A. J. Ph. 93, 520).

Test of Identity. Where the usual methods are not applicable, Tsheppe recommends to shake the liquid with nitric acid (70 p. c. absolute acid). In presence of alcohol an emerald-green line appears at the zone of separation, and the odor of nitrous ether is noticeable. (Nat. Dr. 93, 186. Proc. 93, 904.)

Specific Gravity. Influence of temperature. Fletcher (Ch. & Dr.

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93, 394. Proc. 94, 505). The terms of temperature, here and under the following three articles, should be 15.6° C. (60° F.), instead of 15° C. (59° F.), for the reason given on page xliii of the Preliminary Notices. Rice.

Strength. Estimation by refractometer. Edwards (Proc. 94, 307).——Smith estimates it by noticing the rise in temperature on mixing alcohol with water. This is a rough method, not being sensitive to less than 5 p. c. (J. Ph. d'Anv. 95, 121. Proc. 95, 1059.)

Freezing Point of mixtures with water. Pictet (Compt. Rend. 94, 678. Proc. 95, 1062).

Methyl Alcohol. Ashby mixes a freshly prepared 1 p. c. solution of sodium nitroprusside with an equal volume of alcohol, or the distillate of an alcoholic liquid, adds a few drops of ammonia, and allows it to stand for fifteen minutes. Methyl alcohol is indicated by a red color. (Analyst. 94, 261. Ph. Era 95, xiii. 136. Proc. 95, 622, 1061.)

Alcohol Absolutum.

Belongs properly to "Reagents" and "Test-solutions." Beringer (A. J. Ph. 93, 520).

Refractive Index. Edwards (Proc. 93, 155).

Dehydration. Wislicenus and Kaufmann dehydrate it with aluminum amalgam. (Bull. Ph. 96, 82.)

Squibb concludes that up to the present no really absolute alcohol has been obtained. He states, however, that no alcohol should be called absolute that contains less than 99.4 p. c. by the best determinations. (Ephemeris, 94, 1445. Proc. 94, 1184.) See also (Ph. J. & Tr. 93, Sept. 181).

Squire formulates the proper requirements as follows:—Two drachms of alcohol, shaken with 8 grains of anhydrous cupric sulphate, should not show a blue color within seven minutes. The permanganate test is in so far fallacious, that the crystals may be covered with oxide, and therefore not show the presence of 2 to 3 p. c. of water. The crystals should be well-crushed. As to the carbon bisulphide test, it is best to add to 1 Cc. of alcohol 5 Cc. of bisulphide, and note the temperature at which the clear mixture becomes turbid on cooling, or the turbid mixture becomes clear on warming. (Ch. & Dr. 93, 118. W. Dr. 94, 9. Proc. 94, 1185.)

Nagelvoort states that alcohol containing 3 to 4 p. c. of water does not show a blue color with anhydrous cupric sulphate within 6 to 8 hours. He proposes the following micro-chemical test:—A small quantity of gelatinized starch is poured over a large watch crystal so as to produce a thin film, which is thoroughly dried at 100 to 105° C. Add sufficient iodine to the alcohol to produce a light-brown color,

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and pour over the starch film. In the absence of water no blue color will appear. (Apoth. 95, 179.)

Alcohol Dilutum.

Spec. grav. at 15.6° C. (60° F.) is nearer 0.938 than 0.936. Has been altered. Rice.

Alcohol Deodoratum.

Should be dropped: see under "Alcohol." Beringer (A. J. Ph. 93, 520).

(Aloe.)

The length of time that has elapsed since the collection of the juice, before it is evaporated, is an important factor in determining the characteristics of the finished product. The sooner the juice is dealt with, the larger the proportion of water-soluble matter. Holmes (Ph. J. & Tr. 92, Sept. 232. Dr. Circ. 92, 273. Proc. 93, 669).

Tests of Identity. Kremel has investigated the different tests proposed, especially with a view of proving the presence of aloes in mixtures, etc. He finds that the bromine test, Borntraeger's (benzin and ammonia), and the borax and chrysammine tests are the only reliable ones. (Ph. Post 95, 422. Ph. Rdsch. N. Y. 95, 261.)

Schontelen's borax test is based on the fact that a solution of borax added to a liquid containing aloes, causes a green fluorescence. It is sensitive to 1:10,000 within 25 minutes. (Zts. Anal. Ch. 92, 723. Proc. 93, 669.)

Aloe Socotrina.

Flueckiger calls attention to the fact that there is hardly any true Socotrine aloes in commerce, and that what there is, does not come from *Aloe Perryi*. (Ap. Ztg. 93, 426.)

Aloinum.

"Nataloin" has been left out. Is there any reason for this? (See reactions and tests by Curtman in Circ. No. 144, p. 913, 914.)

Most of the aloin of the American market is "barbaloin." Up to within a few years ago large quantities of aloin were made from so-called "Curaçao" aloes. In England "nataloin" is the kind usually sold. It is notorious, that there are stocks of aloin in the market, which are mixtures of several kinds, new lots (of a different origin) having been added to former remnants; and it is practically impossible to distinguish the several aloins, when mixed together. Rice (Circular No. 125, p. 797).

Solubility. La Wall calls attention to the conflicting statements made regarding the solubility of aloin in water and in ether by var-

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ious authorities. He himself found the solubility in water to vary from 1:100 to 1:70, in alcohol from 1:40 to 1:20, and in ether from 1:2,500 to 1:800. (A. J. Ph. 95, 367.)

Melting Point. This should be given. A. P. A. Comm. (A. J. Ph. 95, 484. Proc. 95, 240).

Purity. Shake one grain of finely-powdered aloin with 20 Cc. of water, and allow to stand for one minute. The solution should be perfectly clear. Serre (Dr. Circ. 95, 8).

Identity. Color reactions on treating aloin with nitric acid, followed by potassium cyanide, ammonia and potassa. Formanek (Ph. Post, 95, 179. Ph. Rdsch., N. Y., 95, 242. Proc. 95, 978).

Preparation. Dissolve aloes in boiling water, let stand to separate the resin, evaporate to thin syrupy consistence, and acidulate with HCl. Free the crystals from mother liquor by expression, and triturate repeatedly with acidulated water. Ough (Ch. & Dr. 92, 837. Ph. Rdsch., N. Y., 93, 41).

Alumen.

Solubility. In "8" parts of water. Germ. Comm. (Ap. Ztg. 94, 175).

Test for Zinc. Power calls attention to a peculiar error of the U. S. Ph. of 1880, which is also found in both Dispensatories, and occurs in Hirsch's works and Schmidt's Pharm. Chem. "The clear solution in potassa or soda should yield no precipitate with ammonium sulphide." As a matter of fact, the aluminum itself is precipitated as a hydrate by this reagent. (Circ. No. 73, p. 282.)

Alumini Hydras.

Should be omitted, as it is never used. Beringer (A. J. Ph. 93, 520).

Molecular Weight. Curtman gives it 156.04. (Circ. No. 73, p. 284.)

Alumini Sulphas.

Water of Crystallization. Although this salt is stated by several authorities to contain 18 H_2O, both Curtman and Power have repeatedly examined the pure sulphate, and never found more than 16 H_2O. (Circ. No. 73, p. 285.)

Ammoniacum.

Chemistry. Tschirch & Lutz (Arch. Ph. 95, 540).

Ammonii Bromidum.

Nagelvoort objects to the iodine test, that if more chlorine be added than needed, small quantities of iodine may be overlooked.

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He prefers to add one drop of freshly gelatinized starch solution to the aqueous solution of the salt, and then one drop of strong chlorine water. (Apoth. 95, 180.)

(Sixth paragraph—test with chlorine water). Add to the end "(absence of iodine)."

Ammonii Carbonas.

Nomenclature. The name should be changed to conform with the basic character of the salt. A. P. A. Comm. (Proc. 95, 240).

Soluble in "5" parts of glycerin. Merck (Index, 34).

(Last paragraph). The reason for directing 7.84 Gm. to be dissolved, when the equivalent of only 2.613 Gm. is to be used, is not apparent. Beringer (A. J. Ph. 93, 520).

Ammonii Chloridum.

Solubility. In 5 parts of glycerin. (Merck, Index, 35.)

Heating. On heating to 100° C., it loses considerable in weight. In five hours 2.2 p. c., in 269 hours 48.9 p. c. Kraut (Ph. Ztg. 94, 77).

The *pink color* is not always due to the presence of a sulphocyanide, but may often be caused by a trace of a coal-tar color. (Ph. Centralh. 95, 167. Ph. Rdsch., N. Y., 95, 105.)

Ammonii Iodidum.

This salt keeps better when, on evaporation, 0.3 p. c. of potassium carbonate be added instead of the usual addition of ammonia. (Ch. & Dr. 96, . . . Ph. Ztg. 96, 88.)

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

Ammonii Nitras.

Its retention is hardly warranted. Beringer (A. J. Ph. 93, 521).

Melting Point. At 152° C. (Merck, Index, 36.)

Ammonii Valerianas.

Butyrate. Beckurts and Hirsch state in "Handbuch" that the concentrated solution should give no precipitate with acetate of copper (absence of butyrate). Power asserts that this is a mistake, since the valerianate also gives a precipitate. He knows of no good qualitative test for the presence of a butyrate. (Circ. No. 73, p. 291.)

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Amyl Nitris.

As there is no little danger in handling it, the Pharmacopœia should recommend "caution."

Soluble in chloroform. (Merck, Index, 38.)

"Burning with a fawn-colored flame"—it should be added that the flame is sooty. Germ. Comm. (Ap. Ztg. 94, 175).

On shaking 1 Cc. with a mixture of 1.5 Cc. of argentic nitrate solution, 1.5 Cc. of absolute alcohol and a few drops of ammonia, no brown or black color should be noticed. Germ. Comm. (Ap. Ztg. 94, 175).

Assay. Nagelvoort thinks that the Pharmacopœia should provide for the assay of a preparation stronger than the officinal. He also calls attention to the fact that the volume of gas evolved increases within several hours. The Pharmacopœia should therefore name a certain time for reading the volume. (Apoth. 95, 99.)——It will be advisable to use a control experiment, leaving out the amyl nitrite. The volume of gas generated to be deducted from that found in the assay proper. Beringer (A. J. Ph. 93, 521).

Antimonii et Potassii Tartras.

Nomenclature. The English name should read "Potassium and Antimonyl Tartrate." A. P. A. Comm. (A. J. Ph. 95, 485. Proc. 95, 240).

Soluble in "20" parts of glycerin. Merck (Index, 41).

Solubility. The solubility in cold water varies slightly with the amount of water of crystallization present. According to Dunstan (Ph. J. & Tr. 88, Nov. 387), the anhydrous salt is soluble in 14.53 parts of cold water.

Heating. As the heating of such substances is generally done on platinum foil, it might not be unnecessary to add a caution, that in the case of this salt platinum foil would be destroyed, and the heating should be done on porcelain. Curtman (Circ. No. 86, p. 375).

Arsenic. In this test tin-foil should be omitted, since it reduces antimony as well as arsenic. Curtman (A. J. Ph. 94, 389). See also Umney (Ph. J. & Tr. 93, Nov. 439. Proc. 94, 1012).——Nagelvoort thinks that one hour is too short. The quantity of HCl necessary for solution might be specified. He states that 3 Cc. are sufficient. (Apoth. 95, 183.)

The words "together with a small piece of tin-foil" have been canceled.

Antimonii Oxidum.

Arsenic. See remarks under "Antimonii et Potassii Tartras."

The words "together with a small piece of tin-foil" have been canceled.

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Antimonii Sulphidum.

"Striated, crystalline fracture" . . . Power states that, although the native sulphide certainly has a radiate fracture, when fused the appearance is decidedly striated. (Circ. No. 86, p. 377.)

Antimonium Sulphuratum.

Nomenclature. Power suggests as a more distinctive name—"Antimonium sulphuratum rubrum." (Circ. No. 86, p. 379.)

(Fourth paragraph. Heating with HCl, etc.) Nagelvoort observes that if this test is not carefully performed, a precipitate of oxychloride of antimony will be found on the filter, and will be weighed as a residue. (Apoth. 95, 1.)

Apomorphinæ Hydrochloras.

The adjective should be changed to "hydrochloridum." A. P. A. Comm. (A. J. Ph. 95, 484. Proc. 95, 240).

"Soluble in 45 parts of water." Merck states that it is soluble in 6.8 parts. (Index, 42.) See also U. S. Ph. 1890.

The solubility is given differently by various authorities: Flueckiger says 1:30; Ph. German, 1 in about 40; Rice, 1:43.3 to 44; and Eccles, 1:40 to 58. Eccles says that a slight difference in temperature, or the presence of HCl in minute quantity, influence the solubility. (Circular No. 125, p. 803.)

Aqua.

Action upon Glass. Mylius & Forrester (Zts. Anal. Ch. 92 . . . Ch. News, 92, 73. Proc. 93, 947).

Expansion and Specific Gravity at different temperatures. Curtman (Ph. Era, 94, 392).

Sterilization. Fremont asserts that keeping water for twenty minutes at 80° C. will be sufficient. (Ph. J. & Tr. 95. Mrch. Appendix, 79.)

Purity. In fixing the standard for such natural water as may be used in pharmaceutical processes, our main consideration should be to exclude any water containing ingredients incompatible with such purposes. This is quite different from the standard to be fixed for *potable* waters. There are many ingredients of natural water which are not injurious to health, but which are highly objectionable in the manufacture of many chemicals. It would not be a very great tax to use water, purified by boiling, filtering or distilling, instead of the natural water of questionable purity. In view of the fact that boiling destroys many bacteria and removes several salts, the Pharmacopœia might direct all water to be boiled before being used. Curtman (Circ. No. 86, p. 382).

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Power has collated the limits allowed by the Germans (Kubel, Tiemann, Gaertner), as given in Ph. Germ. (III), p. 650. Column "A." International Pharm. Congress (A. J. Ph. 85, 527). Column "B." Associat. of Swiss Chemists (Ph. Ztg. 88, 738). Column "C." U. S. Ph. 1890. Column "D."

QUANTITIES IN GM. IN 1,000 PARTS.

	A.	B.	C.	D.
Solid residue . . .	0.5	0.05	0.5	0.5
Sulphuric acid . . .	0.08–0.1	0.06	Variable.	0.1
Chlorine . . .	0.02–0.03	0.008	0.02	0.0088
Nitric acid	0.005–0.015	0.002	0.02	?
Nitrous acid	None.	None.	None.	?
Ammonia, free . .	None.	0.005	Trace.	?
Organic matter . . (Calculated for $K_2Mn_2O_8$).	0.008–0.01	0.02	0.01	0.0158

(Circ. No. 86, p. 380, 381.)

Both Curtman and Power think that the limit for "residue" instead of 0.5 Gm. might be only 0.25 Gm. (Ibid.)

(**Aquæ Medicatæ.**)

Preparation. Since calcium phosphate is not as bulky as the magnesia formerly used, the quantity might advantageously be doubled. Beringer (A. J. Ph. 93, 521). England (A. J. Ph. 94, 351. Proc. 95, 652). Miner wants the quantity to be increased five-fold, when the mixture with oil will be pulverulent (Apoth. 94, 113.)——England proposes hot boiled water. (A. J. Ph. 94, 352.) Hallberg (W. Dr. 94, 4). Alpers (A. J. Ph. 95, 484), and A. P. A. Comm. (Proc. 95, 239).

Widlund uses in addition filtering paper. (Proc. 93, 490.)——Elborne recommends a novel method. He incloses the essential oil, camphor, chloroform, etc., in a bag of parchment paper, and makes the water by osmosis. (Ph. J. & Tr. 95, Jan'y, 581.)

Assay. Dissolve sodium chloride in the water, shake with ether, separate the ethereal solution, and remove water by calcium chloride. Mix with a weighed quantity of olive oil, and evaporate off the ether. Ranwez (J. Ph. d'Anv. 92, 445. Am. Dr. 93, April, 205. Proc. 94, 1140).

Copper. Biltz has pointed out already in 1874 that distilled aromatic waters are liable to contain copper. (Ap. Ztg. 95 . . . Ch. & Dr. 95, March, 383.)

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Aqua Ammoniæ.

Strength. Estimation by refractometer. Edwards (Proc. 94, 299). Nessler's test appears to be unreliable in the presence of alcohol. DeKoninck finds that alcohol not only prevents the yellowish-brown precipitate, but also the coloration. It is quite possible that other organic substances act in the same way, or, perhaps, give the ammonia reaction, when really no ammonia is present. (Zts. Anal. Ch. 93, 188. Am. Dr. 93, 386. Proc. 93, 756, and 94, 1247.)

The lime water test may be improved by using a mixture of equal parts of ammonia and lime water, which should show only a slight precipitate on boiling. Hertkorn (Apoth. 95, 101).

The official lime water test, according to Biltz, will exclude more than $\frac{1}{40}$ to $\frac{1}{50}$ of one p. c. of carbonic acid gas. Power (Circ. No. 86, p. 383).

Aqua Amygdalæ Amaræ.

Since the oil contains more or less hydrocyanic acid, Miner proposes to use oil deprived of the acid, so much the more as the water is chiefly used as a flavoring agent. (Apoth. 94, 17.)

Coblentz proposes a substitute containing 1 p. m. of HCN by dissolving 6.46 Gm. of chloral cyanhydrate in 1 liter of distilled water. (Pharmacy, p. 221.)

Assay. Gregor prefers Volhard's method with argentic nitrate, ferrous sulphate and potassium sulphocyanide. (Zts. Anal. Ch. 94, 30. Proc. 94, 556.)——Gluecksmann adds sodium hydrate, and titrates with argentic nitrate. The p. c. of HCN is obtained by multiplying the number of Cc. of the silver solution with 0.108. (Ph. Post, 94, 145, 273, 403. Proc. 95, 555.)

Aqua Aurantii Florum Fortior.

"Loosely-stoppered bottles." It is proposed to stopper the bottles with a pledget of absorbent cotton.

Aqua Camphoræ.

Hallberg contends that hot water poured upon the camphor in small pieces is superior to the alcohol and calcium phosphate process. (W. Dr. 94, 4.)——This is at variance with Rother's assertion that ice-cold water dissolves more camphor than hot water. Elborne (Ph. J. & Tr. 95, Aug. 109).

Aqua Chlori.

Since liquid chlorine is now an article of commerce, it is recommended to use this for making chlorine water extemporaneously. (A. J. Ph. 94, 223. Proc. 94. 557.)

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In view of the easy deterioration, it has been proposed to make chlorine water extemporaneously from potassium chlorate and hydrochloric acid, which preparation has been declared therapeutically unobjectionable. (40 grains of potassium chlorate, ½ fluid-drachm of acid and water up to one pint.) (W. Dr. 94, 4.)

Estimation of Chlorine. The presence of even small amounts of alkali silicates appears to interfere seriously with the accuracy; using standard silver and potassium chromate. Fairly (Analyst, 93, 222. Proc. 94, 1022).

Aqua Chloroformi.

It contains $\frac{1}{200}$ of its volume, or $\frac{1}{134}$ of its weight of chloroform. Hirsch (Ph. Rdsch. N. Y. 93, 237).

Aqua Destillata.

A new still by Lloyd. (A. J. Ph. 95, 190. Proc. 95, 552.)

Preparation. Of 1000 parts, 100 parts are to be thrown away and 800 kept. This would leave only 100 parts in the apparatus, which Hirsch thinks is too close, considering that the distillation is over a naked fire. He recommends to collect only 650 to 700 parts. (Ph. Rdsch. N. Y. 93, 237.)

Purity. Since most of the distilled water will be found to contain carbonic acid, it would be appropriate to direct that the water should be boiled before use, in order to expel the carbonic acid. Beringer (A. J. Ph. 93, 521).

Lloyd sums up the chief results of his investigations, as follows: The permanganate test is not too rigorous, but it becomes of no use if made in an impure atmosphere. It is impracticable (because of inorganic impurities) to make distilled water in glass, stone or ordinary metal condensers so that it will stand the pharmacopœial test. (A. J. Ph. 96, 4.)——Power proposes to sterilize the condenser by allowing steam to pass through the uncooled condenser for about ten minutes before allowing the condenser to be cooled and the distillation to proceed. (Circ. No. 86, p. 389.)

Aqua Hydrogenii Dioxidi.

The direction to "make it freshly, when wanted" (U. S. Ph., p. 53, 2d paragraph), is scarcely practicable for the retail pharmacist, since it takes at the very lowest three hours, with quite undivided attention.

Strength. Squibb finds that when left in an open vessel it becomes stronger instead of weaker, indicating that the water evaporates faster than the dioxide decomposes. It also becomes stronger on freezing, as the water is easily frozen out, apparently without loss. He also found that by heating it on a water-bath at a temperature

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not exceeding 60° C., it loses chiefly water, and may be so concentrated as to contain 50 volumes dioxide. (Ephemeris, 94, Jan'y, 1557 & 1560. Proc. 94, 1026.)——Shiloff starts from the ordinary 3 p. c. solution by rendering it slightly alkaline with sodium carbonate, and shaking out with 10 to 12 volumes ether, which takes up about one-half of the dioxide. The ethereal solution is separated and the ether distilled off. He succeeded in this way in obtaining a solution containing 54 to 79 p. c. of dioxide. (Ph. Zts. Russl. 93, 373. W. Dr. 94, 370. Proc. 94, 1027.)——See also Wolffenstein (Ph. Ztg. 94, 778. Am. Dr. 95, Jan'y, 38 & 43. Proc. 95, 947), and Patch (Proc. 94, 202).

At ordinary temperature, and with ordinary agitation (in handling and carrying by rail, etc.), it will decompose within eight weeks. Squibb (Ephem. 94, 1556).

"Add to it barium dioxide in such a way that it shall not form lumps." (U. S. Ph., p. 51.) Squibb recommends sifting the barium dioxide into the water. (Ephemeris, 94, 1548.)

Pure. Dissolve peroxide of barium in a slight excess of HCl, and shake out repeatedly with ether. The ethereal solution is shaken with water, which takes up the dioxide. Crismer (Ph. Centralh. 93 . . . Merck, Rep. 93, 150).

Commercial Examination. Endemann (W. Dr. 95, 99).——Lloyd (A. J. Ph. 93, 276. Proc. 93, 772).——La Wall (A. J. Ph. 95, 372).

Test. Griggi recommends to take up the blue color of chromic anhydride with amylic alcohol instead of with ether, because with the former the color does not disappear for 4 to 6 hours. (Orosi, 92, 295. Proc. 93, 771.)

Assay, Rapid. Moerck uses a modification of the official method, requiring a large excess of water. Add 5 Cc. of dilute sulphuric acid to 500 Cc. of water, and a sufficient quantity of permanganate solution to a pink tint (to counteract any reducing action of the water). Now add 5 Cc. of the dioxide, and run in sufficient of the permanganate solution until the pink color is no longer discharged. Divide volume of permanganate used by 10, and the result will be the volume of oxygen liberated from one volume H_2O_2. (A. J. Ph. 93, 65. Proc. 93, 772.)

It should be kept in dark-brown bottles. Curtman (Ph. Rdsch., N. Y., 93, 158).

Preservation. Squibb finds that 1 p. c. of boroglyceride retards decomposition for quite a considerable period. (Ephem. 94, Jan'y, 1561.)

Statement of Manufacturers and Real Strength. Squibb points out that there are three ways (two correct and one incorrect) ways of stating the strength. One is by giving the p. c. of H_2O_2 in any given

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solution, the second by giving the number of volumes of available oxygen that one volume will yield on decomposition in use. The third and incorrect way is by giving the number of volumes of oxygen given by the reaction between one volume of the solution and its equivalent of potassium permanganate, thus counting in the oxygen yielded by the permanganate as if it was given by the solution. This latter method is in almost universal use by manufacturers. (Ephem. 94, Jan'y, 1569.)

Aqua Rosæ.

"Preparation: Unguentum Aquæ Rosæ," is not correct, since the Pharmacopœia directs the use of "stronger" rose-water. Beringer (A. J. Ph. 93, 522).

Aqua Rosæ Fortior.

Preservation. This water should be occasionally exposed to the air, else it acquires a musty odor. Galen, Jr. (Am. Dr. 94, 31. Proc. 94, 557, & 95, 554).

The direction to keep it in well-stoppered bottles, should therefore be altered; and it is proposed to keep the container stoppered with a pledget of absorbent cotton.

Argenti Nitras.

"Protected from light" is, strictly speaking, not necessary, since the really chemically pure nitrate is unaffected by light, not even by direct sunlight, provided no organic matters (dust, etc.), chloride or bromide are present. Photographers, as long as the wet process was in use, were in the habit of purifying their silver nitrate solution by exposure to sunlight. Curtman (Circ. No. 86, p. 392).

Solubility. "Soluble in water, 1:0.6 parts." Curtman states that it is still more soluble, 1:0.52 parts. (Ibid.)

Solutions of this salt become gradually less clear, if the glass of the bottles contains considerable alkali. Spil (A. J. Ph. 93, 387. Proc. 94, 1063).

Lead. In the test for lead, it is recommended to add the dilute sulphuric acid "warm," else sulphate of silver may separate, which re-dissolves with difficulty, and might be mistaken for lead. (Ph. Centralh. 93, 9.)

Argenti Nitras Dilutus.

(Last paragraph.) "0.5 Cc. of $\frac{N}{10}$ silver nitrate solution." It would be better to make it "0.5 to 1," as the Germ. Ph. has it, since the quantity really needed is "0.58 Cc." Hirsch (Ph. Rdsch., N. Y., 93, 238).

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Argenti Nitras Fusus.

The calculations in the last paragraph are not absolutely correct. Twenty Cc. $\frac{N}{10}$ sodium chloride precipitate 0.3391 Gm. argentic nitrate, but 0.34 Gm. contain only 0.3196 Gm., hence there will be an excess of 0.00691 sodium chloride which will precipitate 0.0195 argentic nitrate, and 1 Cc. $\frac{N}{10}$ argentic nitrate solution will not be sufficient. Instead of 20 Cc. only 19 Cc. should be directed, or 0.36 instead of 0.34 Gm. moulded nitrate of silver, or the quantity of T. S. should be doubled. Hirsch (Ph. Rdsch. N. Y. 93, 238).

Melting Point. At 218° C. (Merck, Index, 211.)

Argenti Oxidum.

Quantitative Test. Both Power and Curtman consider the conversion of the oxide into metallic silver by heat much more easily accomplished, without loss or inaccuracy, than the conversion into chloride. (Circ. No. 86, p. 396.)

Arnicæ Flores.

Should be freed from calyx and receptaculum. Hirsch (Ph. Rdsch. N. Y. 93, 276).

Arseni Iodidum.

Solubility. It dissolves without residue in much water, but when digested with a little water, it is decomposed into hydriodic acid and a compound of the formula $2AsOI+3As_2O_3+12H_2O$, which crystallizes in thin, pearly laminæ. Wallace (Fehling's Handwbch., I, 762). The determination of the exact degree of solubility will therefore appear to be attended with some difficulty. Power (Circ. No. 86, p. 397).

It absorbs ammonia gas with great avidity, forming a white compound. Curtman (Ibid).

Melting Point. At 394 to 414° C. (Merck, Index, 43.)

Strength. A test for p. c. of iodine should be given, since samples have differed as much as between 12 and 37 p. c. of iodine. Nagelvoort (Apoth. 95, 1.)

Asa Foetida.

Ash. Limit should be given. Hirsch (Ph. Rdsch. N. Y. 93, 238). ——It varies from 2.08 to 53.75 p. c. (Ap. Ztg. 95, 126.)

Solubility in Alcohol. 60 p. c. is rather too high a requirement for the commercial article. (Ph. Rev. 96, 58.)

Adulterations. Tests should be given for the detection of white turpentine and of resin. (Ibid.)

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Aspidium.

The author's name should be "(Linné) Schott," since the name appeared first in Linné's Spec. Plant, 1753, and Schott's authority dates from 1834. Suttie (Bull. Ph. 93, 496).

Activity. According to Kobert, the activity is probably due to the volatile oil, and on removing the fixed oil nearly all the volatile oil is removed too. Pure filicic acid does not possess much activity. (Ph. Post, 92, 1325. A. J. Ph. 93, 135. Proc. 93, 652.)

Copper. Percentage. (Ph. Ztg. 94, 30. Proc 94; 566.)

Aspidosperma.

Assay. With modified Prollius' mixture. The alkaloids should be weighed and not titrated. Schwickerath (Ph. Rdsch. N. Y. 93, 285, and 94, 139. Bull. Ph. 93, 538. Proc. 94, 549).

Atropina.

Melting Point. Should be 115° C. A. P. A. Comm. (A. J. Ph. 95, 484. Proc. 95, 240). Ph. Germ. gives it as 115.5° C.——According to Hesse, 108° C. is the melting point of pure hyoscyamine. (Ph. J. & Tr. 94, May, 975.)

Merck (Darmstadt), being the largest manufacturer of atropine and kindred alkaloids, gives the melting point as 109 to 113° C. Dohme gives 114.5° C. (Circular No. 125, p. 799.)

"It is always accompanied by a small proportion of hyoscyamine. . . ." Umney states that this is inaccurate, in as much as the alkaloid in the plant is nearly entirely hyoscyamine, and, besides, this does not agree with the physical and chemical properties given. The definition should be modified so as to show that the hyoscyamine present is a small proportion of the original alkaloid, unconverted into atropine by the process of extraction. Both the melting point and the gold chloride test should be modified so as to fit the contaminated salt. (Ph. J. & Tr. 94, May, 975.)

Tests. Behavior to potassa, gold chloride, bromine, picric acid, and platinic chloride. Wormley (A. J. Ph. 94, 513. Proc. 95, 1013).——The presence of strychnine obscures the reactions of atropine. Fabris (Gaz. Ch. 92, 347. J. Ch. Soc. 92, 1534. Proc. 93, 826, & 94, 1100). See also Vitali (Bollet. 94, 449. Proc. 95, 987), and Monegaggi (Bollet. 94 . . . Ph. Rdsch., N. Y., 94, 89).

The physiological test might have been given, but for prudential reasons has been omitted.

The modification of the odor test by potassium dichromate, is also obtained by the addition of potassium permanganate, or ammonium molybdate. Curtman (Circ. No. 144, p. 914), who also states that

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atropine reduces ferric ferricyanide to Prussian blue quite as rapidly as morphine.

Atropinæ Sulphas.

Melting Point. Ph. Germ. has 183° C.——Merck (Index, 45) has 181 to 191° C.

Solubility. Ph. Germ. has 1:1 water, and 1:3 alcohol. (Ph. Rdsch. 93, 238.)

Merck gives the solubility as 1:0.6. Dohme the melting-point as 201° C. (Circular No. 125, p. 800.)

Ignition. Eccles states that on platinum foil the speed of ignition is exceedingly well marked with a number of alkaloids. With this test alone it would be possible to tell atropine sulphate from quinine sulphate or strychnine sulphate. Most sulphates are dissipated slowly, quinine bisulphate very slowly, atropine and codeine go like a flash when ignited. (Ibid.)

Aurantii Amari Cortex.

Distinction from lemon peel. Moisten with HCl, the color turns dark-green, the color of lemon peel does not alter. Clayton (Analyst, 19, 134. A. J. Ph. 94, 361. Proc. 94, 933).

Auri et Sodii Chloridum.

The present mechanical mixture should be replaced by a definite chemical compound ($AuCl_3NaCl.H_2O$). A. P. A. Comm. (A. J. Ph. 95, 485. Proc. 95, 240).

Estimation. The method of P. German. (ignition in a crucible, and washing out NaCl) is objectionable in as much as it requires prolonged ignition in order to completely expel the chlorine. The oxalic acid method is preferable to ferrous sulphate, because the filtrate from the precipitated gold is better adapted for the detection of foreign metals. Power (Circ. No. 86, p. 398).——Curtman states, that with proper attention to dilution and avoidance of heat, Hempel's volumetric method may be used, which is as follows: Reduce the salt by an excess of $\frac{N}{10}$ oxalic acid, filter, wash out precipitate, and measure the excess of oxalic acid by $\frac{N}{10}$ potassium permanganate. (Ibid.)

(Balsams.)

Schneider states that the value of the acid, ester, saponification and iodine numbers is questionable, because of the variable proportions of resin and volatile oil. (Ph. Centralh. 93, 9.)

Balsamum Peruvianum.

Nomenclature. Taylor contends that "Balsam of Peru" is incorrect; it should be "Peru Balsam." (Am. Dr. 93, Nov. 289.)

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Chemistry. Trog comes to the conclusion that the balsam is formed from the tannin of the bark, and therefore a pathological product. (Arch. Ph. 94, 70 & 95. A. J. Ph. 94, 401. Proc. 94, 903.)

Specific Gravity. Wimmel found the sp. gr. never below 1.138, nor above 1.150. (Ap. Ztg. 93, 443. Proc. 94, 904.)——Contrary to the statement of Gehe & Co., that adulterated balsam never has the proper sp. gr., Musset states that he found three specimens with respectively 1.159, 1.152 and 1.151. (Ph. Centralh., 93, 787. Ph. Rdsch., N. Y., 94, 39. See also Ph. Centralh., 95, 76. Proc. 95, 866.)

Tests. Gehe & Co. repeat, what they have stated several times before, that while several of the proposed tests give reliable results in experienced hands, they are apt to be misleading in the hands of inexperienced chemists. (Report, Sept. 94. Ph. Rdsch., N. Y., 94, 245.)

Rosin, Turpentine and Canada Balsam. Hirschsohn makes use of the fact that the benzin extract of true Peru balsam is indifferent toward a solution of copper acetate, while all of the above become green when shaken with the copper acetate solution. Besides this test, he requires the balsam to stand the following tests:—1. The benzin extract, after evaporation, should not be colored, when HCl (1.19) is poured over it. 2. On mixing the balsam with half its volume of calcium hydroxide, and heating the mass in a water-bath for a half hour, a solid mass should not result. 3. One part of balsam, mixed with 4 volumes of 80 p. c. acetic acid, should give an opalescent, or slightly turbid solution, from which no oily drops should separate. He also gives the behavior to nitric acid, acetic acid, and a solution of bromine in chloroform. (Ph. Zts. Russl. 93, 369, 385, 401. Am. Dr. 93, Sept. 170. Proc. 94, 903.)

Lime Test. Musset recommended the calcium hydroxide test, but found that it has to be kept under water. Equal parts of stiff lime paste and balsam are to be mixed. (Ph. Centralh. 93, 720, 738. Proc. 94, 904.) Later he found that several parcels, undoubtedly genuine balsam, did not respond to this test, so he falls back upon the sp. gr., the proportion soluble in benzin, and the sp. gr. of the ester, as the only reliable tests. (Ph. Ztg. 95, 113. Ph. Rdsch., N. Y., 95, 91.)

Benzin Test. Benzin extract evaporated, and residue treated with nitric acid, must give a yellow color, but not a bluish-green. Schade points out that it will be necessary to heat the residue for at least ten minutes on a water-bath, before adding nitric acid. (Ph. Ztg. 94, 214. Ph. Rdsch., N. Y., 94, 141.)——Schacht states that the reliability of the benzin test depends on the complete absence of benzol, which can be removed by treating benzin with nitric acid. (Ap. Ztg. 95, 29.)——Gehe & Co. find that, even then, undoubtedly pure bal-

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sams do not always respond to this test. (Report, Sept. 94. Ph. Rdsch., N. Y., 94, 245.)

Turpentine. Is detected by the behavior of the balsam to sulphuric acid. Pure balsam is colored cherry-red; in the presence of turpentine, however, sulphur dioxide is given off, and the mixture blackens. (Bollet, 93 . . . Ph. J. & Tr. 94, July, 19.)

Castor Oil. May be suspected from the shape of the drops, when dropped into water. From pure balsam the drops are perfectly round; in the presence of castor oil, the drops are elongated, the point being formed by a small, colorless vesicle. (Ph. Centralh. 95, 495. Ph. Era, xii, 94, 487.)

Tacamahac. This resin cannot be detected by any of the usual tests, and its presence is only revealed by the odor given off on heating the balsam to over 150° C. Schacht (Ph. Ztg. 95, 24).

Cinnamein. Gehe & Co. state that the two most valuable tests are the p. c. of cinnamein and its saponification number. A good balsam should contain from 57 to 60 p. c. of cinnamein, and the saponification number should be between 235 and 238. (Report, April, 95. Ph. Rdsch. N. Y. 95, 143. Proc. 95, 866.)

"*Balsamum Peruvianum Depuratum.*" Musset proposes to make use only of the benzin-soluble portion of the balsam, considering the several resins as quite valueless. (Ph. Ztg. 95, 113. Ph. Rdsch. N. Y. 95, 91.)

Balsamum Tolutanum.

Nomenclature. Taylor contends that "Balsam of Tolu" is incorrect, and that it should be "Tolu Balsam" or merely "Tolu." (Am. Dr. 93, Nov. 289.)

Chemistry. Oberlaender shows that it is a pathological product, probably from the tannin of the bark. (Arch. Ph. 94, 595. Ph. Rdsch. N. Y. 95, 41. Proc. 95, 866.)

Rosin. Braithwaite proposes to word this test as follows: When 5 parts of the balsam are warmed gently with two successive portions of 25 and 10 parts, respectively, of carbon disulphide, and the solvent decanted into a tared flask, the residue, after the disulphide is distilled off, should be distinctly crystalline, and every 1,000 parts should require for saponification not less than 300 parts of potassium hydrate. (A. J. Ph. 95, 472.)——Schmidt dissolves the residue of the carbon disulphide solution in acetic acid, and adds sulphuric acid. A red color indicates rosin. (Ph. Centralh. 93, 9.)——Hirschsohn rubs the balsam to a fine powder, and shakes vigorously for 10 to 15 minutes with 4 to 5 times its weight of benzin, filters, and shakes the filtrate with an equal volume of a solution of cupric acetate (1:1,000). A green color will indicate rosin. (Ph. Zts. Russl. 95, 514.)

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Turpentine. On adding sulphuric acid, sulphur dioxide is given off, and the balsam blackened. Pure balsam becomes cherry-red. Lucas (Ph. J. & Tr. 94, Febr. 675).

Barii Dioxidum.

Estimation. Squibb modifies the official method as follows: Put 0.211 Gm. of the more or less coarse powder in a porcelain capsule, mix with 2 Cc. of water and 0.6 Cc. of syrupy phosphoric acid (1.70), and stir until a clear or nearly clear solution is obtained. Then add 3 Cc. more of water. Drop into this from a burette, with constant stirring, a volumetric solution of potassium permanganate until a final drop gives a pink tint which is permanent for at least one or two minutes. Note the quantity used. (Ephemeris, 94, Jan'y, 1547.)

Belladonnæ Folia.

Microscopy. Kraemer (Am. Dr. 94, 358. Proc. 94, 938).

Copper. Percentage. (Ph. Ztg. 94, 30. Proc. 94, 566.)

Time of Gathering. Since the flowers contain more alkaloid than the leaves (in the flowering season), should not the time of gathering be mentioned? (Bull. Ph. 96, 153.)

Assay. Should be introduced. A. P. Comm. (A. J. Ph. 95, 484).

By titration. Caspari & Dohme. (A. J. Ph. 93, 477.)

Schwickerath. With modified Prollius' mixture. (Ph. Rdsch. N. Y. 93, 282. Bull. Ph. 93, 535. Proc. 94, 538, and Ph. Rdsch. N. Y. 94, 137.)——Keller. With ammoniated ether-chloroform. (Ph. Ztg. 94, 345. Am. Dr. 94, Aug. 96. Proc. 95, 541.)——Beckurts finds that Keller's method gives uniform results. (Ph. Centralh. 94, 566. Am. Dr. 94, Nov. 328. Proc. 95, 535.)

Value of indicators. A. P. A. Comm. (Kebler). (A. J. Ph. 95, 499. Proc. 95, 192)

Alkaloidal p. c. according to Guenther, Lefort, Dragendorff (A. J. Ph. 93, 479).——Adrian found 11 to 12 Gm. in 100 Kos. fresh stems and leaf stalks, and 32 to 34 Gm. in 100 Kos. herb. (Nouv. Rem. 92, 244. Bull. Ph. 92, 486. Proc. 93, 819.)——Keller found 0.38 to 0.40 p. c. atropine. (Ph. Ztg. 94, 345. Am. Dr. 94, Aug. 96, Proc. 95, 541.)

Standardization of Preparations. Cripps (Ph. J. & Tr. 95, Mrch. 793).

Belladonnæ Radix.

Microscopy. Kraemer (Am. Dr. 94, 358. Proc. 94, 938).

Copper. Percentage. (Ph. Ztg. 94, 30. Proc. 94, 566.)

Gathering. The time of collection should be mentioned. Both Werner and Budde find that the autumnal root contains most alka-

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loid. ("Digest" on U. S. P., 1880, p. 36.)——Schmidt found that the two-year-old root contains no atropine. (Ibid, p. 290.)

Assay Should be introduced. A. P. A. Comm. (A. J. Ph. 95, 484). Schwickerath. With modified Prollius' mixture. (Ph. Rdsch., N. Y., 93, 282. Bull. Ph. 93, 535. Proc. 94, 538), and (Ph. Rdsch., N. Y., 94, 137.)——Keller. With ammoniated ether alcohol. (Ph. Ztg. 94, 345. Am. Dr. 94, Aug. 96. Proc. 95, 541.)——Beckurts finds that Keller's method gives very reliable results. (Ph. Centralh. 94, 566. Am. Dr. 94, Nov. 328. Proc. 95, 535.)

By titration. Caspari & Dohme (A. J. Ph. 93, 477).

Alkaloidal p. c. Guenther, Lefort, Dragendorff (A. J. Ph. 93, 479). ——Adrian obtained 250 to 350 Gm. atropine from 100 Kilos. fresh root. (Nouv. Rem. 92, 244. Bull. Ph. 92, 486. Proc. 93, 819.)—— Keller found 0.66 p. c. (Ph. Ztg. 94, 345. Am. Dr. 94, Aug. 96. Proc. 95, 541.)

Standardization of Preparations. Cripps (Ph. J. & Tr. 95, March, 793.)

Benzinum.

Examination of commercial. McCloskey (A. J. Ph. 95, 364).

Purification. Ekenberg mixes it with 5 to 10 volumes of liquid paraffin, and distils at 60 to 70° C. The paraffin is purified sufficiently for further use by subjecting it to a heat of 120° C. (Ch. Ztg. 94, 1240. Ph. Rdsch. 94, 243.)——Shake for 24 hours with a mixture of 1 part of potassium permanganate, 50 water and 8 sulphuric acid; after separation, shake for 24 hours with 1 potassium permanganate, 50 water and 2 potassa. (Ph. Centralh. 94, 451. Proc. 95, 1064.)

(Last paragraph.) "Odor of bitter almonds"—The reliability of this test is questioned, it being stated that at times an absolutely benzol-free benzin gives off this odor. (Ph. Ztg. 93, 606.)

Benzoinum.

Constituents. Of Sumatra. Salkind (Ph. Post, 93, 330. A. J. Ph. 93, 385. Proc. 94, 945). Luedy (Arch. Ph. 93, 43, 94. A. J. Ph. 93, 224. Proc. 93, 707, & 94, 944).——Of Siam. Luedy (Arch. Ph. 93, 461. A. J. Ph. 93, 459. Proc. 94, 945). Both concur in the view that benzoin is a pathological product, from the tannin of the bark.

Siam. Collection and amount. (Kew Bull. 95. A. J. Ph. 95, 523.)

Should the Pharmacopœia not state the country or commercial appellation? Hirsch (Ph. Rdsch. 93, 238).

Commercial Benzoins. Luedy recommends especially the Palembang for the preparation of benzoic acid, as it is considerably cheaper than the Siam. These two varieties contain only benzoic acid, Sumatra and Penang benzoins (which latter variety is hardly found in commerce) contain in addition not inconsiderable quantities of cinnamic acid. (Arch. Ph. 93, 500, 513. A. J. Ph. 93, 495. Proc 94, 944.)

Benzolum.

Commercial "90 p. c." contains about 70 p. c., and "50 p. c." about 46 p. c. pure benzol. The commercial terms refer to the proportion of the mixture which passes over below 100° C., when the commercial product is distilled. (Ch. & Dr. 95, Mrch, 435.)

Bismuthi Citras.

Objection has been made to the process of the U. S. P. (Evans, Ph. J. & Tr. 86, Jan'y, 602,) that the salt is not entirely soluble in ammonia. Power states that this is due to the presence of chloride or sulphate; a perfectly pure citrate is readily soluble. (Circ. No. 86, p. 400.)

Bismuthi Subcarbonas.

The chemical formula has been omitted, because the subcarbonate is not of constant composition, and the commercial product rarely corresponds with the formula given in U. S. P. 1880. Hirsch (Universal-Ph., p. 210), says that the amount of Bi_2O_3 varies in practice between 82 and 90 p. c. Power (Circ. No. 86, p. 402).

Nitrate Test. Curtman thinks it advisable to state the exact number of drops of indigo solution to be added. (Circ. No. 86, 403.)

Arsenic. In Bettendorf's test the tin-foil should be omitted, since it reduces bismuth as well as arsenic. Curtman (Ph. Rdsch. N. Y. 94, 157. A. J. Ph. 94, 389). And Umney (Ph. J. & Tr. 93, Nov. 439. Proc. 94, 1012).——The words "and a small piece of tin-foil added" have been cancelled.——Janzen contends that a bismuth salt, which does not stand the stannous chloride test, should be rejected, whether the brown coloration is due to arsenic or tellurium. (Ap. Ztg. 94, 519.)——Nagelvoort finds fault with the direction to dissolve in the stannous chloride solution. The proper way is to dissolve in HCl and then add the stannous solution. He states that both the subcarbonate and the subnitrate may be strongly contaminated with arsenic, although the U. S. P. test may appear to show its absence. (Apoth. 95, 184.)

Tellurium. A test should be added. Hoffmann (Ph. Rdsch. N. Y. 94, 182).

Bismuthi Subnitras.

The chemical formula has been left out because of the varying chemical composition. Moerck has shown that the water varies from 2.35 to 2.95 p. c., and the bismuth oxide from 80.35 to 81.85 p. c.

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The salt is not entirely insoluble in water, since water will remove some acid, rendering the salt more basic. Power (Circ. No. 86, p. 405).

Arsenic. Respecting the advisability of leaving out tin-foil, see "Bismuthi Subcarbonas." The words "and a small piece of tin-foil added" have been cancelled.

The light subnitrate contains a certain quantity of subcarbonate. Carles (J. de Ph. & de Ch. 94, 202. Proc. 95, 238).

Tellurium. A test for tellurium should be added. Hoffmann (Ph. Rdsch. N. Y. 94, 182).

Bromum.

Solidifies at 7° C. (Merck, Index, p. 54.)

Specific Gravity. "3.187." (Ibid. p. 54.)

Boiling Point. "63° C." (Ibid. p. 54.)

Curtman examined seven specimens of American bromine and found them to contain traces of a carbon compound (probably CBr_4) and an amount of chlorine varying from 3.40 to 5.13 per cent. Two samples of imported (German) bromine contained 0.53 and 0.68 per cent., respectively. (Circ. 261, p. 1277.)

Bryonia.

Chemistry. Masson (J. de Ph. & de Ch. 93, 300. A. J. Ph. 93, 278. Proc. 93, 644).

Caffeina.

Melting Point. "229° C." Eccles states that the melting point was obtained by means of rising and falling temperature. On a rising temperature Flueckiger & Schmidt's figures were obtained (230 to 230.5° C.), and on a falling temperature 228° C., as the bath can not be made to heat and cool with exact equality. When the thermometer reaches 230° on a descent, the melting point will be below the reading; when it reaches 228° on an ascent, it will be above. Strecker, who obtained 234° to 235° C., evidently worked with a rapid rise. (Circular No. 125, p. 804.)

Estimation. In coffee. Grandval & Lajoux (J. de Ph. & Ch. 93, 545. A. J. Ph. 93, 338. Proc. 93, 832, & 94, 541).——In coffee and tea. Guillot (Ap. Ztg. 93, 132. Proc. 94, 541).——In tea. Sokoloff (Ch. & Dr. 93, 210. Proc. 94, 541).

Sublimes at 235° C. (Merck, Index, p. 57.)

Solubility. In "9" parts of chloroform. Ph. German. (Ph. Ztg. 93, 608).

Caffeina Citrata.

The Committee has information that there still exists much confusion and ignorance regarding the nature of the so-called "citrate

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of caffeine" formerly on the market, on the one hand, and the alkaloid caffeine, and the pharmacopœial "citrated caffeine" on the other hand. Old-fashioned pharmacists, who have known and dispensed *caffeine* under the old misnomer of *citrate of caffeine*, persist in ordering the article under the latter name, and in a majority of cases it is almost certain that the former is wanted. Again, physicians frequently prescribe "Caffein. Cit." in combination with sodium bicarbonate and other substances with which the official citrated caffeine is incompatible, not knowing that a different substance is dispensed now, when "Caffein. Citr." is ordered. And moreover, many of them do not know that "citrated caffeine" contains only 50 per cent. of the alkaloid. All this confusion is regrettable, but the Pharmacopœia can certainly not cater to ignorance and lack of progressiveness. Rice.

Calamus.

In sections of various length, "unpeeled." "How many druggists have the official?" Beringer (A. J. Ph. 93, 522). Would it not be better to transfer the "unpeeled" to the description?—"The unpeeled rhizome."

Calcii Bromidum.

Identity. There is no occasion to be so sparing with the chlorine water in this test (sixth paragraph), since it requires 2.5 Cc. of chlorine water to liberate all the bromine from 5 Cc. of a solution of calcium bromide, while in the iodine test it should be used with caution, drop by drop, so that it may not convert the iodine first liberated into ICl_3, which with water rapidly forms HIO_3, which is colorless. Curtman (Circ. No. 112, p. 634).

Curtman also shows that the existence of the hydrate $CaBr_2 + 6H_2O$ is very probable. All the commercial calcium bromide was found to contain more or less of water. (Circ. 258, p. 1268.)

Strontium. Is found in many of the American calcium salts, due to the fact that most of our western and many of the eastern limestones, marbles, etc., contain notable percentages of it. A test might be given. Curtman (Circ. No. 112).

Calcii Carbonas Præcipitatus.

Solubility. Fresenius states the solubility in cold water to be 1:16,600, and 1:8,860 in boiling water. Flueckiger 1:27,777 (26 Mgm. in one liter). The solubility is increased by CO_2 and by ammonium salts, and is almost entirely prevented by alkaline hydrates. Curtman (Circ. No. 112, p. 635).

It is sometimes contaminated with calcium oxide, which may

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easily be detected by moistened turmeric paper. Mylius (Oest. Zeits. 94, 291).

Calcii Chloridum.

Solubility. In water, according to Mulder, 1:509 at 15° C.; Kremers, 1:58 at 15° C.; Hammerl, 1:4 + at 10° C. The crystallized salt, $CaCl_2 + 6H_2O$, at 15° C. 1:0.226, Hammerl. Curtman (Circ. No. 112, p. 636).

No fused calcium chloride can be found which is not at least very slightly decomposed, and thereby rendered partially insoluble in alcohol and water from loss of HCl and formation of CaO. On the manufacturing scale it is impossible to prevent the decomposition. The residue left undissolved should be completely dissolved in dilute HCl. Some manufacturers add at the close of fusing a little ammonium chloride or HCl to prevent the formation of CaO, but these are rapidly volatilized, and it is a mere fortunate accident if fused $CaCl_2$ is obtained anhydrous, and yet absolutely free from CaO. Curtman (Circ. No. 112, p. 637).

Strontium. See the foregoing article.

Calcii Hypophosphis.

Identity. In the test with cupric sulphate (sixth paragraph) it should be stated distinctly that the aqueous solution should be acidulated, else the test does not succeed. Curtman (Circ. No. 112, p. 638).

Arsenic. (Ninth paragraph.) "Nor by an equal volume of hydrogen sulphide" should not the ";" be replaced by a ","? As it stands, it is not rendered imperative to acidulate the solution for the examination for arsenic. Nagelvoort (Proc. 94, 283).

Phosphite. A test for calcium phosphite would appear to be necessary. Roe (Ph. J. & Tr. 93, Dec. 473).

Calcii Phosphas Præcipitatus.

This salt occasionally contains di-calcium phosphate ($CaHPO_4$) in varying quantities, and with some processes of manufacture it will also contain water, which is not entirely given off by drying at 100° C. When freshly precipitated, it is soluble in water 1:12,500, and after ignition 1:30,000. (Voelker.) The official salt differs from that of the Ph. Germ., in that the yellow color by argentic nitrate remains after ignition, while that of Ph. Germ. turns white. Curtman (Circ. No. 112, p. 640).

Most of the salt sold as "U. S. P." is made by dissolving bone-ash in HCl and precipitating with caustic soda, using at last a little ammonia to finish. As soda ash is often used with omission of ammonia,

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and the acid often contains iron, various impurities are introduced. Sometimes phosphorite is employed, or the residue of fertilizer phosphates, which would in addition introduce sulphate. A small limit of chloride should be allowed, for even in the best process ($CaCl_2 + Na_2HPO_4 + NH_3$) chloride may be introduced into the final product. Curtman (Ibid.).

It is for physicians to decide whether the di-calcium phosphate of Ph. Germ. is not to be preferred to the official tri-calcium phosphate. Curtman (Ibid., p. 641).

(Eighth paragraph). Ammonium molybdate test. Nagelvoort protests against the use of a "gentle heat," stating that the heat changes the phosphoric acid reaction into an arsenic reaction. (Apoth. 95, 3. Proc. 94, 283.)

Calcii Sulphas Exsiccatus.

Solubility. The solubility of the crystallized sulphate, with 2 mol. of water, at 15° C. is 1:390, at 38° C. 1:368, and at 100° C. 1:451. Curtman (Circ. No. 138, p. 869).

Calx.

Solubility. Michaelis quotes at 15.6° C.: Wittstein, 1:731; Dalton, 1:778; Maben, 1:780.5. At 99° C.; Maben, 1:1,650. At 100° C.; Wittstein, 1:1,311 to 1:1,495; Dalton, 1:1,270. Lamy shows that great difference exists in the solubility of lime burnt from marble, calcium nitrate and from pure hydrate. From marble at 15° C. 1:769; from nitrate, 1:783; from hydrate, 1:744. Curtman (Circ. No. 112, p. 642).

Sources of Lime. Shells make very good lime, and are extensively used in some parts of the United States. Only few limestones contain baryta, most contain strontia, and a great number of them contain magnesia, alumina and silica. As to marble, only marble from certain restricted localities gives a tolerably pure lime; most varieties of marble contain quite as much impurities as limestone. Curtman (Ibid.).

Calx Chlorata.

Estimation. Curtman prefers to weigh out a larger quantity, to mix thoroughly with water in a large stone jug, then to filter, or decant, and to take out an aliquot part of the liquid. (Circ. No. 112, p. 644.)——A table of the p. c. of chlorine in solutions of various specific gravities. Lunge and Bachofen (Zeits. Angew. Ch. 93, 326. Proc. 94, 579).

Calx Sulphurata.

Examination of commercial. Becker (A. J. Ph. 95, 601).

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Solubility. In 20 parts of glycerin. (Merck, Index, 148.)

Strength. The p. c. of calcium sulphide depends largely on the time of heating. Campbell & Waters (Am. Dr. 95, xxvii, 285).

Cambogia.

Eberhard suggests that at least 75 to 80 p. c. should be soluble in alcohol, and that the iodine test be worded so as to distinguish between traces and appreciable quantities. (A. J. Ph. 96, 374.)

Camphora.

Estimation of camphor, see under "Spiritus Camphoræ."

The list of preparations, containing camphor, is not complete: Add: Linimentum Belladonnæ, Linimentum Sinapis Compositum and Pulvis Morphinæ Compositus. Beringer (A. J. Ph. 93, 523).

Camphora Monobromata.

Nagelvoort proposes a test of identity: Liberate the bromine by nascent hydrogen, and test with chloroform and chlorine. (Apoth. 95, 4.)

Cannabis Indica.

Percentage of copper. (Ph. Ztg. 94, 30. Proc. 94, 566.)

Cantharis.

Assay. Macerate with acetic ether containing a little sulphuric acid, neutralize with barium carbonate, exhaust with acetic ether, distil off the ether, and purify with benzin and alcohol. Dieterich (Helfbrg. Annal. 92, 1. A. J. Ph. 93, 388. Proc. 93, 714, & 94, 959).——Should be assayed for cantharidin, and the p. c. of ash and fat given. Nagelvoort (Apoth. 95, 4).——Portes finds an average of 0.7 to 0.8 p. c. of cantharidin. (Ch. & Dr. 93, 354. Proc. 94, 541.)

Capsicum.

Analysis. Pabst (Arch. Ph. 92, 108. A. J. Ph. 92, 370. Proc. 93, 702).

Capsaicin is found not only in the placenta, but also in the outer red integument. Vedroedi (Ap. Ztg. 93, 626. A. J. Ph. 94, 142. Proc. 94, 938).

Carbo Animalis Purificatus.

Hodgkin, some years ago, thoroughly investigated the different processes for the purification of animal charcoal, and came to the conclusion that none of the official processes gives a product answering the requirements of the respective pharmacopœias. (Year-Book

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92, p. 371.) The animal charcoal he used was composed of 7.773 water, 76.647 ash and 15.580 carbon, equivalent to 83.107 p. c. ash and 16.893 p. c. carbon in the anhydrous substance. After treatment by the Br. Ph. process, he got 0.146 water, 77.042 ash and 22.812 carbon, or 77.155 p. c. ash and 22.845 p. c. carbon (anhydrous). By the U. S. Ph. (1880) process he obtained 0.841 water, 16.008 ash and 83.071 carbon, or 16.12 p. c. ash and 83.88 p. c. carbon (anhydrous). By boiling first with three times its weight of HCl and twice its weight of water, and then with half the above quantity of acid and water, washing and drying at stove heat, he obtained 7.847 water, 13.871 ash and 78.282 carbon, or 15.05 p. c. ash, and 84.95 p. c. carbon (anhydrous).

Markoe experimented with American charcoal (bone-black), one in fine powder containing 83.50 ash, 4.60 water and 11.90 carbon, and the other, granulated, containing 81.20 ash, 7.00 water and 11.80 carbon. He followed the process as given in U. S. Ph. 1890, varying the proportions of acid and water, and the degree and time of heating, as follows:—1) 100 Gm. in fine powder were gently boiled for 14 hours with 200 Gm. acid and 200 Cc. water, then 600 Cc. boiling water added, strained and the charcoal again boiled with 100 Gm. acid and 100 water for 6 hours, strained and washed, then dried at 120° C. The yield was 9 415 Gm. purified charcoal, which gave 2 p. c. of ash. A second trial gave 2.15 p. c. ash. 2) 100 Gm. of the same charcoal was boiled for 36 hours with 150 acid and 750 boiling water, then strained, washed and dried at 120° C. The ash amounted to 6.5 p. c. 3) 100 Gm. of granulated charcoal (No. 10 sieve) was boiled for 3 hours with 175 Cc. acid and 75 Cc. boiling water, then 66 Cc. boiling water added, strained, the charcoal again boiled for 3 hours with 80 acid and 80 boiling water, drained, washed and dried. It gave 4 p. c. ash. Three more experiments with varying amounts of acid, water and time of boiling, were made, giving from 2.1 to 5 p. c. ash (the last with only one boiling). These experiments show that a minimum of ash is obtained by repeated boiling with acid for several hours, thorough washing and drying not under 120° C. (Circ. No. 222, pp. 1192–1194.)

On page 79, line 8, the following change has been made: "Add to it 100 Gm. of Hydrochloric Acid mixed with an equal quantity of Boiling Water." Rice.

Decolorizing Power. Carswell finds that charcoal, as such, possesses no inherent power of decolorizing, this depending partly on the aggregation of cellular spaces, and chiefly on the mineral constituents. He thinks that attempts to purify it are based on erroneous ideas. (Ph. J. & Tr. 93, Jan'y, 615. Proc. 93, 766.)

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Carbonei Disulphidum.

Refractive Index. Edwards (Proc. 93, 150).

Deodorization. Treat with solution of mercuric chloride, decant and filter. (Proc. 93, 763.)

Uses in Analysis. Musset (Ph. Centralh. 93, 737. Proc 94, 1021).

Cardamomum.

The list of preparations, containing cardamom, is not complete. Add Extractum Colocynthidis Compositum, Tinctura Gentianæ Composita and Tinct. Rhei Dulcis. Beringer (A. J. Ph. 93, 523).

Caryophyllus.

Adulterations. Examination. Kraemer (Proc. 94, 159).

Tannin. Nature of it. Peabody (A. J. Ph. 95, 300).

Ash. Should not be over 7 p. c., of which only 1 p. c. should be insoluble in HCl. (Schweiz. Woch. 92 . . . Ph. Centralh. 93, 238.)

Cascarilla.

Should be omitted. Beringer (A. J. Ph. 93, 470).

Catechu.

Gambir. The microscopical examination might serve to distinguish between catechu and gambir. Gambir is obtained from the young twigs, bearing leaves and flowers, of Uncaria Gambir, while catechu is obtained from the central portion of the trunk of Acacia Catechu. Gibson (Ph. J. & Tr. 94, Febr. 624. Proc. 94, 900). See also Cæsar & Loretz (Ph. Centralh. 4, 536. Proc. 95, 864).

Caulophyllum.

A fluid extract is wanted. Beringer (A. J. Ph. 93, 470).

Cera Alba.

Is the specific gravity of white wax correct? Ch. & Dr. states that no natural wax approximates 0.970. Parry & Estcourt found only 0.962 to 0.963. It is proposed to make the numbers 0.960 to 0.964. (Ch. & Dr. 94, Nov. 645 & 692.)

Cera Flava.

Chemistry. Mangold. (Ch. Ztg. 92, 709. A. J. Ph. 92, 533. Proc. 93, 726.)

Tests. Buchner, while he acknowledges that Huebl's method is rapid and gives constant results, objects that a mixture of 35 parts of stearic acid, 165 parts of Japan wax, and 300 parts of ceresin gives

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the same figures. (Ch. Ztg. 93, 918. A. J. Ph. 93, 380. Proc. 94, 955.)

Kebler arrives at the result, that of all the tests proposed, the volume of hydrogen evolved from 1 Gm. of wax (53 to 57.5 Cc.), and the p. c. of hydrocarbons (12.5 to 14.5 p. c.), are the most reliable data securable—the former being vitiated by all adulterants except tallow, and the latter by all except suint-wax. He finds the sp. gr. of pure yellow wax to be 0.960 to 0.964; melting point, 62 to 64° C.; the acid number, 19 to 21 Mgm.; the ether number, 73 to 76 Mgm.; iodine fixed by 1 Gm. of wax, 8 to 11. (A. J. Ph. 93, 593. Proc. 94, 956.)

Kremel examined the various methods proposed, and found that Huebl's method, although not sufficient, is still the most reliable, but must be supplemented with the specific gravity and with special tests for stearin, rosin and Japan wax. (Oest. Zts. Ph. 94, 626. Ph. Rdsch. N. Y. 94, 255. Proc. 95, 894.)

Tallow. Mansfeld proposes to make use of the fact that pure wax contains no glycerin. Saponification of the suspected sample, and splitting off the glycerin by dilute sulphuric acid. (Ph. Centralh. 94, 596. Proc. 95, 894.)

Paraffin. Nagelvoort points out that the direction of U. S. Ph. (sixth paragraph) to "dilute with water" is rather dangerous, and should read: "Pour the mixture into a large quantity of water." (Apoth. 95, Nov. 49.)

Examination of commercial. Parry & Estcourt (Ph. J. & Tr. 93, Sept. 189. Am. Dr. 93, Sept. 158. Proc. 94, 956).

(Cerata.)

Boa objects to the stirring while cooling, because it will introduce a quantity of air, thus promoting rancidity. He proposes to allow it to cool, and then to triturate beginning at the surface. (P. J. & Tr. 94, April, 861.)

Ceratum.

In view of the great variations in temperature between winter and summer, and the difference in this respect between Northern and Southern States, it would be well to make an allowance in the proportion of the wax.

Ceratum Cantharidis.

The activity is greatly increased by the addition of an acid to the flies. For every 250 Gm. of the powdered cantharides Dieterich adds to the melted mass 1 Gm. of sulphuric acid and 10 Gm. alcohol (90 p. c.), keeps the mass for two hours at 70° C., and finally

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adds 2 Gm. of barium carbonate rubbed up with 6 Gm. of alcohol. (Ph. Centralh. 92, 425. Proc. 93, 416, & 558.)

"Occasionally stirring" (p. 84, U. S. Ph.). Caspari advises to stir continuously. (Pharmacy, p. 379.)

Cerii Oxalas.

(Sixth paragraph.) Behavior toward potassium hydrate. On this behavior is based the distinction from aluminum and zinc, both of which are soluble in potassa. (See last paragraph.) The "National Dispensatory" has an erroneous statement that cerium oxalate is soluble in boiling potassa. Curtman (Circ. No. 93, p. 449).

Cetaceum.

Constants. Kebler finds that the constants of the U. S. Ph. are those of cetin and not those of cetaceum. The melting point of cetaceum varies from 48.9 to 55.5° C.: the specific gravity from 0.905 to 0.945 at 15° C.; the saponification number from 125.8 to 134.6; and the acid number varies with the age. (A. J. Ph. 96, 10.)

"Odorless." There is a faint, peculiar odor.

If the alcoholic solution be mixed with an equal quantity of water, no copious precipitate must be caused. German Comm. (Apoth. Ztg. 94, 176.)

Chloral.

The title is not exact. It should be "Chloral Hydras." A. P. A. Comm. (A. J. Ph. 95, 484. Proc. 95, 240.)

(Fifth paragraph.) "Alcoholic solution permanently neutral." Ph. Germ. says "a faint reddening appears on drying the litmus paper." Hirsch states that the acid reaction of the aqueous solution disappears on adding alcohol, and the alcoholic solution acquires an acid reaction on the addition of water. (Ph. Rdschau. N. Y. 93, 241.)

Alcoholate. Hirschsohn states that Lieben's iodoform test hardly indicates 5 p. c., and recommends Ankum and Schaer's nitric acid test, which indicates 1 p. c. Pour 1 Cc. nitric acid (1.38) over 1 Gm. chloral hydrate: a yellow color should not appear within 10 minutes, even when the mixture is warmed. (Ph. Ztg. Russl. 93, 817. A. J. Ph. 94, 141. Proc. 94, 1201.)

Boiling point, 97° C. (Merck, Index, 67.)

Chloroformum

Refractive Index. Edwards (Proc. 93, 150).

Preparation. From acetone and sodium chloride by electrolysis. (J. de Ph. & Ch. 93, 276. W. Dr. 93, 149. Proc. 93, 909.)

Decomposition. Biltz recapitulates the essential facts regarding the

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decomposition of strictly pure, alcohol-free chloroform, which facts are often lost sight of by the different claimants for "pure" chloroform. He lays especial stress on the fact that the preservative power of alcohol is only relative, commensurate with the proportion employed, and can not replace the keeping in a dark place.——Squibb states, that with ordinary precautions the presence of 1 p. c. of alcohol guarantees for several years. (Ph. Rdsch. N. Y. 93, 152. A. J. Ph. 93, 354.)——Brown takes issue with Biltz respecting the statement that "decomposition products cannot be detected until all the added alcohol has been consumed," and further "that the decomposition products give reactions similar to those of alcohol." (Ph. J. & Tr. 95, Mrch. 836. Proc. 95, 1066.)

Specific Gravity. 1.502. (Merck, Index, 68.)

Preservation. Allaire proposes to preserve it by the addition of $\frac{1}{1000}$ part of sulphur. (Ph. J. & Tr. 95, Sept. 261.)——Dott comes to the conclusion that the addition of any substance which is prone to oxidation (and soluble in chloroform) will prevent or at least greatly retard decomposition. (Ph. J. & Tr. 96, Mrch. 249.)

Purification. "Avoiding exposure to bright daylight during 24 hours," it would be better to direct the mixture to be kept "in a dark place."——"Distil at a temperature not exceeding 67.2° C." The last Pharmacopœia (1880) had the direction more correctly so, that "the temperature in the retort does not rise above 67.2° C." Hirsch (Ph. Rdsch. N. Y. 93, 242).——Ekenberg mixes chloroform with 5 to 10 volumes of liquid paraffin, and distil at 60 to 70° C. On heating the paraffin to 120° C. it will become sufficiently purified for further use. (Ch. Ztg. 94, 1240. Ph. Rdsch. 94, 243. Proc. 95, 1067.)

Alcohol. Nagelvoort proposes to introduce a table calculating the p. c. of alcohol from the specific gravity. He refers to Schmidt's "Lehrbuch." (Apoth. 95, Nov. 51.)

Tests. Brown prefers to use ZnI and starch to baryta water (sixth paragraph). (Ph. J. & Tr. 93, Mrch. 792. A. J. Ph. 93, 241. Proc. 93, 912.)——Squibb gives detailed directions for applying the official tests, as follows:

(Fourth paragraph). "The porcelain or glass plate is made so warm that it can just be held in the hands." Proceeding according to the Pharmacopœia, "just as the last greasy look disappears from the filter paper, it is subjected to the sense of smell with close observation. The first inhalation may give too much chloroform, but the next will give the foreign odors."

(Fifth paragraph.) Shake the chloroform and water for five minutes. After complete separation, pour off about 5 Cc. into a testtube and, after testing with litmus paper, add four drops of argentic

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nitrate solution, and stir with a clean glass rod (shaking with the thumb over the tube-mouth, introduces cutaneous secretions). Look down through the long axis of the tube. As this test is hyper-sensitive, a slight degree of opalescence may be disregarded. Into another test-tube pour a fresh portion of the wash-water and add 1 Cc. of potassium iodide solution. Chlorine is indicated by a more or less pronounced yellowish-green tint.

(Seventh paragraph.) The chloroform and acid should not be left in contact longer than is necessary for the shaking and separation, because under favoring conditions of light and air, traces of the products of decomposition will very soon appear.

(Eighth paragraph.) A slight odor of india-rubber or gutta-percha is not uncommonly met with, but when not too pronounced, is unobjectionable. (Ephemeris, 94, pages 1434 to 1439.)

In the directions, under "Purification," the receiver need not be tared, as the distillate is received up to a certain volume.

Chrysarobinum.

Solubility. Millard finds that commercial chrysarobin is soluble only to the extent of 60 p. c. in hot alcohol. (Ch. & Dr. 93, 174. Proc. 94, 900.)

Cimicifuga.

Microscopical structure. Bastin (A. J. Ph. 95, 121).

Cinchona.

Hartwich calls attention to two false barks, one a Ladenbergia and the other the former "China Trujillo," now called "Cinchona rubiginosa." (Ph. Centralh. 94, 569. Proc. 95, 878.)

The description of the "quills" (first paragraph) excludes from pharmacy a large quantity of bark of excellent quality, imported in the form of shavings or chips. (Ph. J. & Tr. 93, Sept. 222.)

Rusby calls attention to the fact that Cinchona Calisaya var. Josephiana has been enormously cultivated, and distributed to herbaria, as Cinchona Calisaya: it is not a mere variety, but a quite distinct species. (A. J. Ph. 94, 244. Proc. 94, 926.)

Not only the bark proper, but also the corky layer contains a considerable p. c. of quinine: Java up to 2 p. c. Schaefer (Oest. Zts. 93, 1. Ph. Rdsch. N. Y. 93, 40. Proc. 93, 694).

Copper. Percentage. (Ph. Ztg. 94, 30. Proc. 94, 566.)

Assay. Kuersteiner moistens the bark with a mixture of dilute HCl and alcohol, and after 3 hours macerates with ammoniated ether for 6 hours, extracts the ethereal layer with acidulated water, liberates the alkaloids with ammonia, and shakes out with ether-

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chloroform, weighing the alkaloids. (Ph. Ztg. 92, 750. A. J. Ph. 93, 74. Proc. 93, 404.)

Keller shakes the bark with ammoniated ether, and then proceeds in the main as above. The alkaloids are titrated with $\frac{N}{10}$ HCl. (Oest. Zts. 93, 563 & 586. A. J. Ph. 94, 46. Proc. 94, 532.) Another process with ammoniated ether-chloroform and ammonium chloride, see (Oest. Zts. 96, 154).

Ledden-Hulsebosch. Shake with ammoniated ether-alcohol in his "perforator." To an aliquot part add a little dilute HCl. Evaporate the ethereal liquid, alkalinize with soda, and take up with ether. (Ph. Centralh. 93, 289. Am. Dr. 93, June, 372. Proc. 93, 404.)

Schwickerath. With more or less modified Prollius' mixture (see "General Remarks"). (Ph. Rdsch. 94, 57 & 137. Bull. 94, 56. Proc. 94, 542.)

Ph. Helvetica uses Keller's method, but does not titrate, merely evaporates to dryness and weighs; the alkaloids should amount to at least 5 p. c., and the quinine must be at least 1 p. c. of the bark. (Ph. Rdsch. 94, 66.)

Schmidt uses Ludden-Hulsebosch method, but converts the alkaloids into tartrates by Rochelle salt. (Ph. Centralh. 92, 594. Ph. Era 93, 102. Proc. 93, 405.)

Schneider calls attention to the fact that the alkaloids retain chloroform quite stubbornly, so that the final weight is increased. The remedy is to dissolve the residue in alcohol, when the last traces of chloroform can easily be evaporated. (Ph. Centralh. 94, 18.)

Kebler gives comparative results of the methods of U. S. Ph., Lyons, Haubensack, Kuersteiner, Keller and his own, an ether-chloroform method with ammonia. He comes to the conclusion that methods which direct the shaking of immiscible solvents, containing the alkaloids in solution, with acidulated water, give satisfactory results. Still he prefers the methods of Lyons, Haubensack and his own. He correctly says, that while the pharmacist does not require as elaborate a method as the manufacturer of quinine, yet he should be in possession of a process that yields no less accurate and satisfactory results in a comparatively short time. (A. J. Ph. 96, 79.)

Eschenbach compares the methods of Hager, Schacht, Flueckiger, Squibb, Meyer (Hielbig), Ph. Germ., Ph. Helvet. (Haubensack), and finds that at present no method is known which gives good results with an expenditure of little time and without practical experience. He proposes the following: Boil Flueckiger's mixture of bark and lime with "solvent oil" (petroleum) for one hour, filter off, and treat the residue with ether, mix the two filtrates, distil off the ether, and shake the petroleum in a separator with sulphuric acid water. Evaporate the acid solution, precipitate with soda or sodium

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carbonate, shake with chloroform, which on evaporation gives the pure alkaloids. (Ap. Ztg. 96, 148.)

Emulsionizing. Grandval and Lajoux obviate the inconvenience of the emulsionizing of the chloroformic liquid with acidulated water, by heating the emulsion in a water-bath, when the chloroform will be set free. Filter through a moistened filter, and treat the filtrate with soda in presence of chloroform. (J. de Ph. & Ch. 93, 99 & 152. Proc. 94, 543.)

Preparations. Kremel recommends to macerate, or percolate the bark with the addition of 10 p. c. of lime. This will set free the alkaloids and precipitate cinchona-red and cinchotannin. (Ph. Ztg. 94, 101.)

Cinchona Rubra.

"Not less than 5 p. c. of its peculiar alkaloids." The proportion of quinine should be stated, because red bark varies greatly in this respect. (Ph. J. & Tr. 93, Sept. 222.)

(Cinchonidina.)

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

Cinchonina.

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

(Cinnamomum.)

Key to the microscopical structure of eleven varieties. Pfister (Oest. Zts. 94, 70. Proc. 94, 896. Ph. J. & Tr. 94, May, 941).

Cinnamomum Cassia.

Nature of tannin. Thornton (A. J. Ph. 95, 400).

Ash should not amount to over 5 p. c., of which 1 p. c. should be insoluble in HCl. (Schweiz. Woch. 92 . . . Ph. Centralh. 93, 238.)

Cinnamomum Saigonicum.

This cinnamon is not directed to be used in a single preparation. Beringer (A. J. Ph. 93, 472).

It is stated to be the unscraped bark of Cinnamomum Cassia. The American "Saigon" is the "China Cinnamon" of the London market. Pfister (Oest. Zts. 94, 70. Ph. J. & Tr. 94, May, 942. Proc. 94, 896).

Coca.

Chemistry. Hesse (Annal. No. 271, p. 180. Proc. 93, 670).

Microscopy and analysis. Dohme (Proc. 93, 159).

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A distinction should be made between the leaves of Erythroxylon Bolivianum (Huanuco leaves) and those of Erythroxylon Spruceanum (Truxillo leaves), there being a microscopical difference and a decided difference in the alkaloidal yield. A. P. A. Comm. (A. J. Ph. 95, 484. Proc 95, 240).

Assay. Should be introduced. A. P. A. Comm. (Ibid.)

Comparison of methods of assay: Keller, 0.79 p. c.; Beckurts, 0.265; Schweissinger, 0.505; Thomson, 0.27; Lyons, 0.165; Lyons modified, 0.31. Dohme (A. J. Ph. 95, 489. Proc. 95, 268).——Comparison of different methods: Squibb, 0.67 p. c.; Lyons, 0.516; Marck, 0.485; Pfeiffer, 0.58; Keller, 0.536. Kebler (A. J. Ph. 95, 572. Proc. 95, 339).

Schwickerath. With more or less modified Prollius' mixture (See "General Remarks.") (Ph. Rdsch. N. Y. 93, 284. Bull. Ph 93, 537. Proc. 94, 544.)

Keller. With ammoniated ether, etc. (Ph. Rdsch. Prag. 96, 18.)

Grandval & Lajoux. Treat with ammoniated ether-alcohol, exhaust with ether, etc. (J. de Ph. & Ch. 93, 99 & 152. Proc. 94, 544.)

Indicators. Relative value. Kebler (A. J. Ph. 95, 504).

(Cocaina.)

Technical manufacture and separation from its accompanying alkaloids. Einhorn & Willstaetter (Berichte. xxvii, 1523. A. J. Ph. 94, 397). Criticism by Liebermann (Berichte. 94, 2051. Proc. 95, 999).

Preparation from its salts. Precipitate solution of the hydrochlorate by ammonia, shake with chloroform, separate chloroformic solution, free it from water, and evaporate. Kochan (W. Dr. 92, 380. Proc. 93, 839).

Anæsthetic effect is lost in acid solution, and is most decided in presence of free alkali. Bignon (Ph. Rev. 92, 200. Proc. 93, 838).

Cocainæ Hydrochloras.

Melting Point. Kinzel gives it as 201 to 202° C. (Ph. Ztg. 93, 25. Proc. 93, 839.)——Hesse is inclined to ascribe the high melting point to the use of a sulphuric acid bath. In Roth's apparatus he got only 181.5° C., and not exceeding 186° C. (Annal. 93, 308 & 342. Ph. J. & Tr. 93, Oct. 301. Proc. 94, 1109.)——Francis, on the other hand, contends that the variations observed are rather due to the length of time the heat was applied, and he is inclined to think that this salt has no true melting point, but a variable decomposition point. (Bull. Ph. 93, 541. Proc. 94, 1110.)

Identity. To a solution of 0.02 Gm. in 1 drop of water add 1 Cc.

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of sulphuric acid and 1 drop of solution of potassium bichromate. On heating, the yellowish color changes to green. Schaerges (Ph. Ztg. 93, 602. A. J. Ph. 93, 553. Proc. 94, 1109).

The test with calomel can hardly be regarded as an identity test, since pilocarpine hydrochlorate gives the same reaction. Nagelvoort (Ph. Rdsch. N. Y. 93, 286. See also Proc. 94, 1110).

Zinc. Since Henriques has taken out a patent for extracting cocaine by exhausting the leaves with a solution of a zinc salt, it would become necessary to examine the salts of cocaine for zinc. (Ph. Centralh. 95, 92. Proc. 95, 999.)

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

Coccus.

Adulteration. Texeira found cochineal mixed with extracted cochineal colored with rosaniline, and formed into granules. (Boll. Farm. . . . Merck, Report, 93, 176.)

Codeina.

Constitution of its salts. Goehlich (Ap. Ztg. 93, 95. Ph. J. & Tr. 93, 805. Proc. 93, 841).

The former statement, that this salt does not lose its water of crystallization under 120° C., has been shown to be erroneous by Eccles and Rice. (Circular No. 125, p. 810.)

Tests. Detection of codeine in mixtures, pills, etc. Nagelvoort, who recommends the use of isobutylic alcohol in preference to the amylic alcohol generally employed, being much more agreeable to work with. (Proc. 94, 273 & 277.)

Indicators. Relative value. Kebler (A. J. Ph. 95, 503).——Codeine is alkaline to litmus paper. Hirsch and other authorities.

(Codeinæ Sulphas.)

Might be introduced. Beringer (A. J. Ph. 93, 523).

Colchici Radix.

It is named "Radix" and stated to be a "Cormus." Beringer (A. J. Ph. 93, 472).

Assay. Schwickerath. With more or less modified Prollius' mixture. See "General Remarks." (Ph. Rdsch. 93, 284. Bull. Ph. 93, 537. Proc 94 544.)

Colchici Semen.

Assay. Schwickerath. With more or less modified Prollius' mixture. (Ph. Rdsch. 93, 288. Bull. Ph. 93, 537. Proc. 94, 544.)

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Collodium.

Acetone may replace alcohol and ether, pyroxylin dissolving readily in it. Morrison (Proc. 94, 281).

Collodium Cantharidatum.

Hemm prefers to use ether, and suggests a solution of 4 parts of cantharidin in 1000 parts of flexible collodium. (A. J. Ph. 94, 393. Proc. 95, 554.)

Acetone can be used with advantage to replace the chloroform for the extraction of the cantharides. Morrison (Proc. 94, 282).

"Cylindrical percolator." Caspari recommends a closed percolator with stop-cock. (Pharmacy, p. 285.)

Collodium Stypticum.

Acetone may replace the ether and alcohol. Morrison (Proc. 94, 282).

Colocynthis.

Microscopical examination of powder. Wagner (Proc. 93, 179).

Cultivation in the United States. Sayre (A. J. Ph. 94, 275. Proc. 94, 132 & 876.)

Localization of colocynthidin. Braemer (Ph. J. & Tr. 94, Febr. 623. Proc. 94, 1096).

Confectio Sennæ.

"Separate the coarser portions with the hand, etc." Caspari objects to the direction to use the hand, as unpharmaceutical. When the fruits during digestion are occasionally worked or stirred with a porcelain spatula, or thick glass-rod, there will be no necessity for rubbing through the coarse sieve with the hand. (Pharmacy, p. 335.)

Conium.

Localization of coniine. Clautriau (Ph. J. & Tr. 94, Nov. 355. Proc. 95, 980).

Yield of Alkaloid. If the collection takes place at the proper stage of development, and the fruit is carefully dried, it should yield about 2 p. c. of hydrochlorate. Farr & Wright (Ph. J. & Tr. 93, Sept. 188. Proc. 94, 548).

Assay. Schwickerath. With more or less modified Prollius' mixture, or with a mixture of water, benzin and ammonia (see "General Remarks"). The alkaloid is freed by sodium carbonate. He follows Lilienstrom's suggestion to receive the percolate at once in $\frac{N}{20}$ sulphuric acid, in view of the easy decomposability of coniine, and also

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to let the ether (or benzin) evaporate spontaneously. (Ph. Rdsch. N. Y. 93, 284. Bull. Ph. 93, 537. Proc. 94, 545, and Ph. Rdsch. N. Y. 94, 136 & 138.)

Copaiva.

Distinction between African and South Americam balsams. Umney (Ph. J. & Tr. 93, Sept. 215. A. J. Ph. 93, 544. Proc. 94, 898).

Specific Gravity. 0.950–1.000. (Merck, Index, 75.)

Tests. Kebler arrives at the following conclusions:—The color and the fluorescence or non-fluorescence are of no practical value. The wide range of specific gravity makes that factor practically valueless. The solubility or insolubility are rather uncertain factors, because samples of undoubtedly genuine balsam behave differently. The specific tests for turpentine, fixed oils and paraffin oils are reliable. The ammonia tests are misleading. The acid number cannot be relied on. Hager's test is not reliable with less than 25 p. c. gurjun balsam. The carbon disulphide test is fairly reliable with a moderately large p. c. of gurjun balsam present, although some pure balsams give a nearly similar color. The glacial acetic acid test is perfectly reliable, even when not more than 5 p. c. of gurjun balsam be present. He finds that gurjun balsam is even more variable in composition than copaiva. (A. J. Ph. 95, 397.)

Gurjun balsam. 1) Add 2 to 4 drops of the suspected balsam to 1 or 2 Cc. of a solution of 1 Gm. pure sulphuric acid in 25 Gm. pure acetic acid. No red or violet color should be produced. Pure copaiva gives only a yellow or pale-brownish color. Ten p. c. can easily be detected (Hager's test). 2) Shake the balsam with 3 to 4 volumes of water, filter through a wetted filter, and mix the filtrate with an equal volume of HCl (1.12). No red color should appear within 15 minutes. Pure copaiva does not change. Hirschsohn (Ph. Ztg. Russl. 93, 673. A. J. Ph. 94, 36. Proc. 94, 900).——Add 4 drops of pure nitric acid (1.42) to 1 Cc. of glacial acetic acid in a test-tube, mix well, then add carefully 4 drops of the balsam on top. In presence of gurjun balsam a reddish zone will be observed within a few minutes between the balsam and the acids. On shaking, the whole assumes a reddish or purplish color. Dodge and Olcott (A. J. Ph. 95, 396).——To a mixture of 4 Cc. of acetic ether and 2 drops of sulphuric acid add 6 to 8 drops of balsam; no red or violet color should be noticed within 15 minutes. If no distinct coloration is noticed, add a small drop of water, and shake: no red-colored precipitate must appear. Ennel (Ph. Centralh. 95, 460. Ph. Rdsch. N. Y. 95, 217).——Boil a mixture of 1 volume of balsam, 3 of alcohol and 1 Gm. of stannous chloride until solution is effected. Ten p. c. of gurjun balsam gives an intensely red color,

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which within 30 minutes changes to violet and blue. Hirschsohn (Ph. Ztg. Russl. 95, 500. Ph. Rdsch. N. Y. 95, 265).

Rosin. Mix 1 part of balsam with 10 parts of ammonia. A more or less turbid mixture results, which must not within one day gelatinize, nor separate a jelly. Germ. Ph. Comm. (Oest. Zts. 94, 267.) ——Cæsar and Loretz hold that this test is indispensable. (Ph. Rdsch. Prag. 93, 889.)——Hirschsohn points out that the ammonia test does not hold good with all kinds of rosin. (Ph. Zts. Russl. 95, 516.)

Castor Oil. Pure balsam, dropped into water, forms round drops; in presence of castor oil the drops are egg-shaped, the point upward, and provided with a small, clear bubble, which is the castor oil. Warm water hastens the separation. (Ph. Centralh. 95, 495. Ph. Rdsch. N. Y. 95, 241.)

Fixed Oil. Add 1 or 2 Cc. of a solution of 1 part of soda in 5 parts of alcohol to 20 or 40 drops of balsam, boil up several times, and, after cooling, add twice the volume of ether. A jelly will indicate fixed oil. Hirschsohn (P. Zts. Russl. 95, 498).

Paraffin Oil. Add 1 Cc. of the balsam to 4 Cc. of 95 p. c. alcohol in a test-tube, and shake well. Suspend the tube in boiling water until the contents begin to boil. Paraffin oil will separate and sink to the bottom. Kebler (A. J. Ph. 95, 395).

Lime test. Musset considers it very valuable. Equal parts of stiff paste of lime (with water) and balsam yield a crumbling mass, which on warming becomes friable. (Ph. Centralh. 93, 720. Proc. 94, 897.)

Solidification. Since the balsam is officially directed only for the "Mass," a test for solidification should be added.——Snow states that the power to solidify is in direct ratio to the p. c. of resin; less than 48 p. c. of resin gives an unsatisfactory mass. (W. Dr. 92, 325. Proc. 93, 669.)

Creosotum.

It should not darken on exposure to sunlight. Ph. Germ. (Ph. Rdsch. N. Y. 93, 281.)

Boiling Point. 205 to 220° C. (Merck, Index, 79.)

Solubility in water increased by quillaia tincture. Carles (Rep. de Ph. 93, 199. A. J. Ph. 93, 389. Proc. 93, 566).

Emulsion with casein saccharate. Leger (Union Ph. 93, 297. A. J. Ph. 93, 452. Proc. 94, 563).

Pills. With licorice, soap and acacia. England (A. J. Ph. 95, 331. Proc. 95, 591).——Benzoin, borax, glycerin, etc. Goetting (Ph. Rdsch. N. Y. 94, 34. Proc. 94, 593).——Magnesia, extract of licorice, etc. Dieterich (Ph. Centralh. 93, 633. Proc. Ibid.).——Tolu. Stern (Ph. Post, 94, 122. Proc. 94, 595).——Licorice root and

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glycerin. Vulpius (Ph. Era, 93, 509. Proc. Ibid.).——Acacia and glycerin. (W. Dr. 93, 364. Proc. Ibid.)——List of excipients proposed. (Am. Dr. 94, 248. Proc. 94, 596.)

Creta Præparata.

It will not do to exact too great a purity from prepared chalk; a little more or less of magnesia may be allowed, hence the present allowance of "not very turbid" instead of the former "not more than faintly turbid." Nor is it necessary to be very strict in regard to strontium carbonate, which occurs in traces in many chalks. But barium should be rigidly excluded, the more so as there are beds of witherite (barium carbonate) occurring in some parts of the country which look very similar to chalk, and might be mistaken for it, and thus furnished as raw material to careless grinders. It may be possible that gypsum, kaolin and barytes have been used as adulterants, but it is unlikely that the practice is general, for they are higher in price than the crude chalk, which fact is a sure preventive. Curtman (Circ. No. 112, p. 649).

Crocus.

Ash. The amount allowed is probably too high. It might have been added that the ash is "non-fusible." Beringer (A. J. Ph. 93, 523).

Barclay gives a table with the p. c. of moisture and of ash of 33 samples. (P. J. & Tr. 94, Febr. 693. Proc. 94, 892.)

Adulterations. Vinassa has published a very comprehensive and detailed investigation of possible adulterants. (Arch. Ph. 92, 353. Proc. 93, 657.)——Ranvez calls attention to an adulteration with the stamens. (Ph. J. & Tr. 95, Febr. 644.)——Flour is best detected by microscopical examination in fixed oil. Herz & Hanausek (Ph. Ztg. 93, 40. A. J. Ph. 93, 134. Proc 93, 656).——"Feminell" is generally colored with logwood. Moisten a few fibres with water, and rub off on a piece of white paper. Pure saffron gives a yellow stain, feminell a purplish-red. Brierre (Ph. Post, 95, 568).

Cubeba.

Description of false berries, or at least the distinguishing color reactions might be given. Beringer (A. J. Ph. 93, 523).

Spurious berries. Holmes (Ph. J. & Tr. 92, Aug. 121 & 93, April 846, and Brookes Ph. J. & Tr. 93, Mrch. 734. A. J. Ph. 92, 494, & 93, 303. Proc. 93, 685, 686).——Ten different varieties. De Wevre (Oest. Zts. 95, 121. Ph. J. & Tr. 94, Oct. 314, & 95, Mrch. 95, 757 & 797. Proc. 95, 873).——Classification of true and false. Nogl (Ph. Post, 94, 481. Proc. 95, 873).

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Commercial cubebs appear to be chiefly the ripe fruit. Emanuel (A. J. Ph. 94, 360. Proc. 95, 873).

Comparative action of different solvents (ether, acetone, alcohol, benzin). Hyers (A. J. Ph. 95, 519).

Cupri Sulphas.

The crystals are transparent and not merely translucent; it is easy to read print through a crystal of 5 Mm. thickness. It is not exactly "almost insoluble" in alcohol, the solubility being about 1:400 at 15° C. It is completely decomposed at nearly a white heat, a "red heat" not being sufficient. The efflorescence takes place in *very* dry air. After dehydration, the white powder attracts from moist air its full $5H_2O$ again. Curtman (Circ. No. 112, p. 651).

Soluble in 3.5 parts of glycerin. (Merck, Index, 77.)

Iron. Pour 5 Cc. of a 10 p. c. ethereal solution of salicylic acid upon 5 Cc. of a 20 p. c. solution of cupric sulphate. In presence of iron a violet color will appear at the point of contact. Griggi (Boll. Farm. 93, 549. Ph. Centralh. 94, 28. Proc. 94, 1024).

(Cuprum.)

Identity. If to a solution, too dilute to give a sensible reaction with potassium ferrocyanide, be added a solution of potassium iodide, a yellow coloration is produced, which becomes violet with starch paste. This test shows as little as 1:500,000. Thoms (Zts. Analyt. Ch. 94, 464. Proc. 95, 944).

The smallest traces of copper in solutions are shown by dropping into the acidulated solution finely powdered potassium ferrocyanide. Each particle will be found surrounded by a red zone. Kral (Ph. Centralh. 94, 411).

Jawarowski adds an excess of ammonia to 5 Cc. of the liquid to be examined, and 1 to 2 drops of carbolic acid. Shake well, and let stand for a half hour. (Ph. Zts. Russl. 96, 83.)

Add one drop of the liquid in question to 1 Cc. of concentrated hydrobromic acid, when the liquid will become colored violet to deep purple, according to the quantity of copper present. Hydrobromic acid may be replaced by potassium bromide and syrupy phosphoric acid. It will then be necessary to heat and again allow the liquid to cool, before judging of the color. Shows $\frac{1}{10}$ Mgm. Sabatier (Bull. Soc. Ch. 94, 683. Ph. Rdsch. N. Y. 95, 162. Proc. 94, 1024, & 95. 945).

Cusso.

Adulteration with male flowers should be noticed. Of late, bundles appear to become scarce; a good deal of the cusso comes loose. Meyer & Sandlund (Ph. Ztg. 93, 99. Proc. 94, 925).

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(Digitalinum.)

Really pure digitalin (Boehringer & Sons). Virliana (Arch. Ph. 92, 250. Proc. 93, 845).

Test of digitalin granules. Color reactions on addition of sulphuric acid alone, and in combination with ferric chloride, HCl and phosphoric acid. Nagelvoort (Ph. Rdsch. N. Y. 94, 86. Proc. 94, 598).

Digitalis.

The leaves should be deprived of the stems and the large midrib, in which case they contain about 0.1 p. c. digitalin; the stems and midrib contain only 0.051 p. c. Collected after flowering, in September, the leaves contain only traces. Duquesnel (J. de Ph. Lorraine . . . W. Dr. 92, 463. Proc. 93, 701).

The leaves should be dried over unslaked lime, in order to retain their activity. Falkenberg (Ph. Ztg. . . . Proc. 93, 700).

Alkaloids. Kiliani finds that the glucosides of the leaves are different from those of the seeds. (Arch. Ph. 95, 310. Ph. Rdsch. N. Y. 95, 218.)

Elaterinum.

"Slightly acrid, bitter taste." The taste is "very" bitter. (Merck, Index, 88.)

(Elixirs.)

The U. S. Ph. might have recognized more elixirs. Beringer (A. J. Ph. 93, 524).

Emplastrum Belladonnæ.

The strength of 1:5 is rather excessive, and might give rise to unpleasant symptoms. (Ph. J. & Tr. 93, Sept. 243.)

Cripps proposes a strength of 0.5 p. c. of the alkaloids. (Ph. J. & Tr. 95, Mrch. 795. Proc. 95, 560.)

Emplastrum Plumbi.

Would it not be advisable to direct the evaporation of at least some of the water with which the plaster was kneaded for the purpose of removing the glycerin? Hirsch (Ph. Rdsch. 93, 252).

Emulsum Amygdalæ.

"Should be freshly made, when wanted," would not be out of place. The addition of acacia is superfluous, as every German pharmacist knows.

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Emulsum Chloroformi.

"15 Gm." of tragacanth is greatly in excess of what is needed.

Caspari proposes to reduce the quantity by one-third. (Pharmacy, p. 294.)

(Emulsum Oleosum.)

A formula for this emulsion might be given. Beringer (A. J. Ph. 93, 519).

Ergota.

Relative Value of the Commercial Varieties. Dohme puts the Spanish at the head of the list, then the German, and lastly the Russian. (A. J. Ph. 95, 487. Proc. 95, 263.)——Keller puts it thus: Russian, Austrian, Spanish, German, Swiss. (Schweiz. Woch. 94, 121. Am. Dr. 94, 97. Proc. 95, 544.)——Beckurts has: Russian, Austrian, Spanish, German. He finds that the larger "spurs" contain less active matter than the smaller. (Oest. Zts. 96, 33.)

Assay. Keller removes the oil with benzin, and shakes the dry powder with ether and milk of magnesia. The ethereal solution is shaken with acidulated water (0.5 p. c. HCl), and the acid solution with ammonia and ether. The ethereal solution is then evaporated and weighed He prefers to call this alkaloid "cornutin," and he finds that it is much more stable than generally supposed, a properly packed and kept powdered ergot keeping undecomposed for a year. (Ph. Ztg. 94, 361. Ph. Rdsch. N. Y. 94, 113. Proc. 95, 542.) See also (Ph. Rdsch. Prag. 96, 177, 193, 209, 225. Ph. Ztg. 96, 143.) Keller found that Kobert's cornutin is a transformation product of ergotinine and produced by the action of acids, being identical with Tanret's ergotinine. (Ph. Rdsch. Prag. 96, 210. Ph. Ztg. 96, 143.)

Test for Ergotinine. Shake powdered ergot vigorously with ether, and filter after 15 minutes. Add to the filtrate about ten drops of hydrochloric acid ether (5 Cc. HCl and 100 Cc. ether, let stand to separate and pour off the ether) when hydrochlorate of ergotinine is precipitated. Wash with a little ether, and dissolve in 2 Cc. of glacial acetic acid. Pour this on top of sulphuric acid, and add a trace of ferric chloride solution, when a splendid blue color will appear. (Schweiz. Woch. 95, 303.)

Eriodictyon.

Microscopy. Ritter (A. J. Ph. 95, 565).

Eucalyptol.

Specific gravity. Should not be below 0.925. Barbour (Ph. J. & Tr. 95, April, 885).

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Euonymus.

A fluid extract is suggested. Beringer (A. J. Ph. 93, 526).

Eupatorium.

Analysis. Kaercher (A. J. Ph. 92, 510. Proc. 93, 638).

Eupatorin. Preparation, properties and chemistry. Shamel (Am. Ch. J. 92, 224. A. J. Ph. 92, 511. Proc. 93, 847).

(Extracta.)

The fresh stems and stalks yield a greater amount of extractive matter than the fresh leaves, which is contrary to the general belief. Extracts, obtained by treating the unfiltered expressed juice of the fresh leaves with alcohol, etc., are richer in alkaloids than when the juice is filtered previous to treatment. Ranwez (Nat. Dr. 95, 181. Proc. 95, 564).

"Pilular" Consistence. This very indefinite term bears no definite relation to the crude drug. It is therefore proposed to make dry extracts, either of full strength or suitably diluted, according to the nature of the extractive matter. (Bull. Ph. 95, 535.)

Powdered Extracts. A line of them is needed. Beringer (A. J. Ph. 93, 470).——Hallberg proposes to let these extracts represent four times the drug, for which he suggests the name of "Quatracta." The powdered extracts of the market are variable in strength and certainly not equal to the solid extracts. (W. Dr. 94, 321. Proc. 94, 244.)——Squire & Conroy suggest the use of calcined magnesia as absorbent in making powdered extracts. About 10 p. c. of the weight of a pilular extract will be sufficient. (Caspari, Pharmacy, p. 269.)

Glycerin. "Ten p. c." (U. S. Ph., p. xlii), of glycerin to keep extracts soft, is probably too much for most extracts. "5" p. c. would be sufficient. Beringer (A. J. Ph. 93, 525).

Menstrua. Is there any necessity or advantage in using different menstrua for extracts and fluid extracts of the same drug? A change in menstruum would imply a change or difference in the proximate principles dissolved. See also Macpherson (Ph. J. & Tr. 94, Mrch. 782).——Squibb proposes acetic acid (60 p. c.), especially for drugs containing volatile oils and aromatic resins. If considered necessary, the excess of acid may be approximately neutralized with an alkali. (Ph. Rdsch. N. Y. 93, 40. Proc. 93, 418.) See also Thompson (A. J. Ph. 94, 600).——Hallberg finds 94 p. c. alcohol and methyl alcohol poor menstrua, and speaks highly of a mixture of 75 Cc. alcohol and 25 Cc. chloroform. (W. Dr. 94, 321. Proc. 94, 244.)

Ointments. Rother proposed years ago to heat equal parts of ex-

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tract, water and glycerin until the evaporation of the water. Being half strength, double the quantity is to be taken. (Ph. Era, 94, 350. Proc. 94, 566.)

Copper. Percentage. (Ph. Ztg. 94, 30. Proc. 94, 566.)——Hell states that copper will be found in nearly all drugs, and that therefore complete absence should not be demanded. The usual test with polished steel indicates in aqueous solutions 1:500,000, but in solution of extracts only 1:5,000 to 1:20,000. (Ph. Ztg. 94, 237, 370.)

Standardization. La Wall proposes to make an extract with a menstruum containing less alcohol than the official, assay it, and use this weak extract to correct the stronger one. (A. J. Ph. 96, 369.)

Assay. Dieterich relies on the p. c. of moisture, ash and potassium carbonate in the ash. (Ph. Rdsch. Prag. 93, 792, & Ph. Centralh. 94, 608. Proc. 95, 564.)

Schwickerath recommends three methods, to be used according to the peculiar nature of the drug. 1) The extract is disintegrated thoroughly with dilute sulphuric acid, filtered into a "perforator" (Ledden-Hulsebosch), washed with ether, or ether-chloroform, ammonia added and extracted ("perforated") with ether, or other ethereal liquid. The ethereal solution is evaporated to dryness, and the alkaloids dissolved in $\frac{N}{20}$ sulphuric acid. Excess of acid is titrated with $\frac{N}{100}$ Na, cochineal being used as indicator. 2) Dissolve the extract in dilute alcohol, mix with oak sawdust, and allow the alcohol to evaporate. The dry mixture is shaken for several hours with a dilute Prollius' mixture. Filter off an aliquot part, mix with water and dilute sulphuric acid, and proceed as above. (Ph. Rdsch. N. Y. 93, 283. Bull. Ph. 93, 535.) 3) As above, but replacing the ether with benzin, and the ether-chloroform with benzin-chloroform, also in Prollius' mixture. The advantages are, not only decrease of cost, but avoidance of water in the alkaloidal solution, thus facilitating the drying. (Ph. Rdsch. 94, 57, 136. Bull. Ph. 94, 246. Proc. 94, 533.)

Itallie modifies his former method (see "Digest on U. S. P. 1880," p. 297, under Extractum Aconiti) as follows:—The filtrate from the lead precipitate is shaken with ammoniated ether-chloroform, the ethereal liquid separated and titrated. (Ph. Post, 95, 236. Proc. 95, 545.)

Beckurts dissolves the extract in an ammoniated mixture of 1 part of alcohol and 2 of water, and shakes the solution out with three different portions of chloroform. Evaporate to dryness, and dissolve the alkaloids in excess of $\frac{N}{10}$ HCl, re-titrating with $\frac{N}{100}$ alkali. He admits, however, that Schweissinger-Sarnow's method is to be preferred, as being more convenient. This method is as follows:—Render the aqueous solution of the extract alkaline with ammonia,

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and shake out once with a mixture of 15 parts of chloroform and 25 parts of ether. Allow to separate, pour off one-half of the ethereal solution, evaporate and titrate with acid. (Ap. Ztg. 94, 661.) Beckurts finds the shaking-out method easier than the precipitation method. Emulsionizing is avoided by either method by shaking the ammoniated alcohol solution with chloroform. (Ap. Ztg. 94, 600.)

Liljenstroem modifies Dieterich's method by substituting infusorial earth for the lime, in consequence of which any menstruum may be employed. The extract is dissolved or rubbed with water or alcohol, mixed with an excess of solution of subacetate of lead, and sufficient infusorial earth added to absorb all moisture. Percolate with ether, chloroform, etc. (Ph. Ztg. 94, 493.)

Dieterich finds that the only practical assay methods are those of himself (Helfenberger ether-lime methods), Schweissinger-Sarnow, and Van Ledden-Hulsebosch. Schweissinger-Sarnow's is the easiest, unless very exact results are desired, in which case his own method is preferable. (Oest. Zts. 95, 242.)

Keller speaks equally favorably of Schweissinger-Sarnow's method. (Schweiz. Woch. 92, 501, 509. Proc. 93, 402.)

(**Extracta Fluida.**)

Fluid Extracts vs. Tinctures. England comes to the conclusion that it is not possible to make fluid extracts which, on proper dilution, yield products identical with tinctures. (A. J. Ph. 93, 438. Proc. 94, 657.) He also gives a table, showing discrepancies between dose and strength of fluid extracts and the corresponding tinctures. (A. J. Ph. 93, 445.)

Menstrua. Is there any valid reason for the difference in menstruum directed for extract and fluid extract of the same drug? A difference in menstruum should make a difference in the proximate principles extracted.——Patch shows the effect of various menstrua (Proc. 93, 84).——Havenhill gives the solvent power of alcoholic menstrua of various strength, and shows that there is no relation between p. c. of alkaloids and p. c. of extractive. (Proc. 94, 167.)

Acetic Acid. Comparison of yield of extractive and alkaloid by the use of officinal menstruum and a 15 to 18 p. c. acetic acid. (Proc. 94, 671.)

Salt. Bernegau recommends a 2 p. c. solution of sodium chloride as a much better menstruum for some drugs than water. (Ph. Ztg. 95, 309. Ph. Rdsch. N. Y. 95, 137. Proc. 95, 492.)

Strength. Ebert and Martindale plead for 50 p. c. fluid extracts. (Proc. 93, 84.)

Commercial. Examination. Russell (Proc. 92, 419), and Haussman (A. J. Ph. 95, 291. Proc. 95, 564).

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Glycerin. Desvignes deprecates the use of glycerin in the menstruum, and also the use of a fine powder. Glycerin may be added to the evaporated second percolate wherever turbidity on mixing with the first percolate is likely to occur, but very little will suffice. He collects the first $\frac{4}{5}$, percolates to exhaustion, and evaporates this second part to $\frac{1}{5}$, when it is mixed with the first portion, and, if necessary, a small quantity of glycerin added. Filter after an absolute rest of 4 to 5 days. (Merck, Report, 93 . . . Proc. 94, 565.)

Estimation. Remove coloring matter by lead subacetate, acidulate filtrate with dilute sulphuric acid, and precipitate with phosphotungstic acid. Filter, add soda in slight excess, evaporate to syrupy consistence, and extract the glycerin with ether-alcohol. A loss of about 5 p. c. is unavoidable. Linde (P. Centralh. 94, 39. A. J. Ph. 94, 141. Proc. 94, 565).

Dextrin and Glucose. The use of these two substances to replace glycerin, and of acetic acid to replace part of the alcohol, are suggested by A. P. A. Comm. (A. J. Ph. 95, 484. Proc. 95, 239).

Alcohol. Recovered in a water-bath by the use of a cone-shaped condenser (which is the well-known Hager's "Dunstsammler"). It is stated that the alcohol can be recovered by slowly heating to 60° C. Bird (Ph. J. & Tr. 95 . . . A. J. Ph. 95, 472).

Assay. By titration more accurate than by the gravimetric method. Caspari & Dohme (A. J. Ph. 93, 473. Proc. 93, 118).——Controverted by Farr & Wright (Ph. J. & Tr. 94, Aug. 125. A. J. Ph. 94, 461).

Methods of Lyons, Lloyd, Thompson and Beckurts compared. Dohme (A. J. Ph. 93, 478).

Stieglitz. Uses a modification of Prollius' mixture. (Ph. Rdsch. N. Y. 92, 181. Proc. 93, 418.)

Schwickerath. Evaporates the fluid extract at a moderate heat, or, better, in a vacuum exsiccator in the cold, and then proceeds as given under "Extracta." (Ph. Rdsch. N. Y. 93, 283, & 94, 57, 136. Bull. Ph. 93, 536. Proc. 94, 538.)

Dieterich relies on the p. c. of dry residue and of ash, besides the specific gravity. (Ph. Rdsch. Prag. 93, 793.)

Kinzel thinks that the p. c. of dry residue should be stated. (Ap. Ztg. 94, 183.)

Extractum Aconiti.

Yield and p. c. of alkaloids. La Wall (A. J. Ph. 96, 368).

P. c. of copper. (Ph. Ztg. 94, 30. Proc. 94, 566.)

It might be directed to be made from the fluid extract. Caspari (Pharmacy, p. 269).

Extractum Aconiti Fluidum.

Commercial. Examination. Russell (Proc. 93, 419).

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Assay. Titration is better than the gravimetric method. Caspari & Dohme (A. J. Ph. 93, 477, 478. Proc. 93, 121), and Kebler (Am. Dr. 94, Sept. 179).——Titration is worthless. Farr & Wright (Ph. J. & Tr. 94, Aug. 125. A. J. Ph. 94, 461).

A nearly clear solution should be obtained on mixing 0.5 Cc. with 3 drops of dilute HCl and 9.5 Cc. of water, which on addition of Mayer's test gives a flocculent precipitate. Ph. Helvet. (Ph. Rdsch. N. Y. 94, 82).

Extractum Aloes.

There is no apparent reason for directing the use of "distilled" water for this extract, while ordinary water is considered good enough for all the other extracts.

Extractum Arnicæ Radicis Fluidum.

There is no apparent reason why diluted alcohol should not be used, as it is directed for the solid extract. Beringer (A. J. Ph. 93, 527).

Extractum Aspidospermatis Fluidum.

Assay. Schwickerath. With a more or less modified Prollius' mixture. (Ph. Rdsch. N. Y. 93, 285, & 94, 136 & 139. Bull. Ph. 93, 538. Proc. 94, 549.)

Extractum Belladonnæ Foliorum Alcoholicum.

Nomenclature. Since "Semen," "Radix," etc., are used in the singular, in a collective sense, it seems that "Folium" might be used in the same way.

Yield and p. c. of alkaloid. La Wall (A. J. Ph. 96, 368).

Assay. With a more or less modified Prollius' mixture. Schwickerath. (Ph. Rdsch. N. Y. 93, 283, & 94, 136 & 137. Bull. Ph. 93, 535.)

P. c. of copper. (Ph. Ztg. 94, 30. Proc. 94, 566.)

Extractum Belladonnæ Radicis Fluidum.

Commercial. Examination. Russell (Proc. 93, 419 & 420).

Assay. By titration better than by gravimetric method. Caspari & Dohme (A. J. Ph. 93, 477 & 478. Proc. 93, 121). Kebler (Am. Dr. 94, Sept. 179), and Farr & Wright (Ph. J. & Tr. 94, Aug. 125. A. J. Ph. 94, 461).

Schwickerath. With more or less modified Prollius' mixture. See "Extracta." (Ph. Rdsch. N. Y. 93, 283, & 94, 137. Bull. Ph. 93, 535.)

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Lloyd's and Thompson's methods compared. Pattison (Ph. Rdsch. N. Y. 92, 239).

An aqueous solution is well shaken with ammoniated ether, and the separated ethereal solution evaporated. The residue is heated with a few drops of fuming nitric acid. On adding an alcoholic solution of potassa to the residue, a purple color is observed. Ph. Helvet. (P. Rdsch. N. Y. 94, 82).

Extractum Buchu Fluidum.

Commercial. Examination. Haussmann (A. J. Ph. 95, 292. Proc. 95, 565).

Extractum Calumbæ Fluidum.

Commercial. Examination. Haussmann (A. J. Ph. 95, 292. Proc. 95, 565).

Extractum Cannabis Indicæ.

Yield. La Wall (A. J. Ph. 96, 371).

This extract is not completely soluble in alcohol. Hell finds that when made by percolation, it contains more insoluble matter than when made by digestion. (Ph. Ztg. 94, 272.)

P. c. of copper. (Ph. Ztg. 94, 30. Proc. 94, 566.)

(Extractum Carnis.)

P. c. of albumose and pepton. Goldmann (Ph. Post, 94, 1. Proc. 94, 572).

Extractum Castaneæ Fluidum.

The exhaustion of the leaves with cold water, and subsequent evaporation of the necessarily large amount of water, is a tedious operation. Caspari proposes to express the leaves strongly after maceration with hot water, and repeat this operation once or twice with half the quantity of hot water; the virtual exhaustion will then be complete. (Pharmacy, p. 261.)

Extractum Chiratæ Fluidum.

Commercial. Examination. Hausmann (A. J. Ph. 95, 292. Proc. 95, 565).

Extractum Cimicifugæ.

Yield. La Wall (A. J. Ph. 96, 371).

Extractum Cimicifugæ Fluidum.

Commercial. Examination. Haussmann (A. J. Ph. 95, 292. Proc. 95, 565).

Extractum Cinchonæ.

Yield and p. c. of alkaloids. La Wall (A. J. Ph. 96, 368).

Menstruum. It is not clear why the menstruum for moistening should differ from that for percolating. Caspari (Pharmacy, p. 268).

Assay. Triturate the powder with water, and shake with ammoniated ether. Filter, remove the ether, take up with dilute alcohol, and titrate with $\frac{N}{10}$ HCl. Keller (Oest. Zts. 93, 563 & 586. A. J. Ph. 94, 47. Proc. 94, 532).

P. c. of copper. (Ph. Ztg. 94, 30. Proc. 94, 566.)

An aqueous extract is recommended by Kollo, who mixes the powder with 10 p. c. of magnesia, macerates with cold water, and percolates to exhaustion. (Ph. Ztg. 94, 161.)

Extractum Cinchonæ Fluidum.

Commercial. Examination. Russell (Proc. 93, 419).

Assay. Titration better than the gravimetric method. Caspari & Dohme. (A. J. Ph. 93, 477 & 478. Proc. 93, 121), and Kebler (Am. Dr. 94, Sept. 179).——Titration is unsatisfactory. Farr & Wright (Ph. J. & Tr. 94, Aug. 125. A. J. Ph. 94, 461).

Keller adds water, and shakes with ammoniated ether. Remove the ether, dissolve residue in dilute alcohol and titrate with $\frac{N}{10}$ HCl. (Oest. Zts. 93, 563 & 586. A. J. Ph. 94, 47. Proc. 94, 532.)

Schwickerath. Shake the fluid extract with dilute HCl. Place an aliquot part in the "perforator," and wash with benzin. Pour off the benzin, alkalinize with soda, and extract with a mixture of 2 parts of benzin and 1 part of chloroform. Evaporate, dry and weigh. (Ph. Rdsch. N. Y. 94, 57. Bull. Ph. 94, 56. Proc. 94, 542.)——Also with a modified Prollius' mixture. (Ph. Rdsch. 94, 136, 137, 138.)

Extractum Cocæ Fluidum.

Menstruum. A 65 p. c. alcohol is better than dilute alcohol. Kebler (A. J. Ph. 95, 574).

Assay. Titration better than the gravimetric method. Caspari & Dohme (A. J. Ph. 93, 477 & 478. Proc. 93, 121), and Kebler (Am. Dr. 94, Sept. 179), which latter recommends Keller's method. (A. J. Ph. 95, 574.)

Schwickerath. With more or less modified Prollius' mixture. (Ph. Rdsch. N. Y. 93, 284. Bull. Ph. 93, 537. Proc. 94, 544.)

Extractum Colchici Radicis.

Yield and p. c. of alkaloid. La Wall (A. J. Ph. 96, 368).

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Extractum Colchici Radicis Fluidum.

Assay. Titration better than the gravimetric method. Kebler (Am. Dr. 94, Sept. 179).

Schwickerath. With more or less modified Prollius' mixture. (Ph. Rdsch. 93, 284. Bull. Ph. 93, 537. Proc. 94, 545.)

Extractum Colchici Seminis Fluidum.

Repeated attention has been called to the fact that grinding or powdering of the seeds is not an absolute necessity, the active principle residing in the testa. The grinding may be facilitated by boiling the seeds for 15 minutes in part of the water of the menstruum, which will soften them. (Ph. Rdsch. Prag. 93, 10.)

The seeds should be deprived of the oil, before extraction. A. P. A. Comm. (A. J. Ph. 95, 485).

Assay. Titration better than the gravimetric method. Caspari & Dohme (A. J. Ph. 93, 477 & 478. Proc. 93, 121), and Kebler (Am. Dr. 94, Sept. 179). Titration is worthless. Farr & Wright (Ph. J. & Tr. 94, August, 125. A. J. Ph. 94, 461).

Schwickerath. With more or less modified Prollius' mixture. (Ph. Rdsch. N. Y. 93, 282. Bull. Ph. 93, 537. Proc. 94, 545.)

Identity. On mixing one drop with 10 drops of dilute sulphuric acid, and adding one drop of dilute nitric acid, a violet color will be observed, which however, disappears soon. On now adding 1 Cc. of alcohol, and super-saturating with ammonia, a red color appears. Ph. Helvet. (Ph. Rdsch. N. Y. 94, 82).

Extractum Colocynthidis Compositum.

Beringer proposes to direct the soap in fine powder, and to merely mix all the ingredients, omitting the use of the alcohol and of the heating as unnecessary. (A. J. Ph. 93, 525.)

Hirsch thinks that the heat directed, 120° C., is excessive. (Ph. Rdsch. 93, 254.)

Extractum Conii.

Yield and p. c. of alkaloid. La Wall (A. J. Ph. 96, 369).

It might be directed to be made from the fluid extract. Caspari (Pharmacy, p. 269).

Assay. Liljenstroem finds, that while coniine can be extracted with ether, the total quantity will never be recovered by continuous extraction, unless there be placed in the receiver an excess of $\frac{N}{100}$ acid. (Ph. Ztg. 94, 56. A. J. Ph. 94, 199. Proc. 94, 545.)

Schwickerath. With more or less modified Prollius' mixture. (Ph. Rdsch. N. Y. 93, 284, & 94, 136 & 138. Bull. Ph. 93, 537. Proc. 94, 545.)

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Extractum Conii Fluidum.

Assay. Schwickerath. As above.

Titration better than the gravimetric method. Caspari & Dohme (A. J. Ph. 93, 477 & 478. Proc. 93, 121), and Farr & Wright (Ph. J. & Tr. 94, Aug. 125. A. J. Ph. 94, 461).

Identity. On gently heating with solution of soda, the odor of coniine will be noticed. Ph. Helvet. (Ph. Rdsch. 94, 83).

Extractum Cubebæ Fluidum.

Commercial. Examination. Hyers (A. J. Ph. 95, 519), and Haussmann (A. J. Ph. 95, 292. Proc. 95, 565).

Extractum Cusso Fluidum.

The usefulness of a fluid extract is questionable. Cusso, it is asserted, is active only in a mechanical way, and not because it contains an especially active principle. Beringer (A. J. Ph. 93, 470).

Extractum Cypripedii Fluidum.

Menstruum. A mixture of 3 parts of alcohol and 1 part of water would be better. Beringer (A. J. Ph. 93, 527).

Extractum Digitalis.

Yield. La Wall (A. J. Ph. 96, 371).

Might be directed to be made from the fluid extract. Caspari (Pharmacy, p. 269).

Extractum Digitalis Fluidum.

Commercial. Examination. Haussmann (A. J. Ph. 95, 292 Proc. 95, 565).

Preparation. Ph. Danica macerates 1000 parts of digitalis with 450 parts of diluted alcohol and 50 parts of glycerin, and percolates with diluted alcohol to 6000 parts. Distil off 5000 parts, dilute the remainder with 2000 parts of water, evaporate to 1500 parts, filter and evaporate to 500 parts, to which 500 parts of alcohol are added. It mixes clear with water, and, properly diluted, represents the infusion. (A. J. Ph. 93, 550. Proc. 94, 568.)

Identity. Dilute with water, add a few drops of solution of subacetate of lead, shake and filter. Shake filtrate with ammoniated ether and evaporate the ethereal solution to dryness. Dissolve the residue in sulphuric acid and add bromine water, when a violet color should appear. Ph. Helvet. (Ph. Rdsch. N. Y. 94, 83.)

Extractum Ergotæ.

Beringer contends that an aqueous extract would better answer the requirements of physicians. Percolate the ergot with benzin,

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dry and extract with a mixture of 1 part of alcohol and 9 parts of water. Distil off the alcohol, and evaporate to proper consistence. (A. J. Ph. 93, 525.)

Keller. Dampen 1000 parts of ergot with 500 parts of diluted alcohol, and allow it to stand for 12 hours. Exhaust with dilute alcohol, evaporate the percolate to 250 parts, add 250 parts of water, and warm for a short time. Filter from oil and resin, add 50 parts of 10 p. c. HCl, shake, and let stand 24 hours. Filter from the sclererythrin, and add 20 parts of crystallized sodium carbonate. Evaporate to 150 parts, add 15 parts of glycerin, and evaporate to 125 parts. It dissolves perfectly clear in water. (Schweiz. Woch. 94, 141. Proc. 94, 568.)

Bernegau prefers a solution of sodium chloride (containing 5 p. c. of the weight of the ergot) as much more satisfactory than water alone. (Ph. Ztg. 95, 308. Ph. Rdsch. N. Y. 95, 137. Proc. 95, 572.)

Dialyzed Extract. Hager deprives ergot of the oil by ether, exhausts with absolute alcohol, distils off the alcohol from the marc, and exhausts with warm water. Evaporate to a suitable consistence, mix with alcohol, let stand 24 hours, and strain. After cooling, dialyse. (Ph. Post, 95, 455.)

Kremel states that a good extract should be perfectly soluble in 70 p. c. alcohol. (Ph. Ztg. 94, 91.)

Assay. A direct approximately quantitative test is given by Keller:—Acidify 10 Cc. of the aqueous solution (1:20) with 5 drops of dilute HCl, and add a solution of picric acid (1:50), when the mixture should become turbid at once, and yield a flocculent precipitate of cornutine picrate after a few minutes. He does not confirm Kobert's statement that the solution soon loses its activity; he further states Bonjean's extract contains only traces of cornutine. (Schweiz. Woch. 94, 141. Proc. 94, 569.)

Yield. La Wall (A. J. Ph. 96, 371).

Extractum Ergotæ Fluidum.

Hallberg thinks that a menstruum with less alcohol would be preferable, as not extracting so much fixed oil. (Proc. 95, 265.)——Edel, also, questions the advisability of increasing the strength of the alcohol. (Am. Dr. 94, July, 5.)

Gaudin macerates a mixture of powdered ergot, tartaric acid and animal charcoal with cherry laurel water, and percolates with water. Evaporate rapidly to syrupy consistence, and add calcium carbonate. After 12 hours add sufficient alcohol to precipitate the mycose and phosphoric acid, filter, and evaporate to 1:1, adding a little salicylic acid. (Rep. de Ph. 96, 1. Ph. Ztg. 96, 57.)

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On page 135, U. S. P., line 3 from below, "Diluted Alcohol" was printed in the first issues. This was changed to "of the mixture."

Extractum Gelsemii Fluidum.

Assay. Titration better than the gravimetric method. Caspari & Dohme (A. J. Ph. 93, 477 & 478. Proc. 93, 121).

Schwickerath. With more or less modified Prollius' mixture. (Ph. Rdsch. N. Y. 93, 284, & 94, 136 & 138. Bull. 93, 538. Proc. 94, 545.)

Extractum Gentianæ.

Menstruum. "Cold" water should be expressly directed. The temptation to use hot water (which yields nearly twice as much extract, largely made up of pectic matter) is great. Caspari (Pharmacy, p. 274).

Yield. La Wall (A. J. Ph. 96, 371).

Extractum Gentianæ Fluidum.

Commercial. Examination. Haussmann (A. J. Ph. 95, 292. Proc. 95, 565).

Extractum Glycyrrhizæ.

P. c. of copper. (Ph. Ztg. 94, 30. Proc. 94, 566.)

Extractum Glycyrrhizæ Fluidum.

Commercial. Examination. Haussmann (A. J. Ph. 95, 292. Proc. 95, 565).

Morrison finds that the precipitate caused by the addition of ammonium chloride is mainly glycyrrhizin, and that the larger the proportion of water in the menstruum, the smaller is the precipitate. (Montreal Ph. J. 93, 147. Proc. 94, 570.)

Edel favors a return to the old method, well-known to the Germans. Break the sticks in pieces, and place in the percolator in alternate layers with straw, using cold water for extraction. (Dr. Circ. 94, 195.)

Extractum Glycyrrhizæ Purum.

There is no apparent reason to direct "distilled" water, while ordinary water is considered pure enough for all the other extracts.

Hager proposes to mix the aqueous solution with powdered talcum, adding ammonia and alcohol, and allow to deposit. Filter and evaporate. (Ph. Ztg. 92, 650. A. J. Ph. 92, 615. Proc. 93, 422.)

Dieterich exhausts with water, evaporates to half the weight of the licorice, adds twice as much alcohol, filters, distils off the alcohol,

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and evaporates to a thick extract. Helfenberg. Annal. 93 . . . Proc. 94, 571.)

Yield. La Wall (A. J. Ph. 96, 371).

Extractum Grindeliæ Fluidum.

Fluid Extract, freed from Resin. Pack and macerate with hot water, percolating with the same. Sixty p. c. are reserved, and the remainder is evaporated to a soft extract. Add to this 25 p. c. of alcohol, the reserved portions, and sufficient water to the original weight. Filter after some time. Juergens (Ph. Zts. Russl. 95, 314. Ph. Era, 95, xiv. 141).

Extractum Guaranæ Fluidum.

Menstruum. Miner states that a mixture of 2 parts of alcohol and 1 part of water gives better results. (Apoth. 94, 16. Merck, Report, 94, 265. Proc. 95, 573.)

Assay. Titration is better than the gravimetric method. Kebler (Am. Dr. 94, Sept. 179).——By Lloyd's method. Pattison (Ph. Rdsch. N. Y. 92, 239).

Extractum Hæmatoxyli.

Donath calls attention to impurities found in the commercial extract, due to putrid urine, with which the wood has been sprinkled during fermentation. (Ch. Ztg. 94, 277. Proc. 94, 571.)

Yield. La Wall (A. J. Ph. 96, 371).

Extractum Hydrastis Fluidum.

Assay. A good fluid extract should not contain less than 2 p. c. of hydrastine. Thompson (A. J. Ph. 93, 373).——See also Van Ledden-Hulsebosch, and Itallie (Ph. Weekbl. 91 . . .), and Eberhardt (A. J. Ph. 93, 374. Proc. 94, 546).

Schwickerath separates the berberine by treatment with ether, acidulated with hydrochloric and sulphuric acids, filters, adds ammonia until merely faintly acid, filters, mixes with oak sawdust, and treats with a modified Prollius' mixture. (Ph. Rdsch. N. Y. 93, 285, & 94, 133. Bull. Ph. 93, 538. Proc. 94, 548.)

Eberhardt treats the fluid extract with ammoniated ether, and filters through cotton to separate the crystals from the extractive matter. (Am. J. Ph. 93, 374. Proc. 94, 546.)

Identity. Dilute with water, and add chlorine water, when a red color will appear. Ph. Helvet. (Ph. Rdsch. 94, 83.)

Commercial. Examination. Haussmann (A. J. Ph. 95, 292. Proc. 95, 565).

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Extractum Hyoscyami.

Might be directed to be made from the fluid extract. Caspari (Pharmacy, p. 269).

Menstruum. It is not clear why the menstruum for moistening should differ from that used for the percolation. Caspari (Pharmacy, p. 268).

Assay. Schwickerath. With a more or less modified Prollius' mixture. (Ph. Rdsch. N. Y. 93, 283, & 94, 138. Bull. Ph. 93, 536. Proc. 94, 538.)

Yield and p. c. of alkaloid. La Wall (A. J. Ph. 96, 368).

Extractum Hyoscyami Fluidum.

Assay. Titration better than the gravimetric method. Caspari & Dohme (A. J. Ph. 93, 477 & 478. Proc. 93, 121), and Kebler (Am. Dr. 94, Sept. 179).——Also Farr & Wright (Ph. J. & Tr. 94, Aug. 125. A. J. Ph. 94, 461).

Schwickerath. With more or less modified Prollius' mixture. (Ph. Rdsch. N. Y. 93, 283 & 94, 138. Bull. Ph. 93, 536. Proc. 94, 538.)

Identity. Acidulate with HCl and dilute with water, shake twice with ether, decant the ether, add ammonia to the aqueous residue, and shake again with ether. The ethereal liquid is evaporated on a water-bath with a few drops of fuming nitric acid. The dry residue will then be colored purple on addition of an alcoholic solution of potassa. Ph. Helvet. (Ph. Rdsch. 94, 83).

Extractum Ipecacuanhæ Fluidum.

Indicators. Value. A P. A. Comm. (Proc. 95, 192).

Assay. Titration better than the gravimetric method. Caspari & Dohme (A. J. Ph. 93, 477 & 478. Proc. 93, 121), and Kebler (A. J. Ph. 95, 29. Am. Dr. 94, Sept. 179).

Keller. Shake with ammoniated ether-chloroform. Evaporate an aliquot part of the filtrate to dryness, take up with alcohol, and titrate with $\frac{N}{10}$ HCl. (Schweiz. Woch. 92, 501 & 509. A. J. Ph. 93, 82. Proc. 93, 407 & 847.)

Schwickerath. With more or less modified Prollius' mixture. (Ph. Rdsch. N. Y. 93, 285, & 94, 139. Bull. Ph. 93, 538. Proc. 94, 549.)

Identity. On very gently heating 2 drops with 6 drops of dilute HCl and a fragment of potassium chlorate, a brilliant orange-yellow color appears. Ph. Helvet. (Ph. Rdsch. N. Y. 94, 83).

Extractum Jalapæ.

Yield. La Wall (A. J. Ph. 96, 371).

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Extractum Juglandis.

Should be omitted. Beringer (A. J. Ph. 93, 526).

Yield. La Wall (A. J. Ph. 96, 371).

Extractum Leptandræ.

Might be directed to be made from the fluid extract. Caspari (Pharmacy, p. 269).

Yield. La Wall (A. J. Ph. 96, 371).

Extractum Lupulini Fluidum.

If lupulin is moistened previous to packing, as directed, it is liable to form an impermeable mass. Caspari recommends therefore to pack it dry. (Pharmacy, p. 262.)

(Extractum Malti.)

Should have been retained and a fixed diastatic value required. Beringer (A. J. Ph. 93, 527).

Commercial. Constituents. Helbing & Passmore (Helbing, Ph. Rec. 93, 13. Proc. 94, 571).

Extractum Menispermi Fluidum.

Should be omitted. Beringer (A. J. Ph. 93, 527).

Extractum Nucis Vomicæ.

Preparation. The process might be simplified by depriving the seed of the oil by benzin, previous to extraction with alcohol, etc. The benzin residue may be washed with acidulated water. Beringer (A. J. Ph. 93, 526).——Lucas macerates and percolates with chloroform water containing 5 p. c. of acetic acid. (Ph. J. & Tr. 94, Aug. 137. Proc. 95, 574.)

Indicators. Value. A. P. A. Comm. (Proc. 95, 192.)

P. c. of copper. (Ph. Ztg. 94, 30. Proc. 94, 566.)

Assay. Keller. Triturate with water, shake out with ammoniated ether-chloroform, evaporate the ethereal solution to dryness, take up with ether-chloroform and water, and titrate with $\frac{N}{10}$ HCl, using eosin as indicator. (Oest. Zts. 93, 563. A. J. Ph. 94, 44. Proc. 94, 530.)

Coblentz compares the methods of Beckurts, Lyons, Lloyd and Dunstan and himself, using a combination of the official method with Lloyd's ferric carbonate method. (Ph. Rdsch. N. Y. 93, 159. Proc. 94, 551.)

Ph. Helvetica follows Keller's method, but merely weighs the dry residue, which must amount to at least 15 p. c. (Ph. Rdsch. N. Y. 94, 66.)

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Extractum Nucis Vomicæ Fluidum.

Preparation. Beringer suggests to make the fluid extract from the solid extract, in analogy with the tincture. 10 Gm. to make 100 Cc. of fluid extract. (A. J. Ph. 93, 528.)——Coblentz considers dilute acetic acid a better menstruum than the official one. (Pharmacy, p. 344.)

Commercial. Examination. Russell (Proc. 93, 419 & 420).

Assay. It is better to "rotate" the chloroformic mixture instead of "agitating" it, otherwise the mixture is likely to emulsionize. Coblentz (Pharmacy, p. 347).

Titration better than the gravimetric method. Caspari & Dohme (A. J. Ph. 93, 477 & 478. Proc. 93, 121), and Kebler (Am. Dr. 94, Sept. 179).——Also Farr & Wright (Ph. J. & Tr. 94, Aug. 125. A. J. Ph. 94, 461).

Schwickerath. With more or less modified Prollius' mixture. (Ph. Rdsch. 94, 57 & 139. Bull. Ph. 94, 56. Proc. 94, 550.)

Extractum Opii.

Since opium is directed to contain at least 9 p. c. of morphine, it would appear useless to order powdered opium, because it is very easy to prepare from the gum opium a dry and powdery extract containing 18 p. c. of morphine. Beringer (A. J. Ph. 93, 526).

Since morphine is liable to be converted into the very mild oxymorphine, the heat of evaporation should not exceed 50° C., or in a vacuum not over 30 to 35° C. (Ph. Centralh. 93, 399.)

Ph. Helvetica requires 18 to 20 p. c. of morphine. (Ph. Rdsch. 94, 67.)

Preparation. Caspari recommends to rub the opium to a smooth paste with water in a mortar, wash this carefully into a flask or bottle, add the remainder of the water, cork the bottle, and shake vigorously every hour or two; this procedure is easier than the official one. "Wash the residue until the filtrate is nearly colorless," it is as well to add "and only faintly bitter." (Pharmacy, p. 276.)

Extractum Physostigmatis.

Yield and p. c. of alkaloids. La Wall (A. J. Ph. 96, 368).

Extractum Phytolaccæ Fluidum.

Commercial. Examination. Haussmann (A. J. Ph. 95, 291. Proc. 95, 565).

Extractum Pilocarpi Fluidum.

Assay. Titration better than the gravimetric method. Caspari & Dohme (A. J. Ph. 93, 477 & 478. Proc. 93, 121), and Kebler

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(Am. Dr. 94, Sept. 179).——Also Farr & Wright (Ph. J. & Tr. 94, Aug. 121. Proc. 95, 623).

Extractum Pruni Virginianæ Fluidum.

Commercial. Examination. Haussmann (A. J. Ph. 95, 291. Proc. 95, 565).

Menstruum. The official menstruum is unnecessarily strong. Caspari recommends a mixture of 2 volumes of alcohol, 2 of glycerin, and 6 of water. He states that a number 30 powder is better, and that repercolation is eminently adapted for this fluid extract. (Pharmacy, p. 262.)——Galen, Jr., macerates first with water for twelve hours, using only sufficient to moisten. Then he percolates with a mixture of 1 part of alcohol, 1 of glycerin and 2 of water. (Am. Dr. 95, Mrch. 135. Proc. 95, 575.)——Dillenbach uses a mixture of 1 part of glycerin and 2 parts of water, and a limited repercolation. (Ph. Era, 95, xiv. 9.)

Extractum Quassiæ.

Yield. La Wall (A. J. Ph. 96, 371).

An addition of 10 p. c. of glycerin will prevent its becoming tough. Caspari (Pharmacy, p. 277).

Extractum Rhamni Purshianæ Fluidum.

Bark which has been stored two years should be used, to overcome the tendency to griping. Caspari (Pharmacy, p. 262).

Identity. Add a little water, and shake out with ether. Pour the ethereal solution off, and add ammoniated water, and shake. The aqueous layer will be colored cherry-red. Evaporate the ethereal layer to dryness, and pass over it a glass-rod, dipped in sulphuric acid, when a saffron-yellow color will be produced. Bourquelot (J. de Ph. & Ch. 95, 361. Merck, Report, 95, 222. Proc. 95, 533).

Commercial. Examination. Haussmann (A. J. Ph. 95, 291. Proc. 95, 565).

Extractum Rhei.

"Spontaneous evaporation of the reserved portion." Although the medicinal virtues of rhubarb are injured by heat, Caspari thinks that a temperature of below 50° C. may be employed to recover the alcohol. In evaporating the last percolate, it will be advisable to stir assiduously with a glass-rod (or porcelain spatula) in order to prevent a granular separation of the resin. Caspari (Parmacy, p. 277).

Yield. La Wall (A. J. Ph. 96, 371).

Identity. Dissolve in water, shake the turbid solution with ether, and shake the ethereal solution with ammoniated water. The aqueous layer will be colored cherry-red. Evaporate the ethereal layer to dryness, and pass over it a glass-rod dipped in sulphuric acid, when a pinkish color will appear. Bourquelot (J. de Ph. & Ch. 95, 361. Merck, Report, 95, 222. Proc. 95, 534).

Extractum Rhei Fluidum.

Commercial. Examination. Haussmann (A. J. Ph. 95, 291. Proc. 95, 565).

Extractum Rosæ Fluidum.

It would be advisable to expressly point out, that the use of metal in any shape is to be avoided.

Dieterich extracts with dilute alcohol, evaporates to syrupy consistence, and adds sufficient glycerin to bring the whole up to 25 p. c. of the weight of the roses. (Helfenberger, Annal. 93 . . . Proc. 94, 572.)

Extractum Sabinæ Fluidum.

Should be omitted. Beringer (A. J. Ph. 93, 527).

Extractum Sarsaparillæ Fluidum Compositum.

Commercial. Examination. Haussmann (A. J. Ph. 95, 291. Proc. 95, 565).

Extractum Sanguinariæ Fluidum.

Assay. Titration better than the gravimetric method. Caspari & Dohme (A. J. Ph. 93, 477 & 478. Proc. 93, 121), and Kebler (Am. Dr. 94, Sept. 179).

Extractum Scoparii Fluidum.

The words "using the same proportions of alcohol and water as before," which will be found in the earlier issues, should be cancelled.

Extractum Scutellariæ Fluidum.

Menstruum. Two volumes of alcohol and 1 of water is preferable; made with the officinal menstruum, the fluid extract does not keep well. Caspari (Pharmacy, p. 263).

Extractum Senegæ Fluidum.

Menstruum. A mixture of 2 volumes of alcohol, 1 of water and 5 p. c. of ammonia exhausts the drug thoroughly, and yields a permanent preparation. The stronger alcoholic menstruum of the Pharmacopœia is therefore unnecessary. Caspari (Pharmacy, p. 263).

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Commercial. Examination. Haussmann (A. J. Ph. 95, 291. Proc. 95, 565).

Extractum Sennæ Fluidum.

Commercial. Examination. Haussmann (A. J. Ph. & Proc. Ibid.).

Extractum Serpentariæ Fluidum.

Commercial. Examination. Haussmann (A. J. Ph. & Proc. Ibid.).

Extractum Stillingiæ Fluidum.

Commercial. Examination. Haussmann (A. J. Ph. & Proc. Ibid.).

Menstruum. Since this fluid extract is liable to gelatinize upon standing, a mixture of 3 volumes of alcohol and 1 of water is better adapted; or the addition of 12 p. c. sugar to the official menstruum. Caspari (Pharmacy, p. 263).

(Extractum Stramonii Folii.)

Recommended for introduction, because the leaves and stems are richer in alkaloids than the seeds. A. P. A. Comm. (A. J. Ph. 95, 484).

(Extractum Stramonii Folii Fluidum.)

Recommended for introduction because the leaves and stems are richer in alkaloids than the seeds. A. P. A. Comm. (A. J. Ph. 95, 484).

Identity. Dilute with water, and shake vigorously with ammoniated ether. Separate the ethereal solution, and evaporate it with a couple of drops of HCl to dryness. On adding an alcoholic solution of potassa, a purple color appears. Ph. Helvet. (Ph. Rdsch. N. Y. 94, 83).

Extractum Stramonii Seminis.

Reducing the seed to a No. 60 powder is difficult on account of the oil. It would be better to remove the oil by benzin, before powdering. Caspari (Pharmacy, p. 277).

Yield and p. c. of alkaloid. La Wall (A. J. Ph. 96, 368).

Assay. Schwickerath. With more or less modified Prollius' mixture. (Ph. Rdsch. N. Y. 93, 283. Bull. Ph. 93, 536.)

Extractum Stramonii Seminis Fluidum.

Assay. Titration better than the gravimetric method. Caspari & Dohme (A. J. Ph. 93, 477 & 478. Proc. 93, 121), and Kebler (Am.

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Dr. 94, Sept. 179). Also Farr & Wright (Ph. J. & Tr. 94, Aug. 125).

Schwickerath. With more or less modified Prollius' mixture. (Ph. Rdsch. N. Y. 93, 283. Bull. Ph. 93, 536.)

Extractum Taraxaci.

Should not the albuminous matter be removed before evaporation?

Yield. La Wall (A. J. Ph. 96, 371).

Extractum Taraxaci Fluidum.

Commercial. Examination. Haussmann (A. J. Ph. 92, 291. Proc. 95, 565).

Extractum Tritici Fluidum.

Commercial. Examination. Haussmann (A. J. Ph. 95, 291. Proc. 95, 565).

Caspari prefers to digest the finely-cut drug, to repeat this once or twice, concentrate the infusion rapidly, and when cold, mix with alcohol, then proceed as in the Pharmacopœia. (Pharmacy, p. 264.)

Extractum Uvæ Ursi.

Yield. La Wall (A. J. Ph. 96, 371).

Menstruum. Diluted alcohol yields a more satisfactory product. Caspari (Pharmacy, p. 277).

Extractum Uvæ Ursi Fluidum.

Caspari prefers to leave out entirely the glycerin, and to use diluted alcohol. (Pharmacy, p. 264.)

Extractum Veratri Viridis Fluidum.

Of questionable utility, being only 2½ times stronger than the tincture. Caspari (Pharmacy, p. 264).

Assay. Titration better than the gravimetric method. Caspari & Dohme (A. J. Ph. 93, 477 & 478. Proc. 93, 121), and Kebler (Am. Dr. 94, Sept. 179).——Farr & Wright declare titration unsatisfactory. (Ph. J. & Tr. 94, Aug. 125. A. J. Ph. 94, 461.)

Ferri Carbonas Saccharatus.

The exact final weight being 100 Gm., the U. S. P. preparation conforms exactly in strength to that of the Ph. Germ. III. The suggestion made in the U. S. Dispensatory to add sugar or syrup to the two solutions before mixing, seems entirely unnecessary, as in the first precipitation the ferrous carbonate is contained in a liquid charged with carbonic acid, resulting in part from the reaction, and

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in part from the decomposition of the excess of bicarbonate used, by the hot water. Being thus sufficiently well protected, the addition of sugar would be of no use, as it would be removed by the withdrawal of the first portion of the liquid. It is not easy to understand the motive which led the German Pharmacopœia to use milk sugar instead of cane sugar, unless it be thought that by its stronger reducing action it would protect the ferrous carbonate better. The German preparation has a greenish-gray color, while that of the U. S. Pharmacopœia is greenish-brown. Power (Circ. No. 103, p. 524).

Ferri Chloridum.

The process should be left out, as a pure salt can easily be obtained in commerce. Beringer (A. J. Ph. 93, 596).

It gives a clear solution in ether. Hirsch (Ph. Rdsch. N. Y. 93, 256).

Ferri Citras.

When Ph. Germ. requires 17 to 18 p. c. of iron, it demands more than is usually obtainable in practice. These higher figures were obtained by Schacht, who treated the solution of the citrate of iron with potassium chlorate and hydrochloric acid previous to the addition of potassium iodide, and it is quite probable that sufficient chlorine was left in the liquid to produce this error. As the salt is a ferric citrate, this preliminary oxidation is quite unnecessary. Power (Circ. No. 103, p. 529).

Ferri et Ammonii Citras.

Nomenclature. Power objects to the title, as the salt is by no means a true double salt, as this title would imply.

The proportion by weight of 3 parts of solution of citrate of iron and 1 part of water of ammonia, would correspond to 100 Cc. of the solution and 43.9 Cc. of ammonia. As it is desirable to use round numbers, it would seem best to decrease the amount of ammonia to 40 Cc. Power (Circ. No. 103, p. 531).

Ferri et Quininæ Citras.

Should be omitted, as we have the soluble citrate with practically the same p. c. Beringer (A. J. Ph. 93, 596).

Ferri et Quininæ Citras Solubilis.

"Greenish-golden yellow color" will depend on the relative proportion of metallic iron and citric acid. In working on the large

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scale, it is better to start from the solution of ferric citrate than from the scaled salt, and to take 12 parts of quinine for every 14 to 14½ parts of iron contained in the solution. The quantity of citric acid will depend on the relative proportions of citric acid and iron in the solution. Handsome scales are obtained by spreading the not too concentrated solution quite thinly, and dry at 35 to 40° C. Sieker (Ph. Rdsch. N. Y. 95, 36. Proc. 95, 948).

Dissolving quinine, whether dry or freshly precipitated, in the solution of ferric citrate, is a slow operation, requiring prolonged trituration. The previous trituration of the quinine with a little citric acid, and a small quantity of water, greatly facilitates the solution. The amount of ferric citrate has been diminished to the extent of the amount of citric acid thus used. Power (Circ. No. 103, p. 538).

Ferri Hypophosphis.

A test for phosphite of iron would seem to be necessary. Roe (Ph. J. & Tr. 93, Dec. 473).

The quantitative estimation of hypophosphorous acid, proposed by Moerck (A. J. Ph. 91, 270), depending upon the reduction of mercuric chloride to mercurous chloride, does not give satisfactory results. The assay by this method of one sample gave but 45.49 p. c. of ferric hypophosphite, but the reduction was not complete, for upon subsequently boiling the filtrate from the mercurous chloride, a considerable additional amount of the latter was obtained. This and other trials showed conclusively that for the complete reduction of the mercuric chloride much more prolonged boiling than one-half hour, as directed by Moerck, is necessary. Power (Circ. No. 193, p. 541).

Ferri Iodidum Saccharatum.

The reason why this preparation is directed to be kept in a dark place, while the syrup of ferrous iodide is to be kept exposed to the light, is that the powder is merely a mechanical mixture with sugar, while the syrup is a solution. Expose the saccharated iodide of iron to bright sunlight, and crystals of iodine will soon be noticed sublimed on the inner surface of the bottle. Power (Circ. No. 103, p. 544).

The test for the absence of salts of the alkalies, is hardly of any importance. Power (Ibid.).

Ferri Oxidum Hydratum.

The utility of this preparation in its official form seems decidedly questionable, for as an antidote to arsenic it should be freshly pre-

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pared. For the plaster and troches it has to be dried, whereby it is converted chiefly into ferric oxide, or at the specified temperature, into $Fe_2O_3.H_2O$, and it would seem quite as well for the last-named purposes that it should be prepared at once in the dry form, and described as such. Power (Circ. No. 103, p. 546).

Ferri Oxidum Hydratum cum Magnesia.

Although this preparation is not absolutely insoluble, and therefore not justly entitled to be called an infallible remedy in arsenical poisoning, it dissolves with difficulty, and is therefore valuable. (Ph. Ztg. 94, 163. Ph. Rdsch. N. Y. 94, 90.)

Ferri Phosphas Solubilis.

Identity. The nitrate of silver test, directed in the U. S. P. 1880, is decidedly unsatisfactory, as pointed out by Stieglitz (A. J. Ph. 91, 585), since the precipitation of argentic citrate renders impossible any sharp discrimination between the phosphate and the pyrophosphate. Power (Circ. No. 103, p. 548). See also remarks under the following title.

Ferri Pyrophosphas Solubilis.

(Fifth paragraph.) "If 1 Gm. of the salt be boiled with 10 Cc. of potassium or sodium hydrate."——Nagelvoort objects to the vague directions as to the quantities of the magnesia mixture and ammonia, stating that an unnecessary excess of either will condemn a pure salt. He claims that 2 Cc. of the magnesia mixture and 5 drops of ammonia will be sufficient. He proposes to change the wording according to Stieglitz, as follows:—"To the colorless filtrate add 5 Cc. of a 10-p. c. solution of ammonium chloride, and drop by drop from 1 to 2 Cc. of a 10-p. c. solution of magnesium sulphate. Agitate the test-tube, or graduate gently, as long as the precipitate re-dissolves." (A. J. Ph. 95, 210. Proc. 95, 927.)

Ferri Sulphas.

Copper. Vandenput states that small quantities of copper will not be detected by ammonia. Dissolve the salt in nitric acid, and place in the solution a bright piece of iron, on which the copper will be precipitated. (A. J. Ph. 92, 572. Proc. 93, 769.)

Free Sulphuric Acid. Shake with alcohol, filter, and evaporate over salicin, which will then be colored red. Ph. Ital. (Ph. Centralh. 93, 33).

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Ferri Sulphas Exsiccatus.

It would seem preferable not to carry the exsiccation of this salt quite so far as indicated in the U. S. P., but so that it shall contain approximately 1½ molecules of water, which can be accomplished by the heat of a water-bath, and thus avoid the danger of decomposition and ensuing discoloration of the product. It will then conform to the preparation of Ph. Germ. III, but it is best to first allow the salt to effloresce before heating it on the water-bath. If 100 parts of the crystallized salt are reduced to 65 parts, the product will contain 15.86 p. c. of water. If to 64 parts, 14.55 p. c.; if to 61 parts, 10.34 p. c. The salt with 1½ molecules of water will be obtained when 100 parts of the crystallized salt are reduced to about 64.5 parts. Power (Circ. No. 103, p. 551).

Ferri Sulphas Granulatus.

Hirsch proposes to use less water for the solution, as the excess has to be evaporated immediately. (Ph. Rdsch., N. Y. 93, 256).

Ferrum Reductum.

Appel finds that the quality of the reduced iron is largely dependent on the quality of the hydrogen employed. If the hydrogen was not purified, the iron may contain as low as 58 p. c. Fe, while the same ferric oxide and thoroughly purified hydrogen yielded a product of 99 p. c. and over. (Oest. Zts. 92, 395. A. J. Ph. 92, 461. Proc. 93, 779.)

Commercial. Examination. Dohme (Proc. 94, 292).

Iron Sulphide. It is impracticable to obtain perfect freedom from sulphide, when made on a large scale The Germ. Ph. ("Nachtrag") requires the lead acetate paper not to be affected "within 5 minutes." (Merck, Index, p. 137, and Ap. Ztg. 95. 75.)

(Fifth paragraph.) "Litmus paper" should be specified as "red" litmus paper. Germ. Comm. (Ap. Ztg. 93, 349.)

Strength. Ph. Germ. III demands at least 90 p. c. of Fe. Considering the quality of this preparation as found in the market, it does not seem practicable to demand more than 80 p. c. Power (Circ. No. 103, p. 554).

Ficus.

It should be the "dried" fleshy receptacle.

Frangula.

Flueckiger has long ago called attention to the fact that the freshly collected bark can be distinguished from that one year old by moist-

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ening it with alcohol and then with lime-water, when the inner surface of the fresh bark will be colored brownish, while the old bark is colored red. (Ap. Ztg. 95, 74.)

Gelsemium.

Properties of gelseminine and gelsemine. Cushny (Berichte. 93, 1725. A. J. Ph. 93, 396. Proc. 93, 850, & 94, 1118).

Assay. Schwickerath. With more or less modified Prollius' mixture. (Ph. Rdsch. N. Y. 93, 284, & 94, 138. Bull. Ph. 93, 537. Proc. 94, 545.)

Geranium.

Should be collected in April or May, when it is richest in tannin. Stolz (A. J. Ph. 94, 255).

Microscopical structure. Bastin (A. J. Ph. 94, 516).

Glycerinum.

Strength. Estimated by the refractive index. Edwards. Table of specific gravities with indices. Lenz & Stohmer (Proc. 93, 153).

Pure. Extemporaneous preparation. To 100 parts of commercial glycerin add 8 parts of zinc sulphate, and heat; after cooling add 27 parts of quicklime, and stir. Put into a filter press. The filtrate will be pure glycerin. (Nat. Dr. 92, 158. Proc. 93, 918.)

Acrolein. On mixing glycerin with an equal volume of fuchsine-sulphurous acid (or a solution of fuchsine decolorized by sulphurous acid), there should not appear, either at once, or on shaking, a purple or dark-red color, and not more than a light-pink on standing for a while. Coblentz (Proc. 94, 184).

Fatty Acids, etc. A mixture of 20 Cc. of glycerin and 2 Cc. of solution of hydrogen peroxide, should not evolve the odor of butyric acid in the cold, nor on heating in a water-bath. Nor should, on prolonged heating to 100° C., a dark-yellow or brown color appear. Welmans (Ph. Ztg. 94, 776. Ph. Rdsch. N. Y. 95, 17. Proc. 95, 1068).

Iron. A test for iron is necessary. Haussmann (A. J. Ph. 95, 85. Proc. 95, 1069).

Arsenic. Nagelvoort combines the methods of Gutzeit and Klein, and conducts the current of hydrogen over potassa and chloride of calcium before it passes through a thin layer of finely powdered nitrate of silver, packed between two layers of glass-wool. (Ph. Rdsch. N. Y. 94, 109. Proc. 94, 1208.)

Aldehyde. A mixture of 1 Cc. each of glycerin and ammonia is heated to not over 60° C., and three drops of solution of nitrate of sil-

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ver added. Neither a color nor a brownish-red precipitate should occur within 5 minutes. Ph. Germ. ("Nachtrag." Ph. Rdsch. 95, 92).

Assay. In a glass beaker of 100 Cc. capacity place 10 Gm. of glycerin, keeping the temperature at 11° C., and dissolve in it 6 Cc. of pure phenol. Run into it an aqueous solution of phenol (1:20) until permanent turbidity. The number of Cc. employed equals $\frac{N}{1000}$ $\frac{28.15 - N}{0.39}$. Halphen (Ch. & Dr. 93, 417. Proc. 93, 919).

Commercial. Examination. Some brands contain rather large quantities of arsenic. Tegarden (Proc. 94, 182).

Glyceritum Acidi Carbolici.

Caspari recommends to warm the acid and glycerin on a water-bath, and stir. (Pharmacy, p. 230.)

Glyceritum Acidi Tannici.

The tannic acid should be rubbed smooth with the glycerin, before applying the heat. Beringer (A. J. Ph. 93, 597). Also Caspari (Pharmacy, p. 230).

Glyceritum Amyli.

Synonym. "Plasma" or "Plasma Glycerini" might be added.

Is rendered more stable by keeping at an elevated temperature until all starch granules are dissolved. Patel (A. J. Ph. 93, 388. Proc. 94, 575).

A more expeditious way is to rub with water to a smooth paste, and to add to hot glycerin with constant stirring. (Ph. Post, 96, 226.) Also Caspari (Pharmacy, p. 231).

Glyceritum Hydrastis.

Preparation. According to Lloyd, better results are obtained by concentrating the alcoholic tincture to a syrupy consistence by distillation or otherwise, and then pouring this into "ice-cold" water equal in quantity to one-half the weight of the drug. The oily and resinous matter separate readily. Bring the filtrate to 500 Cc. for every 1000 Gm. of the drug by washing the filter with cold water, then add the glycerin, and shake thoroughly. (Caspari, Pharmacy, p. 231.)

Glycyrrhiza.

Cultivation in the United States. Rittenhouse (A. J. Ph. 95, 72. Proc. 95, 865).

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"Anatolian" Licorice root. Nickum (A. J. Ph. 95, 306. Proc. 95, 865).

Copper. P. c. (Ph. Ztg. 94, 30. Proc. 94, 566.)

Glycyrrhizinum Ammoniatum.

"Readily soluble in water and in alcohol" . . . Mr. Albert C. Plant, of Messrs. Lehn & Fink, N. Y. City, in a communication addressed to the Committee of Revision, points out that, while the compound is soluble in water and in diluted alcohol, it is insoluble in pure alcohol. In fact, on adding to its solution in equal parts of water and alcohol another volume of alcohol, the glycyrrhizin is precipitated.

Granatum.

Assay. Shake the powder with ammoniated ether-chloroform, evaporate off the ethereal liquid, and titrate with $\frac{N}{10}$ sulphuric acid. Stoeder (Ap. Ztg. 94, 163. Ph. Rdsch. N. Y. 94, 88. Proc. 95, 542).

Grindelia.

Assay. Schneegans (J. Ellsass-Lothr. 92, 133. A. J. Ph. 92, 369. Proc. 93, 638).

Guaiaci Resina.

Constituents. Luecker (Ph. Centralh. 93 . . . Proc. 94, 953).

Rosin. Rub to a very fine powder, and shake it vigorously with 4 to 5 times its bulk of benzin. Filter (any color of the filtrate would indicate the presence of other resins), and shake with an equal volume of solution of cupric acetate (1:1000). A green color indicates rosin. Hirschsohn (Ph. Ztg. Russl. 95, 514).

Guarana.

Assay. Thoms. (Ph. Centralh. 92, 431. A. J. Ph. 92, 525. Proc. 94, 934.)

Ph. Helvet. gives the following directions: Boil a mixture of guarana and calcium hydrate with chloroform, add water, and distil off the chloroform. Filter after cooling, and evaporate to dryness. Guarana should contain at least 3 p. c. of caffeine.

Hamamelis.

Beringer states that under this heading the Dispensatories describe the medicinal properties of the bark, and not that of the leaves. He asserts that most of the fluid extract is made from the bark, and sug-

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gests, therefore, that the bark be introduced instead of the leaves. (A. J. Ph. 93, 473.)

(Homatropinæ Hydrobromas.)

Should be introduced. Beringer (A. J. Ph. 93, 598).

Hydrargyri Chloridum Corrosivum.

Action of Cotton on Sublimate. Cotton apparently dissociates the salt, mercury being fixed upon the cotton, chiefly as oxide, a certain proportion of mercurous chloride being also formed. Vignon (J. de Ph. & Ch. 93, 13. A. J. Ph. 93, 451. Proc. 94, 574). See also Sclavo & Manuele (Orosi. 94, 10. Ph. Rdsch. Prag. 95, 23. Proc. 95, 586).

Volatility at the ordinary temperature. Arctowski (Zts. anorgan. Ch. 94, 167. Proc. 95, 950).

Solubility. The statements are somewhat at variance, but the official figures are very nearly correct. Thiesen (Ph. Rdsch. N. Y. 90, 205), obtained the solubility in water as 1:17.74, and in alcohol as 1:2.72, but it is quite possible that the solutions may not have been perfectly saturated, or the temperature accurately adjusted. In consideration of the criticism of Beckurts & Hirsch (Handb. Pharm. II, p. 112), and of Hirsch & Schneider (Commentar, p. 350), that any arsenic present is liable to be in the form of mercuric arsenate, and not reduced to hydrogen arsenide by the hydrogen developed in alkaline solution, it has been deemed safer to adopt the simple test of the Germ. Ph. In this test for arsenic, however, the precaution has been included to saturate the warm solution with hydrogen sulphide, and allow it to stand for some time, so that no arsenic present as an arsenate can escape precipitation and detection. Power (Circ. No. 112, p. 652).

Hydrargyri Chloridum Mite.

Manufacture in Japan. (J. Soc. Ch. Ind. 94, 108. A. J. Ph. 94, 232. Proc. 94, 1046.)

Test for Bichloride. Add a drop of a 10-p. c. alcoholic solution of soap to a drop of a recently prepared 10-p. c. solution of guaiac resin and 2 Cc. of ether, and mix well with the mercurous chloride by means of a glass rod. After evaporation of the ether, an intensely green color will be observed if bichloride be present. Sensitive to 1:30,000. (Mon. de Ph. 95, 1696. Ph. Rdsch. N. Y. 95, 213.)

Chemical Formula. On the strength of the investigations of Harris & Meyer, that calomel is not volatile as such, but that the "vapor" is completely dissociated into mercury and mercuric chlor-

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ide (Berichte, 94, 1482. Proc. 95, 951,). Filoth rejects the formula Hg_2Cl_2, because then the vapor density should be much nearer 16.28 than 8.16, as actually obtained. (J. prakt. Ch. 95 . . . Proc. 95, 952.)——Power prefers the formula HgCl, which would appear to be correct, according to the determination of the vapor density made in an atmosphere of mercuric chloride vapor, when no dissociation takes place. (Circ. No. 112, p. 654.)——Curtman maintains that dissociation is not absolutely excluded in an atmosphere of bichloride vapor; if it were, the dissociation could not take place in a vacuous space, for the dissociated vapor of $Hg + HgCl_2$ soon fills that. Moreover, the easy dissociation by light alone and by many chemical agents speaks for the correctness of Hg_2Cl_2. (Ibid.)

Hydrargyri Iodidum Flavum.

Caution, not to prescribe it with a soluble iodide, should be added.

Preparation. François proposes to make it by making use of the reducing action of aldehyde on iodomercurammonium iodide. He dissolves mercuric iodide in a mixture of aniline and alcohol by heat, and treats the mother liquor from the separated crystals of diphenyldiammonium iodide with commercial ether, when the mercurous iodide separates after a certain time. (J. de Ph. & Ch. 94, 67. Proc. 94, 1047.)——The precipitation process (the official process) has hitherto not been regarded with favor by many writers (Nat. Disp. III edit. p. 783, and Hager, Comm. Ph. Germ. II, vol. II, p. 101), owing to an assumed danger of its contamination with mercuric iodide, but Power finds that by working with care, and especially by following the process given by Soetje (Digest on U. S. P. 1880, p. 228), that the danger is groundless. (Circ. No. 112, p. 658.)

Melting Point. At 290° C. (Merck's Index, p. 159.)

(Last two lines on p. 207.) "Wash with alcohol . . . as long as the clear, colorless washings . . . ." Hirsch points out, that traces of the very fine precipitate are apt to pass through the filter. (Ph. Rdsch. N. Y. 93, 278.)

Hydrargyri Iodidum Rubrum.

Solution in oil, formula. Delacour (J. de Ph. & Ch. 93, 603. A. J. Ph. 93, 451. Proc. 94, 1047).

Preparation. The present proportion of potassium iodide to mercuric chloride (5:4) is more suitable than the former of U. S. Ph. 1880 (11:9); the slight excess of iodide of potassium will prevent the formation of the chloriodide of mercury ($2HgCl_2.HgI_2$). A slight opalescence, on adding solution of silver nitrate to the wash-water, has to be allowed, because mercuric iodide cannot be washed with

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water until the washings cease to give any reaction with silver nitrate, owing to the slight solubility of the salt. Power (Circ. No. 112, p. 660).

Hydrargyri Oxidum Rubrum.

Preparation. Egeling states that this oxide can be prepared by precipitation so that the resulting product cannot be distinguished from that made by ignition. Into a boiling solution of mercuric chloride (1:5) pour a boiling concentrated solution of potassa, until the dark-brown color of the oxychloride is changed to a bright red, and the liquid reacts faintly alkaline. Then pour into 20 volumes of boiling water, collect and wash. (Ph. Ztg. 92, 517. A. J. Ph. 92, 567. Proc 93, 785.)

Metallic Mercury. To test for mercury, in the oxide prepared by ignition, add 1 part of the oxide to 20 parts of water in a test tube, and then drop by drop HCl until the oxide is dissolved, when the solution should be perfectly clear and limpid. Patein (J. de Ph. & Ch. 93, 390. Proc. 94, 1048).

Nitrate. The test for nitrate with sulphuric acid and ferrous sulphate does not detect with certainty less than ½ p. c., while the one adopted will readily detect ¼ p. c. Power (Circ. No. 112, p. 663).

Hydrargyri Subsulphas Flavus.

Although theoretically only 27.7 Cc. of 96 p. c. sulphuric acid are required, it has been thought best to increase the amount to 30 Cc., as there will always be some loss in the operation.

The solubility in water (1:2000) has been given on the authority of Schwanert. (Ph. Chemie, II. p. 535.) Power (Circ. No. 112, p. 665).

Hydrargyrum.

The amount of mercury contained in its different salts. Boquillon & Fischer (Ph. Era, 93, 175. Proc. 93, 783).

Boiling point. Ph. Germ. has 350° C. (Ph. Rdsch. N. Y. 93, 278.)

Hydrargyrum Ammoniatum.

"Almost insoluble." Hirsch queries the correctness of this expression, in view of the fact that water, little by little, deprives it of ammonium chloride. (Ph. Rdsch. N. Y. 93, 279.)

The directions of the Brit. Ph. "to wash it until it ceases to give a precipitate with nitrate of silver in presence of nitric acid," can hardly be correct, because, if the washings are continued to this extent, a considerable degree of decomposition would result. Flueck-

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iger's statement, that ammonium carbonate can be used instead of ammonia in making this salt, is not correct, since the freshly precipitated salt is very readily soluble in ammonium carbonate. Power (Circ. No. 112, p. 667).

Hydrargyrum cum Creta.

The process for the extinction of the mercury is hardly adapted for the retail pharmacist, and something better than honey is wanted. Hemm (A. J. Ph. 94, 392).

The complete absence of mercuric oxide must be insisted upon; the clinical experience of irritating properties is too widespread to disregard the necessity of absolute absence. Curtman (Circ. No. 112, p. 669).

(Hydrastina or its Hydrochlorate.)

Might have been introduced. Beringer (A. J. Ph. 93, 598), and A. P. A. Comm. (A. J. Ph. 95, 485. Proc. 95, 240.)

Reactions. Vitali (Orosi. 92, 405. A. J. Ph. 92, 414. Proc. 93, 852).

Hydrastininæ Hydrochloras.

Should be "Hydrochloride." A. P. A. Comm. (A. P. A. 95, 484. Proc. 95, 240.)

Hydrastis.

Localization of alkaloids. Pohl (Ch. Ztg. Rep. 94, 134. Ph. J. & Tr. 94, July, 30. Proc. 94, 925).

ALKALOIDS. The dry root was found to contain from 2.62 to 3.14 p. c. of hydrastine, according to the process employed. The fresh root, by the same processes, from 2.32 to 2.42 p. c. In the case of the dry root, 0.485 Gm. (or 18.5 p. c.) of the hydrastine was found to be in the free state. In the fresh root, 31.7 p. c. of the alkaloid was free. Dohme & Engelhardt (Ph. Rdsch. N. Y. 95, 235). Relation of hydrastine and berberine to one another, and their mode of combination. Both exist in the free state in the root, and may be extracted by ether or benzol. Dohme (W. Dr. 95, 58. Proc. 94, 188).

Assay. An assay should be given, and a definite p. c. of hydrastine required. A. P. A. Comm. (Proc. 95, 240).

Exhaust with hot alcohol, acidulate with HCl and sulphuric acid, and add ether. The precipitate is berberine. Render the filtrate alkaline with ammonia, and extract with chloroform, which gives hydrastine. Titrate with $\frac{N}{20}$ sulphuric acid. Thompson, who claims

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3 to 4 p. c. berberine and 1 to 2.5 p. c. hydrastine. (A. J. Ph. 93, 371. Proc. 93, 691.)——See also Eberhardt (A. J. Ph. 93, 375 & 376. Proc. 93, 546).

Keller treats the root with ammoniated ether, extracts with 1-p. c. hydrochloric acid water, makes the acid solution alkaline with ammonia, and takes up the alkaloid with ether-chloroform. He states that hydrastine cannot be titrated. (Ap. Ztg. 94, 52 & 133. A. J. Ph. 94, 201. Proc. 94, 546.)

Schwickerath. With more or less modified Prollius' mixture. (Ph. Rdsch. N. Y. 93, 285, & 94, 138. Bull. Ph. 93, 538. Proc. 94, 547.)

Identity. Add to an infusion of the root nitric acid, when a copious precipitate appears, soluble on boiling, and on cooling separating as yellow crystals (nitrate of berberine).——To a very dilute infusion add sulphuric acid, and blow vapors of bromine over the liquid, when the surface will be colored blood-red. Ph. Helvet. (Ph. Rdsch. N. Y. 94, 92).

Hyoscinæ Hydrobromas.

Should be "Hydrobromidum." A. P. A. Comm. (A. J. Ph. 95, 484. Proc. 95, 240).

"Scopolaminæ hydrobromas" might be given as a synonym, since it is highly probable, according to the researches of Schmidt, that hyoscine does not exist. (Ap. Ztg. 95, 91.)

Melting point. Merck states that it begins to shrivel up at 187° C., and is fully melted at 191° C. Dohme finds that the water of crystallization is lost in part, probably at 56.5° C., and that it melts at 65° C., while the anhydrous salt melts at 168.5° C. (Circular No. 125, p. 800.)

Solubility. In 4 parts of water and in 21.5 parts of alcohol. Merck (Berichte, 92, 11. Proc. 93, 863).

Behavior to potassa, auric chloride, bromine, picric acid, platinic chloride. Wormley (A. J. Ph. 94, 513. Proc. 95, 1013).

"Neutral." Ph. Germ. says "faintly acid." (Ph. Rdsch. 93, 279.)

Identity. The tests given are not very precise, and would not serve to distinguish it from the salt derived from Scopolia. (Ph. J. & Tr. 93, Sept. 242.)——Concurred in by Curtman. (Circ. No. 144, p. 916.)

Hyoscyaminæ Hydrobromas.

Should be "Hydrobromidum." A. P. A. Comm. (A. J. Ph. 95, 484. Proc. 95, 240).

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Solubility. In water, 1:0.34; in alcohol, 1:2.2. Melting point. 149–150° C. Merck (Circular, No. 125, p. 801).

Hyoscyaminæ Sulphas.

Melting point. It is questionable whether there is any practical advantage in giving melting points, either so difficult to recognize that wide limits must be allowed, or where various authorities, all of whom are presumed to operate with care, obtain widely different results. The latter are probably due to difference between the samples examined and to personal error. It would seem best to omit all such uncertain figures from the Pharmacopœia. (Circular, No. 125, p. 802.)

Behavior to potassa, auric chloride, bromine, picric acid, platinic chloride. Wormley (A. J. Ph. 94, 513. Proc. 95, 1013).

Hyoscyamus.

Alkaloids. P. c. Dohme (A. J. Ph. 93, 481).

Assay. Should be introduced. A. P. A. Comm. (A. J. Ph. 95, 484)

Schwickerath. With more or less modified Prollius' mixture. (Ph. Rdsch. 93, 282, & 94, 138. Bull. Ph. 93, 535.)

Beckurts finds that Keller's method gives the most uniform results. (Ph. Centralh. 94, 566. Am. Dr. 94. Nov. 328. Proc. 95, 535.)

Copper. P. c. (Ph. Ztg. 94, 30. Proc. 94, 566.)

Illicium.

Should be omitted. Beringer (A. J. Ph. 93, 470).

Oil. Yield. Morrison & Jackson (Proc. 94, 682).

Infusa.

The Pharmacopœia should direct "expression" in addition to "straining." Caspari (Pharmacy, p. 216).

An infusion made in winter time is likely to differ from one made during warm weather, and a large quantity from a small one, because of the unequal cooling of the liquid. "Let it stand for half an hour:" it should be added "in a warm place."

Not all substances, suitable for infusions, can stand boiling water; calumba, for instance.

Infusum Digitalis.

England proposes to leave out the cinnamon, and to add 90 minims of ammonia to each pint. (A. J. Ph. 92, 361. Proc. 93, 425.)

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Inula.

A fluid extract is wanted. Beringer (A. J. Ph. 93, 470).

Inulin. Preparation, properties and chemistry. Tanret (J. de Ph. & Ch. 93, 354 & 449. Proc. 93, 853).

Iodoformum.

Moisture. So much of the iodoform at present in the market is more or less moist, that an allowance of loss on drying over sulphuric acid should be fixed. Vulpius thinks that 1 p. c. is sufficient. (Ph. Centralh. 94, 259. W. Dr. 94, 264. Proc. 94, 1210.)

Solubility. In 9 parts of boiling water. Vulpius (Ph. Ztg. 94, 114).

(Last paragraph.) "Unaffected by silver nitrate"—can not be fulfilled, as iodoform is slightly soluble in water (1:14,000). Merck (Index, p. 136).

Emulsum. With starch and glycerin. (Brit. Med. J. 93 . . . Proc. 94, 564.)

Since iodoform is to a slight extent soluble in water, silver nitrate solution will affect water that has been shaken with iodoform, even if the latter was free from soluble iodides. It is best to alter the text to read: "and should not be rendered more than faintly opalescent by silver nitrate, T. S.," etc.

Iodum.

Boiling point. At 187° C. (Merck, Index, p. 135.)

Soluble in 50 parts of glycerin. (Ibid.)

Pure. Preparation. A solution of 1 part of potassium iodide in 2 parts of water is saturated with iodine, and sufficient water added to precipitate a small portion. Decant after 24 hours, and precipitate completely with water. Wash and dry over calcium chloride. Sublime twice with, and twice without barium oxide. Meinecke (Ch. News, 93, 272. Proc. 94, 1030).——Precipitate a solution of equal parts of potassium iodate and potassium iodide with dilute sulphuric acid. Wash, and dry over sulphuric acid. Sublime as before. Meinecke (Ibid.).

Curtman calls attention to the fact that, while it is a comparatively easy matter to prepare a pure iodine on a small scale, such processes entail much loss, requiring the rejection of comparatively large fractions, and therefore cannot be employed on a large scale. He thinks that 98.63 p. c. is the best for adoption. (Circ. No. 112, p. 671.)

Estimation. Vitali proposes to make use of the reaction between iodine and sulphurous acid in presence of water, and then retitrate with normal Na. (Bollet. Ch. Farm. 94 . . . Proc. 94, 1032.)

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In presence of bromides and chlorides. Add an excess of ferric chloride, and shake out with carbon disulphide as long as the latter gets colored. Titrate the disulphide solution directly with sodium hyposulphite. Villiers & Fayolle (Ch. Ztg. Rep. 94, 179. Ph. Rdsch. N. Y. 94, 244).

Sensitive Test. Denigès makes use of the acetone-iodoform reaction. To 10 Cc. of the filtered liquid add a drop of solution of potassa and 5 to 6 drops of a 10-p. c. aqueous solution of acetone, and lastly, a few drops of a solution of an alkaline hypochlorite. The precipitate, if any, is heated on a slide. After coöling, the microscope will show the hexagonal crystals of iodoform. (J. de Ph. & Ch. 93, 499. Ph. Rdsch. N. Y. 94, 40.)

In the test for *cyanide*, the ferric chloride, usually directed, has been omitted because only a trace of ferric salt is required, and this is obtained by the superficial oxidation of the ferrous sulphate. In the test for *chloride* and *bromide*, the test with ammonia and subsequent addition of an excess of silver nitrate, has been modified according to a suggestion of Salzer (Ph. Ztg. 91, 472 & 622), who has observed that, by the method adopted in the U. S. Ph. 1880, the filtrate is usually not clear, rendering the result somewhat uncertain. Power (Circ. No. 112, p. 671).

Ipecacuanha.

Microscopy. Key to the microscopical structure of the varieties. Holmes (Ph. J. & Tr. 93, Sept. 210. Proc. 94, 928).——Greenish (Ph. J. & Tr. 95, Febr. 689. A. J. Ph. 95, 472. Proc. 95, 879).——Hartwich (Oest. Zts. 94, 345. Proc. 94, 932).——Moeller (Ph. Post, 94, 165. Ph. Rdsch. N. Y. 94, 104. Proc. 94, 931).

Proportion of Wood and Bark in the commercial varieties. Cæsar & Loretz (Ap. Ztg. 92, 464. A. J. Ph. 92, 568. Proc. 93, 697).

Location of Emetine. Cork layer and the parenchym layer nearest to it. Dohme (Proc. 93, 169).

De-emetinizing of ipecacuanha (for use in dysentery). Exhaust with ammoniated chloroform, shake out the emetine with dilute sulphuric acid, and return the washed chloroform to the powder, allowing to dry spontaneously. Bird (Ph. J. & Tr. 93, Sept. 211. Proc. 94, 929).

Chemistry. Paul & Cownley arrive at the conclusion that, assuming that the medicinal properties are due to the alkaloids emetine and cephaëline, it may be inferred from the characters of these alkaloids that in galenical preparations a process is to be preferred which would insure their conversion into salts, since the alkaloids in a free state are liable to alteration under the influence of heat. (Ph. J. & Tr. 95, Febr. 692.)——See also same authors. (Ph. J. & Tr. 93,

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July, 61 & 94, Aug. 111, & Nov. 373), and (A. J. Ph. 93, 484, & 95, 256. Proc. 95, 880 & 1011, & 94, 930.)——Also Cripps (Ph. J. & Tr. 95, Aug. 160).

Alkaloids. Yield. Value of stems, fancy and wiry roots: Fancy, 2 to 2.33 p. c.; wiry, 2.13 to 2.43 p. c.; stems, 1.77 to 2.15 p. c. Dohme (A. J. Ph. 95, 490 & 533. Proc. 95, 269).——Kebler found 1.67 and 2.39 p. c. (A. J. Ph. 95, 29. Proc. 95. 811.)——If the woody portions assay much higher than 0.5 p. c., it would indicate that the root had been moistened. Keller (Schweiz. Woch. 93, 473. Proc. 94, 550).——Moeller states that the woody portion contains from 0.6 to 1.6 p. c. of emetine. (Ph. Rdsch. N. Y. 94, 105.)

Influence of heat. Paul & Cownley find that even long-continued boiling of an acetic acid solution of emetine and cephaëline has very little effect. On the other hand, exposure to dry heat (water-bath temperature) results in loss of alkaloids, and apparently the air is the chief cause. (Ph. J. & Tr. 95, July, 2. A. J. Ph. 95. 528.)

Assay. Attfield points out that emetine is so easily attacked by acids and alkalies, that the assays of no two analysts will agree unless the conditions of the manipulations are constant. He recommends to extract with cold ammoniated chloroform first, then with hot, and evaporate at as low a temperature as possible. A reliable method has yet to be discovered. (Ph. J. & Tr. 93, July, 48. A. J. Ph. 93, 391. Proc. 94, 929.

Indicators, value. A. P. A. Comm. (Proc. 95, 192.)——Kebler & La Wall (A. J. Ph. 95, 505 & 506).

Titration better than the gravimetric method. Caspari & Dohme (A. J. Ph. 93, 477).——Kebler (Am. Dr. 94. Sept. 179).

Kottmayer reviews the different methods proposed (Zinofsky, Flueckiger, Kremel, Lloyd), and gives preference to the following, the principle of which is to fix organic acids and coloring matter with a heavy metal:—Digest the root with acidulated (HCl) alcohol at 40° C. for several days. Mix an aliquot part with an alcoholic solution of lead acetate and slaked lime, evaporate to dryness, and extract with chloroform. (Ph. Post, 93, 913 & 933. A. J. Ph. 92, 519. Proc. 93, 406.)

Keller. Exhaust with ammoniated ether-chloroform, shake with acidulated (HCl) water, alkalinize with ammonia, and take up with ether-chloroform. Titrate. (Schweiz. Woch. 92, 501 & 509, and 93, 473 & 485. A. J. Ph. 93, 82, & 94, 200. Proc. 93, 408 & 847, and 94, 549.)

Grandval & Lajoux. Treat with ammoniated ether-alcohol, and exhaust with ether. Shake the ethereal percolate with very dilute sulphuric acid, render alkaline with soda, and take up with ether. The yield should be 1.6 to 1.8 p. c. (J. de Ph. & Ch. 93, 152. Proc. 94, 548.)

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Schwickerath. With more or less modified Prollius' mixture. (Ph. Rdsch. N. Y. 93, 285, & 94, 139. Bull. Ph. 93, 538. Proc. 94, 549.)

Ph. Helvet. Digest with acidulated water and alcohol, mix filtrate with acidulated water, evaporate off the alcohol, and titrate with Mayer's reagent. It demands 2¼ to 2½ p. c. emetine. (Ph. Rdsch. N. Y. 94, 68.)

Kebler. Comparison of Lyons, Flueckiger and Keller. He speaks highly of Keller's method. (Proc. 95, 340.)

Cripps prefers Lyons' process, and recommends a standard of not less than 2 p. c., nor more than 2.5 p. c., a standard which is easily obtainable. He prefers the Brazilian root. If Carthagena should be admitted, we might as well recognize the stems of the Brazilian root too. (Ph. J. & Tr. 95, June, 1093. A. J. Ph. 95, 470.)

Meyer. Extract with a 10 p. c. acetic acid, and titrate with solution of potassio-mercuric iodide. (Ap. Ztg. 93, 179.)

Iris.

Microscopical structure. Bastin (A. J. Ph. 95, 78).

Jalapa.

"12 p. c." is hardly obtainable in the market; 10 p. c. is the highest that can reasonably be insisted upon. Beringer (A. J. P. 93, 598). See also Caspari (Pharmacy, p. 281).

No more than 7 p. c. of the resin should be soluble in chloroform. Caspari (Ibid).

P. c. of resin and of ether-soluble resin. Robinson (Ph. J. & Tr. 93, Decbr. 531. Proc. 94, 605).

Juglans.

Analysis. Truman (A. J. Ph. 93, 426).

Kamala.

Ash. Flueckiger found as low as a little over 3 p. c. (Arch. Ph. 92, 240. A. J. Ph. 92, 410. Proc. 93, 652.)——Ph. Germ. allows only 6 p. c. of ash. (Ph. Rdsch. N. Y. 93, 281.)——There has been found as high as 60 p. c. (Ph. Centralh. 93, 20.)

Constituents. Perkins (Ph. J. & Tr. 93, Aug. 159, & Sept. 236. Proc. 94, 883).

Adulteration. Focke found starch from a Scitaminea, colored red with fuchsin. (Ap. Ztg. 95, 15. Ph. Rdsch. N. Y. 95, 39. Proc. 95, 858.)

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(Koumiss.)

Preparation and varieties. Davies (Ph. J. & Tr. 92, Oct. 301. Proc. 93, 936).

Lactucarium.

Would it not be advisable to state expressly that the so-called "German" lactucarium is intended?

Limonis Cortex.

The description "in narrow, thin bands," etc., does not agree with the requirements of Spiritus Limonis (the only preparation in which it is used) which directs "freshly grated." The description should read "the outer or yellow epidermal surface, grated from the ripe fruit." Beringer (A. J. Ph. 93, 598).

Distinction from Orange Peel. Strong hydrochloric acid imparts a green color to orange peel, but only heightens the color of lemon peel. Clayton (A. J. Ph. 94, 361. Proc. 94, 933).

Linimentum Ammoniæ.

There is no apparent reason for the retention of cotton-seed oil, which is admittedly inferior to olive oil. That good olive oil is obtainable, is conceded by the Pharmacopœia, which directs 6,000 Gm. in the formula for lead plaster. Why not use sesame oil, which is stated to make a good liniment?

The beneficial effects of alcohol do not last long. (Ph. Post, 95, 447.)

Linimentum Belladonnæ.

Cripps proposes a strength of 0.25 of alkaloids in 100 fluid parts. (Ph. J. & Tr. 95, Mrch. 795.)

Linimentum Camphoræ.

Assay. Distil in a current of steam, which carries over all the camphor and fatty acids; saponify the distillate with soda, and take up the camphor with ether. Manseau (Bull. Ph. Bordeaux, 93, 222. A. J. Ph. 93, 497. Proc. 94, 895).

Linimentum Saponis.

Preparation. It is better to digest the soap in hot water, so as to form a translucent jelly, which is then readily dissolved in alcohol. Beringer (A. J. Ph. 94, 391), and Caspari (Pharmacy, p. 381).—— Wentsky makes it from olive oil and solution of potassa in the cold

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way. Arato prefers the hot way. (Ph. Ztg. 93, 654. Proc. 94, 612.) ——Soap made from olive acid and soda is superior. (W. Dr. 94, 138.)

Linimentum Saponis Mollis.

Acetone may replace alcohol. Morrison (Proc. 94, 282).

Smith proposes to make the soap extempore, by shaking a mixture of fixed oil, solution of potassa and alcohol until saponification, and then adding the remainder. (A. J. Ph. 96, 187.)

Linimentum Sinapis Compositum.

Acetone may replace alcohol. Morrison (Proc. 94, 282).

Linum.

"Not less than 25 p. c. of fixed oil" is too low. Flaxseed readily yields 32 to 35 p. c. Beringer (A. J. Ph. 93, 599).

(Last paragraph.) "Filtered infusion" is rather unpractical, the infusion is too mucilaginous. Lloyd (A. J. Ph. 95, 463. Proc. 95, 196).

Test for Starch. Lloyd proposes the following wording:—Boil 1 Gm. of ground flaxseed with 20 Cc. of water, and allow to cool. Mix 0.2 Cc. of the T. S. of iodine with 10 Cc. of a 10 p. c. sulphuric acid. To 8 Cc. of the flaxseed mucilage add 2 Cc. of this iodine compound, when a blue coloration will result in the presence of as little as 0.5 p. c. of starch. (A. J. Ph. 95, 463. Proc. 95, 196.)

Liquor Acidi Arsenosi.

This solution must contain more or less chloride of arsenic. Hirsch (Ph. Rdsch. N. Y. 93, 281).

Liquor Ammonii Acetatis.

The former second formula, in two solutions, should have been retained. Beringer (A. J. Ph. 93, 599).

"Freshly made when wanted." It would be easier to keep the two solutions. It is not believed to be practicable to construct a formula which will produce absolutely uniform results, and it is at the same time believed that the solution should be made with cold dilute acetic acid in order to retain as much carbon dioxide in solution as possible, and that the acid should be left slightly in excess, in order to render the mixture acidulous and pleasant to the taste. Oldberg (Circ. No. 160, p. 987).

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Liquor Calcis.

Commercial. Examination. Greenawalt (A. J. Ph. 95, 562).

It is suggested to let the first water stand a couple of days before throwing it away, and to repeat this operation twice. The contaminations are seldom removed by a single short treatment. (Ph. Ztg. 94, 143.)

Liquor Ferri Acetatis.

"Boiling water" (last line on p. 228). Hirsch queries the usefulness of using "boiling" water for washing. (Ph. Rdsch. N. Y. 94, 10.) See, however, Reinitzer ("Digest" on U. S. P. 1880, p. 92).

Ph. Germ. "Nachtrag" tests also for sulphuric acid. (Ap. Ztg. 95, 92.)

Volumetric Estimation. 0.56 Gm. of solution of acetate of iron of a theoretical strength of 7.93 p. c. of metallic iron should require 7.93 Cc. of $\frac{N}{10}$ sodium hyposulphite. It will, however, not be advisable to demand more than 7.5 p. c. of iron. Hence only 15 Cc. of $\frac{N}{10}$ hyposulphite. It is also best to require the solution to contain only about 31 p. c. of the anhydrous salt, as a little $Fe_2(OH)_6$ is always lost in washing. Oldberg (Circ. No. 160, p. 989).

Liquor Ferri et Ammonii Acetatis.

"Elixir" would probably be a better term than "Liquor." Beringer (A. J. Ph. 93, 518).

The original formula contained a little over 6 p. c. by volume of tincture of chloride of iron. Beringer (A. J. Ph. 93, 599).

Liquor Magnesii Citratis.

The water should be boiled, and used hot, the solution will then keep better. Beringer (A. J. Ph. 93, 599).——Hallberg proposes to heat the solution after it has been filtered into the bottles, cork, and add the potassium bicarbonate when wanted. (A. J. Ph. 95, 485.)

The proportions given by Stevens and Palmer (13 magnesium carbonate, 26.5 citric acid, 0.128 oil of lemon, 62 sugar, 2 potassium bicarbonate) are recommended. A. P. Comm. (A. J. Ph. 95, 485. Proc. 95, 241.)

Edel triturates 5.4 Gm. calcined magnesia with 28 Gm. citric acid and 90 Cc. of warm water, until dissolved, then adds 75 Cc. of syrup of citric acid, and water up to 295 Cc. Finally 2.6 Gm. potassium bicarbonate. (Merck, Report, 94, 192. Proc. 94, 582.)

Caspari recommends to increase the acid to 33.58 Gm., if the solution is to be kept in bottles for a week, or longer. (Pharmacy, p. 481.)

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In the earlier issues the quantity of Syrup of Citric Acid was given as 120 Cc. This was altered to 60 Cc.

Liquor Plumbi Subacetatis.

Courtonne prepares it by adding 11 parts of ammonia (0.923) to a solution of 70 parts of neutral acetate of lead in 165 parts of water. (Ph. Centralh. 93, 87. Proc. 94, 582.)

Hirsch points out that the Pharmacopœia has directed only the molecular quantity of the lead oxide, and that it should therefore expressly insist upon the freedom from water and carbonic acid. The last Pharmacopœia directed an excess. (Ph. Rdsch. N. Y. 94, 11.)

Indicator. Curtman finds cochineal and congo-red better adapted than methyl-orange, and he finds residual titration more accurate in this case. This consists in precipitating the lead by an excess of normal sulphuric acid V. S., and then determining the excess of the latter. (Ph. Rdsch. N. Y., 94, 181.)

Chemical Formula. Oldberg states that the proportions of lead acetate and lead oxide are so employed that the solution is believed to contain no other subacetate of lead than $Pb(C_2H_3O_2)Pb(OH)_2$. (Circ. No. 160, p. 998.)——Rice thinks that the composition of the product more nearly agrees with the formula $Pb_2O(C_2H_3O_2)_2$.

$$\underset{378}{Pb(C_2H_3O_2)_2} + \underset{222.36}{3H_2O + PbO} = \underset{546.48}{Pb_2O(C_2H_3O_2)_2} + \underset{53.88}{3H_2O} \quad \text{and} \quad \frac{546.48}{4} = 136.62.$$

Hence, 1 Cc. of $\frac{N}{10}$ $H_2SO_4 = 0.13662$ Gm. of the compound. Theoretically the solution contains 27 p. c. of the latter. Practically we can require 25 p. c. (Ibid.)

Liquor Potassii Arsenitis.

Oldberg proposes to replace the potassium bicarbonate by solution of potassa 225 Gm. to every 10 Gm. of arsenious oxide. (Apoth. 92 . . . Proc. 93, 430.) See also Garraud (J. de Ph. d'Anvers, 94, 394. Proc. 95, 586), and Lonnes (Ph. Ztg. 94. Proc. 94, 585).——Campbell uses 10 Cc. of the solution of potassa for every 1 Gm. of arsenious acid. (A. J. Ph. 95, 402.)

The precipitate often found in this preparation is composed chiefly of silicic acid, due to the action of the alkali upon glass. Braeutigam (Ph. Centralh. 92, 741. W. Dr. 93, 327. Proc. 94, 585).

Liquor Potassii Citratis.

It is to be regretted that the Mistura Potassii Citratis (with lemon juice) has not been retained. Beringer (A. J. Ph. 93, 471).

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Liquor Sodæ Chloratæ.

The Pharmacopœia should allow the use of more chlorinated lime than just sufficient, because even by successive triturations it is not possible to extract all the available chlorine. The process of 1880 gives a more satisfactory product. It is of no consequence if the liquor is still cloudy. The assertion of the U. S. Dispensatory, p. 825, that boiling and evaporating does not cause loss of chlorine, is certainly not in accordance with facts. La Wall (A. J. Ph. 95, 203. Proc. 95, 941).

The official process is essentially that recommended by Squibb in Ephemeris, 1892, p. 1328, being a much better agent for estimating urea than the proportions used in the Pharmacopœia of 1880.

Liquor Zinci Chloridi.

The turbidity, often observed in this liquid, is generally due to the formation of oxychloride of zinc. It is imperative to use distilled water. Carles (Ren. de Ph. 94, 97. Proc. 94, 588).

Besthorn proposes to replace the nitric acid with solution of hydrogen dioxide. (Proc. 94, 648.)

The quantity of zinc directed is in slight excess, so as to leave a little metal undissolved in order to get rid of foreign metals. The strength of the solution is gauged by the amount of hydrochloric acid employed. Oldberg (Circ. No. 170, p. 1022).

Lithii Benzoas.

Most of the lithium benzoate in the market contains not only sodium benzoate, but also hippurate, derived from urine-benzoic acid. This renders it much more soluble in water than the pure salt, and also more soluble in alcohol; it is less soluble if benzoate of sodium be present. The flame test for the absence of sodium is too rigorous, and would necessitate purification by ether-alcohol, making the product very expensive. The precipitated benzoic acid should melt at 121.4° C.; hippuric acid, if pure, melts at 187.5° C. Hence, a high melting point shows impure benzoic acid. The carbonaceous matter in the volumetric test does not interfere materially with observing the change of color in methyl-orange T. S. from yellow to red. Phenolphtalein would require repeated troublesome boiling. The addition of a drop of ammonia to the ferric chloride T. S. (fifth paragraph), is necessitated by the slightly acid reaction of the lithium salt. Curtman (Circ. No. 112, p. 673).

Lithii Carbonas.

Solubility. The solubility of the U. S. Ph. article is not that of the absolutely pure carbonate, which is much less soluble, but that

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of the commercial salt, and which comes otherwise up to the demands of the U. S. Ph. Conflicting statements led Curtman to make experiments to elucidate the solubility in water at 15° C. Curtman found that the main bulk readily dissolves in less than 80 parts of water, but that small granules continue to remain undissolved for a longer time, but finally dissolve in 80 parts. In boiling water the carbonate is less soluble than in cold. Some of the salt was purified by boiling a solution saturated in the cold, which deposited small crusts of carbonate, even though the water was replaced, as it evaporated, from time to time. Curtman believes that presence of bicarbonate in the pharmacopœial salt influences the solubility. Flueckiger gives the solubility as 1:80 at 15° C., and as considerably less soluble in boiling water. (Pharm. Chemie, I, p. 276.) Ph. Germ. III. gives 1:80 at 15° C. and 1:140 boiling water. The impurities appear to be a little sodium and some lithium bicarbonate, although this latter salt is not known independent of admixture with carbonate, and it is quite possible that this impurity greatly affects the solubility in cold water, which disappears when a higher temperature expels the carbonic acid. (Circ. No. 112, p. 676.)

Volumetric Estimation. 1 Gm. carbonate of lithium requires for neutralization 27.745 Cc. normal sulphuric acid; Ph. Germ. III. directs at least 26.8 Cc. acid for 1 Gm. of the salt, corresponding to 96.59 p. c. of the pure carbonate, which is exactly the strength Curtman has found in all of the specimens examined by him, all of which were imported. There is not a manufacturer in the U. S. who makes the lithium preparations from the crude material, hence it will be deemed best to adopt the same standard. (Ibid.)

Lithii Citras.

Solubility. Merck gives the solubility in water at 15° C. as 1:5½. (Index, p. 149.)

Flame Test. For the flame test all lithium salts can be used directly. There is no need of conversion into chloride, except when lithium is to be found as an admixture to a large amount of other salts. Curtman (Circ. No. 112, p. 677).

Volumetric Estimation. Although 1 Gm. of the calcined residue of the pure salt requires 14.315 Cc. of normal sulphuric acid for neutralization, it is deemed best to make the minimum 14.2 Cc., which corresponds to 99.2 p. c. This is about the limit of the salt usually manufactured now; sometimes it is slightly purer, but as all of the crude material imported (carbonate) has a little sodium as impurity, which cannot be removed without considerable expense, the above standard should not be exceeded. Curtman (Ibid).

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Lithii Citras Effervescens.

Should be granulated. Beringer (A. J. Ph. 93, 600).

Macis.

Distinction between Bombay and Banda mace. The behavior of the ethereal extract, after previous extraction with benzin:—Bombay mace leaves 30 p. c., while Banda mace leaves only 3 p. c. Soltsien (Ph. Ztg. 93, 467. A. J. Ph. 93, 457. Proc. 94, 917).——Apply a solution of potassium chromate to a section of the mace, and warm slowly. Banda mace keeps its yellow color unchanged, Bombay mace turns a deep reddish-brown. Waage (Ph. Centralh. 93, 133. Proc. 94, 917).——Bussy especially recommends the baryta test. Dip strips of filtering paper for a half hour into the alcoholic tincture, and, after drying them, dip them into boiling baryta water. Let dry. Pure mace gives a brownish-yellow stain, while Bombay mace gives a brick-red one. (Ph. Ztg. 96, 328).

Ash. Should not be over 2 p. c., and not more than ½ p. c. should be insoluble in HCl. (Ph. Centralh. 93, 238.)

Magnesii Carbonas.

The basic character of this salt should be indicated in the title. A. P. A. Comm. (A. J. Ph. 95, 485. Proc. 95, 240).

Chemical Formula. It is marked "approximately," because it is not of constant composition, though it generally agrees quite closely with the formula given. "The residue should not weigh less than 0.4 Gm." (= 40 p. c.); the theoretical yield of MgO from a salt of the assigned composition is 41.5 p. c. Power (Circ. No. 112, p. 682).

Magnesii Citras Effervescens.

The former term "Granulatus" would imply that it consisted only of citrate of magnesia in a granulated form, which, of course, is incorrect. This remark applies as well to all the other effervescent salts, often mis-named "Granulatus." Power (Circ. No. 112, p. 683).

There is no necessity for directing "distilled" water.

Commercial. Examination. Scoville (Ph. Rec. 92, 267. Proc. 93, 782).

The fine particles, which invariably will be formed, should be separated by a No. 20 or 30 sieve. Caspari (Pharmacy, p. 367).

Magnesii Sulphas.

"Rhombic prisms" refers to the large crystals, which one seldom sees; "small, colorless prismatic needles" would be a more correct

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description of the commercial article which is obtained by disturbed crystallization. "Acicular needles" is tautological, meaning literally "needle-shaped needles." Power (Circ. No. 112, p. 685).

Solubility. Authorities differ, probably because of the ready formation of supersaturated solutions. The various statements may be seen from the following:

	At 15° C.	At 100° C.
U. S. Ph.	0.8	0.15
Ph. Germ., III.	1.0	0.30
" II.	0.8	0.15
" I.	3.0	1.0
Mulder	1.443	0.661

(The last from Hirsch & Schneider, p. 442.)

Flueckiger (Ph. Chemie) the same as Ph. Germ. II.

It has been thought best to give Mulder's figures, rounded off, as they have been carefully determined for various temperatures. Power (Ibid.).

Mangani Dioxidum.

This oxide is not infrequently prescribed for internal use, but since it contains only 66 p. c. of the pure dioxide, a pure dioxide should be introduced, which, of course, would necessitate a caution under the present official dioxide, that the latter is not intended for internal use. Beringer (A. J. Ph. 93, 600).

Estimation. $MnO_2 + 4HCl = MnCl_2 + Cl_2 + 2H_2O$.
86.72 145.48

1 Gm. requires for its decomposition 1.6775 Gm. of absolute HCl, or 5.25 Gm. of official HCl (31.9 p. c.), which = 4.52 Cc. The impurities present may be of such a nature as to combine with some of the HCl, therefore the amount of HCl has been increased to 5 Cc. One molecule of MnO_2 (86.72) will afford sufficientchlorine to oxidize 2 molecules of $FeSO_4.7H_2O$ (2 × 277.42) = 554.84.

1 Gm. of pure MnO_2 would therefore oxidize 6.398 Gm. of $FeSO_4.7H_2O$, and 1 Gm. of 66 p. c. dioxide would oxidize 4.2226 Gm. Power (Circ. No. 112, p. 687).

Pure Dioxide, preparation. A solution of manganous sulphate in water is mixed with a solution of chlorinated soda, and the precipitate washed. Curtman (Ph. Era, 94, xii. 151).

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Marrubium.

A fluid extract is wanted. Beringer (A. J. Ph. 93, 470).

Massa Copaibæ.

Addition of 1 p. c. of sodic hydrate, dissolved in a little water, will improve solidification. Beringer (A. J. Ph. 93, 600).

Massa Hydrargyri.

Caspari states that it would be an improvement in consistence, if the amount of glycyrrhiza be doubled, and the althæa correspondingly decreased. (Pharmacy, p. 334.)

Quingnaud & Porte recommend oleate of mercury for pills. (Nat. Dr. 94, 41. Proc. 94, 600).

Massa Ferri Carbonatis.

In Powder Form. Freshly precipitated iron carbonate is thoroughly washed, expressed, intimately mixed with sugar of milk and licorice root, and quickly evaporated to dryness on a water-bath. Gonnermann (Ph. Ztg. 93 . . . Proc. 94, 599).

The iron salt is in slight excess. Hirsch would rather have the sodium carbonate in excess.

Mel.

The test with absolute alcohol is too rigid; probably no commercially available honey will stand it. As to the presence of chlorides, true honey will occasionally be found to contain an excess of them. Kebler (A. J. Ph. 95, 27. Proc. 95, 811 & 896).

Dextrin. Spencer once found 4 p. c. of dextrin in an undoubtedly pure honey. (A. J. Ph. 95, 27.)——Honey from Coniferæ always contains dextrin. Haenle (Zts. analyt. Ch. 94, 99. Proc. 94, 962).

Glucose. The official test for glucose is rendered more severe by pouring the alcohol on top of the filtered dilute honey, and observing the zone of contact. (Merck Report, 95, 288.)

Mel Despumatum.

Dieterich recommends the following process: Mix the honey with sufficient water (the amount depending on the consistence), heat for about seven hours on a water-bath, and clarify it with 5 p. c. of its weight of talcum, neutralizing, if necessary, with magnesium carbonate; allow to deposit, filter, add a few drops of acetic acid, and evaporate to the proper specific gravity. (Ph. Ztg. 93, 712.)

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Melissa.

Should be omitted. Beringer (A. J. Ph. 93, 470).

Mentha Piperita.

"Smith" as author is not permissible. According to the rules now in force, it should be "Linné." See Bentley in De Candolle's Prodromus, xii, p. 169 & 170. (Bull. Ph. 93, 497.)

Menthol.

Has been found adulterated with magnesium sulphate, which is best discovered by dissolving in chloroform. Sulzer (Ph. Rdsch. Prag. 93, 615).

Boiling Point. At 215.5° C., with the mercurial column of the thermometer entirely in the vapor, and with a barometric pressure of 758 Mm. Power, Fritsche (Catalogue, p. 93).

"Jap" menthol has an unmistakable odor of spearmint, but "Pharmacographia" (II, p. 483) states that by re-crystallization it assumes the pure flavor. It is not exactly correct to speak of "Jap" menthol and "Pip" menthol, for menthol, when pure, must always have the same chemical and physical properties, whatever its source. By analogy we should call thymol "Ajo" thymol, because most of the thymol is obtained from Ajowan oil, and not from oil of thyme, etc. Power (Circular, No. 109, p. 594).

Methyl Salicylas.

Beringer questions the advisability of introducing it, since it apparently possesses no advantage over the true oil of gaultheria. (A. J. Ph. 93, 600.)——Power gives the reason for introducing it, and states that it is much easier to detect adulterations in a chemically uniform body, than in a volatile oil. Fritsche (Catal. 94, p. 35).

Specific Gravity. When perfectly free from water, 1.187. Power (Ibid.).

(Although the following remarks apply quite as much to the oils of birch and gaultheria, it has been deemed best to give them here.) Very little natural oil of gaultheria is now to be found in commerce, and the small amounts now produced will doubtless continue to decrease in consequence of the cheaper production of the oil of sweet birch, which is sold as a substitute for it, and also on account of the competition of artificial methyl salicylate, which is now manufactured on a very large scale and of the highest degree of purity and excellence. With an estimated consumption in this country of about 100,000 pounds of the so-called oil of wintergreen, there is hardly 500 pounds of true oil of gaultheria made or used. The oils of birch

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and of gaultheria are neither physically nor chemically identical, although the differences are comparatively slight. Oil of birch, like pure methyl salicylate, is optically inactive, while natural oil of gaultheria is slightly lævogyrate. Power (Circular No. 109, p. 613).

Mistura Ferri Composita.

A better emulsion is obtained by rubbing the myrrh with the potassium carbonate, leaving out the sugar, which is best added last. Johnson (Ph. J. & Tr. 96 . . . Am. Dr. 96, 182).

Mistura Glycyrrhizæ Composita.

There is no apparent necessity for using ready-made mucilage of acacia; as the extract of licorice has to be triturated, powdered acacia might be used.

A formula, producing a clear mixture, is proposed by Caspari, the main features of which are the use of the purified extract of licorice, and the filtering of the mixture, after allowing to settle for 12 to 24 hours, adding the mucilage and sugar last. (Pharmacy, p. 306.)

Mistura Rhei et Sodæ.

The addition of ipecac and 35 p. c. of glycerin is too radical a change. Beringer (A. J. Ph. 93, 601).

It might have been advisable to either change the name, or to retain the old mixture, and give the present one a different name.

Morphina.

Action of Heat. On boiling solutions containing morphine, oxygen is gradually absorbed, and oxymorphine is formed. The color changes to yellowish. Hager (Ph. Ztg. 93, 250. Proc. 93, 680).—— Welmans states, that merely by vigorously shaking the solution, the change is effected; probably induced by the warmth of the hand. (Ph. Ztg. 93, 375. Proc. 94, 584.)

Solubility. In 5000 parts of water. Merck (Index, p. 165).

Melting Point. At 200° C. Merck (Ibid.).

Color Reactions, as compared with those of acetanilid. Schaer (Arch. Ph. 94, 256).

Identity. A mixture of solution of morphine and of a solution of uranium acetate (0.015 uranium acetate, 0.01 sodium acetate, 5 Cc. water) is evaporated on a water-bath to dryness. The "rings" on the porcelain capsule will be light-red or pink. This reaction is distinct with $\frac{1}{20}$ Mgm., and does not disappear for a long time. Lamal (Ap. Ztg. 94, 842. Ph. Era, 95, 302. Proc. 95, 1017).

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Bruylants combines Froehde's test with that of Huseman. A trace of Froehde's reagent added to a solution of morphine in sulphuric acid, produces the well-known lilac tint; if the sulphuric acid solution be warmed, and treated in the same way, a green tint will be noticed. On dropping a particle of potassium nitrate into this green liquid, the color changes to red, and finally yellowish. The other opium alkaloids give different tints. (Ph. Centralh. 95, 284. Nat. Dr. 95, 359. Proc. 95, 1016.)

Indicators. Value. Kebler & La Wall (A. J. Ph. 95, 503 & 504. Proc. 95, 191).

Morphinæ Acetas.

Soluble in 5 parts of glycerin. Merck (Index, p. 165).

The melting point of this salt cannot be given with any degree of certainty, owing to the constant loss of acetic acid. Hirsch doubted whether this salt contained only $3H_2O$, and thought it would be found to contain $6H_2O$. Rice determined it in commercial samples, and found it 72 p. c.; the theory requires for $3H_2O$, 71.5 p. c., hence $3H_2O$ is correct. (Circular, No. 135, p. 835.)

Morphinæ Hydrochloras.

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

Morphinæ Sulphas.

The crystals are needle-shaped. Hirsch says that the "cubes" are produced artificially by sawing the mass, to distinguish it from quinine hydrochlorate.

The statement, sometimes met with, that this salt loses all its water of crystallization at 100° C., is not correct. Three molecules of water may be expelled at this temperature by heating for some 20 hours, to drive off the remainder requires heating to 130° C. This salt contains only $5H_2O$ instead of $6H_2O$. Rice (Circular, No. 135, p. 836).

Mucilago Acaciæ.

In view of its being a rather unstable preparation, "distilled" water, or "water recently boiled and filtered after cooling," should be directed.

Oesch recommends an addition of 1 fluid drachm of alcohol for every ounce of acacia. (W. Dr. 92, 38. Proc. 93, 433.)——Widlund proposes to replace half of the water with lime water. (Proc. 93, 490.)——Lowe proposes the use of chloroform water. (A. J. Ph. 94, 353. Proc. 95, 654.)

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Caspari states that circulatory displacement is the most sensible way in which to dissolve the acacia. (Pharmacy, p. 229.)

Mucilago Sassafras.

"Freshly made, when wanted," is practically impossible of fulfilment, in view of the directions to macerate for "three hours." It would be preferable to increase the proportion of pith, and thus shorten the time. England proposes to beat the pith with a small quantity of sterilized water until pasty, express, and repeat the operation. (A. J. Ph. 94, 350. Proc. 95, 587 & 651.)

Mucilago Tragacanthæ.

Raes recommends the addition of 30 Gm. of alcohol for every 12 Gm. of tragacanth. (Ch. Ztg. 92, 216. Proc. 93, 433.)

Mucilago Ulmi.

"Freshly made, when wanted," does not agree with the directions to digest during "one hour." Increase of the proportion of the bark would shorten the time.

Myristica.

The ash should not amount to over 5 p. c., of which only ½ p. c. should be insoluble in HCl. (Schweiz. Woch. 92 . . . Ph. Centralh. 93, 238.)

Myrrha.

Solubility in ether and in chloroform should be added.

(Second paragraph.) "Purple tint on addition of nitric acid" add: (distinction from bdellium). Gottschling (Proc. 93, 634).

Nux Vomica.

Alkaloids. Localization. Gerock & Skipperi. Principally within the endosperm cells, but not in the walls of the same. (Arch. Ph. 92, 555. Proc. 93, 866.)——Clautriau. Within the endosperm, and also within the embryo, but not in the hairs. (Ph. J. & Tr. 94, Nov. 355. Ph. Rdsch. N. Y. 94, 264. Proc. 95, 980.)——Sauvan. Strychnine and brucine do not exist in the same cells, but separately in adjoining anatomical elements. (J. de Ph. & Ch. 95, 497. Proc. 95, 988.)

Quantitative separation of strychnine and brucine by a modification of Gerock's method (see Digest on U. S. P. 1880, p. 328). Keller (Oest. Zts. 93, 563 & 586. A. J. Ph. 94, 45. Proc. 94, 531).

Assay. Titration better than the gravimetric method. Caspari & Dohme (A. J. Ph. 93, 477), and Kebler (Am. Dr. 94, Sept. 179).

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Keller. Extract the oil with ether, and shake the powder with ammoniated ether-chloroform. Evaporate to dryness, take up with ether-chloroform, add water, and titrate with $\frac{N}{10}$ HCl. (Oest. Zts. 93, 563. A. J. Ph. 94, 43. Proc. 94, 529 & 550.)

Schwickerath. With more or less modified Prollius' mixture. (Ph. Rdsch. N. Y. 94, 58 & 139. Bull. Ph. 94, 56. Proc. 94, 550.)

Smith. Exhaust with dilute acetic acid, evaporate to dryness, dissolve in a small quantity of ammoniated alcohol, and shake out with a large quantity of ether-chloroform. Titrate with $\frac{N}{10}$ HCl. (A. J. Ph. 96, 189.)

Indicators. Value. Kebler & La Wall (A. J. Ph. 95, 505 & 506. Proc. 95, 192).

Copper. P. c. (Ph. Ztg. 94, 30. Proc. 94, 566.)

(Oleata.)

The English name does not conform to the rule elsewhere adhered to, to put the basylous or metallic name first. (Ph. J. & Tr. 93, Sept. 242.) This criticism is at fault, because the official oleates, even that of zinc, are not absolutely definite salts, but mixtures of the real oleates with oleic acid.

Oleatum Hydrargyri.

The excess of free oleic acid is too large. Prepared by double decomposition would be preferable. Beringer (A. J. Ph. 93, 601).——Edel favors the plan with double decomposition (with oleate of potassium); he also gives a table showing the amount of oleic acid to be added to the normal oleate, in order to get a certain p. c. (W. Dr. 94, 85. Proc. 94, 590.)

Williams places the mortar in boiling water, and heats in it the oleic acid to 38° C., whereupon the oxide is sifted into it, and stirred until dissolved. He prefers, however, double decomposition. (Ch. & Dr. 94, 273. Proc. 94, 589.)

Oleatum Zinci.

The impalpable powder, obtained by precipitation from a solution of an alkaline oleate and zinc sulphate, is preferable. Beringer (A. J. Ph. 93, 602).——Caspari (Pharmacy, p. 384).——Patch (Proc. 93, 86).——Hallberg (Proc. 93, 96).

(Oleoresinæ.)

The complete exhaustion by ether is unnecessarily wasteful of ether. Beringer (A. J. Ph. 93, 602).

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Acetone would be a better menstruum for several of them. Beringer (A. J. Ph. 92, 145).——Caspari (Pharmacy, p. 279).

Oleoresina Aspidii.

The color is yellowish-green; a pure green color denotes the presence of copper. Peters (Ap. Ztg. 93, 594. A. J. Ph. 94, 37).

Copper. P. c. (Ph. Ztg. 94, 30. Proc. 94, 566.)——Beckurts, Weppen & Luders (Ap. Ztg. 93, 594 & 722. Proc. 94, 569 & 570).

By using acetone, Caspari obtained 18 p. c. of oleo-resin. (Pharmacy, p. 280.)

Oleoresina Capsici.

Caspari advises not to carry the percolation to complete exhaustion, because of the large amount of fat present. He states, that when percolated slowly, 150 Cc. of the percolate will have practically exhausted 100 Gm. of the drug. (Pharmacy, p. 280.)

Oleoresina Cubebæ.

When prepared from the unripe berries, it is greenish; from the ripe berries, brownish. Emanuel (A. J. Ph. 94, 360).

Identity. Spread a small quantity on a porcelain plate, and pass a glass-rod dipped in sulphuric acid over it, when a red color will appear. Bourquelot (J. de Ph. & Ch. 95, 361. Merck, Report, 95, 222. Proc. 95, 533).

Caspari obtained 25 p. c. by using acetone. (Pharmacy, p. 280.)

Oleoresina Zingiberis.

Yield from different varieties (Jamaica, "Race," African). Davis (A. J. Ph. 95, 520).

(Olea Pinguia.)

Refractive Indices. Edwards (Proc. 93, 150).

Constants, and value of the tests proposed. Thomson & Ballantyne (J. Ch. Soc. 92, 547. Proc. 93, 892.)

Purity. Jean recommends to test the purity by the solvent power on acetic acid (1.056). (A. J. Ph. 92, 516. Proc. 93, 894.)

Purification. Shake with decoction of quillaya, and pass through granulated charcoal. Toellner (Nat. Dr. 93, 170. Proc. 94, 1176).

Rancidity prevented. Villon strongly recommends to shake the oils with a concentrated solution of "algesin," allowing to settle for 24 hours, decant and filter. (Ph. Ztg. 94, 743. W. Dr. 95, 60.)

Iodine Absorption. Welmans proposes a more permanent solution:—Dissolve 25 Gm. of iodine and 30 Gm. of mercuric chloride in

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500 Cc. of ether, and make up to one liter with acetic acid. (Ph. Ztg. 93, 221. A. J. Ph. 93. 382. Proc. 94, 1174.)——Gautter calls attention to the fact that the iodine absorption figures vary in direct ratio to the amount of mercuric chloride, and therefore recommends to leave out the mercuric chloride, and to use only a solution of iodine in carbon tetrachloride. (Suedd. Ap. Ztg. 93, 133, 145, 265. A. J. Ph. 93, 455. Proc. 94, 1173.)

Castor Oil. Mix the suspected oil with 3 volumes of vaselin oil, and keep at a temperature of 10 to 15° C. Castor oil not being miscible with vaselin oil, the mixture will separate in two layers, the lower one of which is castor oil. Morpurgo (Ph. Ztg. 94, 545).

Differentiation of Fatty and Vaselin Oils. Gawalowski & Katz find that the solubility in ether and in alcohol, or in mixtures of both, may be made use of to distinguish between the different oils. To a 25 p. c. solution of the oil in ether, which has been tinted with alkannin, add alcohol drop by drop until the clear solution begins to get turbid. The amount of alcohol necessary will vary with the different oils. (Ap. Ztg. 96, 569.)

(Olea Volatilia.)

Refraction Indices. Edwards. These are useful for detecting admixture of alcohol, but not with all oils for the detection of oil of turpentine, and not at all for detecting chloroform. (Proc. 93, 151.)

Optical Tests. These are given for several of the oils. A polaristrobometer is hardly to be found in an American pharmacy, and this instrument gives very unreliable results in the hands of those not accustomed to its use. Beringer (A. J. Ph. 93, 602).

Rotatory Power. Kauffmann remarks upon the changes caused by light, heat and age. (Ph. Era. 94, xii. 420.)

Reactions with stannous chloride. Hirschsohn (Ph. Zts. Russl. 96, 65 & 81).

Reactions with a solution of dimethylaniline-violet in acetic acid and alcohol. Perrot (Oest. Zts. 92, 802).

Tests. Value. The saponification number is the only method yet devised, which appears to form a really satisfactory test. The iodine number comes next. But as to the fractional distillation, relative density, rotatory power, refractive index, color reactions and free acidity test, these are for several reasons unsatisfactory. Detection of adulteration is one thing, and determination of purity is another thing. No satisfactory test can be devised, until two factors are known. 1. Action of tests on oils of unimpeachable purity. 2. A knowledge of the constituents of the oils. Jowett (Ph. J. & Tr. 93, Mrch. 774. Proc. 93, 870).

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Alcohol. A small fragment of fuchsin is wrapped in a pellet of cotton-wool, and placed in the upper part of a long, dry test tube, which contains a little of the oil. On heating, the alcohol, if present, will evaporate first, and dissolve some of the fuchsine, which will dye the cotton-wool. Ph. Helvet. (Ph. Rdsch. N. Y. 94, 85.)

In pills. With benzoin, borax and glycerin. Goetting (Ph. Rdsch. N. Y. 94, 85).

Oleum Adipis.

Soluble in alcohol, ether and chloroform.

The test of Hauchcorne (with somewhat diluted nitric acid) which seems to be very reliable in the case of olive oil, will not answer in the case of lard oil, as it gives with the latter a reddish-brown color. Power (Circular No. 109, p. 615).

Oleum Æthereum.

Specific Gravity. 1.096. Merck (Index, p. 173).

Boiling Point. 280° C. Merck (Ibid.).

Oleum Amygdalæ Amarum.

Specific Gravity. 1.045 to 1.060. Fritzsche Bros. (Catal. p. 9). The high specific gravity occasionally noticed is due to benzonitrile, which is liable to split up with the production of HCy. Schimmel & Co. (Ph. Post, 93, 297. Proc. 878.)

Artificial Oil. Hold a piece of clean copper wire, with a looped end, in a non-luminous flame until no color is imparted to the flame, and allow the wire to cool. Allow a drop or two of the suspected oil to fall on the loop, avoiding any contact of the latter with the fingers, let the oil ignite and leave it to burn outside of the flame. Bring the loop slowly in contact with the lower outer edge of the flame. Artificial oil will at once impart a distinct, but quite transient, green tinge to the flame (chloride of copper); while natural oil will produce at most a slight yellow color. Fritzsche Bros. (Catal. p. 9).

Oleum Anisi.

Solidification. "10 and 15° C."——14 and 19° C. Fritzsche Bros. (Catal. p. 7).

Squire corrects some of the statements of Umney (see Digest on U. S. P. 1880, p. 313), and contends that the melting point is the only constant factor connected with the congelation of this oil. Umney's observations of the colors produced by Eijkman's test (HCl in absolute alcohol) are incorrect; the difference not being between a pink

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and a yellowish-brown color, but between a deep-blue and a yellowish-brown. (Ph. J. & Tr. Aug. 93, 104, & A. J. Ph. 93, 504. Proc. 94, 1141.)

Optical Rotation. Slightly to the left. Helbing (Ph. Rec. No. 33, p. 8).

In regard to the statement, still met with in many text-books, that the oil of anise of commerce is largely oil of star-anise, Schimmel & Co. state that the latter plays a very subordinate part. As to the temperature at which liquefaction of the congealed oil ensues, it is best to omit any statement of a positive character, because authorities differ: Flueckiger (Ph. Chem. II, p. 419) gives 17° C., and Bornemann (Die fluechtigen Oele, 1891, p. 301) gives 6 to 18° C. Power (Circular, No. 109, p. 571), who thinks that anethol might be substituted for the oil of anise.

Oleum Aurantii Corticis.

Refractive Index. Edwards (Proc. 93, 151).

Optical Rotation. Fritzsche Bros. state from 96 to 99°. (Catal. p. 23.)——As a consequence of its high rotation the addition of a small quantity of inactive paraffin or lævo-rotatory oil of turpentine produces a very marked reduction of the rotatory power. Helbing (Ph. Rec. No. 33, p. 9).

Specific Gravity. 0.848 to 0.854. Fritzsche Bros. (Catal. p. 23).

Terebinthinate Odor. Power states that the pure oil of orange peel does not acquire a terebinthinate odor, as it does not contain a trace of pinene to which such a change is due. He further states that the pure oil is a very stable body. (Circular, No. 197, p. 1108).

Oleum Aurantii Florum.

The former statement, that this oil was obtained from the flowers of the Sweet Orange and a second quality from those of the Bitter Orange, is in direct opposition to the statement of Schimmel & Co. and other authorities. The oil from the flowers of the Sweet Orange is known in commerce as "Portugal" oil, the odor of which is different from that of "Neroli" oil.

Specific Gravity. Schimmel & Co. give the specific gravity of their own distillation as 0.881 to 0.887. Fritzsche Bros. (Catal. p. 23.)

Oleum Bergamottæ.

Refractive Index. Edwards (Proc. 93, 151).

Purity. Perfectly pure oil is hardly found in commerce. The turbidity, observed in the solution in 80-p. c. alcohol (third para-

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graph) is due to separation of bergapten. Schimmel & Co. (Report, April, 93. A. J. Ph. 93, 306. Proc. 93, 879).

Optical Rotation usually varies from 9 to 15°. Schimmel & Co. (Ibid.).

Specific Gravity. Expressed from overripe fruit, it has shown as high as 0.892. Schimmel & Co. (Rep. April, 1891.)

Green Color. The color of the pure oil is honey-yellow; the green color noticed is due to copper, dissolved by the acetic acid liberated from the oil. Helbing (Ph. Rec. No. 33, p. 11).

Linalool. The normal amount of the ester of linalool is 40 p. c., and it should not contain less than 38 p. c. of the acetate. Schimmel & Co. (Rep. April, 93.)——Apparently the p. c. of the ester stands in direct relation to the ripeness of the fruit. (Ph. Rev. 96, 134.)

Oleum Betulæ Volatile.

Beringer questions its identity with methyl salicylate. (A. J. Ph. 94, 12.)

Refractive Index. Edwards (Proc. 93, 151).

Yield. Morrison & Jackson (Proc. 94, 682).

Constituents. Contains, in its unrectified state, about 99.8 p. c. of methyl salicylate, together with a very small amount of the paraffin also found in oil of wintergreen ($C_{30}H_{62}$), an aldehyde or ketone, and an ester ($C_{14}H_{24}O_2$), but does not contain the alcohol ($C_8H_{16}O$) which is found in oil of wintergreen. It does not contain any trace of benzoic acid or its esters, nor does it contain any terpene or sesquiterpene. If the oil is rectified the product would probably be practically identical with true oil of wintergreen. Power & Kleber. Fritzsche Bros. (Circ. No. 7).

Oleum Cadinum.

Soluble in aniline. Hirschsohn (Ph. Zts. Russl. 96, 817).

Oleum Cajuputi.

Refractive Index. Edwards (Proc. 93, 151).

Specific Gravity. 0.929 to 0.930. Fritzsche Bros. (Catal. p. 10).

Shaken with an equal volume of a 10 p. c. solution of soda, it is not diminished in volume.——On addition of syrupy phosphoric acid, it should become semi-solid, showing a large p. c. of cineol. Umney (Ph. J. & Tr. 95, April, 948).

Oleum Cari.

Refractive Index. Edwards (Proc. 93, 151).

Yield. Morrison & Jackson (Proc. 94, 682).

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Specific Gravity. This varies with different authors. Schimmel & Co. give 0.905 to 0.915; Mierzinski, 0.917 to 0.921; Maier, 0.910 to 0.925; Williams, 0.910 to 0.913. An oil of less specific gravity than 0.910 is liable to have been deprived of some of its carvol. Power (Circ. No. 109, p. 578).

Optical Rotation. 75 to 85° to the right. Fritzsche Bros. (Catal. p. 10).

Carvol. Two Cc. of the oil, heated in a test-tube at water-bath temperature for five minutes with 1 Cc. of phenylhydrazine, solidifies to a mass of light-yellow, silky crystals on cooling. Helbing (Ph. Rec. p. 16).——Power thinks that carvol, being a definite chemical body, the properties of which can be sharply defined, might be introduced. (Circ. No. 109, p. 578.)

Oleum Caryophylli.

Refractive Index. Edwards (Proc. 93, 151).

Specific Gravity. Fritzsche Bros. give it as 1.060 to 1.067 (Catal. p. 13). Schimmel & Co.'s report states, however, that the specific gravity varies according to the method of distillation from 1.050 to 1.068, and that a really good oil should vary only from 1.050 to 1.056. (Ph. Rdsch. 95, 269.)——The range has been made 1.060–1.070.

Eugenol. Estimation. Thoms' method. (Ph. Centralh. 91, 589. A. J. Ph. 92, 508. Proc. 93, 882.)——De la Cour finds that the specific gravity has no uniform relation to the p. c. of eugenol. (Ibid.)——If the oil of cloves is to be estimated by its p. c. of eugenol, then the oil of the clove stalks, although of lower specific gravity, would be the best. (Ap. Ztg. 94, 184.)

When saponified with a 10-p. c. solution of potassa, not more than 15 p. c. should remain uncombined. Umney (Ph. J. & Tr. 95, April, 951).

Oleum Chenopodii.

The specific gravity and solubility in 70-p. c. alcohol vary with the age. The figures given in the Pharmacopœia are those of a reliable commercial oil. Power found the specific gravity of a freshly distilled oil to be 0.910, and the solution in alcohol of the above strength not clear. Fritzsche (Catal. p. 11).

Oleum Cinnamomi.

The commercial oil is obtained chiefly from the leaves, mixed with leaf stems and young twigs, which might be stated. Since the best criterion of the value of the oil is the p. c. of cinnamic aldehyde, it

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is interesting to note the following different p. c.: Oil of cassia bark, sp. gr. 1.035 and 88.9 p. c. aldehyde; buds, 1.026 and 80.4 p. c.; bud stems, 1.046 and 92 p. c.; leaves, stems and twigs, 1.055 and 93 p. c. Fritzsche Bros. (Catal. p. 12).——It should not contain less than 75 p. c. It is proposed to replace the oil by artificial cinnamic aldehyde. (Ph. Rev. 96, 64.)

Refractive Index. Edwards (Proc. 93, 151).

Oil of Ceylon cinnamon differs in volatile constituents according to whether it has been distilled from the leaves, root or bark. Schimmel & Co. (Rep. 93. Proc. 93, 881.)

Beringer thinks that the character of the residue left on evaporation might have been given. (See Digest on U. S. P. 1880, p. 314.) (A. J. Ph. 94, 13.)

Oleum Copaibæ.

Refractive Index. Edwards (Proc. 93, 151).

Distinction between African, Maracaibo and Para balsams. Umney (Ph. J. & Tr. 93, Sept. 216. A. J. Ph. 93, 544. Proc. 94, 898).

Should be laevo-rotatory, and soluble in its own volume of "absolute" alcohol. Umney (Ph. J. & Tr. 95, April, 951).

Specific Gravity. This can not be stated within very narrow limits, since it appears to vary considerably as obtained from different sorts of copaiba, and increases by age. The Para balsam, which is the richest in oil, is considered to yield the finest product, and Flueckiger records for this oil the sp. gr. of 0.88 to 0.91. As to its solubility, this appears to vary according to its source and age. Bornemann states it to require 50 parts of alcohol of 0.830; Nat. Disp., about 40 parts of 0.850; Ph. Russ., 25 parts of 0.830 to 0.834. Power found that not even 50 parts gave a clear solution. (Circ. No. 109, p. 582.)

Oleum Coriandri.

Refractive Index. Edwards (Proc. 93, 151).

Specific Gravity. Schimmel & Co. have found this to fluctuate as follows: From Thuringian seed, 0.874; Russian, 0.882; Italian, 0.876; Moravian, 0.874: and they give it therefore as between 0.874 to 0.882. (Circ. No. 197, p. 1109, and Catal. p. 14.)

The color reaction with nitric acid (for the detection of oil of orange peel), recommended by Eck (Chem. Centralbl. 87, p. 1086), does not appear very reliable. Power (Circ. No. 109, p. 582).

Oleum Cubebæ.

Refractive Index. Edwards (Proc. 93, 151).

Yield. Morrison & Jackson (Proc. 94, 682).

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Specific Gravity. Fritzsche Bros. give 0.910 to 0.930 (Catal. p. 15); Bornemann, 0.929 for the crude oil, and 0.919 for the rectified oil. (Circ. No. 109, p. 583.)

Solubility. Hirsch questions the solubility in an equal volume of alcohol, the Russian Pharmacopœia requiring 25 parts, and the Spanish 27 parts. Power states that he has repeatedly found an equal volume sufficient. (Circ. No. 109, p. 583.)

Optical Rotation. Lævorotatory, 40°. Helbing (Ph. Rec. No. ii., p. 25).

Oleum Erigerontis.

Analysis. Meissner (A. J. Ph. 93, 420. Proc. 94, 696).

Specific Gravity. Authorities differ. Fritzsche Bros. give 0.855 to 0.890 (Catal. p. 15); Power, 0.8498; Beilstein, 0.8464 (at 18° C.); Todd, 0.855 to 0.865. Power found an old, quite thick specimen with 0.9183. (Circ. No. 109, p. 584.)

Optical Rotation. Oil of erigeron consists almost entirely of dextrogyrate limonene; the statement of Todd (A. J. Ph. 87, p. 305), where he divides the oil into a large number of fractions with lævogyrate polarization, varying from—23 to—69°, is evidently based upon incorrect observations. Power (Circ. No. 109, p. 584).

Oleum Eucalypti.

Yield. Morrison & Jackson (Proc. 94, 682).

Specific Gravity. Helbing gives it as between 0.910 to 0.930 (Ph. Rec. No. 33, p. 25), and Barbour states that some of the richest oils stand 0.910 (Ch. & Dr. 95, Mrch. 371).

Optical Rotation. The rotation is of no discriminating value, as the oil of E. globulus is dextrogyrate, while the equally valuable oil of E. oleosa is laevogyrate. Power. Fritzsche Bros. (Catal. p. 15).

Eucalyptol. Estimation. Faulding adds phosphoric acid (1.759) to the oil, when any eucalyptol present is precipitated as a solid phosphate, which is afterwards decomposed. The fractionating and freezing process he considers unsatisfactory. (Ch. & Dr. 95, Mrch. 310.) ——Helbing states that this method is unsatisfactory as a means of estimation, but that it is excellent for testing for the presence of eucalyptol: cool the oil to 0° C., and add half its weight of phosphoric acid (1.750) cautiously with constant stirring. (Ph. Rec. No. 33, p. 26.)

Other Eucalyptus Oils. Fritzsche gives the spec. grav. and boiling points of twelve varieties. (Catal. p. 16.)

Phellandrene Test. (Last paragraph.) This is not clearly worded, inasmuch as the evident intention is to reject such oils. (Ph. J. &

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Tr. 93, Sept. 223.)——Power modifies this test as follows: 1 Cc. of the oil is mixed with 5 Cc. of benzin, 1 or 2 Cc. of a concentrated solution of sodium nitrite added, and subsequently glacial acetic acid added, a drop or two at a time, with vigorous shaking after each addition. If phellandrene be present in any considerable amount, its nitrite will separate from the benzin solution. Fritzsche Bros. (Catal. p. 15).

Oleum Fœniculi.

Refractive Index. Edwards (Proc. 93, 151).

Yield. Morrison & Jackson (Proc. 94, 682).

Specific Gravity. 0.965 to 0.975. Fritzsche (Catal. p. 17.)

Optical Rotation. 7° to 22° to the right. (Ibid.)

Anethol. The higher the temperature at which the crystals separate, the better the quality of the oil. (Ibid.)

Oleum Gaultheriæ.

Refractive Index. Edwards (Proc. 93, 151).

Yield. Morrison & Jackson (Proc. 94, 682).

Commercial. Examination. La Wall (A. J. Ph. 95, 373).

Optical Rotation. It should not be less than 0.25° to the left. Power & Kleber (Ph. Rdsch. N. Y. 95, 232.)

Constituents. Contains about 99 p. c. of methyl salicylate, together with a small amount of a paraffin, which is probably triacontan ($C_{30}H_{62}$), an aldehyde or ketone, an apparently secondary alcohol ($C_8H_{16}O$), and an ester ($C_{14}H_{24}O_2$). Power and Kleber. Fritzsche Bros. (Circ. No. 7).

See also remarks under "Methyl Salicylas."

Oleum Gossypii Seminis.

Refractive Index. Edwards (Proc. 93, 150).

It dissolves no inconsiderable p. c. of metallic lead. (Rep. de Ph . . . Dr. Circ. 92, 178. Proc. 93, 780.)

Specific Gravity. Wiley (Agricult. Bull. No. 13, 1889) found it to vary between 0.9218 and 0.9264; Cannizaro (Rep. on olive oil) observed 0.9235 to 0.9250; Holde (Zts. Angew. Ch. 91, p. 712) gives 0.92 to 0.922. (Circ. No. 109, p. 618.)

Subacetate of Lead Test has been found unreliable by Cannizaro, even as a test for identity (Ibid.)

Paraffin Oil. A test is wanted. (See Proc. 95, 813.)

Oleum Hedeomæ.

Analysis. Habhegger (A. J. Ph. 93, 417. Proc. 94, 892).

Refractive Index. Edwards (Proc. 93, 151).

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Optical Rotation. 18.43° to 21.20° to the right. Power, Fritzsche Bros. (Catal. p. 18).

Neutrality. When fresh, the oil is neutral; but on keeping, owing to the gradual decomposition of its esters, the reaction becomes slightly acid. Power (Circ. No. 109, p. 587).

Oleum Juniperi.

Refractive Index. Edwards (Proc. 93, 151).

Yield. Morrison & Jackson (Proc. 94, 682).

Specific Gravity. 0.865 to 0.885. Fritzsche Bros. (Catal. p. 19). ——The sp. gr. varies considerably according to the age of the oil, and the age and ripeness of the berries. Hirsch & Schneider (Commentar.) give 0.86 to 0.87; Flueckiger (Pharm. Chem.), 0.85 from the unripe fruit; Unger, 0.873 at 13° C.; Williams (Ch. News, 89, p. 175), 0.872 to 0.881. (Circ. No. 109, p. 588.)

Optical Rotation. Oil of juniper is either dextrogyrate, laevogyrate or inactive. Fritzsche Bros. (Catal. p. 19).

Oleum Lavandulæ Florum.

Refractive Index. Edwards (Proc. 93, 151).

Yield. Morrison & Jackson (Proc. 94, 682).

Specific Gravity. 0.883 to 0.890. Fritzsche Bros. (Catal. p. 19). The value of this oil is in direct ratio to its p. c. of ester (linaloyl acetate), which should not be less than 30 to 36 p. c. Fritzsche Bros. (Catal. p. 19).——Determination of the ester and the free linalool. (Ibid.)

Oil of Spike. The best test for this oil is the presence of cineol, which is absent in the true oil. (Ph. Rdsch. Prag. 93, 379. Proc. 94, 1155.)

Oleum Limonis.

Refractive Index. Edwards (Proc. 93, 151).

Specific Gravity. The range has been made 0.857 to 0.860.

Optical Rotation. 60 to 64° to the right. Fritzsche Bros. (Catal. p. 21). Effect on rotatory power by admixture of varying quantities of oil of turpentine. Oliveri (Gazz. Chim. 92, 318. A. J. Ph. 92, 403. Proc. 93, 884).——Barrett finds that the rotation of genuine oil may vary between 57° and 72° to the right, and that the addition of oil of turpentine was generally so skillfully made, that the difference in rotation would only be 4 or 5 degrees. What is needed, is to find some one constituent present in constant proportion. (Ph. J. & Tr. 94, Sept. 255. Ph. Era, 94, xii, 329. Proc. 95, 1033.)

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Turpentine taste is stated to be removed by potassium permanganate. (Ph. Rev. 93, 59. Proc. 93, 884.)

Oleum Lini.

Refractive Index. Edwards (Proc. 93, 150).

Specific Gravity. The different authorities give it as follows: Ph. Belg., 0.930; Ph. Russ., 0.930 to 0.940; Ph. Germ., 0.936 to 0.940; Schuebler, 0.9347; Souchère (Paris Lab.), 0.9325; Allen, 0.930 to 0.935. Boiled linseed oil, 0.940 to 0.941; mineral oils, 0.880 to 0.905; and rosin oil, 0.96 to 0.99. (Circ. No. 109, p. 619.)

Paraffin Oils. The presence of alcohol enables the oil to be rapidly saponified, facilitates the subsequent separation of the ether, and prevents the formation of an emulsion. On shaking the 50 Cc. of soap solution with 50 Cc. of ether, the ethereal layer, after subsidence, amounts to but about 20 Cc. Power found that, by proceeding as recommended by Hirsch & Schneider (Commentar. p. 497), (evaporating the soap solution with sand, and extracting with ether) the soap itself becomes quite completely dissolved by the ether, and a separation of the mixed paraffin oil is impossible. (Circ. No. 109, p. 620.)

Fixed Oils. Mix 10 parts of linseed oil and 3 parts of commercial nitric acid, and allow to separate. If fish oils be present, the oily layer is dark-brown to black, whilst the acid is orange-red. If pure, the oily layer is dirty-green, and the acid golden-yellow. (Am. Dr. 95. 308. Proc. 95, 1055.)——Power considers this test unsatisfactory. (Circ. No. 109, p. 620.)——This test has been modified so as to serve as a general test for purity. Shake equal parts of linseed oil and nitric acid, and allow to stand for 20 minutes. If pure, the upper layer will be of a straw color, and the lower layer perfectly colorless. (Merck, Rep. 93, 39.)

Rosin Oil. Filsinger recommends the polariscope. Oil from German or Indian seed is quite inactive, while rosin oil is dextrogyre. (Ch. Ztg. 94, 1005. Proc. 95, 1055.)

Fixed Oils in General. Power states that the most reliable test is undoubtedly the iodine absorption test, as linseed oil has the highest iodine number of common fixed oils; but this test is too circumstantial and delicate for the average pharmacist. (Circ. No. 109, p. 620.)

Oleum Menthæ Piperitæ.

Refractive Index. Edwards (Proc. 93, 151).——Stahre (Ph. Ztg. 93, 214, & 94, 1157).

Specific Gravity. Stahre gives the specific gravity of 22 samples, ranging from 0.904 to 0.921. (Ph. Ztg. 93, 214. Proc. 94, 1157.)

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——Fritzsche Bros. (Catal. p. 25), for oils from various European and other localities, give from 0.903 to 0 925.——Schimmel & Co. give the following figures: Mitcham, 0.905 to 0.910; German, 0.895 to 0.920; French, 0.920; American, 0.910 to 0.920; Japanese, 0.890 to 0.910. (Report, Ph. 93, 214. Proc. 94, 1158.)——The limit of the Pharmacopœia is necessarily wide, in order not to exclude a good Mitcham oil, and allowing something for a not perfectly fresh oil. Power (Circ. No. 109, p. 591).

Optical Rotation. For various oils from 9.45° to 34.45° (the last a Japanese oil). Fritzsche Bros. (Catal. p. 25).

Menthol. A good oil should not contain less than 50 p. c. of menthol. For estimation, see Fritzsche Bros. (Catal. p. 27).

Japanese Oil. Is hardly adapted for internal use, notwithstanding its high p. c. of menthol, because of its peculiarly bitter taste. Ibid. p. 29.)

Constituents. Power & Kleber (Ph. Rdsch. N. Y. 94, 157. Fritzsche Bros., Circ. No. 3).

Nitric Acid Test. The time "three" hours is hardly sufficient; it should be "ten" hours. Beringer (A. J. Ph. 94, 13).

Iodine Test. The oil "does" not fulminate with iodine; it would be more correct to state that it "should" not; old oil certainly fulminates. (Ibid.).

Oil of Copaiva. A test should be given.

Resin. On evaporation, it should not leave more than 4 p. c. of residue. Stahre (Ph. Ztg. 94, 154).

Oils of Erigeron or Erechthites. The red color test on adding solution of potassa (Vigier & Clotz) does not appear to be reliable. Power (Circ. No. 109, p. 592).

Oleum Menthæ Viridis.

Refractive Index. Edwards (Proc. 93, 151).

Yield. Morrison & Jackson (Proc. 94, 682).

Identity. Two Cc. of the oil, heated in a test-tube at water-bath temperature, for fifteen minutes with 1 Cc. of phenylhydrazine and 1 Cc. of acetic acid, deposits silky, yellow crystals on standing. Helbing (Ph. Rec. No. 33, p. 36).

Specific Gravity. 0.929 to 0.940. Fritzsche Bros. (Catal. p. 33).

Oleum Morrhuæ.

Constants. Parry & Sage (A. J. Ph. 95, 470).

Alkaloids. These pre-exist in the hepatic tissue. Bouillot (Ph. J. & Tr. 93, April, 807. Proc. 93, 843).

There is no reason why the oil from the American cods should not

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be used in place of the Norwegian oil. Sherrard (A. J. Ph. 95, 491. Proc. 95, 318 & 329).

It would not be out of place to give a test for oil deprived of the alkaloids, there being quite a quantity in the market.

Mineral Oil. A test would appear necessary, adulterations have been reported both in Europe and here. (Bull. Ph. 96, 41.)

Oleum Myrciæ.

Refractive Index. Edwards (Proc. 93, 151).

Solubility. It dissolves clear in alcohol. Power (Ph. Rdsch. N. Y. 95, 63).

Oils of Cloves and Pimenta. The test with sulphuric acid and diluted alcohol is totally unreliable. Fritzsche Bros. (Catal. p. 22).

Specific Gravity may occasionally be as low as 0.965, but generally ranges between 0.975 and 0.985. (Ibid.)

The characters of this oil vary considerably, depending upon the season of the year in which the leaves are collected, and upon the age. (Ibid.)

Purity. As the pure oil does not contain pinene, this fact may be made use of for the detection of oil of turpentine and other oils containing considerable amounts of pinene. Fritzsche Bros. (Circ. No. 6).

Oleum Myristicæ.

Refractive Index. Edwards (Proc. 93, 151).

It should leave a crystalline residue, when evaporated on a water-bath. Umney (Ph. J. & Tr. May, 95, 1039).

Specific Gravity. 0.870 to 0.900. Fritzsche Bros. (Catal. p. 23).

Oleum Olivæ.

Refractive Index. Edwards (Proc. 93, 150).

Commercial. Examination. Parry & Eastcourt (Ch. & Dr. 93, 488. A. J. Ph. 93, 231. Proc. 93, 894).

Cottonseed Oil. Dissolve 1 Gm. in 10 Cc. of benzin, and shake with 1 drop of concentrated sulphuric acid. The color of the pure oil will be slightly darker; in presence of cottonseed oil the color is dark-brown, nearly black. Gantter (Ph. Ztg. 95, 75. Proc. 95, 1054).

Sesame Oil. Shake with Bettendorf's reagent and heat on a water-bath for a few minutes; a red coloration indicates sesame oil, pure olive oil turns orange-yellow. Soltsien (Ph. Ztg. 93, 654. A. J. Ph. 94, 32. Proc. 94, 1182).——Shake vigorously a mixture of olive oil with an equal part of solution of pyrogallic acid in hydrochloric acid

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(1:14 of 1.124), and set aside until separation. Draw off the upper layer, and boil the lower for 5 minutes. The pure oil has a yellow color: sesame oil a purple color. (J. de Ph. & Ch. 93, 134. Proc. 94, 1181.)——Mix 0.1 Cc. of alcoholic furfurol solution (2 p. c.) with 10 Cc. of the oil and 1 Cc. of hydrochloric acid, then add 10 Cc. of chloroform. The bottom layer will acquire a carmine-red color, even when the oil contains as little as 1 p. c. of sesame oil. When the oil is pure, the layer will either be uncolored, or become a greenish color. Villaveccia & Fabris (Ph. Post, 93, 538).

Castor Oil. Shake with an equal volume of alcohol, and allow to separate. If pure, the oily layer is increased; in the presence of castor oil the increase is in the alcoholic layer. Leonardi (Ph. Ztg. 93, 705. Proc. 94, 1181).——Heat the oil with a concentrated alcoholic solution of potassa; in presence of castor oil the odor of acrylic alcohol will be noticed.

Paraffin Oils Saponify with alcoholic solution of potassa, and dry the product at 80 to 90° C. Powder, mix with sand, and exhaust with benzin, which has no action upon soap. Charpentier (Bull. Ch. Belg. Ph. Era, 95, xiv, 683).——Much of the olive oil contains up to 25 p. c. of paraffin oil, which is added to the crushed olives before expressing. (Zts. Oest. Ap. Ver. 93, 365.)

Free Acid. Olive oil should not contain more than 5 p. c. of free acid, calculated as oleic acid, when titrated with standard solution of potassa; the oil being shaken with alcohol, and titrated with phenolphtalein as indicator. Parry (Brit. & Col. Dr. 94, 282. Proc. 95, 1056).

Oleum Phosphoratum.

Chloroform is preferable to ether, being a better solvent. Beringer (A. J. Ph. 94, 14).

Luminosity This statement is found in several text-books; it cannot apply to the preparation of the U. S. Ph., because ether will prevent all luminosity. Power (Circ. No. 109, p. 625).

If 1 part by weight in 100 parts by volume is wanted, then the proportions would be: 1 Gm phosphorus, 10 Cc. stronger ether and 90 Cc. oil of almonds. The p. c. by weight would then be 1.09 to 1.10. Power (Circ. No. 109, p. 624).

Oleum Pimentæ.

Refractive Index. Edwards (Proc. 93, 151).

Yield. Morrison & Jackson (Proc. 94, 682).

Specific Gravity. 1.040 to 1.050. Fritzsche Bros. (Catal. p. 29).

When treated with solution of potassa, not more than 25 p. c. should remain uncombined. Umney (Ph. J. & Tr. 95, May, 1041).

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Oleum Ricini.

Refractive Index. Edwards (Proc. 93, 150).

Commercial. Examination. Parry & Estcourt (Ch. & Dr. 93, 488. A. J. Ph. 93, 231. Proc. 93, 894).

Cultivation in Georgia. Davenport (A. J. Ph. 95, 624).

Identity. Mix a few drops of the oil with as much nitric acid, and after finished reaction neutralize with sodium carbonate. After the odor of nitrous acid has disappeared, the odor of œnanthylic acid will be noticed. Draper (Ph. Ztg. 94, 549).

Oleum Rosæ.

Specific Gravity. At 20° C. 0.855 to 0.865. Fritzsche Bros. (Catal. p. 29).

Ethyl Alcohol is not a natural constituent of rose oil, but very likely due to incipient fermentation in the leaves between the gathering and distilling. Poleck (Berichte, xxvi. p. 38. Ph. J. & Tr. 92, Oct. 353. Proc. 93, 889).

German Oil. Schimmel & Co. (Ph. J. & Tr. 93, Sept. 262. Proc. 94, 1159.)

Bulgarian Oil. Chemistry. Markownikoff (Ap. Ztg. 93, 638. A. J. Ph. 94, 143. Proc. 94. 1158).

Sulphuric Acid Test. Power recommends to increase the quantity of alcohol to 5 Cc. Fritzsche Bros. (Catal. p. 30).

The name of the botanist attached to the plant name is correctly given as "Miller" (see Gard. Dict., ed. VIII, No. 15. Also the Kew Index). "Mueller" as given by Flueckiger (Pharmakognosie, III ed., p. 167) is an error.

Stearopten. No very definite statement can be made regarding the congealing and melting point, for the amount varies considerably. The fine oil, produced by Schimmel & Co., is very rich in stearopten, but by a mechanical process a large proportion or even the entire amount of this body is now separated. The best test for its detection is its saponification with an alcoholic solution of potassa, but this test requires too much oil. Power (Ibid.).

Oleum Rosmarini.

Refractive Index. Edwards (Proc. 93, 151).

Yield. Morrison & Jackson (Proc. 94, 682).

Optical Rotation. Rosemary oil is slightly dextrogyrate, not more than 10° in a 100 Mm. tube. Helbing (Ph. Rec. No. 33, p. 42).

Specific Gravity. 0.900 to 0.910. Fritzsche Bros. (Catal. p. 30).

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Oleum Sabinæ.

Refractive Index. Edwards (Proc. 93, 151).

Yield. Morrison & Jackson (Proc. 94, 682).

Specific Gravity. 0.905 to 0.930. Fritzsche Bros. (Catal. p. 32).

Oleum Santali.

Specific Gravity. 0.975 to 0.980. Fritzsche Bros. (Catal. p. 31).

Optical Rotation. 17° to 20°. (Ibid.)

Cedar-wood Oil. Beringer finds that Durand's ammonio-copper solution indicates easily 3 to 5 p. c. of cedar-wood oil. (A. J. Ph. 94, 14.)——Five drops, mixed with 2 drops of sulphuric acid, yields a viscid liquid, rapidly turning solid, and of a light-blue or greenish color. In presence of cedar-wood oil, the mass does not solidify entirely, and turns much darker. Mesnard (Ap. Ztg. 93, Repert. p. 27. Proc. 93, 891).——Parr considers Mesnard's test a failure. (Ch. & Dr. 95, Aug. 223.)

Purity. Two drops, mixed with 6 drops of nitric acid (1.5), shows a yellow or reddish-brown color, without any green, indigo or violet color at the edges during five minutes. Cripps (Ph. J. & Tr. 92, Dec. 461. A. J. Ph. 93, 24. Proc. 93, 891).

Valuation. The best valuation is the p. c. of santalol. Convert the alcohol into an acetate, determine the amount of acetic acid present in the acetylated oil, and express the result in terms of potassa necessary to saponify the oil. Parry (Ph. J. & Tr. 95, Aug. 118. A. J. Ph. 95, 469).

Oleum Sassafras.

Refractive Index. Edwards (Proc. 93, 151).

Yield. Morrison & Jackson (Proc. 94, 682).

Specific Gravity. Williams found this oil to vary from 1.056 to 1.09, which will serve to distinguish it from the oil of camphor, the sp. gr. of which is only 0.89 to 0.97. (Circ. No. 109, p. 604.)

Artificial Oil. The so-called "artificial" oil of sassafras is not a synthetical product, but a fractionation part of oil of camphor. (Ibid.)

Safrol. Power recommends the introduction of safrol as a substitute for the oil; being a definite chemical body, its purity can be readily ascertained. (Ibid.)

Oleum Sesami.

Refractive Index. Edwards (Proc. 93, 150).

Solubilities should be mentioned.

Botanical Name. Both Flueckiger & Hanbury (Pharmacographia)

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and Luerssen (Med. Ph. Bot. II, p. 1010) give "De Candolle" instead of "Linné." Power (Circ. No. 109, p. 627.)——See, however, O. Kuntze, Gen. Plant. p. 481. Rice (Ibid.).

Oleum Sinapis Volatile.

Chemistry. Sayre (A. J. Ph. 95, 532).

The traces of carbon disulphide which have been observed to exist normally in this oil, are not considered to interfere with the test given for its detection. Power (Circ. No. 109, p. 605).

Oleum Terebinthinæ.

Refractive Index. Edwards (Proc. 93, 151).

Specific Gravity. 0.855 to 0.876. Fritzsche Bros. (Catal. p. 34).

Optical Rotation. The American oil is dextrogyre, which distinguishes it from the French oil, which is lævogyre. Fritzsche Bros. (Catal. p. 34).

Commercial. Examination. La Wall (A. J. Ph. 95, 373).

Benzin. A test for benzin is wanted. Beringer (A. J. Ph. 94, 14).

Oleum Terebinthinæ Rectificatum.

"No weighable residue on evaporation." Ten Cc. of the freshly rectified oil, when evaporated on a water-bath, should not leave a residue, weighing more than about 0.02 Gm. Fritzsche Bros. (Catal. p. 35). Power advises to put this at 0.05 Gm.

Oleum Theobromatis.

Melting Point. Although the melting point in a sealed tube was found by Graf (Arch. Ph. 88, 883) to be 33.5° to 34.5°, it has been stated in the U. S. Ph. as 30 to 33° C., because such determinations are usually made in an open tube. Power (Circ. No. 109, p. 628). ——The melting point appears to be dependent on the mode of extracting, and especially on the heat to which the beans were subjected. Extracted by ether from unroasted nibs, it was found to be 30° C. Clague (Ph. J. & Tr. 92, Sept. 247. Proc. 93, 704).

Paraffin. Is the ether test for paraffin reliable? Paraffin is easily soluble in ether. (Ph. Ztg. 96, 109.)

Oleum Thymi.

Refractive Index. Edwards (Proc. 93, 151).

Yield. Morrison & Jackson (Proc. 94, 682).

Specific Gravity. The sp. gr. of oils from various sources (German, French and Spanish) varying from 0.909 to 0.950. See

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Fritzsche Bros. (Catal. p. 33).——It is higher when distilled from the fresh herb. A sp. gr. below 0.890 would indicate that the oil had been deprived of a portion of its thymol. The statement occasionally met with, that the alcoholic solution of the oil should *not* be colored yellowish-brown by ferric chloride, is a mistake, which has been pointed out by several authorities. This color reaction is due to the presence of a phenol, presumably carvacrol, which is always present in the oil. Power (Circ. No. 109, p. 610).

Oleum Tiglii.

Specific Gravity. The German Ph. Comm. has found with oils of their own expression the figures 0.944 to 0.955, while commercial oils believed to be pure varied from 0.941 to 0.960. Power (Circ. No. 109, p. 629).

Solubility. Kobert (A. J. Ph. 87, 346) has shown, that no definite solubility in alcohol can be given, as this is influenced by the extent of the decomposition of the glyceride of crotonolic acid, and that old oils in consequence may be soluble in all proportions of alcohol. Power (Ibid.).

Both Hirsch & Schneider (Comment. p. 493) and Beckurts & Hirsch (Handbuch, p. 307) state that when 3 drops of the oil are mixed with 2 Cc. of sulphuric acid, the mixture should remain clear, is found by Power to be of no value, since he obtains clear mixtures both with castor, olive and cottonseed oils. (Circ. No. 109, p. 630.)

Opii Pulvis.

Granulated Opium. Kebler strongly recommends the introduction of this article. (A. J. Ph. 95, 554.)

Requirements of Ph. Helvetica. Water should take up not less than 55 p. c. Dried, it should not lose more than 8 p. c. The temperature at which the opium is dried, should not exceed 50° to 60° C. It should contain from 10 to 12 p. c. of morphine. (Ph. Rdsch. N. Y. 94, 67.)

Opium.

Moisture. The p. c. of moisture allowable should be given, and also the yield of extract. Beringer (A. J. Ph. 94, 15).

Microscopical Examination. Dohme finds that the microscopical examination offers no reliable data for distinction. (Proc. 175.) ——Mjoen, on the contrary, distinguishes the commercial varieties as follows: Asia Minor contains fragments of the capsules; Persian contains no capsules, but much starch of leguminous seeds, or of

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cereals; Indian and Chinese contain neither fragments nor starch. (Arch. Ph. 95, 539. Am. Dr. 96, 46.)

Heat. Hager points out that by heating with water, oxygen will be gradually absorbed, and the narcotic strength reduced. (Ph. Ztg. 93, 250. Proc. 93, 680.)

Opium Mitigatum. Hager proposes a "mild" opium, by heating opium with half its weight of water to boiling, till dry. (Ph. Ztg. 93, 250. Proc. 94, 922.)

Japanese Opium. Assayed from 10 to 12 p. c. of morphine. Nyens (Ap. Ztg. 92, 454. Proc. 93, 681).

Bulgarian Opium. Has been found to assay from 7 to 9 p. c. of morphine by Flueckiger's process. Strzyzowski (Ph. Post, 96, 1).

Assay. Moerck reviews the various processes proposed, and makes the following suggestions for what is wanted: 1. Test for the purity of the weighed morphine. 2. Information as to the necessary time for the maximum precipitate of morphine. 3. Information as to the quantity of morphine left in the mother-liquor. 4. Nature of the second precipitate and its effects, if the assay be allowed to stand until further precipitation takes place. 5. Error involved by the solubility of the morphine impurities in the lime water test for purity. (A. J. Ph. 94, 433. Proc. 95, 548.)

Beringer recommends to add a test for the purity of the morphine. (A. J. Ph. 93, 468). Also Kebler (Ibid. 94, 136. Proc. 94, 554.)

Kebler. Gives preference to the various methods in the following order: 1. Ash method. 2. Titration. 3. Lime water method. 4. Absolute alcohol. He finds that there is a decided increase both in impurity and morphine as the time increases. He states, however, that allowing from 12 to 16 hours for the precipitation, and adhering closely to the text of the U. S. P., the amount of impurity, associated with the morphine, will not exceed the amount lost during the operation, so that a correction for a well-executed assay is unnecessary. (A. J. Ph. 95, 398, & 96, 257.)

Squibb cautions against carrying the principle of errors correcting each other into any important process. (Am. Dr. 95, April, 204.)

A. P. A. Committee. After the words "another portion of 10 Cc. of ether" (p. 292, sixth line from bottom) add: "let the ether on the filter and crystals evaporate completely," and after the words "more than about 10 Cc. in all" (second line from bottom) add: "use a feather to remove the crystals that adhere to the flask." (A. J. Ph. 95, 485. Proc. 240.)

Dott. Digest with water to which barium chloride has been added, filter, remove excess of barium by dilute sulphuric acid, neutralize the filtrate with ammonia, add ether-alcohol and ammonia in excess, wash the precipitate with benzol or chloroform, dry and weigh. (Ph. J. & Tr. 94, April, 847. Proc. 94, 552.)

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Cannepin & Van Eijk call attention to some losses occurring in the ordinary processes. A portion of the alkaloid remains in the alcohol when ammonia is used as a precipitant, which amounts to from 0.07 to 0.17 Gm. for each 100 Gm. of opium. The opium is, also, very rarely exhausted. They give also a process with slaked lime and morphinated water. (Bull. Soc. Ch. 93, 437. Proc. 94, 553.)

Schacherl prefers Flueckiger's to the Dieterich-Helfenberg process, because the morphine obtained is purer, but Flueckiger's process gives too low results. This may be remedied by decreasing the proportion of alcohol. Helfenberg's process gives too high results by direct weighing, which, however, can be checked by titration. (Ph. Ztg. 94, 687.)

Dieterich states that the morphine obtained by Flueckiger's process contains up to 6 p. c. of narcotine, and that any decrease in the proportion of alcohol would increase the amount of impurities. (Ibid.) He says, further, that he has obtained better results by his own titration method, than by either Flueckiger's or Flueckiger-Schacherl's methods. (Ph. Centralh. 95, 21. Proc. 95, 549.)

Wainwright states that the lime-water test would be improved by titration with oxalic acid. (Am. Dr. 95, Febr. 72.)

Mendeni finds that Teschemacher's process is the best, but recommends to wash the dried opium with chloroform, before extracting it with water. (Boll. Chim. e Farm. 95, 549. Ph. Ztg. 95, 742.)

Loof proposes to use salicylate of sodium to facilitate the extraction of the morphine. 5 Gm. of powdered opium are triturated with 5 Gm. of water, and rinsed into a flask with sufficient water to make a total weight of 44 Gm. Shake for 15 minutes, and filter through a 10 centimeter filter. To 42 Gm. of the filtrate add 1 Gm. of sodium salicylate, and shake well for a short time. The resinous substances and part of the narcotine conglomerate. Filter, and shake the filtrate with 3 Gm. of ether and 1.5 Gm. of ammonia for ten minutes. Collect the morphine, and wash it twice with a little water. After drying, drop benzol on to it to remove the narcotine. The morphine obtained is white and pure. The sodium salicylate facilitates the precipitation of the resinous matter. (Ap. Ztg. 96, 192.)

Stillwell points out that much depends on the kind of filtering paper used. Some papers filter very quickly, while others may make a difference of one hour or more, which difference will necessarily vitiate the result. (Ph. Ztg. 95, 157.)

Committee on Revision. For an improved lime and ammonium chloride process, see Circular No. 174, p. 1041.

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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,

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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

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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.)

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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.

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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.)

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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.

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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).

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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).——Sol-

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uble 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).

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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.

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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.

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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

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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).

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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).

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"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).

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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.

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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.)

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Weller states that Kubli's tests are inferior to his and Kerner's ammonia test (see "Digest" on U. S. P. 1880, p. 143), which gives good results with mixtures, but not with salts crystallized together. (Ph. Ztg. 96, 236.)

Quinine is soluble not only in ammonia, but also in potassa and soda. Doumer & Deraux (J. de Ph. & Ch. 95, 50. Proc. 95, 998),

(Last paragraph.) Addition of "7 Cc. of ammonia"—Hirsch says, that this would indicate an allowance of about 4 p. c. of alkaloids, other than quinine. (Ph. Rdsch. N. Y. 93, 240.)

Solubility. In 1960 parts of water. Merck (Index, p. 201).

Indicators. Value. A. Ph. A. Comm. (Proc. 95, 191), and Kebler & LaWall (A. J. Ph. 95, 503).

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

Quininæ Hydrobromas.

Should be "Hydrobromidum." A. P. A. Comm. (A. J. Ph. 95, 484. Proc. 95, 240).

Solubility. In water. Squibb found it 1:53; Rice, 1:52.5. (Circ. No. 137, p. 857.)

Quininæ Hydrochloras.

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

(Ninth paragraph.) "Less than 0.9 Gm."——Hirsch says that it should be "0.91;" "9 p. c." water of crystallization, should be "9.079 p. c." (Ph. Rdsch. N. Y. 93, 240.)

Quininæ Sulphas.

Solubility. In chloroform. The former statement that it is soluble in 1000 parts of chloroform, refers to chloroform free from alcohol. Rice (Circ. No. 137, p. 859).

Water of Crystallization. It has been deemed best to allow, as heretofore, 1 molecule of water in excess of 7 molecules. Rice (Ibid.).

Kerner-Weller Test. (Last paragraph.) Ph. German III, reduces the amount of water of ammonia to 4 Cc. This requires an almost chemically pure sulphate, such as cannot be supplied by manufacturers except by first making the bisulphate. A sulphate, standing the 4 Cc. of ammonia, has an entirely different appearance, being denser, in coarser and heavier crystals, and cannot be made to look like the light, fluffy, crystalline mass, so familiar to us; and for that reason would be very generally suspected as spurious or impure by

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the public at large. The small additional proportion of other cinchona alkaloids, now permitted by the U. S. P., has never been demonstrated to be objectionable. Rice (Ibid.).

(Tenth paragraph.) The apparent contradiction (8 molecules *vs.* 7 molecules) is probably due to the fact that the salt is variously stated to contain 7, 7½, or 8 molecules of water. Hirsch (Ph. Rdsch. N. Y. 93, 241).

(Last paragraph.) "Dried at 100° C."—Ph. German. has "completely effloresced at 40 to 50° C." (Ibid.)

Cinchonidine. Grave modifies de Vrij's method ("Digest" on U. S. P. 1880, p. 141) by adding to the filtrate from the chromate of quinine a few drops of a 5 p. c. solution of sodium acetate. If pure, the liquid remains quite clear for several days; in the presence of cinchonidine, the liquid becomes turbid. This reaction he considers quantitative; the cinchonidine precipitate may be collected and weighed. (J. de Ph. d'Anvers, 93 . . . Proc. 94, 1108, & 95, 996.)

Titration. Allen points out that the sulphate is practically neutral to brazil-wood, cochineal and logwood, but strongly alkaline to methyl-orange. The end reaction with the last-mentioned comes when acid sulphate is formed, while with the three former ones the end reaction comes when half as much acid is used. As the sulphate is distinctly alkaline to litmus, this indicator cannot be used, although the end reaction is well-marked. (Ch. & Dr. 96, 22.)

Solutions. Crousel recommends to replace the sulphuric acid, usually employed, by citric or tartaric acid, as being more eligible therapeutically. (Union Ph. 94 . . . Proc. 95, 997.)

Resina.

Purification. Melt, strain off from the coarser impurities, and then heat with zinc chloride, adding finally potassium dichromate, strain or filter. (Ph. Era, 94, 351. Proc. 94, 606.)

(Resinæ.)

"Add the alcoholic solution with constant stirring to . . . water" —it would be better to specify "in a thin stream" . . . to "cold" water. Coblentz (Pharmacy, p. 350).

Resina Jalapæ.

Acetone may advantageously replace alcohol. Morrison (Proc. 94, 281).

Analysis. Kromer (Ph. Zts. Russl. 94 . . . Proc. 94, 604).

Solubility. Not more than 7 p. c. should be soluble in chloroform. Caspari (Pharmacy, p. 281).

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Aloes may be detected by a bitter taste; and *Guaiac* by not imparting a green color to the inner surface of a fresh potato paring, when rubbed upon the latter. Caspari (Ibid. p. 282).

Resina Podophylli.

Solubility. The solubility in ether (15 to 20 p. c.) is evidently a mistake, it certainly should be "75 to 80 p. c." (Cadbury; Allen: Tilden; Parrish; Bullock; Power. A. J. Ph. 94, 10.) [The test has been so altered.]—In water (80 p. c.), is questioned by Beringer. (A. J. Ph. 94, 12. Proc. 94, 603.) Nagelvoort obtained only from 23 to 27 p. c. (A. J. Ph. 94, 278. Proc. 94, 603.)

Acetone may advantageously replace alcohol. Morrison (Proc. 94, 281).

Commercial Varieties. Examination. Graville & Sage (Ph. J. & Tr. 93, Nov. 421. Proc. 94, 602). They state that resins of podophyllum, yielding more than a trace of matter insoluble in rectified spirit, and much more than 0.50 p. c. of inorganic matter on incineration, may be considered to be more or less adulterated.

Preparation. According to Lloyd, the concentration of the alcoholic tincture should not be carried beyond a very thin syrup, and the water, into which it is poured, should be ice-cold. Caspari (Pharmacy p. 282).

Resina Scammonii.

Acetone may advantageously replace alcohol. Morrison (Proc. 94, 281).

Rosin. Resin of scammony is very slowly acted upon by sulphuric acid, while rosin immediately turns intensely red. Caspari (Pharmacy p. 283).

Resorcinum.

Melting Point. "110 to 119° C." Ph. German has 110 to 111° C. (Ph. Rdsch. N. Y. 93, 29.)

Identity. On adding to resorcin nitrosulphuric acid, the mixture will be colored dark-blue, which color on addition of water turns red, and blue again on adding ammonia. (J. Ph. d'Anvers 93 . . . Ph. Rdsch. N. Y. 93, 294.)

Rhamnus Purshiana.

"Collected at least one year before being used," or words to that effect, should be added. Beringer (A. J. Ph. 93, 472).

Active principle (Cascarin). Leprince (Ph. J. & Tr. 92, Sept. 182. Proc. 93, 691).

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Rheum.

Proctor finds that, although the odorous principle may be removed by chloroform, and the chrysophanic acid by benzol, the root acquires odor again on exposure to moisture and air, and the acid is formed again by the action of air, water and potassa. (Ch. & Dr. 94, Aug. 255. A. J. Ph. 94, 462. Proc. 95, 876.)

Chemistry. Hesse (Ph. J. & Tr. 95, Oct. 325. A. J. Ph. 95, 615).

It should yield with alcohol (0.930) at least 33 p. c. of extract (dried at 100° C.). Ph. Helvetica (Ph. Rdsch. N. Y. 94, 82).

Rhus Toxicodendron.

A tincture is wanted. Beringer (A. J. Ph. 93, 470).

Morrison calls attention to an admixture with the leaves of Ampelopsis quinquefolia, which are easily recognized by their five leaflets. (A. J. Ph. 96, 131.)

Rosa Centifolia.

Is there any reason for retaining this variety, which is not directed in any preparation?

Rubus.

Analysis. Harms (A. J. Ph. 94, 580).

Sabina.

Should be omitted. Beringer (A. J. Ph. 93, 470).

Saccharum.

Solubility. In water of different temperatures. Herzfeld (Proc. 93, 931).

Ultramarine. A better and quicker test, taking advantage of the development of hydrogen sulphide, is to suspend a strip of white paper, moistened with a solution of acetate of lead, over the solution of sugar containing free acid. Haussmann (A. Z. Ph. 95, 90).

Identity. To the aqueous solution add a few drops of a 5-p. c. solution of cobaltic nitrate, and a slight excess of a 50-p. c. solution of soda, which produces a violet color. *Glucose* gives a blue color, which soon disappears for a dirty-green. Papasogli (Ph. Centralh. 95, 570).

Saccharum Lactis.

Glucose and *Starch.* Tests for both would appear to be necessary. Beringer (A. J. Ph. 94, 17).

Ash. Allowable p. c. would seem to be necessary. Beringer (Ibid.).——The p. c. should not exceed 0.25. Several samples

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showed the presence of magnesium and calcium salts in the ash; their presence caused the milk, to which the milk-sugar was added, to coagulate on heating. Braithwaite (Ph. J. & Tr. 94, April, 853. Proc. 94, 966).

Sulphuric Acid. Kinzel suggests the introduction of a test for this acid. (Ap. Ztg. 94, 183.)

Cane Sugar. To a solution of 1 Gm. in 10 Cc. of water add a solution of 0.1 Gm. of resorcin in 1 Cc. of HCl: it should not turn red after boiling for five minutes. This test will detect 0.1 p. c. of cane sugar. Conrady (Ap. Ztg. 94, 984. Nat. Dr. 95, 369. Proc. 95, 878).

Manufacture in the U. S. Penny (Ph. Era, 94, 223. Proc. 95, 897).

Salicin.

Melting Point. At 201° C. Merck (Index, p. 208).

Color Reactions with nitric acid, followed by ammonia, and potassium cyanide. Formanek (Ph. Post, 95, 179. Ph. Rdsch. N. Y. 95, 242. Proc. 95, 979).

Salol.

On adding to salol a few drops of nitrosulphuric acid, the mixture will be colored yellowish, then brown, and finally green. On adding water, it will on stirring, turn reddish, but regain its greenish color on addition of ammonia. (J. Ph. d'Anvers, 93 . . . Ph. Rdsch. N. Y. 93, 294.)

Sambucus.

Ruetzou found a parcel of elder flowers adulterated with flowers of milfoil. (Farm. Tidskr. 94, 11. Ph. Rdsch. N. Y. 94, 214. Proc. 95, 850.)

Sanguinaria.

Microscopy. Bastin (A. J. Ph. 95, 4. Proc. 95, 872).

Assay. La Wall recommends benzin, supplemented by ether-chloroform. (A. J. Ph. 96, 305.)

Santonica.

Purity. Shake the powder with absolute alcohol, heat to boiling, filter, add a piece of potassa, and heat again. If pure, a distinctly red color will appear; if adulterated, either no color, or a yellowish-red. Astolfi (Boll. Ch. & Farm. 93 . . . Ph. Rdsch. N. Y. 93, 160).

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Santoninum.

The color reaction with sulphuric acid and ferric chloride is best applied as follows: Dissolve santonin in sulphuric acid in one test-tube, in another mix about half a drop of ferric chloride solution with 1 Cc. of water. Mix the two solutions, and heat for a few seconds, when a violet color will be observed. Stadelmann (Suedd. Ap. Ztg. 93, 70. A. J. Ph. 93, 169. Proc. 93, 861).

Sapo.

Commercial. Examination. Knox (Proc. 95, 174).

Estimation of Total Alkali. Dieterich modifies Geissler's process as follows: Dissolve 1 Gm. of the soap in 30 Cc. of alcohol, add 5 Cc. $\frac{N}{10}$ sulphuric acid, and boil until the evolution of carbonic acid stops. After cooling, titrate with $\frac{N}{10}$ alkali, using phenolphthalein as indicator. (Helfenberg Annal. 92. Proc. 94, 608.)——Kinzel states that new soap stands the phenolphthalein test worse than old soap. (Ap. Ztg. 94, 183.)

Sapo Mollis.

Would not a definite yield of product be necessary? Beringer (A. J. Ph. 94, 17).

A better formula would be one with 1000 parts of olive oil, 360 parts of potassa and 3000 Cc. of water. A. P. A Comm. (A. J. Ph. 95, 485. Proc. 95, 241).

Sassafras.

Microscopy. Bastin (A. J. Ph. 95, 312).

Scilla.

Chemistry. Wanizewski (J. Ph. d'Anvers. 93, 252. A. J. Ph. 93, 498. Proc. 94, 907).——Kurtz and others. (A. J. Ph. 94, 245. Proc. 94, 907.)

Scoparius.

Alkaloid. 100 kilos. of dried broom yielded 800 to 1700 Gm. of sparteine sulphate. Adrian (Bull. Ph. 92, 486. Proc. 93, 819).

Scutellaria.

"50 Cms. long" is hardly found in the market. 20 to 25 Cms. would be nearer the actuality. Beringer (A. J. Ph. 94, 17).

Senega.

Methyl Salicylate. The presence of methyl salicylate in senega is normal. (Ph. J. & Tr. 95, June, 1195.)

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Salicylic Acid. Extract twice with ether, and add to the last portion a few drops of HCl. Shake this portion with water of 40 to 50° C., and filter after the evaporation of the ether. Add one drop of solution of ferric chloride, when a violet color should appear. Ph. Helvetica (Ph. Rdsch. N. Y. 94, 82).

Contamination. Hartwich found the root of Triosteum in a parcel. (Arch. Ph. 95, 118. Ph. Rdsch. N. Y. 95, 104. Proc. 95, 875.)

Senna.

"Argel leaves frequently present"—However true in former times, they have of late years been seldom met with. Beringer (A. J. Ph. 94, 17).

Alexandria leaves are preferable to Tinnevelly, because the former leaves contain less gummy matter. Dilly (Proc. 94, 673).

Sinapis Alba.

Chemistry. Sayre (A. J. Ph. 95, 339).

Starch in the ground mustard. The Pharmacopœia should show explicitly how starch can be found. Lloyd gives the following: To 0.5 Gm. of mustard flour in a large test-tube add 8 Cc. of water and 1 Cc. of iodine test-solution, boil until the brown color has disappeared. Decant, and add to the cooled liquid 1 drop of the iodine test-solution, this will show as little as 0.1 p. c. of starch. (A. J. Ph. 95, 464. Proc. 95, 197.)

Sinapis Nigra.

Ash. Should not be more than 5 p. c. (Ph. Centralh. 93, 238.)

Starch in the ground mustard. See under Sinapis Alba.

Soda.

With present methods of manufacture and purification, it is not very likely that sulphide, cyanide or sulphocyanate of sodium be found. Curtman (Circ. No. 93, p. 452).

The remarks appended to "Potassa," regarding the rigorous requirements of the Pharmacopœia, have also been applied to this alkali.

Sodii Acetas.

Iron. The German Comm. tests for iron with potassium ferrocyanide. (Ap. Ztg. 94, 186.)

Melting Point. Authors differ. Flueckiger, 75° C.; Jeanell and Baumhauer, 58° C. (Circ. No. 93, p. 454.)

Identity. The acetic acid odor test, formerly given, is not perfectly reliable, because other *pure* fatty acids, as formic, propionic

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and especially butyric acid, have an odor hardly to be distinguished from that of acetic acid, and butyric acid is often found in pyroligneous acid. The ethers have a very different odor. Curtman (Circ. No. 93, p. 454).

Sodii Arsenas.

Solubility. In 2 parts of glycerin. Merck (Index, p. 212).

Efflorescence. The salt with 7 molecules of water does not readily effloresce, while that with 12 molecules, which is generally sold, effloresces readily. The salt does not lose the remainder of its water at 148° C., but only 2 molecules. The rest is lost at about 690° C., or at a bright-red heat. Below 30° C. the salt crystallizes with 12 molecules of water, of which 5 are lost spontaneously. Above 33° C. crystals form with 7 molecules. Curtman (Circ. No. 93, p. 456).

Sodii Bicarbonas.

Estimation of the quantity of mono- and bi-carbonate in the commercial salt. The chief factors are the p. c. of CO_2 found by actual analysis, and the theoretical p. c. of CO_2 calculated as bicarbonate. Wenzell (Ph. Era, xii, 94, 390. Proc. 94, 277), and Landis (Ph. Era, xii, 94, 490).

Solubility. In 14 parts of water; if soluble in less, the German Comm. ascribes it to loss of carbonic acid. (Ap. Ztg. 94, 186.)

Sodii Boras.

Borax volatilizes at a white heat. Waldbott (J. Am. Ch. Soc. 94, 410. Proc. 95, 962).

Iron. 50 Cc. of a 2 p. c. solution, acidulated with HCl, should not at once be colored blue, on adding 0.5 Cc. of a solution of potassium ferrocyanide. German Comm. (Ap. Ztg. 94, 175).

Sodii Bromidum.

Crystals, formed below 30° C., are prismatic and contain $2H_2O$; formed above 30° C., they are regular cubes and anhydrous. Curtman (Circ. No. 97, p. 477).

Water. The best guaranty for the exclusion of water is granulation in a steam pan. (Ibid.)

Strength. Curtman proposes that 98.5 p. c. of NaBr should be demanded in the dried salt, considering the ease with which it may be freed from the greater portion of sodium chloride and carbonate by recrystallization and removing the first crop of crystals. (Ibid.)

Iron. Should be tested for by potassium ferrocyanide. German Comm. (Ap. Ztg. 94, 187.)

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Sodii Carbonas.

A saturated solution boils at 104° C. Curtman (Circ. No. 97, p. 480.)

Size of the crystals. It would be proper to designate expressly "small" crystals, which would exclude the commercial salt, consisting almost exclusively of the impure large crystals. In purifying the salt by re-crystallization, it must be stirred while crystallizing, which will produce small crystals. These are then leached out for further purification. Curtman (Ibid.).

Strength. Specimens of "purified carbonate of sodium" from various sources, were all found by Curtman to contain more than 99 per cent. of carbonate in the calcined salt. (Ibid. p. 481.)

Small Crystals. Mix 100 parts of effloresced sodium carbonate with 70 parts of water of 80° to 90° C. "Ine," crystalline needles will be formed. (Ph. Centralh. 93, 171. A. J. Ph. 93, 187. Proc. 93, 796).

Sodii Carbonas Exsiccatus.

The first heating should not exceed 25° C., for at 32.5° C. the crystals will melt, and the preparation be much denser. Curtman (Circ. No. 97, p. 482).

Sodii Chloras.

Solubility. The solubility in cold and in boiling alcohol, given in the U. S. P., vary in one respect decidedly from those of some authorities, inasmuch as the latter state that the salt is less soluble in boiling alcohol than in cold. Curtman has by a series of very carefully conducted experiments, proved the correctness of the Pharmacopœial statements. (Ibid. p. 485.)

Tartrate. As much of the salt is manufactured by mutual decomposition of potassium chlorate and sodium bitartrate, tartrate is liable to remain in the salt; this method of manufacture accounts for the presence of potassium.

A recently patented process by Muspratt, Hall and Eschellmann employs magnesia, which, therefore, is liable to be present. Curtman (Circ. No. 97, p. 484).

Sodii Chloridum.

Potassium. The flame test, given by some of the Pharmacopœias for the salts of sodium, is too exacting, as it is very difficult to obtain sodium salts absolutely free from potassium. The sodium-cobaltic nitrite test is sufficiently exact. Curtman (Circ. No. 97, p. 487).

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Sodii Hypophosphis.

Phosphite. A test for phosphite would appear to be necessary. Roe (Ph. J. & Tr. 93, Dec. 473).

As the 2H in the formula are not replaceable by metals, Curtman prefers to write the formula $NaPH_2O_2$ or PH_2O_2Na. (Circ. No. 101, p. 507.)

In the second paragraph on page 360, the earlier copies have "an excess of ammonium chloride T. S." This has been changed to "an excess of mercuric chloride T. S."

Sodii Hyposulphis.

The aqueous solution imparts a faintly blue color to red litmus paper. German Comm. (Ap. Ztg. 94, 197.)

Melting Point. At 45° C., Kopp; 48.5° C. Debray & Kremers (Circ. No. 101, p. 508).

Nomenclature. "Schuetzenberger's" salt is derived from the acid H_2SO_2, at first named "hydrosulphurous" acid, to which recently the name "hyposulphurous" acid has been given; while the acid, to which until then the name "hyposulphurous" was applied, and which forms the salt of the U. S. P., has been called "thiosulphuric" acid, and thus by a change of names, sanctioned by long usage, a great deal of confusion has been created, as the change has not been universally adopted. The old name "hyposulphite" of sodium for $Na_2S_2O_3$ is still almost universally used in commercial circles and among photographers, paper millers, calico manufacturers, &c., who use vast quantities of this salt. It is also still retained as the principal name by many authors. Curtman (Circ. No. 101, p 508).

Solubility. The difference in the solubility in water among authors may possibly have been caused by this confusion of names, different salts having been used. (Ibid.)

Sodii Iodidum.

Alkalinity. Increasing alkalinity goes hand in hand with the liberation of iodine by the influence of atmospheric SO_2, hence a limit of alkalinity is necessary.

Cyanide. The presence of cyanide is due to the fact that iodine nearly always contains iodine cyanide.

Chloride and *Bromide.* Tests for these two are needed. Beringer (A. J. Ph. 94, 17).

Sodii Nitras.

Solubility. The solubility depends somewhat on the nature of the impurities permitted. The purer the salt, the more soluble it is. Curtman (Circ. No. 101, p. 513).

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It is hardly ever used, and should therefore be omitted. Beringer (A. J. Ph. 94, 17).

"Deliquescent"—according to Hirsch, is too strong an expression; he prefers to call the salt "hygroscopic." (Ph. Rdsch. N. Y. 94, 13).

Sodii Nitris.

"97.6" p. c. of pure salt. Is that not too rigorous? Beringer (A. J. Ph. 94, 17).

Sodii Phosphas.

Carbonate. Geissler makes use of the fact, that pure sodium phosphate does not affect phenolphtalein solution, but which acquires a red color if only 0.1 p. c. of carbonate be present. (Ph. Centralh. 93, 729. Ph. Rdsch. N. Y. 94, 40.)

It is incompatible with alkaloids. Christiaens (Rép. de Ph. 94, 3. Ph. Rdsch. N. Y. 94, 88.)

Sodii Pyrophosphas.

Lower acids of phosphorus. A test for these is unnecessary, as they would be destroyed by coming in contact with air at the temperature necessary to manufacture the pyrophosphate. Curtman (Circ. No. 101, p. 516).

Sodii Salicylas.

Ferric Chloride Reaction. The color depends on the strength of the sodium salicylate solution; a strong solution causes a red precipitate, while a dilute solution gives the well-known violet-blue color. (Circ. No. 101, p. 518.)

"Odorless"—Even after having been kept in a closed container for a longer period, it should not evolve a disagreeable, pungent odor. German Comm. (Ap. Ztg. 94, 196).

"Amorphous powder"—The German Comm. states that the crystalline scales are anhydrous, while the powder contains water. (Ap. Ztg. 94, 196.)

Solvent Power. On creosote, phenol, volatile oils, fluid extract of cascara, &c. Conrady (J. Ph. d'Anvers, 92, 120. Ph. J. & Tr. 92, Oct. 345. Proc. 93, 797).

Sodii Sulphas.

Solubility. The solubility is irregular on account of the formation, in the solution, of three different salts: 1. The anhydrous, present at above 34° C. 2. The salt with 10 H_2O, below that temperature. 3. A salt with 7 H_2O, between 0 and 26° C. Curtman (Circ. No. 101, p. 519).

Arsenic. A special test for arsenic seems to be necessary. Hirsch

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(Ph. Rdsch. N. Y. 94, 13).——One Gm. of the powdered salt, shaken with 3 Cc. of stannous chloride solution, should not turn brown within one hour. German Comm. (Ap. Ztg. 94, 196.)

Sparteinæ Sulphas.

Sparteine sulphate with $4H_2O$ contains 17.8 p. c. of water, hence the formulæ usually given (Hirsch, $8H_2O$; and Flueckiger, $3H_2O$) are wrong. Rice (Circ. No. 137, p. 864).

Identity. Warm gently with ⅓ its weight of chromic acid. The mass turns green (reduced acid), and gives off a distinct odor of coniine. (J. Ph. d'Anvers, 95, 223. Ph. J. & Tr. 95, Dec. 482.)

Spiritus Ætheris Nitrosi.

"770" Gm. of sodium nitrite are to be dissolved in "1000" Cc. of water. This does not agree with the solubility of sodium nitrite, which is given as 1:1.5 at .15° C. Either heating should be directed, or the quantity of water increased. Beringer (A. J. Ph. 94, 18).——The quantity should be increased to 1155 Cc. Hemm. (A. J. Ph. 94, 392.)——Rice states that "770" refers to potassium nitrite, which was originally directed: on changing it to sodium nitrite, it was forgotten to change the quantity, which should read: "635" Gm. (Dr. Circ. 94, 176.) In the last issue (Series D) the quantity of sodium nitrite has been altered to 635 Gm., and the specific gravity to "about 0.820."

Ford having found the relative quantities not in accordance with the theoretical quantities necessary, the reaction too violent and the numerous washings needless and wasteful, proposes the following formula, which works easily. The potassium carbonate is superfluous: Sodium nitrite, 136 Gm.; sulphuric acid, 104 Gm.; alcohol (0.816), 100 Gm.; water, 1000 Cc. (W. Dr. 94, 359. Proc. 94, 239.)

Harvey proposes to mix the sulphuric acid with alcohol instead of with water, thus forming ethylsulphuric acid, which is readily decomposed in contact with sodium nitrite. The reaction proceeds without violence, and nitric oxide is not evolved. (Proc. 94, 647.)

Acidity. Ford states that potassium bicarbonate will not effervesce even if the spirit be decidedly acid, except in the presence of water. (W. Dr. 94, 360.)——Smith recommends the addition of 5 to 10 p. c. of glycerin as greatly increasing the keeping quality of the spirit. (Ph. J. & Tr. 95, March, 809. Proc. 95, 599.)——Ph. German II. preserves it by the addition of a few crystals of potassium tartrate. (Ph. Centralh. 93, 400.)

Spiritus Ammoniæ Aromaticus.

The solution of ammonium carbonate in ammonia and water should be directed to stand for 24 hours in a closed flask, to insure

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conversion of the acid carbonate into the normal carbonate. This would in a great measure prevent the darkening of the volatile oils. Beringer (A. J. Ph. 94, 18).

Spiritus Aurantii.

Oil of "sweet" orange peel should be directed. Beringer (A. J. Ph. 94, 18).

Spiritus Aurantii Compositus.

Oil of "bitter" orange peel should be directed. Beringer (A. J. Ph. 94, 18).

Spiritus Camphoræ.

Assay. By polariscope. Holdermann (Ap. Ztg. 93, 306. A. J. Ph. 93, 382. Proc. 94, 611).——Precipitate with water, take up with ether, evaporate and weigh. Manseau (Bull. Ph. Bord. 93, 222. A. J. Ph. 93, 497. Proc. 94, 894).

Beringer thinks that 10 p. c. of water should be added. (A. J. Ph. 94, 18.)

Spiritus Glonoini.

It would be advisable to start from a 10 p. c. alcoholic solution, obtained from the manufacturers of nitroglycerin, and dilute it. The best way to assay it, would be to pour 50 Cc. into 2 liters of water, agitate, and let it stand over night. Siphon off most of the water, and pour the remainder into a graduate. The nitroglycerin should measure 2.5 Cc. Multiply this with 1.5, which gives 4 Gm. Nagelvoort (A. J. Ph. 94, 527. Proc. 95, 600).

A weighed quantity of the spirit (f. i. 10 Gm. of the 10 p. c., or 50 Gm. of the 1 p. c. alcoholic solution) is added to a measured volume of normal alcoholic potassium hydrate V. S. sufficient to remain in excess and previously heated, and saponification completed by a short continuance of the heat. The flask is then set aside, well-stoppered, in a cool place. The liquid is poured off through a pellet of cotton placed in a small funnel, and flask and funnel washed with alcohol. The excess of unsaturated potassium hydrate is then ascertained with normal acid, phenolphtalein being used as indicator. Each 1 Cc. of normal potassium hydrate solution neutralized corresponds to 0.0755267 Gm. of absolute nitroglycerin. Rice (Circ. 273.) In the original written circular and in the journals which printed it (f. i. Am. Dr. 95, xxvii, 7) "decinormal" solutions were given by inadvertence instead of "normal."

In view of the dangerous nature of nitroglycerin, it would be advisable to add the caution given by Coblentz, to pour a solution of potassa or of soda over the spots at once, in case of spilling, which

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will cause the rapid decomposition of the nitroglycerin. (Pharmacy, p. 255.)

Spiritus Phosphori.

Edel proposes to facilitate the preparation by first dissolving the phosphorus in a little chloroform. (Am. Dr. 94, July, 6.)

Spiritus Vini Gallici.

It is a question whether the specification "Gallicus" is in accordance with the actuality. One of the objections to recognizing "California" brandy is the peculiar flavor, which is apt to cause nausea. Rice (Circ. No. 174, p. 1040.)

The amount of residue on evaporation allowed by the U. S. P. (1.5 per cent.) has been criticised. Rice states that this figure was adopted designedly. (Circ. 264.) The subject needs further investigation.

Staphisagria.

A tincture is wanted. Beringer (A. J. Ph. 93, 470).

Localization of alkaloids. Clautriau (Ph. Rdsch. N. Y. 94, 264. Proc. 95, 980).

Stramonii Folia.

Alkaloid. Percentage. (A. J. Ph. 93, 479. Proc. 94, 939.)

Assay. With more or less modified Prollius' mixture. Schwickerath (Ph. Rdsch. N. Y. 93, 282, & 94, 139. Bull. Ph. 93, 535).

Stramonii Semen.

Alkaloid. Percentage. (A. J. Ph. 93, 479. Proc. 94, 939.)

Localization. Clautriau (Ph. Rdsch. N. Y. 94, 264. Proc. 95, 980).

The seeds should be superseded by the leaves and stems, because both contain more alkaloid, and the oil in the seeds renders preparations of them immiscible with other preparations; the menstruum for the seeds must also be stronger alcoholic. Dohme (A. J. Ph. 93, 482. Proc. 94, 231 & 940), and A. Ph. A. Comm. (A. J. Ph. 95, 485. Proc. 95, 240).

Assay. With more or less modified Prollius' mixture. Schwickerath (Ph. Rdsch. N. Y. 93, 282, & 94, 139. Bull. Ph. 93, 535).

Strontii Lactas.

As the salt forms no crystals, it is difficult to assign an absolutely correct amount of water. Curtman (Circ. No. 138, p. 875).

Strophanthus.

"Nearly inodorous"—is not quite correct; when crushed, a perceptibly disagreeable odor is noticed. Beringer (A. J. Ph. 94, 18).

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Identity. On moistening a cross-section, with sulphuric acid, the endosperm assumes a green color, which is often preceded momentarily by a blue color. The green color changes through blue to red, and disappears in ¼ to 1 hour. In seeds, containing no strophanthin, the color will be red. Hartwich (Arch. Ph. 92, 401. Proc. 93, 628).

"Not altered on addition of iodine T. S."—Hartwich has repeatedly found starch in strophanthus. (Ph. Rdsch. N. Y. 94, 30.)

Strychnina.

Estimation. Nagelvoort gives a modification of Gerock's nitric acid method (see "Digest" on U. S. P. 1880, p. 328), (Proc. 93, 165), and Keller (Oester. Zts. 93, 563 & 586. A. J. Ph. 94, 45. Proc. 94, 531).

Stability of the strychnine molecule. Welborn (Ph. J. & Tr. 92, 440. Proc. 93, 865).

Indicators. Value. Kebler & LaWall (A. J. Ph. 95, 503).

Color Reactions. With nitric acid, followed by ammonia and potassa. Formanek (Ph. Post, 95, 179. Ph. Rdsch. N. Y. 95, 242. Proc. 95, 980).——Compared to those of acetanilid. Schaer (Arch. Ph. 94, 253. Proc. 95, 665).

Strychnine and Brucine. Beckurts states that brucine does not interfere with the chromic acid reaction unless it be present in a larger proportion than 20 parts to 1 part of strychnine, but then the quantity of strychnine to be examined must not be less than 1 Mgm. In the absence of brucine, $\frac{1}{100}$ Mgm. is sufficient. (Arch. Ph. 92, 551. Proc. 94, 1133.)

Strychninæ Sulphas.

Water of Crystallization. Rice has verified that this salt contains not more than 5 mol. of water. The SO_4, determined gravimetrically, was found to be 11.28 p. c. (theory demands 11.22 p. c.), which indicates 5 mol. (Circ. No. 137, p. 866.)

Dott recommends the hydrochlorate as being more soluble. (Ph. J. & Tr. 92, Sept. 197. Proc. 93, 865.)

Styrax.

Formation, chemistry, &c. Moeller (Oester. Zts. 96, 31 & 113).

"Not less than 70 p. c." residue—60 p. c. would be more in accordance with the commercial grades. Evers (Ph. Ztg. 96, 245).

Sulphuris Iodidum.

Although sulphur melts at 115° C. and iodine at 114° C., the compound is formed between 56 and 60° C., and fuses below 90° C.

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The porcelain plate, upon which the melted mass is poured, should be coated with a very thin film of petrolatum. Curtman (Circ. No. 112, p. 699).

Sulphur Præcipitatum.

One part is soluble in 5 parts of carbon disulphide. Ph. German; Fittinger recommends this as a trustworthy test for purity. (Ph. Post, 94, 297. Proc. 95, 965.)

Sumbul.

Percentage of resin. Utesch (A. J. Ph. 93, 465. Proc. 94, 948).

Suppositoria.

Improved Shape (Pear-shaped). Wellcome (A. J. Ph. 93, 453. Proc. 93, 103).——New mould. Gautier (Monit. Ph. 93, 1213. Proc. 93, 451).——The "Genese." Caspari (Pharmacy, p. 396. Proc. 94, 230).

Rectal suppositories of 1 Gm. are rather small for adults; 2 Gm. would be better. Vaginal suppositories of 3 Gm. should be 6 Gm., for the same reason. Beringer (A. J. Ph. 94, 18).

In devising new bases for suppositories, glycerin and soap should be avoided, as they both act on the bowels, and some suppositories are intended to remain inserted for as long a time as possible. (Merck, Market Rep. 95, 288.)

Willen recommends an addition of 5 to 10 p. c. of paraffin. The solidification takes place sooner and better. (Ph. Ztg. 94, 815.)

Suppositoria Glycerini.

"Freshly" prepared, is quite unnecessary; when properly kept, they keep well. Beringer (A. J. Ph. 94, 19).

These suppositories can be more easily made with cacao butter, and keep well. Melt the butter at 32° to 35° C., and shake or triturate, with an equal weight of glycerin, until the mixture begins to solidify on pouring into the moulds. Thumann (J. Ph. Al.-Lorraine, 92, 121. A. J. Ph. 93, 368. Proc. 93, 450).——Gieseke recommends cocoanut oil, as congealing more rapidly. (W. Dr. 92, 300. Proc. 93, 450.)——Thompson uses cocoanut-stearin and wax. (A. J. Ph. 94, 462. Proc. 95, 602.)——Ryan finds agar-agar superior; the suppositories leave the mould quite easily, and they stand exposure much better. (A. J. Ph. 95, 599.)

England proposes to keep them separately in small wide-mouthed vials, corked and sealed. (A. J. Ph. 93, 6. Proc. 93, 450.)——Bondurant dips them quickly into melted paraffin. (Proc. 94, 662.)——Boni makes them with gelatin, and dips them into a mixture of

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wax and cacao butter. (Giornal. Farm. Trent. 93 . . . Merck, Market Rep. 93, 176.)

The heat of the water-bath is not sufficient, a low flame is preferable. Sodium bicarbonate, which contains no water of crystallization, is to be preferred. Beringer (A. J. Ph. 95, 642).

(Syrupi.)

Some concession should be made to the Southern States, to insure the keeping during the heated term; for instance, an addition of 10 p. c. of glycerin.

Preservation. Barbi recommends an addition of 1 p. c. of solution of hydrogen peroxide. (Ph. Ztg. 95, 258. Ph. Rdsch. N. Y. 95, 161.)——Cesaris proposes the addition of $\frac{1}{1000}$ part of benzoic acid. (Boll. Ch. Farm. 95, 2. Am. Dr. 95, 338. Proc. 95, 612.)

Since the sugar in acid syrups is prone to conversion into invert-sugar, it is advisable to add the acids to the cold syrups. Martenson (Ph. Rdsch. Prag. 93, 306).

Syrupus.

The necessity of using "distilled" water is not apparent. Nearly all the other syrups have to be made with ordinary water.

Syrupus Acaciæ.

The formula of U. S. P. 1870 is much to be preferred. (With acacia and sugar.) Beringer (A. J. Ph. 94, 19), and Lowe (A. J. Ph. 94, 353. Proc. 95, 654).

Syrupus Acidi Hydroiodici.

Twelve Gm. of tartaric acid are insufficient to decompose the potassium iodide and hypophosphite. 13.19 is the correct quantity. [Has been made 14 Gm.] The acid should be directed in crystals, the commercial nearly always causing liberation of iodine. It would be better to direct the acid solution to be filtered into the sugar, and sufficient water added to dissolve by shaking. Beringer (A. J. Ph. 94, 20).

Glucose, wholly or in part, to replace the syrup, is an excellent preservative. Klie (Proc. 94, 684).——Hill adds 5 p. c. of glycerin. (Proc. 95, 605.)

Syrupus Aurantii Corticis.

Identity. Mix with water, and shake out with acetic ether. Evaporate the ethereal solution to dryness; on adding a few drops of sulphuric acid, a yellow color appears, which gradually darkens. Bourquelot (J. de Ph. & Ch. 95, 361. Proc. 95, 534).

The peel should be grated, and macerated with the alcohol for 2

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to 3 days. Then express, and wash the marc with alcohol. Beringer (A. J. Ph. 94, 20).

Syrupus Calcis.

Patterson finds that the syrup contains on an average 2.69 p. c. of calcium oxide, and that the specific gravity is about 1.164. (Apoth. 94, 18. Proc. 95, 609.) He thinks it better to dissolve the sugar in the water, bringing the solution to a boil, and then to add the lime.

Syrupus Calcis Lactophosphatis.

Is not stronger orange-flower water intended? The acids are in a decided excess. Beringer (A. J. Ph. 94, 20).

Patch recommends the following proportions: 20 Gm. calcium carbonate, 25 Gm. phosphoric acid (50 p. c.), 50 Gm. lactic acid (75 p. c.), 125 Gm. orange-flower water, 950 Gm. sugar, 5 Gm. benzoic acid, 1 Gm. hydrochloric acid, and water up to 1670 Gm. (Proc. 94, 677.)

Caspari finds it better to dilute the phosphoric acid with twice its volume of water, because then the calcium phosphate will dissolve as soon as formed. (Pharmacy, p. 224.)

Syrupus Ferri Iodidi.

Preservation. Roussillon proposes to replace the syrup by glycerin. (J. de Ph. Ch. 93, 243. A. J. Ph. 93, 551. Proc. 94, 621.) ——Lyon finds that pure glucose to the extent of 10 p. c. will preserve. (Ph. J. & Tr. 94, 863. Proc. 94, 622), and so does Klie. (Proc. 93, 684.)——Worthrup adds 1 grain of citric acid to the fl. oz. (Proc. 94, 669, & 95, 606.)——Bradley adds hypophosphorous acid. (Proc. 94, 690.)

The red color, observed at times, is due to the use of sugar containing ultramarin. Martenson (Ph. Ztg. Russl. 93, 100. A. J. Ph. 93, 220. Proc. 93, 453, & 94, 621).

This syrup is a good reagent for ammonia, which changes the color to yellow or brown; addition of citric acid will restore the color. Bernick (Ph. Ztg. 92, 373. A. J. Ph. 92, 408. Proc. 93, 453).

Stick proposes the use of powdered iron. (Dr. Circ. 93, 178.) So do Levy (Am. Dr. 94, 173), and Schobert (Ph. Ztg. 93, 298). See (Proc. 94, 621).

Assay. To 8 Gm. of the syrup add 2 Cc. of a 5-p. c. solution of potassium chlorate, and heat until the mixture assumes a red color; after cooling add 5 Cc. of pure chloroform, agitate cautiously, and allow to stand. The liberated iodine will color the chloroform. Decant, add water, and estimate with normal sodium hyposulphite. Griggi (Boll. Ch. Farm. . . . A. J. Ph. 94, 103. Proc. 94, 623).

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Table comparing the strength of the syrup in different Pharmacopœias. Bourquelot (J. de Ph. & Ch. 95, 170. Proc. 95, 606).

Syrupus Ferri, Quininæ et Strychninæ Phosphatum.

Title. As the formula does not direct the phosphates of the alkaloids, the title should, by right, be: "Syrupus ferri phosphatis, quininæ et strychninæ." Rice (Circ. No. 190, p. 1090).

Preparation. McDonnel proposes: 100 grains of scale phosphate of iron, 100 grains of quinine alkaloid, 3 grains of strychnine, 1 fl. oz. of phosphoric acid (50 p. c.), and sufficient glucose to make 12 fl. oz. (Pacif. Dr. 93, 37. Proc. 94, 648.)

Harvey makes the syrup extemporaneously by using acid solutions of the different salts. (Am. Dr. 93, 89. Proc. 94, 649.)

Assay. Dilute with water, heat to expel the alcohol, add ammonium citrate, make alkaline with soda, shake with chloroform, which takes up the alkaloids; the remainder is examined for iron and phosphoric acid. Schaak (A. J. Ph. 94, 179. Proc. 94, 1036).

Syrupus Hypophosphitum.

600 Gm. of sugar would be better. Beringer (A. J. Ph. 94, 21).

Syrupus Hypophosphitum cum Ferro.

Hypophosphite of iron should have been directed instead of the lactate. Beringer (A. J. Ph. 94, 21).

Syrupus Ipecacuanhæ.

The first filtrate should measure 450 Cc. instead of 500. Rice (Am. Dr. 95, Febr. 110).

Syrupus Lactucarii.

Does not the water precipitate the most valuable portion of the tincture? A better formula would be: tincture, 100 Cc., glycerin, 100 Cc., syrup, 800 Cc.; mix. This precipitates very little. Beringer (A. J. Ph. 94, 21).

Syrupus Pruni Virginianæ.

It is a question, whether a better syrup would not be obtained by using only a small portion of the glycerin in the menstruum, and adding the remainder to the percolate. Glycerin extracts too much tannin. Beringer (A. J. Ph. 94, 21), and England (A. J. Ph. 94, 349. Proc. 95, 651).

Syrupus Rhei Aromaticus.

Caspari recommends the addition of ½ p. c. of sodium borate, to be dissolved in the tincture, before adding the syrup: the resulting syrup will then be perfectly clear. (Pharmacy, p. 227.)

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Syrupus Rubi Idæi.

The addition of a little sugar (2 p. c. of the weight of the fruit) to the juice, hastens the fermentation, preserves the color and facilitates filtration. Caspari (Pharmacy, p. 222).

Syrupus Scillæ Compositus.

Edel proposes an addition of glycerin, which will insure its keeping clear. (Merck, Market Rep. 94, 5. Proc. 94, 624.)

It would be desirable to emphasize that the filtrate should be "clear." Caspari (Pharmacy, p. 227).

Syrupus Senegæ.

Caspari lays stress on the necessity to have a perfectly clear filtrate. (Pharmacy, p. 228.)

Syrupus Sennæ.

"755 Cc. to be filtered, and to the filtrate add water to 550 Cc." This would imply that the precipitate occupied a space of 205 Cc., which can hardly be correct. It is proposed to direct to evaporate 600 to 400 Cc., then to add water, &c. Beringer (A. J. Ph. 94, 21). The change has been made.

Twenty-four hours is too long for the digestion, which is both unnecessary and hurtful. Caspari (Pharmacy, p. 228).

Syrupus Tolutanus.

Wearn triturates the balsam with half its weight of magnesium carbonate and sufficient water, filters, and adds the sugar. (Am. Dr. 94, 88. Proc. 94, 625.)

Yvon proposes to melt the balsam, mix it with well-washed sand, and dry. After cooling, powder it, percolate with warm water, add the sugar, &c. (Schweiz. Woch. 93, 232.)

Caspari heats to 60° C. before filtering; this will extract the odorous principles better. A still better plan is to allow the alcohol to remain, in which case the amount of water and sugar must be reduced correspondingly. (Pharmacy, p. 222.)

Preservation. Ausaldy adds ½ Gm. of benzoic acid to the liter. (Union Ph. 93, 425. A. J. Ph. 93, 550. Proc. 94, 625.)

Syrupus Zingiberis.

Caspari states, that the following will give a better flavored syrup: Mix 20 Cc. of alcohol with 30 Cc. of fluid extract, and incorporate 30 Gm. of calcium phosphate; gradually add 450 Cc. of water, and set the mixture aside with frequent agitation for 6 to 8 hours. Filter, and wash the filter with water to obtain 500 Cc. of filtrate, in which dissolve 800 Gm. of sugar by agitation. (Pharmacy, p. 223.)

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Tabacum.

Chemistry of Nicotine. Pinner (Arch. Ph. 93, 378. Proc. 93, 856, & 94, 1134).

Histochemistry. Toni (Proc. 94, 941).

Assay. Hent (?Went) (Arch. Ph. 93, 658. Proc. 94, 555, & 95, 548).——Vedroedi (Zts. Anal. Ch. 93, 277. Proc. 94, 555).

Taraxacum.

Constituents at various seasons: In Sept. most taraxacin; March most extractive; Aug. most inulin; Oct. most levuline. Sayre (A. J. Ph. 95, 465. Proc. 93, 77; 94, 241, & 95, 203.)

Terebenum.

Jayne states, that all really pure and inactive terebenes give no fractions having a boiling point under 165° C., and a very few under 170° C. Commercial terebenes often contain a large p. c. of oil of turpentine, and as they appear to give satisfaction, it would seem a useless refinement to obtain a perfectly inactive terebene. (A. J. Ph. 94, 225. Proc. 94, 1167.)

Power & Kleber state that the sp. gr. is 0.855 at 15° C., and the boiling point 170 to 185° C. That it "resembles oil of turpentine in its chemical properties" is not correct. Upon the basis of their investigations, Power drew up an amended text which is as follows:

Terebenum, Terebene. An optically inactive liquid, obtained by the action of concentrated sulphuric acid on oil of turpentine and subsequent rectification with steam. It consists chiefly of the hydrocarbons Dipentene and Terpinene, with some Cymol and Camphene.

Terebene should be kept in well-stoppered bottles, in a cool place, protected from light.

A colorless, thin liquid, having an agreeable thyme-like odor, and an aromatic taste.

Specific gravity: About 0.855 at 15° C. (59° F.)

Only slightly soluble in water, but soluble in three times its volume of alcohol, and in an equal volume of glacial acetic acid, or of carbon disulphide.

It boils between 170° and 185° C. (338° and 365° F.)

On exposure to light and air, Terebene gradually becomes resinified, and acquires a yellowish color and an acid reaction.

Terebene should possess its characteristic, agreeable odor, should not redden moistened blue litmus paper (absence of *acids*), and should be completely inactive towards polarized light (absence of *unaltered oil of turpentine*).

If about 10 Cc. of Terebene be evaporated in a capsule, on a water-bath, not more than a very slight residue should be left (absence of

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more than traces of *resinous matters*). Power (Circ. 285, pg. 1385. Pharm. Rdsch., N. Y. Jan. 1894).

Terebinthina Canadensis.

Chemistry of the volatile oil. Emmerich (A. J. Ph. 95, 135).

Solubility. It is miscible with 6.4 parts of absolute alcohol, 2.33 of alcohol, and 4.4 of acetone, all by volume. Morrison (Proc. 94, 309). Balsam of Oregon fir is completely soluble in alcohol.

(**Tinctures**.)

England shows that it is not possible to make fluid extracts, which on proper dilution will give tinctures corresponding in all essential particulars with those made in the regular way. He also gives tables showing discrepancy between strength and dose, as compared with fluid extracts. (A. J. Ph. 93, 438. Proc. 94, 657.)

Acetic acid has been suggested to replace part of the alcohol in some of the tinctures. A. P. A. Comm. (A. J. Ph. 95, 484), and McMahon (Proc. 94, 671).

Kring points out that maceration and expression is more economical than percolation, where recovery of alcohol is not possible. (Nat. Dr. 94, 41. Proc. 94, 627.)

Alkaloidal Tinctures. The most feasible plan for producing tinctures of constant strength, is to prepare strong tinctures by percolation, and then dilute them to the proper strength. These tinctures remain constant in strength, when properly kept. They also give a table showing the alkaloidal and extractive strength of five successive fractions; the largest proportion of alkaloid is found in the first fraction. Farr & Wright (Ph. J. & Tr. 93, Aug. 177, & 94, Aug. 123. Proc. 94, 629, & 95, 622).

Seeliger recommends to extract alkaloidal drugs by first moistening with water, rendered alkaline with ammonia, and macerating for a couple of days before proceeding with the percolation. He claims that the yield of alkaloids will be larger. If necessary, the ammonia might later be neutralized with the requisite amount of acid. (Ph. Centralh. 94, 44.)

Comparison of the strength of tinctures of the U. S. P. and those of the Ph. Br. (Bull. Ph. 94, 8. Proc. 94, 628.)

Assay. Comparison between gravimetric and volumetric methods. Farr & Wright (Ph. J. & Tr. Aug. 126. Proc. 95, 622).

Wulling proposes a series of concentrated tinctures, as a convenience. (Ph. Era, 94, 155.)

Recovery of Alcohol from the marcs, &c. Bird recommends the use of a conical head on the still, and claims that a comparatively low temperature is sufficient. Somewhat on the principle of Curtman's still. (Ph. J. & Tr. 95, Aug. 157).

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Tinctura Aconiti.

In fractioning the percolate, Farr & Wright found that the first fifth contains 80 p. c. of the whole alkaloid; and that the drug may be practically exhausted by 3 parts of menstruum to one of the drug. (Ph. J. & Tr. 93, Aug. 178. Proc. 94, 630.)

The percolation should proceed slowly, not over ten drops in a minute, as the drug is not easily exhausted. Caspari (Pharmacy, p. 247).

Assay. Gravimetric and volumetric methods compared. Farr & Wright (Ph. J. & Tr. 94, Aug. 126. Proc. 95, 623).

Identity. Mix 2 Cc. with 3 Cc. of ether, and add 1 Cc. of ammonia and 4 Cc. of water with gentle agitation. Evaporate the separated ethereal solution to dryness, heat the residue in a water-bath with a few drops of dilute phosphoric acid, when a violet color will appear. Ph. Helvetica (Rdsch. N. Y. 94, 82).

Tinctura Aloes.

The reason for directing "purified" aloe is not apparent, Socotrine aloes would have done as well. Beringer (A. J. Ph. 93, 520).

Maceration would be better than percolation. Beringer (Ibid. 94, 22).

Identity. Add a little water, and shake out with ether. The ethereal solution is poured upon ammoniated water, when the lower layer acquires a cherry-red color, while the upper, ethereal layer is decolorized. The ethereal layer is evaporated to dryness, and over the residue is passed a glass-rod, dipped into sulphuric acid, when a brownish-yellow color is developed. Bourquelot (J. de Ph. & Ch. 95, xv. 361. Proc. 95, 533).

Tinctura Aloes et Myrrhæ.

"Purified" aloes appears to be a useless refinement. Beringer (A. J. Ph. 93, 520).

Maceration is better than percolation. Whether the licorice root makes the taste less disagreeable, is an open question. Beringer (A. J. Ph. 94, 22).

Tinctura Arnicæ Florum.

Should not the powder be moistened before packing? Beringer (A. J. Ph. 94, 22), and Caspari (Pharmacy, p. 247).

Tinctura Aurantii Dulcis.

Why not grate the rind, instead of cutting it?

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Tinctura Belladonnæ Foliorum.

Nomenclature. See remarks under Extractum Belladonnæ Foliorum Alcoholicum.

The first fifth fraction of the percolate contains 60 p. c. of the total alkaloids. Farr & Wright (Ph. J. & Tr. 93, Aug. 178. Proc. 94, 630).

Assay. Comparison between the volumetric and the gravimetric methods. Farr & Wright (Ibid. 94, Aug. 126. Proc. 95, 623).

Cripps proposes a strength of 0.25 p. c. of alkaloids. (Ph. J. & Tr. 95, March, 796.)

Tinctura Benzoini.

There appears to be no sensible reason why this tincture should stand seven days, while two hours are considered sufficient for the compound tincture. MacPherson (Ph. J. & Tr. 94, March, 782).

Tinctura Benzoini Composita.

The use of "purified" aloes appears to be uncalled for. Beringer (A. J. Ph. 93, 520).

Tinctura Bryoniæ.

"Recently dried"—The root does not grow in the United States. Diluted alcohol will do as well as alcohol. Caspari (Pharmacy, p. 247).

Tinctura Calendulæ.

Is not diluted alcohol a better menstruum? Beringer (A. J. Ph. 94, 22).

Tinctura Cinchonæ.

In fractioning the percolate, Farr & Wright found that the first fifth portion contained about 45 p. c. of the total alkaloids. (Ph. J. & Tr. 93, Aug. 178. Proc. 94, 630.)

Assay. Comparison between volumetric and gravimetric methods. Farr & Wright (Ibid. 94, 126. Proc. 95, 623).

Tinctura Cinnamomi.

In the first issue the words "the remainder of the menstruum, and afterwards," after the words "gradually pour on," had been omitted.

Tinctura Colchici Seminis.

The seeds should be deprived of the oil before extraction. A. P. A. Comm. (A. J. Ph. 95, 485. Proc. 95, 240.)

Whole or ground seeds. As the active principle resides in the testa, grinding or powdering, would not appear to be necessary.

The first fifth fraction of the percolate contains about 80 p. c. of

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the total alkaloid. Farr & Wright (Ph. J. & Tr. 93, Aug. 178. Proc. 94, 630). They found that the drug may be practically exhausted with three parts of menstruum.

Assay. Comparison between volumetric and gravimetric methods. Farr & Wright (Ibid. 94, Aug. 126. Proc. 95, 623).

Identity. Add a little water, and shake out with chloroform. Evaporate the chloroformic solution to dryness, and add a drop of sulphuric acid, when a deep-yellow color appears. On passing a glass-rod, dipped into nitric acid, over it, a pinkish-violet color will be noticed, which quickly disappears. Bourquelot (J. de Ph. & Ch. 95, 361. Proc. 95, 532).——Add to the residue of evaporation sulphuric acid and a fragment of potassium nitrate. On stirring, bluish-violet stripes will be noticed, which soon disappear. On now adding alcohol and an excess of ammonia, an orange-red color appears. Ph. Helvetica (Ph. Rdsch. N. Y. 94, 83).

Tinctura Conii.

The first fifth fraction of the percolate contains 70 p. c. of the total alkaloid. Farr & Wright (Ph. J. & Tr. 93, Aug. 178. Proc. 94, 630). They state that the drug may be exhausted with 4 parts of the menstruum.

Assay. Comparison between volumetric and gravimetric methods. Farr & Wright (Ibid. 94, 126. Proc. 95, 623).

Tinctura Digitalis.

The first fifth fraction of the percolate contains 60 p. c. of the total alkaloids. (Ph. J. & Tr. 93, Aug. 178. Proc. 94, 630.)

Tincturæ Herbarum Recentium.

Title. Why not make it: Tinctura Herbæ Recentis?

The amount of product should be stated, since the amount of moisture in the fresh herbs is a variable quantity. It would be better to direct only 900 Cc. of alcohol, and to make up the filtrate to 1000 Cc. Beringer (A. J. Ph. 94, 22).

Tinctura Gelsemii.

Assay. Farr & Wright (Ch. & Dr. 92, 263. Proc. 93, 460).——Comparison between volumetric and gravimetric methods. Farr & Wright (Ph. J. & Tr. 94, 126. Proc. 95, 623).

Identity. Add a few drops of dilute HCl, and evaporate to dryness. Dissolve in water, and shake with ammoniated ether. Evaporate the ethereal solution to dryness, and add a few drops of sulphuric acid, and a fragment of potassium dichromate, when a violet-red color will be noticed, which, however, soon disappears. Ph. Helvetica (Ph. Rdsch. N. Y. 94, 83).

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Tinctura Hyoscyami.

The first fifth fraction of the percolate contains 60 p. c. of the total alkaloids. Farr & Wright (Ph. J. & Tr. 93, Aug. 178. Proc. 94, 630).

Assay. Comparison between volumetric and gravimetric methods. Farr & Wright (Ibid. 94, Aug. 126. Proc. 95, 623).

Tinctura Iodi.

Trituration of the iodine is for many reasons inconvenient, and perfectly superfluous, except where the tincture has to be made in a hurry. Circulatory displacement is better. Put the iodine in a small bag, and fasten it so that it is a little under the surface of the alcohol.

Popiel finds that the tincture decomposes more rapidly in the dark, than when exposed to light; which is contrary to the general opinion. (Ph. Centralh. 95, 404. Proc. 95, 625) and Sapin (Rép. de Ph. 95, 197. Proc. 95, 625).

Estimation of Free Iodine and of Hydriodic Acid. Titrate a weighed amount with solution of sodium arsenite, using starch solution as indicator. This gives the free iodine. To another weighed portion add excess of sodium arsenite, which reduces the iodine to sodium iodide. Precipitate with an excess of silver nitrate, and filter. Acidulate strongly with nitric acid, which dissolves the silver arsenite and arsenate, but not the silver iodide, which is collected and weighed. The total amount of iodine, less the free iodine, gives the hydriodic acid. Nickerson (Bull. Ph. 93, 447. Proc. 94, 631, 679).

Tinctura Lobeliæ.

The first fifth fraction of the percolate contains 60 p. c. of the total alkaloid. Farr & Wright (Ph. J. & Tr. 93, Aug. 178. Proc. 94, 630).

Assay. Comparison between volumetric and gravimetric methods. Farr & Wright (Ibid. 94, Aug. 124. Proc. 95, 623).

Tinctura Moschi.

It is a question, whether the menstruum exhausts the 5 p. c. of musk. Two p. c. would seem to be sufficient. Beringer (A. J. Ph. 94, 23).

Hauer recommends to treat the musk, triturated with an equal part of rock candy or sand, with 10 parts of boiling water, containing 3 p. c. of sodium carbonate. The next day add 35 parts of alcohol, and macerate for a fortnight. Nearly all the musk will be dissolved. (Ph. Ztg. 95, 130.)

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Caspari proposes to macerate the musk with the water for twelve hours, before adding the alcohol. (Pharmacy, p. 248.)

Tinctura Nucis Vomicæ.

The first fifth fraction contains 80 p. c. of the total alkaloids. Farr & Wright (Ph. J. & Tr. 93, Aug. 178. Proc. 94, 630.) They state that 3 parts of menstruum will practically exhaust the drug.

Assay. Comparison between volumetric and gravimetric methods. Farr & Wright (Ibid. 94, Aug. 126. Proc. 95, 623).

Identity. Add dilute sulphuric acid, and evaporate on a water-bath to dryness, when reddish-violet rings will be noticed on the sides of the capsule. Bourquelot (J. de Ph. & Ch. 95, 361. Proc. 95, 532).

Tinctura Opii.

Powdered Opium. Contrary to its custom, the Pharmacopœia has not indicated the fineness of the powder for the preparations of opium.

The commercial powder (usually No. 80) is liable to give a pasty mass with the menstruum, making percolation rather difficult, notwithstanding the admixture of calcium phosphate. Granulated opium has therefore been recommended by Caspari (Pharmacy, p. 249) and others, especially Kebler & La Wall, who state that the official process is not only tedious, but occasions loss of morphine. With the use of granulated opium, the loss is comparatively insignificant. The official process takes from 60 hours to 6 days, and the loss of morphine is from 1.4 to 2.42 p. c. With granulated opium it takes from 10 to 36 hours, and the loss is from 0.3 to 0.6 p. c. (A. J. Ph. 95, 554.)

Andres points out to those who prefer digestion to percolation, that maceration is preferable, heat being injurious to opium. (Ph. Ztg. Russl. 92, 807. Proc. 93, 465.)

Farr & Wright find that the proportion of morphine increases as the alcoholic strength of the menstruum decreases; the opposite being the case with the alkaloids other than morphine. They conclude that the best process is to break down the moist opium with cold water, then to add the alcohol, and to macerate for several days. (Ch. & Dr. 93, 312. Proc. 93, 465.)

Assay. Kebler proposes a modification of Squibb's method. (A. J. Ph. 93, 209. Proc. 93, 410.)——Moerck proposes a modification of the U. S. P. method. (A. J. Ph. 92, 354. Proc. 93, 410.)——Widlund follows the official method, but treats the morphine with benzin to remove alkaloids other than morphine. (Proc. 94, 653.)——Coblentz cautions against raising the temperature to the boiling point, in evaporating the tincture. (Pharmacy, p. 264.)——Farr &

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Wright compare the volumetric method with the gravimetric one. (Ph. J. & Tr. 94, Aug. 126. Proc. 95, 623.)——Ph. Helvetica dilutes with water, and evaporates off the alcohol, rotates with dilute ammonia, and filters at once. Then the assay is to proceed according to Dieterich's acetic ether method. (Ph. Rdsch. N. Y. 94, 67.)

Tinctura Opii Deodorati.

Caspari prefers maceration with frequent agitation, as under "Opium deodoratum." As to Federer's process, by freezing (see "Digest" on U. S. P. 1880, p. 178), he states that he noticed a loss of morphine, which loss occurred in a dark deposit, separated during the freezing operation. (Pharmacy, p. 249 & 250.)

Tinctura Physostigmatis.

Should be preserved in small, well-stoppered vials, and kept in a dark place, the alkaloids being sensitive to light. Caspari (Pharmacy, p. 250).

Tinctura Rhei.

A tincture with strong alcohol contains chrysophan and tannin, but little or no cathartic acid. Weaker alcohol extracts from the marc cathartic acid, and but little of the tannin. Proof spirit should give a tincture, containing all that is active in rhubarb, both purgative and astringent. (Ch. & Dr. 94, Aug. 255. Proc. 95, 876.)

The amount of glycerin appears to be excessive. Beringer (A. J. Ph. 94, 24).

Tinctura Rhei Aromatica.

Glycerin. See under Tinctura Rhei.

Tinctura Rhei Dulcis.

Glycerin. See under Tinctura Rhei.

(Tinctura Stramonii Folii.)

Recommended for introduction, because the leaves and stems are richer in alkaloids than the seeds, and because the oil, taken up, would interfere in mixtures with other preparations. A. P. A. Comm. (A. J. Ph. 95, 484. Proc. 95, 240.)

Assay. Comparison between volumetric and gravimetric methods. Farr & Wright (Ph. J. & Tr. 94, Aug. 126. Proc. 95, 623).

Tinctura Strophanthi.

The oil should be removed from the seeds before extracting. Beringer (A. J. Ph. 94, 24), and Martindale (A. J. Ph. 95, 329. Proc. 95, 626).

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Assay. Comparison between volumetric and gravimetric methods. Farr & Wright (Ph. J. & Tr. 94, Aug. 124. Proc. 95, 623).

Identity. Mix 6 drops with one drop of ferric chloride solution and 6 drops of sulphuric acid. A brown precipitate is formed, which turns distinctly green after one hour, and retains its color for three hours. Hartwich (Arch. Ph. 92, 401. Proc. 93, 628).

The Committee has received a communication from a prominent firm, stating that this tincture when prepared with the menstruum directed by the U. S. P. (65 vol. of alcohol and 35 vol. of water), does not keep well, but deposits a sediment; but that, if prepared with alcohol, after treatment of the seeds with ether, a satisfactory product is obtained.

Tinctura Sumbul.

Ten p. c. is too weak, it should be 25 p. c. Beringer (A. J. Ph. 94, 24).

Tinctura Tolutana.

Title. Inasmuch as "tolutana" implies that the tincture is merely impregnated with tolu, "Tinctura Tolu" would appear more appropriate, as the tincture is a complete solution of the balsam.

Tinctura Vanillæ.

The dilute (65:35) alcohol leaves the vanilla rather tough; it would be better to macerate the beans in alcohol, which makes them quite brittle.

Barnes beats the vanilla with only 50 Gm. of the sugar, and packs it in the percolator in alternate layers with the remainder of the sugar. He claims a brighter product and greater ease of manipulation. (Ph. Era, 95, xiv. 238.)

Tinctura Veratri Viridis.

The first fifth fraction of the percolate contains 70 p. c. of the total alkaloids. The drug may be practically exhausted by 4 parts of 70 p. c. alcohol, which is the best menstruum. Farr & Wright (Ph. J. & Tr. 93, Aug. 178. Proc. 94, 630).

Assay. Comparison between volumetric and gravimetric methods. (Ph. J. & Tr. 94, Aug. 126. Proc. 95, 623.)

Trituratio Elaterii.

Might have been omitted, the directions under "Triturationes" being amply sufficient. Beringer (A. J. Ph. 94, 92).

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(Trochisci.)

Formulas for the following might have been given:

Benzoic acid; Cocaine; Guaiac; Guaiac compound; and Kino. Beringer (A. J. Ph. 94, 93).

Improved apparatus. Procter (A. J. Ph. 94, 138. Proc. 94, 500).

Trochisci Cretæ, and Trochisci Ipecacuanhæ.

Might have been omitted. Beringer (A. J. Ph. 94, 93).

Trochisci Cubebæ.

Are rather small. Beringer (Ibid.).

Trochisci Menthæ Piperitæ, and Trochisci Zingiberis.

Should be relegated to the confectioner. Beringer (Ibid.).

Ulmus.

Contains sufficient starch to respond to the iodine test, especially when to 2 Cc. of the iodine T. S. is added 8 Cc. of 10 p. c. sulphuric acid. Lloyd (A. J. Ph. 95, 460. Proc. 95, 194).

(Unguenta.)

Glycerinated extracts for ointments, see under "Extracta solida."

Degree of Subdivision of Insoluble Powders. Dieterich gives a table, showing the comparative degree of subdivision (fineness) as produced by machines and by hand. His table shows a great want of uniformity, and he proposes that a microscopical test for the official ointments should be prescribed. (Diameters in Micro Mm.) (Ph. Centralh. 93. . . . Proc. 94, 633.)

Boa objects to the usual direction to "stir until cold," contending that the air, which is unavoidably stirred in, promotes rancidity, &c. (Ph. J. & Tr. 94, April, 861. Proc. 94, 634.)

Biel recommends a mixture of 1 part of lanolin and 3 parts of petrolatum as a superior ointment-body. Bull. Ph. 96, 7.)

Unguentum.

Bezoinated lard would be an improvement. Beringer (A. J. Ph. 94, 93).

Unguentum Acidi Carbolici.

Separation takes place only when the acid is mixed by trituration with the ointment, but not if the acid is dissolved in the melted ointment. (Ph. Ztg. 94, 432. Proc. 94, 640.)

Unguentum Acidi Tannici.

Should be "freshly prepared." Beringer (A. J. Ph. 94, 93).

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Unguentum Aquæ Rosæ.

It would be advisable to warm the rosewater before pouring it into the melted fat. Beringer (A. J. Ph. 94, 94).

While the addition of borax insures permanency, it is a question whether it is advisable. Cold cream is often prescribed with red oxide of mercury, and borax discolors it.

Unguentum Belladonnæ.

England prefers glycerin to dilute alcohol. (A. J. Ph. 94, 350.)

Cripps proposes a strength of 0.3 p. c. alkaloids. (Ph. J. & Tr. 95, March, 697.)

Unguentum Chrysarobini.

James obviates the inconvenience arising from soiling the clothes, by substituting a liniment made by dissolving chrysarobin in chloroform and adding linseed oil. This can be applied with a brush. (Ph. Centralh. 94, 627. Proc. 95, 627.)

Unguentum Diachylon.

Caspari recommends to either use freshly made lead plaster, or to remove the dark, outer skin of the plaster. (Pharmacy, p. 373.)

Unguentum Hydrargyri.

Lanolin has again been recommended, this time by Barnhard. (A. J. Ph. 93, 78. Proc. 93, 467), and Buch (Ph. Ztg. 94, 40. A. J. Ph. 94, 145. Proc. 94, 639).

Bagle recommends the old process with old ointment and ether. (Nat. Dr. 94, 139. Proc. 94, 639.)

Borntraeger recommends to triturate the mercury with oleate of mercury, whereby an ointment of any strength can be made. (Ph. Post. 92, 1245. A. J. Ph. 93, 12. Proc. 94, 468.)

A communication has been received from the Academy of Pharmacy of Cincinnati, in which it is stated that the method of the U. S. P. does not accomplish the extinction of the mercury to the degree required, and it is recommended to relax the requirement so that the mercury should be invisible to the naked eye.

Estimation of Mercury. Melt the ointment at a gentle heat, and treat repeatedly with benzin so as to remove the fat. Sieker (Ph. Rdsch. N. Y. 95, 137. Proc. 95, 630).

Unguentum Hydrargyri Ammoniati.

Should be "freshly prepared." Beringer (A. J. Ph. 94, 93).

England recommends to keep the ammoniated mercury rubbed up with glycerin, and to make the ointment as wanted. (A. J. Ph. 94, 349. Proc. 95, 651.)

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Unguentum Hydrargyri Nitratis.

LaWall improves the official directions by adding the nitric acid *without* stirring, and, after the addition of the solution of mercuric nitrate, raising the temperature gradually to 60° C., and maintaining it until no further evolution of gas is noticed. Then stir until cold. (A. J. Ph. 94, 526. Proc. 95, 630.)

Unguentum Hydrargyri Flavi and Unguentum Hydrargyri Rubri.

Should both be freshly made. Beringer (A. J. Ph. 94, 94).

Unguentum Iodi.

McDonnel melts the lard, and drops into it the iodine, stirring with a glass-rod until it is dissolved. (Proc. 94, 647.)

Unguentum Picis Liquidæ.

It is a question, whether dermatologists will be satisfied with the substitution of wax and lard for suet. Beringer (A. J. Ph. 94, 94).

If the tar be added to the hot liquid fats, a granular ointment will result; it should, therefore, not be added to the mixture of lard and wax until the latter has been cooled down to the condition of a soft ointment. Caspari (Pharmacy, p. 373).

Unguentum Potassii Iodidi.

Should be "freshly" made. Beringer (A. J. Ph. 94, 94).

Grittiness is prevented by making it with a glycerin solution of the salt. The ointment will also keep better. (A. J. Ph. 93, 14. Proc. 93, 469.)

Unguentum Stramonii.

Should be made from the extract of the leaves and stems, as being more active than the seeds. The ointment will then also be green, which is preferred. Caspari (Pharmacy, p. 277).

Unguentum Veratrinæ.

In view of the fact that benzoinated lard is quite soft, olive oil might be dispensed with. Beringer (A. J. Ph. 94, 94).

Glycerin is much better than olive oil. England (A. J. Ph. 94, 350).

Unguentum Zinci Oxidi.

A No. 20 sieve is certainly too coarse. No. 40 would be better. Beringer (A. J. Ph. 94, 94).

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Vanilla.

Collection. Hires (A. J. Ph. 93, 571).

Crystals. Distinction between benzoic acid (needle-shaped) and vanillin (tabular). Schimmel & Co. (Proc. 93, 679).

Botany. Beringer (A. J. Ph. 95, 611).

Veratrina.

The names of the authors should be Chamisso & Schlechtendahl, since Asagræa is described in the same vol. of "Linnæa" as Smilax medica, and by the same authors (see under Sarsaparilla in the U. S. P.). Suttie (Bull. Ph. 93, 496).

Identity. Mix 3 to 4 drops of a 1 p. c. solution of furfurol with 1 Cc. of sulphuric acid. Place 3 to 5 drops on a porcelain capsule, and apply the suspected substance to the edge of the solution. A dark-blue color will be observed, changing to green and violet. Laves (Ph. Ztg 92, 338. Proc. 93, 867, & 94, 1094), and Wender (Ch. Ztg. 93, 950. Proc. 94, 1135).

Veratrum Viride.

Microscopical structure. Bastin (A. J. Ph. 95, 196. Proc. 95, 868).

Viburnum Opulus and Viburnum Prunifolium.

Microscopical structure. Sayre (A. J. Ph. 95, 387, & 96, 225).

(Vina.)

Nomenclature. Vitis vinifera should have "Linné" attached. Suttie (Bull. Ph. 93, 496).

Adulterations. Marouby proposes to use test-papers, prepared by soaking filtering paper in the necessary reagents and drying; the wines to be tested by applying them by drops. The appearances of the center and other zones indicate the adulterations. (Bull. Soc. Chim. 93, 13. Proc. 94, 640.)

Salicylic Acid. Claassen strongly recommends to acidulate the wine with dilute sulphuric acid, and to shake it with a mixture of equal volumes of ether and benzin. The ethereal layer is then to be separated, and distilled off or evaporated. The addition of a few drops of dilute ferric chloride solution will produce a violet color. (Ph. Rdsch. N. Y. 95, 38. Proc. 95, 634.)

Strength. Sayre prefers the distillation method. Shake 50 Gm. with 100 Gm. of water, and distil 95 Gm. Add sufficient distilled water to make the weight 100 Gm. and take the sp. gr. Since the distillate contains the alcohol in double the weight of liquid, the sp. gr. has to be doubled. (W. Dr. 94, 86.)

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Vinum Colchici Seminis.

The seeds should be deprived of the oil before extraction. A. P. A. Comm. (A. J. Ph. 95, 485).

It is a question whether it is necessary to grind, or powder, the seeds, in view of the fact that the active principle resides in the tests. See under Tinctura Colchici Seminis.

Vinum Ipecacuanhæ.

The direction should read to "wash the filter with sufficient wine to make 1000 Cc." Beringer (A. J. Ph. 94, 95).

Paul & Cownley propose a solution of ½ grain of emetine hydrochlorate in 4 fl. oz. of white wine. (Ph. J. & Tr. 95, Febr. 692. A. J. Ph. 95, 261.)

Zinci Acetas.

Solubility. Since protracted boiling of the aqueous solution renders the salt less soluble by the formation of basic acetate, it is advisable not to use the granular salt, as at the temperature of the steam pans acetic acid is lost, and basic salt formed. Curtman (Circ. No. 112, p. 704).

Zinci Carbonas.

Formula. The formula has been omitted, because there are quite a number of basic salts containing zinc carbonate and zinc hydrate in various proportions, and it is very difficult to obtain any of them in a state of purity. A very small difference in concentration or temperature will produce different preparations, and these again change readily with change in temperature, dryness of air, &c. If a formula should be given, it would be necessary to give a definite process, including all cautions to insure a uniform product. In addition to the above-mentioned salts, there exist a variety of double salts with sodium, which may form in the precipitate. Protracted washing with cold water will remove most of the sodium carbonate, even from the worst samples. Boiling water extracts it more promptly, but is apt to change the zinc carbonate into the hydrate. Curtman (Circ. No. 112, p. 707).

The basic character should be indicated in the name. A. P. A. Comm. (A. J. Ph. 95, 485).

Zinci Chloridum.

Sulphate. It was deemed best to incorporate a test for sulphate, because in some processes of manufacture zinc sulphate is decomposed by sodium chloride, and the sodium sulphate removed by freezing. Curtman (Circ. No. 112, p. 709).

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Zinci Oxidum.

Calcium and Magnesium. To a solution of 1 part of zinc oxide in 6 parts of dilute acetic acid add 30 parts of water and 18 parts of ammonia. This clear liquid must not be rendered turbid, neither by ammonium oxalate nor by sodium phosphate. Salzer (Ph. Ztg. 94, 553. Ph. Rdsch. N. Y. 94, 244. Proc. 95, 967).

Arsenic. On mixing 1 Gm. of the oxide with 3 Cc. of solution of stannous chloride, no brown coloration should appear within one hour. German Comm. (Ap. Ztg. 94, 621).

Sulphur. Schneegans reports a contamination with sulphide, and suggests to test for it by the action of the gas, evolved by solution in acid, on lead acetate paper. (Ph. Centralh. 95 . . . Ph. J. & Tr. 96, Jan'y, 50.)

In the fourth paragraph, "salt" has been changed to "oxide."

Zinci Sulphas.

Pure anhydrous sulphate cannot be obtained by rapid heating; there is always sulphuric acid lost, and basic sulphate formed. Curtman (Circ. No. 112, p. 714).

Nitric Acid. Mix 2 Cc. of a 10-p. c. solution with an equal volume of sulphuric acid, and after cooling supersaturate with 1 Cc. of ferrous sulphate solution: no colored zone should be observed. German Comm. (Ap. Ztg. 94, 621).

Zincum.

Pure. Oxidize with potassium nitrate, and fuse with zinc chloride; it will then be entirely free from As, Sb, S, and P. Lescoeur. (Union Ph. 93, 34. A. J. Ph. 93, 175. Proc. 93, 801.)

Zingiber.

Ash. Should not be more than 8 p. c., of which only 3 p. c. should be insoluble in HCl. (Ph. Centralh. 93, 238.)

Exhausted ginger. Dyer & Gilbard propose to test by the difference in the yield of alcoholic extract, ash, and water-soluble constituents of the ash. (Analyst. 93, 197. Proc. 94, 936.)

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